



**AMENDMENT 3 TO THE  
FISHERY MANAGEMENT PLAN  
FOR  
CORAL, CORAL REEFS, AND  
LIVE/HARD BOTTOM HABITATS  
OF THE  
SOUTH ATLANTIC REGION**

**INCLUDING AN  
ENVIRONMENTAL ASSESSMENT,  
REGULATORY IMPACT REVIEW,  
AND  
SOCIAL IMPACT ASSESSMENT**



**JULY 1995**

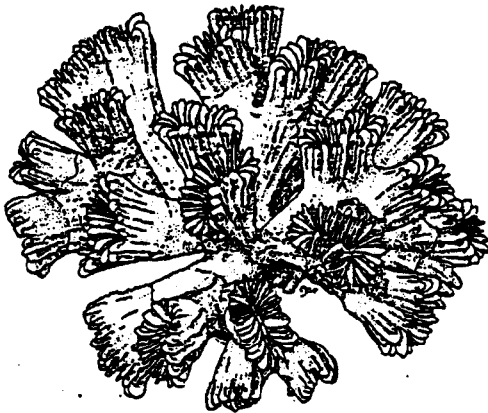
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prepared by the  
South Atlantic Fishery Management Council

**JULY 1995**

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### **SOUTH ATLANTIC CORAL AMENDMENT 3 COVER SHEET**

This integrated document contains all elements of the Plan Amendment, Environmental Assessment (EA), Regulatory Impact Review (RIR), and Social Impact Assessment (SIA). Separate Table of Contents are provided to assist readers and the NMFS/NOAA/DOC reviewers in referencing corresponding sections of the Amendment. Introductory information and/or background for the EA, RIR and SIA are included with the separate table of contents for each of these sections.

### **RESPONSIBLE AGENCIES**

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### **NAME OF ACTION**

☒ Administrative

☐ Legislative

### **SUMMARY**

The proposed management measures for coral, coral reefs, and live/hard bottom habitats in the South Atlantic region are: (1) Establish a live rock aquaculture permit system for the South Atlantic Exclusive Economic Zone (EEZ); (2) Prohibit octocoral harvest north of Cape Canaveral, Florida; and (3) Prohibit anchoring of fishing vessels in the Oculina Bank Habitat Area of Particular Concern.

A public scoping meeting was held on June 22, 1994 in Marathon FL. The notice of public hearings and request for comments on the Draft Fishery Management Plan Actions for Coral, Coral Reefs, and Live/Hard Bottom Habitats in the South Atlantic Region was published on September 8, 1994 in the Federal Register (FR Doc. 94-22060). Public hearings were held on September 19, 1994 in Savannah, GA, on September 21, 1994 in Cocoa Beach, FL, on September 22, 1994 in Palm Beach, FL, on September 23, 1994 in Marathon, FL and on October 25, 1994 in Wrightsville Beach, NC. A final public hearing was held on February 7, 1995 in St. Augustine, FL prior to final action by the Council.

**ENVIRONMENTAL ASSESSMENT**

This integrated document contains all elements of the Plan Amendment, Environmental Assessment (EA), Regulatory Impact Review (RIR), and Social Impact Assessment (SIA). The table of contents for the EA is provided separately to aid the reviewer in referencing corresponding sections of the Amendment.

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**SUMMARY**

Issues and concerns to be addressed in the Environmental Assessment (EA) are: What criteria should apply for granting an aquaculture permit? How will prohibited coral be handled in an aquaculture program? How can we monitor aquaculture activities? (Facilitate and Manage Live Rock Aquaculture); What additional regulations on the taking of octocorals in the South Atlantic should be considered to protect live/hard bottom communities? (Modify Allowable Octocoral Harvest); and What should be done to enhance protection of essential habitat including the Oculina Bank Habitat Area of Particular Concern? (Habitat Damage in Oculina Bank HAPC).

**REGULATORY IMPACT REVIEW**

This integrated document contains all elements of the Plan Amendment, Environmental Assessment (EA), Regulatory Impact Review (RIR), and Social Impact Assessment (SIA). The table of contents for the RIR is provided separately to aid the reviewer in referencing corresponding sections of the Amendment.

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**INTRODUCTION**

The National Marine Fisheries Service (NMFS) requires a Regulatory Impact Review (RIR) for all regulatory actions that are of public interest. The RIR does three things: 1) it provides a comprehensive review of the level and incidence of impacts associated with a proposed or final regulatory action, 2) it provides a review of the problems and policy objectives prompting the regulatory proposals and an evaluation of the major alternatives that could be used to solve the problem, and 3) it ensures that the regulatory agency systematically and comprehensively considers all available alternatives so that the public welfare can be enhanced in the most efficient and cost effective way.

The RIR also serves as the basis for determining whether any proposed regulations are a significant regulatory action under certain criteria provided in Executive Order 12866 and whether the proposed regulations will have a significant economic impact on a substantial number of small entities in compliance with the Regulatory Flexibility Act of 1980 (RFA).

This RIR analyzes the probable impacts on the fishery and habitat of the proposed actions for the coral, coral reefs and live/hard bottom habitat of the south Atlantic Region (FMP).

### **PROBLEMS AND OBJECTIVES**

The general problems and objectives are found in the FMP. This amendment proposes to add (1) establishing a live rock aquaculture permit system for the south Atlantic EEZ, (2) prohibiting octocoral harvest north of Cape Canaveral, Florida, and (3) prohibiting anchoring of fishing vessels in the Oculina Habitat Area of Particular Concern to prevent coral damage. The purpose and need for the present amendment are found in Section 1.0 of this document.

### **METHODOLOGY AND FRAMEWORK FOR ANALYSIS**

The fundamental issues in the proposed management actions are the management of live rock aquaculture in the EEZ under the South Atlantic Council jurisdiction, the prohibition of octocoral harvest north of Cape Canaveral, Florida, and the prohibition of anchoring of fishing vessels in the Oculina HAPC to prevent coral damage. The discussions for the proposed actions are incorporated in the text under Economic Impacts in Section 4. The basic approach adopted in this RIR is an assessment of management measures from the standpoint of determining the resulting changes in costs and benefits to society. The net effects should be stated in terms of producer surplus to the harvest sector, net profits to the intermediate sector, and consumer surplus to the final users of the resource.

The harvest sector refers to live rock aquaculturists and the intermediate sector to dealers of live rock. Final users of the resource are taken to refer to the individuals that derive benefits from the resource in either a consumptive or non-consumptive manner. This last group consists of individual buyers of live rock from commercial dealers or live rock aquaculturists for use in personal aquaria. Ideally, all these changes in costs and benefits need to be accounted for in assessing the net economic benefit to society from the management of live rock aquaculture activities. However, lack of data does not allow for this type of analysis. The RIR attempts to determine these changes to the extent possible, albeit in a very qualitative manner.

**Summary of Expected Changes in Net Benefits (Summary of Regulatory Impact Review-RIR)**

Table 1. Summary of Expected Changes in Net Benefits.

<b>ACTION</b>	<b>POSITIVE IMPACTS</b>	<b>NEGATIVE IMPACTS</b>	<b>NET IMPACTS</b>
<b>Proposed Action:</b> Establish live rock aquaculture permit system	Possible increase in producer and consumer surplus.	Possible decrease in consumer surplus. Additional start-up costs.	Possible increase in net benefits.
<b>Rejected Option 1.</b> No Action	Eliminates risk of environmental impacts related to aquaculture.	Lost benefits to aquaculturists.	Negative net benefits.
<b>Proposed Action:</b> Prohibit octocoral harvest north of Cape Canaveral	Protects essential habitat.	None.	Positive.
<b>Rejected Option 1.</b> Prohibit harvest north of Dade County	Protects essential habitat. Eliminates enforcement problem.	Lost revenues to harvesters.	Likely positive. Protects essential habitat.
<b>Rejected Option 2.</b> Prohibit harvest north of Florida	Protects essential habitat.	Possible damage to habitat in areas off the east coast of Florida.	Could be negative, but will protect essential habitat.
<b>Rejected Option 3.</b> Prohibit harvest in the SA region	Protects essential habitat. Eliminates enforcement problem.	Lost revenues to harvesters.	Could be negative, but will protect essential habitat.
<b>Rejected Option 4.</b> No Action	Increased short term benefits to harvesters.	Adverse effect on essential habitat.	Could be negative. Adverse effect on essential habitat.
<b>Proposed Action:</b> Prohibit anchoring of fishing vessels in the Oculina HAPC	Protects essential habitat. Aids enforcement.	Minimal.	Positive. Protects essential habitat.
<b>Rejected Option 1.</b> No Action	None.	Complicates enforcement efforts and increases enforcement costs.	Negative. Possible damage to essential habitat.

**SOCIAL IMPACT ASSESSMENT**

This integrated document contains all elements of the Plan Amendment, Environmental Assessment (EA), Regulatory Impact Review (RIR), and Social Impact Assessment (SIA). The table of contents for the SIA is provided separately to aid the reviewer in referencing corresponding sections of the Amendment.

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**INTRODUCTION**

Mandates to conduct Social Impact Assessments (SIA) come from both the National Environmental Policy Act (NEPA) and the Magnuson Fishery Conservation and Management Act (MFCMA). NEPA requires Federal agencies to consider the interactions of natural and human environments by using a "systematic, interdisciplinary approach which will ensure the integrated use of the natural and social sciences...in planning and decision-making" [NEPA section 102 (2) (a)]. Under the U.S. Council on Environmental Quality's *Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act* a clarification of the terms "human environment" expanded the interpretation to include the relationship of people with their natural and physical environment (40 CFR 1508.14). Moreover, agencies need to address the aesthetic, historic, cultural, economic, social, or health effects which may be direct, indirect or cumulative (Interorganizational Committee on Guidelines and Principles for Social Impact Assessment, 1994).

Under the MFCMA, fishery management plans (FMPs) must "...achieve and maintain, on a continuing basis, the optimum yield from each fishery" [MFCMA section 2 (b) (4)]. More recent amendments to the MFCMA require that FMPs address the impacts of any management measures on the participants in the affected fishery and those participants in other fisheries that may be affected directly or indirectly [MFCMA section 303 (1) (9)]. Consideration of social impacts is a growing concern as fisheries experience increased participation and/or declines in stocks. With an increasing need for



management action, the consequences of such changes need to be examined in order to mitigate the negative impacts experienced by the populations concerned.

### **PROBLEMS AND METHODS**

Social impacts are generally the consequences to human populations that follow from some type of public or private action. Those consequences may include alterations to "the ways in which people live, work or play, relate to one another, organize to meet their needs and generally cope as members of a society...." (Interorganizational Committee on Guidelines and Principles for Social Impact Assessment, 1994:1). In addition, cultural impacts which may involve changes in values and beliefs which affect people's way of identifying themselves within their occupation, communities and society in general are included under this interpretation. Social impact analyses determine consequences of policy action in advance by comparing the status quo with the projected impacts. Therefore, it is extremely important that as much information as possible concerning a fishery and its participants be gathered for an assessment. Although public hearings and scoping meetings do provide input from those concerned with a particular action, they do not constitute a full overview of the fishery.

Without access to relevant information for conducting social impact analyses it is important to identify any foreseeable adverse effects on the human environment. With quantitative data often lacking, qualitative data can be used to provide a rough estimate of some impacts. In addition, when there is a body of empirical findings available from the social science literature, it needs to be summarized and referenced in the analysis.

### **PROPOSED ACTIONS AND REVIEW OF SOCIAL IMPACTS**

In attempting to assess the social impacts of the proposed amendment it must be noted that there was very little information upon which to base such an assessment. A review of scoping meetings, public hearings and committee meetings, in addition to a review of the economic impacts, provided the bulk of the information used for this analysis of possible social impacts. Personal communications by staff with industry personnel were used to help define the population of concern and determine some of the impacts. The data used for this analysis did not represent a comprehensive overview of the fishery therefore the analysis does not include all social impacts. What little

information was available pertains primarily to the harvesting sector. Therefore, social impacts upon the processing sector, the consumer and society as a whole are not fully addressed due to data limitations.

According to the NMFS Southeast Fisheries Center in 1988 between 25 and 30 persons held U.S. Army Corps of Engineer dredge permits which allowed them to land live rock in Florida (see Appendix C). Between 1991 and 1992 landings had increased by one-third (see Appendix C). Harvesters testified at public hearings of the growing importance of live rock to the aquarium trade. It was pointed out that competition from imports and aquacultured rock was increasing. In 1992 about 40 percent of live rock landings were reported along a 40 mile stretch of reef in the Florida Keys between Tavernier and Duck Key (see Appendix C).

Anecdotal information suggests there were probably less than 100 commercial collectors of octocorals in South Florida during 1989 (see Appendix O). The estimated harvest for 1989 was approximately 20,000 colonies (see Appendix O). Harvest for 1993 and 1994 was approximately 25,800 and 22,400 respectively (Figure 3). The extent of the recreational fishery is not known, but it does exist.

**SUMMARY OF THE SOCIAL IMPACT ASSESSMENT**

Table 2. Summary of Social Impact Assessment.

<b>ACTION</b>	<b>POSITIVE IMPACTS</b>	<b>NEGATIVE IMPACTS</b>	<b>NET IMPACTS</b>
<b>Proposed Action:</b> Establish live rock aquaculture permit system	Allows for aquaculture fishery and facilitates enforcement.	Added burden of permitting process.	Positive.
<b>Rejected Option 1.</b> No Action	Unknown.	Hampers enforcement and ability to address conflicts within the fishery.	Negative.
<b>Proposed Action:</b> Prohibit octocoral harvest north of Cape Canaveral	Possible long term benefit to society through habitat protection.	Unknown.	Likely positive.
<b>Rejected Option 1.</b> Prohibit harvest north of Dade County	Possible long term benefit to society through habitat protection.	Substantial economic costs to small group of harvesters.	Negative.
<b>Rejected Option 2.</b> Prohibit harvest north of Florida	Possible long term benefit to society through habitat protection.	No protection for critical habitat in Florida.	Possibly negative.
<b>Rejected Option 3.</b> Prohibit harvest in the SA region	Reduces enforcement problems.	Substantial economic costs to harvesters and may create discord between managers and harvesters.	Negative.
<b>Rejected Option 4.</b> No Action	Alleviates fears of over-regulation by harvesters.	Possible long term adverse effect from continued harvest.	Likely negative.
<b>Proposed Action:</b> Prohibit anchoring of fishing vessels in the Oculina HAPC	Added protection for habitat and aids enforcement.	Unknown.	Positive.
<b>Rejected Option 1.</b> No Action	Unknown.	Continued adverse effects upon the habitat.	Negative.

### **SOCIAL IMPACT ASSESSMENT DATA NEEDS**

Given the lack of sufficient data to conduct a complete social impact assessment, the following data needs are suggested to help improve analysis of future actions addressing coral, coral reefs and live/hard bottom habitats. The following categories include the types of data that need to be collected on the commercial harvesting sector:

Demographic information on commercial harvesters may include but not necessarily be limited to: Population, age, gender, ethnic/race, education, language, marital status, children (age & gender), residence, household size, household income (harvester/non harvester), occupational skills, and association with vessels and firms (role & status).

Social Structure information on commercial harvesters may include but not necessarily be limited to: Historical participation, description of work patterns, description of gear and materials needed for harvesting and their use, organization and affiliation, patterns of communication and cooperation, competition and conflict, and communication and integration.

Emic culture information may include but not necessarily be limited to: Occupational motivation and satisfaction, attitudes and perceptions concerning management, constituent views of their personal future of harvesting, and psycho-social well-being.

A general description of the live rock and octocoral trade would aid in determining social impacts beyond the harvesting sector. Such a description might include the support industry associated with harvesting live rock and octocoral, costs associated with handling and marketing, channels for selling marine aquaria products that have developed for both live rock and octocorals and finally, social and economic information on the areas, regions, or communities where live rock is harvested and marketed.

## **1.0 PURPOSE AND NEED**

The Council is proposing to implement a permit system to facilitate and manage live rock aquaculture while maximizing protection of naturally occurring bottom habitat in the South Atlantic EEZ. In addition, the Council is insuring essential fishery habitat is protected by preventing expansion of octocoral harvest north of Cape Canaveral, Florida, and prohibiting anchoring of fishing vessels in the Oculina Bank HAPC. Coral, coral reefs, and live/hard bottom habitats are vital components of the marine ecosystem and serve as the basis of essential habitat vital to commercial and recreational fishery resources inhabiting the EEZ of the south Atlantic region. The South Atlantic Council is mandated by the Magnuson Act (MFCMA) to conserve and manage fishery resources and their essential habitat in the south Atlantic region.

Three coral related actions either deferred from the south Atlantic live rock Amendment 2 (SAFMC and GMFMC 1994) or which have arisen from other Council action, were considered and commented on by the public. To meet Magnuson Act mandates, the Council proposes to establish a permit system for the aquaculture of live rock in south Atlantic federal waters, prohibit harvest of octocorals north of Cape Canaveral, Florida, and prohibit anchoring of fishing vessels in the Oculina Bank Habitat Area of Particular Concern.

The previous federal coral plan was a joint plan between the Gulf of Mexico and South Atlantic Fishery Management Councils. The South Atlantic Council requested the Secretary of Commerce establish a separate Fishery Management Plan for Coral and Coral Reefs of the south Atlantic Region and was granted this request in the final rule implementing Amendment 2 (Appendix S). This amendment is structured as a plan amendment to facilitate the review process on actions to be accomplished under the south Atlantic plan. Including live/hard bottom habitat in the title of the amendment acknowledges the Councils mandate to manage these resources. The original plan identified hard bottom habitat in the management unit under coral reefs. The South Atlantic Council acknowledges the plan now allows the Council to manage these resources in its area of jurisdiction.

### **Current Regulations**

The current regulations for coral set optimum yield for stony corals, seafans and coral reefs at zero except as authorized for scientific and educational purposes. In addition one Habitat Area of Particular Concern

(HAPC), the Oculina Bank, was designated in the south Atlantic. Within the HAPC habitat damaging fishing gear is prohibited including trawl gear, traps, dredges, and bottom longlines.

Amendment 1 (Appendix O) implemented a combined octocoral quota for the Gulf of Mexico and South Atlantic EEZ of 50,000 individual colonies. This amendment will limit the harvest area in the EEZ for allowable octocorals (all non-encrusting gorgonians excluding *Gorgonia ventalina* and *Gorgonia flabellum*) to south of Cape Canaveral, Florida.

Live rock is a calcareous material containing an assemblage of living marine organisms harvested by hand from the substrate by divers and sold for use in marine aquaria. The SAFMC determined that removal of wild live rock constitutes removal of essential hard bottom fishery habitat and is in violation of existing Council, NMFS and NOAA habitat policies. Regulations implemented under Amendment 2 involve the following actions: (1) Define live rock and add it to the Coral FMP management unit. Live rock is defined as living marine organisms or an assemblage thereof attached to a hard substrate (including dead coral or rock); (2) Redefine allowable octocorals to mean erect, non-encrusting species of the subclass Octocorallia, except the prohibited sea fans *Gorgonia flabellum* and *G. ventalina*, including only the substrate covered by and within one inch of the holdfast; (3) Provide for different management in the jurisdictional areas of the two Councils by promulgating a separate set of management measures and regulations for the South Atlantic; (4) Prohibit all wild live rock harvest north of Dade County, Florida, and prohibit chipping throughout the jurisdiction of the South Atlantic Council immediately. Cap wild harvest at 485,000 pounds annually until January 1, 1996 when all wild harvest will end; (5) Allow and facilitate aquaculture in the EEZ; (6) Require harvest permits. In addition to any applicable state license or permit, a federal permit is required for the harvest and possession of wild live rock in the EEZ during the phaseout period. Permits shall be limited to persons who have commercially landed and, where required, reported wild live rock landings prior to the control date of February 3, 1994; (7) Require a permit for the possession or harvest from aquaculture operations in the EEZ. Such a permit will be required in order to harvest or possess live rock from an aquaculture site. Harvest from the area may only be done by the permittee or his written designee and an administrative fee will be authorized for the permit; (8) Require a federal permit for harvest and possession of prohibited corals and prohibited live rock from the EEZ for scientific, educational, and restoration

purposes; and (9) Establish an optimum yield (OY) for wild live rock which is to be 485,000 pounds for the south Atlantic region where harvest is allowed during 1995, after which it is to be zero except for that which may be allowed by permit.

### **Proposed Actions as Related to Current Regulations**

In order to follow up on the facilitation of live rock aquaculture directed under Amendment 2, the Council is proposing the regulations presented in this document. The South Atlantic Council has coordinated with the National Marine Fisheries Service and the United States Army Corps of Engineers (Jacksonville District) to implement and manage a permitting system for live rock aquaculture in the south Atlantic region. In addition, prohibiting octocoral harvest north of Cape Canaveral, Florida is proposed to prevent expansion of the fishery to areas where octocorals constitute a more significant portion of the live/hard bottom habitat. The last action proposed under this amendment is to prohibit anchoring of all fishing vessels in the Oculina Bank Habitat Area of Particular Concern. This area, protected under the coral management plan in 1982, was also designated as an experimental closed area under the Snapper/Grouper FMP (SAFMC 1994). The action is being taken to protect coral resources and essential bottom habitat inadvertently damaged by anchoring in what is now the first marine reserve designated in the South Atlantic region on an experimental basis.

### **Problems and Objectives Identified in the Coral Fishery Management Plan and Amendment 2**

The fishery management plan for Coral and Coral Reefs of the Gulf of Mexico and South Atlantic (GMFMC and SAFMC 1982) was implemented in 1982 and amended in 1990 (GMFMC and SAFMC 1990). Amendment 2 to the Coral and Coral Reefs FMP (SAFMC and GMFMC 1994) identified the following:

#### **The Species Included**

- A. Corals: the corals of the class Hydrozoa (stinging and hydrocorals) and the class Anthozoa (sea fans, whips, precious corals, sea pen and stony corals).
- B. Coral Reefs: the hard bottoms, deepwater banks, patch reefs and outer bank reefs as defined in this plan.
- C. Live Rock: Living marine organisms or an assemblage thereof attached to a hard substrate (including dead coral or rock). For example, such living marine organisms associated with hard bottoms, banks, reefs, and live rock may include, but are not limited to:
  - Sea Anemones (Phylum CNIDARIA: Class Anthozoa: Order Actinaria)
  - Sponges (Phylum PORIFERA)

Tube Worms (Phylum ANNELIDA)  
Fan worms  
Feather duster worms  
Christmas tree worms  
Bryozoans (Phylum BRYOZOA)  
Sea Squirts (Phylum CHORDATA)  
Marine Algae  
Mermaids fan and cups (*Udotea* spp.)  
Corraline algae  
Green feather, green grape algae (*Caulerpa* spp.)  
Watercress (*Halimeda* spp.)

#### Problems in The Fishery

1. Degradation of the stocks through natural and man-made impacts.
2. Minimize, as appropriate, adverse human impacts on coral, coral reefs, live rock, and live bottom habitat.
3. Susceptibility to stress because of corals being located at the northern limit of their distribution.
4. Inability of corals to escape stress because of their sedentary nature.
5. Complexity and inconsistency of management regimes.
6. Lack of adequate public understanding of the importance of coral and coral reefs.
7. Present lack of jurisdiction over most coral and coral reefs by a federal agency which has traditionally executed authority and jurisdiction.
8. The removal of live rock violates the SAFMC habitat policy by allowing the removal of essential hard bottom habitat or microcommunities which are important components of coral reefs or hard bottom habitats. These non-renewable habitats form the base of the food chain for commercially and recreationally important crustacean and finfish species under SAFMC management.

#### Primary Management Objective

Optimize the benefits generated from the coral resource while conserving the coral and coral reefs.

#### Specific Management Objectives

1. Develop scientific information necessary to determine feasibility and advisability of harvest of coral.
2. Minimize, as appropriate, adverse human impacts on coral and coral reefs.
3. Provide, where appropriate, special management for coral habitat areas of particular concern (HAPCs).
4. Increase public awareness of the importance and sensitivity of coral and coral reefs.
5. Provide a coordinated management regime for the conservation of coral and coral reefs.



### **History of Management**

Management of coral resources was originally promulgated under the joint Gulf of Mexico and South Atlantic Coral Fishery Management Plan (GMFMC and SAFMC 1982). In the development of Amendment 2 to that plan it became evident to the South Atlantic Council and subsequently the Gulf Council, that a more efficient management structure was one that would allow each Council to manage these non-motile resources in their area of jurisdiction (SAFMC and GMFMC 1994). Significant delay in implementation of measures approved by the South Atlantic Council and the inefficient use of both public and private expenditures due to both Councils having to approve each others proposed actions, prompted the South Atlantic Council to request the Secretary of Commerce address the problem.

The South Atlantic Council voted to request the Secretary of Commerce establish a South Atlantic plan at their April 1994 meeting. The SAFMC in June 1994 requested the Secretary of Commerce establish a separate Fishery Management Plan in the South Atlantic Region allowing the South Atlantic Council to promulgate regulations in their area of jurisdiction without having to have approval by the Gulf Council. The Gulf Council on July 19, 1994 requested the Secretary grant the South Atlantic Councils request and separate the existing management plan. Establishment of a separate coral management plan in the South Atlantic Region provides the South Atlantic Council with the ability to more effectively and efficiently manage these resources. Establishment of a South Atlantic plan also provides the Council with authority to more readily address habitat requirements in plans which may be mandated in future amendments to the Magnuson Act. Therefore, this amendment constitutes action under the new Council plan with reference to the record developed for implementation of the original joint plan, Amendment 1 (Appendix O) and the South Atlantic Councils portion of Amendment 2.

The South Atlantic Council has jurisdiction over, conserves, and manages fish and fishery resources in federal waters three to 200 miles offshore in the South Atlantic Region. Aquacultured live rock and the marine organisms associated with these substrates, pursuant to the Magnuson Fishery Conservation and Management Act, fall under the jurisdiction of the South Atlantic Council. The Minerals Management Service, in correspondence to NOAA General Counsel (Appendix J) regarding regulation of live rock harvest, indicated that naturally occurring limestone in the Outer Continental Shelf is a mineral whose production is subject to leasing under the Outer Continental

Shelf Lands Act, 43 U.S.C. 1337 (k). However, Minerals Management Service would not assert title to property of those who use the Outer Continental Shelf pursuant to valid authorization of another federal agency under statutory or executive delegation to manage certain activities on the Outer Continental Shelf.

Aquacultured live rock consists of living marine organisms attached to a man made or non-indigenous hard substrate placed in the South Atlantic EEZ for the sole purpose of eventual removal and marketing for the aquarium trade. Obtaining a NMFS federal aquaculture permit will not only provide Corps permit holders with the ability to harvest live rock, but will also grant them an exemption for the removal of prohibited corals and seafans which become attached to aquacultured substrates.

The SAFMC has determined that removal of wild live rock constitutes removal of essential hard bottom fishery habitat and is in violation of existing SAFMC habitat policies. The Council is managing this resource by prohibiting wild harvest, encouraging aquaculture, and allowing a phaseout of wild harvest. The Council is implementing a live rock aquaculture permit system in the South Atlantic EEZ under the COE/NMFS permits which will provide for placement and removal of aquaculture live rock respectively. Implementation of a system in south Atlantic federal waters will insure coordination between NMFS and SAFMC in monitoring the activity.

Live rock aquaculture permits were established under Coral Amendment 2 (SAFMC and GMFMC 1994). Amendment 2 requires a permit for possession or harvest from an aquaculture site in the South Atlantic EEZ. Harvest from the area may only be done by the permittee or his written designee and an administrative fee will be authorized for the permit.

The South Atlantic Council initiated the scoping process to develop a more structured monitoring and review process and to assure that the Council retains involvement in establishment and development of the live rock aquaculture system in the South Atlantic EEZ. The Council has facilitated and is managing live rock aquaculture in the EEZ through the NMFS permitting system, while assuring that the placement and operation of aquaculture sites does not interfere with existing coral, coral reefs, or hard bottom habitat or designated special management zones established under the Snapper Grouper Fishery Management Plan.

The Council is proposing an aquaculture permit and monitoring system for individuals desiring to culture live rock in the South Atlantic EEZ. NOAA

General Counsel, during deliberations on Coral Amendment 2 for live rock, indicated that if the South Atlantic Council wanted to implement a comprehensive aquaculture program identifying specific siting criteria and a review process, it would have to be accomplished through a subsequent amendment or an additional series of public hearings. Specific criteria for the U.S. Army Corps of Engineers general permit and special conditions for aquaculture in the South Atlantic region have been developed and are presented under Action 1 in Section 4.0 Environmental Consequences.

### **Problems and Objectives Addressed in this Amendment**

The management objectives and problems addressed in this amendment are as follows:

### **Issues/Problems to be Considered Through the Proposed Actions**

Issues/problems addressed in this document are as follows:

#### **Facilitate and Manage Live Rock Aquaculture**

- What criteria should apply for granting an aquaculture permit?
- How will prohibited coral be handled in an aquaculture program?
- How can we monitor aquaculture activities?

#### **Octocoral Harvest May Damage Habitat**

- What additional regulations on the taking of octocorals in the south Atlantic should be considered to protect live/hard bottom communities?
- The removal of octocorals may constitute the removal of essential fishery habitat.

#### **Habitat Damage in Oculina Bank HAPC**

- What should be done to enhance protection of essential habitat including the Oculina Bank Habitat Area of Particular Concern?
- Can gear (anchors, grapples and chains) be prohibited from taking/killing coral, coral reefs and live/hard bottom habitat?

**Management Objectives for this Plan Action**

1. Develop a permit system to facilitate and manage live rock aquaculture while maximizing protection of naturally occurring bottom habitat in the South Atlantic EEZ.
2. Regulate octocoral removal to insure essential fishery habitat in the South Atlantic EEZ is protected.
3. Protect the Oculina Bank HAPC from damaging gear (anchors, grapples and chains) which directly or indirectly takes coral or live/hard bottom reducing habitat essential to species utilizing the newly designated experimental closed area.

The Council received extensive input on live rock and octocorals during development of Amendment 2. This served as additional rationale and background information for development of this amendment. A map of locations and dates of public hearings conducted for this amendment is included in Section 9.0.

## **2.0 ALTERNATIVES INCLUDING THE PROPOSED ACTION**

National Environmental Policy Act (NEPA) regulations require that Section 2.0 should present the environmental impacts of the proposed actions and the alternatives in comparative form, thus sharply defining the issues and providing a clear basis for choice among options by the decision maker and the public. The Council's documents must also conform to Magnuson Act and Other Applicable Law requirements. National Environmental Policy Act regulations are one of the other applicable laws referenced. The South Atlantic Council decided to blend Magnuson Act and other applicable law (including NEPA) requirements in one consolidated, non-duplicative and non-repetitive document. The bulk of the evaluation of alternatives and discussion about the effects on the environment is presented in Section 4.0 Environmental Consequences of Fisheries Actions. In Section 2.0, the Council summarizes the impacts of the proposed action and range of alternatives to provide the reader with an overview of the environmental impact of the proposed action as it relates to the range of alternatives considered.

Management measures (proposed actions) are intended to address the management objectives and issues discussed in Section 1.0. Each management measure has a number of alternatives that have been considered by the Council. The following discussion summarizes the environmental impacts of the proposed action and consolidates the discussion of the range of alternatives considered. For a detailed analysis of impacts for each alternative see Section 4.0 Environmental Consequences.

### **ACTION 1**

The Council has developed a permit system to facilitate and manage live rock aquaculture while maximizing protection of naturally occurring bottom habitat in the South Atlantic EEZ. Live rock aquaculture permits were established under Coral Amendment 2 (SAFMC and GMFMC 1994); Amendment 2 requires a permit for possession or harvest from an aquaculture site in the South Atlantic EEZ. The South Atlantic Council is establishing a live rock aquaculture permit system for the south Atlantic EEZ to provide additional aquaculture opportunities in federal waters along with the state (Florida) leasing systems that will benefit displaced harvesters of wild live rock while protecting and possibly enhancing bottom habitat. The Council has developed a permit system to facilitate and manage live rock aquaculture while

maximizing protection of naturally occurring bottom habitat in the South Atlantic EEZ. Providing additional aquaculture opportunities in federal waters will achieve the policy directive established under Amendment 2 to aid in the transition to aquaculture. The Council rejected not implementing a permitting system for live rock aquaculture because the directive established under Amendment 2 is not only to allow live rock aquaculture, but to facilitate establishment and management of a live rock aquaculture industry.

## **ACTION 2**

The Council is also regulating octocoral removal by prohibiting harvest north of Cape Canaveral, Florida which prevents expansion of octocoral harvest north of the Cape and insures essential fishery habitat in the South Atlantic EEZ is protected. North of Cape Canaveral, the limited distribution of octocorals and associated sponges attached to limestone outcrops constitute the majority of what is considered essential live/hard bottom habitat. The Council, in selecting this option, is protecting the live/hard bottom habitat which is most threatened and susceptible to increased or directed harvesting. The Council rejected prohibiting octocoral harvest north of Dade County, Florida, north of Florida, and throughout the range because harvesting individual octocoral colonies under the quota was selective and resulted in limited habitat damage and would limit harvest of octocorals in areas where they do not constitute the major benthic habitat. These options were rejected because the benefits to harvesters and consumers by allowing the continued limited harvest south of Cape Canaveral, Florida would likely outweigh the costs associated with the minimal damage to habitat.

## **ACTION 3**

By prohibiting anchoring of fishing vessels, the Council is protecting, to the maximum extent possible under the Magnuson Act, the Oculina Bank HAPC from damaging gear. Prohibiting anchoring of fishing vessels in the Oculina Bank HAPC would enhance existing regulations protecting *Oculina* coral and live/hard bottom habitat and maximize the likelihood that essential fishery habitat contained in the experimental closed area designated under the snapper grouper plan will be protected. The no action option would impact the environment negatively. Regulations implemented through Snapper Grouper Amendment 6 (SAFMC 1994) only prohibit anchoring while fishing for snapper grouper species in the newly designated experimental closed area which is the

existing *Oculina* Habitat Area of Particular Concern. Taking no action at this time would not enhance existing regulations protecting *Oculina* coral and live/hard bottom habitat in the experimental closed area or maximize the likelihood that essential fishery habitat contained in the experimental closed area will be protected.

The following tables summarize the proposed action and the range of alternatives and how they address the problems/issues identified by the Council. Management alternatives are presented in the rows and issues/problems in the columns. For a detailed analysis of impacts for each alternative see Section 4.0 Environmental Consequences.

**SUMMARY OF ENVIRONMENTAL CONSEQUENCES**  
(Effects of Alternatives on the Issues/Problems)

**ACTION 1. ESTABLISH A LIVE ROCK AQUACULTURE PERMIT SYSTEM FOR THE SOUTH ATLANTIC EEZ:**

**ISSUES/PROBLEMS**

<b>Alternatives</b>	<b>Facilitate Live Rock Aquaculture</b>
<b>Proposed Action: Establish South Atlantic Live Rock Aquaculture Permit System</b>	Provides alternative for individuals previously removing wild live rock.
<b>Rejected Option 1. No Action</b>	Does not allow aquaculture.

**SUMMARY OF ENVIRONMENTAL CONSEQUENCES**  
**(Effects of Alternatives on the Issues/Problems)**

**ACTION 2. PROHIBIT OCTOCORAL HARVEST NORTH OF CAPE CANAVERAL, FLORIDA:**

**ISSUES/PROBLEMS**

<b>Alternatives</b>	<b>Octocoral Harvest May Damage Habitat</b>
<b>Proposed Action: Prohibit Octocoral Harvest North of Cape Canaveral, Florida</b>	Protects all essential habitat and meets councils objectives. Prevents future loss of octocoral habitat in the EEZ off GA, SC, NC & North of Cape Canaveral, FL.
<b>Rejected Options 1 and 3. Prohibit Octocoral Harvest North of Dade County, or the South Atlantic Region</b>	Protects all essential octocoral habitat in the EEZ off GA, SC, NC & North of Cape Canaveral, FL. In addition, options eliminate harvest in the EEZ south of the Cape Canaveral in areas where octocoral distribution is not as limited and does not constitute the major bottom habitat type.
<b>Rejected Options 2 and 4. Prohibit Octocoral Harvest North of Florida and No Action</b>	Would allow octocoral harvest to expand north to the FL/GA border from existing harvest area off Palm Beach County, FL south or throughout the south Atlantic EEZ.

**ACTION 3. PROHIBIT ANCHORING OF FISHING VESSELS IN THE OCULINA BANK HABITAT AREA OF PARTICULAR CONCERN:**

**ISSUES/PROBLEMS**

<b>Alternatives</b>	<b>Habitat Damage in Oculina Bank HAPC</b>
<b>Proposed Action: Prohibit Anchoring of all Fishing Vessels in the Oculina Bank HAPC</b>	Eliminates man-induced taking/killing of coral and live/hard bottom from all anchors, grapples, and chains.
<b>Rejected Option 1. No Action</b>	Continued loss of coral resources and essential habitat in Oculina Bank HAPC. Compromises biological integrity of experimental closed area.



### 3.0 **AFFECTED ENVIRONMENT**

The affected environment including life histories and descriptions of coral, octocorals, coral reefs, and live/hard bottom resources in the south Atlantic region are presented in detail in the original coral plan (GMFMC and SAFMC 1982), Amendment 1 (GMFMC and SAFMC 1990), Appendix O, and Amendment 2 (SAFMC and GMFMC 1994). An Environmental Impact Statement was prepared for the original plan, an Environmental Assessment was prepared for Amendment 1 and a Supplemental Environmental Impact Statement was prepared for Amendment 2. A description of the live rock resource and wild live rock fishery is presented in Appendix C, and the final rule implementing Amendment 2 is presented in Appendix S. A description of the octocoral resource and fishery is presented in Appendix O. For additional information on octocoral life history and growth, Section 2.1.2 of the Draft Caribbean Coral EIS and FMP is included by reference (CFMC 1994). In addition, a more detailed description of the deepwater *Oculina* resource in the South Atlantic is presented in Appendix N.

#### A. **Optimum Yield**

Optimum Yield (OY) for coral and coral reefs in the existing management plan is already zero, except for allowable octocorals that are harvested under an annual quota or through a federal recreational permit. As of January 1, 1996, OY for wild live rock will also be zero. The Council identifies live rock as essential habitat. Optimum Yield for wild live rock is 485,000 pounds for the south Atlantic region where harvest is allowed during 1995, after which it is to be zero except for that which may be allowed by permit. Permits provide for removal of wild live rock for scientific, educational, and restoration purposes only. Permits are also provided for the harvest of geologically distinguishable substrates placed in the EEZ for aquaculture.

#### B. **Commercial Fishery**

##### **Coral**

The harvest or possession of hard coral and the seafans *Gorgonia ventalina* and *G. flabellum* was prohibited under the original Fishery Management Plan for Coral and Coral Reefs of the Gulf of Mexico and South Atlantic (GMFMC and SAFMC 1982). With implementation of regulations proposed under this amendment, aquaculturists may harvest prohibited coral and seafans which have naturally become attached to geologically

distinguishable aquaculture substrates. This will provide a new domestic market competing with imported corals which are of higher value as compared to live rock.

### **Live Rock**

With recent developments in technology for maintaining marine aquaria, a market developed for calcareous material to decorate tanks and to maintain proper water chemistry. This material, composed mostly of calcium carbonate and attached marine life, occurs naturally off the south Atlantic coast and consists of coral reef rubble and limestone. Coral reefs and hard corals are protected by federal and Florida regulations. Taking or damaging coral and coral reefs is prohibited. The Council determined that removal of wild live rock, although a fishery now, constitutes removal of fishery habitat, is in violation of the approved Council habitat policy, and must end. Subsequently, the Council implemented a phaseout to prohibit removal of wild live rock to protect coral, coral reefs, and hard bottom habitats in the south Atlantic region. Appendix C and Appendix L contain additional information on the Marine Life Industry.

### **Live Rock Aquaculture**

Limited experiments on cultivation of live rock indicate marketable live rock can be produced within six months. The rate of encrustation by desirable live rock organisms depends on local environment and substrate utilized. Therefore, some seed rock may be marketable as live rock in as short a period as six months, while development of more showy pieces may require a year or more. The live rock aquaculture operation permitted under a U.S. Army Corps of Engineers individual permit (Appendix M) is showing good settlement, attachment and encrusting of organisms associated with wild live rock, including coral, and more specifically fire coral (Ken Nedimyer pers. comm.).

