

## **4.0 ENVIRONMENTAL CONSEQUENCES**

### **4.1 Introduction**

This section presents management measures and alternatives considered by the Council and the environmental consequences of management. The final supplemental environmental impact statement (FSEIS), environmental assessment (EA), regulatory impact review (RIR), and social impact assessment (SIA)/fishery impact statement/FIS are incorporated into the discussion under each of the proposed action items.

Each action is followed by four sub-headings: Biological Impacts, Economic Impacts, Social Impacts, and Conclusions. These are self explanatory presenting the impacts of each measure considered. The Council's preferred action is listed below the Action number and options considered by the Council are indicated under the heading "Other Possible Options".

### **Habitat Responsibilities as Defined in the Magnuson-Stevens Fishery Conservation and Management Act**

The Magnuson-Stevens Fishery Conservation and Management Act, Public Law 104-208 reflects the new Secretary of Commerce and Fishery Management Council authority and responsibilities for the protection of essential fishery habitat. Section 305 (b) Fish Habitat, indicates the Secretary (through NMFS) shall, within 6 months of the date of enactment of the Sustainable Fisheries Act, establish by regulation guidelines to assist the Councils in the description and identification of essential fish habitat in fishery management plans (including adverse impacts on such habitat) and in the consideration of actions to ensure the conservation and enhancement of such habitat. In addition, the Secretary (through NMFS) shall: set forth a schedule for the amendment of fishery management plans to include the identification of essential fish habitat and for the review and updating of such identifications based on new scientific evidence or other relevant information; in consultation with participants in the fishery, shall provide each Council with recommendations and information regarding each fishery under that Council's authority to assist it in the identification of essential fish habitat, the adverse impacts on that habitat, and the actions that should be considered to ensure the conservation and enhancement of that habitat; review programs administered by the Department of Commerce and ensure that any relevant programs further the conservation and enhancement of essential fish habitat; and the Secretary shall coordinate with and provide information to other Federal agencies to further the conservation and enhancement of essential fish habitat.

The Act specifies that each Federal agency shall consult with the Secretary with respect to any action authorized, funded, or undertaken, or proposed to be authorized, funded, or undertaken, by such agency that may adversely affect any essential fish habitat identified under this Act. Additional provisions specify that each Council: may comment on and make recommendations to the Secretary and any Federal or State agency concerning any activity authorized, funded, or undertaken, or proposed to be authorized, funded, or undertaken, by any Federal or State agency that, in the view of the Council, may affect the habitat, including essential fish habitat, of a fishery resource under its authority; and shall comment on and make recommendations to the Secretary and any Federal or State agency concerning any such activity that, in the view of the Council, is likely to substantially affect the habitat, including essential fish habitat, of an anadromous fishery resource under its authority. If the Secretary receives information from a Council or Federal or State agency or determines from other sources that an action authorized, funded, or undertaken, or proposed to be authorized, funded, or undertaken, by any State or Federal agency would adversely affect any essential fish habitat identified under this Act, the Secretary shall recommend to such agency measures that can be taken by such agency to

conserve such habitat. Within 30 days after receiving a recommendation, a Federal agency shall provide a detailed response in writing to any Council commenting and the Secretary regarding the matter. The response shall include a description of measures proposed by the agency for avoiding, mitigating, or offsetting the impact of the activity on such habitat. In the case of a response that is inconsistent with the recommendations of the Secretary, the Federal agency shall explain its reasons for not following the recommendations.

The Council's current process for reviewing and commenting on projects is described in the Habitat Plan in Appendix N. The proposed process to meet the new requirements is described in Section 4.2.9 and Appendix A of this document.

On December 19, 1997, an interim final rule was published in the Federal Register to implement the essential fish habitat (EFH) provisions of the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act). This rule establishes guidelines to assist the Regional Fishery Management Councils (Councils) and the Secretary of Commerce (Secretary) in the description and identification of EFH in fishery management plans (FMPs), including identification of adverse impacts from both fishing and non-fishing activities on EFH, and identification of actions required to conserve and enhance EFH. The regulations also detail procedures the Secretary (acting through NMFS), other Federal agencies, state agencies, and the Councils will use to coordinate, consult, or provide recommendations on Federal and state activities that may adversely affect EFH. The intended effect of the rule is to promote the protection, conservation, and enhancement of EFH.

Essential fish habitat is defined in the Act as "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity." The definition for EFH may include habitat for an individual species or an assemblage of species, whichever is appropriate within each FMP.

For the purpose of interpreting the definition of essential fish habitat: "waters" includes aquatic areas and their associated physical, chemical, and biological properties that are utilized by fish. When appropriate this may include areas used historically. Water quality, including but not limited to nutrient levels, oxygen concentration and turbidity levels is also considered to be a component of this definition. Examples of "waters" that may be considered EFH, include open waters, wetlands, estuarine habitats, riverine habitats, and wetlands hydrologically connected to productive water bodies.

"Necessary", relative to the definition of essential fish habitat, means the habitat required to support a sustainable fishery and a healthy ecosystem. While "spawning, breeding, feeding, or growth to maturity" covers a species full life cycle.

In the context of this definition the term "substrate" includes sediment, hard bottom, structures underlying the waters, and associated biological communities. These communities could encompass mangroves, tidal marshes, mussel beds, cobble with attached fauna, mud and clay burrows, coral reefs and submerged aquatic vegetation. Migratory routes such as rivers and passes serving as passageways to and from anadromous fish spawning grounds should also be considered EFH. Included in the interpretation of "substrate" are artificial reefs and shipwrecks (if providing EFH), and partially or entirely submerged structures such as jetties.

The Habitat Plan presents the habitat requirements (by life stage where information exists) for species managed by the Council. Available information on environmental and habitat variables that control or limit distribution, abundance, reproduction, growth, survival, and productivity of the managed species is included.

The Council, in working with our Habitat and Coral Advisory Panels and through a series of workshops identified available environmental and fisheries data sources relevant to the

managed species that would be useful in describing and identifying EFH. In addition, the EFH workshop process tapped in on habitat experts, at the State, Federal, and regional level, to participate in the description and identification of EFH in the South Atlantic region.

In assessing the relative value of habitats the Council is taking a risk-averse approach. This approach will ensure that adequate areas are protected as EFH of managed species. The Council used the best scientific information available to describe and identify EFH in the South Atlantic. Habitat loss and degradation may be contributing to species being identified as overfished, therefore all habitats used by these species are considered essential.

Based on the ecological relationships of species and relationships between species and their habitat the Council is taking an ecosystem approach in determining EFH of managed species and species assemblages. This approach is consistent with NMFS guidelines. Through the existing habitat policy, the Council directs the protection of essential fish habitat types and the enhancement and restoration of their quality and quantity.

The general distribution and geographic limits of EFH is described and where information exists presented by life history stage in maps that are part of a developing Council ArcView geographic information system (GIS). Maps developed to date by Council staff, Florida Marine Research Institute, NMFS Southeast Fisheries Science Center, NOAA SEA Division, North Carolina DNR encompass appropriate temporal and spatial variability in presenting the distribution of EFH. Where information exists, seasonal changes are represented in the maps. EFH is identified on maps along with areas used by different life history stages of the species. The maps present the various habitat types described as EFH.

The Habitat Plan and Comprehensive Habitat Amendment present information on adverse effects from fishing and describes management measures the Council has implemented to minimize adverse effects on EFH from fishing. The conservation and enhancement measures implemented by the Council to date may include ones that eliminate or minimize physical, chemical, or biological alterations of the substrate, and loss of, or injury to, benthic organisms, prey species and their habitat, and other components of the ecosystem. The Council has implemented restrictions on fisheries to the extent that no significant activities were identified in the review of gear impact conducted for the NMFS by Auster and Langton (1998) that presented available information on adverse effects of all fishing equipment types used in waters described as EFH. The Council has already prevented, mitigated, or minimized most adverse effects from most fisheries prosecuted in the south Atlantic EEZ.

The Council is considering evidence that a some fishing practices are having an identifiable adverse effect on habitat, and are addressing these in the comprehensive habitat amendment. The Council, as indicated in the previous section, has already used many of the options recommended in the guidelines for managing adverse effects from fishing including: fishing equipment restrictions; seasonal and aerial restrictions on the use of specified equipment; equipment modifications to allow the escape of particular species or particular life stages (e.g., juveniles); prohibitions on the use of explosives and chemicals; prohibitions on anchoring or setting equipment in sensitive areas; prohibitions on fishing activities that cause significant physical damage in EFH; time/area closures including closing areas to all fishing or specific equipment types during spawning, migration, foraging, and nursery activities; designating zones for use as marine protected areas to limit adverse effects of fishing practices on certain vulnerable or rare areas/species/life history stages, such as those areas designated as habitat areas of particular concern; and harvest limits.

#### 4.0 Environmental Consequences

The Habitat Plan identifies non-fishing related activities that have the potential to adversely affect EFH quantity or quality. Examples of these activities are dredging, fill, excavation, mining, impoundment, discharge, water diversions, thermal additions, actions that contribute to non-point source pollution and sedimentation, introduction of potentially hazardous materials, introduction of exotic species, and the conversion of aquatic habitat that may eliminate, diminish, or disrupt the functions of EFH. Included in this document is an analysis of how fishing and non-fishing activities influence habitat function on an ecosystem or watershed scale. This information presents available information describing the ecosystem or watershed and the dependence of managed species on the ecosystem or watershed. An assessment of the cumulative and synergistic effects of multiple threats, including the effects of natural stresses (such as storm damage or climate-based environmental shifts), and an assessment of the ecological risks resulting from the impact of those threats on the managed species' habitat is included.

General conservation and enhancement recommendations are included in Section 6 of this Comprehensive Habitat Amendment document. These include but are not limited to recommending the enhancement of rivers, streams, and coastal areas, protection of water quality and quantity, recommendations to local and state organizations to minimize destruction/degradation of wetlands, restore and maintain the ecological health of watersheds, and replace lost or degraded EFH.

This Comprehensive Habitat Amendment, pursuant to the guidelines, also presents areas which meet the criteria for designation of essential fish habitat-habitat areas of particular concern (EFH-HAPCs) by individual habitat type or managed species or species complex. The following criteria are considered when determining whether a type, or area of EFH is an essential fish habitat-habitat area of particular concern: (1) the importance of the ecological function provided by the habitat; (2) the extent to which the habitat is sensitive to human-induced environmental degradation; and (3) whether, and to what extent, development activities are, or will be, stressing the habitat type. The identification of EFH-HAPCs will continue through the public hearing process and the Council will consider additional areas if identified through this process. A coral HAPC process under the coral plan already exists and differs somewhat from the process recommended in the EFH guidelines.

The Council will periodically review and update EFH information and revise this Habitat Plan document as new information becomes available. NMFS should provide some of this information as part of the annual Stock Assessment and Fishery Evaluation (SAFE) report. A complete review of EFH information will also be conducted as recommended in the guidelines in no longer than 5 years.

The Council is proposing establishment of a framework procedure whereby additional EFH and EFH-HAPCs designations would be accomplished. This is described in Section 4.2.8 of this document (see page 66).

The Council's process for reviewing and commenting on projects affecting EFH is described in Section 4.2.9 and Appendix A.

## 4.2 Management Options

### 4.2.1 Amendment 3 to the Fishery Management Plan for the Shrimp Fishery of the South Atlantic Region

#### 4.2.1.1 ACTION 1. Identify Essential Fish Habitat for Penaeid and Rock Shrimp.

For penaeid shrimp, Essential Fish Habitat includes inshore estuarine nursery areas, offshore marine habitats used for spawning and growth to maturity, and all interconnecting water bodies as described in the Habitat Plan. Inshore nursery areas include tidal freshwater (palustrine), estuarine, and marine emergent wetlands (e.g., intertidal marshes); tidal palustrine forested areas; mangroves; tidal freshwater, estuarine, and marine submerged aquatic vegetation (e.g., seagrass); and subtidal and intertidal non-vegetated flats. This applies from North Carolina through the Florida Keys.

For rock shrimp, essential fish habitat consists of offshore terrigenous and biogenic sand bottom habitats from 18 to 182 meters in depth with highest concentrations occurring between 34 and 55 meters. This applies for all areas from North Carolina through the Florida Keys. Essential fish habitat includes the shelf current systems near Cape Canaveral, Florida which provide major transport mechanisms affecting planktonic larval rock shrimp. These currents keep larvae on the Florida Shelf and may transport them inshore in spring. In addition the Gulf Stream is an essential fish habitat because it provides a mechanism to disperse rock shrimp larvae.

Essential fish habitat for royal red shrimp include the upper regions of the continental slope from 180 meters (590 feet) to about 730 meters (2,395 feet), with concentrations found at depths of between 250 meters (820 feet) and 475 meters (1,558 feet) over blue/black mud, sand, muddy sand, or white calcareous mud. In addition the Gulf Stream is an essential fish habitat because it provides a mechanism to disperse royal red shrimp larvae.

Refer to Section 3.0 in the Habitat Plan for a more detailed description of habitat utilized by the managed species. Also, it should be noted that the Gulf Stream occurs within the EEZ.

#### Biological Impacts

The identification of essential habitat for penaeid and rock shrimp will enable the Council to protect essential fish habitat effectively and take timely actions when necessary. This could prevent further decreases in biological productivity and may lead to possible increases.

#### Economic Impacts

The identification of essential fish habitat for penaeid and rock shrimp will enable the Council to protect essential fish habitat effectively and take timely actions when necessary. It should be noted that this action by itself would not impact fishermen, but other actions resulting from this one could impact fishermen. This action, together with other actions that protect habitat should result in increased net economic benefit to society in the long-term.

#### Social Impacts

There will be few social impacts from identifying essential fish habitat itself. The social impacts will most likely come from future actions that are associated with such a designation. The assumption is that such designation will provide protection of penaeid and rock shrimp and eventually improve stocks through protection of shrimp habitat. In that case, the social impacts will be positive in the long run. However, in some cases, protection of habitat may mean harvesting restrictions in areas where harvesting presently takes place or other actions which

#### 4.0 Environmental Consequences

may impose similar constraints on shrimp fishermen. This could conceivably impose negative short term impacts that may be mitigated in the long term if productivity is increased. Outside the fishery management arena there is another area where social impacts will occur and that is the permitting process. Designation of essential fish habitat will likely alter the process by which permits for activities which impact essential fish habitat are issued. The potential for increased restrictions, mitigation and permitting requirements may have impacts upon the behavior of individuals and agencies seeking permits. The nature and extent of those impacts is unknown and will undoubtedly vary depending upon the individual and/or agency.

#### Conclusions

The identification of essential habitat will enable the Council to protect essential fish habitat effectively and take timely actions when necessary. This will prevent further decreases in biological productivity and could lead to possible increases in the abundance of species dependent upon the habitat being protected.

Recent amendments (1996) to the Magnuson-Stevens Act require the Council identify essential fish habitat. This action meets this mandate. Any activities impacting this identified essential fish habitat will come under the review process described by the Council. This process (identification and commenting) will allow the Council to provide additional protection for habitat important to species for which the Council has management authority.

#### **Other Possible Options for Action 1:**

##### **Option 1. No Action.**

#### Biological Impacts

The Council would be limited in the future in terms of protecting the long-term biological productivity of the penaeid and rock shrimp fisheries, and minimizing gear related habitat damage from occurring in these fisheries.

#### Economic Impacts

The Council would be limited in the future in terms of promoting the long-term economic viability of the penaeid and rock shrimp fisheries, and minimizing fishing related habitat damage from occurring in these fisheries.

#### Social Impacts

The no action alternative would not meet Magnuson-Stevens mandates to identify essential fish habitat. Although there would be few social impacts from no action, it is in the best interest of the Council and fishermen to identify this habitat. Designation of essential habitat to shrimp can facilitate expeditious Council action in the future to protect habitat and improve shrimp stocks.

#### Conclusions

The Council rejected taking no action because this would not provide habitat protection and it would not meet Magnuson-Stevens mandates to identify essential fish habitat. Taking no action would lead to continued declines in the amount of and quality of habitat important to species for which the Council has management authority.

#### **4.2.1.2 Existing Management Measures in the Shrimp Fishery Management Plan Which Directly or Indirectly Protect Essential Fish Habitat**

The Rock Shrimp Closed Area established under Amendment 1 to the Shrimp Plan (SAFMC 1996) was established to protect habitat from damage by rock shrimp trawls.

#### **4.2.1.3 Assessment of Present Fishing Activities**

See Appendix M in the Habitat Plan, Shrimp Amendment 1 (SAFMC 1996), the Shrimp Fishery Management Plan (SAFMC 1993a), and the Profile of the Penaeid Shrimp Fishery in the South Atlantic (SAFMC 1981). Amendment 1 to the Snapper Grouper Fishery Management Plan (SAFMC 1988) presents information on roller rig trawls.

#### **4.2.1.4 ACTION 2. Establish Essential Fish Habitat-Habitat Areas of Particular Concern (EFH-HAPCs) for Penaeid Shrimp.**

Areas which meet the criteria for essential fish habitat-habitat areas of particular concern (EFH-HAPCs) for penaeid shrimp include all coastal inlets, all state-designated nursery habitats of particular importance to shrimp (for example, in North Carolina this would include all Primary Nursery Areas and all Secondary Nursery Areas), and state-identified overwintering areas.

#### Biological Impacts

The identification of EFH-HAPCs for penaeid and rock shrimp will enable the Council to protect essential fish habitat of particular concern effectively and take timely actions when necessary. This could lead to positive increases in net economic benefit to society.

#### Economic Impacts

The establishment of EFH-HAPCs for penaeid and rock shrimp will enable the Council to protect EFH-HAPCs effectively and take timely actions when necessary. It should be noted that this action by itself would not impact fishermen, but other actions resulting from this one could impact fishermen. This action, together with other actions that protect EFH-HAPCs should result in increased net economic benefit to society in the long-term.

#### Social Impacts

The establishment of EFH-HAPCs will have few, if any, social impacts itself. Impacts may result from future management measures.

#### Conclusions

The establishment of EFH-HAPCs will enable the Council to protect essential fish habitat effectively and take timely actions when necessary. This will prevent further decreases in biological productivity and could lead to possible increases in the abundance of species dependent upon the habitat being protected.

Recent amendments (1996) to the Magnuson-Stevens Act require the Council identify essential fish habitat and allow the Council to designate portions of EFH as being particularly important (EFH-HAPCs). This action meets this provision. Any activities impacting the EFH-HAPCs will come under the review process described by the Council. This process (establishment of EFH-HAPCs and commenting) will allow the Council to provide additional protection for habitat important to species for which the Council has management authority.

**Other Possible Options for Action 2:**

**Option 1. No Action.**

**Biological Impacts**

The Council would be limited in the future in terms of protecting the long-term biological productivity of the penaeid and rock shrimp fisheries, and minimizing gear related habitat damage from occurring in these fisheries.

**Economic Impacts**

The Council would be limited in the future in terms of promoting the long-term economic viability of the penaeid and rock shrimp fisheries, and minimizing fishing related habitat damage from occurring in these fisheries.