The live rock aquaculture industry is developing in the State of Florida. Status of leases in state waters, guidelines and the lease process, and a copy of the lease application form are included in Appendices D-H of this document. These materials are included in this document to further facilitate the shift of harvest of wild live rock to aquaculture in both state and federal waters.

Implementation of the proposed actions will facilitate development of a live rock aquaculture industry in south Atlantic federal waters. Information pertaining to development of the industry in federal waters will be supplied to the Council annually by NMFS and be compiled and included in a subsequent

amendment to the plan. The U.S. Army Corps of Engineers General Permit requirements for live rock aquaculture are presented in Section 4.0. In addition, the Corps notice and request for public comment, and a copy of the NMFS/COE permit application are presented in Appendix Q.

### **Octocorals**

Commercial harvest of octocorals by state or federal permit holders in the combined Gulf of Mexico and South Atlantic federal waters is presently limited to 50,000 colonies. Each colony harvested may include only the substrate covered by and within one inch of the holdfast. The east coast marine life industry in the south Atlantic region is centralized in Monroe County, Florida and a description of annual landings of products harvested for the aquarium trade is presented in Appendix L. This report indicates approximately 20,000 colonies being harvested annually from 1990 to 1992 from the southeast coast of Monroe County, Florida. More recent combined state and federal landings by Florida county are presented in Figure 1 and by area harvested in Figure 3.

Total landings of octocorals increased between 1990 and 1994 and Monroe County has the most significant harvest during the period. The greatest increase has occurred in Palm Beach County (Figure 1) where landings have increased from very few colonies reported in 1990 and 1991 to over 5,000 colonies landed through September/October 1994. Primary species harvested by reported category include red, purple and other gorgonian (Figure 2).

Appendices C and L contain additional detailed landings and harvest information on live rock, octocorals and the marine life industry.

### **C. Recreational Fishery**

No reported recreational landings of allowable octocorals have been recorded under the permit provided in Amendment 1 which limits harvest by recreational permit holders to six colonies per person per day.

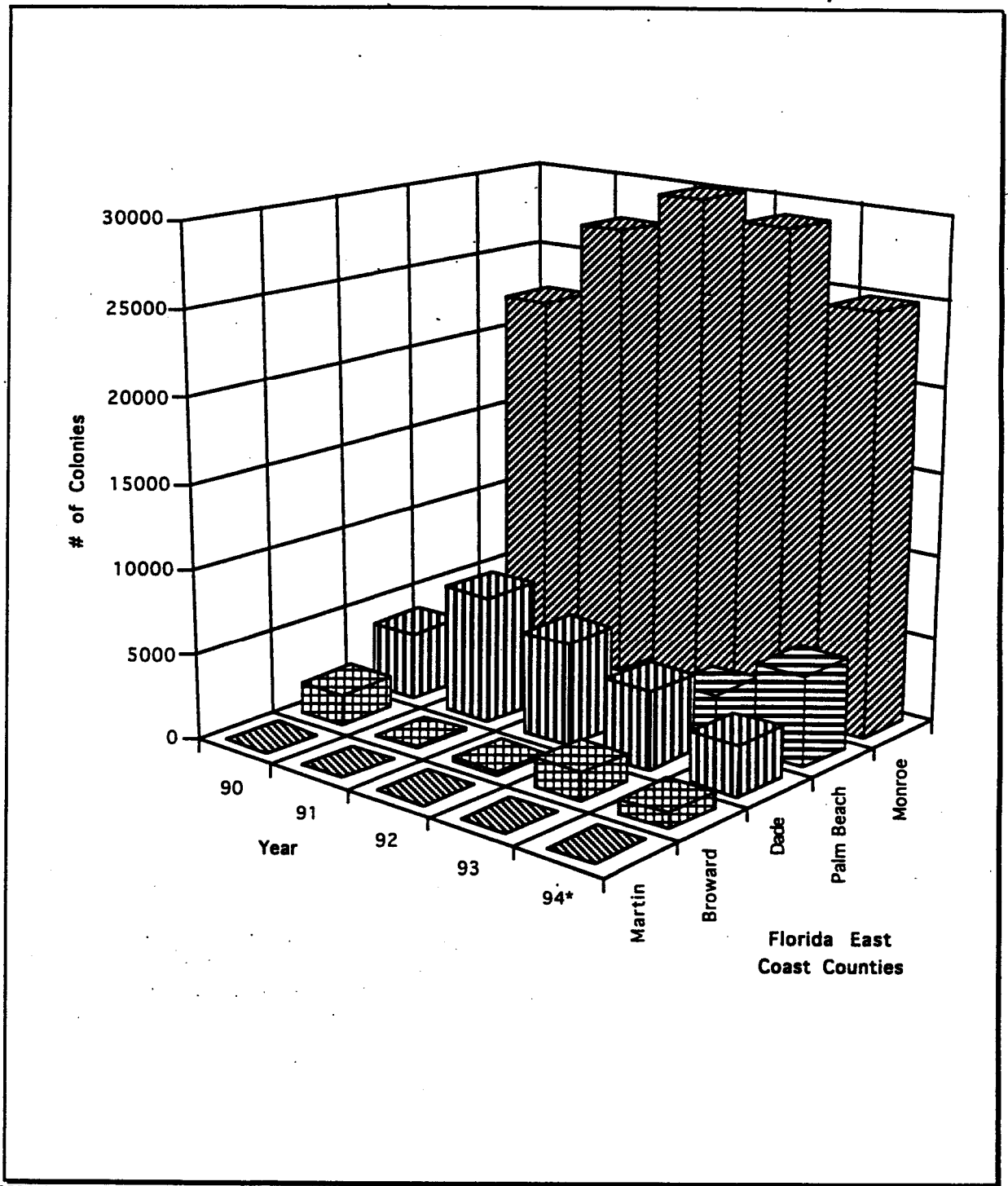
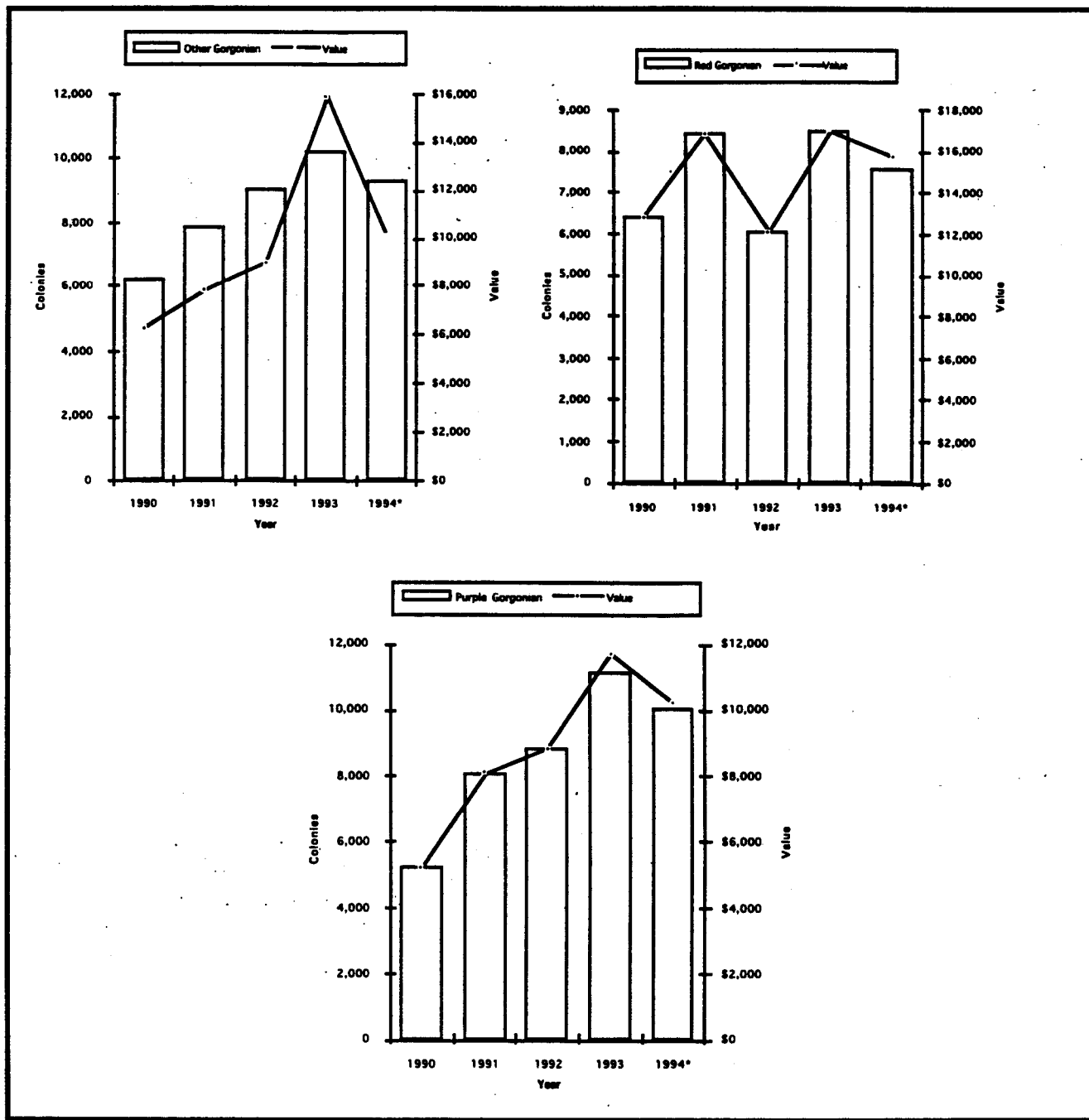


Figure 1. Octocoral colonies harvested by Florida County 1990-1994 (Source: FDEP 1994).



\*1994 through Sept./Oct.

Figure 2. Octocoral colonies harvested by market category and value 1990-1994 (Source: FDEP 1994).

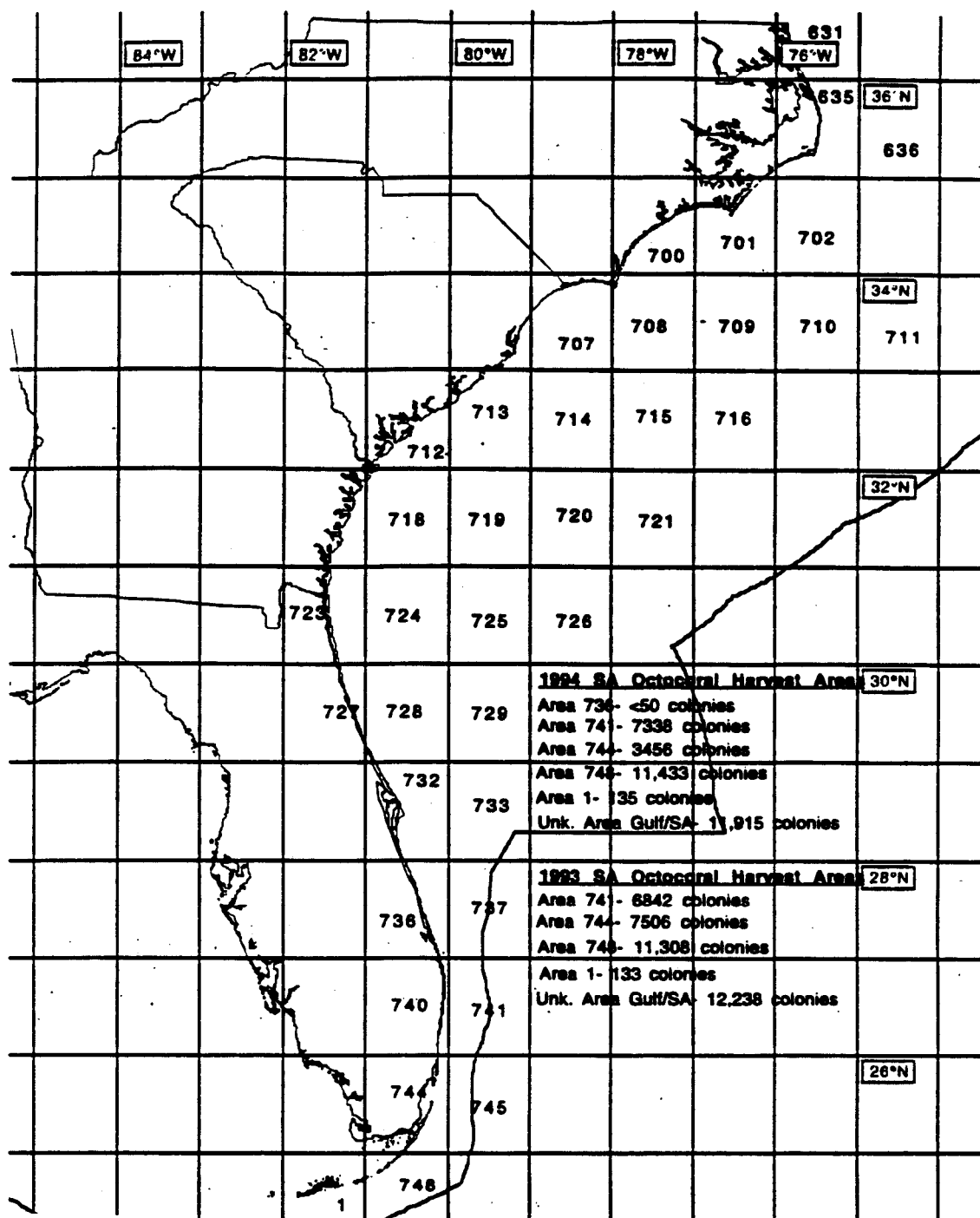


Figure 3. Octocorals harvested in the South Atlantic Region from state and federal waters combined, by NMFS statistical area for 1993-1994 (Source: FDEP 1994).

#### **D. Status of the Stocks**

Amendment 2 (SAFMC and GMFMC 1994) provided additional protection to coral reefs and hard bottoms by prohibiting removal of wild live rock after December 31, 1995 and providing a transitional period for harvesters to convert to aquaculture thereby moderating socioeconomic impacts. The Council determined that live rock, whether it is broken off of reefs or limestone outcrops, or whether it is collected as loose rubble associated with mainly coral reef tracts, is removal of fishery habitat. Live rock is at least as useful in the reef and live bottom ecosystems as it is in marine aquaria, acting as a substrate essential for colonization of sessile organisms including prohibited coral. It also serves as habitat for motile species of reef fish and invertebrates. The Council's Habitat and Environmental Protection Advisory Panel, scientific representatives on the Coral Advisory Panel, and National Marine Fisheries Service have noted that wild live rock is a nonrenewable resource. Thus, adverse impacts on hard bottom habitat will result from a continuation of wild live rock harvest.

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

The South Atlantic Council, in defining and including live rock in the management unit, clarifies that live/hard bottom habitat including limestone ledges, outcroppings, and serpulid rock in combination with the attached and associated organisms provide essential non-renewable habitat for invertebrates and reef fish assemblages. The mapping of essential fisheries habitat including the distribution of live/hard bottom habitats, coral and coral reefs in the south Atlantic region is limited. Appendix I presents a compilation of existing information on distribution of live/hard bottom habitats in the south Atlantic region developed under the bottom mapping program of Southeast Area Monitoring and Assessment Program (SEAMAP). A presentation on the extent and status of these resources in the south Atlantic region was made to the SAFMC Habitat Advisory Panel in June 1993 and is presented in Appendix V.

#### ***Oculina* Coral Habitat**

*Oculina* coral (*Oculina varicosa*) or ivory tree coral is distributed along the south Atlantic shelf with concentrations occurring off the central east coast of Florida (Figure 4). According to Reed (1980) the majority of massive *Oculina* growth occurs between 27° 30' N. latitude and 28° 30' N. latitude which encompasses the *Oculina* Bank affected by the proposed management action.

*Oculina*, a slow growing coral species, constitutes essential habitat to a complex of species, including those managed under the snapper grouper Fishery Management Plan (SAFMC 1983). The average growth rate for *Oculina varicosa* at a depth of 80 m was estimated to be very slow, at 16 mm/yr (Reed 1981). Bullis and Rathjen (1959) identified rugged coral formations in depths from 27 to 180 m between St. Augustine and Cape Canaveral, Florida. The highest growth rate for *Oculina* is on the top or on the current facing side of the mound. The *Oculina* bank ecosystems are unique in that they are monospecific, comprised of one species of delicate branching coral covering hundreds of feet of hills and pinnacles with 25 m relief (Figure 4). *Oculina* banks thrive in areas of strong currents (up to 60 cm/s) which are thought to contribute to growth (Reed 1992). Reed (1992) more recently described *Oculina varicosa* as follows:

*Oculina varicosa* forms spherical, dendroid, bushy colonies that are 10 cm to 1.5 m in diameter and height. Individual corals may coalesce forming linear colonies 3-4m in length or massive thickets of contiguous colonies on the slopes and tops of the banks (Reed 1980). The deep-water form lacks zooxanthellae, whereas in shallow water *Oculina varicosa* is usually golden brown with the algal symbiont and colonies average <30 cm in diameter with thicker branches. Deep-water banks of the coral, however, are only known from 27°32' N and 79°59' W to 28°59' N and 80°07' W....

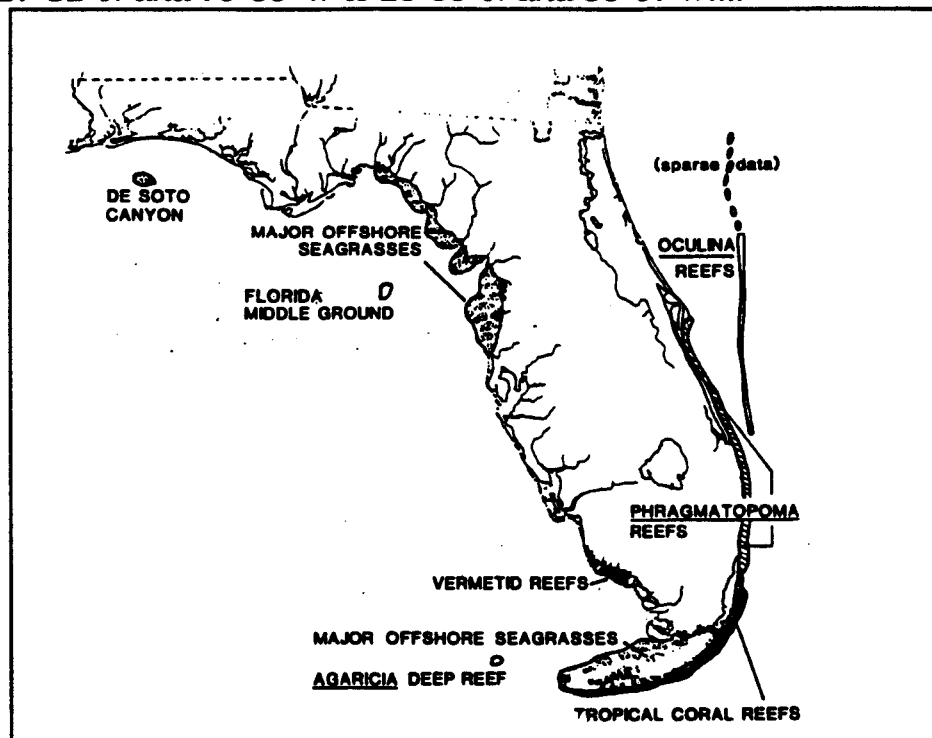


Figure 4. Distribution of *Oculina* reefs off Florida (AFS 1985).



Deep water coral communities support a very rich and diverse community composed of large numbers of species of mollusks, amphipods, and echinoderms with *Oculina* constituting the dominant species. The diversity of this system is equivalent to that of many tropical reef systems (Reed 1992). The geomorphological nature of the deepwater *Oculina* banks is characterized by high current regimes which trap fine sand, mud and coral debris forming the basis for the diverse invertebrate community (Reed 1992).

A detailed description of submersible studies of deepwater *Oculina* banks conducted along the shelf edge off central Florida over the last ten years is included in Appendix N of this document as supplemental information on distribution, structure, and function of this protected coral resource and essential habitat. In addition, a list of finfish species identified or collected in *Oculina* reef habitats (Reed 1982) is presented in Table 3.

A 92 square mile *Oculina* Bank Habitat Area of Particular Concern (HAPC) was established to protect this fragile limited coral habitat under the Federal Fishery Management Plan for Coral and Coral Reefs (GMFMC and SAFMC 1982) (Figure 5). Existing regulations protecting the *Oculina* HAPC are as follows:

**Regulations in the Coral Fishery Management Plan**

§638.23 Habitat areas of particular concern.

(c) The *Oculina* Bank. The *Oculina* Bank is located approximately 15 nautical miles east of Fort Pierce, Florida, at its nearest point to shore and is bounded on the north by 27°53'N. lat., on the south by 27°30'N. lat., on the east by 79°56'W. long., and on the west by 80°00'W. long. In the HAPC, fishing with bottom longlines, traps, pots, dredges, or bottom trawls is prohibited. See §646.26 (d) of this chapter for prohibitions on fishing for snapper-grouper in the *Oculina* Bank HAPC.

**Regulations in the Snapper Grouper Fishery Management Plan**

§ 646.26 Area limitations

(d) *Habitat area of particular concern* (HAPC). (1) The *Oculina* Bank, which is a coral HAPC under § 638.23(c) of this chapter, 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.

(2) No fishing for fish in the snapper-grouper fishery may be conducted in the *Oculina* Bank HAPC; such fish may not be retained in or from the *Oculina* Bank HAPC. Fish in the snapper-grouper fishery taken incidentally in the *Oculina* HAPC by hook-and-line must be released immediately by cutting the line without removing the fish from the water. It is a rebuttable presumption that fishing aboard a vessel that is anchored in the HAPC constitutes fishing for fish in the snapper-grouper fishery.

(3) See §638.23(c) of this chapter for prohibitions on fishing with bottom longlines, traps, pots, dredges, and bottom trawls in the *Oculina* HAPC.

Table 3. Species list of fish observed or collected on *Oculina* reefs off central eastern Florida (Source: Reed 1982).

Species	Common Name
<b>MURAENIDE</b>	Morays
<i>Gynothorax nigromarginatus</i>	
<i>Muraena miliaris</i>	
<b>CLUPEIDAE</b>	Herrings
<i>Sardinella anchovia</i>	Spanish sardine
<b>BATRACHOIDIDAE</b>	Toadfishes
<i>Opsanus pardus</i>	
<b>HOLOCENTRIDAE</b>	Squirrelfishes
<i>Corriger sptnouse</i>	
<i>Holocentrus ascensionis</i>	
<b>SERRANIDAE</b>	Seabasses
<i>Centropristis ocyurus</i>	Bank seabass
<i>Centropristis philadelphia</i>	Rock seabass
<i>Centropristis striata</i>	Black seabass
<i>Epinephelus adscensionis</i>	Rock hind
<i>Epinephelus drummondhayi</i>	Speckled hind
<i>Epinephelus itajara</i>	Jewfish
<i>Epinephelus morio</i>	Red grouper
<i>Epinephelus nigritus</i>	Warsaw grouper
<i>Epinephelus niveatus</i>	Snowy grouper
<i>Hemanthias vivanus</i>	Red barber
<i>Holoanthias martinicensis</i>	
<i>Liopropoma eukrines</i>	Wrasse basslet
<i>Mycteroperca bonaci</i>	Black grouper
<i>Mycteroperca nirolepis</i>	Gag grouper
<i>Mycteroperca phenax</i>	Scamp grouper
<i>Plectranthis garrupellus</i>	
<i>Serranus phoebe</i>	Tattler
<i>Serranus sublingarius</i>	Belted sandfish
<b>GRAMMISRIDAE</b>	Soapfishes
<i>Ryphticus maculatus</i>	
<i>Ryphticus saponaceus</i>	
<b>PRIANCANTHIDAE</b>	Bigeyes
<i>Priacanthus arenatus</i>	
<i>Priacanthus alta</i>	
<b>APOGONIAE</b>	Cardinalfishes
<i>Apogon pseudomaculatus</i>	
<b>CARANGIDAE</b>	Jacks
<i>Caranx hippos</i>	Jack crevalle
<i>Decapterus dumerili</i>	Round scad
<i>Seriola dumerili</i>	Greater amberjack
<i>Seriola rivoliana</i>	Almaco jack
<i>Caranx crysos</i>	Blue runner
<b>LUTJANIDAE</b>	Snappers
<i>Lutjanus campechanus</i>	Red snapper
<i>Lutjanus griseus</i>	Gray snapper
<i>Lutjanus synagris</i>	Lane snapper
<i>Rhomboplites aurorubens</i>	Vermillion snapper
<b>POMADASYIDAE</b>	Grunts
<i>Haemulon aurolineatum</i>	Tomtate
<b>SPARIDAE</b>	
<i>Archosargus probatocephalus</i>	Sheephead
<i>Pagrus pagrus</i>	Red porgy

Table 3. Species list of fish observed or collected on Oculina reefs off central eastern Florida (cont.).

<b>Species</b>	<b>Common Name</b>
<b>SCIAENIDAE</b>	<b>Drums</b>
<i>Equetus acuminatus</i>	
<i>Equetus lanceolatus</i>	
<i>Equetus umbrosus</i>	
<b>CHAETODONTIDAE</b>	<b>Butterflyfishers</b>
<i>Chaetodon aya</i>	
<i>Chaetodon ocellatus</i>	
<i>Chaetodon sedentarius</i>	
<b>POMACANTHIDAE</b>	<b>Angelfishes</b>
<i>Holocanthus bermudenist</i>	
<i>Holocanthus ciliaris</i>	
<i>Pomacanthus arcuatus</i>	
<i>Pomacanthus paru</i>	
<b>POMACENTRIDAE</b>	<b>Damselfishes</b>
<i>Chromis bermudenstis</i>	
<i>Chromis scotti</i>	
<i>Eupomacentrus variabilis</i>	
<b>LABRIDAE</b>	<b>Wrasses</b>
<i>Bodianus pulchellus</i>	
<i>Halichoeres bivittatus</i>	
<i>Halichoeres caudalis</i>	
<i>Halichoeres bathyphilus</i>	
<b>GOBIIDAE</b>	<b>Gobies</b>
<i>Lythrypnus nesiotes</i>	
<i>Lythrypnus spilus</i>	
<b>SCOMBRIDAE</b>	
<i>Mackerals and Tunas</i>	
<i>Acanthocymbium solandri</i>	<b>Wahoo</b>
<i>Euthynnus alletteratus</i>	<b>Little tunny</b>
<i>Scomberomorus cavalla</i>	<b>King mackerel</b>
<i>Scomberomorus maculatus</i>	<b>Spanish mackerel</b>
<b>SCORPAENIDAE</b>	<b>Scorlionfishes</b>
<i>Neomerinthe hemingwayi</i>	
<i>Scorpaena brasiliensis</i>	
<i>Scorpaena dispar</i>	
<b>MOLIIDAE</b>	<b>Molas</b>
<i>Mola mola</i>	<b>Ocean sunfish</b>
<b>MOBULIDAE</b>	<b>Mantas</b>
<i>Manta birostris</i>	<b>Atlantic manta</b>
<b>CARCHARINIDAE</b>	<b>Requiem sharks</b>
<i>Galeocerdo cuvieri</i>	<b>Tiger shark</b>
<b>SPHYRNIDAE</b>	<b>Hammerhead sharks</b>
<i>Sphyrna lewini</i>	<b>Scalloped hammerhead</b>

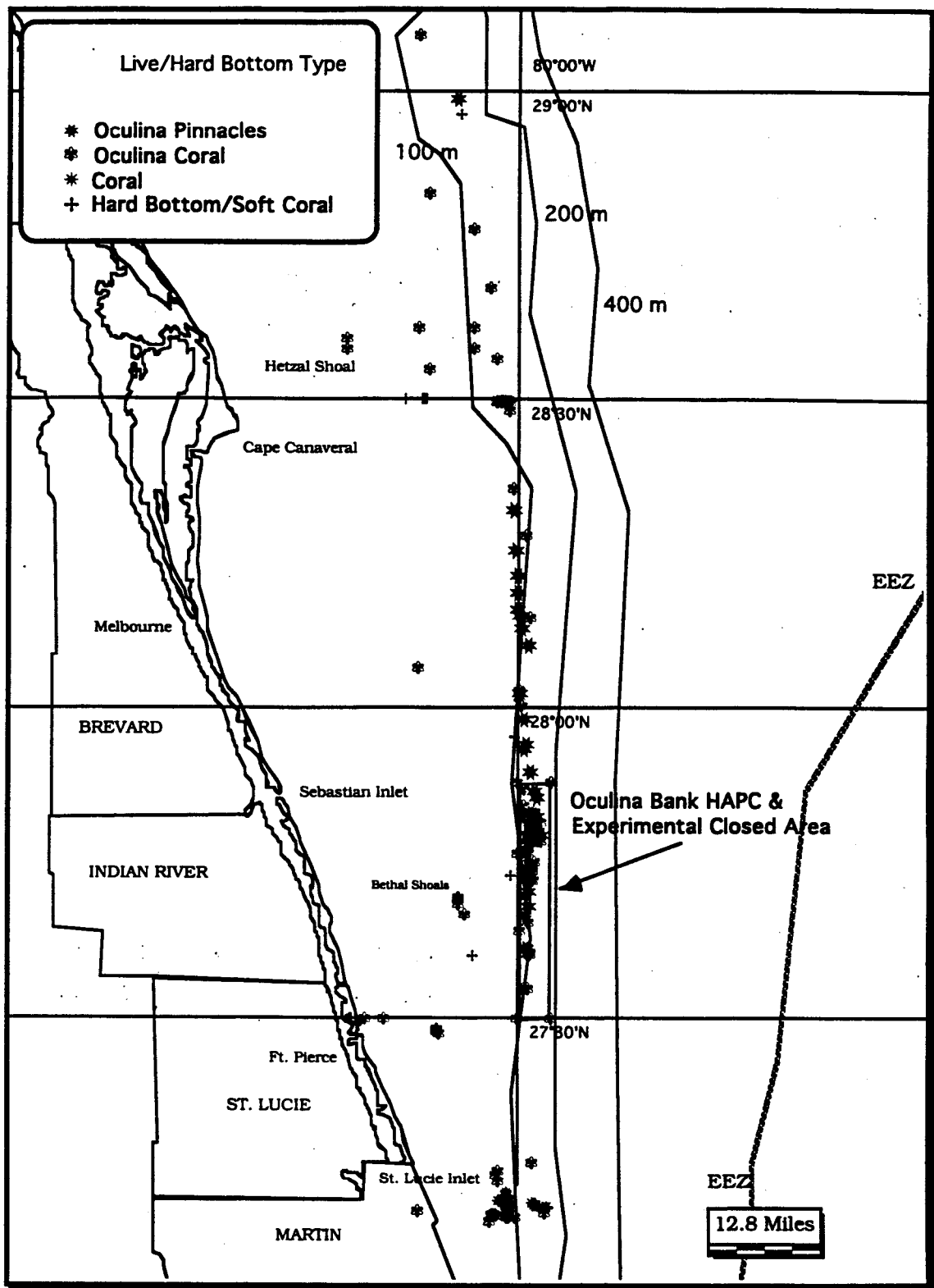


Figure 5. Map of coral (*Oculina varicosa*), coral reef and live/hard bottom habitat distributed along the South Atlantic shelf off the central east coast of Florida (Source: SAFMC 1995).

## **4.0 ENVIRONMENTAL CONSEQUENCES**

### **A. Introduction**

This section presents a detailed discussion of management measures and alternatives considered by the Council and the environmental consequences of management. The Environmental Assessment (EA), Regulatory Impact Review (RIR), and Social Impact Assessment (SIA) are incorporated into discussions under each of the proposed action items.

Each action is followed by five sub-headings: Biological Impacts, Enforcement Impacts, Economic Impacts, Social Impacts and Conclusions. These are self explanatory with the first four presenting the impacts of each measure considered. The Council's rationale is presented under the heading Conclusions.

The Council's preferred actions establish a federal live rock aquaculture system, prohibit octocoral harvest north of Cape Canaveral, Florida, and protect essential coral and live/hard bottom habitat in the Oculina Habitat Area of Particular Concern by prohibiting anchoring of all fishing vessels.

### **B. Secretarial Action**

In the final rule implementing Amendment 2 (Appendix S), the Secretary approved the request to separate management of these resources into the Council's respective jurisdictions. Three regulations affecting coral, coral reefs and live/hard bottom habitats in the south Atlantic region are proposed in this amendment to the newly formed South Atlantic Council plan.

### **C. Proposed Actions**

#### **ACTION 1. ESTABLISH A LIVE ROCK AQUACULTURE PERMIT SYSTEM FOR THE SOUTH ATLANTIC EEZ.**

##### **Biological Impacts**

The South Atlantic Council is establishing a permit system to facilitate and manage live rock aquaculture while maximizing protection of naturally occurring bottom habitat in the South Atlantic EEZ.

Organisms in the management unit for wild live rock will readily attach to and grow on suitable material introduced into the marine environment given appropriate conditions. Shipwrecks, offshore platforms, rock jetties, bottles, and artificial reefs all bear evidence of accretion of various organisms. Aquaculture operations, while providing a substitute to the harvest of naturally occurring live rock, will contribute to increasing hard bottom structure or reef

type habitat. Deposition of material would be similar to construction of an artificial reef as is seen in the very specific placement of smaller amounts of substrates throughout the site of the first south Atlantic federal individual aquaculture permit granted by the U. S. Army Corps of Engineers prior to the implementation of these proposed regulations (Appendix M). In addition, stony corals and other prohibited corals will settle on the aquaculture substrate in federal waters providing even greater habitat diversity. Establishment of a federal live rock aquaculture permit system will provide individuals the ability to harvest aquacultured live rock from south Atlantic federal waters. Applications will be administered through NMFS, the agency authorized by the U. S. Army Corps of Engineers to grant general permits for live rock aquaculture.

To identify cultured rock it is necessary to require use of geologically distinguishable substrates in an attempt to prevent individuals from harvesting natural bottom and landing it as aquaculture rock. Any illegal harvest would result in a net loss of bottom habitat. This requirement, along with other criteria presented in the general permit, were adopted to insure that aquaculture operations do not degrade, damage or negatively impact the surrounding habitat. The following criteria were developed and presented for public comment by the US Army Corps of Engineers Jacksonville District in response to comments received from NMFS SERO based on input from both the South Atlantic and Gulf of Mexico Fishery Management Councils. Some recommendations presented by the South Atlantic Council were incorporated. Additional Council requirements for individuals involved in live rock aquaculture are incorporated in two special conditions under the following section titled "NMFS Aquaculture Permit". The permit and reporting process for live rock aquaculture in south Atlantic federal waters is presented in Figure 6.

Authorization for NMFS to grant general permits only applies at this time to aquaculture off the coast of Florida. This permit will act as a blueprint which other south Atlantic COE offices can use to provide this type of general permit for live rock aquaculture off the other south Atlantic states.

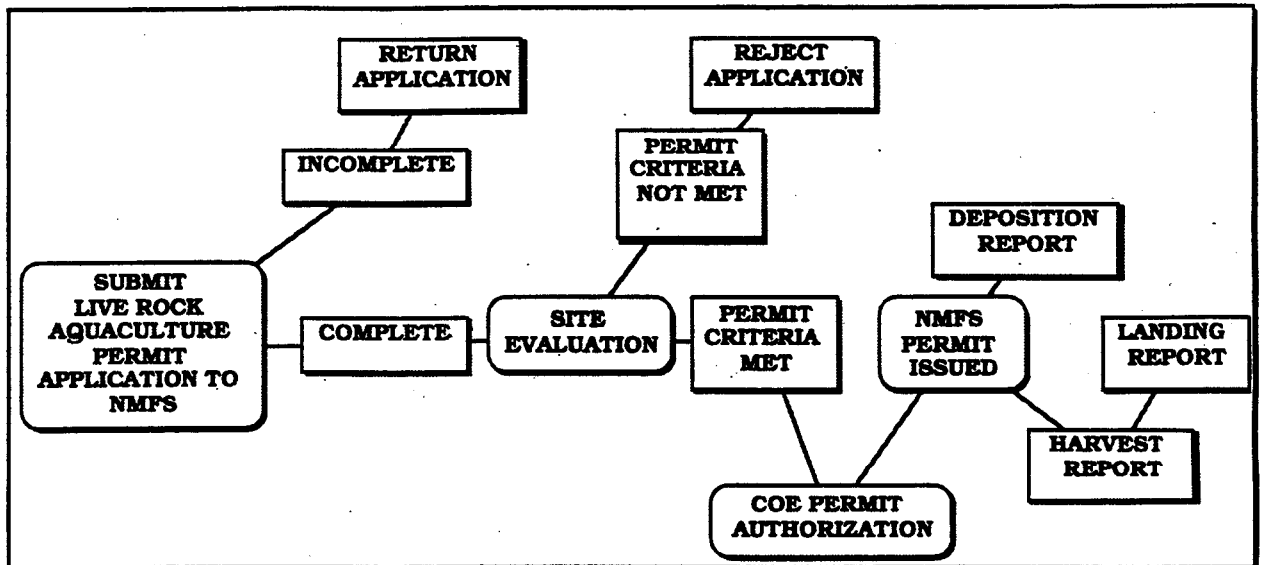


Figure 6. Live rock aquaculture permit and reporting process (Source: NMFS SERO 1995).

#### **COE/NMFS AQUACULTURED LIVE ROCK PERMIT**

#### **Conditions contained in Public Notice for US Army Corps of Engineers**

#### **General Permit-71**

#### **Special Conditions:**

1. The work authorized herein includes the deposition of materials in the EEZ for the cultivation of live rock.
2. A site evaluation report must be submitted by the applicant to the NMFS, Permit Division, Southeast Regional Office, National Marine Fisheries Service, 9721 Executive Center Drive North, St. Petersburg, Florida 33702. The report, which may include videotapes of underwater surveys, shall be prepared by a source acceptable to NMFS and shall demonstrate that the proposed site:
  - a) is not a hazard to safe navigation or a hindrance to vessel traffic; and
  - b) avoids traditional fishing operations, or other public access; and
  - c) avoids impacts to naturally occurring hard bottom habitat and submerged aquatic vegetation; and
  - d) contains natural underlying substrata that is primarily hard packed sand, hard shell hash, less than 6-12 inches of sand over rock.
3. The applicant shall identify the site on a nautical chart in sufficient detail to allow for site inspection, and shall provide accurate coordinates so that the site can be located by LORAN or Global Positioning System (GPS) equipment. Site inspection may be required on a case by case basis.
4. Sites which individually or cumulatively total more than one acre will not be authorized under this general permit. Multiple sites shall be contained within the one-acre envelope.

5. Rocks deposited on the aquaculture site must be geologically or otherwise distinguishable from the naturally occurring substrata or they must be indelibly marked or tagged.
6. All rocks must be placed on the site by hand, or lowered completely to the bottom by crane. Deposited materials shall not be allowed to "free fall" to the bottom, and all deposition shall occur while the vessel is "at anchor". Rocks may not be placed over naturally occurring reef outcrops, limestone ledges, coral reefs, or vegetated areas. A minimum setback of 50 feet must be maintained from naturally vegetated or hard bottom habitats. The permittee shall be required to submit "as-built" (post-activity) reports to the NMFS. The reports, which may include videotapes, shall be prepared by a source acceptable to NMFS and shall depict the project site subsequent to each deposition activity. The actual configuration and locations of the deposited materials and the distance from existing naturally occurring hard bottom habitat and submerged aquatic vegetation shall be clearly depicted.
7. All materials used in aquaculture operations must be non toxic and all deposited rocks must be free of contaminants and non-indigenous flora or fauna.
8. Harvest of aquacultured live rock shall be by hand only; no mechanical dredging, drilling, blasting, etc. is authorized under this general permit.
9. The permittee shall be required to submit annual reports to the National Marine Fisheries Service which document the source, type, and weight of rocks deposited on the aquaculture site. Reports shall be sent to: Permit Division, Southeast Regional Office, National Marine Fisheries Service, 9721 Executive Center Drive North, St. Petersburg, Florida 33702.
10. The permittee shall be required to report on the weight of aquacultured product harvested as follows:
  - a) For aquacultured live rock landed in the State of Florida, the permittee shall be required to report to the Fisheries Statistics Section of the Florida Bureau of Marine Research (Florida Department of Environmental Protection), 100 Eighth Avenue SE., St. Petersburg, Florida 33701-5095. The reports shall be made on Form #33-610 (Florida Trip Ticket). Harvesters will need to obtain a Florida Saltwater Products License and a Marine Life Endorsement.
  - b) For aquacultured live rock landed outside of Florida, the permittee shall be required to report to the NMFS Science and Research Director or an authorized representative. The reports shall be made on logbook forms, which will be provided to the permittee by the NMFS.
11. To be authorized under this general permit for activities within the EEZ, parties shall be required to obtain a permit from the National Marine Fisheries Service to harvest and possess aquaculture live rock in the EEZ. Permits can be obtained from the Permit Division, Southeast Regional Office, National



Marine Fisheries Service, 9721 Executive Center Drive North, St. Petersburg, Florida 33702 (telephone (813) 570-5326).