**Social Impacts**

The no action alternative would not meet Magnuson-Stevens mandates to identify EFH-HAPCs. Although there would be few social impacts from no action, it is in the best interest of the Council and fishermen to identify this habitat. Designation of EFH-HAPCs for penaeid shrimp can facilitate expeditious Council action in the future to protect habitat for penaeid shrimp.

**Conclusions**

The Council rejected taking no action because this would not provide habitat protection and it would not meet Magnuson-Stevens provisions which allow establishment of essential fish habitat-habitat areas of particular concern. Taking no action would lead to continued declines in the amount of and quality of habitat important to species for which the Council has management authority.

**4.2.1.5 ACTION 3. Implement a Voluntary Vessel Monitoring System (VMS) as soon as possible in the Rock Shrimp Fishery.**

The voluntary pilot program should run for six months using a “GPS Cell Phone” based system or some other unit that provides the necessary coverage/output. Units are to be placed on 2-4 vessels chosen by the rock shrimp industry. Information collected will be maintained as confidential information. Data will be provided to NMFS and the individual/business involved. The data are to be used for data collection and enforcement. Council staff and members will be provided access to such data under existing guidelines concerning access to confidential data.

Immediately after 6 months of use, the system should be evaluated by NMFS, the Rock Shrimp Advisory Panel, and the Council. A determination would be made, as part of the evaluation, concerning the future use of transponders in the rock shrimp fishery.

**Biological Impacts**

To the extent enforcement is enhanced and trawling in the rock shrimp nursery grounds is reduced, there will be corresponding benefits in terms of protecting juvenile rock shrimp and essential fish habitat. This could lead to increased biological productivity.

**Economic Impacts**

The first level consists of a shipboard equipment (transceiver) that is tracked through a global positioning system (GPS) and a shore based station that is programmed to receive signals when a vessel is in close proximity to a closed area. This system would likely have a cellular

phone onboard the vessel for communication with the shore based facility. The cost per vessel is approximately \$1,000 to \$1,200 including the cellular phone.

### Social Impacts

The use of transponders has received mixed reviews within the shrimping industry. The most recent evidence of South Atlantic fishermen's perceptions concerning transponders comes from public hearings held in 1994 for Amendment 1 to the FMP for Shrimp. Overall there tended to be dissatisfaction with this type of monitoring system among commercial fishermen. Commercial fishermen are inclined to see monitoring of this type as an invasion of privacy and an impingement upon their rights as individuals. Their concerns stem from a strong sense of independence that most strive for in their daily lives, but most of all in their work (Acheson 1981; Gatewood and McCay 1988; Poggie and Gersuny 1974). That independence is viewed as being severely compromised by the use of transponders as they see "Big Brother" looking over their shoulder. There also tends to be a certain measure of secrecy regarding fishing locations. Although, trawl fishermen do trade detailed maps of trawling activity from plotter charts, they do explore new areas which are not always revealed to their competitors. The perception may exist that a fisherman's ability to maintain secrecy is compromised by the transponder requirement.

Rock shrimp fishermen are no exception. Sentiments expressed by industry through the public hearing process in 1994 indicated some dislike for this type of system. Some of this resistance is due to unfamiliarity with the use and implementation of transponder systems. The expense of installing transponders is often mentioned as a major detractor also. However, the expense is relative to the type of system that would be required and the type of transponder used. In addition, transponders do reduce risks associated with fishing by providing a measure of safety through vessel tracking in the event of an emergency. Finally, by using transponders fishermen can attest to their good record with proof that they are abiding by rules and regulations. As commercial fishermen become more acquainted with these systems and realize the benefits to be gained by using such monitoring devices, levels of acceptance may change.

One important aspect of requiring the use of transponders relates to difficulty that comes with the transfer of technology. Forced technology transfer is especially difficult when those being required change see no benefit from the adoption of the new technology. If the Council chooses this alternative and requires the use of transponders, a variety of alternative systems should be provided. Technology is more readily accepted if those being forced to adopt it can realize some benefit from its use. By allowing a choice of Vessel Monitoring Systems (VMS), fishermen may adapt the use of transponders to their specific needs and more readily accept this technology.

In this case the Rock Shrimp Advisory Panel has suggested the Council adopt a trial program prior to mandatory use of transponders. This will allow the NMFS to install VMS systems on several rock shrimp vessels for observation, while fishermen also have the opportunity to explore this technology. A trial program may allow for both the industry and the NMFS to adapt to this new technology creating a better atmosphere for technology transfer.

### Conclusion

The Council concluded a voluntary vessel monitoring system best meets the objectives of protecting habitat while at the same time taking account of views expressed by the shrimp industry. The NMFS does not have the necessary monitoring units or procedures in place to handle 100% coverage of the rock shrimp fleet. A voluntary program will allow both the

#### 4.0 Environmental Consequences

industry and NMFS to work out implementation details. Based on results of the voluntary program, the Council will evaluate expanding coverage in the future.

#### **Other Possible Options for Action 3:**

##### **Option 1. No Action.**

##### **Biological Impacts**

There will continue to be biological losses proportional to the extent trawling takes place within the existing closed areas. No action would not provide any increased enforcement.

##### **Economic Impacts**

This option would forgo any benefits that could result from the protection of essential fish habitat.

##### **Social Impacts**

The social impacts of no action will be minimal, however, the status quo would mean law enforcement would not be enhanced. Closed fishing areas are difficult to monitor by law enforcement and often take a continuous and coordinated effort which can be very time consuming and costly. If present efforts by law enforcement are unable to continue, or are temporarily redirected to enforcement matters other than fisheries, fishermen may be tempted to fish in closed areas as their probability of being apprehended diminishes. Vessel monitoring systems can enhance law enforcement and provide substantial savings in time and money.

##### **Conclusion**

The Council rejected taking no action because it would delay implementation of a vessel monitoring program. The absence of a vessel monitoring system would result in continued public perception that the rock shrimp vessels are trawling within the closed area.

##### **Option 2. Require Use of Transponders by Rock Shrimp Vessels Fishing in the South Atlantic EEZ**

##### **Biological Impacts**

To the extent enforcement is enhanced and trawling in the rock shrimp nursery grounds is reduced, there will be corresponding benefits in terms of protecting juvenile rock shrimp and protecting essential fish habitat. This could lead to increased biological productivity.

##### **Economic Impacts**

Basically, three levels of vessel monitoring system (VMS) could be utilized for this purpose. The first level consists of a shipboard equipment (transceiver) that is tracked through a global positioning system (GPS) and a shore based station that is programmed to receive signals when a vessel is in close proximity to a closed area. This system would likely have a cellular phone onboard the vessel for communication with the shore based facility. The cost per vessel is approximately \$1,000 to \$1,200 including the cellular phone.

The second level of VMS consists of a shipboard equipment that is tracked through GPS and Inmarsat satellite. The shore based station receives information on vessel speed, position, etc. at regular intervals. Communication is one way to the shore based facility. The information enables the monitoring unit to determine whether the vessel is fishing in the area or not based on vessel speed, movement, etc. The cost per vessel is approximately \$3,500.

The third level of VMS consists of the second level plus a computer linked to the shipboard equipment. In addition to the information received by the shore based station, the computer allows for two way communication. Thus, data on catches, etc. can be transmitted in a secured manner. The cost per vessel is approximately \$6,000 and higher.

The VMS base station equipment costs approximately \$15,000. This includes the computer, tracking software, and ancillary components (McKinney, 1997). Installation cost of shipboard equipment is approximately \$600 per vessel. There is a communication cost of \$0.10 per individual data report for levels 2 and 3 systems. Assuming that the equipment is programmed to send a position report every hour the vessel is out at sea, the annual cost for an ice vessel that makes an average of 30 trips in one season (average length of trip is five days, season lasts approximately June to October, about 150 days) would be \$360 (24 hours x 150 days x \$0.10 = \$360). For a freezer vessel that makes an average of 10 trips per season, average length of trip is 15 days, the annual costs would also be \$360 (24 hours x 150 days x \$0.10 = \$360).

There are no estimates on repair and maintenance costs because these would depend on frequency and nature of the work done. The useful life of the shipboard equipment is estimated to be approximately five years (McKinney, 1997).

Based on the costs provided above, if the level 1 system is utilized, total cost per vessel (ice and freezer) in the first year would be \$2,050 (\$1,000 + \$600 + \$450) to \$2,250 (\$1,200 + \$600 + \$450). Communication costs in the next four years would be \$450 per year per vessel based on two calls per day at \$1.50 per call for 150 days. Maintenance and repair costs should be factored in for each year. The shipboard equipment would be replaced in the sixth year, resulting in additional \$1,600 to \$1,800 in capital equipment costs if prices of equipment remain unchanged.

If the levels 2 and 3 systems are utilized, total cost per vessel in the first year would be \$4,460 (\$3,500 + \$600 + \$360) and \$6,960 (\$6,000 + \$600 + \$360) respectively. Communication costs in the next four years would be \$360 per year per vessel. Maintenance and repair costs should be factored in for each year. The shipboard equipment would be replaced in the sixth year, resulting in additional \$4,100 to \$6,600 respectively, in capital equipment costs if prices of equipment remain unchanged. The cost to the industry, assuming 152 vessels (Vondruska, 1998) are fitted with this system in the first year would range from \$311,600 to \$1,057,920.

The VMS offers a level of monitoring and surveillance coverage that far surpasses traditional methods. The Hawaii fishing vessel monitoring system analysis indicates that the cost-effectiveness of the VMS versus traditional methods for surveillance and enforcement show that the VMS can monitor the activities of an entire fleet at times, for about 1% of the cost of traditional methods (McKinney, 1997). Also, the system has the added benefit of enhancing search and rescue operations. However, this report cautions that running a VMS represents a full-time, constant management and operational burden. "Anyone who decides to utilize a VMS for fisheries management must be willing to make a long-term commitment, in terms of personnel and funding, to the proper design, installation, operation and maintenance of the system". Also, a VMS does not eliminate the need for traditional monitoring and enforcement efforts. It only reduces the magnitude and frequency of such efforts.

### Social Impacts

The use of transponders has received mixed reviews within the shrimping industry. The most recent evidence of South Atlantic fishermen's perceptions concerning transponders comes

#### 4.0 Environmental Consequences

from public hearings held in 1994 for Amendment 1 to the FMP for Shrimp. Overall there tended to be dissatisfaction with this type of monitoring system among commercial fishermen. Commercial fishermen are inclined to see monitoring of this type as an invasion of privacy and an impingement upon their rights as individuals. Their concerns stem from a strong sense of independence that most strive for in their daily lives, but most of all in their work (Acheson 1981; Gatewood and McCay 1988; Poggie and Gersuny 1974). That independence is viewed as being severely compromised by the use of transponders as they see “Big Brother” looking over their shoulder. There also tends to be a certain measure of secrecy regarding fishing locations. Although, trawl fishermen do trade detailed maps of trawling activity from plotter charts, they do explore new areas which are not always revealed to their competitors. The perception may exist that a fisherman’s ability to maintain secrecy is compromised by the transponder requirement.

Rock shrimp fishermen are no exception. Sentiments expressed by industry through the public hearing process in 1994 indicated some dislike for this type of system. Some of this resistance is due to unfamiliarity with the use and implementation of transponder systems. The expense of installing transponders is often mentioned as a major detractor also. However, the expense is relative to the type of system that would be required and the type of transponder used. In addition, transponders do reduce risks associated with fishing by providing a measure of safety through vessel tracking in the event of an emergency. Finally, by using transponders fishermen can attest to their good record with proof that they are abiding by rules and regulations. As commercial fishermen become more acquainted with these systems and realize the benefits to be gained by using such monitoring devices, levels of acceptance may change.

One important aspect of requiring the use of transponders relates to difficulty that comes with the transfer of technology. Forced technology transfer is especially difficult when those being required change see no benefit from the adoption of the new technology. If the Council chooses this alternative and requires the use of transponders, a variety of alternative systems should be provided. Technology is more readily accepted if those being forced to adopt it can realize some benefit from its use. By allowing a choice of Vessel Monitoring Systems (VMS), fishermen may adapt the use of transponders to their specific needs and more readily accept this technology.

In this case the Rock Shrimp Advisory Panel has suggested the Council adopt a trial program prior to mandatory use of transponders. This will allow the NMFS to install VMS systems on several rock shrimp vessels for observation, while fishermen also have the opportunity to explore this technology. A trial program may allow for both the industry and the NMFS to adapt to this new technology creating a better atmosphere for technology transfer.

#### Conclusion

The Council rejected requiring mandatory implementation of a vessel monitoring program in order to allow the industry and NMFS to work out implementation details. In addition, the NMFS does not have the number of units necessary for the fleet nor do they have the necessary infrastructure established at this time to monitor the fleet.

### **Option 3. Require Use of Transponders by Rock Shrimp Vessels Fishing in the South Atlantic EEZ South of 28° 30' N. latitude.**

#### Biological Impacts

To the extent enforcement is increased and trawling in the rock shrimp nursery grounds is reduced, there will be corresponding benefits in terms of protecting juvenile rock shrimp. This could lead to increased biological productivity.

#### Economic Impacts

The difference between Option 3 and Option 2 is that Option 3 proposes the use of transponders only by rock shrimp vessels fishing in the south Atlantic EEZ south of 28° 30' N. latitude. Thus, this option would not affect all vessels in the fishery unless they all fish in this area. However, practically all rock shrimping activity in the south Atlantic area occurs south of the 28° 30' N. Latitude line. Thus, all rock shrimp vessels operating in the south Atlantic EEZ would be affected. Based on the number of vessels issued with rock shrimp permits to fish for rock shrimp in the south Atlantic EEZ in 1997, 152 vessels would be affected (Vondruska, 1998). The analysis for Option 2 also applies to Option 3.

#### Social Impacts

This option would impact only those rock shrimp vessels fishing near the closed area off Florida. Requiring VMS systems in this area may be more acceptable, because all rock shrimp permitted vessels may not actively rock shrimp off Florida's east coast. However, as mentioned earlier, an important aspect of requiring the use of transponders relates to difficulty that comes with the transfer of technology. Forced technology transfer is especially difficult when those being required to adopt a particular technology see no benefit from the technology. If the Council chooses this alternative and requires the use of transponders, a variety of alternative systems should be provided. Technology is more readily accepted if those being forced to use it can see some benefit from its use. By allowing a choice of Vessel Monitoring Systems (VMS), fishermen may adapt the use of transponders to their specific needs, thereby realizing more benefits and having fewer reasons to resist it.

#### Conclusions

The Council rejected requiring mandatory implementation of a vessel monitoring program in order to allow the industry and NMFS to work out implementation details. In addition, the NMFS does not have the number of units necessary for the fleet nor do they have the necessary infrastructure established at this time to monitor the fleet.

## **4.2.2 Amendment 1 to the Fishery Management Plan for the Red Drum Fishery of the South Atlantic Region**

### **4.2.2.1 ACTION 1. Identify Essential Fish Habitat for Red Drum.**

For red drum, essential fish habitat includes all the following habitats to a depth of 50 meters offshore: tidal freshwater; estuarine emergent vegetated wetlands (flooded saltmarshes, brackish marsh, and tidal creeks); estuarine scrub/shrub (mangrove fringe); submerged rooted vascular plants (sea grasses); oyster reefs and shell banks; unconsolidated bottom (soft sediments); ocean high salinity surf zones; and artificial reefs. The area covered includes Virginia through the Florida Keys.

#### 4.0 Environmental Consequences

Refer to Section 3.0 in the Habitat Plan for a more detailed description of habitat utilized by the managed species.

##### Biological Impacts

The identification of essential habitat for red drum will enable the Council to protect essential fish habitat effectively and take timely actions when necessary. This could prevent further decreases in biological productivity and may lead to possible increases.

##### Economic Impacts

The identification of essential fish habitat for red drum will enable the Council to protect essential fish habitat effectively and take timely actions when necessary. It should be noted that this action by itself would not impact fishermen, but other actions resulting from this one could impact fishermen. This action, together with other actions that protect habitat should result in increased net economic benefit to society in the long-term.

##### Social Impacts

There will be few social impacts from identifying essential fish habitat itself. The social impacts will most likely come from future actions that are associated with such a designation. The assumption is that such designation will provide protection of red drum and eventually improve the stock through protection of habitat. In that case, the social impacts will be positive in the long run. However, in some cases, protection of habitat may mean harvesting restrictions in areas where harvesting presently takes place or other actions which may impose similar constraints on red drum fishermen. This could conceivably impose negative short term impacts that may be mitigated in the long term if productivity is increased. Outside the fishery management arena there is another area where social impacts will occur and that is the permitting process. Designation of essential fish habitat will likely alter the process by which permits for activities which impact essential fish habitat are issued. The potential for increased restrictions, mitigation and permitting requirements may have impacts upon the behavior of individuals and agencies seeking permits. The nature and extent of those impacts is unknown and will undoubtedly vary depending upon the individual and/or agency.

##### Conclusions

The identification of essential habitat will enable the Council to protect essential fish habitat effectively and take timely actions when necessary. This will prevent further decreases in biological productivity and could lead to possible increases in the abundance of species dependent upon the habitat being protected.

Recent amendments (1996) to the Magnuson-Stevens Act require the Council identify essential fish habitat. This action meets this mandate. Any activities impacting this identified essential fish habitat will come under the review process described by the Council. This process (identification and commenting) will allow the Council to provide additional protection for habitat important to species for which the Council has management authority.

**Other Possible Options for Action 1:****Option 1. No Action.****Biological Impacts**

The Council would be limited in the future in terms of protecting the long-term biological productivity of the red drum fishery, and minimizing gear related habitat damage from occurring in these fisheries.

**Economic Impacts**

The Council would be limited in the future in terms of promoting the long-term economic viability of the red drum fishery, and minimizing fishing related habitat damage from occurring in this fishery.

**Social Impacts**

The no action alternative would not meet Magnuson-Stevens mandates to identify essential fish habitat. Although there would be few social impacts from no action, it is in the best interest of the Council and fishermen to identify this habitat. Designation of essential habitat to red drum can facilitate expeditious Council action in the future to protect habitat for this species.

**Conclusions**

The Council rejected taking no action because this would not provide habitat protection and it would not meet Magnuson-Stevens mandates to identify essential fish habitat. Taking no action would lead to continued declines in the amount of and quality of habitat important to species for which the Council has management authority.

**4.2.2.2 Existing Management Measures in the Red Drum Fishery Management Plan Which Directly or Indirectly Protect Essential Fish Habitat**

None.

**4.2.2.3 Assessment of Present Fishing Activities**

There is no directed fishery allowed under the Red Drum FMP within the EEZ; therefore, there is no impact from fishing activities on essential fish habitat.

**4.2.2.4 ACTION 2. Establish Essential Fish Habitat-Habitat Areas of Particular Concern (EFH-HAPCs) for Red Drum.**

Areas which meet the criteria for essential fish habitat-habitat areas of particular concern (EFH-HAPCs) for red drum include all coastal inlets, all state-designated nursery habitats of particular importance to red drum (for example, in North Carolina this would include all Primary Nursery Areas and all Secondary Nursery Areas); documented sites of spawning aggregations in North Carolina, South Carolina, Georgia, and Florida described in the Habitat Plan; other spawning areas identified in the future; and habitats identified for submerged aquatic vegetation.

**Biological Impacts**

The identification of EFH-HAPCs for red drum will enable the Council to protect essential fish habitat effectively and take timely actions when necessary. This could prevent further decreases in biological productivity and may lead to possible increases.

## 4.0 Environmental Consequences

### Economic Impacts

The establishment of EFH-HAPCs for red drum will enable the Council to protect EFH-HAPCs effectively and take timely actions when necessary. It should be noted that this action by itself would not impact fishermen, but other actions resulting from this one could impact fishermen. This action, together with other actions that protect EFH-HAPCs should result in increased net economic benefit to society in the long-term.

### Social Impacts

The establishment of EFH-HAPCs will have few, if any, social impacts itself. Impacts may result from future management measures.

### Conclusions

The establishment of EFH-HAPCs will enable the Council to protect essential fish habitat effectively and take timely actions when necessary. This will prevent further decreases in biological productivity and could lead to possible increases in the abundance of species dependent upon the habitat being protected.

Recent amendments (1996) to the Magnuson-Stevens Act require the Council identify essential fish habitat and allow the Council to designate portions of EFH as being particularly important (EFH-HAPCs). This action meets this provision. Any activities impacting the EFH-HAPCs will come under the review process described by the Council. This process (establishment of EFH-HAPCs and commenting) will allow the Council to provide additional protection for habitat important to species for which the Council has management authority.

### **Other Possible Options for Action 2:**

#### **Option 1. No Action.**

##### Biological Impacts

The Council would be limited in the future in terms of protecting the long-term biological productivity of the red drum fishery, and minimizing gear related habitat damage from occurring in this fishery.

##### Economic Impacts

The Council would be limited in the future in terms of promoting the long-term economic viability of the red drum fishery, and minimizing fishing related habitat damage from occurring in this fishery.

##### Social Impacts

The no action alternative would not meet Magnuson-Stevens mandates to identify EFH-HAPCs. Although there would be few social impacts from no action, it is in the best interest of the Council and fishermen to identify this habitat. Designation of EFH-HAPCs to red drum can facilitate expeditious Council action in the future to protect habitat for this species.

##### Conclusions

The Council rejected taking no action because this would not provide habitat protection and it would not meet Magnuson-Stevens provisions which allow establishment of essential fish habitat-habitat areas of particular concern. Taking no action would lead to continued declines in the amount of and quality of habitat important to species for which the Council has management authority.

### 4.2.3 Amendment 10 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region

#### 4.2.3.1 ACTION 1. Identify Essential Fish Habitat for Species in the Snapper Grouper Management Unit.

Essential fish habitat for snapper-grouper species includes coral reefs, live/hard bottom, submerged aquatic vegetation, artificial reefs and medium to high profile outcroppings on and around the shelf break zone from shore to at least 600 feet (but to at least 2000 feet for wreckfish) where the annual water temperature range is sufficiently warm to maintain adult populations of members of this largely tropical complex. EFH includes the spawning area in the water column above the adult habitat and the additional pelagic environment, including *Sargassum*, required for larval survival and growth up to and including settlement. In addition the Gulf Stream is an essential fish habitat because it provides a mechanism to disperse snapper grouper larvae.

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

Refer to Section 3.0 in the Habitat Plan for a more detailed description of habitat utilized by the managed species. Also, it should be noted that the Gulf Stream occurs within the EEZ.

#### Biological Impacts

The identification of essential habitat for species in the snapper grouper management unit will enable the Council to protect essential fish habitat effectively and take timely actions when necessary. This could prevent further decreases in biological productivity and may lead to possible increases.

#### Economic Impacts

The identification of essential fish habitat for species in the snapper grouper management unit will enable the Council to protect essential fish habitat effectively and take timely actions when necessary. It should be noted that this action by itself would not impact fishermen, but other actions resulting from this one could impact fishermen. This action, together with other actions that protect habitat should result in increased net economic benefit to society in the long-term.

#### Social Impacts

There will be few social impacts from identifying essential fish habitat itself. The social impacts will most likely come from future actions that are associated with such a designation. The assumption is that such designation will provide protection of snapper grouper species and eventually improve stocks through protection of habitat. In that case, the social impacts will be positive in the long run. However, in some cases, protection of habitat may mean harvesting restrictions in areas where harvesting presently takes place or other actions which may impose similar constraints on snapper grouper fishermen. This could conceivably impose negative short term impacts that may be mitigated in the long term if productivity is increased. Outside the fishery management arena there is another area where social impacts will occur and that is the

#### 4.0 Environmental Consequences

permitting process. Designation of essential fish habitat will likely alter the process by which permits for activities which impact essential fish habitat are issued. The potential for increased restrictions, mitigation and permitting requirements may have impacts upon the behavior of individuals and agencies seeking permits. The nature and extent of those impacts is unknown and will undoubtedly vary depending upon the individual and/or agency.

##### Conclusions

The identification of essential habitat will enable the Council to protect essential fish habitat effectively and take timely actions when necessary. This will prevent further decreases in biological productivity and could lead to possible increases in the abundance of species dependent upon the habitat being protected.

Recent amendments (1996) to the Magnuson-Stevens Act require the Council identify essential fish habitat. This action meets this mandate. Any activities impacting this identified essential fish habitat will come under the review process described by the Council. This process (identification and commenting) will allow the Council to provide additional protection for habitat important to species for which the Council has management authority.

##### **Other Possible Options for Action 1:**

###### **Option 1. No Action.**

##### Biological Impacts

The Council would be limited in the future in terms of protecting the long-term biological productivity of the snapper grouper fisheries, and minimizing gear related habitat damage from occurring in this fishery.

##### Economic Impacts

The Council would be limited in the future in terms of promoting the long-term economic viability of the snapper grouper fishery, and minimizing fishing related habitat damage from occurring in this fishery.

##### Social Impacts

The no action alternative would not meet Magnuson-Stevens mandates to identify essential fish habitat. Although there would be few social impacts from no action, it is in the best interest of the Council and fishermen to identify this habitat. Designation of essential habitat to snapper grouper can facilitate expeditious Council action in the future to protect habitat for this species group.

##### Conclusions

The Council rejected taking no action because this would not provide habitat protection and it would not meet Magnuson-Stevens mandates to identify essential fish habitat. Taking no action would lead to continued declines in the amount of and quality of habitat important to species for which the Council has management authority.

#### **4.2.3.2 Existing Management Measures in the Snapper Grouper Fishery Management Plan Which Directly or Indirectly Protect Essential Fish Habitat**

Management measures adopted in the original management plan through Amendment 7 combined have significantly reduced the impact of the fishery on essential habitat. The Council has reduced the impact of the fishery and protected essential habitat by prohibiting use of poisons and explosives, prohibiting use of fish traps and entanglement nets in the EEZ, defining allowable gear, banning use of bottom trawls on live/hard bottom habitat north of Cape Canaveral, Florida, restricting use of bottom longlines to depths greater than 50 fathoms north of St. Lucie Inlet, Florida and prohibiting bottom longline use south of St. Lucie, Inlet, and only for species other than wreckfish, and prohibiting the use of black sea bass pots south of Cape Canaveral, Florida. These gear restrictions have significantly reduced the impact of the fishery on coral and live/hard bottom habitat in the South Atlantic region.

Amendment 7 (SAFMC, 1994a) defines allowable gear in the directed snapper grouper fishery. Allowable gear does not include net gear; provision is made for allowing possession of sink nets on multi-gear trips only off North Carolina, however, sink nets may not be used to harvest snapper grouper species.

Management measures proposed in Amendment 8 (SAFMC, 1997) include limiting the number of commercial fishermen which will protect habitat by reducing the quantity of gear used in the fishery.

Additional measures proposed in Amendment 9 (SAFMC, 1998) include further restricting bottom longlines to retention of only deepwater species which will protect habitat by making existing regulations more enforceable. In addition, the requirement that black sea bass pots have escape vents and escape panels with degradable fasteners will reduce catch of undersized fish and ensure that the pot, if lost, will not continue to “ghost” fish.

Measures adopted in the coral plan and shrimp plan have also protected essential snapper grouper habitat including the designation of the Oculina Bank Habitat Area of Particular Concern (SAFMC, 1983) and the rock shrimp closed area (SAFMC, 1996).

#### **4.2.3.3 Assessment of Present Fishing Activities**

Present fishing with black sea bass pots could have some impact on essential fish habitat. Trawling for black sea bass north of Cape Hatteras and trawling south of Cape Canaveral (should such trawling occur) could also have some impact on essential fish habitat.

#### **4.2.3.4 ACTION 2. Establish Essential Fish Habitat-Habitat Areas of Particular Concern (EFH-HAPCs) for Species in the Snapper Grouper Management Unit.**

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

Biological Impacts

The identification of EFH-HAPCs for species in the snapper grouper management unit will enable the Council to protect essential fish habitat effectively and take timely actions when necessary. This could prevent further decreases in biological productivity and may lead to possible increases.

Economic Impacts

The establishment of EFH-HAPCs for species in the snapper grouper management unit will enable the Council to protect EFH-HAPCs effectively and take timely actions when necessary. It should be noted that this action by itself would not impact fishermen, but other actions resulting from this one could impact fishermen. This action, together with other actions that protect EFH-HAPCs should result in increased net economic benefit to society in the long-term.

Social Impacts

The establishment of EFH-HAPCs will have few, if any, social impacts itself. Impacts may result from future management measures.

Conclusions

The establishment of EFH-HAPCs will enable the Council to protect essential fish habitat effectively and take timely actions when necessary. This will prevent further decreases in biological productivity and could lead to possible increases in the abundance of species dependent upon the habitat being protected.

Recent amendments (1996) to the Magnuson-Stevens Act require the Council identify essential fish habitat and allow the Council to designate portions of EFH as being particularly important (EFH-HAPCs). This action meets this provision. Any activities impacting the EFH-HAPCs will come under the review process described by the Council. This process (establishment of EFH-HAPCs and commenting) will allow the Council to provide additional protection for habitat important to species for which the Council has management authority.

**Other Possible Options for Action 2:**

**Option 1. No Action.**

Biological Impacts

The Council would be limited in the future in terms of protecting the long-term biological productivity of the snapper grouper fisheries, and minimizing gear related habitat damage from occurring in this fishery.

Economic Impacts

The Council would be limited in the future in terms of promoting the long-term economic viability of the snapper grouper fishery, and minimizing fishing related habitat damage from occurring in this fishery.

Social Impacts

The no action alternative would not meet Magnuson-Stevens mandates to identify essential fish habitat. Although there would be few social impacts from no action, it is in the best interest of the Council and fishermen to identify this habitat. Designation EFH-HAPCs for

snapper grouper can facilitate expeditious Council action in the future to protect habitat for this species group.

### Conclusions

The Council rejected taking no action because this would not provide habitat protection and it would not meet Magnuson-Stevens provisions which allow establishment of essential fish habitat-habitat areas of particular concern. Taking no action would lead to continued declines in the amount of and quality of habitat important to species for which the Council has management authority.

#### **4.2.3.5 ACTION 3. No Action to Prohibit All Fishing in the Experimental Closed Area.**

To protect a fragile limited coral habitat, a 92 square mile Oculina Bank Habitat Area of Particular Concern (HAPC) was established under the Federal Fishery Management Plan for Coral and Coral Reefs (GMFMC and SAFMC, 1982). In 1994, the HAPC was also designated an Experimental Closed Area under the Snapper Grouper Fishery Management Plan (SAFMC, 1993b). The objective was to provide researchers with an area in the South Atlantic region to describe the effects of prohibiting fishing for snapper grouper species and the characteristics of an unfished resource area that is protected from habitat damage.

The Experimental Closed Area is located approximately 15 nautical miles east of Fort Pierce, Florida, at its nearest point to shore. The area measures 4 by 23 nautical miles and the water depth is between 30 and 75 fathoms. The experimental closed area is bounded on the north by 27°53' N. latitude, on the south by 27°30' N. latitude, on the east by 79°56' W. longitude, and on the west by 80°00' W. longitude. Within the experimental closed area the following apply:

- (1) Fishing with a bottom longline, bottom trawl, dredge, pot, or trap is prohibited.
- (2) A fishing vessel may not anchor, use an anchor and chain, or use a grapple and chain.
- (3) No fishing for South Atlantic snapper-grouper is allowed, and South Atlantic snapper-grouper may not be retained, in or from the experimental closed area. South Atlantic snapper-grouper taken incidentally in the HAPC by hook-and-line gear must be released immediately by cutting the line without removing the fish from the water.

### Biological Impacts

There will continue to be biological losses proportional to the extent fishing takes place within the existing closed areas. No action would not enhance enforcement.

### Economic Impacts

The Council would be limited in the future in terms of promoting the long-term economic viability of the snapper grouper fishery, and preventing the incidental capture of snapper grouper species by allowable gear types fishing for other species in this area. This could result in reduced net economic benefits to society in the long-term.

### Social Impacts

Testimony during public hearings suggests that this area is an important fishing ground for regional fishermen. It is especially important during fishing tournaments for coastal pelagics and to fishermen seeking highly migratory species. The no action alternative will have positive social impacts by not forcing fishermen in this area to seek alternative fishing sites. Although the Council considered the alternative action to enhance law enforcement in its efforts to monitor

other fisheries prohibited from this area, it is likely that the negative social impacts from a closure outweigh the enhancement of law enforcement at this time.

#### Conclusion

Based on recommendations from the Habitat and Coral Advisory Panels and the Habitat Committee, the Council concluded additional regulations on gears other than those in the calico scallop fishery are not necessary to enforce the no fishing provision of the experimental closed area. A voluntary vessel monitoring system will be implemented on a portion of the rock shrimp vessels and 100% of the calico scallop vessels will be required to have a vessel monitoring system. These additional regulations, more public education, and more enforcement effort will adequately prevent fishing within the closed area.

#### **Other Possible Options for Action 3:**

##### **Option 1. Prohibit All Fishing in the Experimental Closed Area.**

#### Biological Impacts

To the extent enforcement is increased and fishing mortality on species in the snapper grouper management unit is reduced, there will be corresponding benefits in terms of rebuilding overfished species. This could result in increased biological productivity.

#### Economic Impacts

Although fishing with certain allowable gears is permissible in the Experimental Closed Area, there is presently no retention of snapper grouper species in this area. Thus, the prohibition of all fishing in this area would have no impact on snapper grouper fishermen. On the contrary, it would protect snapper grouper species from being taken as incidental catches in other fisheries since there will be a total prohibition of all fishing in this area.

At the Joint Habitat Committee, Habitat Advisory Panel, and Coral Advisory Panel meeting held in Charleston, South Carolina (August 11-13, 1998), some AP members indicated that a number of fishing tournaments are usually held annually and most of these tournaments occur in close proximity to this area. At certain times when a cold front is occurring, the closed area would be the only area available to fish during these tournaments. The fishing gears utilized for these tournaments have not caused any damage to habitat in this area. There would be severe economic impacts with prohibition of all fishing in the closed area. Also, these AP members expressed concern that the total fishing prohibition is for enforcement purposes only and there is no reason why other ways cannot be explored to ensure effective enforcement of current regulations in this area. It would be unfair to the tournaments to prohibit all fishing in this area solely for enforcement reasons.

During Public Hearings for the Habitat Comprehensive Amendment, a number of fishermen indicated that prohibiting all fishing in the experimental closed area will not only affect fishermen and the boating industry, but also fuel suppliers, restaurants, grocery stores, metal fabricators, fiberglass shops, canvass shops, etc. in the area. Also, many boaters travel to fish in this area from the central part of Florida (Lake Wales, Lakeland, Barlow, and Orlando). Thus, the economic impact would extend to central Florida. This will affect boat sales, tackle sales, marine supplies, etc. The fishermen indicated that St. Lucie County, which is adjacent to the experimental closed area, has one of the highest unemployment rates in the State of Florida and that boating / fishing related activities are very important to such a fragile, local economy.

No recent studies have been conducted to determine the impact of fishing tournaments on the local economy. Michael Hogan, President, Fort Pierce Sportfishing Club (personal

communication, June 1998) indicated that there are 8 - 10 fishing tournaments in this area each year. In 1984 the Florida Sea Grant Program (University of Florida) conducted a study on the Fort Pierce Sportfishing Club's July 4th tournament to determine its impact on the local economy. The study concluded that direct expenditures of the tournament were \$186,000 and total local impact was \$406,000 (Michael Hogan, personal communication, June 1998). Based on this information, it is likely that fishing tournaments could provide as much as \$2,000,000 in direct expenditures, and as much as \$5,000,000 in total local expenditure annually to the local economy.

Mr. Hogan indicated that the average angler in this area spends \$4,500 on fuel, \$1,000 on bait and ice, \$2,100 on dockage, \$1,500 - \$2,000 on tackle and rigging, and \$500 on beverages and food annually. Also, \$800 for scrapping/paint jobs, \$500 - \$600 on maintenance and supplies, and \$800 on insurance, on an annual basis. Thus, according to Mr. Hogan, the average angler in this area spends approximately \$12,300 to operate his fishing vessel each year. This amount does not account for depreciation on the vessel. There are no data on the number of anglers with fishing vessels in this area, but it is likely that there are many recreational boats in this area. This implies that if these anglers cannot fish in this area and have to move elsewhere, there would be a significant impact on the local economy.

Commercial impacts are discussed in Action 3 under each of the FMP specific prohibitions on fishing within the Experimental Closed Area.

### Social Impacts

The prohibition of all fishing in the Experimental Closed area may have important social impacts primarily on the recreational fishery. This area is presently closed to fishing for snapper grouper species, however, trolling for non snapper grouper species is allowed. During public hearings in Ft. Pierce testimony from recreational fishermen indicated that a closure of the Oculina Bank would have considerable impact on charter fishing operations and the private boat fishery. Apparently, this is a popular fishing area for mackerel, dolphin and many highly migratory species plus spiny lobster. There are several tournaments held in Ft. Pierce throughout the year and closing this area may impact tournament participation. This action can have unforeseen impacts such as a reduction in the number of fishermen that travel from as far as Orlando to fish the waters off Ft. Pierce. Their fishing experience may be diminished if the Experimental Closed Area is off limits and which may persuade them to find another destination for their fishing endeavor. This would certainly have a negative impact on the Ft. Pierce economy, but would benefit the substitute destination. There was little testimony on the impacts to the commercial fishery, although it is assumed that there will be negative impacts to those individuals who troll in this area commercially. Another impact of closure would be what is called the "edge effect." This phenomenon is where fishing would take place on all sides of the closed area, or possibly more on those areas closer to shore. This may cause crowding and create future conflict. There would certainly be impacts to the community of Ft. Pierce from this action. Present data do not support community impact analysis. Future data collection at the community level would enhance this analysis.