12. Additional permits may be required for aquaculture operations in areas under the jurisdiction of other state or federal authorities, such as a National Marine Sanctuary.

13. No work shall be authorized by this general permit that will affect any registered properties, or properties listed as eligible for inclusion in the National Register of Historic Places.

14. This general permit will be valid for five years from the above date or until suspended or revoked by issuance of a public notice by the District Engineer. Periodic review will be conducted to determine if continuation of the permit remains not contrary to the public interest.

15. Conformance with descriptions and quantities contained herein does not necessarily guarantee authorization under this general permit.

16. The District Engineer reserves the right to require that any request for authorization under this general permit be processed as an individual permit.

17. The general conditions attached hereto are made a part of this permit. (Attachment 1 in Appendix Q)

#### **NMFS Aquaculture Permit**

The aquaculture permit established under Amendment 2 (SAFMC and GMFMC 1994) will be issued by NMFS and authorizes removal of aquaculture live rock placed under the general permit. It provides an exemption to the taking and possession of otherwise prohibited hard corals and octocorals only on aquacultured live rock.

NMFS will notify the Council, and other interested state and federal agencies of the intent to issue the permit when they process applications for federal aquaculture sites.

The South Atlantic Council, in order to insure live rock aquaculture operations will not impact or damage adjacent habitat, or encourage removal of natural live/hard bottom and coral, adopted additional special conditions for individuals involved in live rock aquaculture in south Atlantic federal waters.

#### **Special conditions applicable to placement and harvest of live rock in the south Atlantic region:**

1) Substrates must be geologically distinguishable from naturally occurring substrate and may be indelibly marked or tagged, and

2) No chipping of aquacultured live rock is permitted. Substrates may only be possessed or landed whole, and prohibited corals and octocorals may only be possessed or landed attached to aquaculture substrates.

#### **State of Florida Aquaculture Program**

The State of Florida live rock aquaculture leasing and site review system is functional, and the live rock aquaculture industry is developing in the State of Florida. Status of leases in state waters, guidelines for the leasing process, a copy of the lease application form, and the most recent draft of the state general permit are included in Appendices D-H of this document.

#### **Minerals Management Service**

The Minerals Management Service, in correspondence to NOAA General Counsel (Appendix J) regarding regulation of live rock harvest, indicated naturally occurring limestone in the Outer Continental Shelf is a mineral whose production is subject to leasing under the Outer Continental Shelf Lands Act, 43 U.S.C. 1337 (k). However, Minerals Management Service would not assert title to property of those who use the Outer Continental Shelf pursuant to valid authorization of another federal agency under statutory or executive delegation to manage certain activities on the Outer Continental Shelf. The establishment of the NMFS/U.S. Army Corps of Engineers general permit for placement of aquaculture substrates, the NMFS aquaculture harvest permit established under Amendment 2, and the permit and management system implemented under this amendment, constitute such authorization.

#### **Florida Keys National Marine Sanctuary**

The Florida Keys National Marine Sanctuary (Figure 7) was designated to provide comprehensive management of and protection to the marine ecosystem surrounding the Florida Keys. As is indicated in the wild live rock harvest information included in Appendix C, the majority of harvest from the south Atlantic region occurred within the Sanctuary. In order to insure that these mandates are not compromised, as directed by adopted habitat policies, the South Atlantic Council has coordinated with Sanctuary staff in phasing out wild live rock harvest with a total prohibition on harvest as of January 1, 1996 (implemented under Amendment 2), and in establishment of the live rock aquaculture permit and management system in federal waters under this amendment.

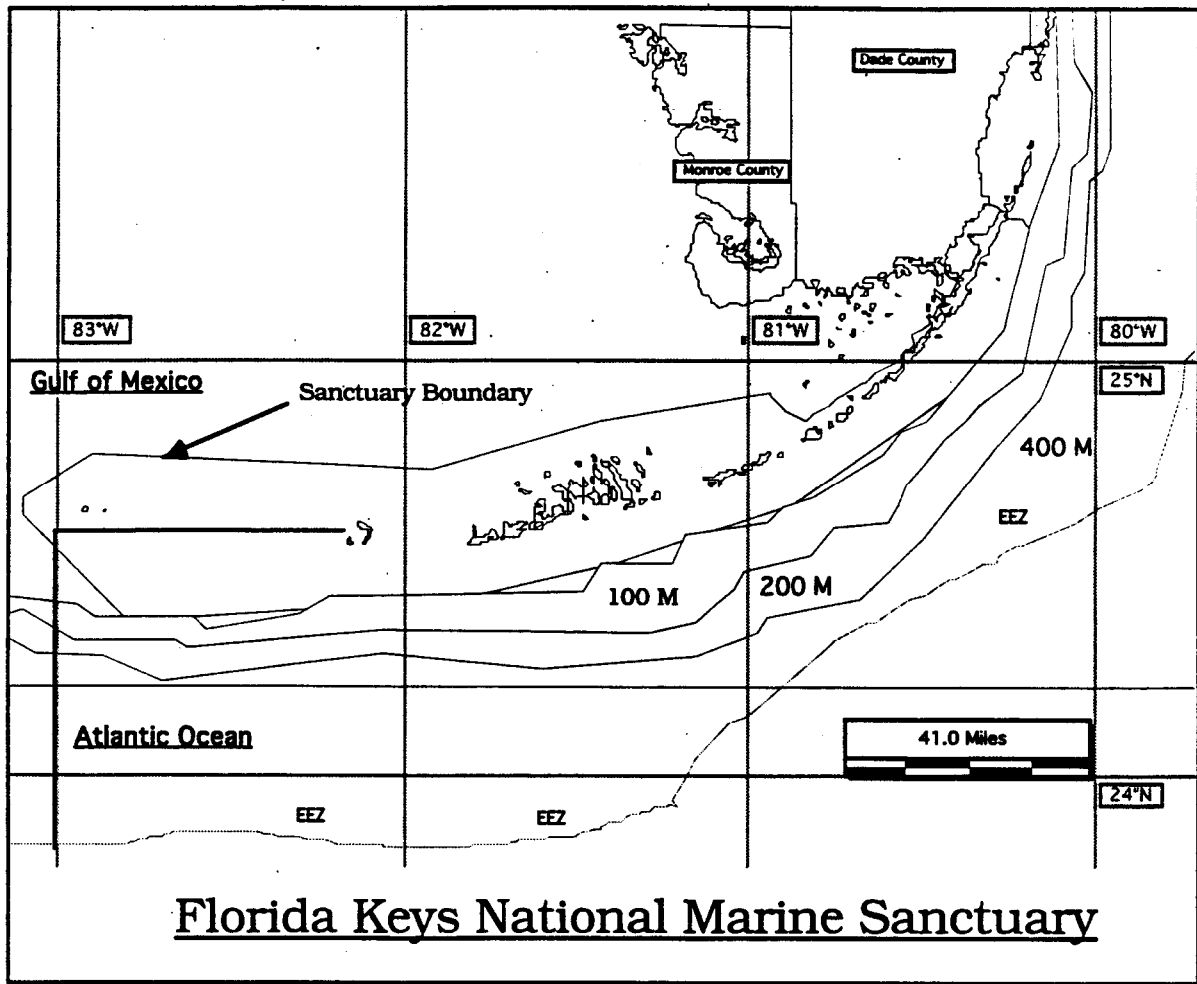


Figure 7. Florida Keys National Marine Sanctuary (Source: SAFMC staff).

Billy Causey, Florida Keys National Marine Sanctuary Manager, testified at a South Atlantic Fishery Management Council meeting in June 1994, that aquaculture of live rock will be considered a fishing activity and therefore the Sanctuary will coordinate and essentially defer to the Council and NMFS in permitting of aquaculture in federal waters of the Sanctuary.

Florida Department of Environmental Protection and Sanctuary personnel are presently coordinating aquaculture sittings in the Sanctuary (Jennifer Wheaton, Florida Department of Environmental Protection, pers. comm.). Under the Proposed Sanctuary Rule 925.5 (a) (2) (ii), the National Ocean Service provides an exemption to the general prohibition on live rock harvest within the Florida Keys National Marine Sanctuary for holders of federal aquaculture permits which were established in Amendment 2 and implemented under this amendment.

The general permit will not be available for aquaculture sites within the Sanctuary without concurrence of Sanctuary staff (Appendix T).

### Enforcement Impacts

Establishment of the permit and management system for live rock aquaculture in south Atlantic federal waters will provide live rock harvesters with a legal alternative to removal of natural bottom. This action will therefore enhance enforceability of the total prohibition of wild live rock harvest when it becomes effective January 1, 1996.

Special provision 1 states substrates must be geologically distinguishable from the naturally occurring substrate and may be indelibly marked or tagged. Possession and landing of prohibited corals and seafans will only be allowed if attached to a geologically distinguishable substrate. Coral Advisory Panel members, at a meeting in Marathon, Florida in September 1994, indicated that the State of Florida, through the FDEP, has the expertise to determine the origin of substances used in aquaculture. A cooperative effort between state and federal agencies could ensure the regulation is enforceable. Requiring aquaculturists in the south Atlantic to use only geologically distinguishable substrates will discourage individuals from landing naturally occurring bottom because it will be traceable to the natural habitat. In addition, Advisory Panel members indicated requiring the rock be geologically distinguishable will prevent individuals from stockpiling wild live rock on land during 1995 and using it as seed rock for an aquaculture effort in the future.

With the allowable take of aquaculture rock in state (Florida) waters, there may be some problems enforcing a total prohibition in federal waters. Providing aquaculture as an alternative will be an incentive not to violate the prohibition on taking of wild live rock. In addition, it will encourage compliance by providing a legal substitute and to a degree be self-enforcing.

No chipping of aquacultured live rock is permitted in the south Atlantic. Substrates (including prohibited corals and octocorals) may only be possessed or landed whole, and prohibited corals and octocorals may only be possessed or landed attached to aquaculture substrates. This will prevent removal of individual coral heads or prohibited octocorals from the natural bottom and landing of these materials as previously attached to aquaculture substrates. The chipping prohibition of aquacultured rock also aids in enforcement of the eventual ban on harvest of all wild live rock. Limestone outcrops, consolidated coral reef habitats, prohibited coral, and prohibited octocorals, and live/hard

bottom habitats will gain the greatest protection through 1995, because there would be no visibly legal way to remove portions of these habitats without chipping.

Introducing previously prohibited corals as a marketable product from the aquaculturists involved in the marine life fishery may create additional enforcement needs due to the high value and great incentive to remove and land naturally occurring specimens. The Council, through NMFS and state enforcement, and the U.S. Coast Guard, will closely monitor the introduction of coral into the U.S. and possibly export market to insure that naturally occurring habitats are not targeted illegally and that providing this special allowance does not create an enforcement problem.

### Economic Impacts

Presently, there is no data on the number of individuals or companies that will engage in live rock aquaculture. It is likely the number will be small initially and will increase with time if the industry generates returns in excess of what would be obtained in similar activities. The aquaculture permit could generate an increase in producer surplus for live rock aquaculturists if live rock aquaculture is successful. The permit essentially would give the permittee harvest rights for aquacultured live rock from a specific site. This permit will exclude others from harvesting aquacultured live rock from that area of the ocean.

The harvest rights will give the permittee the same market incentives as he or she would face if he or she held a property right. The sole owner management (of the deposited rocks) could generate substantial rents to the holder of the permit relative to the common property, status quo, management regime. Also, holders of permits to existing sites would be able to transfer those permits to new individuals. This could create a market for existing permits and could generate some economic rents for those selling their permits. Permittees could also sell rights to others to harvest a portion of the rocks they have deposited. This action could also increase the economic rents that could be obtained by some permittees if the alternative involves leaving those rocks unharvested or receiving lower returns by harvesting and selling those rocks themselves.

Such a permitting system will also provide the basis for effectively controlling live rock aquaculture activities so that any negative externalities to the environment or to other organisms occupying the ecosystem (e.g., turbidity

and habitat loss due to improper placement of rock) could be minimized through effective monitoring of such activities. This in itself could increase net benefits to society.

NMFS Southeast Region worked with the Councils and the U.S. Army Corps of Engineers on procedures and requirements for live rock aquaculture and harvest (Appendix K). The State of Florida has initiated and developed rules for live rock aquaculture (Appendices D-H). Aquarium Systems, Inc. provided estimates on the start-up costs (permit and application fees) for undertaking live rock aquaculture in Florida (SAFMC and GMFMC 1994). The Florida Department of Environmental Protection (FDEP) conducted public hearings on the issues of a live rock aquaculture permit system and fees. The public hearing document indicated relatively higher fees than those determined by Aquarium Systems, Inc. These costs are not included in this document because they are not relevant to the federal live rock aquaculture permitting system and could be misleading. The only start-up cost that is known with certainty is the application fee for the permit which is \$100. Other costs that are expected to be incurred by anyone engaging in live rock aquaculture include:

- Identification and mapping of site (cost will vary depending on location and extent).
- Cost of rocks (representatives of the Coral Advisory Panel indicate that Bahamian rock costs about \$40 per ton).
- Cost of transporting rocks and depositing them at the site.

The U.S. Army Corps of Engineers permit requires that rocks be deposited on the site by hand or lowered to the bottom by crane. Thus, it is likely that the operation will involve carrying small quantities of rocks in buckets down to the bottom, or lowering bucket loads with a crane. The first method will not involve use of new equipment for those already involved in wild live rock harvest. As such, deposition cost for these individuals would not be a significant factor in start-up costs. However, use of a crane will involve additional start-up costs.

Until the system is functional and fully operational, the initial cost outlay, including cost for depositing materials on the sea bottom, cannot be determined with any certainty. However, start-up costs are not expected to be significantly higher than present operating costs for wild live rock harvest.

Judging from the rate at which wild live rock harvest has expanded over the last three years, it is likely that if live rock aquaculture is successful,

aquaculturists will receive returns similar or possibly higher than what they are receiving from wild live rock harvesting. However, this would depend on the shapes of the supply and demand curves for aquacultured live rock. The following assumptions are relevant to the discussion that follows:

- Live rock is a specialty product and there is no substitute for certain marine aquarium systems.
- Initially, there would be few suppliers, thus the supply curve will be relatively steep. Also, because of the nature of the industry, suppliers cannot operate along the backward bending portion of the supply curve. Thus, the relevant part is the forward bending portion. This means that suppliers cannot reduce the quantity supplied per unit time and charge a higher price at the same time.
- Consumers are faced with a relatively inelastic demand curve because there is no substitute for this product and there are no multiple uses for the product.

Under these assumptions, if live rock aquaculture leads to an increase in market supply, live rock price will decline and consumer surplus will increase. Producer surplus will decrease because of the transfer from producers to consumers due to the price decrease. The extent of the price decrease, increase in consumer surplus and decrease in producer surplus would depend on the relative inelasticities of the supply and demand curves. It should be noted that because there would be few suppliers initially, they could react to demand conditions so that any decline in prices would be avoided. As such, there would be no incentive for suppliers to increase supply of live rock if they are faced with a perfectly inelastic demand curve. They will only supply that quantity that will enable them to receive the highest returns possible.

On the other hand, if for various reasons the market supply of live rock declines under aquaculture production, prices would increase. This would lead to a decrease in consumer surplus and an increase in producer surplus. Again, the extent of these changes would depend on the relative inelasticities of the supply and demand curves.

The successful operation of live rock aquaculture will also mitigate the adverse impacts on non-consumptive users since there will be no more wild live rock harvesting while at the same time consumptive users will be able to obtain supplies from aquaculture production.

In addition, live rock aquaculturists will be able to sell corals and other coralline type organisms that will settle on the deposited aquaculture

substrates. Presently, the harvesting of corals and associated organisms is prohibited. All corals sold in the United States are imported. Prices of imported corals vary depending on the origin, size and quality. The retail price for basic lettuce corals (*Agaricia* sp.) starts around \$30 per piece and could be as high as \$60 per piece (size is less than a saucer plate). Stony corals (e.g., *Acropora* sp., staghorn and elkhorn corals) are priced at around \$75 for very small pieces and could cost up to several hundred dollars (Age of Aquariums, Charleston, SC; pers. comm.). Although the time required for corals and coralline organisms to settle on deposited rocks is unknown, this should significantly increase benefits to live rock aquaculturists in the long run.

Given the forgoing discussions, it is likely that any increase in costs associated with a permitting system to establish and monitor open-system live rock aquaculture operations will not be significant and that the benefits from this activity could exceed the costs. Also, continuation of the supply of aquacultured live rock will benefit the marine aquarium industry as a whole. This includes fish collectors, fish wholesalers, retailers, equipment suppliers, and live rock producers.

### Social Impacts

The social impacts of this action concern the possibility of an increased burden upon those wishing to harvest live rock by requiring them to follow a permitting process. Increased costs associated with the permit, plus added time and money involved in setting up aquaculture, sites may seem burdensome to harvesters. With the fears of over-regulation that were expressed during scoping and public hearing there may be some who are inclined to see this action as overkill. However, the long term benefits that will accrue from the permit system should outweigh any short term benefits that one might gain from being able to work without a permit. Given the prohibition of live rock harvest from Amendment 2 becomes effective January 1996, the provisions for an aquaculture permit will allow continued harvest. In addition, it will correspond with exiting State of Florida regulations thereby adding to the consistency of regulation throughout the area.

With the addition of aquaculture sites, overall habitat should increase thereby providing a positive net impact to society. Increased habitat would benefit non-consumptive users of live rock by providing habitat for fish and other marine life that is important to fishermen, divers, snorkelers, etc. Society



as a whole would benefit from the additional revenue generated by the activities of these indirect users of the resource.

### **Conclusions**

Providing additional aquaculture opportunities in federal waters along with the state (Florida) leasing systems will benefit displaced harvesters of wild live rock and protect and possibly enhance bottom habitat. Live rock aquaculture permits established under Coral Amendment 2, require a permit for possession or harvest from an aquaculture site in the South Atlantic EEZ.

The Council concluded this action best addresses an objective of this amendment to develop a permit system to facilitate and manage live rock aquaculture while maximizing protection of naturally occurring bottom habitat in the South Atlantic EEZ.

### **Rejected Option for Action 1**

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

### **Biological Impacts**

Amendment 2 implemented a prohibition on take of wild live rock to protect coral and live/hard bottom habitat. This prohibition, although not contingent on development of an aquaculture system, was accompanied by a directive to develop such a system to provide industry with an opportunity to conduct live rock aquaculture. The Council determined providing aquaculture would aid in eliminating the continued removal of wild live rock. Harvest of live rock was decreasing the topographical complexity of attached live/hard bottom communities providing critical habitat to a wide range of finfish and invertebrate species. Not providing aquaculture as a substitute to harvest of naturally occurring live rock, will result in a continued decrease in quantity of hard bottom if illegal harvest occurs after the quota is taken in 1995 when all wild live rock harvest will be prohibited. The gain in habitat distribution and complexity that would occur with deposition of material for aquaculture would also not be realized. In addition, any short or long term ecological benefits (e.g., new settlement sites for hard coral, shelter and foraging habitat for juvenile and adult snapper grouper species) that may arise from new hard structures being placed on the ocean floor would be lost.

### Enforcement Impacts

Enforcement costs associated with taking no action may be high due to incentives to satisfy the demand for live rock after the phaseout is finished and the 1995 quota is taken in Dade and Monroe Counties, Florida. Without providing a permit and management system for live rock aquaculture in federal waters, enforcement efforts may need to be increased because individuals may continue to harvest wild live rock after it is totally prohibited to meet the remaining demand. In addition, the allowable take of aquaculture rock in state (Florida) waters may also cause some problems enforcing a total prohibition in federal waters. Law enforcement may become problematic in trying to determine whether live rock came from the EEZ or aquaculture sites within state waters if marking of live rock is possible after harvesting.

### Economic Impacts

Taking no action to establish a federal aquaculture permit system for live rock in the south Atlantic could benefit the natural environment by eliminating any risks to the environment from aquaculture activities. However, the permit conditions adopted by the Council are expected to mitigate potential impacts on existing habitats. Amendment 2 to the Fishery Management Plan for Coral and Coral Reefs of the Gulf of Mexico and South Atlantic (SAFMC and GMFMC 1994) requires a permit for the possession or harvest of live rock from aquaculture operations in the EEZ. Thus, the no action option would result in negative net benefits because it will prevent harvesters from removing aquacultured live rock.

Presently, the status quo in the live rock fishery is essentially no harvest except for Dade and Broward Counties where a quota of 485,000 pounds is allowed annually until January 1, 1996. The potential for overcapitalization in the fishery exists since harvesters could increase their capacities to harvest increasing quantities of live rock over time before the quota is filled, given other constraints. This overcapitalization could result in negative net benefits to society. Also, the zero harvest in 1996 would imply the loss of capital investment if no alternative fisheries exist that use the same equipment currently being used for harvesting wild live rock.

The no action option would also result in a common property situation whereby aquaculturists would not have sole ownership to rocks that they have deposited. This situation would not prevent anyone from harvesting

aquacultured live rock if they are able to do so and would likely result in a loss in benefits to aquaculturists. The extent of any loss in benefits to aquaculturists from this common property situation would depend on how effective they are in preventing others from taking the rocks they have deposited. Thus, the cost of no action would exceed the benefits while the preferred alternative has the potential to generate positive net benefits.

### Social Impacts

This option negates any benefits for society as a whole that would accrue from the mitigation of impacts on existing habitats through the aquaculture program. By allowing aquaculture, habitat should increase thereby benefiting other non-consumptive users of wild rock. With no action there would be no increase in habitat. In addition, there would be inconsistency with Florida State rules which allow for aquaculture.

### Conclusions

The Council rejected this option because the directive established under Amendment 2 is not only to allow live rock aquaculture, but facilitate the establishment and management of a live rock aquaculture industry for the EEZ. Providing aquaculture opportunities in federal waters along with the state (Florida) leasing systems will benefit displaced harvesters of wild rock, protect and possibly enhance bottom habitat, and achieve the policy directive established under Amendment 2 to aid in the transition from wild harvest to aquaculture. Taking no action to implement the live rock aquaculture permit and monitoring system in the south Atlantic is inconsistent with measures approved in Amendment 2 requiring permits for aquaculture of live rock.

The Council concluded this action did not address the objective of this amendment to develop a permit system to facilitate and manage live rock aquaculture while maximizing protection of naturally occurring bottom habitat in the South Atlantic EEZ.

## **ACTION 2. PROHIBIT OCTOCORAL HARVEST NORTH OF CAPE CANAVERAL, FLORIDA.**

The Council is prohibiting octocoral harvest north of Cape Canaveral, Florida to insure essential fishery habitat in the South Atlantic EEZ is

protected. Allowable octocorals are defined in existing regulations as erect, non-encrusting species of the subclass Octocorallia, except the prohibited sea fans *Gorgonia flabellum* and *G. ventalina*, including only the substrate covered by and within one inch of the holdfast. The definition of allowable octocorals adopted in Coral Amendment 2 clarifies that only individual colonies, and not whole rocks, may be taken under the octocoral quota. A small portion of the rock is allowed to provide a suitable anchor for the octocoral. Harvest of encrusting octocorals (i.e., primarily *Briareum* and *Erythropodium* spp. or "gorgonian live rock") involves removal of the entire substrate and thus is defined as harvest of live rock rather than allowable octocorals and is already prohibited.

### Biological Impacts

Prohibiting octocoral harvest north of Cape Canaveral, Florida protects the majority of the live/hard bottom habitat occurring off North Carolina, South Carolina, Georgia, and northern Florida. Octocorals and associated sponges attached to the limestone outcrops constitute the majority of what is considered essential live/hard bottom habitat in this area of the region. With the ever increasing demand for aquarium products, prohibition of octocoral harvest north of Cape Canaveral, Florida would eliminate the threat of future exploitation of these resources in areas not previously targeted by the marine life industry.

The Council, in proposing this action, is addressing recommendations made during development of Amendment 2. The Council received a request from the South Carolina Department of Natural Resources to consider prohibiting the harvest of octocorals because they are an essential part of the live bottom habitat. The Coral Advisory Panel indicated that the live/hard bottom habitat south of Cape Hatteras, N.C. and north of Cape Canaveral, Florida, primarily included octocoral sponge assemblages. Octocorals, in this section of the region, may constitute the only habitat complexity offshore. Dr. Robert Van Dolah with the South Carolina Department of Natural Resources, in discussions with other Advisory Panel members, indicated there is no evidence that octocoral species found in the Carolinas, with the exception of *Leptogorgia*, are fast growing species. Representatives on the panel did indicate to their knowledge no directed octocoral harvest was occurring in the Carolinas. The panel also recommended the Council prohibit harvest north of Florida, or more specifically north of Cape Canaveral, Florida, because

octocorals and associated sponges attached to the limestone outcrops constitute the majority of what is considered essential live/hard bottom habitat in the region. NMFS Southeast Fisheries Science Center also provided comments to the Council indicating strong support for some prohibition of octocoral harvest. NMFS noted studies during the last decade monitoring octocoral populations show a significant declining trend in recruitment. Furthermore, massive octocoral mortalities have been reported suggesting that this may be a vulnerable taxa which require protection.

One concern raised in the Draft Caribbean Coral Fishery Management Plan (CFMC 1994) is that small gorgonians have low and variable recruitment and survival. Thus survival of adults is critical to persistence of the gorgonian population. In addition, there seems to be a positive mutualistic correlation between small and large gorgonians which is reverse that of competing year classes in exploited fish populations (CFMC 1994). In addition, members of the Councils Habitat Advisory Panel indicated that a future concern may involve localized depletion of individual species if harvesters become non-selective in removal techniques.

#### Enforcement Impacts

The Council is prohibiting octocoral harvest north of Cape Canaveral to limit the harvesting range of the industry and to enhance enforceability of the regulation. By prohibiting removal, enforcement of the wild live rock harvest in areas north of Cape Canaveral, Florida will also be simplified because all removal of natural substrates and attached and associated organisms including coral, coral reefs, and live/hard bottom habitat (including live rock and all octocorals), will be prohibited.

One factor that may be of concern to enforcement officials is that octocoral harvest is allowed in Florida state waters and inclusion of the Florida east coast, north of Cape Canaveral would not be compatible with Florida law. There is no enforcement problem at this time because the area of harvest in state or federal waters does not extend north of Cape Canaveral, Florida. If harvest should expand northward it could create some enforcement problems which could result in increased enforcement costs for this action to be effective.

#### Economic Impacts

There are no official reports of significant harvests of octocorals north of Jupiter Inlet, Florida. Practically all octocorals harvested in the South Atlantic

EEZ are from areas off Palm Beach County, Florida and south. Thus, the prohibition north of Cape Canaveral, Florida will have no impact on the present level of activity and will not result in any lost benefits to harvesters. This action is proposed essentially to prevent expansion of octocoral harvest further north. Expansion of octocoral harvest could generate increased benefits to those involved in this activity. However, allocation of octocorals between harvesters and other users would have to include social costs associated with habitat destruction, such as the impact on the commercially and recreationally valuable finfish and shellfish stocks, and the value of nonconsumptive uses of the octocorals. Testimony by individuals and letters from state officials indicated that benefits to society from prohibiting removal of octocorals in the designated area could be significant, particularly in the long term. Also, there is no cost to harvesters since present harvest activity does not extend to the prohibited area.

#### Social Impacts

This action may have little impact on harvesters since almost all known harvesting takes place south of this line. Because octocorals are a more fundamental part of the live/hard bottom habitat north of Cape Canaveral, Florida, prohibiting their harvest may have long term benefits to society overall that would outweigh any short term benefits someone might gain from harvesting in that area.

#### Conclusions

The South Atlantic Council is proposing this action to prevent expansion of octocoral harvest north of Cape Canaveral, Florida. North of Cape Canaveral, the limited distribution of octocorals and associated sponges attached to the limestone outcrops constitute the majority of what is considered essential live hard bottom habitat in this area of the region. The Council, in proposing this action, is addressing recommendations made during development of Amendment 2. The Council, by prohibiting harvest of octocorals that are an essential part of the live bottom habitat, is addressing concerns raised by the South Carolina Department of Natural Resources, the Coral Advisory Panel, and NMFS. In addition, this action would address the concerns raised by NMFS SEFSC that octocoral populations need protection because, as in other regions, they may be showing declining trends in recruitment and they are a taxa susceptible to massive mortalities.

The Council concluded this action best addresses the objective of this amendment to regulate octocoral removal to insure essential fishery habitat in the South Atlantic EEZ is protected.

### **Rejected Options For Action 2**

#### **Rejected Option 1. Prohibit octocoral harvest north of Dade County, Florida.**

##### **Biological Impacts**

This option would provide some additional protection to bottom habitat because it would prohibit octocoral harvest north of Dade County, Florida. Octocorals and associated sponges attached to the limestone outcrops constitute the majority of what is considered essential live/hard bottom habitat in the region north of Cape Canaveral. Based on 1994 landings, the prohibition of harvest north of Dade County, Florida would prevent removal of over 7,000 colonies while eliminating the threat of future exploitation of these resources in areas not previously targeted by the marine life industry. Because octocorals constitute a less significant overall component of bottom habitat from Cape Canaveral through Dade County, Florida, the removal of a small quantity has less of a biological impact in this area.

##### **Enforcement Impacts**

If octocoral harvests in federal waters off Florida were prohibited north of Dade County, it would not be compatible with Florida state law. However, this activity in state waters north of Dade county is limited mainly to Palm Beach County. If the area of harvest in state waters does expand north of Dade County it may create some enforcement problems which could result in increased enforcement costs for this action to be effective.

##### **Economic Impacts**

The area that would be affected by this option is Palm Beach County, Florida where octocoral harvest is taking place. Information on the level and value of octocorals harvested from this area is presented in Figure 3. However, it is considered to be a small scale activity involving very few individuals. This option would eliminate any revenues generated from this activity. Since the true coral reef type habitat drops out a little bit south of Jupiter, Florida, octocorals become a more significant part of the habitat north of Cape Canaveral. Thus, prohibiting the harvest of octocorals off Palm Beach County

would not result in any significant benefit from protecting essential habitat and would eliminate returns obtained by harvesters from this activity.

### Social Impacts

Because there is a harvest of octocorals above Dade County, Florida allowed by the state there may be negative social impacts upon harvesters in that area. Disallowing harvest in that area by the Council would conflict with existing state laws and may be viewed by harvesters as confusing and contentious. Whether the long term benefit of protecting habitat would outweigh the short term benefit to harvesters is unknown. Because octocorals are more abundant and removal of a small quantity has less significant an impact on the habitat in this area, it is likely that the net impact of this option would be negative.

### Conclusions

The Council rejected this option based on concerns raised by marine life harvesters at public hearings, the minor biological impact a limited harvest from Cape Canaveral through Dade County, Florida would have, and on the recommendations of both scientists and harvesters serving on the Council's Coral Advisory Panel. Prohibiting octocoral harvest north of Dade County, Florida would provide a greater level of protection to octocoral habitat but the cost to the marine life industry by eliminating the harvest already capped by a quota outweighs the limited benefit. The Council in rejecting this option, considered the testimony and documentation received from members of the marine life industry during development of Amendment 1, Amendment 2 and this amendment indicating that the nature of harvesting individual octocoral colonies under the quota was selective and resulted in limited habitat damage.

This option was rejected because cost to harvesters and those who utilize octocorals would likely outweigh any benefits from protecting the environment.

This option was rejected because benefits to harvesters and consumers by allowing continued limited harvest south of Cape Canaveral, Florida could likely outweigh costs associated with habitat damage.

The Council concluded this action did not best address the objective of this amendment to regulate octocoral removal to insure essential fishery habitat in the South Atlantic EEZ is protected.



**Rejected Option 2. Prohibit octocoral harvest north of Florida.****Biological Impacts**

This option would provide some additional protection to bottom habitat because it would prohibit octocoral harvest north of Florida. Octocorals and associated sponges attached to the limestone outcrops constitute the majority of what is considered essential live/hard bottom habitat north of Cape Canaveral, Florida. With the ever increasing demand for aquarium products, prohibition of harvest would eliminate the threat of future exploitation of these resources in some areas not previously targeted by the marine life industry. However, this option while protecting the habitat type occurring off North Carolina, South Carolina, and Georgia, leaves northern Florida open to possible expansion of the harvest in bottom habitats where octocorals are the predominant fisheries habitat.

**Enforcement Impacts**

No harvest has been recorded north of Florida and a prohibition should not result in any additional enforcement costs considering the fact that the existing prohibition on harvest of wild live rock and coral is in place and already being enforced. The State of Florida, which allows harvest of octocorals, adopted the federal definition of allowable octocorals as defined under existing federal regulations. Enforcement of regulations could pose a problem if the fishery expands north or the state does eventually track federal regulations. South Carolina and North Carolina are in the process of implementing regulations affecting coral and live rock resources mainly tracking federal regulations.

**Economic Impacts**

This action will prohibit harvest of octocorals in the EEZ off the states of North Carolina, South Carolina and Georgia, but allow harvest of octocorals in the EEZ off the east coast of Florida. Presently, there are no official records of any octocorals being harvested in the EEZ off North Carolina, South Carolina and Georgia. Available information indicates the most northerly harvest is off Palm Beach County, Florida. It could be assumed that if this activity is taking place elsewhere in the jurisdiction of the South Atlantic Council, it is not to any significant degree. However, it is possible that this activity could expand further north of Palm Beach County and there is need to protect essential habitat, particularly for snapper grouper species. Costs associated with the

habitat damage resulting from expansion of octocoral harvest north of Cape Canaveral, Florida could likely outweigh benefits to harvesters and consumers.

### Social Impacts

This option would have little impact upon the known universe of harvesters. Because octocorals are a more significant part of the reef habitat to the north of Florida, their protection becomes more fundamental to the entire habitat which may provide benefits to society in the long term. This should outweigh the short term benefits of allowing harvest north of Florida.

### Conclusions

The Council rejected this option because prohibiting octocoral harvest north of Florida will protect essential bottom habitat but not throughout the area where octocorals are a more significant part of the benthic habitat. In addition, this option was rejected because costs associated with habitat damage resulting from expansion of octocoral harvest north of Cape Canaveral, Florida could likely outweigh benefits to harvesters and consumers.

The Council concluded this action did not best address the objective of this amendment to regulate octocoral removal to insure essential fishery habitat in the South Atlantic EEZ is protected.

### **Rejected Option 3. Prohibit all octocoral harvest in the South Atlantic Region.**

#### Biological Impacts

This option would provide the most protection to bottom habitat because it would prohibit all octocoral harvest. Octocorals and associated sponges attached to the limestone outcrops constitute the majority of essential live/hard bottom habitat north of Cape Canaveral but not south of Cape Canaveral where there is a large variety of habitat types. In addition, it would protect all octocoral distribution in the south Atlantic region.

#### Enforcement Impacts

The State of Florida has adopted the existing federal definition of allowable octocorals and does not have a quota. Therefore, enforcement of a federal prohibition may be extremely costly if not unenforceable given present Florida state regulations.

### Economic Impacts

This action will prohibit the harvest of octocorals throughout the South Atlantic EEZ. Presently, official records cannot be used to accurately determine the level and extent of octocoral harvest in federal waters. Harvest of octocorals in the combined Gulf of Mexico and South Atlantic federal waters is limited to an annual quota of 50,000 colonies. Approximately 20,000 colonies were harvested annually (1990-1992) from the southeast coast of Monroe County, Florida (Bohnsack et al, 1994), but it is not clear what portion of this came from federal waters. A total prohibition will result in lost revenues to harvesters of an indeterminate amount. However, some of the lost harvest could be offset by removal from permitted aquaculture sites in both state and federal waters. However, costs associated with habitat protection in areas south of Cape Canaveral, Florida would likely exceed benefits to harvesters and consumers. Further, octocorals south of Jupiter, Florida do not constitute as significant a part of the habitat as they do north of the area.

### Social Impacts

There is some harvest of octocoral in the South Atlantic, therefore, this option would have a negative social impact upon those harvesting in the area. This option may be viewed as unnecessary thereby increasing fears of over-regulation and creating an atmosphere of distrust of management by harvesters.

### Conclusions

The Council rejected this option based on concerns raised by marine life harvesters at public hearings and on rationale developed in implementation of Amendment 1 (Appendix O) which provided for a limited harvest where habitat impacts are negligible. Prohibiting octocoral harvest throughout the range would provide maximum protection to octocoral habitat, but costs to the marine life industry by eliminating the harvest already capped by a quota outweighs the benefit. In addition, the Council in selecting the option protecting the area north of Cape Canaveral is already protecting the live/hard bottom habitat which is most threatened and susceptible to increased or directed harvesting.

This option was also rejected because the costs would likely outweigh the benefits.

**Rejected Option 4. No Action.****Biological Impacts**

The Council, in not taking action to further protect octocorals in the South Atlantic Region, would be allowing harvest to expand into areas where the species constitutes a major portion of the live/hard bottom habitat essential to finfish species under management (snapper/grouper, mackerels, red drum, cobia, etc.)

Octocorals and associated sponges attached to the limestone outcrops constitute the majority of essential live/hard bottom habitat between Cape Canaveral, Florida and the North Carolina/Virginia state line. With the ever increasing demand for aquarium products, no action would not eliminate the threat of future exploitation of these resources in areas not previously targeted by the marine life industry. This could have an adverse effect on the environment and on nonconsumptive users since octocorals constitute hard bottom. The effect could become significant if the activity expands, particularly north of Cape Canaveral, Florida.

**Enforcement Impacts**

Taking no action may make enforcement of proposed state regulations on taking of octocorals unenforceable. Enforcement costs associated with federal waters would remain the same but state costs would increase or regulations would be unenforceable.

**Economic Impacts**

The no action option would make it possible for harvesters to remove octocorals legally from the EEZ throughout the jurisdiction of the South Atlantic Council. This could have an adverse effect on the environment and on nonconsumptive users since octocorals constitute hard bottom. The effect could become significant if the activity expands, particularly north of Cape Canaveral, Florida. Limited information is available to quantify impacts of taking no action. However, costs associated with damage to essential habitat if octocoral harvest is allowed to expand, particularly north of Cape Canaveral, Florida will likely exceed benefits to harvesters and consumers.

**Social Impacts**

This option would allow for legal harvest of octocorals throughout the South Atlantic region. Although this would alleviate fears of over-regulation

expressed by harvesters, there is little or no harvest north of Cape Canaveral. There would be few if any benefits to be gained by harvesters with this action other than the previously mentioned concern over management beyond what is perceived as necessary. Negative impacts upon the environment from unregulated harvest of octocorals mentioned in the discussion of biological impacts suggests the net impact of this option for society as a whole would be negative.

### Conclusions

The Council rejected this option because it would not address the concerns raised by resource agencies and the Coral Advisory Panel. No action will not address concerns raised over loss of octocoral habitat north of Cape Canaveral, Florida. Costs associated with damage to essential habitat if octocoral harvest is allowed to expand, particularly north of Cape Canaveral, Florida will likely exceed the benefits to harvesters and consumers, thus this option was rejected. The interdependency of gorgonians and their susceptibility to localized depletion in areas of limited distribution north of Cape Canaveral, Florida makes the no action alternative unacceptable.