### Conclusion

Based on recommendations from the Habitat and Coral Advisory Panels and the Habitat Committee, the Council concluded additional regulations on gears other than those in the calico scallop fishery are not necessary to enforce the no fishing provision of the experimental closed area. A voluntary vessel monitoring system will be implemented on a portion of the rock shrimp

#### 4.0 Environmental Consequences

vessels and 100% of the calico scallop vessels will be required to have a vessel monitoring system. These additional regulations, more public education, and more enforcement effort will adequately prevent fishing within the closed area. Therefore, this action was rejected.

#### **4.2.3.6 Recommendations for other managed species harvested in the Experimental Closed Area.**

The Council has requested the Secretary of Commerce prohibit all fishing for highly migratory species (including sharks) within the experimental closed area (letter from Ben Hartig to Rolland Schmitten dated April 20, 1998).

#### **4.2.4 Amendment 10 to the Fishery Management Plan for the Coastal Migratory Pelagics Fishery of the South Atlantic Region**

##### **4.2.4.1 ACTION 1. Identify Essential Fish Habitat for Coastal Migratory Pelagics.**

Essential fish habitat for coastal migratory pelagic species includes sandy shoals of capes and offshore bars, high profile rocky bottom and barrier island ocean-side waters, from the surf to the shelf break zone, but from the Gulf stream shoreward, including *Sargassum*. In addition, all coastal inlets, all state-designated nursery habitats of particular importance to coastal migratory pelagics (for example, in North Carolina this would include all Primary Nursery Areas and all Secondary Nursery Areas).

For Cobia essential fish habitat also includes high salinity bays, estuaries, and seagrass habitat. In addition, the Gulf Stream is an essential fish habitat because it provides a mechanism to disperse coastal migratory pelagic larvae.

For king and Spanish mackerel and cobia essential fish habitat occurs in the South Atlantic and Mid-Atlantic Bights.

Refer to Section 3.0 in the Habitat Plan for a more detailed description of habitat utilized by the managed species. Also, it should be noted that the Gulf Stream occurs within the EEZ.

##### Biological Impacts

The identification of essential habitat for coastal migratory pelagics will enable the Council to protect essential fish habitat effectively and take timely actions when necessary. This could prevent further decreases in biological productivity and may lead to possible increases.

##### Economic Impacts

The identification of essential fish habitat for coastal migratory pelagic species will enable the Council to protect essential fish habitat effectively and take timely actions when necessary. It should be noted that this action by itself would not impact fishermen, but other actions resulting from this one could impact fishermen. This action, together with other actions that protect habitat should result in increased net economic benefit to society in the long-term.

##### Social Impacts

There will be few social impacts from identifying essential fish habitat itself. The social impacts will most likely come from future actions that are associated with such a designation. The assumption is that such designation will provide protection for coastal migratory species and eventually improve stocks through protection of habitat. In that case, the social impacts will be

positive in the long run. However, in some cases, protection of habitat may mean harvesting restrictions in areas where harvesting presently takes place or other actions which may impose similar constraints on coastal migratory pelagic fishermen. This could conceivably impose negative short term impacts that may be mitigated in the long term if productivity is increased. Outside the fishery management arena there is another area where social impacts will occur and that is the permitting process. Designation of essential fish habitat will likely alter the process by which permits for activities which impact essential fish habitat are issued. The potential for increased restrictions, mitigation and permitting requirements may have impacts upon the behavior of individuals and agencies seeking permits. The nature and extent of those impacts is unknown and will undoubtedly vary depending upon the individual and/or agency.

### Conclusions

The identification of essential habitat will enable the Council to protect essential fish habitat effectively and take timely actions when necessary. This will prevent further decreases in biological productivity and could lead to possible increases in the abundance of species dependent upon the habitat being protected.

Recent amendments (1996) to the Magnuson-Stevens Act require the Council identify essential fish habitat. This action meets this mandate. Any activities impacting this identified essential fish habitat will come under the review process described by the Council. This process (identification and commenting) will allow the Council to provide additional protection for habitat important to species for which the Council has management authority.

### **Other Possible Options for Action 1:**

#### **Option 1. No Action.**

##### Biological Impacts

The Council would be limited in the future in terms of protecting the long-term biological productivity of the coastal migratory pelagics fisheries, and minimizing gear related habitat damage from occurring in these fisheries.

##### Economic Impacts

The Council would be limited in the future in terms of promoting the long-term economic viability of the coastal migratory pelagics fishery, and minimizing fishing related habitat damage from occurring in this fishery.

##### Social Impacts

The no action alternative would not meet Magnuson-Stevens mandates to identify essential fish habitat. Although there would be few social impacts from no action, it is in the best interest of the Council and fishermen to identify this habitat. Designation of essential habitat can facilitate expeditious Council action in the future to protect habitat for coastal migratory pelagics.

### Conclusions

The Council rejected taking no action because this would not provide habitat protection and it would not meet Magnuson-Stevens mandates to identify essential fish habitat. Taking no action would lead to continued declines in the amount of and quality of habitat important to species for which the Council has management authority.

#### **4.2.4.2 Existing Management Measures in the Coastal Migratory Pelagics Fishery Management Plan Which Directly or Indirectly Protect Essential Fish Habitat**

See Section 4.2.2 in the Habitat Plan.

#### **4.2.4.3 Assessment of Present Fishing Activities**

See the Coastal Migratory Pelagics Amendments. Use of nets in hard bottom areas could have some impact on essential fish habitat.

#### **4.2.4.4 ACTION 2. Establish Essential Fish Habitat-Habitat Areas of Particular Concern (EFH-HAPCs) for Coastal Migratory Pelagics.**

Areas which meet the criteria for essential fish habitat-habitat areas of particular concern (EFH-HAPCs) include sandy shoals of Capes Lookout, Cape Fear, and Cape Hatteras from shore to the ends of the respective shoals, but shoreward of the Gulf stream; The Point, The Ten-Fathom Ledge, and Big Rock (North Carolina); The Charleston Bump and Hurl Rocks (South Carolina); The Point off Jupiter Inlet (Florida); *Phragmatopoma* (worm reefs) reefs off the central east coast of Florida; nearshore hard bottom south of Cape Canaveral; The Hump off Islamorada, Florida; The Marathon Hump off Marathon, Florida; The “Wall” off of the Florida Keys; Pelagic *Sargassum*; and Atlantic coast estuaries with high numbers of Spanish mackerel and cobia based on abundance data from the ELMR Program. Estuaries meeting this criteria for Spanish mackerel include Bogue Sound and New River, North Carolina; Bogue Sound, North Carolina (Adults May-September salinity >30 ppt); and New River, North Carolina (Adults May-October salinity >30 ppt). For Cobia they include Broad River, South Carolina; and Broad River, South Carolina (Adults & juveniles May-July salinity >25ppt).

#### Biological Impacts

The establishment of EFH-HAPCs for coastal migratory pelagics will enable the Council to protect EFH-HAPCs effectively and take timely actions when necessary. This could prevent further decreases in biological productivity and may lead to possible increases.

#### Economic Impacts

The establishment of EFH-HAPCs for coastal migratory pelagics will enable the Council to protect EFH-HAPCs effectively and take timely actions when necessary. It should be noted that this action by itself would not impact fishermen, but other actions resulting from this one could impact fishermen. This action, together with other actions that protect EFH-HAPCs should result in increased net economic benefit to society in the long-term.

#### Social Impacts

The establishment of EFH-HAPCs will have few, if any, social impacts itself. Impacts may result from future management measures.

Conclusions

The establishment of EFH-HAPCs will enable the Council to protect essential fish habitat effectively and take timely actions when necessary. This will prevent further decreases in biological productivity and could lead to possible increases in the abundance of species dependent upon the habitat being protected.

Recent amendments (1996) to the Magnuson-Stevens Act require the Council identify essential fish habitat and allow the Council to designate portions of EFH as being particularly important (EFH-HAPCs). This action meets this provision. Any activities impacting the EFH-HAPCs will come under the review process described by the Council. This process (establishment of EFH-HAPCs and commenting) will allow the Council to provide additional protection for habitat important to species for which the Council has management authority.

**Other Possible Options for Action 2:****Option 1. No Action.**Biological Impacts

The Council would be limited in the future in terms of protecting the long-term biological productivity of the coastal migratory pelagics fisheries, and minimizing gear related habitat damage from occurring in these fisheries.

Economic Impacts

The Council would be limited in the future in terms of promoting the long-term economic viability of the snapper grouper fishery, and minimizing fishing related habitat damage from occurring in this fishery.

Social Impacts

The no action alternative would not meet Magnuson-Stevens mandates to identify HAPCs. Although there would be few social impacts from no action, it is in the best interest of the Council and fishermen to identify this habitat. Designation of EFH-HAPCs can facilitate expeditious Council action in the future to protect habitat for coastal migratory pelagics.

Conclusions

The Council rejected taking no action because this would not provide habitat protection and it would not meet Magnuson-Stevens provisions which allow establishment of essential fish habitat-habitat areas of particular concern. Taking no action would lead to continued declines in the amount of and quality of habitat important to species for which the Council has management authority.

#### **4.2.4.5 ACTION 3. No Action to Prohibit Fishing for Coastal Migratory Pelagics in the Experimental Closed Area.**

##### Biological Impacts

There will continue to be biological losses proportional to the extent fishing takes place within the existing closed area. No action would not provide any increased enforcement.

##### Economic Impacts

There would be no economic impact to king and Spanish mackerel fishermen. However, the Council would be limited in the future in protecting habitat and preventing incidental catches of snapper grouper species by fishermen trolling for coastal migratory pelagics. This could result in reduced net economic benefits to society in the long-term.

##### Social Impacts

Coastal pelagic fishermen indicated during public hearings that they use this area as an important fishing ground during tournaments and when fishing for dolphin. Some fishermen from inland counties commented that they travel specifically to the Ft. Pierce area to fish and that closing an area of this magnitude would force them to fish elsewhere. Prior to public hearings, the Council was unaware as to the amount of coastal pelagic fishing that took place in the Experimental Closed Area. Taking no action will have positive social impacts in that it will allow recreational and commercial fishermen to continue to use established fishing patterns and an important resource that may contribute more to the regional economy than was previously known.

##### Conclusion

Based on recommendations from the Habitat and Coral Advisory Panels and the Habitat Committee, the Council concluded additional regulations on gears other than those in the calico scallop fishery are not necessary to enforce the no fishing provision of the experimental closed area. A voluntary vessel monitoring system will be implemented on a portion of the rock shrimp vessels and 100% of the calico scallop vessels will be required to have a vessel monitoring system. These additional regulations, more public education, and more enforcement effort will adequately prevent fishing within the closed area.

#### **Other Possible Options for Action 3:**

##### **Option 1. Prohibit Fishing for Coastal Migratory Pelagics in the Experimental Closed Area.**

Fishing for coastal migratory pelagics (cero, cobia, dolphin, king mackerel, little tunny, and Spanish mackerel) would be prohibited within the experimental closed area.

##### Biological Impacts

To the extent enforcement is enhanced and fishing mortality on species in the snapper grouper management unit is reduced, there will be corresponding benefits in terms of rebuilding overfished species. There may also be biological benefits (e.g., reducing fishing mortality and protection spawning areas) for coastal migratory pelagic species which could result in increased biological productivity.

### Economic Impacts

Fishing with certain allowable gear types is permissible in the Experimental Closed Area. For example, trolling takes place for coastal pelagics and other non-snapper grouper species in this area. Thus, the prohibition of all fishing in this area would impact fishermen who have fished for coastal migratory pelagic species. Statistics from the Department of Environmental Protection, Florida Marine Research Institute, Division of Marine Resources (Martha Norris, July 28, 1998) show that between 1994 and 1997, an average of 342,014 pounds and 641,513 pounds of king and Spanish mackerels respectively were harvested from this area. It should be noted that these catches are from statistical areas used by the State of Florida which include the experimental closed area. The portion of actual catches from within the experimental closed area is unknown. This highlights the need for better catch by area data. Such data will be available in the future after implementation of the ACCSP data collection program.

Using 1997 average exvessel prices of \$1.24 and \$0.47 per pound for king and Spanish mackerels respectively (Vondruska, 1998), the average annual value of the harvest from this area from 1994 to 1997 was \$424,097 from king mackerel and \$301,511 from Spanish mackerel; the total impact would have been up to \$725,608 depending on the portion from within the experimental closed area. Assuming the same harvest trend continues, the prohibition of all fishing in this area would result in lost exvessel value of approximately \$726,000 to king and Spanish mackerel fishermen who have fished this area in the first year of the prohibition.

This action would also affect anglers and fishing tournaments in this area. The discussion and analysis under Section 4.2.3.5, Action 3 for Snapper Grouper applies.

### Social Impacts

The prohibition of fishing for coastal pelagics in the Experimental Closed area may have important social impacts, primarily on the recreational fishery. During public hearings in Ft. Pierce testimony from recreational fishermen indicated that a closure of the Oculina Bank would have considerable impact on charter fishing operations and the private boat fishery. Apparently, this is a popular fishing area for mackerel, dolphin and many highly migratory species. There are several tournaments held in Ft. Pierce throughout the year and closing this area may impact tournament participation. This action, in conjunction with other actions prohibiting other types of fishing, can have unforeseen impacts such as a reduction in the number of fishermen that travel from as far as Orlando to fish the waters off Ft. Pierce. Their fishing experience may be diminished if the Experimental Closed Area is off limits and which may persuade them to find another destination for their fishing endeavor. This would certainly have a negative impact on the Ft. Pierce economy, but would benefit the substitute destination. Another impact of closure would be what is called the "edge effect." This phenomenon is where fishing would take place on all sides of the closed area, or possibly more on those areas closer to shore. This may cause crowding and create future conflict.

### Conclusion

Based on recommendations from the Habitat and Coral Advisory Panels and the Habitat Committee, the Council concluded additional regulations on gears other than those in the calico scallop fishery are not necessary to enforce the no fishing provision of the experimental closed area. A voluntary vessel monitoring system will be implemented on a portion of the rock shrimp vessels and 100% of the calico scallop vessels will be required to have a vessel monitoring system. These additional regulations, more public education, and more enforcement effort will adequately prevent fishing within the closed area. Therefore, this action was rejected.

## **4.2.5 Amendment 1 to the Fishery Management Plan for the Golden Crab Fishery of the South Atlantic Region**

### **4.2.5.1 ACTION 1. Identify Essential Fish Habitat for Golden Crab**

Essential fish habitat for golden crab includes the U.S. Continental Shelf from Chesapeake Bay south through the Florida Straits (and into the Gulf of Mexico). In addition, the Gulf Stream is an essential fish habitat because it provides a mechanism to disperse golden crab larvae. The detailed description of seven essential fish habitat types (a flat foraminiferan ooze habitat; distinct mounds, primarily of dead coral; ripple habitat; dunes; black pebble habitat; low outcrop; and soft-bioturbated habitat) for golden crab is provided in Wenner et al. (1987).

Refer to Section 3.0 in the Habitat Plan for a more detailed description of habitat utilized by the managed species. Also, it should be noted that the Gulf Stream occurs within the EEZ.

#### Biological Impacts

The identification of essential habitat for golden crab will enable the Council to protect essential fish habitat effectively and take timely actions when necessary. This could prevent further decreases in biological productivity and may lead to possible increases.

#### Economic Impacts

The identification of essential fish habitat for the golden crab fishery will enable the Council to protect essential fish habitat effectively and take timely actions when necessary. It should be noted that this action by itself would not impact fishermen, but other actions resulting from this one could impact fishermen. This action, together with other actions that protect habitat should result in increased net economic benefit to society in the long-term.

#### Social Impacts

There will be few social impacts from identifying essential fish habitat itself. The social impacts will most likely come from future actions that are associated with such a designation. The assumption is that such designation will provide protection for golden crab and eventually improve stocks through protection of habitat. In that case, the social impacts will be positive in the long run. However, in some cases, protection of habitat may mean harvesting restrictions in areas where harvesting presently takes place or other actions which may impose similar constraints on golden crab fishermen. This could conceivably impose negative short term impacts that may be mitigated in the long term if productivity is increased. Outside the fishery management arena there is another area where social impacts will occur and that is the permitting process. Designation of essential fish habitat will likely alter the process by which permits for activities which impact essential fish habitat are issued. The potential for increased restrictions, mitigation and permitting requirements may have impacts upon the behavior of individuals and agencies seeking permits. The nature and extent of those impacts is unknown and will undoubtedly vary depending upon the individual and/or agency.

#### Conclusions

The identification of essential habitat will enable the Council to protect essential fish habitat effectively and take timely actions when necessary. This will prevent further decreases in biological productivity and could lead to possible increases in the abundance of species dependent upon the habitat being protected.

Recent amendments (1996) to the Magnuson-Stevens Act require the Council identify essential fish habitat. This action meets this mandate. Any activities impacting this identified essential fish habitat will come under the review process described by the Council. This process (identification and commenting) will allow the Council to provide additional protection for habitat important to species for which the Council has management authority.

### **Other Possible Options for Action 1:**

#### **Option 1. No Action.**

##### **Biological Impacts**

The Council would be limited in the future in terms of protecting the long-term biological productivity of the golden crab fishery, and minimizing gear related habitat damage from occurring in this fishery.

##### **Economic Impacts**

The Council would be limited in the future in terms of promoting the long-term economic viability of the golden crab fishery, and minimizing fishing related habitat damage from occurring in this fishery.

##### **Social Impacts**

The no action alternative would not meet Magnuson-Stevens mandates to identify essential fish habitat. Although there would be few social impacts from no action, it is in the best interest of the Council and fishermen to identify this habitat. Designation of essential habitat to golden crab can facilitate expeditious Council action in the future to protect essential fish habitat for golden crab.

##### **Conclusions**

The Council rejected taking no action because this would not provide habitat protection and it would not meet Magnuson-Stevens mandates to identify essential fish habitat. Taking no action would lead to continued declines in the amount of and quality of habitat important to species for which the Council has management authority.

### **4.2.5.2 Existing Management Measures in the Golden Crab Fishery Management Plan Which Directly or Indirectly Protect Essential Fish Habitat**

The following measures were established in the Golden Crab Fishery Management Plan (SAFMC, 1995) and all provide protection to essential fish habitat: limiting allowable gear to traps, limiting trap size (to a maximum of 64 cubic feet in the northern zone and 48 cubic feet in the middle and southern zones), depth limitations (traps can only be deployed in waters deeper than 900 feet in the northern zone and 700 feet in the middle and southern zones), and limiting the number of vessels.

### **4.2.5.3 Assessment of Present Fishing Activities**

No additional impacts have been identified.

**4.2.5.4 ACTION 2. No Action to Establish Essential Fish Habitat-Habitat Areas of Particular Concern (EFH-HAPCs) for Golden Crab.**

There is insufficient knowledge of the biology of golden crabs to identify spawning and nursery areas and to identify HAPCs at this time. As information becomes available, the Council will evaluate such data and identify HAPCs as appropriate through the framework.

**4.2.6 Amendment 5 to the Fishery Management Plan for the Spiny Lobster Fishery of the South Atlantic Region**

**4.2.6.1 ACTION 1. Identify Essential Fish Habitat for Spiny Lobster.**

Essential fish habitat for spiny lobster includes nearshore shelf/oceanic waters; shallow subtidal bottom; seagrass habitat; unconsolidated bottom (soft sediments); coral and live/hard bottom habitat; sponges; algal communities (*Laurencia*); and mangrove habitat (prop roots). In addition the Gulf Stream is an essential fish habitat because it provides a mechanism to disperse spiny lobster larvae.

Refer to Section 3.0 in the Habitat Plan for a more detailed description of habitat utilized by the managed species. Also, it should be noted that the Gulf Stream occurs within the EEZ.

Biological Impacts

The identification of essential fish habitat for spiny lobster will enable the Council to protect essential fish habitat effectively and take timely actions when necessary. This could prevent further decreases in biological productivity and may lead to possible increases.

Economic Impacts

The identification of essential fish habitat for spiny lobster will enable the Council to protect essential fish habitat effectively and take timely actions when necessary. It should be noted that this action by itself would not impact fishermen, but other actions resulting from this one could impact fishermen. This action, together with other actions that protect habitat should result in increased net economic benefit to society in the long- term.

Social Impacts

There will be few social impacts from identifying essential fish habitat itself. The social impacts will most likely come from future actions that are associated with such a designation. The assumption is that such designation will provide protection for spiny lobster and eventually improve stocks through protection of habitat. In that case, the social impacts will be positive in the long run. However, in some cases, protection of habitat may mean harvesting restrictions in areas where harvesting presently takes place or other actions which may impose similar constraints on spiny lobster fishermen. This could conceivably impose negative short term impacts that may be mitigated in the long term if productivity is increased. Outside the fishery management arena there is another area where social impacts will occur and that is the permitting process. Designation of essential fish habitat will likely alter the process by which permits for activities which impact essential fish habitat are issued. The potential for increased restrictions, mitigation and permitting requirements may have impacts upon the behavior of individuals and agencies seeking permits. The nature and extent of those impacts is unknown and will undoubtedly vary depending upon the individual and/or agency.

Conclusions

The identification of essential habitat will enable the Council to protect essential fish habitat effectively and take timely actions when necessary. This will prevent further decreases in biological productivity and could lead to possible increases in the abundance of species dependent upon the habitat being protected.

Recent amendments (1996) to the Magnuson-Stevens Act require the Council identify essential fish habitat. This action meets this mandate. Any activities impacting this identified essential fish habitat will come under the review process described by the Council. This process (identification and commenting) will allow the Council to provide additional protection for habitat important to species for which the Council has management authority.

**Other Possible Options for Action 1:****Option 1. No Action.**Biological Impacts

The Council would be limited in the future in terms of protecting the long-term biological productivity of the spiny lobster fisheries, and minimizing gear related habitat damage from occurring in these fisheries.

Economic Impacts

The Council would be limited in the future in terms of promoting the long-term economic viability of the spiny lobster fishery, and minimizing fishing related habitat damage from occurring in this fishery.

Social Impacts

The no action alternative would not meet Magnuson-Stevens mandates to identify essential fish habitat. Although there would be few social impacts from no action, it is in the best interest of the Council and fishermen to identify this habitat. Designation of essential fish habitat for spiny lobster can facilitate expeditious Council action in the future to protect such habitat for lobsters.

Conclusions

The Council rejected taking no action because this would not provide habitat protection and it would not meet Magnuson-Stevens mandates to identify essential fish habitat. Taking no action would lead to continued declines in the amount of and quality of habitat important to species for which the Council has management authority.

**4.2.6.2 Existing Management Measures in the Spiny Lobster Fishery Management Plan Which Directly or Indirectly Protect Essential Fish Habitat**

The trap limitation program provides habitat protection.

**4.2.6.3 Assessment of Present Fishing Activities**

See the Spiny Lobster Fishery Management Plan and Amendments. Use of spiny lobster traps on hard bottom and turtle grass beds could have some impact on essential fish habitat.

#### **4.2.6.4 ACTION 2. Establish Essential Fish Habitat-Habitat Areas of Particular Concern (EFH-HAPCs) for Spiny Lobster.**

Areas which meet the criteria for essential fish habitat-habitat areas of particular concern (EFH-HAPCs) for spiny lobster include Florida Bay, Biscayne Bay, Card Sound, and coral/hard bottom habitat from Jupiter Inlet, Florida through the Dry Tortugas, Florida.

##### Biological Impacts

The establishment of EFH-HAPCs for the spiny lobster fishery will enable the Council to protect EFH-HAPCs effectively and take timely actions when necessary. This could prevent further decreases in biological productivity and may lead to possible increases.

##### Economic Impacts

The establishment of EFH-HAPCs for the spiny lobster fishery will enable the Council to protect EFH-HAPCs effectively and take timely actions when necessary. It should be noted that this action by itself would not impact fishermen, but other actions resulting from this one could impact fishermen. This action, together with other actions that protect EFH-HAPCs should result in increased net economic benefits to society in the long-term.

##### Social Impacts

The establishment of EFH-HAPCs will have few, if any, social impacts itself. Impacts may result from future management measures.

##### Conclusions

The establishment of EFH-HAPCs will enable the Council to protect essential fish habitat effectively and take timely actions when necessary. This will prevent further decreases in biological productivity and could lead to possible increases in the abundance of species dependent upon the habitat being protected.

Recent amendments (1996) to the Magnuson-Stevens Act require the Council identify essential fish habitat and allow the Council to designate portions of EFH as being particularly important (EFH-HAPCs). This action meets this provision. Any activities impacting the EFH-HAPCs will come under the review process described by the Council. This process (establishment of EFH-HAPCs and commenting) will allow the Council to provide additional protection for habitat important to species for which the Council has management authority.

#### **Other Possible Options for Action 2:**

##### **Option 1. No Action.**

##### Biological Impacts

The Council would be limited in the future in terms of protecting the long-term biological productivity of the spiny lobster fisheries, and minimizing gear related habitat damage from occurring in these fisheries.

##### Economic Impacts

The Council would be limited in the future in terms of promoting the long-term economic viability of the spiny lobster fishery, and minimizing fishing related habitat damage from occurring in this fishery.

Social Impacts

The no action alternative would not meet Magnuson-Stevens mandates to identify EFH-HAPCs. Although there would be few social impacts from no action, it is in the best interest of the Council and fishermen to identify this habitat. Designation of EFH-HAPCs for spiny lobster can facilitate expeditious Council action in the future to protect essential fish habitat for lobsters.

Conclusions

The Council rejected taking no action because this would not provide habitat protection and it would not meet Magnuson-Stevens provisions which allow establishment of essential fish habitat-habitat areas of particular concern. Taking no action would lead to continued declines in the amount of and quality of habitat important to species for which the Council has management authority.

**4.2.6.5 ACTION 3. No Action to Prohibit Fishing for Spiny Lobster in the Experimental Closed Area.**

The use of traps is already prohibited in the Experimental Closed Area. No action would continue to allow harvest by hook and line or diving.

Biological Impacts

There will continue to be biological losses proportional to the extent fishing takes place within the existing closed areas. No action would not provide any increased enforcement.

Economic Impacts

There would be no economic impact to spiny lobster fishermen. However, the Council would be limited in the future in protecting habitat and preventing incidental catches of snapper grouper species by fishermen fishing for spiny lobster in this area. This could result in reduced net economic benefits to society in the long-term.

Social Impacts

As stated under previous actions, this area is important to regional fishermen who have established fishing patterns in this area. The social impacts from no action should be positive as the benefits from enhancing law enforcement do not outweigh the negative social impacts from the prohibition at this time.

Conclusion

Based on recommendations from the Habitat and Coral Advisory Panels and the Habitat Committee, the Council concluded additional regulations on gears other than those in the calico scallop fishery are not necessary to enforce the no fishing provision of the experimental closed area. A voluntary vessel monitoring system will be implemented on a portion of the rock shrimp vessels and 100% of the calico scallop vessels will be required to have a vessel monitoring system. These additional regulations, more public education, and more enforcement effort will adequately prevent fishing within the closed area.

**Other Possible Options for Action 3:**

**Option 1. Prohibit Fishing for Spiny Lobster in the Experimental Closed Area.**

**Biological Impacts**

To the extent enforcement is increased and fishing mortality on species in the snapper grouper management unit is reduced, there will be corresponding benefits in terms of rebuilding overfished species. There may also be biological benefits for lobster species by establishing a no fishing area. This could result in increased biological productivity.

**Economic Impacts**

Fishing with certain allowable gear types is permissible in the Experimental Closed Area. For example, trolling takes place for coastal pelagics and other non-snapper grouper species in this area. Statistics from the Department of Environmental Protection, Florida Marine Research Institute, Division of Marine Resources (Martha Norris, July 28, 1998) show that between 1994 and 1997, an average of 4,569 pounds of spiny lobster were harvested from the entire statistical sample area which includes the Experimental Closed Area. Using 1996 average exvessel price of \$4.00 per pound (1996 Snapper Grouper Commercial Logbook Report), the average annual value of the harvest from this area from 1994 to 1997 was \$18,276. Assuming the same harvest trend continues, the prohibition of all fishing in this area would result in lost exvessel value of up to approximately \$18,000 to spiny lobster fishermen who have fished this area in the first year if the harvest is from the Experimental Closed Area and not in adjacent waters. If all lobster are trapped or harvested by divers outside the Experimental Closed Area, or are harvested by divers within the Experimental Closed Area, the impact will range from \$0 to \$18,000.

**Social Impacts**

The prohibition of fishing for spiny lobster in the Experimental Closed area may have important social impacts on the commercial fishery as Florida Trip Ticket Data suggests there is harvest of spiny lobster in this area. The impacts to the recreational fishery are probably minimal because the depth of water may prevent many recreational fishermen from harvesting spiny lobster here. This action in conjunction with other prohibitions may have larger social impacts since closing this area may impact the recreational charter and private boat industry to a much larger extent than was previously known.

**Conclusion**

Based on recommendations from the Habitat and Coral Advisory Panels and the Habitat Committee, the Council concluded additional regulations on gears other than those in the calico scallop fishery are not necessary to enforce the no fishing provision of the experimental closed area. A voluntary vessel monitoring system will be implemented on a portion of the rock shrimp vessels and 100% of the calico scallop vessels will be required to have a vessel monitoring system. These additional regulations, more public education, and more enforcement effort will adequately prevent fishing within the closed area. Therefore, this action was rejected.

## 4.2.7 Amendment 4 to the Fishery Management Plan for Coral, Coral Reefs, and Live/Hard Bottom Habitats of the South Atlantic Region

### 4.2.7.1 ACTION 1. Identify Essential Fish Habitat for Coral, Coral Reefs, and Live/Hard Bottom Habitats of the South Atlantic Region.

Essential fish habitat for corals (stony corals, octocorals, and black corals) must incorporate habitat for over 200 species. EFH for corals include the following:

- A. Essential fish habitat for hermatypic stony corals includes rough, hard, exposed, stable substrate from Palm Beach County south through the Florida reef tract in subtidal to 30 m depth, subtropical (15°-35° C), oligotrophic waters with high (30-35‰) salinity and turbidity levels sufficiently low enough to provide algal symbionts adequate sunlight penetration for photosynthesis. Ahermatypic stony corals are not light restricted and their essential fish habitat includes defined hard substrate in subtidal to outer shelf depths throughout the management area.
- B. Essential fish habitat for *Antipatharia* (black corals) includes rough, hard, exposed, stable substrate, offshore in high (30-35‰) salinity waters in depths exceeding 18 meters (54 feet), not restricted by light penetration on the outer shelf throughout the management area.
- C. Essential fish habitat for octocorals excepting the order Pennatulacea (sea pens and sea pansies) includes rough, hard, exposed, stable substrate in subtidal to outer shelf depths within a wide range of salinity and light penetration throughout the management area.
- D. Essential fish habitat for Pennatulacea (sea pens and sea pansies) includes muddy, silty bottoms in subtidal to outer shelf depths within a wide range of salinity and light penetration.

Refer to Section 3.0 in the Habitat Plan for a more detailed description of habitat utilized by the managed species.

#### Biological Impacts

The identification of essential habitat for coral, coral reefs, and live/hard bottom habitats will enable the Council to protect essential fish habitat effectively and take timely actions when necessary. This could prevent further decreases in biological productivity and may lead to possible increases.

#### Economic Impacts

The identification of essential fish habitat for coral, coral reefs, and live/hard bottom will enable the Council to protect essential fish habitat effectively and take timely actions when necessary. It should be noted that this action by itself would not impact fishermen, but other actions resulting from this one could impact fishermen. This action, together with other actions that protect habitat should result in increased net economic benefit to society in the long-term.

#### Social Impacts

There will be few social impacts from identifying essential fish habitat itself. The social impacts will most likely come from future actions that are associated with such a designation. The South Atlantic Council has already taken action to protect corals and live bottom. Outside the fishery management arena there is another area where social impacts will occur and that is

#### 4.0 Environmental Consequences

the permitting process. Designation of essential fish habitat will likely alter the process by which permits for activities which impact essential fish habitat are issued. The potential for increased restrictions, mitigation, and permitting requirements may have impacts upon the behavior of individuals and agencies seeking permits. The nature and extent of those impacts is unknown and will vary depending upon the individual and/or agency.

#### Conclusions

The identification of essential habitat will enable the Council to protect essential fish habitat effectively and take timely actions when necessary. This will prevent further decreases in biological productivity and could lead to possible increases in the abundance of species dependent upon the habitat being protected.

Recent amendments (1996) to the Magnuson-Stevens Act require the Council identify essential fish habitat. This action meets this mandate. Any activities impacting this identified essential fish habitat will come under the review process described by the Council. This process (identification and commenting) will allow the Council to provide additional protection for habitat important to species for which the Council has management authority.

#### **Other Possible Options for Action 1:**

##### **Option 1. No Action.**

#### Biological Impacts

The Council would be limited in the future in terms of protecting the long-term biological productivity of the coral, coral reefs, and live/hard bottom habitat, and minimizing gear related habitat damage from occurring in these fisheries.

#### Economic Impacts

The Council would be limited in the future in protecting the long-term economic viability of coral, coral reefs, and live/hard bottom habitat, and minimizing fishing related habitat damage from occurring.

#### Social Impacts

The no action alternative would not meet Magnuson-Stevens mandates to identify essential fish habitat. Although there would be few social impacts from no action, it is in the best interest of the Council and fishermen to identify this habitat. Designation of essential coral habitat can facilitate expeditious Council action in the future to protect coral habitat.

#### Conclusions

The Council rejected taking no action because this would not provide habitat protection and it would not meet Magnuson-Stevens mandates to identify essential fish habitat. Taking no action would lead to continued declines in the amount of and quality of habitat important to species for which the Council has management authority.

#### **4.2.7.2 Existing Management Measures in the Fishery Management Plan for Coral, Coral Reefs, and Live/Hard Bottom Habitats which Directly or Indirectly Protect Essential Fish Habitat**

Establishment of the Oculina Bank HAPC in the Coral Plan (GMFMC and SAFMC, 1982), prohibition on anchoring and establishment of the experimental closed area, prohibition of live rock harvest, and encouragement for live rock aquaculture all provide protection for essential fish habitat.

#### **4.2.7.3 Assessment of Present Fishing Activities**

There is no directed taking allowed except under permit. Scientific permits may be granted by the NMFS for limited harvest of all species. There is a quota of 50,000 colonies for the harvest of octocorals. In the South Atlantic, octocoral harvest is allowed south of Cape Canaveral, Florida (28°35.1' N. latitude or due east of the NASA Vehicle Assembly Building) and the quota is limited to 25,000 colonies (one-half of the total quota of 50,000 colonies for the Gulf of Mexico and South Atlantic; A colony is a continuous group of coral polyps forming a single unit.). Stony coral harvest is allowable from permitted live rock aquaculture sites with no limits.

#### **4.2.7.4 ACTION 2. Establish Essential Fish Habitat-Habitat Areas of Particular Concern (EFH-HAPCs) for Coral, Coral Reefs, and Live/Hard Bottom.**

Areas which meet the criteria for essential fish habitat-habitat areas of particular concern (EFH-HAPCs) for coral, coral reefs, and live/hard bottom include The 10-Fathom Ledge, Big Rock, and The Point (North Carolina); Hurl Rocks and The Charleston Bump (South Carolina); Gray's Reef National Marine Sanctuary (Georgia); The *Phragmatopoma* (worm reefs) reefs off the central east coast of Florida; Oculina Banks off the east coast of Florida from Ft. Pierce to Cape Canaveral; nearshore (0-4 meters; 0-12 feet) hard bottom off the east coast of Florida from Cape Canaveral to Broward County); offshore (5-30 meter; 15-90 feet) hard bottom off the east coast of Florida from Palm Beach County to Fowey Rocks; Biscayne Bay, Florida; Biscayne National Park, Florida; and the Florida Keys National Marine Sanctuary.

#### Biological Impacts

The establishment of EFH-HAPCs for coral, coral reefs, and live/hard bottom will enable the Council to protect EFH-HAPCs effectively and take timely actions when necessary. This could prevent further decreases in biological productivity and may lead to possible increases.

#### Economic Impacts

The establishment of EFH-HAPCs for coral, coral reefs, and live/hard bottom will enable the Council to protect EFH-HAPCs effectively and take timely actions when necessary. It should be noted that this action by itself would not impact fishermen, but other actions resulting from this one could impact fishermen. This action, together with other actions that protect EFH-HAPCs should result in increased net economic benefits to society in the long-term.

#### Social Impacts

The establishment of EFH-HAPCs will have few, if any, social impacts itself. Impacts may result from future management measures.

### Conclusions

The establishment of EFH-HAPCs will enable the Council to protect essential fish habitat effectively and take timely actions when necessary. This will prevent further decreases in biological productivity and could lead to possible increases in the abundance of species dependent upon the habitat being protected.

Recent amendments (1996) to the Magnuson-Stevens Act require the Council identify essential fish habitat and allow the Council to designate portions of EFH as being particularly important (EFH-HAPCs). This action meets this provision. Any activities impacting the EFH-HAPCs will come under the review process described by the Council. This process (establishment of EFH-HAPCs and commenting) will allow the Council to provide additional protection for habitat important to species for which the Council has management authority.

### **Other Possible Options for Action 2:**

#### **Option 1. No Action.**

##### Biological Impacts

The Council would be limited in the future in terms of protecting the long-term biological productivity of the coral, coral reefs, and live/hard bottom habitat, and minimizing gear related habitat damage from occurring in these fisheries.

##### Economic Impacts

The Council would be limited in the future in terms of promoting the long-term economic viability of coral, coral reefs, and live/hard bottom, and minimizing fishing related habitat damage from occurring.