The Council concluded this action did not address the objective of this amendment to regulate octocoral removal to insure essential fishery habitat in the South Atlantic EEZ is protected.

### **ACTION 3. PROHIBIT ANCHORING OF FISHING VESSELS IN THE OCULINA BANK HABITAT AREA OF PARTICULAR CONCERN.**

The Council is prohibiting anchoring of fishing vessels within the HAPC. Anchors, grapples and attached chains used by fishing vessels are damaging gear which intentionally or unintentionally destroy prohibited coral and live/hard bottom habitat.

Correspondence from NOAA General Counsel is included in Appendix U and constitutes a legal opinion on the original proposal by the Gulf Council to prohibit all vessels from anchoring in an HAPC designated in the Gulf of Mexico. The opinion reiterates the detrimental impacts of anchoring abrasion, and the use of grapples and chains on corals and the coral ecosystem as described in the original fishery management plan (GMFMC and SAFMC 1982). It also clarifies the interrelationship between such activities and the authority of the Council to regulate these activities under the MFCMA. Although many

efforts are underway, including amending the Magnuson Act, to expand the authority of the Council and NMFS to protect essential fisheries habitat, this legal opinion and subsequent legal guidance supplied by NOAA General Counsel indicates the Councils' authority is presently limited to regulating the impact of fishing vessels on coral, coral reefs and live/hard bottom habitat in the South Atlantic EEZ.

#### Biological Impacts

The Council is prohibiting all anchoring of fishing vessels (use of anchors, grapples and chains) within the *Oculina* Bank Habitat Area of Particular Concern (HAPC) (Figure 8) to enhance existing regulations protecting *Oculina* coral and live/hard bottom habitat, and to maximize the likelihood essential fishery habitat contained in the experimental closed area will be protected. Anchoring on top of coral and coral reef systems can disrupt and destroy reef communities. Coral, coral reefs, and live/hard bottom are non-mobile habitats which cannot escape stress and are susceptible to the damage inflicted when fishing vessels deploy anchors, chains, and grapples.

Management regulations were proposed under Snapper Grouper Amendment 6 (SAFMC 1994) to prohibit all anchoring in the newly designated experimental closed area which is the existing *Oculina* Habitat Area of Particular Concern (HAPC). Regulations which were implemented only apply to anchoring while fishing for snapper grouper species.

An anchoring prohibition is similar to regulations which prohibit the take of fish with use of explosives: Use of the gear results in taking of a managed resource even if the resource is not landed and is therefore prohibited. Coral and attached marine organisms associated with coral reefs and live/hard bottom are considered fish under the Magnuson Act, and under existing regulations, their taking is prohibited. It is reasonable to expect that when a fishing vessel anchors or uses grapples and chains in the HAPC, that it will result in a taking/killing of prohibited coral or live rock.

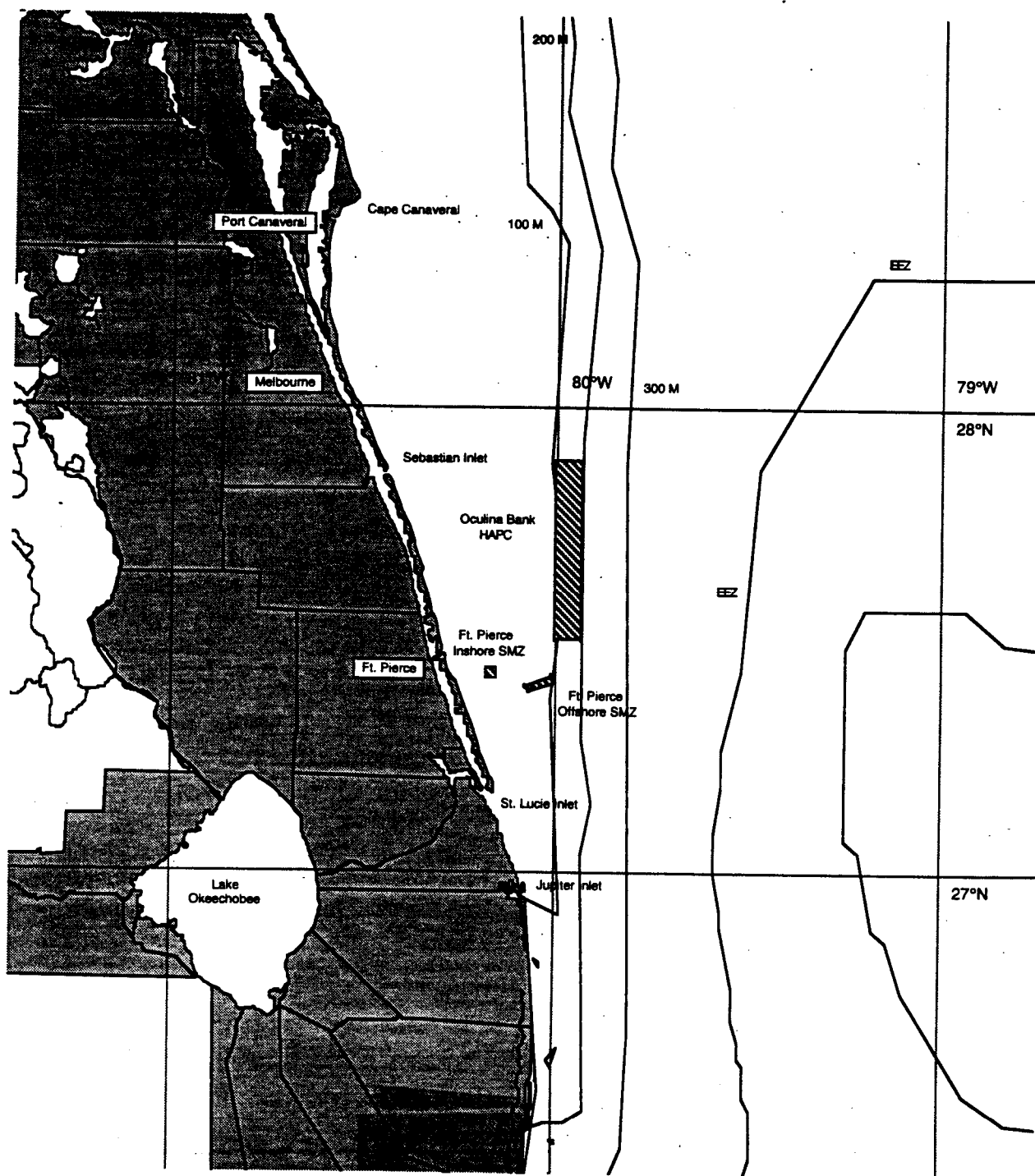


Figure 8. Oculina Bank Habitat Area of Particular Concern and Experimental Closed Area (Source: SAFMC staff).

Coral due to its' sedentary nature is susceptible to these damaging gears. Corals covered by the coral management plan are considered to be non-renewable resources and exist at their northernmost limit making them less tolerant to man-induced stress. Anchors can break fragile corals, dislodge reef framework, and scar corals, opening lesions for infection (Japp 1984). Impacts of anchoring are not limited to direct crushing of live coral but also include effects of the attached chains which will abrade and denude coral structures. Stress related with abrasion may cause a decline in health or stability of the reef or live bottom system. Coral will respond through polyp retraction, altered physiology or behavior, and when sheered by anchor chains provide a point for infection by the blue green algae *Oscillatoria submembranaceo* which can kill the entire specimen (GMFMC and SAFMC 1982).

Damage inflicted by anchors and chains is not limited to living coral and hard bottom resources but extends to disruption of the balanced and highly productive nature of the coral and live/hard bottom ecosystems. NMFS Southeast Fisheries Science Center, in comments to the Council, indicated that the proposed regulation should be implemented because *Oculina* forms important fisheries habitat in turbid, depositional environments and has a significant value in tropical and sub-tropical near shore coastal environments. Anchors and chains deployed by fishing vessels will degrade the functional characteristics of these complex benthic ecosystems.

#### Enforcement Impacts

This option will make enforcement of existing coral and snapper grouper regulations more effective and efficient and will enhance habitat protection.

#### Economic Impacts

The main thrust of this action is to further protect coral, coral reefs and live/hard bottom habitat in the HAPC. Taking of coral, hard bottom, etc., is already prohibited. This action does not prevent vessels from transiting through the area as long as they observe the regulations. Thus, it is expected to have minimal, if any, adverse effect on users. Considering recreational fishing for snapper grouper in the HAPC is already prohibited, and the anchoring prohibition would not impact other fishing activities while not at anchor (e.g., billfish, mackerel), impacts on recreational activities would be minimal. Some commercial finfish (excluding species in the snapper grouper



complex) and shellfish harvesting activity are still occurring in the area. However, no significant biomass of finfish not in the snapper grouper complex exist in this area and bottom trawling is prohibited in this area under the coral plan. Thus, the action prohibiting anchoring of fishing vessels in the Oculina Bank HAPC would have no significant impact on commercial fishing activities.

### Social Impacts

This action is unlikely to have any substantial social impacts. Given the lack of any foreseeable impacts other than an inconvenience, it is likely that through additional habitat protection there will be net benefits to society from this action.

### Conclusions

The Council concluded that this action is necessary to protect coral and live bottom resources in the HAPC. Taking no action would not enhance the existing regulations protecting the *Oculina* coral and live/hard bottom habitat or maximize the likelihood that the essential fishery habitat contained in the experimental closed area will be protected.

The Council also concluded that this action best addresses an objective of the management plan to protect the Oculina Bank HAPC from damaging gear (anchors, grapples and chains) which directly or indirectly takes coral or live/hard bottom reducing habitat essential to species utilizing the newly designated experimental closed area.

## **Rejected Option for Action 3**

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

#### Biological Impacts

The impact of not prohibiting the use of anchors, grapples and chains by fishing vessels in the HAPC and experimental closed area is that damage or destruction to coral and live/hard bottom habitat will continue. Essential fishery habitat contained in the protected area would not be protected from the impacts of these gear. The breaking off or removing, and subsequent death of these resources would also result in a degradation of the functional characteristics of these complex benthic ecosystems.

### Enforcement Impacts

This option will not make enforcement more efficient and would allow continued habitat damage to occur. Enforcement will be less efficient and no action would not protect the habitat in the HAPC.

### Economic Impacts

Taking of coral, hard bottom, etc. with anchors, grapples and chains, although already prohibited, will continue. The no action option is expected to have an adverse effect on existing regulations and will increase the cost to society from continued loss of essential habitat.

### Social Impacts

With no action there would be continued habitat damage from anchors and other types of bottom holds and grapples. Since anchoring would be allowed, enforcement would continue to be problematic as attempts to determine whether corals and other reef material had been landed with anchors would be costly. Overall, this option would have negative net benefits for society from costs of enforcement and long term costs of habitat damage.

### Conclusions

The Council rejected this option because allowing fishing vessels to anchor in the protected area would result in a net loss of essential bottom habitat. Regulations implemented through Snapper Grouper Amendment 6 (SAFMC 1994) only prohibit anchoring while fishing for snapper grouper species in the newly designated experimental closed area which is the existing Oculina Bank Habitat Area of Particular Concern. Subsequently, taking no action at this time would not enhance existing regulations protecting *Oculina* coral and live/hard bottom habitat in the experimental closed area or maximize the likelihood essential fishery habitat contained in the experimental closed area will be protected.

Subsequently, the Council, by taking no action would violate an objective of the management plan to protect the Oculina Bank HAPC from damaging gear (anchors, grapples and chains) which directly or indirectly takes coral or live/hard bottom reducing habitat essential to species utilizing the newly designated experimental closed area.

**D. Unavoidable Adverse Effects**

Unless the proposed regulation prohibiting anchoring of fishing vessels in the Oculina Bank HAPC is implemented, damage to protected habitat and coral will continue. Prohibition of octocoral harvest north of Cape Canaveral, Florida will prevent expansion of harvest into areas in which octocorals constitute the primary live/hard bottom species essential to snapper grouper and other species under federal management.

Without aquaculture, the live rock industry will be adversely affected when all wild live rock harvest is banned in the area under the South Atlantic Council jurisdiction as of January 1, 1996 (Wild live rock harvest from this area constitutes a major supply to the industry.) The phaseout of wild rubble rock harvest in south Atlantic federal waters allows harvesters an opportunity to set up aquaculture systems in federal waters as well as state waters during the phaseout period. Set-up costs will be incurred by those establishing live rock aquaculture systems. These costs are not expected to be significant. However, it is expected that these costs will be recovered as the systems become operable and profits are generated from the sale of cultured rocks.

**E. Relationship of Short term Uses and Long term Productivity**

Short term uses will be impacted if live rock aquaculture systems are not operable when the ban on all wild live rock in the area under the jurisdiction of the South Atlantic Council becomes effective. With the transition to aquaculture, start-up costs will be offset by long term gains in habitat protection and revenues to harvesters involved in aquaculture. One additional external benefit that could result from the transition to aquaculture would be increased recreational fishing opportunities afforded by additional structures (aquaculture material) placed in federal and state waters. If live rock aquaculture sites concentrate existing fish for recreational fishermen, then the impact on these fish stocks could be detrimental. If, however, live rock aquaculture sites increase habitat that eventually leads to larger fish stock sizes, then recreational benefits could be increased. Thus, in the short term negative net benefits could result while in the long term, positive net benefits could be achieved.

The Council weighed the short term costs to live rock aquaculturists against the long term yield and stability of the habitat, and concluded the proposed actions would result in net benefits to society.

#### **F. Irreversible and Irretrievable Commitments of Resources**

There are no irreversible or irretrievable commitments of resources associated with the proposed actions. If the Council had not taken actions to facilitate live rock aquaculture there would be no system for establishing and monitoring such activities in federal waters under the Council's jurisdiction. Market disruptions could also occur. Also, habitat damage would continue if the Council had not taken actions on banning the harvest of octocorals north of Cape Canaveral, Florida, and anchoring of fishing vessels in the Oculina HAPC.

#### **G. Effects of the Fishery on the Environment**

##### **Damage to Ocean and Coastal Habitats**

The proposed actions, and their alternatives, are not expected to have any adverse effect on the ocean and coastal habitats. Habitat concerns are included in Amendment 2 to the original plan (SAFMC and GMFMC 1994). In addition, habitat policy statements on seagrass and dredging activities in the Southeast region, developed by the Council to direct preservation of essential habitat, are included as Appendices A and B.

Regulations within the existing Oculina Bank Habitat Area of Particular Concern (HAPC) will be strengthened with the proposal to prohibit anchoring of all fishing vessels within the HAPC.

Regulations protecting live/hard bottom habitat will be strengthened by prohibiting harvest of octocorals north of Cape Canaveral, Florida.

The Council, in implementing the live rock aquaculture permit and management system, is providing an opportunity for individuals previously removing non-renewable benthic habitat which not only eliminates loss of habitat, but may increase the bottom habitat's topographical complexity, diversity and availability in south Atlantic federal waters.

##### **Public Health and Safety**

The proposed actions, and their alternatives, are not expected to have any substantial adverse impact on public health or safety.

##### **Endangered Species and Marine Mammals**

The proposed actions, and their alternatives, are not expected to affect adversely any endangered or threatened species or marine mammal population.

**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 coral, coral reef, or live/hard bottom resource or any related stocks, including sea turtles. In fact, the proposed measures will improve status of stocks by minimizing habitat damage.

**H. 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 these specific actions include:

Council costs of document preparation, meetings, public hearings and information dissemination	\$61,000
NMFS administrative costs of document preparation, meetings and review	\$10,000
NMFS law enforcement costs	\$15,000
Public burden associated with permits, etc.	\$7,500
NMFS costs associated with permits, etc.	\$7,500
<b>Total</b>	<b>\$101,000</b>

**I. Effects on Small Businesses****Introduction**

The purpose of the Regulatory Flexibility Act is to relieve small businesses, small organizations, and small governmental entities from burdensome regulations and record keeping requirements. The category of small entities likely to be affected by the proposed actions is that of live rock and octocoral harvesters, and those legally fishing in the Oculina Bank HAPC. Impacts of the proposed actions on these entities have been discussed in Section 4.0 Environmental Consequences. The following discussion of impacts focuses specifically on the consequences of the proposed actions on the mentioned business entities. A "threshold-type analysis" is done to determine whether impacts would have a "significant or non-significant economic impact

on a substantial number of small entities.” If impacts are determined to be significant, then an Initial Regulatory Flexibility Analysis (IRFA) is conducted to analyze impacts of the proposed actions and alternatives on individual business entities. In addition to analyses conducted for the Regulatory Impact Review (RIR), the IRFA provides an estimate of the number of small businesses affected, a description of the small businesses affected, and a discussion of the nature and size of the impacts.

#### Determination of Significant Economic Impact on a Substantial Number of Small Entities

In general, a “substantial number” of small entities is more than 20 percent of those small entities engaged in the fishery (NMFS 1992). The Small Business Administration (SBA) defines a small business in the commercial fishing activity as a firm with receipts of up to \$2.0 million annually. The entire Florida commercial harvest sector of the live rock fishery was valued at about \$1.06 million (exvessel) in 1993. This is significantly less than \$2.0 million. Even if the fishery in other states could be accounted for, the total value would not exceed \$2.0 million. All live rock harvesters readily fall within the definition of small business. Since the proposed action will directly and indirectly affect many of these harvesters, the “substantial number” criterion will be met.

Economic impacts on small business entities are considered to be “significant” if the proposed action would result in any of the following:

- a) reduction in annual gross revenues by more than 5 percent; b) increase in total costs of production by more than 5 percent as a result of an increase in compliance costs; c) 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; d) capital costs of compliance represent a significant portion of capital available to small entities, considering internal cash flow and external financing capabilities; or e) as a rule of thumb, 2 percent of small business entities being forced to cease business operations (NMFS 1992).

The Council examined the following actions and alternatives:

- Establish a live rock aquaculture permit system for the South Atlantic EEZ (Section 4.0, Part C).
- Prohibit octocoral harvest (North of Cape Canaveral, Florida; North of Dade County, Florida; North of Florida; or throughout the south Atlantic region) (Section 4.0, Part C).

- Prohibit anchoring of fishing vessels in the Oculina Habitat Area of Particular Concern to prevent coral damage and enhance the effectiveness of the experimental closed area (Section 4.0, Part C).

Given that for each action (a) any impact would likely be equivalent to much less than a 5% reduction in annual gross revenues, (b) any increase in compliance costs would likely be much less than a 5% increase in total costs of production, (c) all entities involved are small entities, (d) capital costs of compliance represent a very small portion of capital, and (e) no entities are expected to be forced to cease business operations if they engaged in live rock aquaculture, the Council determined resulting impacts will not have a significant economic impact on a substantial number of small entities.

#### Explanation of Why the Action is Being Considered

Refer to Section 1.0, Purpose and Need. This amendment implements a permit system that facilitates establishment of live rock aquaculture and provides a management system in the South Atlantic EEZ. It reduces habitat damage and improves compliance with fishing regulations.

#### Objectives and Legal Basis for the Rule

Refer to Section 1.0 for the Management Objectives. Objectives addressed are:

1. Develop a permit system to facilitate and manage live rock aquaculture while maximizing protection of naturally occurring bottom habitat in the South Atlantic EEZ.
2. Regulate octocoral removal to insure essential fishery habitat in the South Atlantic EEZ is protected.
3. Protect the Oculina Bank HAPC from damaging gear (anchors, grapples and chains) which directly or indirectly takes coral or live/hard bottom reducing habitat essential to species utilizing the newly designated experimental closed area.

The Magnuson Fishery Conservation and Management Act of 1976 provides the legal basis for the rule.

#### Demographic Analysis

Refer to the original FMP (GMFMC and SAFMC 1982), Section 3.0 and Appendix C of this document. Data on live rock harvesters is very limited.

### Cost Analysis

Refer to the summary of the impacts (Section 4.0) and the summary of public and private costs (Section 4.0, Item H.). The Council concluded the benefits of the preferred alternatives outweigh the costs.

### Competitive Effects Analysis

The industry is composed entirely of small businesses (live rock harvesters, dealers and aquarium enthusiasts). Since no large businesses are involved, there are no disproportional small versus large business effects.

### Identification of Overlapping Regulations

The proposed action does not create significant overlap of regulations with any state regulations or other federal laws. Florida regulations were recently amended to track federal regulations. Existing state regulations allow harvest throughout Florida. However, no fishery occurs in northern Florida and the state may consider modifying present regulations to track revised federal regulations for octocorals.

### Conclusion

The proposed measures will not have a significant effect on small businesses; therefore, an Initial Regulatory Flexibility Analysis (IRFA) is not required.



## **5.0 LIST OF PREPARERS**

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The following individual assisted by reviewing this document:

Robert K. Mahood, Executive Director, South Atlantic Fishery Management  
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The following individual provided landing statistics utilized by Council staff  
throughout the text and to create graphics presented in this document:

Martha D. B. Norris, Associate Research Scientist, Florida Department of  
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The following individuals provided detailed information and expert testimony to  
the Council on the State of Florida live rock aquaculture leasing program:

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Wanda Prentis, Planner IV, Florida Department of Environmental Protection,  
Division of State Lands, Division of Marine Resources, Florida Department  
of Environmental Protection.

The following individuals, through funds supplied under the SEAMAP bottom  
mapping program, provided a compilation of information used to create the  
map of *Oculina* coral distribution in the South Atlantic region:

Alan Huff, Department of Environmental Protection, Division of Marine  
Resources, Florida Department of Environmental Protection.

Tom Perkins, Department of Environmental Protection, Division of Marine  
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The following individuals provided guidance and input on the preparation of  
the Regulatory Impact Review and Environmental Assessment:

Dr. John Ward, Industry Economist, NMFS SERO

Georgia Cranmore, Fishery Management Specialist, NMFS SERO

The following individuals provided detailed information and expert testimony to the SAFMC and Habitat and Coral Advisory Panels on the status of South Atlantic coral and coral reefs, live rock harvest, and impacts of live rock and octocoral harvest on habitat:

Jennifer Wheaton, Florida Department of Environmental Protection, Division of Marine Resources, Florida Marine Research Institute  
Walter Jaap, Florida Department of Environmental Protection, Division of Marine Resources, Florida Marine Research Institute

SAFMC Coral Advisory Panel

Jennifer Wheaton, Chairman, FDEP  
Dr. Walter Goldberg, Vice Chairman  
Dr. Richard Dodge, NOVA University  
Alexander Stone, Project Reefkeeper  
Dr. Robert Van Dolah, SCDNR  
Dr. Jim Kundell, Vinson Institute of Gov.

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Special thanks are due Daniel Basta, John Paul Tolson, Mike Shelby, Betsy Archer and Tom LaPointe of the Strategic Environmental Assessment Division NOAA for their assistance with the desktop information system, the Florida COMPAS system, and geographic boundary files used to produce maps presented in this document.

Jeff Brown, NMFS Office of Protected Resources supplied information on the critical habitat designation for Johnson Seagrass and the Northern Right Whale.

## **6.0 LIST OF AGENCIES AND ORGANIZATIONS**

### **Responsible Agency:**

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Southpark Building, Suite 306  
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(803) 571-4366  
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### **List of Agencies and Persons Consulted:**

South Atlantic Fishery Management Council

- Coral Advisory Panel
- Habitat Protection Advisory Panel
- Scientific and Statistical Committee

National Oceanic and Atmospheric Administration (NOAA)

- Office of General Counsel (SER)
- Florida Keys National Marine Sanctuary
- Looe Key National Marine Sanctuary
- National Ocean Service/ Strategic Environmental Assessment

Division

National Marine Fisheries Service (SER)

- Southeast Regional Office
- Southeast Fisheries Science Center

Florida Department of Environmental Protection

- Division of Marine Resources/Florida Marine Research Institute
- Division of State Lands

North Carolina Division of Marine Fisheries

South Carolina Department of Natural Resources

Florida Marine Life Association

Florida Marine Aquarium Society

Project ReefKeeper

Reef Relief

Florida Live Rock Alliance

Coral Reef Coalition

Nature Conservancy

Florida Keys Audubon Society

The Nature Conservancy

The American Littoral Society

The Center for Marine Conservation

Florida Audubon Society

American Aquarist Society

**7.0 APPLICABLE LAW****A. VESSEL SAFETY CONSIDERATIONS**

PL. 99-659 amended the Magnuson Act to require that a fishery management plan or amendment must consider, and may provide for, temporary adjustments (after consultation with the U.S. Coast Guard and persons utilizing the fishery) regarding access to the fishery for vessels otherwise prevented from harvesting because of weather or other ocean conditions affecting the safety of the vessels.

No vessel will be forced to participate in the fishery under adverse weather or ocean conditions as a result of the imposition of management regulations set forth in the proposed actions presented in this document. Therefore, no management adjustments for fishery access will be provided.

There are no fishery conditions, management measures, or regulations contained in this amendment which would result in the loss of harvesting opportunity because of crew and vessel safety effects of adverse weather or ocean conditions. No concerns have been raised by people engaged in the fishery or the Coast Guard that the proposed management measures directly or indirectly pose a hazard to crew or vessel safety under adverse weather or ocean conditions. Therefore, there are no procedures for making management adjustments in this amendment due to vessel safety problems because no person will be precluded from a fair or equitable harvesting opportunity by the management measures set forth.

There are no procedures proposed to monitor, evaluate, and report on the effects of management measures on vessel or crew safety under adverse weather or ocean conditions.

**B. COASTAL ZONE CONSISTENCY**

Section 307(c)(1) of the Federal Coastal Zone Management Act of 1972 requires that all federal activities which directly affect the coastal zone be consistent with approved state coastal zone management programs to the maximum extent practicable. While it is the goal of the Council to have complementary management measures with those of the states, federal and state administrative procedures vary and regulatory changes are unlikely to be fully instituted at the same time. Based upon the assessment of this amendment's impacts in previous sections, the Council has concluded that this amendment is an improvement to the federal management measures for coral, coral reefs, and live/hard bottom habitats in the south Atlantic Region.

The proposed management actions are consistent with the Coastal Zone Management Plan of the States of Florida, South Carolina and North Carolina to the maximum extent possible; Georgia is in the process of developing a Coastal Zone Management Plan.

This determination was submitted to the responsible state agencies under Section 307 of the Coastal Zone Management Act administering approved Coastal Zone Management Programs in the states of Florida, South Carolina and North Carolina. Letters from the state coastal management agencies responding to the Council determination are included in Appendix R.

### **C. ENDANGERED SPECIES AND MARINE MAMMAL ACTS**

The proposed actions have no anticipated adverse impact on threatened or endangered species or on marine mammals. Section 7 consultations conducted for the original fishery management plan and Amendments 1 and 2 determined the fishery was not likely to jeopardize the continued existence of threatened or endangered animals or result in the destruction or adverse modification of habitat that may be critical to those species. Appendix W presents the critical habitat designations in the south Atlantic region proposed for Johnson Seagrass and adopted for the Northern Right Whale.

Listed and protected species under the Endangered Species Act (ESA) and governed by the jurisdiction of NMFS include:

#### **Whales:**

- (1) The northern right whale- *Eubalaena glacialis*(ENDANGERED)
- (2) The humpback whale- *Magaptera novaeangliae* (ENDANGERED)
- (3) The fin whale- *Balaenoptera physalus* (ENDANGERED)
- (4) The sei whale- *Balaenoptera borealis* (ENDANGERED)
- (5) The sperm whale- *Physeter macrocephalus* (ENDANGERED)
- (6) The blue whale- *Balaenoptera musculus* (ENDANGERED)

#### **Sea Turtles:**

- (1) The Kemp's ridley turtle- *Lepidochelys kempii* (ENDANGERED)
- (2) The leatherback turtle- *Dermochelys coriacea*(ENDANGERED)
- (3) The hawksbill turtle- *Eretmochelys imbricata*(ENDANGERED)
- (4) The green turtle- *Chelonia mydas* (THREATENED/ENDANGERED)
- (5) The loggerhead turtle- *Caretta caretta* (THREATENED)

#### **Other:**

- (1) The manatee- *Trichechus manatus* (ENDANGERED)

### **D. PAPERWORK REDUCTION ACT**

The purpose of the Paperwork Reduction Act is to control paperwork requirements imposed on the public by the federal government. The authority

to manage information collection and record keeping requirements is vested with the Director of the Office of Management and Budget. This authority encompasses establishment of guidelines and policies, approval of information collection requests, and reduction of paperwork burdens and duplications.

The Council does not propose any additional permit or data collection programs under these proposed actions. The requirement for an aquaculture permit was implemented under Amendment 2.

#### **E. FEDERALISM**

No federalism issues have been identified relative to the actions proposed in this amendment and associated regulations. The affected states have been closely involved in developing the proposed management measures and the principal state officials responsible for fisheries management in their respective states have not expressed federalism related opposition to adoption of this amendment.

#### **F. NATIONAL ENVIRONMENTAL POLICY ACT -- FINDINGS OF NO SIGNIFICANT IMPACT**

The discussion of the need for this amendment, proposed actions and alternatives, and their environmental impacts are contained in Sections 1.0 and 2.0 of this amendment/environmental assessment. A description of the affected environment is contained in Section 3.0.

The proposed amendment is not a major action having significant impact on the quality of the marine or human environment of the South Atlantic. The proposed action establishes a federal live rock aquaculture system, prohibits octocoral harvest north of Cape Canaveral, Florida, and prohibits anchoring of fishing vessels in the Oculina Bank Habitat Area of Particular Concern. The proposed action should not result in impacts significantly different in context or intensity from those described in the Environmental Assessment. A formal Environmental Impact Statement (EIS) was prepared for the original Fishery Management Plan (GMFMC and SAFMC 1982), an Environmental Assessment was prepared for Amendment 1 (GMFMC and SAFMC 1990), and a Supplemental Environmental Impact Statement (SEIS) was included in Amendment 2 (SAFMC and GMFMC 1994).

Mitigating measures related to proposed actions are unnecessary. No unavoidable adverse impacts on protected species, wetlands, or the marine

environment are expected to result from the proposed management measures in this amendment.

The proposed regulations will protect the resource from depletion, better achieve the objectives of the fisheries management plan, and lessen the environmental impacts of the fishery. Overall, the benefits to the nation resulting from implementation of the proposed actions, are greater than management costs.

#### **Finding of No Significant Environmental Impact (FONSI)**

The Council's preferred action establishes a federal live rock aquaculture system, prohibits octocoral harvest north of Cape Canaveral, Florida, and prohibits anchoring of fishing vessels in the Oculina Bank Habitat Area of Particular Concern. Section 4.0 describes the Council's management measures in detail.

Section 1508.27 of the CEQ Regulations list 10 points to be considered in determining whether or not impacts are significant. The analyses presented below are based on the detailed information contained in Section 4.0 Environmental Consequences including the Regulatory Impact Review and Regulatory Flexibility Determination.

#### **Beneficial and Adverse Impacts**

There are beneficial and adverse impacts from the proposed actions. The impacts are described for each action in Section 4.0 and summarized in Section 2.0. Adverse impacts associated with the HAPC are unquantifiable but are expected to be low. Beneficial impacts are unquantifiable but providing for aquaculture of live rock will ensure the long term economic viability of the commercial aquarium industry.

The beneficial and adverse impacts as analyzed in Section 4.0 are not significant.

#### **Public Health or Safety**

The proposed actions are not expected to have any significant adverse impact on public health or safety.

#### **Unique Characteristics**

The proposed actions are not expected to have any significant adverse impact on unique characteristics of the area such as proximity to historic or

cultural resources, park lands, wetlands or ecologically critical areas. The fishery, as presently prosecuted, does occasionally significantly impact the live bottom habitat that is essential to the reef species under Council management. Regulations within the existing *Oculina* HAPC will be further strengthened by implementing regulations prohibiting interaction of the bottom tending gear and the fragile *Oculina* coral resource.

#### Controversial Effects

The proposed actions are not expected to have any significant controversial issues. The Council has provided for extensive input by the public through committee and Council meetings, by holding scoping meeting and conducting public hearings, and by providing the opportunity for interested persons to provide written comments. During development of this amendment, the Council has incorporated suggestions from the public, and the final document addresses all comments and suggestions received.

#### Uncertainty or Unique/Unknown Risks

The proposed actions are not expected to have any significant effects on the human environment that are highly uncertain or involve unique or unknown risks. Benefits from management cannot be quantified but the direction and relative magnitude are known and are positive.

#### Precedent/Principle Setting

The proposed actions are not expected to have any significant effects by establishing precedent and do not include actions which would represent a decision in principle about a future consideration.

#### Relationship/Cumulative Impact

The proposed actions are not expected to have any significant cumulative negative impacts that could have a substantial effect on the coral, coral reef, and live/hard bottom resources or any related stocks, including sea turtles. In fact, the proposed measures will improve status of stocks and minimize habitat damage.



**Historical/Cultural Impacts**

The proposed actions are not expected to have any significant effects on historical sites listed in the National Register of Historic Places and will not result in any significant impacts on scientific, cultural or historical resources.

**Endangered/Threatened Impacts**

The proposed actions are not expected to have any significant effects on any endangered or threatened species or marine mammal population. A Section 7 consultation was held for Amendment 1 and Amendment 2 with a no jeopardy opinion being rendered.

Critical habitats, established under the Endangered Species Act, have been designated in the south Atlantic region for the Northern Right Whale, and are proposed for Johnson's seagrass (Appendix W).

**Interaction With Existing Laws for Habitat Protection**

The proposed actions are not expected to have any significant interaction which might threaten a violation of federal, state or local law or requirements imposed for the protection of the environment. The Council has adopted a number of positions that direct the protection of essential habitat including coral, coral reefs, and live/hard bottom. These positions are contained in Amendment 2 (SAFMC and GMFMC 1994) and Appendices A and B. In fact, the proposed measures will minimize habitat damage because additional habitat protection will be provided in the existing Oculina Bank HAPC, octocoral harvest will be prohibited north of Cape Canaveral, Florida, and live rock aquaculture efforts may increase bottom habitat.

NMFS SERO, during informal review, indicated that considering a SEIS was prepared for Amendment 2 and considering the limited impact of the proposed actions on the environment, an Environmental Assessment was adequate for this amendment.

Additional points analyzed by the Council in determining that a SEIS was not necessary are presented below.

**Effects of the Fishery on the Environment**

Section 3.0 Affected Environment discusses habitat and coral resources impacted. Section 4.0 Environmental Consequences, Item F presents the detailed information on the impacts of the proposed action and alternatives on

the environment. The Council evaluated the effects of the fishery on the environment (Section 4.0, Item G) and concluded that the fishery, as prosecuted, does not significantly impact *Oculina* coral and live/hard bottom habitat in and around the Oculina Bank HAPC. The implementation of the management measures proposed under this amendment will reduce to the maximum extent practicable the impact of the fishery on the protected coral and live bottom resources. This action will also prevent the expansion of octocoral harvest north of Cape Canaveral thereby eliminating the possible effect of the industry on habitat. Live rock harvesters will be able to legally remove aquaculture rock reducing the likelihood of violation of the ban on removal of wild live rock when it becomes effective.

## Bycatch

The measures in this amendment will not impact bycatch and do not have bycatch considerations.

### Effort Directed at or From Other Fisheries

The measures in this Amendment will not result in effort being shifted to other fisheries if live rock aquaculture establishes a new industry in the south Atlantic and provides displaced harvesters and end users with a new source of product.

## Conclusion

Having reviewed the environmental assessment and the available information relating to the proposed actions, I have determined that there will be no significant environmental impact resulting from the proposed actions.

Approved: \_\_\_\_\_

Assistant Administrator for Fisheries

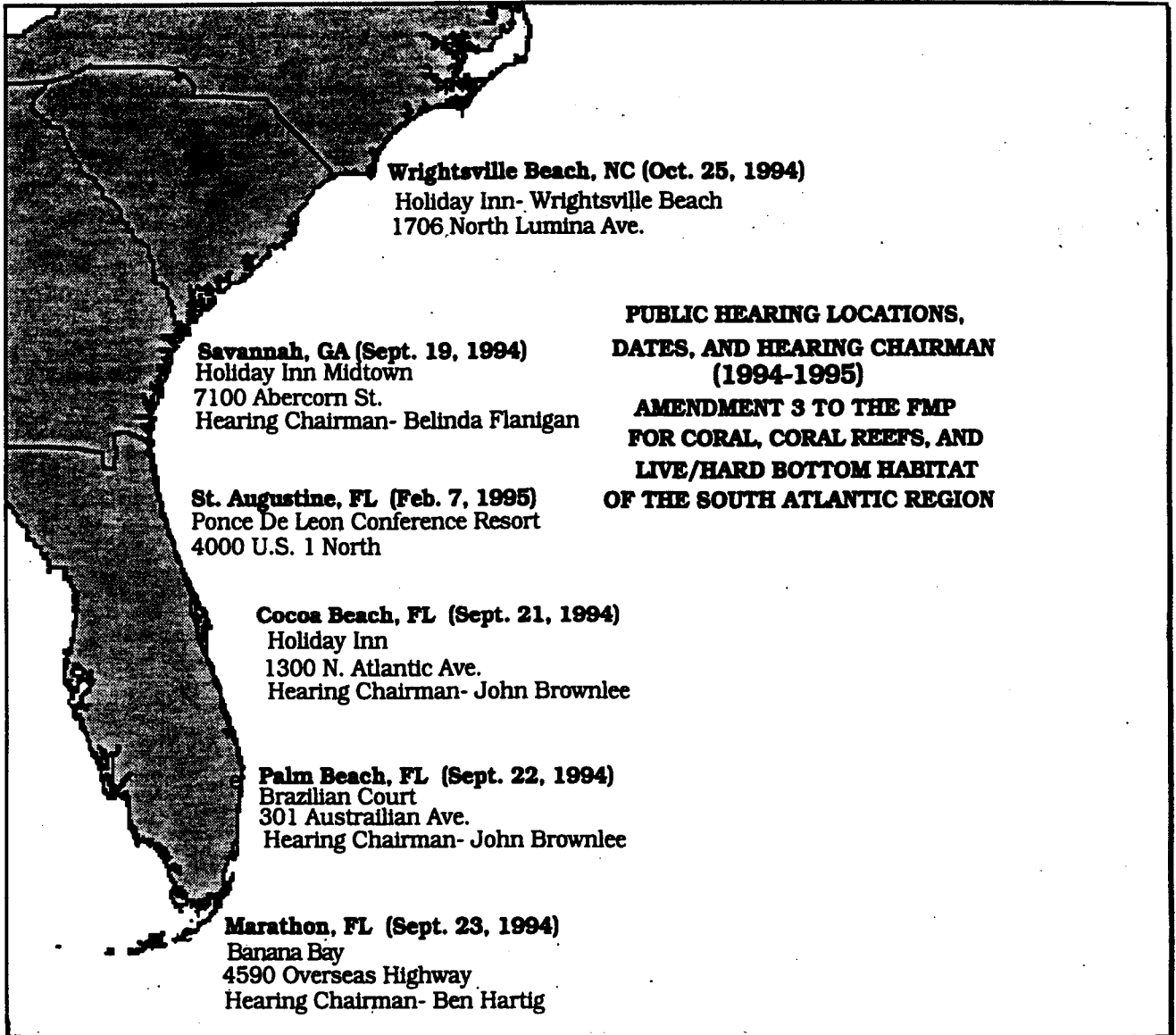
Date \_\_\_\_\_

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**9.0 PUBLIC HEARINGS LOCATIONS AND DATES**



**Appendix A. SAFMC Policy Statement for Protection and Enhancement of Marine Submerged Aquatic Vegetation (SAV) Habitat.**

The South Atlantic Fishery Management Council (SAFMC) and the Habitat and Environmental Protection Advisory Panel has considered the issue of the decline of Marine Submerged Aquatic Vegetation SAV (or seagrass) habitat in Florida and North Carolina as it relates to Council habitat policy. Subsequently, the Council's Habitat Committee requested that the Habitat Advisory Panel develop the following policy statement to support Council efforts to protect and enhance habitat for managed species.