##### Social Impacts

The no action alternative would not meet Magnuson-Stevens mandates to identify EFH-HAPCs. Although there would be few social impacts from no action, it is in the best interest of the Council and fishermen to identify this habitat. Designation of important coral habitat can facilitate expeditious Council action in the future to protect coral habitat.

### Conclusions

The Council rejected taking no action because this would not provide habitat protection and it would not meet Magnuson-Stevens provisions which allow establishment of essential fish habitat-habitat areas of particular concern. Taking no action would lead to continued declines in the amount of and quality of habitat important to species for which the Council has management authority.

#### **4.2.7.5 ACTION 3A. Expand the Oculina Bank Habitat Area of Particular Concern (HAPC) to an area bounded to the west by 80°W longitude, to the north by 28°30' N latitude, to the south by 27°30' N latitude, and to the east by the 100 fathom (600 feet) depth contour.**

The current Oculina Bank HAPC is located approximately 15 nautical miles east of Fort Pierce, Florida, at its nearest point to shore. The area measures 4 by 23 nautical miles and the water depth is between 30 and 75 fathoms. The current Oculina Bank HAPC area is bounded on the north by 27°53' N. latitude, on the south by 27°30' N. latitude, on the east by 79°56' W. longitude, and on the west by 80°00' W. longitude.

This action would expand the Oculina Bank HAPC area to include the area currently closed to rock shrimp harvest. The Calico Scallop FMP proposes to close this area to calico scallop harvest. The expanded Oculina Bank HAPC would be 60 nautical miles long by about 5 nautical miles wide although the width tracks the 100 fathom (600 foot) depth contour rather than a longitude line. Within the expanded Oculina Bank HAPC area the following regulations would apply:

- (1) Fishing with a bottom longline, bottom trawl, dredge, pot, or trap is prohibited.
- (2) A fishing vessel may not anchor, use an anchor and chain, or use a grapple and chain.

This action will separate the Oculina Bank HAPC from the experimental closed area which are currently the same area as shown in Figure 1. Should this measure be approved, the existing experimental closed area would remain the same area while the Oculina Bank HAPC would be expanded with the above specified regulations applying within the Oculina Bank HAPC.

### Biological Impacts

This action reduces the impact of the rock shrimp and calico scallop fisheries on live/hard bottom and coral habitat by eliminating trawl gear from being used in the expanded area. It would also eliminate damage from other gear which contacts the bottom. In addition, this area corresponds to the current area closed to rock shrimping.

The calico scallop fishery historically occurred in the EEZ off North Carolina through the east coast of Florida and into the Gulf of Mexico. The primary fishing area is centered around Cape Canaveral, Florida (Figure 1). The fishable grounds are hard sand to shell hash bottoms which run north and south. Shell distribution is shown in Figure 2.

Trawl damage occurs from direct contact with live/hard bottom, including *Oculina* coral. *Oculina* is only known to be distributed in bank formation south of 29° N. latitude. Amendment 1 to the snapper grouper fishery management plan prohibited use of bottom tending roller rig trawls on live/hard bottom habitat north of Cape Canaveral, Florida. Habitat damage occurs from the use of bottom tending trawl gear. The effects of research trawls on hard bottom sponge and coral (including *Oculina*) assemblages are well documented. Therefore, implementation of this measure will prevent the loss of this essential snapper grouper habitat.

The rock shrimp fishery historically occurred in the EEZ off St. Augustine to Cape Canaveral, Florida (Hetzal Shoals). Today the fishery operates north of Cape Canaveral through Jupiter Inlet, Florida (Figure 3). The fishable grounds are hard sand to shell hash bottoms which run north and south with a width as narrow as one mile. It is only in recent years (after 1991) that the effort shifted south of Cape Canaveral exposing the known concentrations of *Oculina* coral, live/hard bottom, and the Oculina Bank HAPC to bottom trawl damage. More recently the fishery has also shifted offshore and south of the Oculina Bank HAPC.

The most extensive *Oculina* coral concentration exists in the Oculina Bank Habitat Area of Particular Concern (HAPC) which was established under the Coral Fishery Management Plan. *Oculina varicosa*, a slow growing delicate stony coral, is easily damaged by bottom tending trawl gear, anchoring, fishing leads, etc. *Oculina* is distributed mainly in deepwater along the south Atlantic coast with the largest known concentrations occurring off Cape Canaveral, south through the Oculina Bank HAPC. Effective June 27, 1994 as part of Amendment 6 to the snapper grouper plan, the Oculina HAPC was also designated an experimental closed area in which fishing or anchoring to fish for species in the snapper grouper management unit is prohibited. Therefore, the additional protection afforded by this action extends the protection

#### 4.0 Environmental Consequences

from trawl gear north through 28° 30' N. latitude and east out to 100 fathoms, enhancing the biological integrity of the HAPC and the possible effectiveness of the closed area.

Another habitat concern which has been raised is the repetitive trawling of the limited fishable bottom over the years which may impact the benthic habitat and the shrimp resource it sustains. In addition, the Council's Scientific and Statistical Committee reiterated that although limited, the information provided from research efforts has indicated that large spawning rock shrimp tend to be associated with the *Oculina* live/hard bottom habitat. Therefore, an additional benefit which may come with protecting these habitats is protection of a portion of the rock shrimp and calico scallop spawning stock. This would help the fishery in years when recruitment is low due to poor environmental conditions.

The area closure may also protect juvenile rock shrimp in their nursery grounds. Public testimony at scoping meetings and public hearings indicated that nursery grounds may be southeast of Cape Canaveral in depths greater than 180 feet. The rock shrimp fishery during the 1993/94 season, occurred at depths of 180 feet and deeper. In earlier years the fishery took place at depths around 120 feet. Some fishermen feel the fishery prevents rock shrimp from moving up and on the shelf and distributing over the grounds since rock shrimp are being caught as they move up onto the slope.

#### Economic Impacts

The expansion of the *Oculina* Bank HAPC would provide added protection to delicate corals and live bottoms. This would create a buffer zone which would prevent fishing vessels from straying into the original *Oculina* HAPC unintentionally. This area is already prohibited to rock shrimping, thus there would be no impact on rock shrimp vessels.

Given the lack of catch by specific area it is difficult to analyze the impacts of this action. In the future, data collected through the Atlantic Coast Cooperative Statistical Program (ACCSP) will provide specific area of capture. In the interim, catch by statistical area and information from fishermen must be used. The following economic analysis presents the upper limit on impacts from this action. Based on information from the Calico Scallop Advisory Panel, the Panel feels the fishery can continue with the proposed area closure. In fact, the Calico Scallop Advisory Panel supports the proposed closed area. The primary fishing areas are inshore of the proposed closed area as shown in Figure 1. The economic analysis presented below indicates that if the majority of the catch were to come from within the proposed closed area, the impacts would be large.

The prohibition will include portions of Statistical Areas 732 and 736, areas used in the Florida data collection program. In 1997, 82 percent of the reported harvest in Florida came from area 732.9 which is indicated as Federal waters (Martha Norris, Department of Environmental Protection, Florida Marine Research Institute, Division of Marine Resources). Thus, this proposed action prohibiting calico scallop harvest from this area could result in lost harvest of up to this magnitude. Based on an average exvessel value of \$0.85 per pound in 1995 (Table 4), and assuming that the landings trend from this area follows the 1997 pattern, exvessel value would be reduced by up to \$1,077,069 ( $1,545,292 \times 82\% \times \$0.85$ ) in the first year. This represents 82 percent of the 1997 exvessel value of \$1,313,498 ( $1,545,292 \times \$0.85$ ).

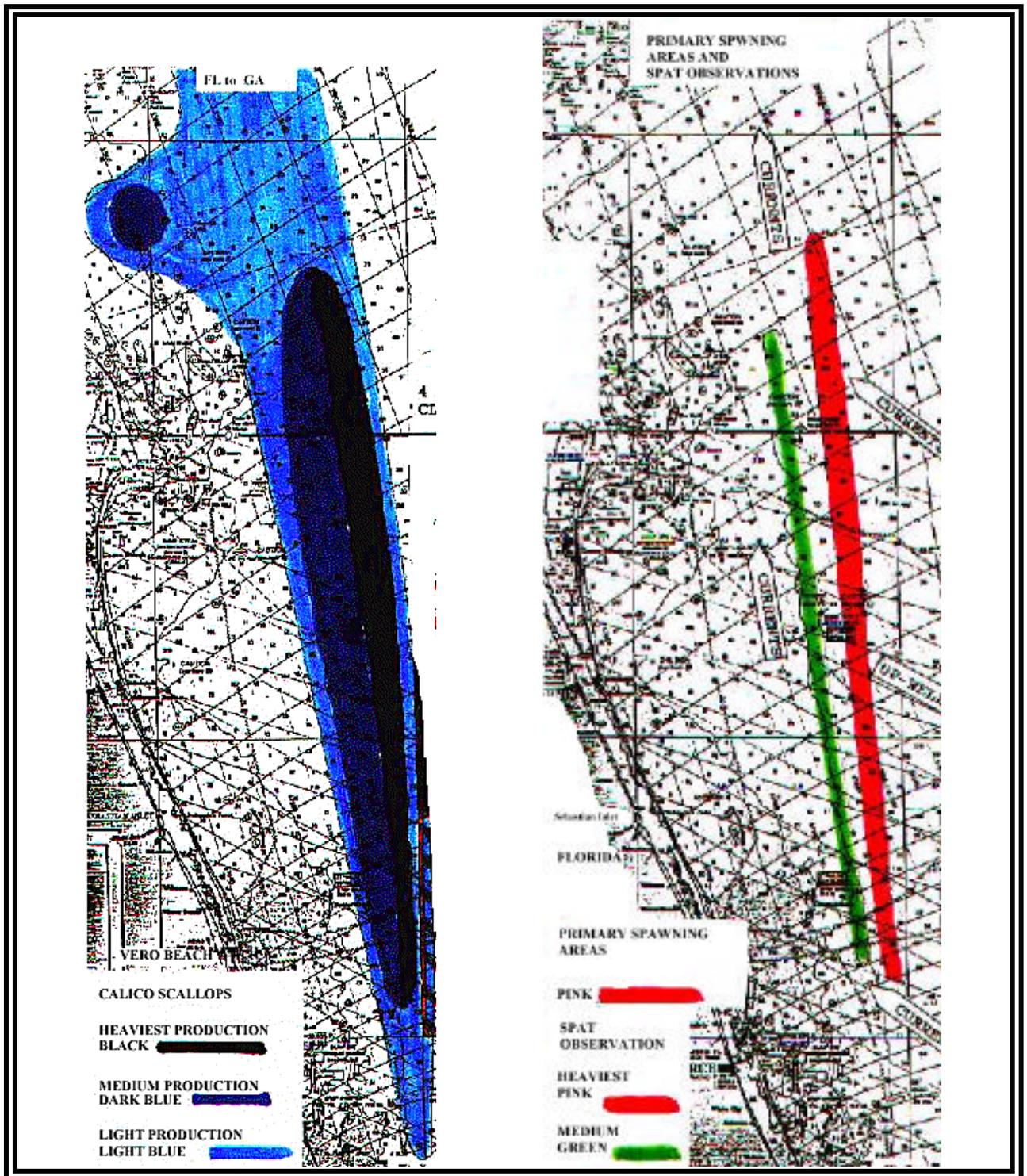


Figure 1. Calico scallop spawning areas and fishing grounds (Source: William Burkhardt, Calico Scallop Advisory Panel).

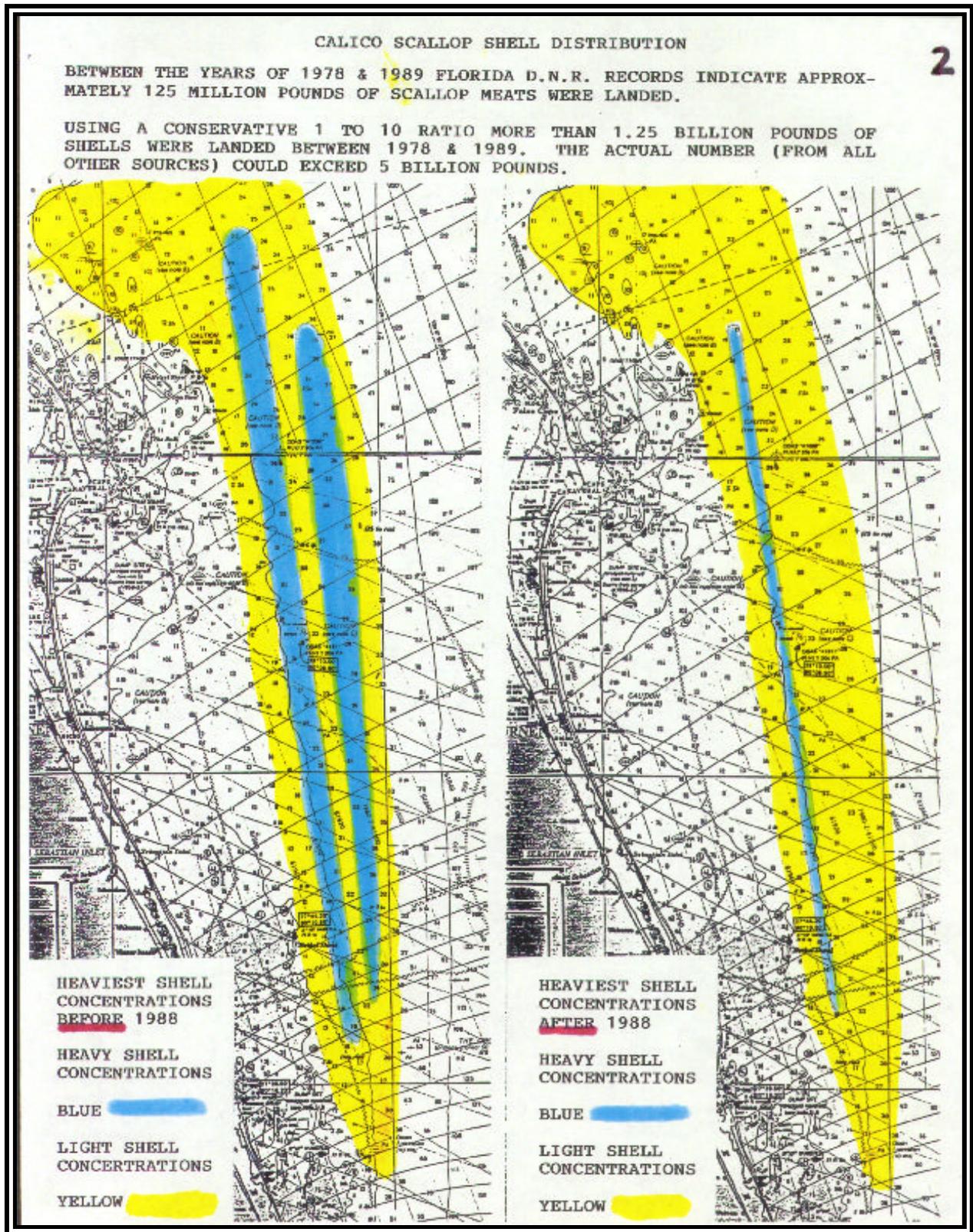


Figure 2. Calico scallop shell distribution (Source: William Burkhardt, Calico Scallop Advisory Panel).

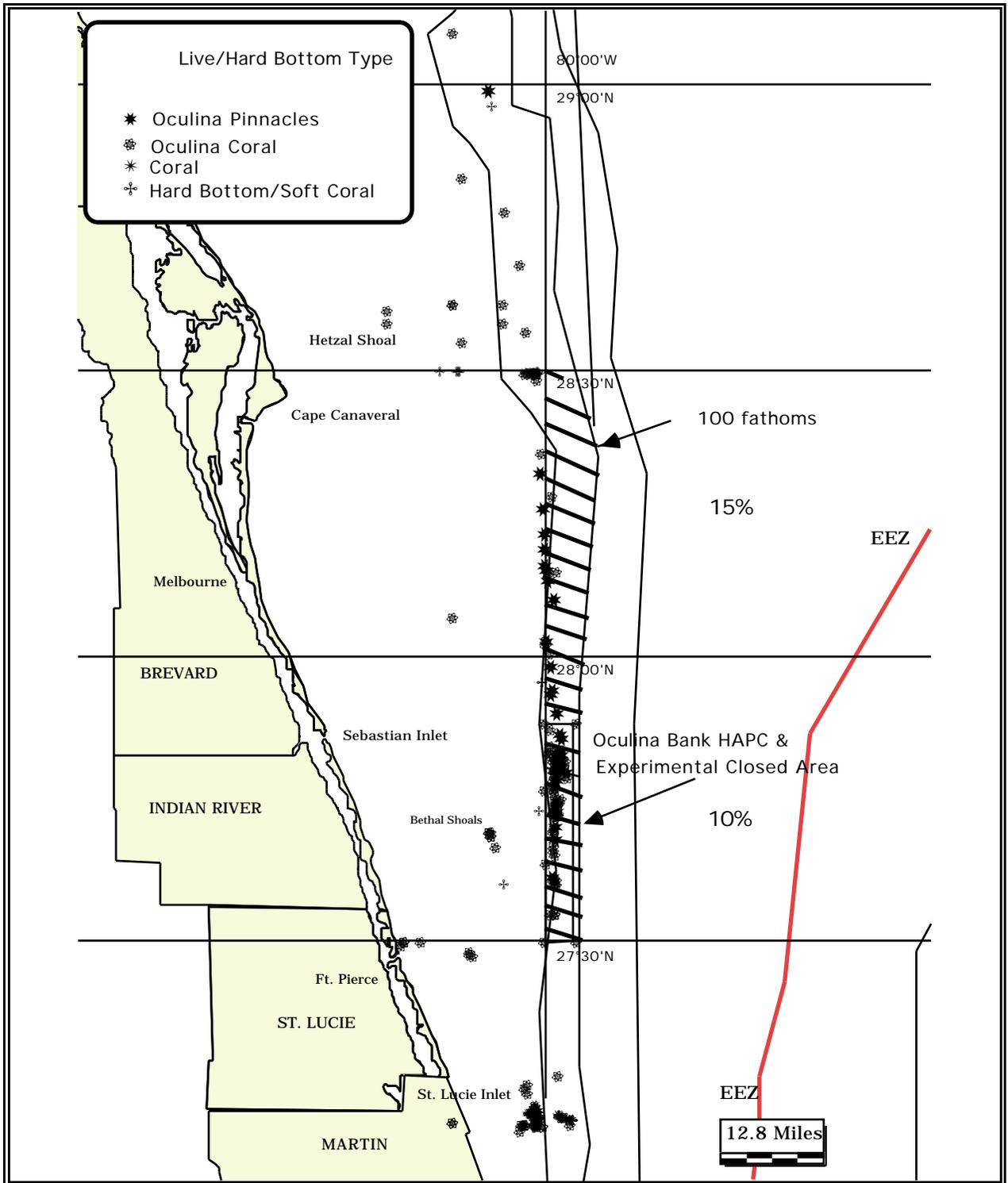


Figure 3. Map of hashed areas prohibited under Management Action 2 and coral, coral reef and live/hard bottom habitat associated with rock shrimp harvest areas (Source: SAFMC 1995).