**Description and Function:**

In the South Atlantic region, SAV is found primarily in the states of Florida and North Carolina where environmental conditions are ideal for the propagation of seagrasses. The distribution of SAV habitat is indicative of its importance to economically important fisheries: in North Carolina, total SAV coverage is estimated to be 200,000 acres; in Florida, the total SAV coverage is estimated to be 2.9 million acres. SAV serves several valuable ecological functions in the marine systems where it occurs. Food and shelter afforded by SAV result in a complex and dynamic system that provides a primary nursery habitat for various organisms that is important both to the overall system ecology as well as to commercial and recreationally important fisheries. SAV habitat is valuable both ecologically as well as economically; as feeding, breeding, and nursery ground for numerous estuarine species, SAV provides for rich ecosystem diversity. Further, a number of fish and shellfish species, around which is built several vigorous commercial and recreational fisheries, rely on SAV habitat for a least a portion of their life cycles. For more detailed discussion, please see Appendix 1.

**Status:**

SAV habitat is currently threatened by the cumulative effects of overpopulation and consequent commercial development and recreation in the coastal zone. The major anthropogenic threats to SAV habitat include:

- (1) mechanical damage due to:
  - (a) propeller damage from boats,
  - (b) bottom-disturbing fish harvesting techniques,
  - (c) dredging and filling;
- (2) biological degradation due to:
  - (a) water quality deterioration by modification of temperature, salinity, and light attenuation regimes;
  - (b) addition of organic and inorganic chemicals.

SAV habitat in both Florida and North Carolina has experienced declines from both natural and anthropogenic causes. However, conservation measures taken by state and federal agencies have produced positive results. The national Marine Fisheries Service has produced maps of SAV habitat in the Albemarle-Pamlico Sound region of North Carolina to help stem the loss of this critical habitat. The threats to this habitat and the potential for successful

conservation measures highlight the need to address the decline of SAV. Therefore, the South Atlantic Council recommends immediate and direct action be taken to stem the loss of this essential habitat. For more detailed discussion, please see Appendix 2.

### **Management:**

Conservation of existing SAV habitat is critical to the maintenance of the living resources that depend on these systems. A number of federal and state laws and regulations apply to modifications, either direct or indirect, to SAV habitat. However, to date the state and federal regulatory process has accomplished little to slow the decline of SAV habitat. Furthermore, mitigative measures to restore or enhance impacted SAV have met with little success. These habitats cannot be readily restored; the South Atlantic Council is not aware of any seagrass restoration project that has ever prevented a net loss of SAV habitat. It has been difficult to implement effective resource management initiatives to preserve existing seagrass habitat resources due to the lack of adequate documentation and specific cause/effect relationships. (for more detailed discussion, please see appendix 3)

Because restoration/enhancement efforts have not met with success, the South Atlantic Council considers it imperative to take a directed and purposeful action to protect remaining SAV habitat. The South Atlantic Council strongly recommends that a comprehensive strategy to address the disturbing decline in SAV habitat in the South Atlantic region. Furthermore, as a stepping stone to such a long term protection strategy, the South Atlantic Council recommends that a reliable status and trend survey be adopted to verify the scale of local declines of SAV.

The South Atlantic Council will address the decline of SAV, and consider establishing specific plans for revitalizing the SAV resources of the South Atlantic region. This may be achieved by the following integrated triad of efforts:

### **Planning:**

- The Council promotes regional planning which treats SAV as a integral part of an ecological system.
- The Council supports comprehensive planning initiatives as well as interagency coordination and planning on SAV matters.
- The Council recommends that the Habitat Advisory Panel members actively seek to involve the Council in the review of projects which will impact, either directly or indirectly, SAV habitat resources.

### **Monitoring and Research:**

- Periodic surveys of SAV in the region are required to determine the progress toward the goal of a net resource gain.
- The Council supports efforts to
  - (1) standardize mapping protocols,
  - (2) develop a Geographic Information System databases for essential habitat including seagrass, and

- (3) research and document causes and effects of SAV decline including the cumulative impacts of shoreline development.

**Education and Enforcement:**

- The Council supports education programs designed to heighten the public's awareness of the importance of SAV. An informed public will provide a firm foundation of support for protection and restoration efforts.
- Existing regulations and enforcement need to be reviewed for their effectiveness.
- Coordination with state resource and regulatory agencies should be supported to assure that existing regulations are being enforced.



## SAFMC SAV Policy Statement- Appendix 1

### DESCRIPTION AND FUNCTION

Worldwide, Submerged Aquatic Vegetation (SAV) constitutes one of the most conspicuous and common shallow-water habitat types. These angiosperms have successfully colonized standing and flowing fresh, brackish, and marine waters in all climatic zones, and most are rooted in the sediment. Marine SAV beds occur in the low intertidal and subtidal zones and may exhibit a wide range of habitat forms, from extensive collections of isolated patches to unbroken continuous beds. The bed is defined by the presence of either aboveground vegetation, its associated root and rhizome system (with living meristem), or the presence of a seed bank in the sediments, as well as the sediment upon which the plant grows or in which the seed bank resides. In the case of patch beds, the unvegetated sediment among the patches is considered seagrass habitat as well.

There are seven species of seagrass in Florida's shallow coastal areas: turtle grass (*Thalassia testudinum*); manatee grass (*Syringodium filiforme*); shoal grass (*Halodule wrightii*); star grass (*Halophila engelmanni*); paddle grass (*Halophila decipiens*); and Johnson's seagrass (*Halophila johnsonii*) (See distribution maps in Appendix 4). Recently, *H. johnsonii* has been proposed for listing by the National Marine Fisheries Service as an endangered plant species. Areas of seagrass concentration along Florida's east coast are Mosquito Lagoon, Banana River, Indian River Lagoon, Lake Worth and Biscayne Bay. Florida Bay, located between the Florida Keys and the mainland, also has an abundance of seagrasses, but is currently experiencing an unprecedented decline in SAV distribution.

The three dominant species found in North Carolina are shoalgrass (*Halodule wrightii*), eelgrass (*Zostera marina*), and widgeongrass (*Ruppia maritima*). Shoalgrass, a subtropical species has its northernmost distribution at Oregon Inlet, North Carolina. Eelgrass, a temperate species, has its southernmost distribution in North Carolina. Areas of seagrass concentration in North Carolina are southern and eastern Pamlico Sound, Core Sound, Back Sound, Bogue Sound and the numerous small southern sounds located behind the beaches in Onslow, Pender, Brunswick, and New Hanover Counties (See distribution maps in Appendix 4).

Seagrasses serve several valuable ecological functions in the marine estuarine systems where they occur. Food and shelter afforded by the SAV result in a complex and dynamic system that provides a primary nursery habitat for various organisms that are important both ecologically and to commercial and recreational fisheries. Organic matter produced by these seagrasses is transferred to secondary consumers through three pathways: herbivores that consume living plant matter; detritivores that exploit dead matter; and microorganisms that use seagrass-derived particulate and dissolved organic compounds. The living leaves of these submerged plants also provide a substrate for the attachment of detritus and epiphytic organisms, including bacteria, fungi, meiofauna, micro- and macroalgae, macroinvertebrates. Within the seagrass system, phytoplankton also are present in the water column, and macroalgae and microalgae are associated

with the sediment. No less important is the protection afforded by the variety of living spaces in the tangled leaf canopy of the grass bed itself. In addition to biological benefits, the SAVs also cycle nutrients and heavy metals in the water and sediments, and dissipate wave energy (which reduces shoreline erosion and sediment resuspension).

There are several types of association fish may have with the SAVs. Resident species typically breed and carry out much of their life history within the meadow (e.g., gobiids and syngnathids). Seasonal residents typically breed elsewhere, but predictably utilize the SAV during a portion of their life cycle, most often as a juvenile nursery ground (e.g., sparids and lutjanids). Transient species can be categorized as those that feed or otherwise utilize the SAV only for a portion of their daily activity, but in a systematic or predictable manner (e.g., haemulids).

In Florida many economically important species utilize SAV beds as nursery and/or spawning habitat. Among these are spotted seatrout (Cynoscion nebulosus), grunts (Haemulids), snook (Centropomus sp.), bonefish (Albulu vulpes), tarpon (Megalops atlanticus) and several species of snapper (Lutianids) and grouper (Serranids). Densities of invertebrate organisms are many times greater in seagrass beds than in bare sand habitat. Penaeid shrimp, spiny lobster (Panulirus argus), and bay scallops (Argopecten irradians) are also dependent on seagrass beds.

In North Carolina 40 species of fish and invertebrates have been captured on seagrass beds. Larval and juvenile fish and shellfish including gray trout (Cynoscion regalis), red drum (Sciaenops ocellatus), spotted seatrout (Cynoscion nebulosus), mullet (Mugil cephalus), spot (Leiostomus xanthurus), pinfish (Orthopristis chrysoptera), gag (Mycteroperca microlepis), white grunt (Haemulon plumieri), silver perch (Bairdiella chrysoura), summer flounder (Paralichthys dentatus), southern flounder (P. lethostigma), blue crabs (Callinectes sapidus), hard shell clams (Mercenaria mercenaria), and bay scallops (Argopecten irradians) utilize the SAV beds as nursery areas. They are the sole nursery grounds for bay scallops in North Carolina. SAV meadows are also frequented by adult spot, spotted seatrout, bluefish (Pomatomus saltatrix), menhaden (Brevortia tyrannus), summer and southern flounder, pink and brown shrimp, hard shell clams, and blue crabs. Offshore reef fishes including black sea bass (Centropristis striata), gag, gray snapper (Lutianus griseus), lane snapper (Lutjanus synagris), mutton snapper (Lutianus annalis), and spottail pinfish (Displodus holbrooki). Ospreys, egrets, herons, gulls and terns feed on fauna in SAV beds, while swans, geese, and ducks feed directly on the grass itself. Green sea turtles (Chelonia mydas) also utilize seagrass beds, and juveniles may feed directly on the seagrasses.

## SAFMC SAV Policy Statment- Appendix 2

### STATUS

The SAV habitat represents a valuable natural resource which is now threatened by overpopulation in coastal areas. The major anthropogenic activities that impact seagrass habitats are: 1) dredging and filling, 2) certain fish harvesting techniques and recreational vehicles, 3) degradation of water quality by modification of normal temperature, salinity, and light regimes, and 4) addition of organic and inorganic chemicals. Although not caused by man, disease ("wasting disease" of eelgrass) has historically been a factor. Direct causes such as dredging and filling, impacts of bottom disturbing fishing gear, and impacts of propellers and boat wakes are easily observed, and can be controlled by wise management of our seagrass resources (See Appendix 3). Indirect losses are more subtle and difficult to assess. These losses center around changes in light availability to the plants by changes in turbidity and water color. Other indirect causes of seagrass loss may be ascribed to changing hydrology which may in turn affect salinity levels and circulation. Reduction in flushing can cause an increase in salinity and the ambient temperature of a water body, stressing the plants. Increase in flushing can mean decreased salinity and increased turbidity and near-bottom mechanical stresses which damage or uproot plants.

Increased turbidity and decreasing water transparency are most often recognized as the cause of decreased seagrass growth and altered distribution of the habitats. Turbidity may result from upland runoff, either as suspended sediment or dissolved nutrients. Reduced transparency due to color is affected by freshwater discharge. The introduction of additional nutrients from terrigenous sources often leads to plankton blooms and increased epiphytization of the plants, further reducing light to the plants. Groundwater enriched by septic systems also may infiltrate the sediments, water column, and near-shore seagrass beds with the same effect. Lowered dissolved oxygen is detrimental to invertebrate and vertebrate grazers. Loss of these grazers results in overgrowth by epiphytes.

Large areas of Florida where seagrasses were abundant have now lost these beds from both natural and man-induced causes. (This is not well documented on a large scale except in the case of Tampa Bay). One of these depleted areas is Lake Worth in Palm Beach County. Here, dredge and fill activities, sewage disposal and stormwater runoff have almost eliminated this resource. North Biscayne Bay lost most of its seagrasses from urbanization. The Indian River Lagoon has lost many seagrass beds from stormwater runoff has caused a decrease in water transparency and reduced light penetration. Many seagrass beds in Florida have been scarred from boat propellers disrupting the physical integrity of the beds. Vessel registrations, both commercial and recreational, have tripled from 1970-71 (235, 293) to 1992-93 (715,516). More people engaged in marine activities having an effect on the limited resources of fisheries and benthic communities, Florida's assessment of dredging/propeller scar damage indicates that Dade, Lee, Monroe, and Pinellas Counties have the most heavily damaged seagrass beds. Now Florida Bay, which is rather remote from human population concentrations, is experiencing a die-off of seagrasses, the cause of which has not yet been isolated. Cascading effects of die-offs cause a release of nutrients resulting in algal blooms which,

in turn, adversely affect other seagrass areas, and appear to be preventing recolonization and natural succession in the bay. It appears that Monroe County's commercial fish and shellfish resources, with a dockside landing value of \$50 million per year, is in serious jeopardy.

In North Carolina total SAV coverage is estimated a 200,000 acres. Compared to the state's brackish water SAV community, the marine SAVs appear relatively stable. The drought and increased water clarity during the summer of 1986 apparently caused an increase in SAV abundance in southeastern Pamlico Sound and a concomitant increase in bay scallop densities. Evidence is emerging, however, that characteristics of "wasting disease" are showing up in some of the eelgrass populations in southern Core Sound, Back Sound, and Bogue Sound. The number of permits requested for development activities that potentially impact SAV populations is increasing. The combined impacts of a number of small, seemingly isolated activities are cumulative and can lead to the collapse of large seagrass biosystems. Also increasing is evidence of the secondary removal of seagrasses. Clam-kicking (the harvest of hard clams utilizing powerful propeller wash to dislodge the clams from the sediment) is contentious issue within the state of North Carolina. The scientific community is convinced that mechanical harvesting of clams damages SAV communities. The scallop fishery also could be harmed by harvest-related damage to eelgrass meadows.

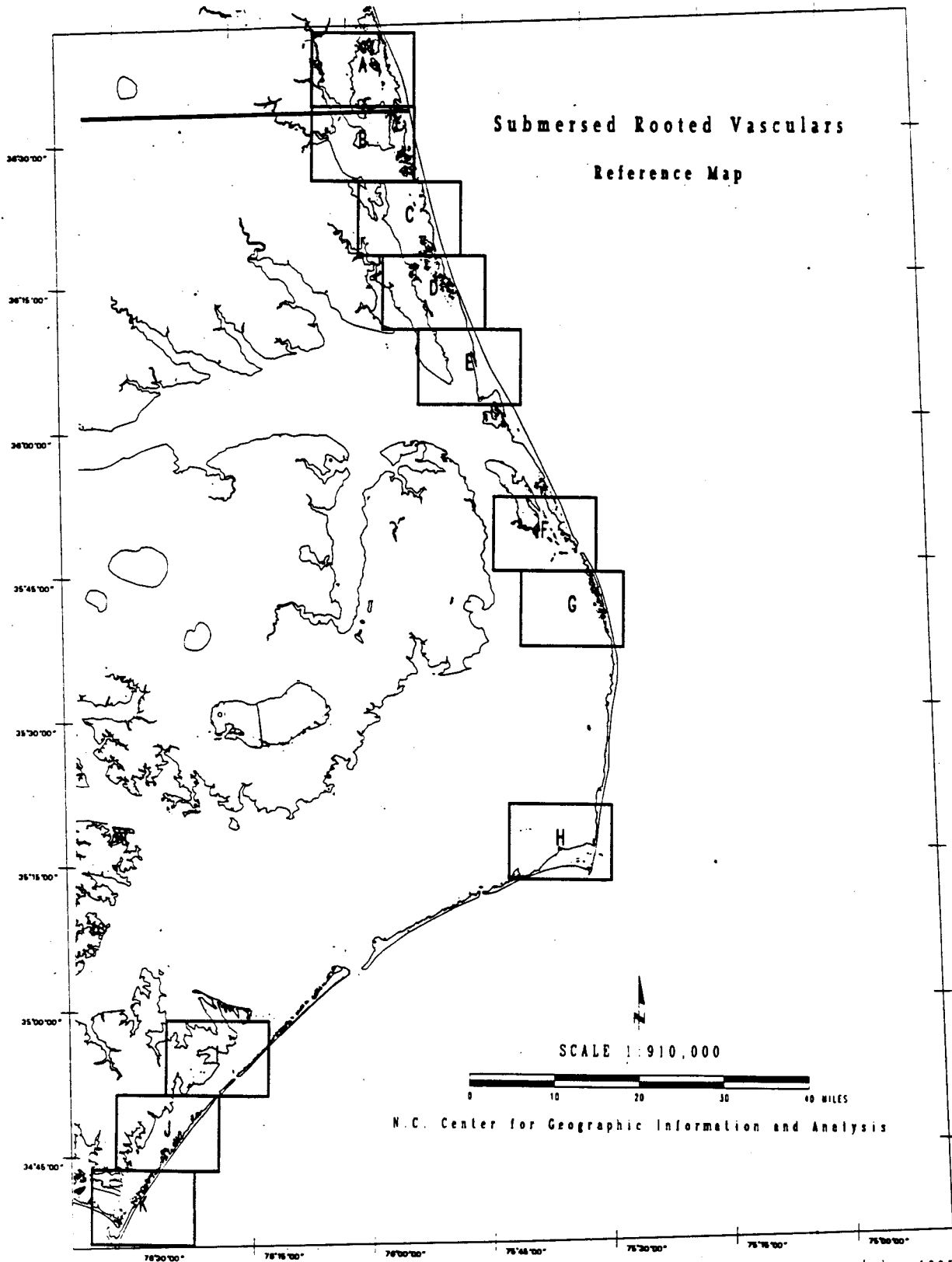
**SAFMC SAV Policy Statement- Appendix 3****MANAGEMENT**

Conservation of existing SAV habitat is critical to the maintenance of the living resources that depend on these systems. A number of federal and state laws require permits for modification and/or development in SAV. These include Section 10 of the Rivers and Harbors Act (1899), Section 404 of the Clean Water Act (1977), and the states' coastal area management programs. Section 404 prohibits deposition of dredged or fill material in waters of the United States without a permit from the U.S. Army Corps of Engineers. The Fish and Wildlife Coordination Act gives federal and state resource agencies the authority to review and comment on permits, while the National Environmental Policy Act requires the development and review of Environmental Impact Statements. The Magnuson Fisheries Conservation and Management Act has been amended to require that each fishery management plan include a habitat section. The Council's habitat subcommittee may comment on permit requests submitted to the Corps of Engineers when the proposed activity relates to habitat essential to managed species.

State and federal regulatory processes have accomplished little to slow the decline of SAV habitat. Many of the impacts cannot be easily controlled by the regulations as enforced. For example, water quality standards are written so as to allow a specified deviation from background concentration, in this manner standards allow a certain amount of degradation. An example of this is Florida's class III water transparency standard, which defines the compensation depth to be where 1% of the incident light remains. The compensation depth for seagrass is in excess of 10% and for some species is between 15 and 20%. The standard allows a deviation of 10% in the compensation depth which translates into 0.9% incident light or an order of magnitude less than what the plants require.

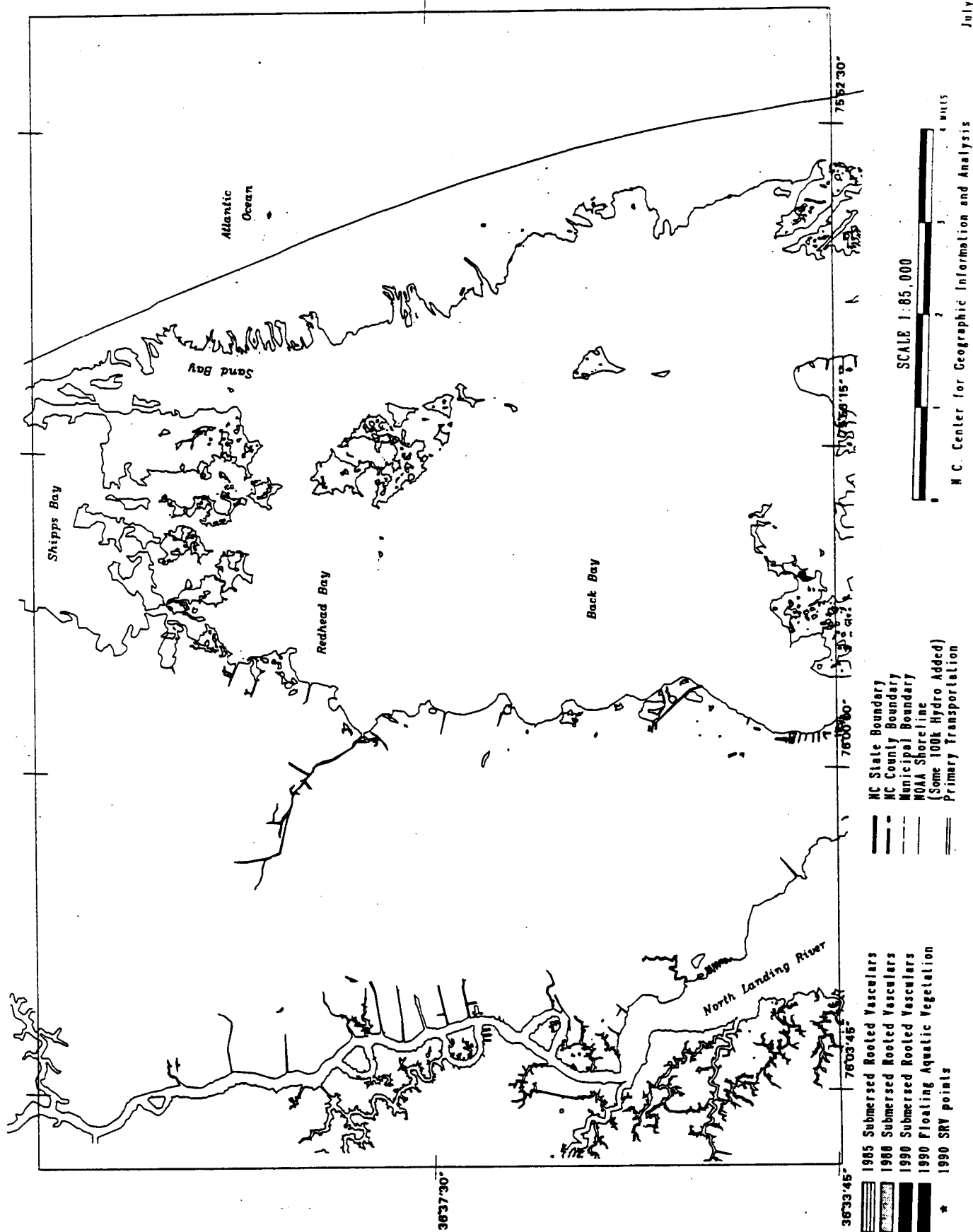
Mitigative measures to restore or enhance impacted areas have met with little success. SAV habitats cannot be readily restored; in fact, the South Atlantic Council is not aware of any seagrass restoration project that has ever avoided a net loss of seagrass habitat. It has been difficult to implement effective resource management initiatives to preserve seagrass habitat due to the lack of documentation on specific cause/effect relationships. Even though studies have identified certain cause/effect relationships in the destruction of these areas, lack of long term, ecosystem-scale studies precludes an accurate scientific evaluation of the long term deterioration of seagrasses. Some of the approaches to controlling propeller scar damage to seagrass beds include: education, improved channel marking restricted access zones, (complete closure to combustion engines, pole or troll areas), and improved enforcement. The South Atlantic Council sees the need for monitoring of seagrass restoration and mitigation not only to determine success from plant standpoint but also for recovery of faunal populations and functional attributes of the essential habitat type. The South Atlantic Council also encourages long term trend analysis monitoring of distribution and abundance using appropriate protocols and Geographic Information System approaches.

**SAFMC SAV Policy Statement- Appendix 4  
(SAV Distribution)**

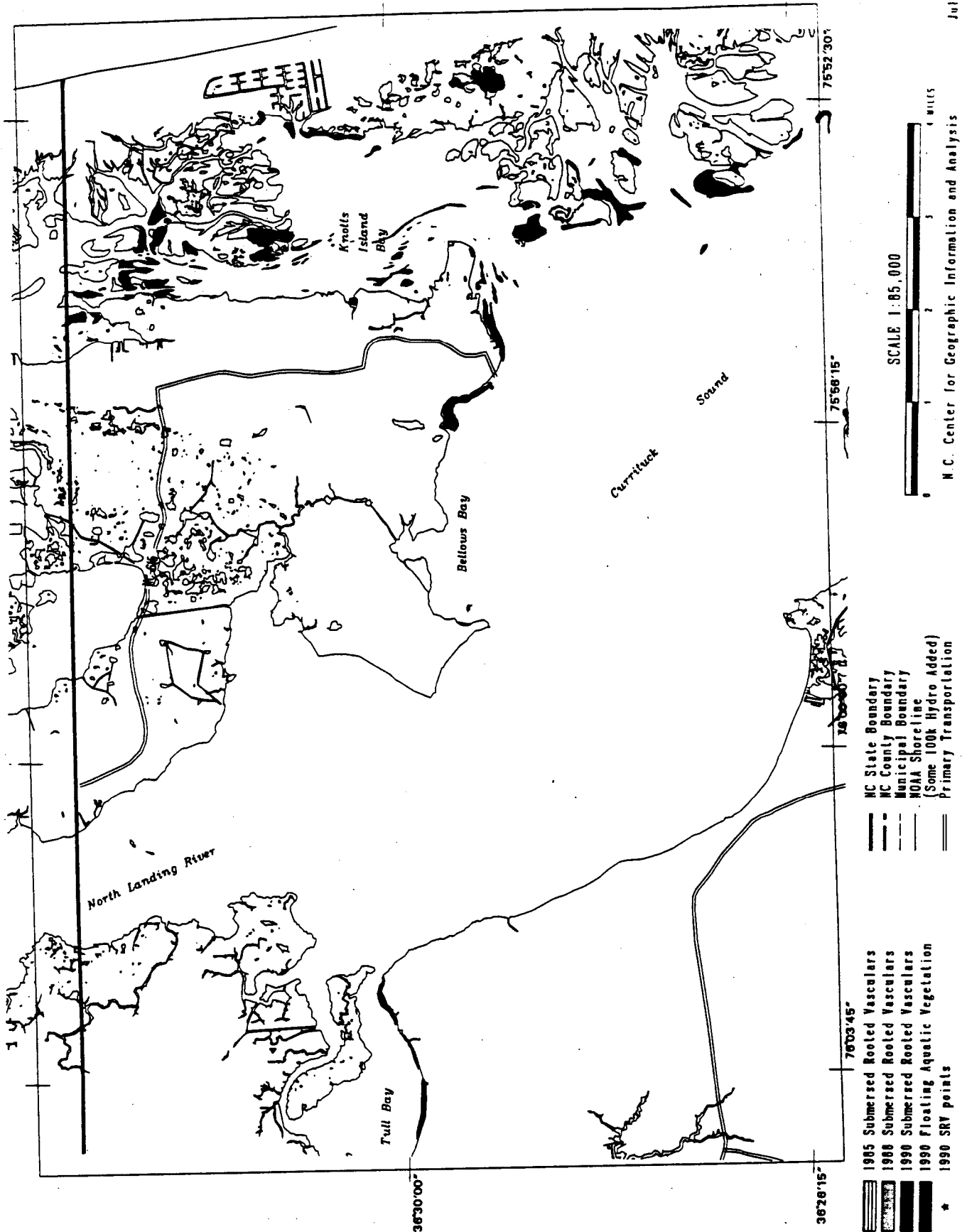


July, 1995

# Submersed Rooted Vasculars (Window A)

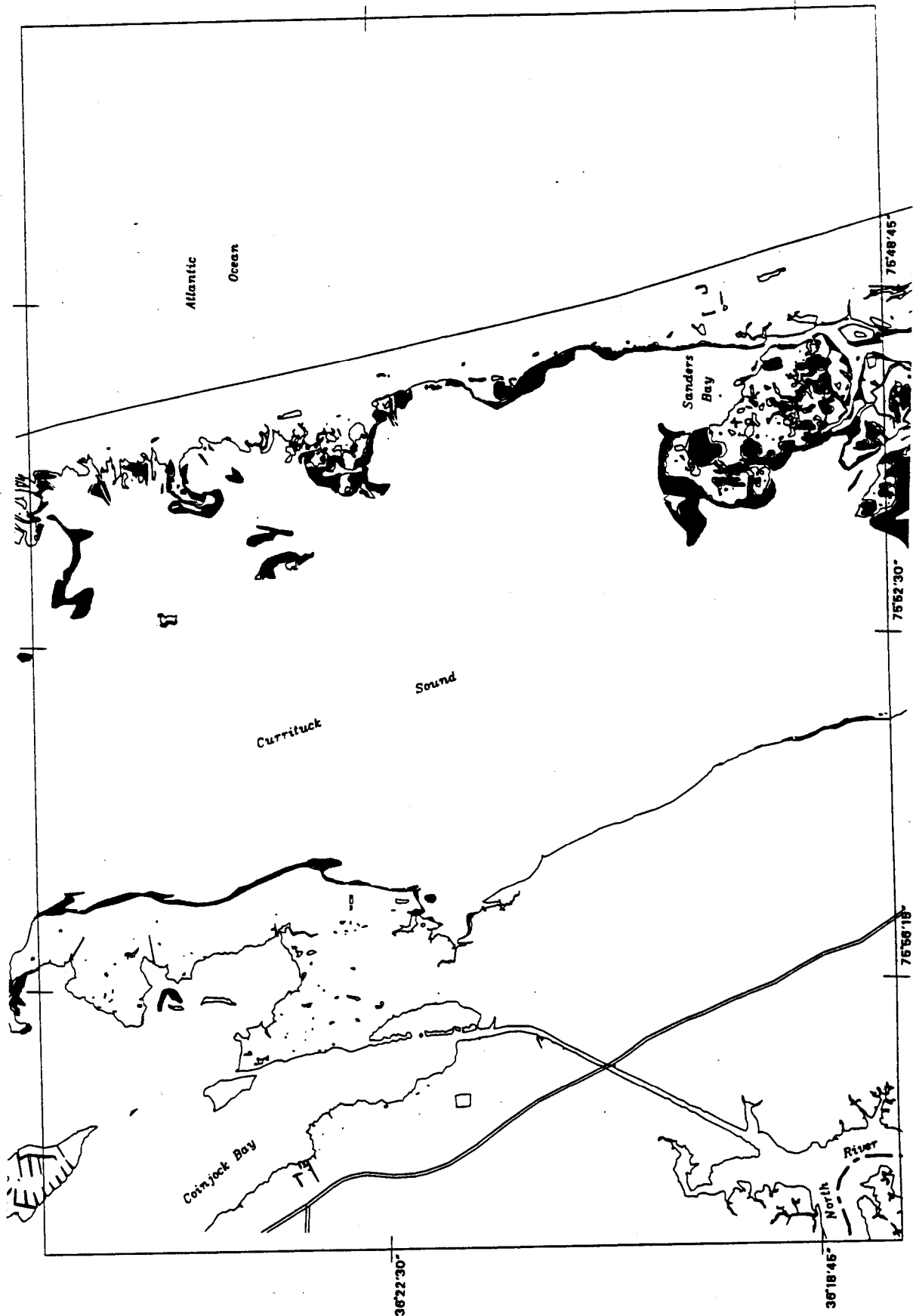


# Submersed Rooted Vasculars (Window B)





# Submersed Rooted Vasculars (Window C)



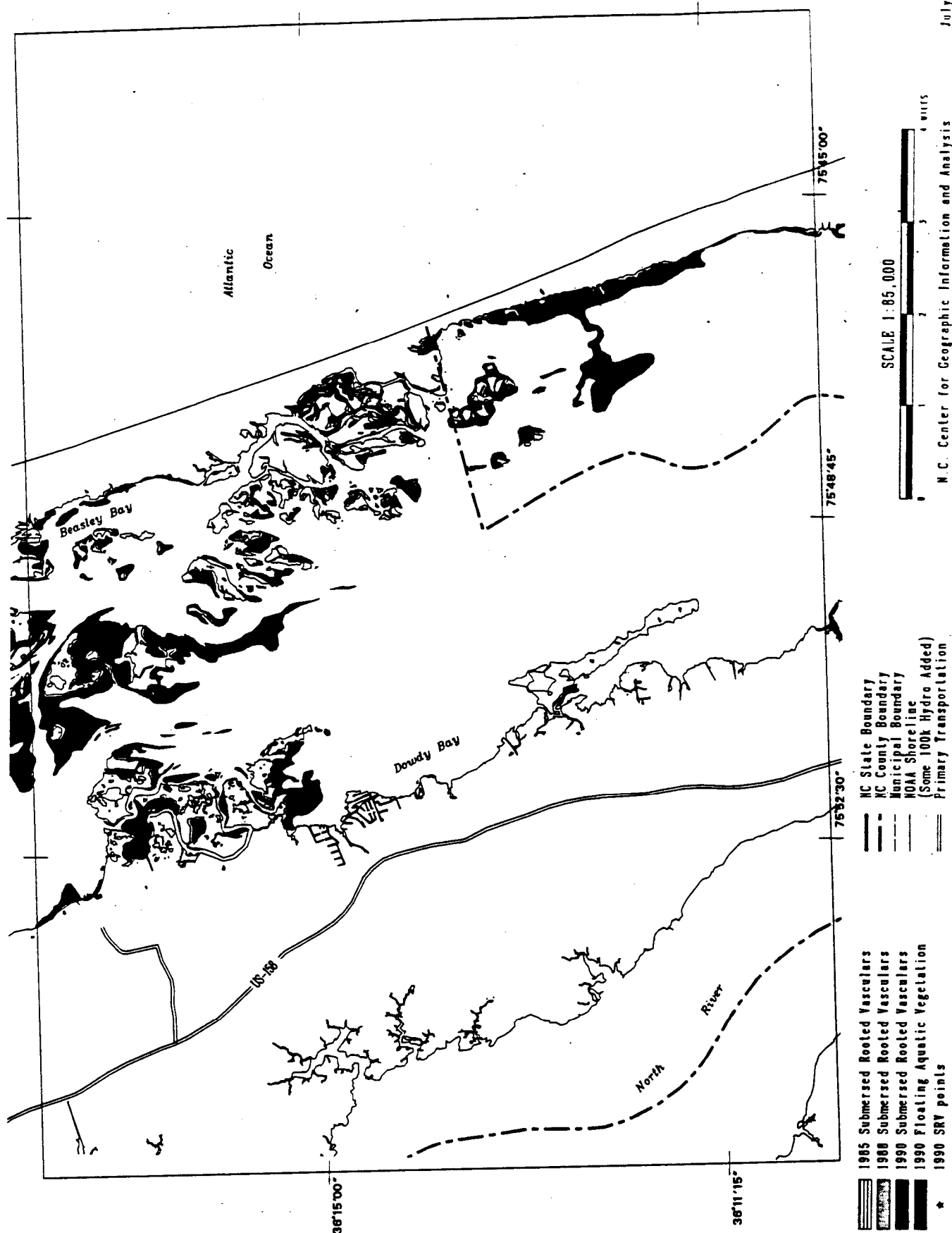
- 1985 Submersed Rooted Vasculars
- 1988 Submersed Rooted Vasculars
- 1990 Submersed Rooted Vasculars
- 1990 Floating Aquatic Vegetation
- 1990 SRV points
- NC State Boundary
- NC County Boundary
- Municipal Boundary
- NOAA Shoreline
- (Some 100k Hydro Added)
- Primary Transportation

SCALE 1:85,000

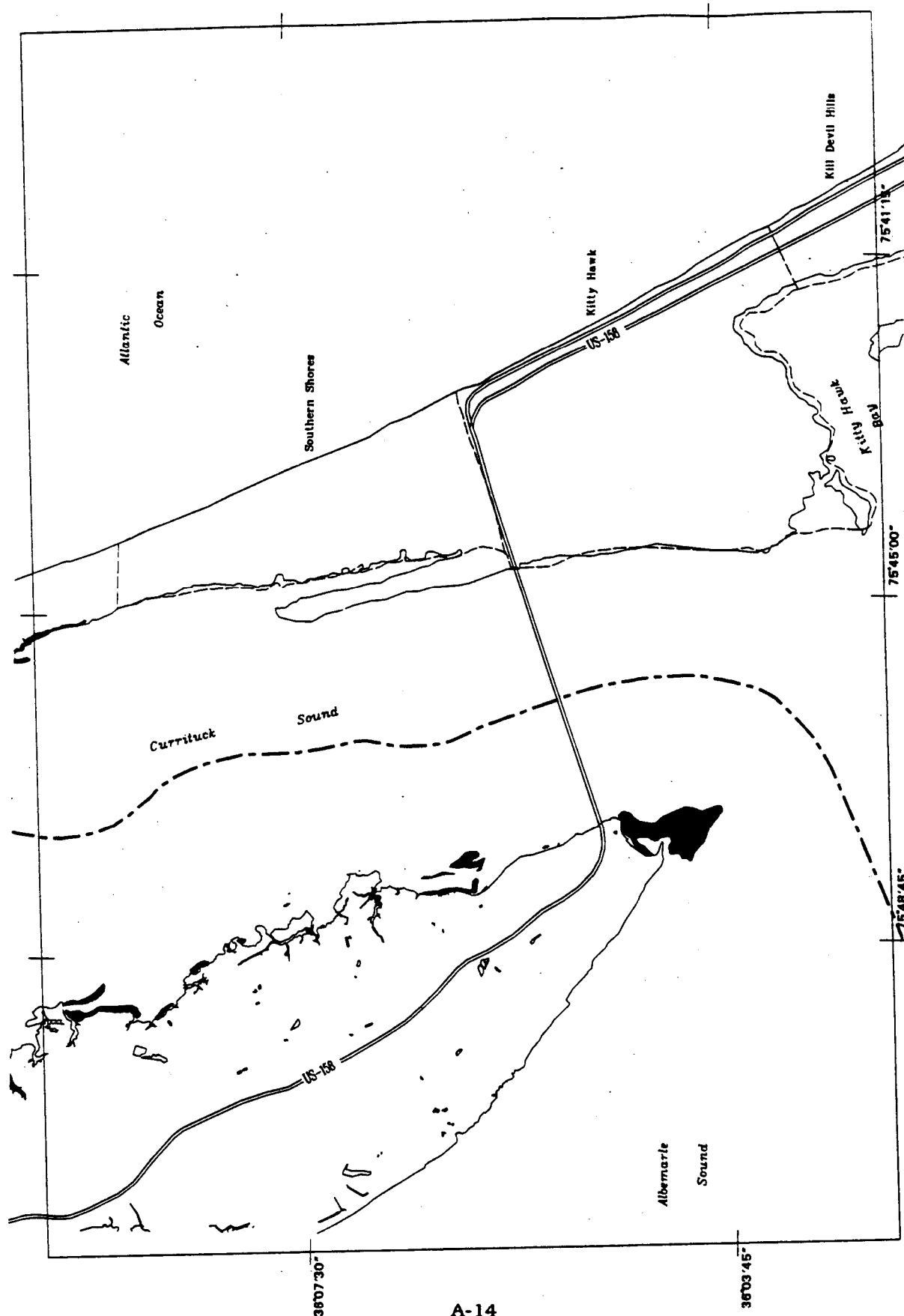
0 1 2 3 4 miles

N.C. Center for Geographic Information and Analysis

# Submersed Rooted Vasculars (Window D)



# Submersed Rooted Vasculars (Window E)



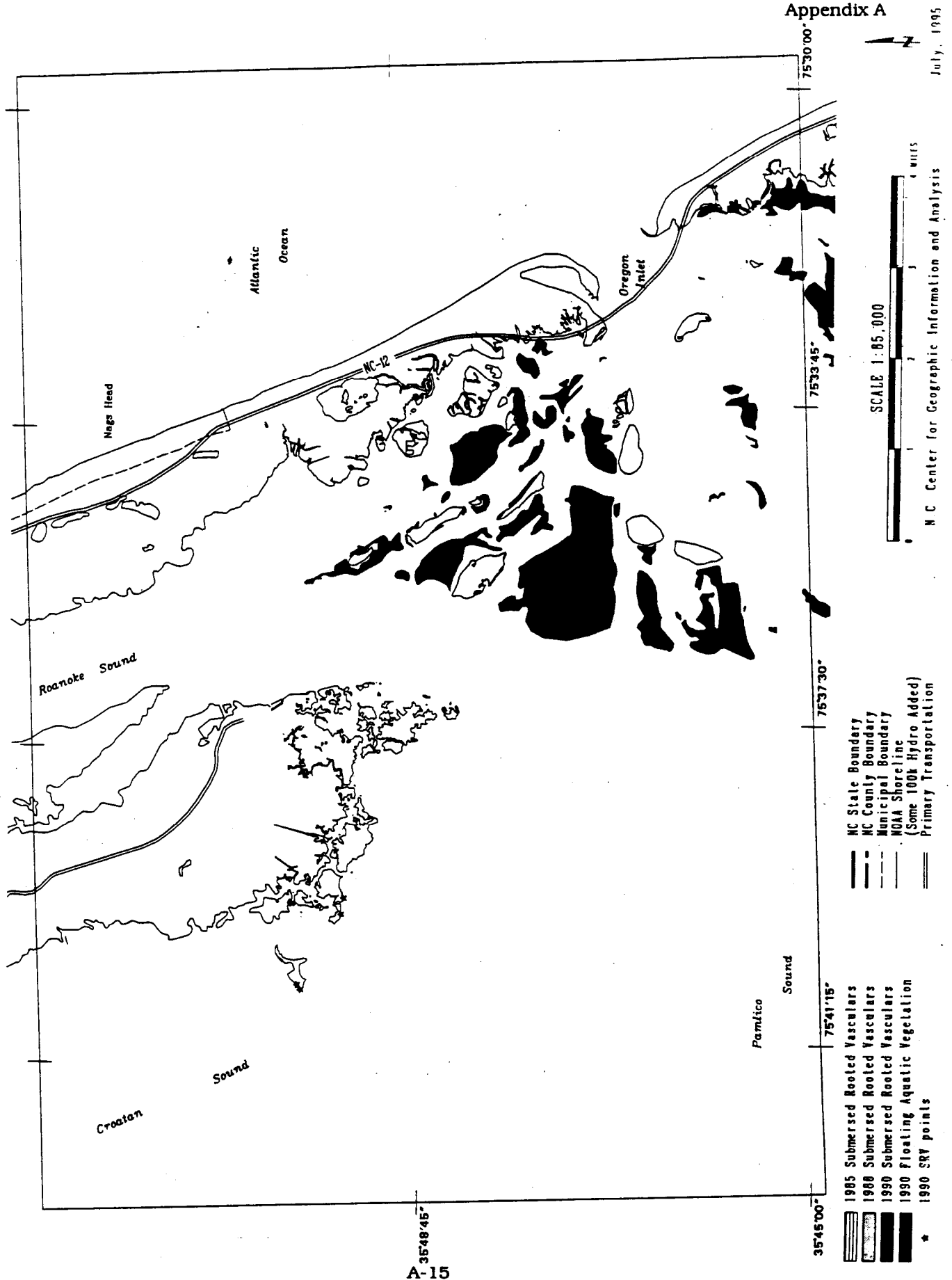
NC State Boundary  
 NC County Boundary  
 Municipal Boundary  
 NOAA Shoreline  
 (Some 100k Hydro Added)  
 Primary Transportation

1985 Submersed Rooted Vasculars  
 1988 Submersed Rooted Vasculars  
 1990 Submersed Rooted Vasculars  
 1990 Floating Aquatic Vegetation  
 \* 1990 SRV points

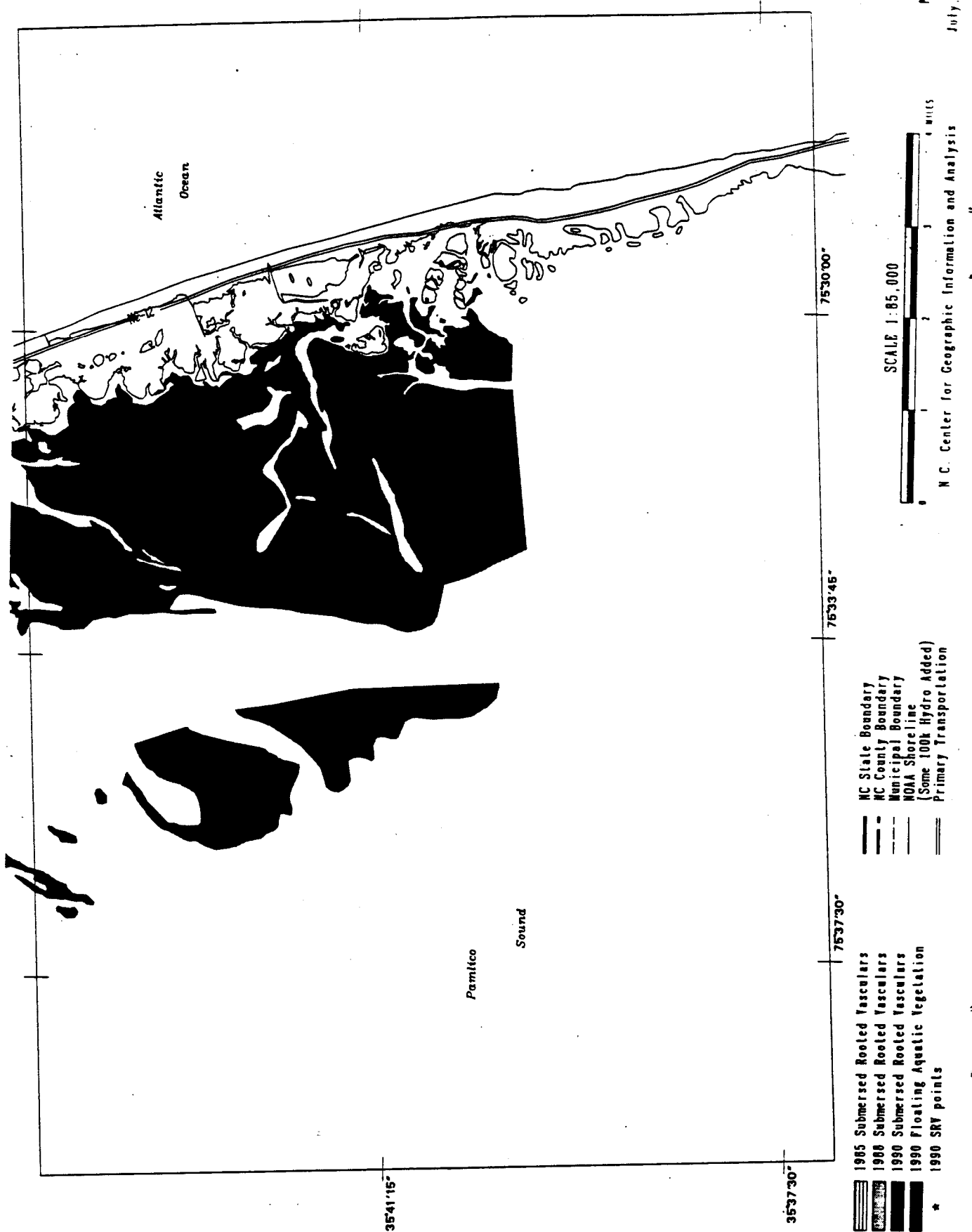
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NC Center for Geographic Information and Analysis

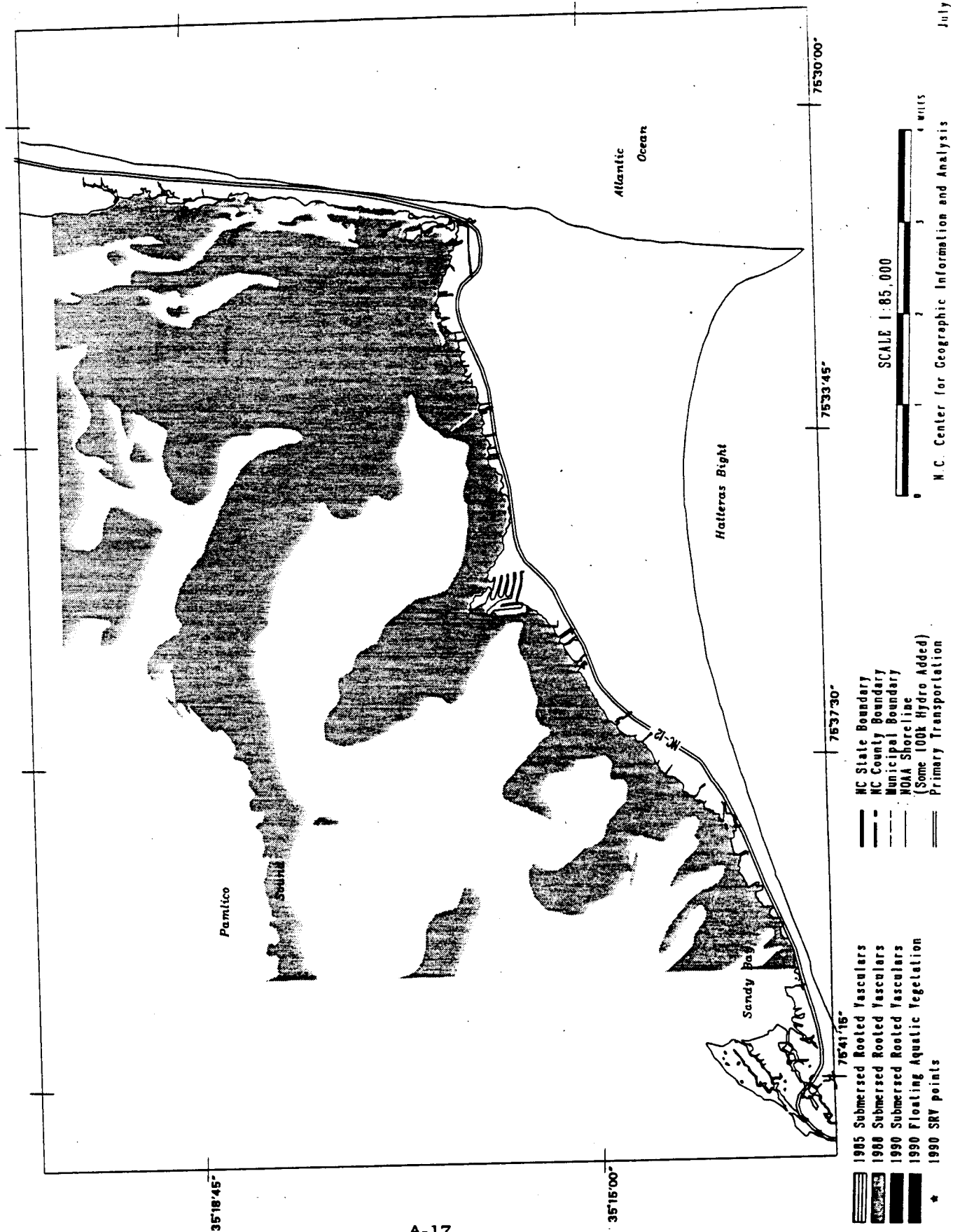
# Submersed Rooted Vasculars (Window F)



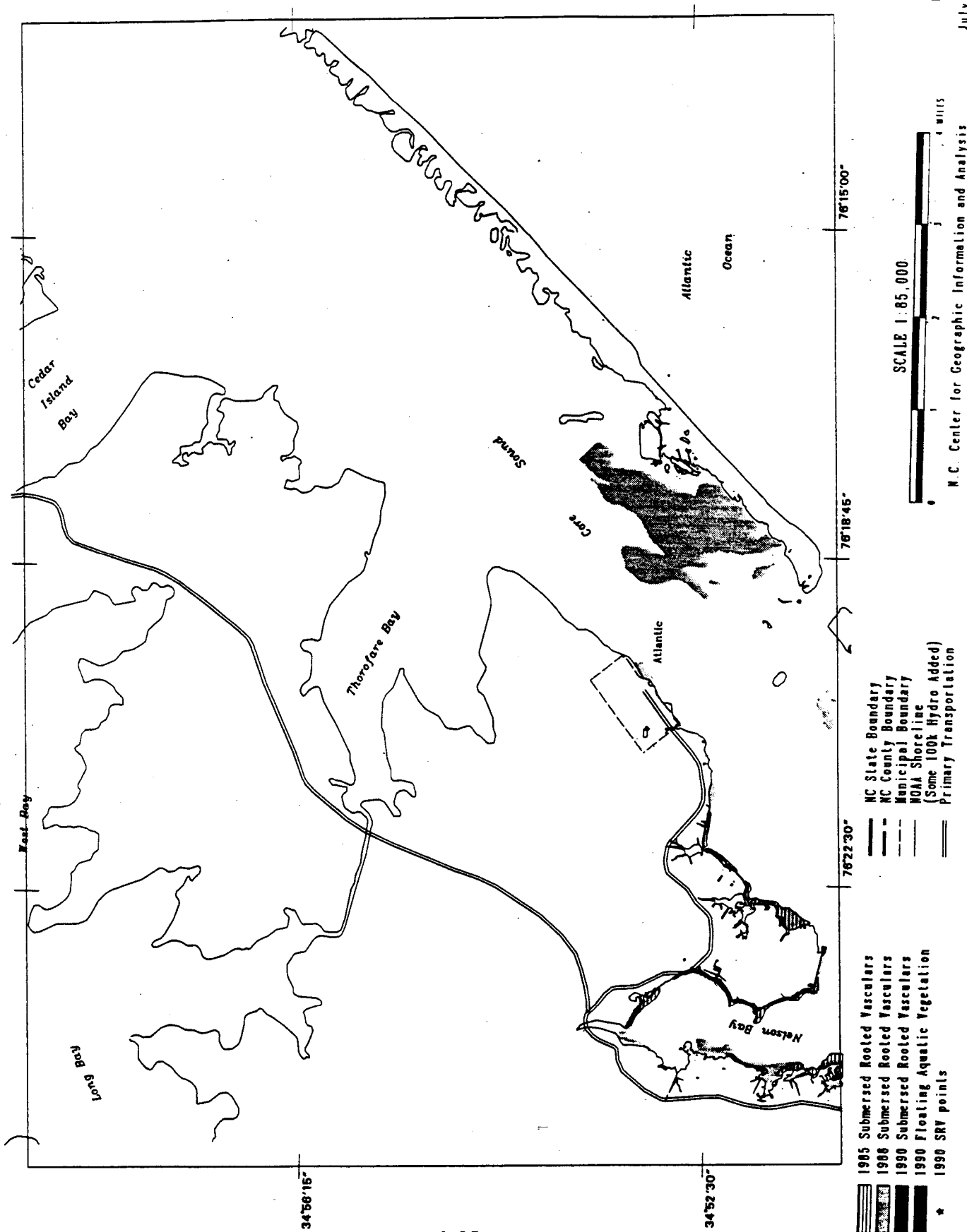
# Submersed Rooted Vasculars (Window G)



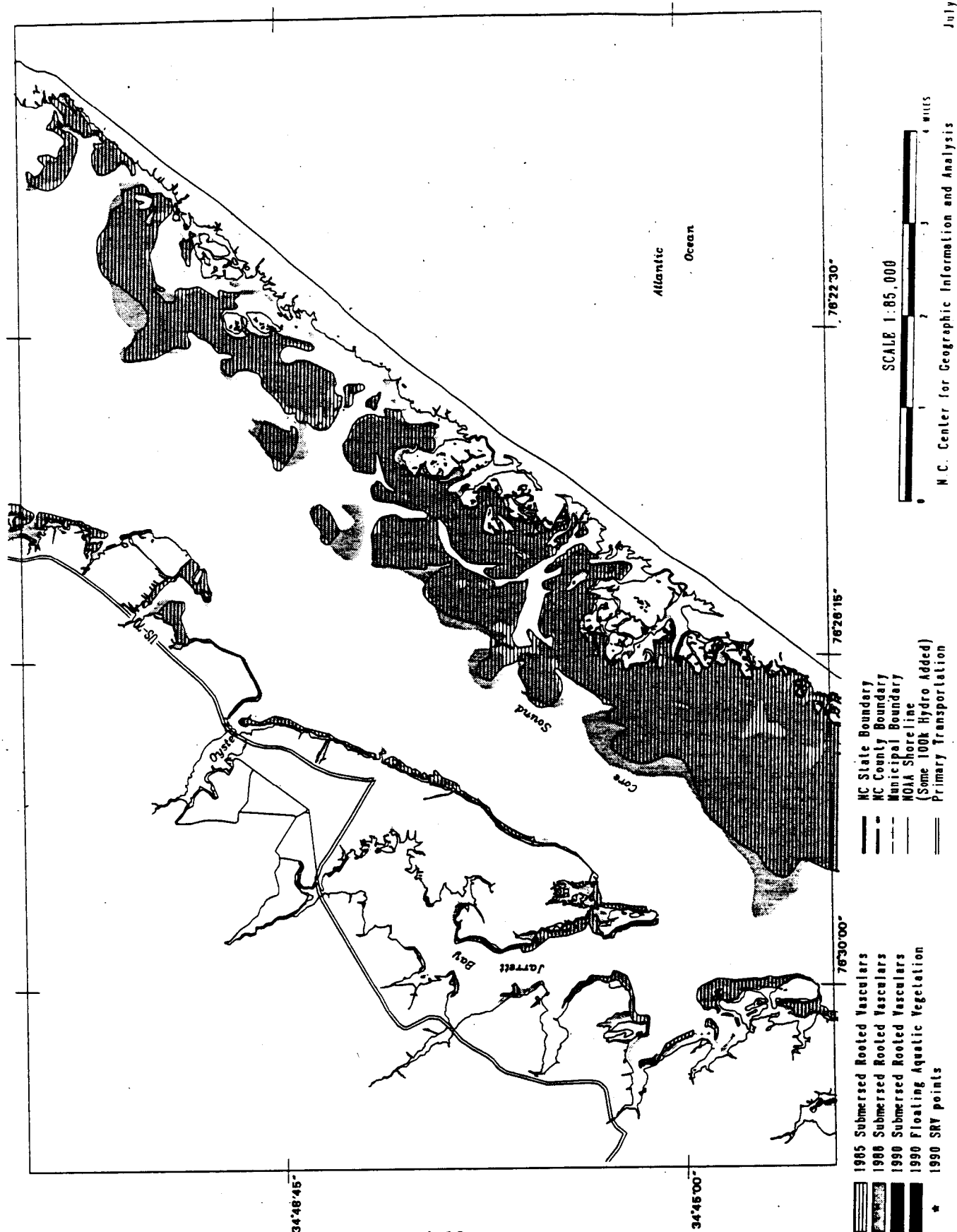
# Submersed Rooted Vasculars (Window H)



# Submersed Rooted Vasculars (Window I)

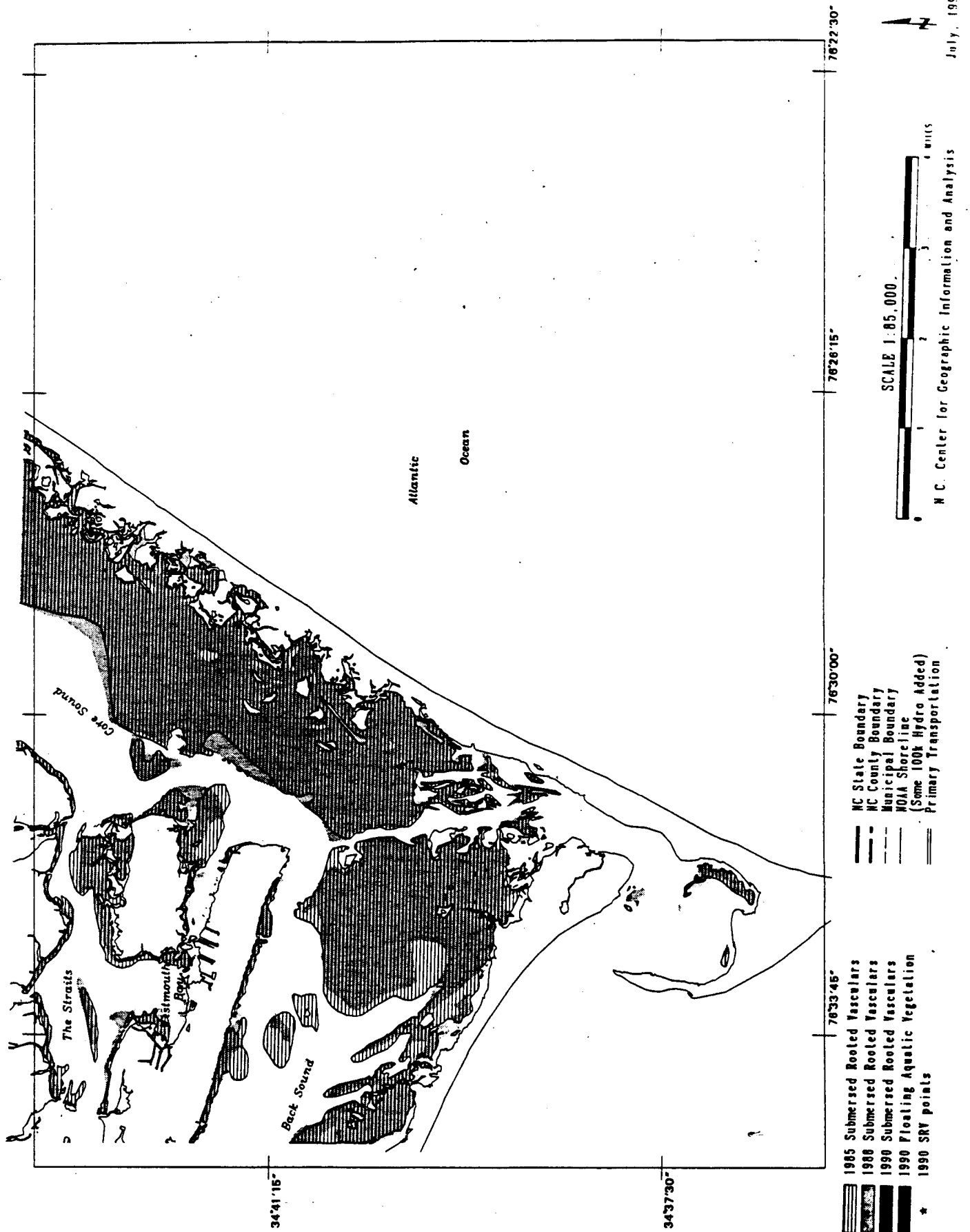


# Submersed Rooted Vasculars (Window J)





# Submersed Rooted Vasculars (Window K)



82°57'W

82°42'W

82°28'W

82°14'W

82°00'W

25°49'N

25°31'N

25°12'N

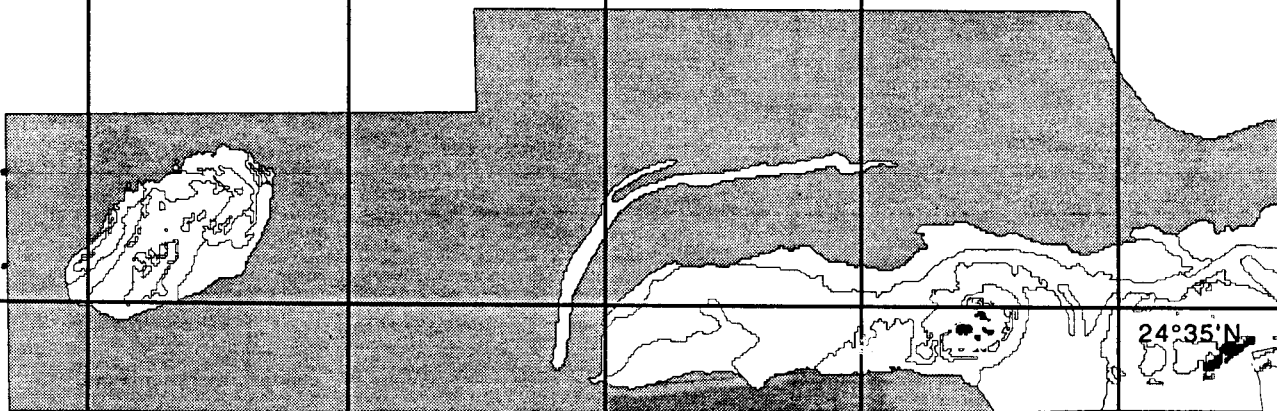
24°54'N

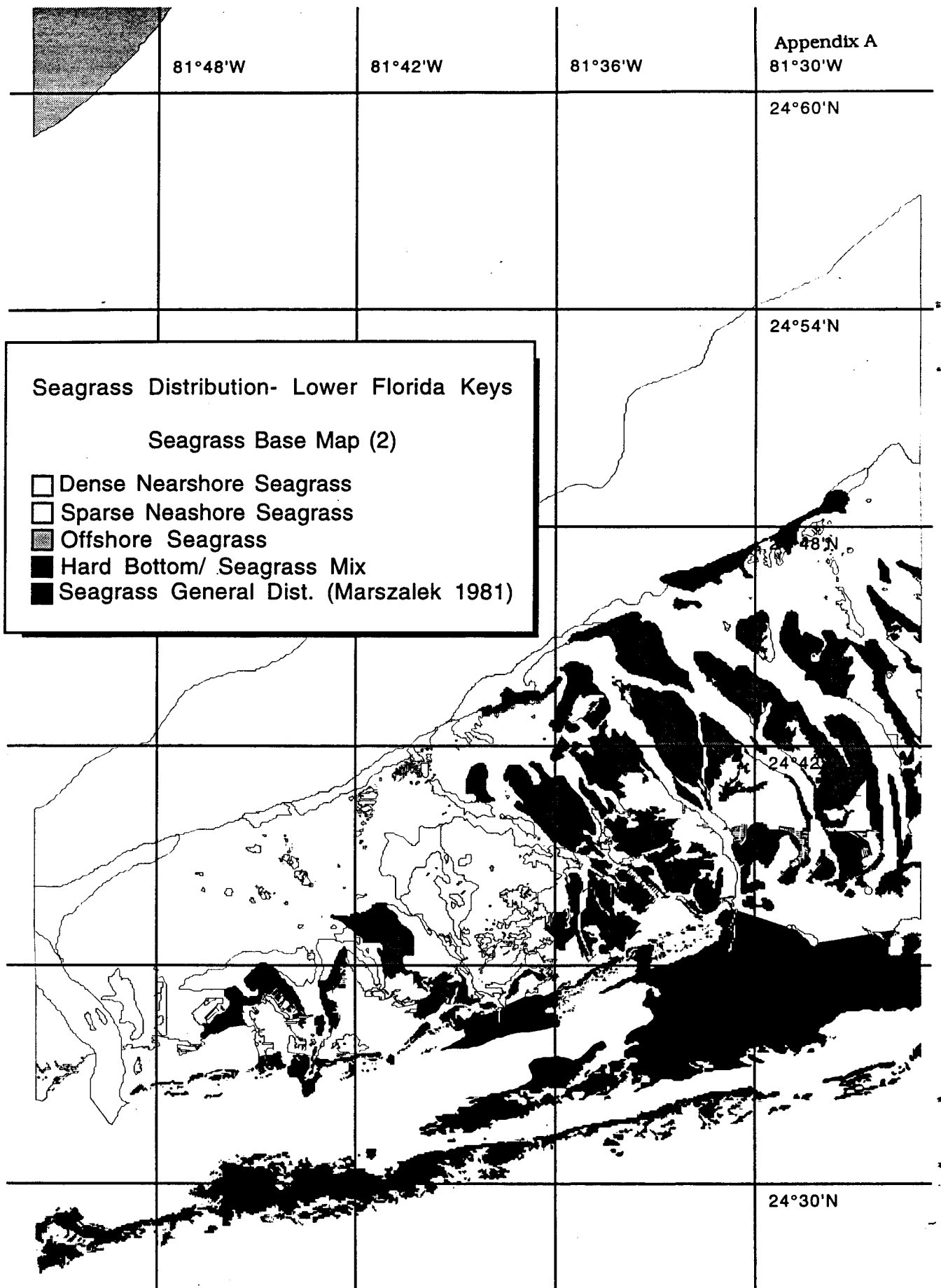
24°35'N

# Seagrass Distribution- Lower Florida Keys

## Seagrass Base Map (1)

- ☐ Dense Nearshore Seagrass
- ☐ Sparse Nearshore Seagrass
- ☒ Offshore Seagrass
- ☒ Hard Bottom/ Seagrass Mix
- ☒ Seagrass General Dist. (Marszalek 1981)





81°20'W

81°12'W

81°04'W

Appendix A

25°18'N

**Seagrass Distribution- Middle Florida Keys****Seagrass Base Map (3)**

- ☐ Dense Nearshore Seagrass
- ☐ Sparse Nearshore Seagrass
- ☐ Offshore Seagrass
- ☐ Hard Bottom/Seagrass Mix
- ☐ Seagrass General Dist. (Marszalek 1981)

25°09'N

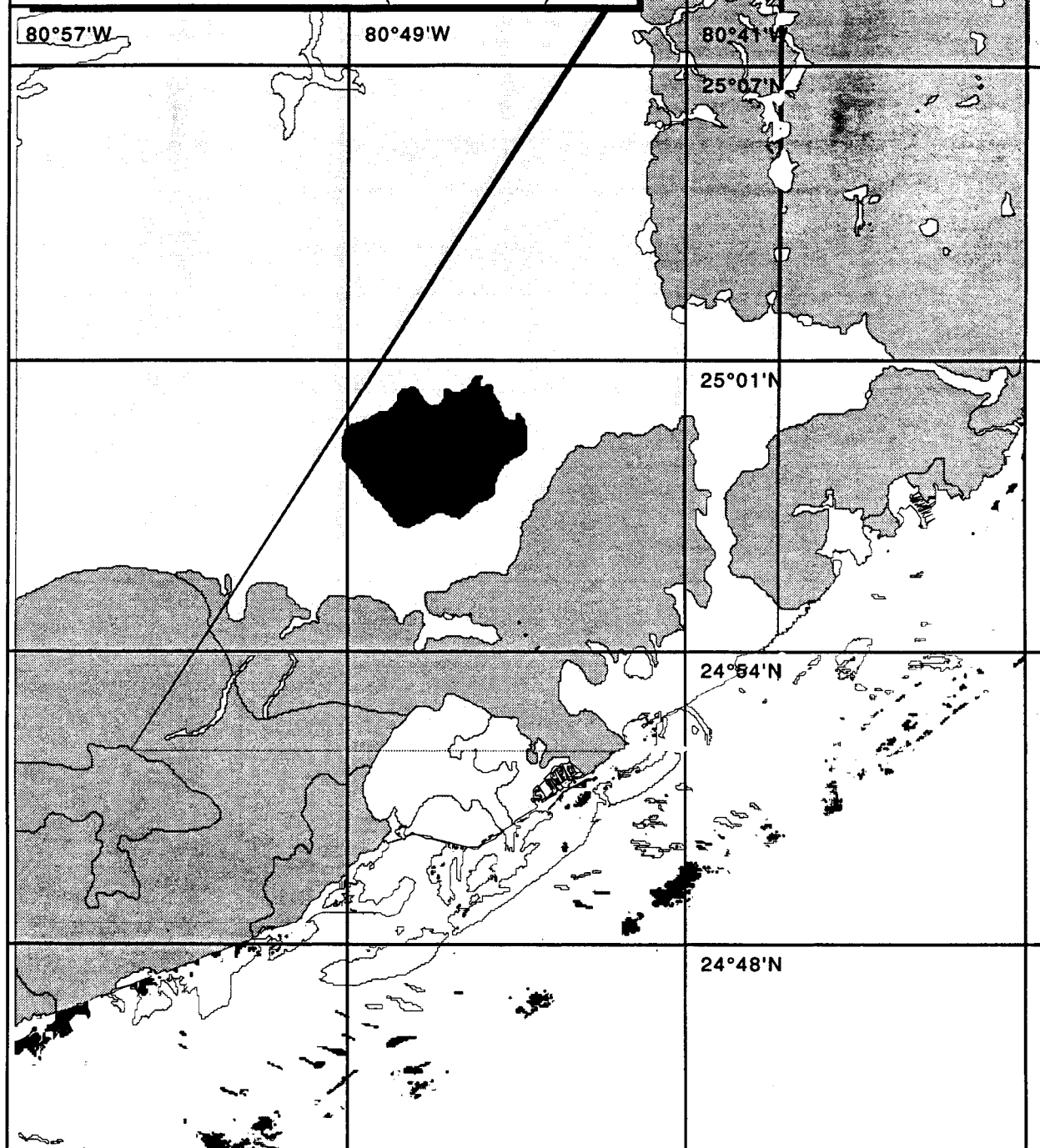
25°00'N

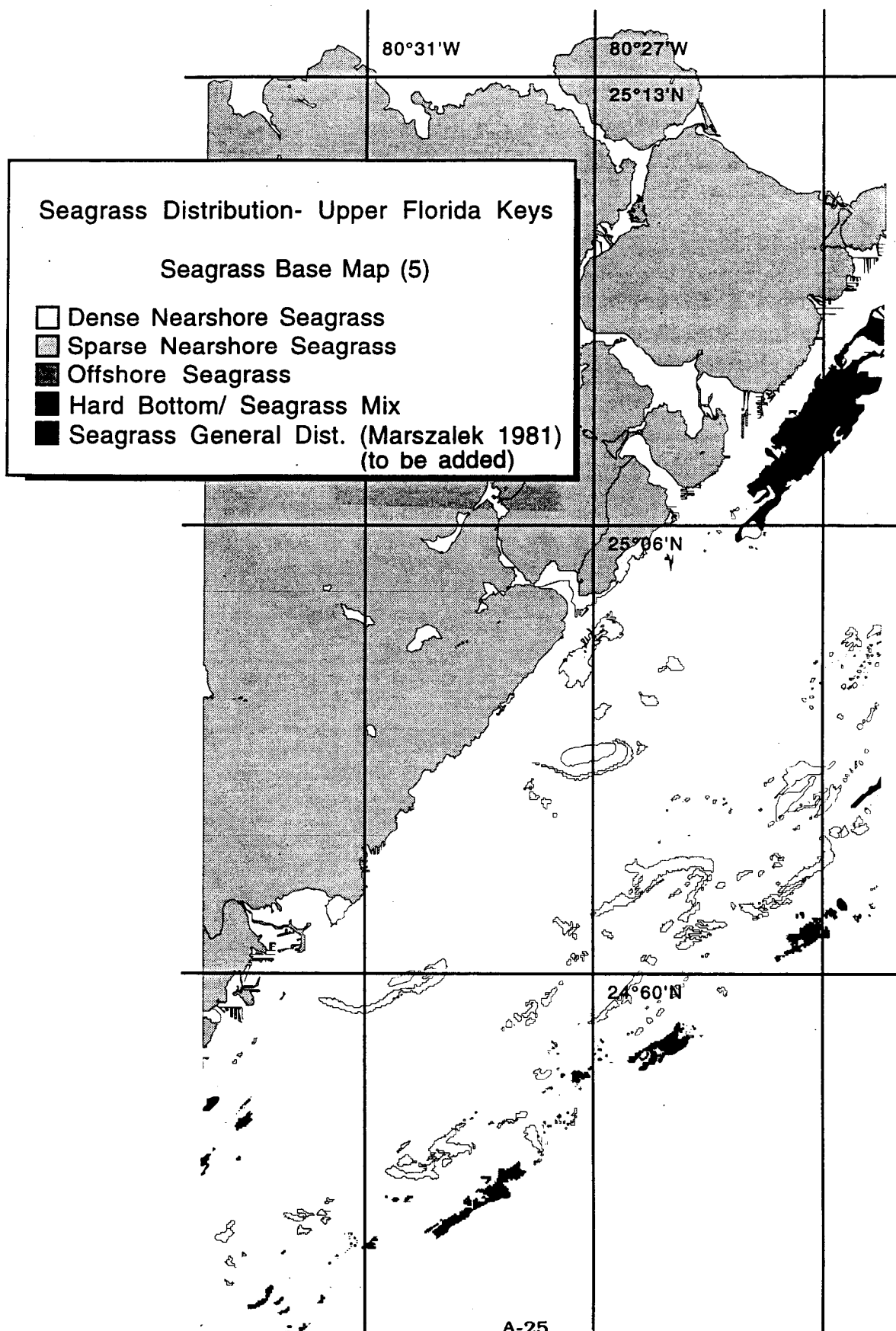
24°52'N

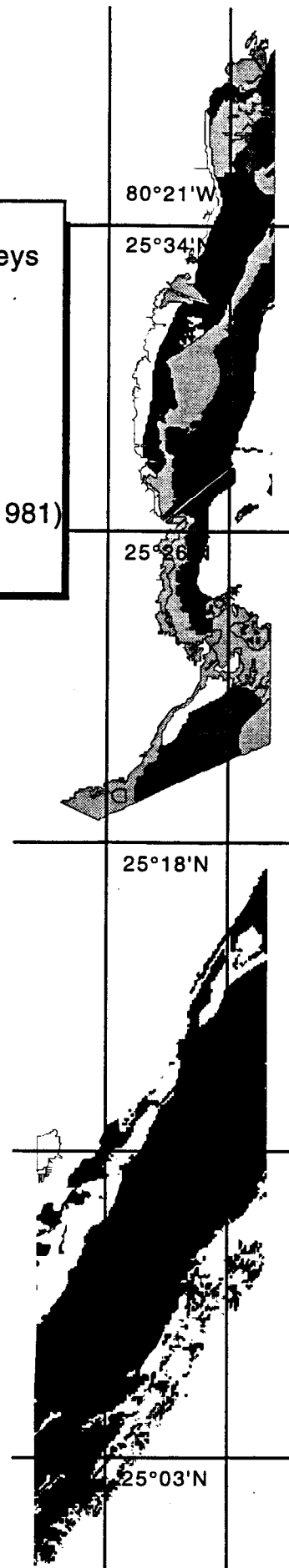
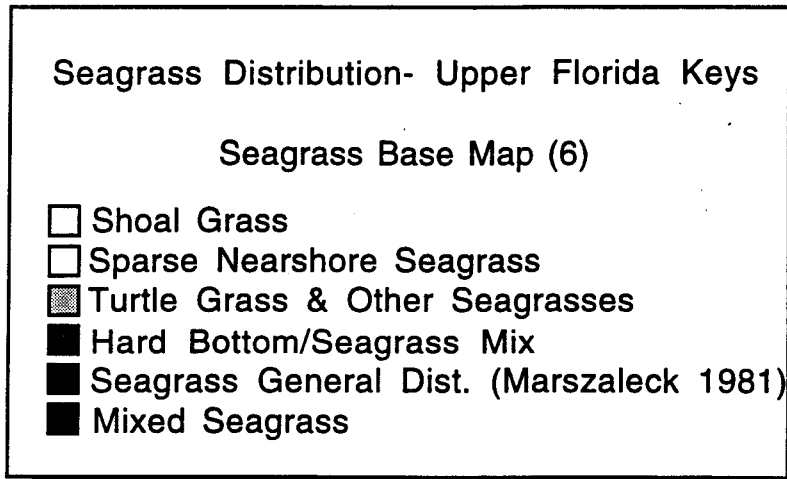
## Seagrass Distribution- Middle Florida Keys

## Seagrass Base Map (4)

- ☐ Dense Nearshore Seagrass
- ☐ Sparse Nearshore Seagrass
- ☐ Offshore Seagrass
- ☐ Hard Bottom/ Seagrass Mix
- ☐ Seagrass General Dist. (Marszalek 1981)  
(to be added)







**Appendix B. SAFMC Policy Statement Concerning Dredging and Dredge Material Disposal Activities.****Ocean Dredged Material Disposal Sites (ODMDS)**

The shortage of adequate upland disposal sites for dredged materials has forced dredging operations to look offshore for sites where dredged materials may be disposed. These Ocean Dredged Material Disposal Sites (ODMDSs) have been designated by the U.S. Environmental Protection Agency (EPA) and the U.S. Army Corps of Engineers (COE) as suitable sites for disposal of dredged materials associated with berthing and navigation channel maintenance activities. The South Atlantic Fishery Management Council (SAFMC; the Council) is moving to establish its presence in regulating disposal activities at these ODMDSs. Pursuant to the Magnuson Fishery Conservation and Management Act of 1976 (the Magnuson Act), the regional fishery management councils are charged with management of living marine resources and their habitat within the 200 mile Exclusive Economic Zone (EEZ) of the United States. Insofar as dredging and disposal activities at the various ODMDSs can impact fishery resources or essential habitat under Council jurisdiction the following policies concerning its role in the designation, operation, maintenance, and enforcement of activities in the ODMDSs:

**Policies:**

The Council acknowledges that living marine resources under its jurisdiction and their essential habitat may be impacted by the designation, operation, and maintenance of ODMDSs in the South Atlantic. The Council may review the activities of EPA, COE, the state Ports Authorities, private dredging contractors, and any other entity engaged in activities which impact, directly or indirectly, living marine resources within the EEZ.