#### 4.0 Environmental Consequences

Easley and Prochaska (1985) indicate that a 1 million pound change in landings of calico scallops produces a \$0.49 change in exvessel price per pound in the opposite direction. Thus, a reduction in landings of 1,267,139 (82% x 1,545,292) pounds would create an increase of \$0.62 per pound other things being equal. If this price change holds, the new price as a result of the decreased landings would be \$1.47 per pound (\$0.85 + \$0.62). Based on 1997 landings of 1,545,292 pounds, if landings are decreased by 1,267,139 pounds, the difference of 278,153 pounds (1,545,292 - 1,267,139) would result in an exvessel value of \$408,885 (278,153 x \$1.47). The actual reduction in value in the first year would be up to \$904,613 (\$1,313,498 - 408,885). This represents a reduction of 69 percent (instead of the original 82 percent without including the price effect) of the 1997 exvessel value.

Table 4. Calico Scallop Landings and Exvessel Value in the South Atlantic 1981 - 1996. (Source: Linda Hardy, NMFS, Beaufort Laboratory, July 22, 1998. Note: Pounds are in meat weight.)

YEAR	POUNDS	VALUE (\$)
1981	15,417,756	14,587,183
1982	11,036,112	11,459,703
1983	9,470,942	11,776,929
1984	42,966,920	23,377,756
1985	12,521,311	11,655,518
1986	1,565,784	2,860,645
1987	10,933,064	11,000,598
1988	12,706,752	9,454,013
1989	4,066,521	3,531,597
1990	1,259,159	2,241,249
1991	39,000	127,149
1992	205,061	768,996
1993	501,793	422,033
1994	4,989,600	2,784,612
1995	945,093	804,628
1996	0	0

Note: Landings in the south Atlantic are mainly from the EEZ off Florida. Some landings were reported from the EEZ off North Carolina in some years.

However, it may be unrealistic to think that with total annual exvessel value reduced by up to 69 percent in the first year, calico scallop fishermen would still find it profitable to continue in this fishery unless the bulk of the catch comes from outside this area or the potential exists for the fishery to shift to other areas. This could happen if calico scallop beds are discovered in areas outside the prohibited area. It is also likely that calico scallop vessels could increase effort in other fisheries because of this prohibition. If this could be done successfully, lost revenues to calico scallop fishermen would be lower than the values computed above. It should be noted that in the event of this scenario occurring, effort shift to other fisheries would only increase fishing pressure on otherwise stressed fisheries.

The high level of support from the Advisory Panel indicates they will not be impacted near to the degree indicated by the available data. Input from the Advisory Panel indicates there will be some level of impact but they are willing to accept the proposed area closure given the need to protect habitat. The Panel has indicated if the boundary is shifted towards the west, the impacts would be large, perhaps on the order of the magnitude shown by the available data.

Other gear types (excluding bottom trawls and other bottom tending gears) will be allowed to fish in the section of the expanded area that does not include the Experimental Closed Area. Thus, it is likely that the calico scallop fishery is the one that would be impacted.

### Social Impacts

Expansion of the HAPC would extend the prohibition of bottom tending gear and the anchoring prohibition to the area not presently closed to rock shrimping. This expansion will assist the Council in meeting its mandate to protect essential fish habitat. This expansion will also create a more equitable regulatory regime that does not single out rock shrimpers. In that sense, there should be positive social impacts.

### Conclusion

Based on recommendations from the Calico Scallop, Habitat, and Coral Advisory Panels, the Council approved this action to provide additional protection for essential fish habitat. The Council is expanding the *Oculina* Bank HAPC to protect the *Oculina* coral and the hard bottom/soft coral habitat within the area north of the current *Oculina* Bank HAPC boundary (Figure 1).

The Council concluded this action is necessary to protect the *Oculina* habitat present in the affected area. This action meets the mandates of the Magnuson-Stevens Act to protect essential fish habitat. The Council reviewed the potential economic impacts and concluded that the actual impact will be much less given the input of the Calico Scallop Advisory Panel which indicates that most of the harvest comes from the portions of the statistical areas outside of the proposed closed area. The Council concluded this area closure best achieves the objectives of the Calico Scallop Fishery Management Plan.

**4.2.7.6 ACTION 3B. Establish the following two Satellite *Oculina* HAPCs: (1) Satellite *Oculina* HAPC #1 is bounded on the north by 28°30'N. Latitude, on the south by 28°29'N. Latitude, on the east by 80°W. Longitude, and on the west by 80°3'W. Longitude, and (2) Satellite *Oculina* HAPC #2 is bounded on the north by 28°17'N. Latitude, on the south by 28°16'N. Latitude, on the east by 80°W. Longitude, and on the west by 80°3'W. Longitude.**

It is the Council's intent that possession of calico scallops and rock shrimp within these areas is also prohibited. This will enhance enforceability of the prohibition of harvest in these areas and the prohibition on use of bottom-tending gear in these areas. A more detailed discussion of these two areas is contained in the Habitat Comprehensive Amendment.

The coordinates for these two areas are shown in Appendix C along with distribution information for *Oculina* coral and hard bottom. Within the two Satellite *Oculina* Bank HAPCs, the following regulations would apply:

- (1) Fishing with a bottom longline, bottom trawl, dredge, pot, or trap is prohibited.
- (2) A fishing vessel may not anchor, use an anchor and chain, or use a grapple and chain.

Biological Impacts

See discussion under Action 3A. This option would provide additional protection for the *Oculina* and other essential fish habitat occurring within these areas.

Economic Impacts

Industry officials indicated at the Joint Calico Scallop Committee and Advisory Panel meeting held on July 29-30, 1998 in Charleston, South Carolina that the bulk of their harvest comes from statistical area 732. The level of calico scallop landings from these two 1 mile by 3 mile areas is unknown but is likely minimal based on input from the Calico Scallop Advisory Panel.

Social Impacts

The social impacts of this action should be positive. With the identification of satellite HAPCs, the Council will be protecting coral outcroppings that are outside the larger HAPC expansion without impacting the trawl fisheries which fish the area just west of the 80° line. Rock shrimpers and calico scallop harvesters have indicated that they do fish that area and would have been impacted by a 1 mile closure. The establishment of satellite HAPCs should have minimal impact on these fisheries. With satellite HAPCs, the goals of the Council to protect essential fish habitat and to not unnecessarily adversely impact present harvesting activity can both be met, thereby creating positive social impact.

Conclusions

The Habitat and Coral Advisory Panels support prohibiting establishing these two areas as coral HAPCs. The Council concluded this action is necessary to protect the *Oculina* habitat present in the affected area. This action meets the mandates of the Magnuson-Stevens Act to protect essential fish habitat. The Council reviewed the potential economic impacts and concluded that the actual impact will be minimal given the input of the Calico Scallop Advisory Panel which indicates that their harvest comes from outside of the two proposed closed areas. The Council concluded these area closures best achieve the objectives of the Calico Scallop Fishery Management Plan. This option protects important habitat without the large negative impacts to the calico scallop fishery from other alternatives considered.

**Other Possible Options for Action 3:****Option 1. No Action.****Biological Impacts**

This option would not provide as much protection as the proposed Action for *Oculina* coral which is easily damaged by bottom tending gear. Having less gear fishing within this area may provide greater protection to other species by not disrupting spawning and migration behavior.

**Economic Impacts**

The Council would be limited in the future in terms of protecting coral, coral reefs and live/hard bottom habitat, and minimizing any possible habitat damage. This option could result in reduced net economic benefits in the long-term. Any habitat damage resulting from calico scallop fishing activity in this area could affect other fisheries and result in reduced economic benefits from those fisheries.

**Social Impacts**

The no action alternative will leave the Council open to criticism from rock shrimp fishermen who have been prohibited from trawling in this area to enhance coral habitat. With other types of destructive gear being allowed in this area, the argument for the rock shrimp closure is less defensible.

**Conclusions**

The Council rejected the no action option because it would not protect essential fish habitat. Also, no action would violate the mandates of Magnuson-Stevens Act and the objectives of the calico scallop plan. Rock shrimp trawling is proposed to be prohibited within this area and were the Council to adopt no action, the Council would be treating two gears with the same impact very differently.

**Option 2. Expand the *Oculina* Bank HAPC by 1 mile on the western side between 28° and 28°30' N. latitude.****Biological Impacts**

See discussion under Action 3A. This option would provide additional protection for the *Oculina* and other essential fish habitat occurring within this 1 mile strip.

**Economic Impacts**

Industry officials indicated at the Joint Calico Scallop Committee and Advisory Panel meeting held on July 29-30, 1998 in Charleston, South Carolina that the bulk of their harvest comes from this area which is included in statistical area 732. Thus, the analysis for proposed Action 8A applies to this option in terms of providing an upper bound on potential impacts. It is estimated that the total reduction in exvessel value would be up to \$904,613 in the first year. This represents 69 percent of the 1997 exvessel value.

### Social Impacts

The social impacts from this action are difficult to assess. The Advisory Panel indicated that the bulk of their harvest comes from the area within one mile of the western side of the HAPC and did not support this option. However, much of that harvest may be below the 28° line. It is likely that there will be some loss of harvest. The location of calico scallop beds varies from year to year as indicated by the Advisory Panel. For that reason, it is likely that the impacts will vary from year to year depending upon what percentage of calico scallop beds lie within this area. There is some indication that primary spawning areas and the location of scallop beds may be outside of this area according to maps provided by one harvester. However, those maps also indicate that harvest does take place within the one mile expansion proposed.

### Conclusions

The Council rejected this option because it would result in much larger negative economic impacts while protecting essential fish habitat. Establishment of the Satellite HAPCs provides protection to important concentrations of *Oculina* coral without the larger economic impacts.

#### **4.2.7.7 ACTION 4. No Action to Prohibit all Fishing within the Experimental Closed Area.**

### Biological Impacts

This option would not provide as much protection as the proposed Action 4 for *Oculina* coral which is easily damaged by bottom tending gear. Having less gear fishing within this area may provide greater protection to other species by not disrupting spawning and migration behavior.

### Economic Impacts

The Council would be limited in the future in terms of promoting the long-term economic viability of the coral, coral reefs and live/hard bottom habitat. This could result in reduced net economic benefits to society in the long-term.

### Social Impacts

Testimony during public hearings suggests that this area is an important fishing ground for regional recreational fishermen. It is especially important during fishing tournaments for coastal pelagics and to fishermen seeking highly migratory species. Although the Council considered the alternative action to enhance law enforcement in its efforts to monitor other fisheries prohibited from this area, it is likely that the negative social impacts from a closure outweigh the enhancement of law enforcement at this time. Coastal pelagic fishermen indicated that they use this area as an important fishing ground during tournaments and when fishing for dolphin. Fishermen from inland counties commented that they travel specifically to the Ft. Pierce area to fish and that closing an area of this magnitude would force them to fish elsewhere. Prior to public hearings, the Council was unaware of the amount of recreational fishing that took place in the Experimental Closed Area. Although there was little testimony from commercial fishermen, they may have also been impacted as Florida trip ticket information suggests they do fish in the general area. Taking no action will have positive social impacts in that it will allow recreational and commercial fishermen to continue to use established fishing patterns and an

important resource which may contribute more to the regional economy than was previously known.

Additional social impacts from this action are related to the Council's activity regarding marine reserves. The Council is presently studying marine reserves as an alternate management strategy. The action to prohibit all fishing would have been contradictory to the Council's present position that is to examine the efficacy of marine reserves as a management tool and develop criteria for their use. The no action alternative provides consistency with the Council's stated goals for the use and implementation of marine reserves.

### Conclusion

Based on recommendations from the Habitat and Coral Advisory Panels and the Habitat Committee, the Council concluded additional regulations on gears other than those in the calico scallop fishery are not necessary to enforce the no fishing provision of the experimental closed area. A voluntary vessel monitoring system will be implemented on a portion of the rock shrimp vessels and 100% of the calico scallop vessels will be required to have a vessel monitoring system. These additional regulations, more public education, and more enforcement effort will adequately prevent fishing within the closed area.

### **Other Possible Options for Action 4:**

#### **Option 1. Prohibit all fishing within the experimental closed area.**

Part of the Council's intent with this measure is to reduce any impacts on *Oculina* coral from use of any fishing gear within the experimental closed area.

#### **Biological Impacts**

To the extent fishing is reduced there will be corresponding reductions in impacts on *Oculina* coral.

#### **Economic Impacts**

Some fishing takes place presently in the experimental closed area. There is commercial fishing for coastal migratory pelagics and possibly spiny lobster by divers. There is also recreational fishing activity going on in this area. Prohibiting all fishing in the experimental closed area would reduce commercial exvessel value by up to \$726,000 to coastal pelagics fishermen, and up to \$18,000 to spiny lobster fishermen in the first year. Based on information received from Mr. Hogan, President, Fort Pierce Sportsfishing Association, annual revenue flow to the local economy could decrease by \$5,000,000 if recreational fishermen cannot fish in this area. See discussion in Section 4.2.3.5, Action 3 (and alternatives), under economic impacts.

#### **Social Impacts**

The prohibition of all fishing in the Experimental Closed area may have important social impacts primarily on the recreational fishery. This area is presently closed to fishing for snapper grouper species, however, trolling for non snapper grouper species is allowed. During public hearings in Ft. Pierce testimony from recreational fishermen indicated that a closure of the *Oculina* Bank would have considerable impact on charter fishing operations and the private boat fishery. Apparently, this is a popular fishing area for mackerel, dolphin and many highly migratory species plus spiny lobster. There are several tournaments held in Ft. Pierce throughout the year and closing this area may impact tournament participation. This action can have unforeseen impacts such as a reduction in the number of fishermen that travel from as far as

Orlando to fish the waters off Ft. Pierce. Their fishing experience may be diminished if the Experimental Closed Area is off limits and which may persuade them to find another destination for their fishing endeavor. This would certainly have a negative impact on the Ft. Pierce economy, but would benefit the substitute destination. There was little testimony on the impacts to the commercial fishery, although it is assumed that there will be negative impacts to those individuals who troll in this area commercially. Another impact of closure would be what is called the “edge effect.” This phenomenon is where fishing would take place on all sides of the closed area, or possibly more on those areas closer to shore. This may cause crowding and create future conflict. There would certainly be impacts to the community of Ft. Pierce from this action. Present data do not support community impact analysis. Future data collection at the community level would enhance this analysis.

#### Conclusion

Based on recommendations from the Habitat and Coral Advisory Panels and the Habitat Committee, the Council concluded additional regulations on gears other than those in the calico scallop fishery are not necessary to enforce the no fishing provision of the experimental closed area. A voluntary vessel monitoring system will be implemented on a portion of the rock shrimp vessels and 100% of the calico scallop vessels will be required to have a vessel monitoring system. These additional regulations, more public education, and more enforcement effort will adequately prevent fishing within the closed area. Therefore, this action was rejected.

#### **4.2.8 Mechanism for Determination of Framework Adjustments/ Framework Procedure and Activities Authorized by the Secretary of Commerce.**

Establish a procedure to allow for rapid modification to definitions of Essential Fish Habitat (EFH); establishment of new, or modification of existing, Essential Fish Habitat-Habitat Areas of Particular Concern (EFH-HAPCs); and establishment of new, or modification of existing, Coral-Habitat Areas of Particular Concern. This adjustment procedure will allow the Council to add or modify measures through a streamlined public review process. As such, measures that have been identified could be implemented or adjusted at any time during the year. The process is as follows:

1. The Council will call upon the Habitat and Environmental Protection Advisory Panel (Panel) for EFH-related actions and the Coral Advisory Panel for Coral-HAPC related actions. The Habitat and/or Coral Advisory Panel(s) will present a report of their assessment and recommendations to the Council.
2. The Council may take framework action one or more times during a year based on need. Such action(s) may come from the Panel report or the Council may take action based on issues/problems/information that surface separate from the Panel. The steps are as follows:
  - A. Habitat or Coral Advisory Panel Report— The Council will consider the report and recommendations of the Panel and hold public hearings at a time and place of the Council’s choosing to discuss the Panel’s report. The Council will consult the Advisory Panel(s) and the Scientific and Statistical Committee to review the Panel’s report and provide advice prior to taking final action. After receiving public input, the Council will make findings on the need for changes.
  - B. Information separate from Panel report — The Council will consider information that surfaces separate from the Panel. Council staff will compile the information and analyze the

impacts of likely alternatives to address the particular situation. The Council staff report will be presented to the Council. A public hearing will be held at the time and place where the Council considers the Council staff report. The Council will consult the Advisory Panel(s) and the Scientific and Statistical Committee to review the staff report and provide advice prior to taking final action. After receiving public input, the Council will make findings on the need for changes.

3. If the Council determines that an addition or adjustment (e.g., in a species or species complex definition of EFH or EFH-HAPCs or a new EFH-HAPC is proposed for a species or species complex) to EFH, EFH-HAPCs, or Coral-HAPCs is necessary to meet the goals and objectives of the Habitat Plan, it will recommend, develop, and analyze appropriate action over the span of at least two Council meetings. The Council will provide the public with:
  - A. Advance notice of the availability of the recommendation.
  - B. The appropriate justifications, and biological, economic, and social analyses.
  - C. An opportunity to comment on the proposed adjustments prior to and at the second Council meeting.
4. After developing management actions and receiving public testimony, the Council will then submit the recommendation to the Regional Administrator. The Council's recommendation to the Regional Administrator must include supporting rationale, an analysis of impacts, and a recommendation to the Regional Administrator on whether to publish the management measure(s) as a final rule.
5. If the Council recommends that the management measures should be published as a final rule, the Council must consider at least the following factors and provide support and analysis for each factor considered:
  - A. Whether the availability of data on which the recommended management measures are based allows for adequate time to publish a proposed rule.
  - B. Whether regulations have to be in place for an entire harvest/fishing season.
  - C. Whether there has been adequate notice and opportunity for participation by the public and members of the affected industry in the development of the Council's recommended management measures.
  - D. Whether there is an immediate need to protect the resource.
  - E. Whether there will be a continuing evaluation of management measures adopted following their promulgation as a final rule.
6. If, after reviewing the Council's recommendation and supporting information based on the FMP and the administrative record:
  - A. The Regional Administrator concurs with the Council's recommended management measures and determines that the recommended management measures may be published as a final rule then the action will be published in the Federal Register as a final rule; or
  - B. The Regional Administrator concurs with the Council's recommendation and determines that the recommended measures should be published first as a proposed rule, the action will be published as a proposed rule in the Federal Register. After additional public comment, if the Regional Administrator concurs with the Council recommendation, the action will be published as a final rule in the Federal Register; or
  - C. The Regional Administrator does not concur, the Council will be notified, in writing, of the reason for non-concurrence and recommendations to address those concerns.