The Council may review plans and offer comments on the designation, maintenance, and enforcement of disposal activities at the ODMDSs.

ODMDSs should be designated or redesignated so as to avoid the loss of live or hard bottom habitat and minimize impacts to all living marine resources.

Notwithstanding the fluid nature of the marine environment, all impacts from the disposal activities should be contained within the designated perimeter of the ODMDSs.

The final designation of ODMDSs should be contingent upon the development of suitable management plans and a demonstrated ability to implement and enforce that plan. The Council encourages EPA to press for the implementation of such management plans for all designated ODMDSs.

All activities within the ODMDSs are required to be consistent with the approved management plan for the site.

The Council's Habitat and Environmental Protection Advisory Panel when requested by the Council will review such management plans and forward



comment to the Council. The Council may review the plans and recommendations received from the advisory sub-panel and comment to the appropriate agency. All federal agencies and entities receiving a comment or recommendation from the Council will provide a detailed written response to the Council regarding the matter pursuant to 16 U.S.C. 1852 (i). All other agencies and entities receiving a comment or recommendation from the Council should provide a detailed written response to the Council regarding the matter, such as is required for federal agencies pursuant to 16 U.S.C. 1852 (i).

ODMDSs management plans should indicate appropriate users of the site. These plans should specify those entities/ agencies which may use the ODMDSs, such as port authorities, the U.S. Navy, the Corps of Engineers, etc. Other potential users of the ODMDSs should be acknowledged and the feasibility of their using the ODMDSs site should be assessed in the management plan.

Feasibility studies of dredge disposal options should acknowledge and incorporate ODMDSs in the larger analysis of dredge disposal sites within an entire basin or project. For example, Corps of Engineers analyses of existing and potential dredge disposal sites for harbor maintenance projects should incorporate the ODMDSs as part of the overall analysis of dredge disposal sites.

The Council recognizes that EPA and other relevant agencies are involved in managing and/or regulating the disposal of all dredged material. The Council recognizes that disposal activities regulated under the Ocean Dumping Act and dredging/filling carried out under the Clean Water Act have similar impacts to living marine resources and their habitats. Therefore, the Council urges these agencies apply the same strict policies to disposal activities at the ODMDSs. These policies apply to activities including, but not limited to, the disposal of contaminated sediments and the disposal of large volumes of fine-grained sediments. The Council will encourage strict enforcement of these policies for disposal activities in the EEZ. Insofar as these activities are relevant to disposal activities in the EEZ, the Council will offer comments on the further development of policies regarding the disposal/ deposition of dredged materials.

The Ocean Dumping Act requires that contaminated materials not be placed in an approved ODMDS. Therefore, the Council encourages relevant agencies to address the problem of disposal of contaminated materials. Although the Ocean Dumping Act does not specifically address inshore disposal activities, the Council encourages EPA and other relevant agencies to evaluate sites for the suitability of disposal and containment of contaminated dredged material. The Council further encourages those agencies to draft management plans for the disposal of contaminated dredge materials. A consideration for total removal from the basin should also be considered should the material be contaminated to a level that it would have to be relocated away from the coastal zone.

#### Offshore and Nearshore Underwater Berm Creation

The use of underwater berms in the South Atlantic region has recently been proposed as a disposal technique that may aid in managing sand budgets

on inlet and beachfront areas. Two types of berms have been proposed to date, one involving the creation of a long offshore berm, the second involving the placement of underwater berms along beachfronts bordering an inlet. These berms would theoretically reduce wave energy reaching the beaches and/or resupply sand to the system.

The Council recognizes offshore berm construction as a disposal activity. As such, all policies regarding disposal of dredged materials shall apply to offshore berm construction. Research should be conducted to quantify larval fish and crustacean transport and use of the inlets prior to any consideration of placement of underwater berms. Until the impacts of berm creation in inlet areas on larval fish and crustacean transport is determined, the Council recommends that disposal activities should be confined to approved ODMDs. Further, new offshore and nearshore underwater berm creation activities should be reviewed under the most rigorous criteria, on a case-by-case basis.

#### Maintenance Dredging and Sand Mining for Beach Renourishment

The Council recognizes that construction and maintenance dredging of the seaward portions of entrance channels and dredging borrow areas for beach re nourishment occur in the EEZ. These activities should be done in an appropriate manner in accordance with the policies adopted by the Council.

The Council acknowledges that endangered and threatened species mortalities have occurred as a result of dredging operations. Considering the stringent regulations placed on commercial fisherman, dredging or disposal activities should not be designed or conducted so as to adversely impact rare, threatened or endangered species. NMFS Protected Species Division should work with state and federal agencies to modify proposals to minimize potential impacts on threatened and endangered sea turtles and marine mammals.

The Council has and will continue to coordinate with Minerals Management Service (MMS) in their activities involving exploration, identification and dredging/mining of sand resources for beach renourishment. This will be accomplished through membership on state task forces or directly with MMS. The Council recommends that live bottom/hard bottom habitat and historic fishing grounds be identified for areas in the South Atlantic region to provide for the location and protection of these areas while facilitating the identification of sand sources for beach renourishment projects.

#### Open Water Disposal

The SAFMC is opposed to the open water disposal of dredged material into aquatic systems which may adversely impact habitat that fisheries under Council jurisdiction are dependent upon.

The Council urges state and federal agencies, when reviewing permits considering open water disposal, to identify the direct and indirect impacts such projects could have on fisheries habitat.

The SAFMC concludes that the conversion of one naturally functioning aquatic system at the expense of creating another (marsh creation through open water disposal) must be justified given best available information.

## **Appendix C. Description of the Resource and the Wild Live Rock Fishery Contained in Amendment # 2 to the Coral and Coral Reefs FMP (Management of Live rock in the South Atlantic Region).**

### **A. Description of the Resource**

The assemblage that makes up live rock comprises a community of organisms that have recruited at different times, grown at different rates, and pursued different life history strategies (Wheaton, 1989), supported by a hard substrate, and often composed of dead coral. In general, little is known of the biology of the individual organisms and even less of the communities they form. Some are sessile for all of their adult life, some are sedentary and move slowly or rarely, and others range extensively over the live rock and reef habitats. These organisms are members of a variety of species of the Phyla PORIFERA (sponges), CNIDERIA (anemones and gorgonians), ANNELIDA (polychaete worms), BRYOZOA, and CHORDATA (tunicates or sea squirts).

Following is a brief summary of the general characteristics of each of these groups.

1. Porifera - Sponges (Phylum PORIFERA) are typically attached to hard substrate. They are all sessile and exhibit little detectable movement. They display great variability in size and shape. Growth rates and body shape are highly dependent on space availability, the inclination of the substrate, and current velocity. They are taken commercially for curios, as bath sponges, and for use in marine aquaria. Certain species are thought to provide critical habitat for juvenile spiny lobster (Butler et al., 1992).

2. Cnidaria - Corals and sea anemones (Phylum CNIDERIA) include stony corals, octocorals, gorgonians, and anemones. Coral biology and life history is discussed in the Coral Fishery Management Plan (GMFMC and SAFMC, 1982) and Amendment #1 (GMFMC and SAFMC, 1990). Anemones include a wide variety of organisms that may be solitary or colonial. The polyps vary greatly in morphology and colonial structure. Species are often brightly colored and are usually attached to rocks. Solitary anemones are considered sessile but can change location by slow gliding. Colonies of anemones are comprised of numerous polyps, each 1-2 cm in diameter and interconnected as a mat, which may form large encrusting masses on rocks. The Caribbean or pink-tipped anemone, which spawns off Key West in late spring, provides shelter for a variety of juvenile and adult fish and crustaceans (Jennison, 1981).

3. Annelida - Segmented tube worms (Phylum ANNELIDA: Polychaeta) including fan worms, feather duster worms, and Christmas tree worms, live in tubes of varying degrees of complexity attached to hard substrate and filter-feed with their "fans." Because they firmly adhere to the substrate, in many cases it is necessary to remove the underlying rock to collect segmented worms.

4. Bryozoa and Chordata - Other Phyla, principally the BRYOZOA (ectoprocts or "moss" animals) and CHORDATA (ascidians or sea squirts) may be the animals primarily responsible for the water-filtering characteristics of live rock. Bryozoan colonies can form a thin encrusting layer over rock or they may be erect and branching. As adults, sea squirts usually live attached, singly or in colonies, to hard substrate or to the bases such as gorgonian stalks, and vary greatly in size and coloration.

### **B. Ecological Relationships**

The frequency of commensalism (relationship between two organisms in which one species benefits and the other host species is neither benefited nor harmed) in the coral reef environment is one of the most important contributing factors to high species diversity

(Bruce, 1974). Hanlon and Hixon (1986) recorded over 30 small West Indian reef fish within the tentacles of a single anemone. Several reef and shrimp species, living in close association with anemones, are believed to play an important role in reef health by their "cleaning" activities. Limbaugh (1961) recorded one cleaning station that was visited by 300 fish over a six hour period. Following removal of cleaner species from two reefs, he noted a marked decline in fish in the area over the following few weeks and, among those remaining, an increase in infections and parasites.

Other interspecific associations have been documented for other fish, cnidarians, molluscs, crustaceans, echinoderms, and bryozoans (Wheaton, 1989). For example, sponges are inhabited by a wide variety of animals, including crustaceans, polychaetes, and fish. Several reef fish feed on sponges as does the endangered hawksbill sea turtle, *Eretmochelys imbricata*. *Zoanthus*, a colonial anemone, is a food source of major importance for at least 16 species of fish in seven families (Randall, 1967). In Randall's study, polychaetes were among the most important food items of 62 West Indian reef fish species in 24 families, and were surpassed as preferred foods only by crustaceans. Ophiuroids (brittlestars) were food for 33 fish species and 16 species fed on benthic tunicates. Octocorals have been noted to provide important habitat for fish and invertebrates including lobster in the 20-40 mm size range (Butler et al., 1992).

#### A. Description of the Fishery

Live rock is harvested by divers who selectively pick up loose rubble from the bottom or chip portions of limestone outcrops or reef structure which does not have corals or the prohibited sea fans. Many collectors concentrate their efforts in the rubble zone but a component of the industry chisels live rock from coral reef substrates to capture the non-coral component (George Schmahl, Manager, Looe Key National Marine Sanctuary, pers. comm. 1994). Harvesters maintain that they do not remove large quantities from a single site, but range over wide areas of hard bottoms choosing aesthetically pleasing pieces that would beautify aquaria.

Live rock was first marketed in the 1970s, but the fishery expanded greatly in the 1980s and early 1990s to meet increasing demand for public and private marine aquaria. Technical advances in saltwater aquarium filtration systems during the mid-1980s led to the feasibility of so-called "mini-reef" systems dominated by invertebrates. These organisms and nitrogen-fixing bacteria serve as a form of filtration to reduce toxins and filter out excess organics as they feed (Blackburn, 1988). Demand for ornamental fish began to include "live rock," consisting generally of calcareous substrates encrusted with a variety of living marine organisms. Rubble rock is used as a base in saltwater aquaria to improve filtration. The filtration capabilities of coral rubble depend on the presence of a complex assemblage of micro-organisms, bacteria, larval forms of coral, and other macro-invertebrates.

Before the mid-1980s, marine aquarium hobbyists concentrated on tropical fish rather than invertebrates. In recent years, however, experienced hobbyists have been able to establish "mini-reef" aquarium systems using live rock and associated invertebrates. By the late 1980s, the Florida Marine Patrol estimated that about 6,000 pounds of live rock left Miami International Airport daily (Wheaton, 1989; FMFC, 1991).

The SAFMC at their June 1989 meeting received a briefing and testimony on the occurrence of removal of hard bottom structure ("live rock") from the sea floor for the aquarium trade. Subsequent to that meeting the Council requested NMFS Southeast Regional Director to provide the Council with a report on the details of live rock removal activities (NMFS, 1989). The NMFS Southeast Fisheries Center provided the Council with a preliminary report on the live rock harvest industry in August 1989. According to the report, approximately 300,000 pounds of rubble rock and 160,000 pounds of decorative rock were landed in Florida in 1988 by 25 to 30 persons holding U.S. Army Corps of Engineers dredge permits.

The Council convened a joint snapper grouper and habitat committee meeting during the June 1990 meeting in Key West, Florida, to receive additional testimony on live rock harvests and to determine which committee would review the issue. In conjunction with the meeting, Council members accompanied live rock harvesters on a field trip to dive on a harvest

area. The SAFMC, after receiving the NMFS report and additional input from harvesters at the December 1989 and June 1990 meetings, determined live rock was a habitat issue to be addressed by the habitat and environmental protection committee. The Council requested the State of Florida clarify their position regarding live rock harvest. The intent was to determine if the localized activity could be addressed at the state level without having to develop an amendment under an existing plan or development of a new fishery management plan which would take a great deal longer.

In April 1990, Florida began a licensing and reporting system for live rock landings from the Exclusive Economic Zone. In the first year, landings increased 68 percent, but this is likely an artifact of the new reporting system. Some commercial live rock is encrusted with "showy" macro-organisms to form a "mini-reef" system. These include categories such as sea mat, serpulid rock, gorgonian rock, and false coral. Between 1991 and 1992, reported landings in Florida increased by one-third (FDEP, 1993). Florida landings of live rock in 1991 were composed of 41 percent rubble rock, 35 percent algae rock (or rubble rock with algae), and 9 percent serpulid (worm tube) rock with sea mat, false coral, and gorgonian rock comprising the remainder.

Harvesters who testified at SAFMC public hearings or submitted written comments to the Council during informal review, reported that live rock is extremely important to the "mini reef" component of the marine aquarium industry of Florida. Harvesters and dealers estimated that, without the sale of live rock, companies and individuals could lose a large percentage of gross revenue, since live rock is very important in stimulating sales of related marine life products. In testimony at the SAFMC public hearing in Duck Key, Florida, dealers and harvesters indicated that there are presently other sources of live rock entering the aquarium market including imports and aquacultured rock.

Live rock removals are concentrated in only a few areas, primarily off South Florida (Figures 1 and 2, and Appendix F). About 40 percent of the 1992 landings were recorded along a 40 mile stretch of reef in the Florida Keys between Tavernier and Duck Key (FDEP, 1993).

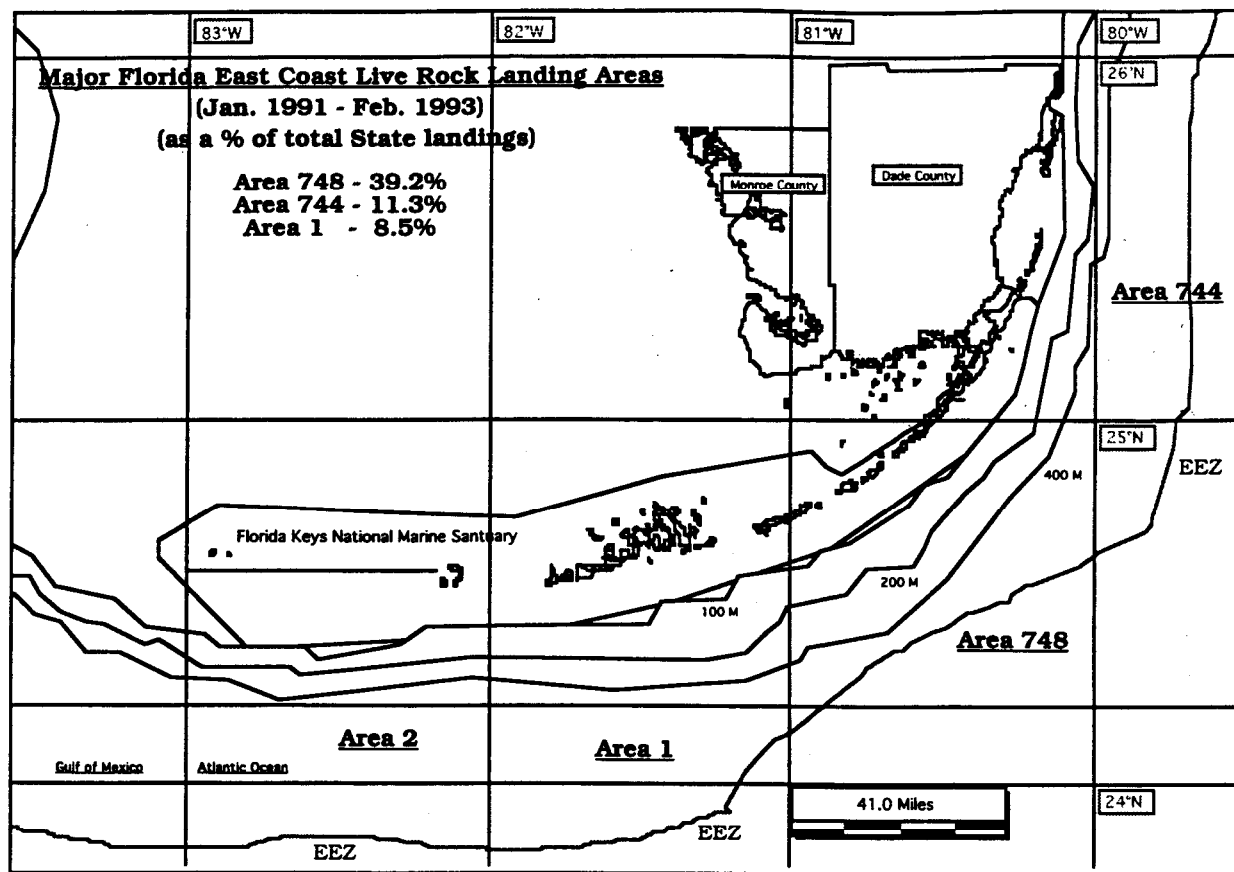


Figure 1. Major Florida east coast live rock landing areas (Source: FDEP, 1994).

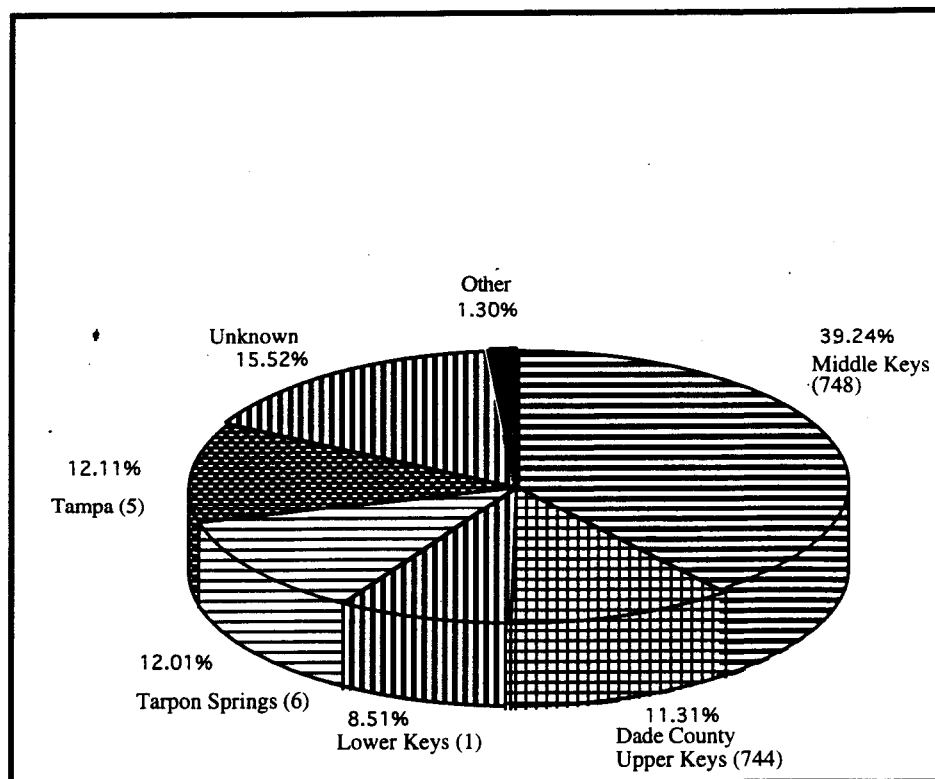


Figure 2. Landings of live rock by collection area from the Exclusive Economic Zone off Florida (Jan. 1991-Feb. 1993)(Source: FDEP, 1993).

Most of the live rock collectors are in the marine life fishery, which also harvests tropicals, invertebrates, and algae for the aquarium trade. The collection of live rock is only a part of the commercial marine life fishery in the Florida Keys which between 1990 and 1992 annually harvested an average of 260,000 fish, 797,000 invertebrates, and 27,000 units of algae in addition to live rock in Monroe County, Florida(Bohnsack et al., 1994) (Appendix F). Florida Department of Environmental Protection records show about 102 harvesters were permitted and reported landings in 1993.

By 1992, harvest levels had increased from a reported 600,000 pounds to about 800,000 pounds. In the period January through November of 1993, with no harvest allowed in March, 825,000 pounds were landed (FDEP, 1994). Monthly landings have continually increased in 1993 over 1990 (Figure 3).

Collectors, dealers, and hobbyists, testifying at the SAFMC scoping meeting in Duck Key, Florida on June 23, 1993 stated that the presence of live rock is necessary to maintain a balanced marine aquarium.

Live rock has been cultured in closed systems. Mike McMaster, a member of the SAFMC coral advisory panel, indicated that he has cultured what is known as decorator rock or the more showy live rock. During an advisory panel meeting in January 1994 he indicated that he has been experimenting with culturing those specific types of rock.

Decorator rock requires more time to produce compared to base or rubble rock but the value is much greater. "EcoActivity", a company based out of Virginia, which submitted a letter to the SAFMC, is exclusively raising live rock in closed systems along with tropical fish and marketing the system as a franchise.

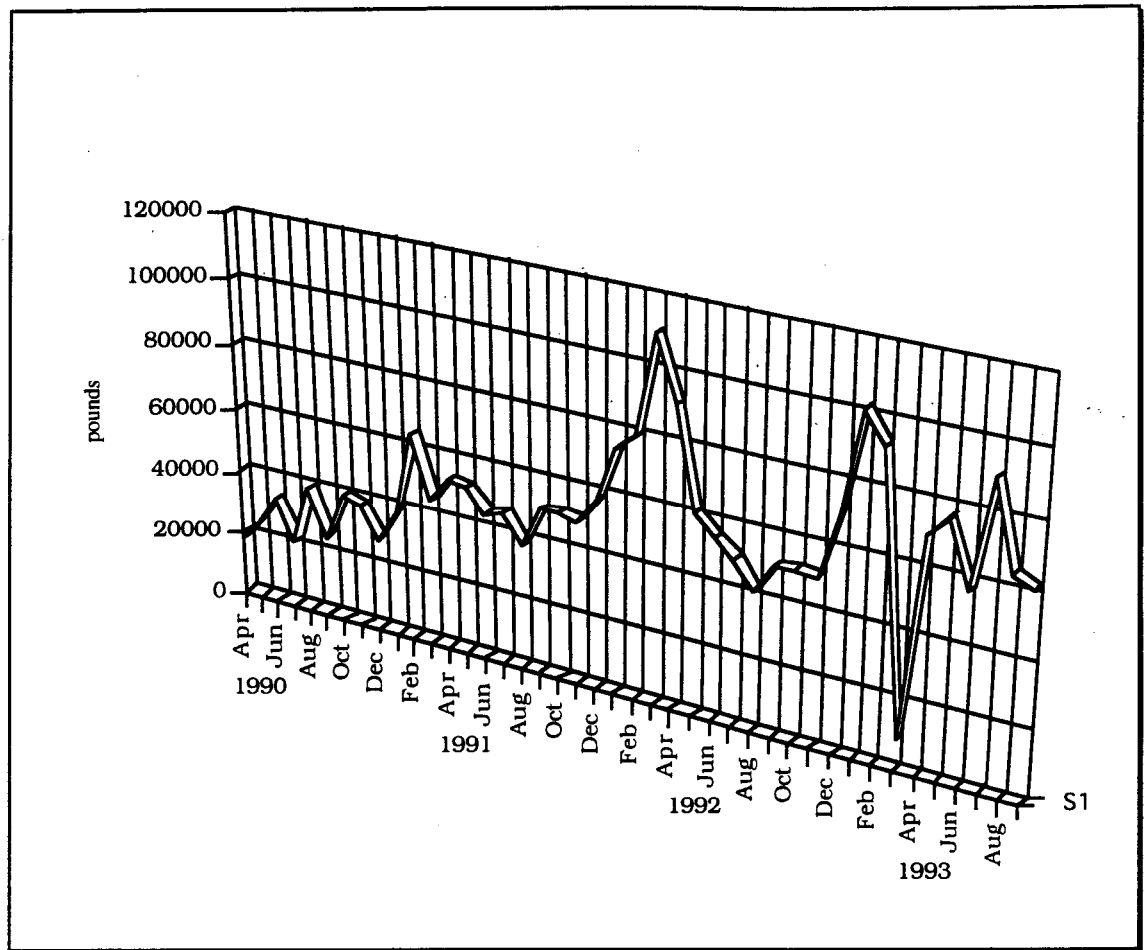


Figure 3. Monthly landings of live rock from the Exclusive Economic Zone off Florida (Source: FDEP, 1994).

Testimony at public scoping meetings and hearings from members of the industry and dealers indicate that live rock is now being air shipped throughout the United States, and to Canada and England. The marine aquarium hobby at first concentrated on fishes because neither the equipment nor the technology allowed keeping other organisms. Gradually, as technology and equipment improved, more and more invertebrates were kept alive successfully. In recent years, the development of "Living Reef" aquarium systems that are able to maintain stable environments in closed-system aquaria has enabled aquarists to set up and maintain mini reefs. Florida's live rock landings in 1992 reached almost 800,000 pounds (FDEP, 1994). During 1992, 50% of the landings were reported by 11 collectors and 75% of all landings were reported by only 24 collectors (Martha Norris, FDEP, pers. comm., 1994). Landings in the South Atlantic exceeded 548,000 pounds in 1992 with the majority coming from the Florida Keys. Monthly landings of live rubble rock from Dade and Monroe Counties, Florida, showed a significant increase between 1992 and 1993 (Figure 4).

About 76 percent of the 1992, and 93 percent of 1993 live rock landings for Dade and Monroe Counties, Florida was rubble or algae rock (Figure 5). Rubble rock and algae rock are similar according to many live rock dealers (Martha Norris, FDEP, pers. comm., 1994).

The wholesale (exvessel) value of live rock, as reported in the Florida trip ticket system, varies by location and with encrusting organisms. For 1992, average price per pound was \$0.98 for algae rock, \$1.52 for false coral, \$1.44 for gorgonian rock, \$1.00 for rubble rock, \$1.48 for sea mat, and \$1.50 for serpulid rock (FDEP, 1994).



**Appendix D. Status of Florida's Live Rock Aquaculture Leasing Program.**

To date, two leases have been approved for the performance of live rock aquaculture activities. Both leases are located approximately five miles offshore of Tarpon Springs, in Pinellas County.

There are currently 15 lease applications pending statewide.

Department staff has conducted several public workshops across the state concerning the proposed amendments to the sovereignty, submerged lands management rule, and the proposed adoption of a general permit for live rock aquaculture. A public workshop was held in Crystal River, during the last week in September. After this workshop the controversial issues that were discussed were taken back to the Policy Coordinating Committee for an internal discussion. Both the general permit and the Sovereignty Submerged Live Rock Aquaculture Lease rule are under public review.

Staff will proceed to redefine the Department's position on the controversial provisions of the rule and permit. Then, Technical Advisory Committees may be established prior to etching the rule/permit provisions in stone. Formal public hearings will ensue in order to provide the basis of final drafts. The last step would be the actual adoption of the rule amendments and permit by the Governor and Cabinet.

## **Appendix E. Procedures and Forms Utilized in Processing State of Florida Live Rock Aquaculture Lease Applications.**

### PROCEDURES

1. The application is received and opened in the Tharpe Street mail room.
2. The application fee (original check) and a copy of the application are sent directly to the Bureau of Finance and Accounting (F&A) for deposit and audit purposes. F&A subsequently transmits a copy of the fee receipt to the Accounting Section (AS), Bureau of Submerged Lands and Preserves, for Bookkeeping purposes. AS sends the entire package to the designated Planner in the Bureau of Land Management Services (BLMS) for processing.
3. Planner assigns a number, creates a computer file to track the status of the application and adds the data to the computer log of pending aquaculture lease applications.
  - a. If the application fee is not included, the application is placed on hold until the fee is received, or
  - b. The application is sent to the Bureau of Survey and Mapping, Title Section, (TS) for a title determination.
4. TS makes a determination concerning:
  - a. Sovereign land;
  - b. Existing dedication or encumbrances such as a deed, lease, or easement area, and,
  - c. Aquatic preserve, federal reserve, state park or wildlife sanctuary.
5. TS returns application and title review sheet to Planner.
6. The application is reviewed in order to determine affected agencies. Then, an acknowledgement letter with a completeness summary requesting any additional information lacking from the application is sent to the applicant. Applicant is allowed 180 days from the date of receipt of the application to submit a complete package, reflecting the requested information.
7. The file is copied and the Planner transmits the documents to:
  - a. Division of Marine Resources, Florida Marine Research
  - b. The Aquatic Preserves Section of the Bureau of Submerged Lands and Preserves (APS).

8. Comments and recommendations that result from Step 7 are returned to Planner.
9. The Planner contacts affected agencies to address any resource management concerns prior to further contact with the applicant.
10. If the site inspections and recommendations received favors leasing, the applicant is sent a completeness summary based on any questions or concerns emerging from:
  - a. the site inspection; and
  - b. a need to modify or relocate the proposed project.
11. If the site inspections from the FMRI and the APS does not favor leasing, the Planner drafts a letter of concern for the Bureau Chief's signature allowing the applicant 30 days to respond prior to deactivating the application.
12.
  - a. The applicant's response to questions relating to the site inspection and site development is received and reviewed by the BLMS, FMRI and APS. Completeness of the application is appraised again;
  - b. If applicant responds to letter of concern by requesting review of the application by the Board of Trustees, proceed with the agenda process; or,
  - c. deactivate the application if no response is received within 30 days.
13. If leasing is favored, the applicant is sent an advertising package, and notification of the proposed lease is sent to the affected Board of County Commissioners by the Planner.
14. Certification of newspaper advertising is received from the applicant by Planner and placed in the file.
15. The certified mail receipts from notices to riparian upland property owners are received and placed in the file.
16. The Planner reviews any public notice comments that are received and determines whether or not a public hearing is warranted.
17. The Planner sends the applicant the material necessary to schedule and advertise a public hearing, if necessary.
18. A public hearing is held, if appropriate. And, hearing officer completes a "Report of Public Hearing" and sends it to Planner.
19. Upon receipt of the "Report of Public Hearing," Planner determines whether or not the staff should recommend approval or denial of the application. Planner will proceed according to the recommendations of the Planning Manager.

20. If an acceptable resolution of objection is received from the Board of County Commissioners, the Planner drafts a letter for the Bureau Chief's signature thereby deactivating the application.
21. An agenda item, including special conditions is prepared by the Planner. The agenda item is sent to the:
  - a. applicant
  - b. objectors/public hearing attendees, and
  - c. state agencies commenting on the activity
22. Board of Trustees of the Internal Improvement Trust Fund agenda process (twice monthly), including
  - a. Bureau review of agenda items
  - b. Division review of agenda items
  - c. Department review of agenda items/opening bids
  - d. Cabinet Aides review of agenda items
  - e. Board - Approval/Denial of the application
23. The Bureau Chief's secretary provides the Planner with the Certification of Board Action.
24. If the lease was approved, the Division of Marine Resources transmits an invoice to lessee, requesting payment of the first annual fee.
25. Planner sends applicant:
  - a. notification of denial, or
  - b. notification of approval, subject to special lease conditions, and
  - c. two original lease instruments for execution
26. Applicant returns 1 copy of invoice with check for lease fee payment and the executed instruments.
27. The above package of information (#26) is received and opened in mail room. Mail room sends it to F&A for deposit and audit purposes.
28. F&A sends package to the Division of Marine Resources. Planner verifies payment of fees.
29. The applicant's surveyor submits the survey to the Planner. The Planner completes the survey review form and forwards the package to the Bureau of Survey and Mapping (BS&M) for review.
30. BS&M reviews the field survey.

- a. The BS&M staff returns the package to the Planner indicating any data inconsistent with the required minimum technical standards (MTS).
  - b. The Planner advises the applicant of the BS&M's findings.
  - c. A revised survey is submitted if necessary, until survey meets the MTS.
31. The Planner attaches the survey and legal description to the lease instrument and completes a Delegation of Authority form and routes the leases for signature. One original is retained in the master file. One original is returned to applicant for recordation. Computer log is updated to reflect "complete" status.
32. A recorded lease instrument is returned to Planner. Planner purges the file and transmits it to the central file room.

FORMS

- 1. Acknowledgement letter
- 2. Completeness summary (1)  
Completeness summary (2)
- 3. Advertising package
- 4. Agenda item
- 5. Standard lease instrument
- 6. Delegation of Authority form

## **Appendix F. State of Florida Board of Trustees of the Internal Improvement Trust Fund Live Rock Aquaculture Lease Application Guidelines.**

The guidelines are to assist applicants in understanding the procedures to be followed when applying for an aquaculture lease. As a practical matter there are four basic steps:

**ONE: Nomination of a Site** - applicant selects an area and makes application for a lease. Completion of the "draft" aquaculture lease application form is highly recommended, otherwise:

1. Applications should be typed and double spaced. (Refer to rule pages 5 and 6).
2. Describe the proposed activity in enough detail so the application is clear, for example:

Petrified coral rock will be barged to the lease site and placed on the sand bottom, in beds approximately 3 inches to 1/2 foot deep by crane.

3. Describe how the acreage will be developed and the length of time it will take to completely develop the acreage requested. Specify the amount of rock and acres of bottom land that will be preempted each year, until the lease is fully developed.
4. You must include a statement describing the general site characteristics and if the activity would significantly change the area. You should also include a navigation chart to show depth, sketch in nearby reefs, the proposed landing location(s) and the distance from shore.
5. You need to identify the site on a map in sufficient detail to allow a site inspection by the Department of Environmental Protection, Division of Marine Resources field staff who may be unfamiliar with the area. Use a USGS topographic map or a navigation chart and provide detailed latitude and longitude coordinates/LORAN numbers and federal survey reference (1/4 1/4 section) as well as the total acreage requested. Remember, you must mark the boundaries of the lease area and obtain permission from the U. S. Army Corps of Engineers, the U.S. Coast Guard and the Division of Law Enforcement beforehand.
6. If you wish to obtain an experimental lease, document your research organization status and the nature of the experimental activity (see No. 3). Remember, if you are granted an experimental lease, commercial sale of the products will be prohibited.
7. A \$200 nonrefundable processing fee.

**TWO: Completeness Review by DNR** - Once your application is received, a courtesy copy of it will be sent to the U. S. Army Corps of Engineers, the Division of Environmental Resource Permitting-DERP (formerly the Department of Environmental Regulation's Dredge and Fill Section), and the Division of Law Enforcement. Then it is reviewed to insure: (1) state ownership of the

submerged lands, a four week process; (2) sufficient detail to allow further processing; and (3) receipt of the application processing fee.

Prior to the issuance of any lease, applicants must obtain the following prior to final review of the lease application: 1) A general permit to dispose rock products on a proposed lease site, under the DERP's Artificial Reef Program; or a Dredge and Fill Permit (a Joint Application Form must be completed and approved) to dispose and harvest rock products, and transmit to the appropriate district office of the DERP. The general permit authorizes exclusively the disposition of rocks on a lease site. Upon completion of the DERP's proposed general permit format for the disposition and harvest of live rock products on approved lease sites, lessees/applicants may apply for such permit. 2) A U. S. Army Corps of Engineers permit. After the review for state ownership is completed, the completeness review of the application should be completed within four to six weeks. You will then receive a written statement telling you the application is complete or incomplete. You then have 180 days to either request a waiver of time limit (form provided) or submit additional material that will be itemized by the staff on a completeness summary. This process will continue until the application is complete, up to one year from the date of receipt of the original application. Your failure to respond will cause the application to be deactivated, and the forfeiture of the \$200 application processing fee. Completed applications will be processed in the order received.

**THREE: Inspection and Notification** - A site inspection will be made to determine whether or not the site is suitable for live rock aquaculture activities. Upon receipt of favorable site inspection reports from the affected regulatory agencies, you will be sent instructions and materials necessary to advertise the proposed lease site through newspaper advertising. At that time, the local government will be notified. If substantial objections are received, a public hearing may be scheduled in the area. In addition to a review by the affected Board of County Commissioners, the local government may require a permit for the performance of the proposed activity.

**FOUR: The Agenda Process** - Proposed leases preempting more than 25,000 square feet outside of aquatic preserves of state-owned submerged lands must be approved by the Governor and Cabinet in their role as the Board of Trustees. All lease applications proposed in an aquatic preserve and Monroe County can only be approved by the Board of Trustees. They meet in Tallahassee twice a month for this purpose. Once steps 1-3 are complete, staff will submit an agenda item and recommend approval or denial. From start to finish, the agenda process takes roughly thirty days. If the lease is approved, then the approval will be subject to: The submittal of a survey and legal description of the lease area. Other special conditions may be added as well, but you will be made aware of those far in advance of the agenda process.

From start to finish, the entire process can take as little as nine (9) months. Some applications may unfortunately require a year or more, but to some extent you can speed the process by submitting as much material as possible with your initial application. Other possible pitfalls include:

\*If there are seagrasses, diverse algal habitats, reef outcrops or hard bottom habitats (assemblages of stoney corals, octocorals, sponges, etc.) already on the site;

- \*if the local government is opposed to the project;
- \*if the Department receives substantial objections to the project concerning anticipated environmental impacts;
- \*if the Division of Marine Resources states that the project is not suitable at the site;
- \*if the U. S. Army Corps of Engineers denies a required nationwide permit, and if the DERP denies a general or dredge and fill permit; and,
- \*if a proposed lease exceeds a size that the applicant is capable of developing/utilizing efficiently.



**Appendix G. State of Florida Application for a Sovereignty Submerged Live Rock Aquaculture Lease.**

Application No. \_\_\_\_\_ Date \_\_\_\_\_

Please type or print. Fill in the blanks for all applicable information. If information requested is not applicable, so indicate by placing N/A in the blank.

APPLICANT INFORMATION:

NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_ ZIP CODE \_\_\_\_\_

TELEPHONE NUMBER \_\_\_\_\_

DATE OF BIRTH \_\_\_\_\_

SOCIAL SECURITY NO. \_\_\_\_\_

LOCATION:

LORAN Coordinates \_\_\_\_\_

County \_\_\_\_\_ Mainland City/Town \_\_\_\_\_

Waterbody \_\_\_\_\_

Acreage of Proposed Lease Area: \_\_\_\_\_

Is the project located in an aquatic preserve? Yes ( ) No ( )

If "yes" please note that your proposed aquaculture activities cannot destroy grassbeds, corals or other benthic organisms, natural flow of waters, or other natural values which designation of the area as an aquatic preserve was intended to protect, pursuant to section 258.42(1)(b), Florida Statutes.

DESCRIBE THE PROPOSED ACTIVITIES IN DETAIL (Please include a description of any structures proposed to be installed on state-owned sovereignty lands).

DESCRIBE HOW THE ACREAGE WILL BE DEVELOPED AND THE LENGTH OF TIME IT WILL TAKE TO COMPLETELY DEVELOP THE ACREAGE REQUESTED (in the first year, the second year, the third year, etc.).