#### 4.0 Environmental Consequences

7. Appropriate adjustments that may be implemented by the Secretary by proposed and final rules in the Federal Register are:
  - A. Definition of or modification of a current definition of Essential Fish Habitat for a managed species or species complex.
  - B. Establishment of or modification of EFH-HAPCs for managed species or species complex.
  - C. Establishment of or modifications of Coral-HAPCs.

The procedure described above will provide for timely adjustments to definitions of Essential Fish Habitat (EFH); establishment of new, or modification of existing, Essential Fish Habitat-Habitat Areas of Particular Concern (EFH-HAPCs); and establishment of new, or modification of existing, Coral-Habitat Areas of Particular Concern. It is the Council's intent that definitions of EFH and the establishment of new or modification of existing EFH-HAPCs or Coral-HAPCs be periodically assessed. Reviews would occur as sufficient information becomes available such that the Panel, the species Advisory Panel, the Scientific and Statistical Committee, and the Council feel confident in the recommendations. Complete reviews will be conducted as needed. Council staff and NMFS will specify such reviews in the annual NMFS/Council planning process (called operations plans).

#### Biological Impacts

This procedure allows for rapid modification of a definition of EFH for a managed species or species complex or establishment of new or modification of existing EFH-HAPCs for a managed species or species complex. Providing a mechanism for such modification will allow the Council to better protect the biological integrity of the fishery resources.

#### Economic Impacts

Reviews and adjustments are described above. This action will require some expenditures of public funds for meetings and staff work. However, an estimate of these costs is not available at this time. Although specific actions may have some economic impacts on fishery participants, the consequences cannot be assessed until such time as the actions are implemented. In principle, this action should allow for additional flexibility in management. To the extent that flexibility is increased, positive net benefits to user groups can be expected at some future time.

#### Social Impacts

By specifying a mechanism for modifying a definition of EFH for a managed species or species complex or establishing new or modifying existing EFH-HAPCs for a managed species or species complex or Coral-HAPC s, there can be a more rapid response to changes in available information on EFH distribution, description, ecology or use by managed species or species complexes..

#### Conclusion

The Council concluded this procedure, which allows a more rapid response to changes in available information on EFH and coral distribution, description, ecology or use by managed species or species complexes, is necessary to allow the Council to better protect the biological integrity of fishery resources and the habitat they depend upon.

**Rejected Options:**

**Rejected Option 1.** Do not include a framework for future adjustments.

**Biological Impacts**

This option would not allow for rapid modification to definitions of EFH or establishment of new or modification of existing EFH-HAPCs. Not providing a mechanism for such modification would not allow the Council to protect the biological integrity of the fishery resources and the habitat they depend upon.

**Economic Impacts**

This option would not allow the Council to take timely action if and when needed.

**Social Impacts**

This option would not allow for timely and informed action by the Council due to the time required for an amendment to the plan to be implemented.

**Conclusion**

The Council rejected this option because a procedure which allows for rapid modification of to definitions of EFH or EFH-HAPCs is necessary to allow the Council to better protect the biological integrity of fishery resources and the habitat they depend upon. This procedure meets the Council's objective to provide a flexible system that minimizes regulatory delays while retaining substantial Council and public involvement in management decisions, and rapidly adapts to changes in new scientific information.

#### **4.2.9 SAFMC Proposed Process for Reviewing and Commenting on Projects Affecting Essential Fish Habitat**

The Council's current process for reviewing and commenting on projects is described in the Habitat Plan (Appendix N). The proposed process to meet requirements under the Magnuson-Stevens Act and Interim Final Rule Guidelines is contained in Appendix A of this comprehensive amendment. The public and reviewers were urged to comment on this process. The Council reviewed comments and finalized this process during the September 21-25, 1998 Council meeting. This Final Comprehensive Amendment contains the approved process.

#### **4.3 Unavoidable Adverse Effects**

The following summarizes the short-term losses which will be mitigated by long-term gains with the effective protection of essential fish habitat (see Table 1 and the discussion under each action item for more details):

##### **Penaeid and Rock Shrimp**

- ACTION 1.** Identify Essential Fish Habitat for Penaeid and Rock Shrimp: This action would protect habitat. There would be no impact on the penaeid and rock shrimp fisheries. However, future actions could have impacts on shrimp vessels or the industry in the long-term.
- ACTION 2.** Establish Habitat Areas of Particular Concern for Penaeid Shrimp: This action would protect habitat areas of particular concern. There would be no impact on the penaeid and rock shrimp fisheries. However, future actions could have impacts on shrimp vessels or the industry in the long-term.

#### 4.0 Environmental Consequences

**ACTION 3.** Implement a Voluntary Vessel Monitoring System (VMS) as soon as possible in the Rock Shrimp Fishery: This system would likely have a cellular phone onboard the vessel for communication with the shore based facility. The cost per vessel is approximately \$1,000 to \$1,200 including the cellular phone.

##### **Red Drum**

**ACTION 1.** Identify Essential Fish Habitat for Red Drum: This action would protect habitat. There would be no impact on the red drum fishery. However, future actions could have impacts on the industry in the long-term.

**ACTION 2.** Establish Habitat Areas of Particular Concern for Red Drum: This action would protect habitat areas of particular concern. There would be no impact on the red drum fishery. However, future actions could have impacts on the industry in the long-term.

##### **Snapper Grouper**

**ACTION 1.** Identify Essential Fish Habitat for Snapper Grouper: This action would protect habitat. There would be no impact on the species in the snapper grouper management unit. However, future actions could have impacts on the fishery in the long-term.

**ACTION 2.** Establish Habitat Areas of Particular Concern for Snapper Grouper: This action would protect habitat areas of particular concern. There would be no impact on the snapper grouper fishery. However, future actions could have impacts on the industry in the long-term.

**ACTION 3.** No Action to Prohibit All Fishing in the Experimental Closed Area: There would be no impact.

##### **Coastal Migratory Pelagics**

**ACTION 1.** Identify Essential Fish Habitat for Coastal Migratory Pelagics: This action would protect habitat. There would be no impact on the coastal migratory pelagic fishery. However, future actions could have impacts on the fishery in the long-term.

**ACTION 2.** Establish Habitat Areas of Particular Concern for Coastal Migratory Pelagics: This action would protect habitat areas of particular concern. There would be no impact on the coastal migratory pelagic fishery. However, future actions could have impacts on the fishery in the long-term.

**ACTION 3.** No Action to Prohibit Fishing for Coastal Migratory Pelagics in the Experimental Closed Area: There would be no impact.

##### **Golden Crab**

**ACTION 1.** Identify Essential Fish Habitat for Golden Crab: This action would protect habitat. There would be no impact on the golden crab fishery. However, future actions could have impacts on the fishery in the long-term.

**ACTION 2.** No Action to Establish Habitat Areas of Particular Concern for Golden Crab in the South Atlantic EEZ: There would be no impact.

##### **Spiny Lobster**

**ACTION 1.** Identify Essential Fish Habitat for Spiny Lobster: This action would protect habitat. There would be no impact on the spiny lobster fishery. However, future actions could have impacts on the fishery in the long-term.

- ACTION 2.** Establish Habitat Areas of Particular Concern for Spiny Lobster: This action would protect habitat areas of particular concern. There would be no impact on the spiny lobster fishery. However, future actions could have impacts on the fishery in the long-term.
- ACTION 3.** No Action to Prohibit Fishing for Spiny Lobster in the Experimental Closed Area: There would be no impact.

### **Coral, Coral Reefs, and Live/Hard Bottom Habitat**

- ACTION 1.** Identify Essential Fish Habitat for Coral, Coral Reefs, and Live/Hard Bottom Habitats of the South Atlantic Region: This action would protect habitat. It will enable the Council to protect coral, coral reefs and live/hard bottom. However, future actions could have impacts on the fishery in the long-term.
- ACTION 2.** Establish Habitat Areas of Particular Concern for Coral, Coral Reefs, and Live/Hard Bottom Habitat: This action would protect habitat areas of particular concern. It will enable the Council to protect coral, coral reefs and live/hard bottom. However, future actions could have impacts on the fishery in the long-term.
- ACTION 3A.** Prohibit harvest of calico scallops in the area bounded to the west by 80° W. Longitude, to the north by 28° 30'N. Latitude, to the south by 27°30'N. Latitude, and to the east by the 100 fathom (600 feet) depth contour: This action should protect delicate corals and hard bottom. Assuming that all harvest from the statistical areas was from within the proposed closed area results in the conclusion that catches would be reduced by up to 1,267,139 pounds in the first year; reduction in exvessel value could be up to \$904,613 in the first year. Based on input from the Calico Scallop Advisory Panel and other reasons stated in Action 3A the impacts will not be this large.
- ACTION 3B.** Establish the following two Satellite Oculina HAPCs: (1) Satellite Oculina HAPC #1 is bounded on the north by 28°30'N. Latitude, on the south by 28°29'N. Latitude, on the east by 80°W. Longitude, and on the west by 80°3'W. Longitude, and (2) Satellite Oculina HAPC #2 is bounded on the north by 28°17'N. Latitude, on the south by 28°16'N. Latitude, on the east by 80°W. Longitude, and on the west by 80°3'W. Longitude: This action should protect delicate coral and hard bottom. Based on input from the Calico Scallop Advisory Panel, revenue would be reduced by a minimal amount.
- ACTION 4.** No Action to Prohibit all fishing within the Experimental Closed Area: There would be no impact.

### **Mechanism for Determination of Framework Adjustment/Framework Procedure and Activities Authorized by the Secretary of Commerce: None.**

#### **4.4 Relationship of Short-Term and Long-Term Productivity**

The measures proposed are necessary to protect essential fish habitats (EFH) and habitat areas of particular concerns (HAPCs). The proposed actions could result in less than the 69 percent reduction in exvessel value to calico scallop fishermen in the first year. The industry and the Calico Scallop Advisory Panel support this action which indicates their conclusion that they can fish outside of the proposed closed areas. The Council weighed the likely short-term losses to fishermen against the long-term yields for the various fisheries and the need to protect ecosystems, and concluded the proposed actions would likely result in net benefit to society.

4.0 Environmental Consequences

Without such regulations, the long-term productivity of these fisheries and ecosystems in general would be jeopardized.

**4.5 Irreversible and Irretrievable Commitments of Resources**

There are no irreversible or irretrievable commitments of resources associated with the proposed actions. If the Council does not take action to regulate the impact of fishing activities on EFHs and HAPCs there will be reduction in yields and damage to essential bottom habitats.

**4.6 Cumulative Effects**

The proposed actions, and their alternatives, are not expected to result in cumulative adverse effects that could have a substantial effect on the fishery resource or any related stocks, including endangered and threatened species, such as turtles. In fact, the proposed measures will improve status of stocks and minimize habitat damage. See Table 1 for more information.

**4.7 Public and Private Costs**

Preparation, implementation, enforcement, and monitoring of this and any federal action involves expenditure of public and private resources which can be expressed as costs associated with the regulation. Costs associated with the development of the Habitat Plan and Comprehensive Habitat Amendment include:

Council costs of document preparation, meetings, scoping meetings, workshops, public hearings, and information dissemination	\$495,000
NMFS administrative costs of document preparation, meetings and review	\$?
NMFS law enforcement costs	\$?
	-----
Total	\$495,000+

**4.8 Effects on Small Businesses: Initial Regulatory Flexibility Analysis**

The Regulatory Flexibility Act requires a determination as to whether or not a proposed rule has a significant impact on a substantial number of small entities. If the rule does have this impact, then an Initial Regulatory Flexibility Analysis (IRFA) has to be completed for public comment. The IRFA becomes final after the public comments have been addressed. If the proposed rule does not meet the criteria for “substantial number” and “significant impact” then a certification to this effect must be prepared.

This proposed rule, if promulgated, will :

- (i) Identify Essential Fish Habitat for Penaeid and Rock Shrimp.
- (ii) Establish EFH-HAPCs for Penaeid Shrimp.
- (iii) Establish a Voluntary Vessel Monitoring System (VMS) as soon as Possible in the Rock Shrimp Fishery.
- (iv) Identify Essential Fish Habitat for Red Drum.
- (v) Establish EFH-HAPCs for Red Drum.
- (vi) Identify Essential Fish Habitat for Snapper Grouper.

- (vii) Establish EFH-HAPCs for Snapper Grouper.
- (viii) No Action to Prohibit All Fishing in the Experimental Closed Area.
- (ix) Identify Essential Fish Habitat for Coastal Migratory Pelagics.
- (x) Establish EFH-HAPCs for Coastal Migratory Pelagics.
- (xi) No Action to Prohibit Fishing for Coastal Migratory Pelagics in the Experimental Closed Area.
- (xii) Identify Essential Fish Habitat for Golden Crab.
- (xiii) No Action to Establish EFH-HAPCs for Golden Crab.
- (xiv) Identify Essential Fish Habitat for Spiny Lobster.
- (xv) Establish EFH-HAPCs for Spiny Lobster.
- (xvi) No Action to Prohibit Fishing for Spiny Lobster in the Experimental Closed Area.
- (xvii) Identify Essential Fish Habitat for Coral, Coral Reefs, and Live/Hard Bottom Habitat.
- (xviii) Establish EFH-HAPCs for Coral, Coral Reefs, and Live/Hard Bottom Habitat.
- (xix) Expand the Oculina Bank Habitat Area of Particular Concern (HAPC) to an area bounded to the west by 80°W longitude, to the north by 28°30' N latitude, to the south by 27°30' N latitude, and to the east by the 100 fathom (600 feet) depth contour.
- (xx) Establish the following two Satellite Oculina HAPCs: (1) Satellite Oculina HAPC #1 is bounded on the north by 28°30'N. Latitude, on the south by 28°29'N. Latitude, on the east by 80°W. Longitude, and on the west by 80°3'W. Longitude, and (2) Satellite Oculina HAPC #2 is bounded on the north by 28°17'N. Latitude, on the south by 28°16'N. Latitude, on the east by 80°W. Longitude, and on the west by 80°3'W. Longitude: This action should protect delicate coral and hard bottom. Based on input from the Calico Scallop Advisory Panel, revenue would be reduced by a minimal amount.
- (xxi) No Action to Prohibit all Fishing in the Experimental Closed Area.
- (xxii) Establish a Mechanism for Determination of Framework Adjustment/Framework Procedure and Activities Authorized by the Secretary of Commerce.

All of the commercial and recreational (headboats, charter boats, and private / rental boats) entities participating in these fisheries affected by the rule will qualify as small business entities because their gross revenues are less than \$3.0 million annually. Hence, it is clear that the criterion of a substantial number of the small business entities comprising the harvesting industry being affected by the proposed rule will be met. The outcome of “significant impact” is less clear but can be triggered by any of the five conditions or criteria discussed below.

The regulations are likely to result in a change in annual gross revenues by more than 5 percent. The discussions under economic impacts in Section 4 details the effects on fishing entities for each proposed action to the extent possible. Based on input from the Calico Scallop Advisory Panel, the regulations are not likely to result in a change in annual gross revenues by more than 5 percent. The decrease in exvessel value resulting from proposed Actions 3A & 3B is anticipated to be much below the estimated upper limit of \$904,613 in the first year. While this represents up to a 69 percent reduction in the exvessel value for the fishery reported in 1997 it is clear that the impacts will be minimal based on input from the affected individual businesses.

Annual compliance costs (annualized capital, operating, reporting, etc.) increase total costs of production for small entities by more than 5 percent. Voluntary use of an approved vessel monitoring system could increase cost to the individual rock shrimp fishing entities, in the

#### 4.0 Environmental Consequences

first year, by between \$1,915 and \$6,676. The former cost increase is more likely since NMFS is recommending the first level of VMS. This represents less than 2 percent of the industry's production costs.

Compliance costs as a percent of sales for small entities are at least 10 percent higher than compliance costs as a percent of sales for large entities. All the firms expected to be impacted by the rule are small entities and hence there is no differential impact.

Capital costs of compliance represents a significant portion of capital available to small entities considering internal cash flow and external financing capabilities. Voluntary use of an approved vessel monitoring system could require investment in capital of between \$1,900 and \$6,700 per vessel in the first year. This will depend on the system to be utilized. Three systems are described in Section 4. This level of capital investment is not expected to represent a significant portion of capital available to calico scallop fishing entities.

The requirements of the regulation are likely to result in a number of the small entities affected being forced to cease business operations. This number is not precisely defined by SBA but a "rule of thumb" to trigger this criterion would be two percent of the small entities affected. The analyses under economic impacts for each proposed action indicate that proposed Actions 3A & 3B will not have a significant impact on the exvessel revenues of calico scallop vessels. However it cannot be determined whether any entity will be forced out of business although input from the Calico Scallop Advisory Panel would suggest that no entities would be forced out of business.

Considering all the criteria discussed above, the conclusion is that small businesses will not be significantly affected by the proposed rule. Hence, the determination is made the proposed rule will not have a significant impact on a substantial number of small business entities and an Initial Regulatory Flexibility Analysis (IRFA) is not required.

The full details of the economic analyses conducted for the proposed rule are contained in the RIR under the heading "Economic Impacts" in Section 4.

Description of the reasons why action by the agency is being considered: The Magnuson- Stevens Fishery Conservation and Management Act provides for the identification of all essential fish habitats and for taking steps to minimize any fishing related damage to these habitats.

Statement of the objectives of, and legal basis for, the proposed rule: See Section 1.2 of this Comprehensive Habitat Amendment. The Magnuson-Stevens Fishery Conservation and Management Act (Public Law 94-265) as amended through October 11, 1996 provides the legal basis for the rule.

Description and estimate of the number of small entities to which the proposed rule will apply: The proposed rule will apply to all of the entities that are fishing legally in the fisheries affected by these actions. In 1997, federal fishing permits were issued to 1,416 vessels in the mackerel fishery; 1,255 vessels in the snapper grouper fishery; 257 vessels in the spiny lobster fishery; 152 vessels in the rock shrimp fishery; and 702 vessels in charter fishing (Vondruska, March 5, 1998).

Description of the projected reporting, recordkeeping and other compliance requirements of the proposed rule, including an estimate of the classes of small entities which will be subject to the requirement and the type of professional skills necessary for the preparation of the report or records: The proposed rule will not require any additional reporting or recordkeeping on the part of commercial and recreational entities. Compliance will be monitored through systems established by the National Marine Fisheries Service and the U.S. Coast Guard. The professional skills necessary to meet these requirements will not change relative to the level that all the fishermen are familiar with and have previously used.

Identification of all relevant Federal rules which may duplicate, overlap or conflict with the proposed rule: No duplicative, overlapping or conflicting Federal rules have been identified.

Description of significant alternatives to the proposed rule and discussion of how the alternatives attempt to minimize economic impacts on small entities: In Section 4, each proposed action includes a number of options under the heading: “Other Possible Options”. Each of these options include an economic impact assessment. Refer to Section 4.2: “Management Options” for details of the economic impact assessment on small entities for each option. The status quo or “no action” option was also considered for each proposed action. Relative to the proposed actions, the other possible options would result in less net benefits from protecting essential fish habitats in the long-term.