DESCRIBE THE PRODUCTION TECHNIQUES (INCLUDING SUPPLY SOURCE AND TYPE OF ROCK MATERIALS PROPOSED TO BE USED IN PRODUCTION).

DESCRIBE THE GENERAL SITE CHARACTERISTICS IN DETAIL

DESCRIBE AND EQUIPMENT TO BE USED INCLUDING STORAGE

**DESCRIBE THE DISTRIBUTION OF THE PRODUCT AFTER HARVEST**

DO YOU POSSESS A SALTWATER PRODUCTS LICENSE? Yes ( ) No ( )

DO YOU POSSESS A SPECIAL ACTIVITIES LICENSE? Yes ( ) No ( )

DO YOU POSSESS A MARINE LIFE ENDORSEMENT? Yes ( ) No ( )

ALL REQUIRED INFORMATION INCLUDING A CHECK IN THE AMOUNT OF \$200 FOR THE  
REQUIRED APPLICATION PROCESSING FEE, SHOULD BE ATTACHED TO THIS APPLICATION  
AND SENT TO THE FOLLOWING ADDRESS:

Department of Natural Resources  
Bureau of Land Management Services  
3900 Commonwealth Boulevard  
Mail Station 130  
Tallahassee, Florida 32399

Signature of Applicant \_\_\_\_\_

Date \_\_\_\_\_

**Appendix H. State of Florida Draft General Permit for Live Rock Aquaculture & Draft Revised Rule.**

DRAFT LIVE ROCK GP, 5/5/95

# DRAFT

**Approval by the Department's Office of General Counsel is pending.**

**62-341.604 General Permit for Live Rock Culture on State-owned Land Encumbered by a Sovereign Submerged Land Aquaculture Lease.**

(1) A general permit is hereby provided to conduct live rock culture operations on submerged lands owned by the Board of Trustees of the Internal Improvement Trust Fund, which are leased pursuant to Section 253.68, F.S. Authorized activities including the placement and collection of approved substrate materials, along with the marine organisms that become attached to the substrate materials, and the placement of markers that designate the corners and perimeters of the lease area.

(2) A copy of the Submerged Lands Live Rock Aquaculture Lease granted pursuant to Section 253.68, F.S., shall be submitted with the general permit application. Submission of said lease shall satisfy all requirements for this general permit.

(3) Notwithstanding the provisions of Subsection 62-312.420 (2), F.A.C., where a Submerged Lands Live Rock Aquaculture Lease is granted pursuant to Section 253.68, F.S., for the deposition of substrate material within the Outstanding Waters of Monroe County, such deposition is hereby authorized with the issuance of this general permit.

(3) Notwithstanding the provisions of Subsection 62-312.420 (2), F.A.C., the deposition of substrate material to construct the live rock activity authorized under this general permit within the Outstanding Waters of Monroe County, is hereby authorized as specified in the Submerged Lands Live Rock Aquaculture Lease granted pursuant to Section 253.68, F.S.

(4) This general permit does not authorize activities on sovereign submerged lands that have not been leased from the Board of Trustees pursuant to Section 253.68, F.S., nor does this general permit authorize activities that are inconsistent with any lease obtained from the Board of Trustees.

Specific Authority: ~~373.414~~ 373.026, 373.043, 373.044, 373.118, 373.406, 403.814, F.S.

Law Implemented: ~~253.123, 253.124, 373.026, 373.043, 373.046, 373.118, 373.403, 373.413, 373.416, 373.418, 373.419, 373.422, 373.423, 373.426, 373.414, 403.061, 403.087, 403.088, 403.702, 403.73, 403.813, 403.814, 403.817, 403.851, 403.861, 403.912, 403.913, 403.918, 403.919~~, F.S.

History: New.

**CHAPTER 18-21**  
**SOVEREIGNTY SUBMERGED LANDS MANAGEMENT**  
**Draft 1-12-95**

18-21.003	Definitions.
18-21.004	Management Policies, Standards, and Criteria.
<u>18-21.0042</u>	<u>Management Policies, Standards, and Criteria for Submerged Lands Aquaculture Leases</u>
18-21.005	Procedures - Forms of Consent.
18-21.008	Applications for Lease.
18-21.011	Payments and Fees.
18-21.003	Definitions.

( ) "Live rock" means rock, or other substrate, with living marine organisms attached to it.

( ) "Live rock aquaculture" means the deposition of approved substrate materials and harvest of live rock products.

( ) "Shellfish means any species of marine bivalve mollusk (such as oysters, clams, scallops and mussels).

( ) "Shellfish aquaculture" means the cultivation of shellfish and may include relay and wet storage activities.

( ) "Relay of shellfish" means the approved transfer of shellfish from one water bottom to another water bottom which would otherwise be prohibited; or, the approved transfer of shellfish from a restricted or conditionally restricted area or an area otherwise closed for the harvesting of shellfish to a certified controlled purification (depuration) plant.

( ) "Wet storage" means the temporary storage of shellfish intended for marketing.

Specific Authority 253.03(7) F.S. Law Implemented 253.03 F.S. History --  
 New 9-26-77, Formerly 16C-12.01, 16Q-17.01, Amended  
 3-27-82, 8-1-83, 2-25-85, Formerly 16Q-21.03, Transferred from  
 16Q-21.003, Amended 12-25-86, 1-25-87, 3-15-90, 8-18-92,\_\_\_\_\_.

18-21.004 Management Policies, Standards, and Criteria.

(2) **Resource Management**

(a) All sovereignty lands shall be considered single use lands and shall be managed primarily for the maintenance of essentially natural conditions, propagation of fish and wildlife, and traditional recreational uses such a fishing, boating, and swimming. Compatible secondary purposes and uses which will not detract from or interfere with the primary purpose may be allowed.

(b) Activities which would result in significant adverse impacts to sovereignty lands and associated resources shall not be approved unless there is no reasonable alternative and adequate mitigation is proposed.

(c) The Department of Environmental Protection Regulation biological assessments and reports by other agencies with related statutory, management, or regulatory authority may be considered in evaluating specific requests to use sovereignty lands. Any such reports sent to the department in a timely manner shall be considered.

(d) Activities shall be designed to minimize or eliminate any cutting, removal, or destruction of wetland vegetation (as listed in Rule 17-~~3404-020~~(17), Florida Administrative Code) on sovereignty lands.

(e) Reclamation activities on sovereignty lands shall be approved only if avulsion or artificial erosion is affirmatively demonstrated. Other activities involving the placement of fill material below the ordinary high water line or mean high water line shall not be approved unless it is necessary to provide shoreline stabilization, access to navigable water, or for public water management projects.

(f) To the maximum extent possible, shoreline stabilization should be accomplished by the establishment of appropriate native wetland vegetation. Rip-rap materials, pervious interlocking brick systems, filter mats, and other similar stabilization methods should be utilized in lieu of vertical seawalls wherever feasible.

(g) Severance of materials from sovereignty lands shall be approved only if the proposed dredging is the minimum amount necessary to accomplish the stated purpose and is designed to minimize the need for maintenance dredging.

(h) Severance of materials for the primary purpose of providing upland fill shall not be approved unless no other reasonable source of materials is available or the activity is determined to be in the public interest.

(i) Activities on sovereignty lands shall be designed to minimize or eliminate adverse impacts on fish and wildlife habitat. Special attention and consideration shall be given to endangered and threatened species habitat.

(j) To the maximum extent feasible, all beach compatible dredge materials shall be placed on beaches or within the nearshore sand system.

(k) Oil and gas drilling leases on state-owned submerged lands shall be approved only when the proposed lease area is at least one mile seaward of the outer coastline of Florida as defined in United States v. Florida, 425 U.S. 791, 48 L.Ed.2d 388, 96 S. Ct. 1840, upon adequate demonstration that the proposed activity is in the public interest, that the impact upon aquatic resources has been thoroughly considered, and that every effort has been made to minimize potential adverse impacts



upon sport and commercial fishing, navigation, and national security. Drilling leases may be issued in the prohibited area if said lease stipulates that any drilling shall be conducted from outside said area.

~~\_\_\_\_\_ (1) Aquaculture policy, standards and criteria. The Board of Trustees hereby declares the following policies with regard to aquaculture leases issued pursuant to this rule.~~

~~\_\_\_\_\_ 1. It shall be a policy of the State of Florida to foster aquaculture when the aquaculture activity is consistent with state resource management goals, proprietary interest, environmental protection and antidegradation goals. Further such aquaculture shall not displace existing leases, viable commercial or recreational harvesting areas open to the general public but create new areas for the purification or cultivation of marine resources.~~

~~\_\_\_\_\_ 2. The Board will not grant consent for activities that would adversely affect existing aquaculture leases by degrading ambient water quality.~~

~~\_\_\_\_\_ 3. The Board will oppose the issuance of any permit which would reasonably be expected to degrade water quality at an aquaculture lease site.~~

~~\_\_\_\_\_ 4. The Board shall review the impact of the aquaculture rule amendment concerning the right of first refusal on the revenues generated by the program by January 1992.~~

~~\_\_\_\_\_ 5. Aquaculture leases result in the exclusion of the general public from sovereign lands, for the benefit of the individual. Consequently, such leases should be issued only after careful review and upon such conditions that protect the public interest.~~

~~\_\_\_\_\_ 6. An aquaculture lease shall contain provisions to ensure adequate marking of the leased area. Such marking shall be sufficient to prevent the aquaculture activity from constituting a nuisance, a hazard to navigation, or a safety hazard.~~

~~\_\_\_\_\_ 7. A coordinated review process will be used by the Division of State Lands to ensure that the proposed sites are suitable for aquaculture activities.~~

~~\_\_\_\_\_ 8. The area to be leased shall comply with the following standards and criteria:~~

~~\_\_\_\_\_ a. Riparian rights shall not be unreasonably infringed upon. When reviewing an application from a nonriparian applicant the Department shall consider water depth, location of navigation channels, distance from shore and the width of the waterbody. An aquaculture lease area for a nonriparian applicant can be approved greater than or equal to 100 feet waterward of mean or ordinary high water or greater than or equal to 100 feet waterward of existing structures on sovereignty lands only if the applicant obtains a letter of permission from the upland owner, a greater setback may be required to protect riparian rights.~~

~~\_\_\_\_\_ b. A setback 25 feet from the riparian lines of adjacent property owners shall be required.~~

~~\_\_\_\_\_ c. Setbacks from other activities, channels or structures shall also be required to ensure safety, facilitate enforcement abilities or ensure resource management.~~

~~\_\_\_\_\_ d. The leased area shall not be closer than 100 feet from a marked channel.~~

~~\_\_\_\_\_ e. The lease shall not be approved for a parcel larger than ten acres for oysters or five acres for clams unless the lease is a~~

~~voluntary conversion. Exemptions to a ten-acre maximum aquaculture lease area may be approved by the Board upon a recommendation from the Division of Marine Resources concerning the ability of the applicant to develop the lease.~~

~~f. The relay or the culture of indigenous or hybridized plants or animals may be approved as an aquaculture activity.~~

~~g. The activity shall not be contrary to the public interest or, if within aquatic preserves, that the activity be consistent with aquatic preserve management plans and rules as determined by the coordination review required in subsection 18-21.005(1)(c)2., Florida Administrative Code.~~

~~h. A clam lease shall not be granted in areas where, at the time of inspection by the Division of Marine Resources, it would preempt public access to significant harvestable resources.~~

~~i. An oyster lease shall not be granted in an area where it would preempt public access to significant harvestable resources.~~

~~j. Experimental leases shall be limited to research institutions for noncommercial activities.~~

~~k. No lease, other than an experimental lease, shall be issued for a parcel that is within a state park boundary.~~

### (3) Riparian Rights

(a) None of the provisions of this rule shall be implemented in a manner that would unreasonably infringe upon the traditional, common law riparian rights of upland property owners adjacent to sovereignty lands.

(b) Applications for activities on sovereignty lands riparian to uplands can only be made by and approved for the upland riparian owner, their legally authorized agent, or persons with sufficient title interest in uplands for the intended purpose.

(c) All structures and other activities must be within the riparian rights area of the applicant and must be designed in a manner that will not restrict or otherwise infringe upon the riparian rights of adjacent upland riparian owners.

(d) All structures and other activities must be set back a minimum of 25 feet from the applicant's riparian rights line. Marginal docks may be set back only 10 feet. There shall be no exceptions to the setbacks unless the applicant's shoreline frontage is less than 65 feet or a sworn affidavit of no objection is obtained from the affected adjacent upland riparian owner, or the proposed structure is a subaqueous utility line.

### (4) Standards and Criteria for Docking Facilities

(a) 1. through 8. No Change

Specific Authority 253.03, 253.73 F.S. Law Implemented 253.77 F.S.  
History -- New 3-27-82, Amended 8-1-83, Formerly 16Q-21.04,  
Transferred from 16Q-21.004, Amended 12-25-86, 1-25-87, 3-15-90,  
8-18-92,\_\_\_\_\_.

**18-21.0042 Management Policies, Standards and  
Criteria for Submerged Lands Aquaculture Leases**

(1) Aquaculture policy, standards and criteria. The Board of Trustees hereby declares the following policies with regard to aquaculture leases issued pursuant to this rule.

(a) It shall be a policy of the State of Florida to foster aquaculture when the aquaculture activity is consistent with state resource management goals, proprietary interest, environmental protection and antidegradation goals. Further such aquaculture shall not displace existing leases, viable commercial or recreational harvesting areas open to the general public but create new areas for the purification or cultivation of marine resources.

(b) The Board will not grant consent for activities that would adversely affect existing aquaculture leases by degrading ambient water quality.

(c) The Board will oppose the issuance of any permit which would reasonably be expected to degrade water quality at an aquaculture lease site.

(d) The aquaculture activity shall not be contrary to the public interest or, if within aquatic preserves, the activity shall be consistent with aquatic preserve management plans and rules as determined by the coordinated review required in subsection 18-21.0042(3), Florida Administrative Code.

(e) An aquaculture lease shall not be approved by the Board when a resolution of objection, adopted by a majority of the county commissioners of the county in which the parcel is sought, has been filed with the Department within 30 days of the date of first publication of the notice of lease.

(2) None of the provisions of this rule shall be implemented in a manner that would unreasonably infringe upon the traditional, common law riparian rights of upland property owners adjacent to sovereignty lands as provided in subsection 18-21.004 (3), F. A. C.

(a) For a nonriparian applicant, the lease area shall be located a minimum of 300 feet waterward of the mean or ordinary low water line to allow construction and reasonable use of a dock or other access facility by the adjacent upland riparian owner, or, if such structures already exist along the subject shoreline, be located a minimum of 300 feet waterward of such structures.

(b) Exceptions shall be granted only if the applicant obtains a letter of consent from the owners of the riparian upland property adjacent to the proposed lease area.

**(3) General Standards and Criteria for Aquaculture Leases**

(a) The term of the initial aquaculture lease shall not exceed ten years. The leases may be renewed provided:

1. Lessee has complied with the existing lease terms and conditions; and

2. A positive recommendation is obtained from the Division of Marine Resources.

(b) Aquaculture leases shall not unreasonably interfere with public access or traditional uses of submerged land.

(c) Aquaculture lease sites shall be marked in compliance with the rules and regulations of the Department, the U. S. Coast Guard, and the U. S. Army Corps of Engineers, if applicable.

(d) Aquaculture leases shall be clearly posted in conspicuous places to identify any limitations on public access.

(e) Aquaculture lease sites shall not be located within 100 feet of a federal navigation project channel as defined in subsection 253.03(10), F.S.

(f) An aquaculture lease shall be issued only after careful review has determined that the proposed activity is consistent with resource management objectives and protects public interest.

(g) The requirements for the approval of aquaculture lease applications are:

1. A positive recommendation from the Division of Marine Resources based on the following review procedures:

a. A resource survey evaluated by the Division of Marine Resources that determines the desirability of the proposed aquaculture activity from a resource management perspective by assessing:

(I) the presence and/or abundance of marine resources, including sensitive habitats and biological communities, water quality, and substrate characteristics; and

(II) potential impacts from the proposed aquacultural activity to marine resources located on and adjacent to the proposed lease parcel.

b. A review of relevant resource management plans and objectives, proprietary interests, and environmental protection and antidegradation goals.

c. An assessment of the proposed activity to determine if such activity protects public interest and natural resources while fostering the development of aquaculture.

(I) Aquaculture leases shall not be approved on sovereignty submerged lands where the proposed aquacultural activity would adversely affect critical and sensitive habitats and biological communities, such as oyster reefs, seagrass beds, reef and rock outcroppings, hard and soft coral communities, or endangered and threatened species.

(II) Aquaculture leases shall not be located on sovereignty submerged lands or include the water column where the proposed aquaculture activity would result in conflicts with other users, such as constituting a hazard to safe navigation and a hindrance to vessel traffic or preventing public access to contiguous waters of the state, ingress and egress to upland properties, or water-dependent recreational activities.

(III) Aquaculture leases shall not be located on sovereignty submerged lands or include the overlying water column that would preempt commercial and/or recreational access to the use of traditional fisheries.

d. A review of the applicant's proposed operating procedures and business plan.

e. An evaluation to determine the applicant's ability to perform the proposed aquaculture activity and understanding of the relevant technical, regulatory, and business aspects of the proposed activity.

f. A review of the applicant's permits and records to determine lawful compliance with marine resource regulations.

(h) The size and the shape of an aquaculture lease shall be determined by the provisions of subsection 18-21.0042, F.A.C., and shall include:

1. establishing easements and set back lines from riparian lines of adjacent properties, adjacent leases, critical or sensitive habitats, navigation routes, and utilities; and

2. establishing and/or modifying proposed lease boundaries to the extent necessary to minimize adverse impacts to adjacent fish and wildlife habitats.

(i) No aquaculture lease, other than an experimental lease, shall be issued for a parcel that is within a state park boundary, and then only with the concurrence of the Division of Recreation and Parks.

(j) Prior to conducting aquacultural activities on an aquaculture lease, the lessee shall obtain all permits and special activity licenses required for the lawful operation of such activities.

(k) Required permits and special activity licenses are to be maintained throughout the term of the lease. Failure to acquire or maintain these licenses may be cause for any lease to be terminated.

(l) Failure to perform the aquaculture activities for which the lease is granted shall be grounds for cancellation of the lease.

(m) Failure to comply with the provisions in this rule and other rules regulating aquacultural activities may be grounds for revocation, cancellation, or termination of the lease without further notice to the lessee, and may result in forfeiture of the works, improvements, and aquacultural products upon the leased premises.

(n) Aquaculture leases shall not be assigned or transferred in any manner, in whole or in part, without a positive recommendation from the Division of Marine Resources and written approval by the Board.

(o) The Department may hold a public hearing in response to concerns raised in response to the public notice requirement prior to making any staff recommendation concerning the lease.

(4) Additional Standards and Criteria for Shellfish Aquaculture Leases

(a) Shellfish aquaculture leases shall not be located on sovereignty submerged lands where, at the time of inspection, a resource survey using quadrat sampling methods demonstrates that the proposed activity would preempt public access to significant harvestable shellfish resources.

1. Shellfish aquaculture leases shall not be located on sovereignty submerged lands where harvestable-size hard clam densities are determined to be greater than five hard clams per meter<sup>2</sup>, or where total hard clam densities are determined to be greater than ten hard clams per meter<sup>2</sup>.

2. Shellfish aquaculture leases shall not be located on sovereignty submerged lands where oysters occupy a contiguous reef area greater than 100 square feet or where harvestable-size oyster densities are determined to be greater than 200 bags of oysters per acre.

(b) Shellfish aquaculture leases shall not be approved for a parcel larger than ten acres for oysters or five acres for clams, except as provided in this subsection.

(1) Exemptions to maximum shellfish aquaculture lease areas may be approved by the Board upon a positive recommendation from the Division of Marine Resources as provided in subsection 18-21.0042 (3), F. A. C., and may be based the applicant's ability to develop a larger parcel in accordance with an approved business plan.

(2) Exemptions to maximum shellfish aquaculture lease areas may be approved by the Board upon a positive recommendation from the Division of Marine Resources when the lease is a voluntary conversion of a Chapter 370, F.S., shellfish lease.

(c) A shellfish aquaculture lease shall not be allowed to encumber more than six inches of the water column unless there is sufficient water depth to provide a clearance of at least four feet above the encumbered column at mean low water.

(5) Additional Standards and Criteria for Live Rock Aquaculture Leases

(a) The harvesting, collecting, or removal of live rock from state-owned land is prohibited unless cultivated from an approved live rock aquaculture site, in accordance with this rule.

(b) Live rock aquaculture leases shall not be located on sovereignty submerged lands where at the time of inspection, a resource survey demonstrates that proposed activities would adversely affect biological resources consisting of seagrass communities, naturally occurring oyster and clams beds, hard or soft coral aggregations, or sensitive fisheries habitats.

(c) Live rock aquaculture leases shall not be approved for a parcel larger than five acres. Exemptions to the maximum lease area may be approved by the Board upon a positive recommendation from the Division of Marine Resources, provided the applicant has demonstrated the ability to culture live rock and the need for additional acreage.

(d) Live rock aquaculture leases shall not be approved in waters where the depth is less than 8 feet at mean low water, shall not be allowed to encumber more than 25% of the water column, and shall provide at least a six foot clearance over the encumbered column at mean low water. Exemptions to the minimum depth may be approved by the Board upon recommendation from the Division of Marine Resources.

(e) Prior to conducting aquacultural activities on a live rock aquaculture lease, the lessee shall submit a deposition plan to the Division of Marine Resources for approval. The deposition plan shall include the methods that will be employed to deposit the substrate material, the location of the parcel, the location within the parcel where the substrate material will be deposited, a description of the substrate material, and a method for identifying the substrate material. Upon approval of the deposition plan and issuance of required permits and licenses the lessee may implement the plan.

(f) Any rock used as a substrate material and placed within the boundaries of the lease shall be of readily distinguishable geologic character from rock native to the area where the lease is located, or shall be securely marked or tagged so as to differentiate the cultured rock from naturally occurring live rock.

1. A lithologic description, sufficient to determine the geologic formation and fossil and abiotic constituents of the rock, is required to be submitted by the lessee to the Department.

2. Samples from rock used as a substrate shall be provided by the lessee to the Department of Environmental Protection for macroscopic identification and photographic documentation. The Department shall maintain samples of approved substrate materials for documentation, monitoring and enforcement functions.

(g) Other substrate materials of non-geologic origin shall be readily identified as approved artificial substrates.

(h) Prior to collecting live rock products from a live rock aquaculture lease, the lessee shall submit a collection plan to the Division of Marine Resources for approval. The collection plan shall include the methods that will be employed to collect live rock products, means of transportation, and destination of live rock products.

(i) Any rock or other substrate material removed from within the boundaries of a live rock aquaculture lease shall be readily distinguishable and identifiable as an approved substrate material pursuant to the provisions of this rule.

(j) Proposed live rock aquaculture lease boundaries shall be marked with temporary surface buoys of a size and shape to be readily observed by divers in the water during site inspections and resource surveys.

(k) Live rock aquaculture leases in waters greater than eight feet shall be marked below the surface only. Markers shall consist of permanent, above-ground monuments placed, at a minimum, at the four corners of the parcel. During deposition of rock or other substrate the site shall be marked with temporary surface buoys in a configuration specified in the approved deposition plan. Permanent bottom monuments, such as stainless steel stakes or I-bolts, shall be fitted with a stainless steel eye hook for attachment of surface buoys. The bottom monument shall also be marked so as to identify the applicant's lease number.

#### 18-21.005 Procedures -- Forms of Consent.

(1)

(b) Lease -- is required for:

1. Docks, boat ramps, or other such activities which
2. All revenue generating/income related activities;
3. Registered or unregistered grandfather structures
4. Existing licenses upon the date of expiration or
5. Aquaculture;
6. Oil and gas exploration and development; and
7. Dead shell and other mining.

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~~\_\_\_\_\_ (c) An aquaculture lease or an existing clam or oyster lease is required for the relay of shellfish from polluted waters for purification or the culture of plant and animal life within the bottom or water column of sovereignty lands which preempts the recreational or commercial use by the general public.~~

~~\_\_\_\_\_ 1. The Division of State lands shall coordinate, or require the applicant to provide the items incidental to, the review process and agenda preparation for applications to lease submerged lands which can include the water column for aquaculture in order to determine that proposed sites are suitable for aquaculture activities. State Lands shall also coordinate the agenda preparation for voluntary conversions of shellfish leases to aquaculture leases after the Division of Marine Resources has provided the results of a coordinated review for such conversions to State Lands.~~

~~\_\_\_\_\_ 2. The review procedures to be followed for new applications and renewals include:~~

~~\_\_\_\_\_ a. A positive recommendation from the Division of Marine Resources concerning:~~



- ~~\_\_\_\_\_ (I) the desirability of the proposed aquaculture from a resource management perspective;~~
- ~~\_\_\_\_\_ (II) the size of area requested for lease being appropriate to the use.~~
- ~~\_\_\_\_\_ (III) the suitability of the site for leasing;~~
- ~~\_\_\_\_\_ (IV) recommended special lease conditions; and~~
- ~~\_\_\_\_\_ (V) the ability of the applicant to perform the work.~~
- ~~\_\_\_\_\_ b. Department of Environmental Regulation review of the application, when appropriate, to assess the effect of the proposal on water quality and habitat.~~
- ~~\_\_\_\_\_ c. The Army Corps of Engineers review and comment on the effect of the lease on navigation and boating safety.~~
- ~~\_\_\_\_\_ d. A recommendation by the Florida Game and Fresh Water Fish Commission for any application to conduct freshwater aquaculture, concerning impacts on natural resource management.~~
- ~~\_\_\_\_\_ e. The Division of Recreation and Parks has been given thirty days to comment on the consistency of the proposal with management goals and objectives if the application is within an aquatic preserve or a state park boundary.~~
- ~~\_\_\_\_\_ f. The county commission has been given thirty days to review the project application pursuant to Section 253.68, Florida Statutes.~~
- ~~\_\_\_\_\_ g. The municipality has been given thirty days to review the rule based on any applicable local plans and ordinances and to recommend, by resolution, that the Board approve or deny the application. No response shall be considered as no objection.~~

(d) Through (f) Renumbered (c) Through (e)

(3) All requests for sales, exchanges, leases (except aquaculture leases), and private bridge or road easements on sovereignty lands shall be processed in accordance with the notice and hearing requirements of Section 253.115, Florida Statutes. All requests for aquaculture leases on sovereignty lands shall be processed in accordance with the notice and hearing requirements of Section 253.70, Florida Statutes.

Specific Authority 253.03(7) FS. Law Implemented 253.03, 177.27 FS. History -- New 9-26-77, Formerly 16C-12.01, 16Q-17.01, Amended 3-27-82, 8-1-83, Formerly 16Q-21.05, Transferred from 16Q-21.005, Amended 1-25-87, 3-15-90, \_\_\_\_\_.

18-21.008 Applications for Lease. Applications for leases are divided into four categories. All leases, except aquaculture, oil and gas, and dead shell mining, are handled under the standard lease provisions.

(2) **Aquaculture Leases**

(a) Applications for aquaculture leases under this rule must be made on DEP Form #62-076(16) titled "Application for A Sovereignty Submerged Aquaculture Lease" which is hereby incorporated by reference.

~~\_\_\_\_\_ (a) Applications for aquaculture leases shall include the following:~~

- ~~\_\_\_\_\_ 1. Name, address and phone number of the applicant.~~

- ~~2. Legal description and acreage of the parcel sought subsequent to final approval of the application but prior to issuance of the lease.~~
- ~~3. Two prints of a survey subsequent to final approval of the application but prior to issuance of the lease of the parcel sought prepared, signed, and sealed by a person properly licensed by the Florida State Board of Land Surveyors when required by Chapter 472, F.S., or an agent of the federal government acceptable to the department. Preliminary site approval can be based upon marking off the general configuration of the parcel sought, including the acreage of the parcel and LORAN or latitude and longitude coordinates for the corners of the parcel identified on a USGS 7.5 minute topographic map or a navigation chart if a topographic map is not printed for the lease area.~~
- ~~4. Description of the aquaculture activities to be conducted, including whether such activities are to be experimental or commercial, and an assessment of the current capability of the applicant to conduct such activities.~~
- ~~5. Statement explaining why the lease is not contrary to the public interest, or within aquatic preserves, why the lease is in the public interest.~~
- ~~6. Names and addresses, as shown on the latest county tax assessment roll, of each owner of property lying within 1,000 feet of the parcel sought, certified by the county property appraiser.~~
- ~~7. Statement of the significant impact of the proposed use of the parcel sought on the ecology of the area.~~
- ~~8. A \$200 nonrefundable processing fee.~~
- ~~9. A statement by all nonriparian applicants wishing to lease areas, not designated by the state, whether they wish to negotiate the fixed lease fee or to bid the lease for the first ten year lease term.~~
- ~~10. Copies of comments received from the review of the application required by subsection 18-21.005(1)(c)2., Florida Administrative Code.~~
- ~~11. Proof of publication and notification required pursuant to Section 253.70, Florida Statutes.~~
- ~~12. Experimental leases shall be limited to research institutions for noncommercial activities.~~

~~(b) The Department may hold a public hearing in response to concerns raised in response to the public notice requirement prior to making any staff recommendation concerning the lease.~~

~~(c) If staff determines that the application is complete and complies with the standards and criteria of the rule then they will agenda the application for approval to lease the parcel sought. The lease fee amount shall be determined by competitive bid or negotiation. The Department shall require the applicant to cause notice of such lease proposal to be published in a newspaper in the county in which the parcel is situated once a week for three consecutive weeks. If bidding is required, the bid amount, representing the first years lease fee shall be submitted prior to the advertised closing date and time. A copy of the notice shall also be sent to the county commission and the municipal government if applicable by certified mail prior to the appearance of the first newspaper notice. Such notice shall contain the following:~~

- ~~1. Preliminary location description and acreage of parcel sought.~~

- ~~2. Terms of the lease acceptable to the Board and a description of the aquaculture activity being proposed.~~
- ~~3. Deadline, time, and date for the receipt of all bids.~~
- ~~4. Address to which all bids shall be sent.~~
- ~~5. The date, time, and place of the opening of bids.~~

~~(d) A lease shall not be approved by the Board when a resolution of objection, adopted by a majority of the county commissioners of the county in which the parcel sought is situated, has been filed with the Department within 30 days of the date of first publication of the notice of lease.~~

~~(e) Determination of the annual fixed rate lease fee for aquaculture leases shall be determined by negotiation or bidding.~~

~~1. The use of negotiation or bidding shall be determined:~~

~~a. by negotiation between the Department and the riparian upland owner when said owner is the applicant, pursuant to subsection 18-21.004(2)(1)8, up to the ten acre maximum.~~

~~b. by negotiation between the Department and nonriparian applicants for the first lease term when the applicant nominates the site.~~

~~c. by competitive bid:~~

~~(I) when the Department designates sites for lease,~~

~~(II) after the first lease term for all nonriparian leases, or,~~

~~(III) at the option of the nonriparian applicant when the applicant nominates a site.~~

~~2. Any financial data determined to be necessary by the Department for the purposes of negotiations shall be supplied by the applicant upon the Department's request.~~

~~3. Competitive bids for aquaculture leases shall be written offers which shall include the advertised fee for the first lease year, the amount offered above such fee for said first year being a competitive bid. The consideration offered shall accompany the written offer and shall be returned to the unsuccessful bidders upon award of the lease, rejection of all bids, or the matching of the high bid by the existing leaseholder.~~

~~4. The successful bidder shall reimburse the original applicant for his documented application and advertising fees.~~

~~5. The successful bidder shall reimburse the prior leaseholder for the nondepreciated costs of physical improvement not including the aquatic resolve value.~~

~~(f) Each lease document shall as a minimum contain the following:~~

~~1. The term of the lease which shall not exceed ten years.~~

~~2. The amount of fee per acre leased to be paid on or before January 1 each year which shall take the form of a fixed fee to be paid throughout the term of the lease.~~

~~3. The disposition to be made of all improvements and animal and plant life upon the termination or cancellation of the lease.~~

~~4. A statement that the lease may be assigned, transferred in any manner, in whole or in part, only after written approval by the Board. Failure of the lessee to obtain written approval may be grounds for revocation and cancellation of the lease.~~

~~5. A list of approved harvesting techniques that can be used on the lease.~~

~~(g) Failure to perform the aquaculture activities for which the lease was granted shall be grounds for cancellation of the lease and forfeiture to the State of Florida of all the work improvements, animal and plant life in and upon the parcel leased. In addition, a performance bond is required to ensure compliance with the standards of this rule and the specifications and conditions of the lease. The bond requirement shall be met by execution of a bond, an escrow account, or an acceptable letter of credit in favor of the Trustees. The amount of the bond should be based on the cost of removing the structures and restoring the site to predevelopment conditions for leases including the water column. A bond equal to the first years annual rental per acre shall be sufficient for bottom shellfish culture techniques.~~

~~(h) The parcel leased shall be identified, well marked, and shall have, except when it will interfere with the development of the animal and plant life being cultivated by the lessee, reasonable public access for boating, swimming, and fishing. All limitations on the public use of the parcel leased as set forth in the lease shall be clearly posted in conspicuous places by the lessee. Each parcel leased shall be marked in compliance with the rules and regulations of the Department, U. S. Coast Guard, and the U. S. Army Corps of Engineers.~~

Specific Authority 253.03(7), 253.73 FS. Law Implemented 253.03, 253.12, 253.115, 253.47, 253.67-75, 370.16 FS. History -- New 12-20-78, Formerly 16C-12.14, 16Q-17.14, Amended 3-27-82, 8-1-83, 2-25-85, 3-19-85, Formerly 16Q-21.08, Transferred from 16Q-21.008, Amended 1-25-87.

## 18-21.011 Payments and Fees.

### (4) Aquaculture Leases

~~(a) The dollar amount of the fixed rate consideration for aquaculture leases shall be determined as follows:~~

~~1. by negotiation between the Department and the riparian upland owner when said owner is the applicant.~~

~~2. by negotiation between the Department and the nonriparian applicant for the first lease term when the applicant nominates the site.~~

~~3. by competitive bid:~~

~~a. when the Department designates sites for lease,~~

~~b. after the first lease term for all nonriparian leases, or,~~

~~c. at the option of the nonriparian applicant when the applicant nominates a site.~~

~~4. An appraisal may be required when deemed appropriate by the Department. The cost of such appraisal shall be borne by the applicant.~~

~~5. any production data determined to be necessary by the Department for the purposes of negotiation shall be supplied by the applicant upon the Department's request.~~

~~(b) Bids for aquaculture leases shall be written offers with a cash consideration which shall be based on a lease fee per acre per~~

~~year. The competitive bid submitted to the Department shall include the bid per acre times the number of acres in the lease area offered. The total cash consideration offered shall accompany the written offer and shall be returned to the unsuccessful bidders upon award of the lease, or upon matching of the high bid by the existing leaseholder upon rejection of all bids. The successful bidder will be required to pay all costs of legal advertisement in connection with this lease sale. All bids must be in a sealed envelope marked SEALED BID -- STATE AQUACULTURE LEASE -- showing lease number and date of sale, and accompanied by certified or cashier's check made payable to the Department of Natural Resources, Bureau of State Lands Management, the full amount of the cash consideration offered as the bid.~~

~~1. All applicants including the existing leaseholder must submit a bid to be eligible for a lease when bidding is required.~~

~~a. The bid shall be received by the Department prior to the advertised closing date and time.~~

~~b. The existing leaseholder shall have five days to match the high bid and renew the lease if outbid.~~

~~c. When the existing leaseholder does not bid or does not exercise the right of first refusal the new lessee shall allow the prior leaseholder unencumbered access to the lease in order to harvest the aquaculture crop during the first year of the new lease.~~

~~2. Each bidder shall include as part of the bid a certified statement as to any submerged land lease holdings which have been granted by the State. Such statement shall also include the lease number and legal description for all such leases issued.~~

~~3. After the first year, the amount bid per acre shall be paid by the successful bidder on or before the first day of the month in which the lease was granted as a fee to be paid throughout the term of the lease.~~

~~4. The annual lease fee shall not be less than a fixed rate of \$15 per acre for a bottom lease and \$30 per acre when the lease is to include the water column. The annual fee shall be fixed by bidding or negotiation and adjusted annually pursuant to subsection 18-21.011(1)(b)6., Florida Administrative Code, to ensure the fixed rate is not reduced by inflation.~~

~~5. Existing shellfish leaseholders may convert to an aquaculture lease if they wish to include the water column in the leased area. Converted leaseholders that are not riparian owners shall have the first right of refusal if they are outbid.~~

~~6. When the water quality designation that is necessary for the particular activity is lost due to degradation of water quality the leaseholder shall have the option of:~~

~~a. returning the lease to the state,~~

~~b. conducting an aquaculture activity that is consistent with the change in water quality upon written approval by the Board or,~~

~~c. continuing to retain the lease.~~

(a) For aquaculture leases, there shall be a nonrefundable application processing fee of \$200.00.

(b) There shall be an additional fee when the Department conducts a site inspection as part of a resource survey. The site inspection fee shall be paid to the Department after the application has been accepted for processing and before the site inspection is conducted. The site

inspection fee shall be \$100.00 per acre for shellfish aquaculture leases and \$500.00 per acre for live rock leases and other aquaculture leases. The site inspection fee shall be \$10.00 per acre for shellfish leases and \$50.00 per acre for live rock leases when Department designates lease sites or when lease sites are included in high-density lease areas where the site inspection includes multiple lease sites.

(c) The annual lease fee for shellfish aquaculture leases shall be \$50.00 per acre, or part thereof, for the first five years. Commencing the sixth year, an annual lease fee shall be \$100.00 per acre, or part thereof, and continue for the initial term of the lease.

(d) The annual lease fee for live rock aquaculture leases shall be \$100.00 per acre, or part thereof, for the first five years. Commencing the sixth year, an annual lease fee shall be \$200.00 per acre, or part thereof, and continue for the initial term of the lease.

(e) The annual lease fee for aquaculture leases that encumber more than six inches of the water column, including shellfish and live rock leases, may be determined by the Department, and fees may be adjusted to reflect aquacultural activities not specified in 18-21.0041, F. A. C. Annual lease fees may be negotiated with the applicant and shall not be less than the annual lease fee of \$100.00 per acre.

(f) The annual lease fee for aquaculture leases may be determined by competitive bid when such leases are specified by the Department. Leases specified and advertized by the Department, including leases that were designated by the Department, leases that have had applications deactivated, or leases that have been canceled, revoked or otherwise terminated pursuant to the provisions in rule chapter 18-21.0042, F. A. C., may be offered for competitive bid. The Department may specify lease sites for competitive bidding for the purpose of assessing the value of aquaculture leases.

(g) Competitive bids for aquaculture leases shall be written offers which shall include the advertised fee for the first lease year, the amount offered above such fee for said first year being the competitive bid. The competitive bid submitted to the Department shall be a cash consideration that includes the bid per acre times the number of acres in the lease area offered. The total cash consideration offered shall accompany the written offer and shall be returned to the unsuccessful bidders upon award of the lease. The successful bidder will be required to pay all costs of legal advertisement in connection with this lease sale. All bids must be in a sealed envelope marked SEALED BID -- STATE AQUACULTURE LEASE -- showing lease number and date of sale, and accompanied by certified or cashier's check made payable to the Department of Environmental Protection, Bureau of State Lands Management, for the full amount of the cash consideration offered as the bid.

(h) The annual lease fee for aquaculture leases transacted through the competitive bid process shall be the advertized fee plus an additional fee in the amount of the competitive bid per acre, or part thereof, for the first five years. Commencing the sixth year, an

annual lease fee shall be twice the advertized fee plus the additional fee in the amount of the competitive bid per acre, or part thereof.

(i) The annual lease fee charged for leases that are renewed shall be at least the amount of the annual fee paid during the last year of the lease term. The annual fee charged in the first five years of a lease renewal shall be adjusted based on the average increase in the Consumer Price Index for the previous five years with a 10% cap. Commencing in the sixth year of a lease renewal, the annual fee charged shall be adjusted based on the average increase in the Consumer Price Index for the previous five years with a 10% cap.

(j) Fees for experimental aquaculture leases for public and nonprofit research institutions may be waived by the Board.

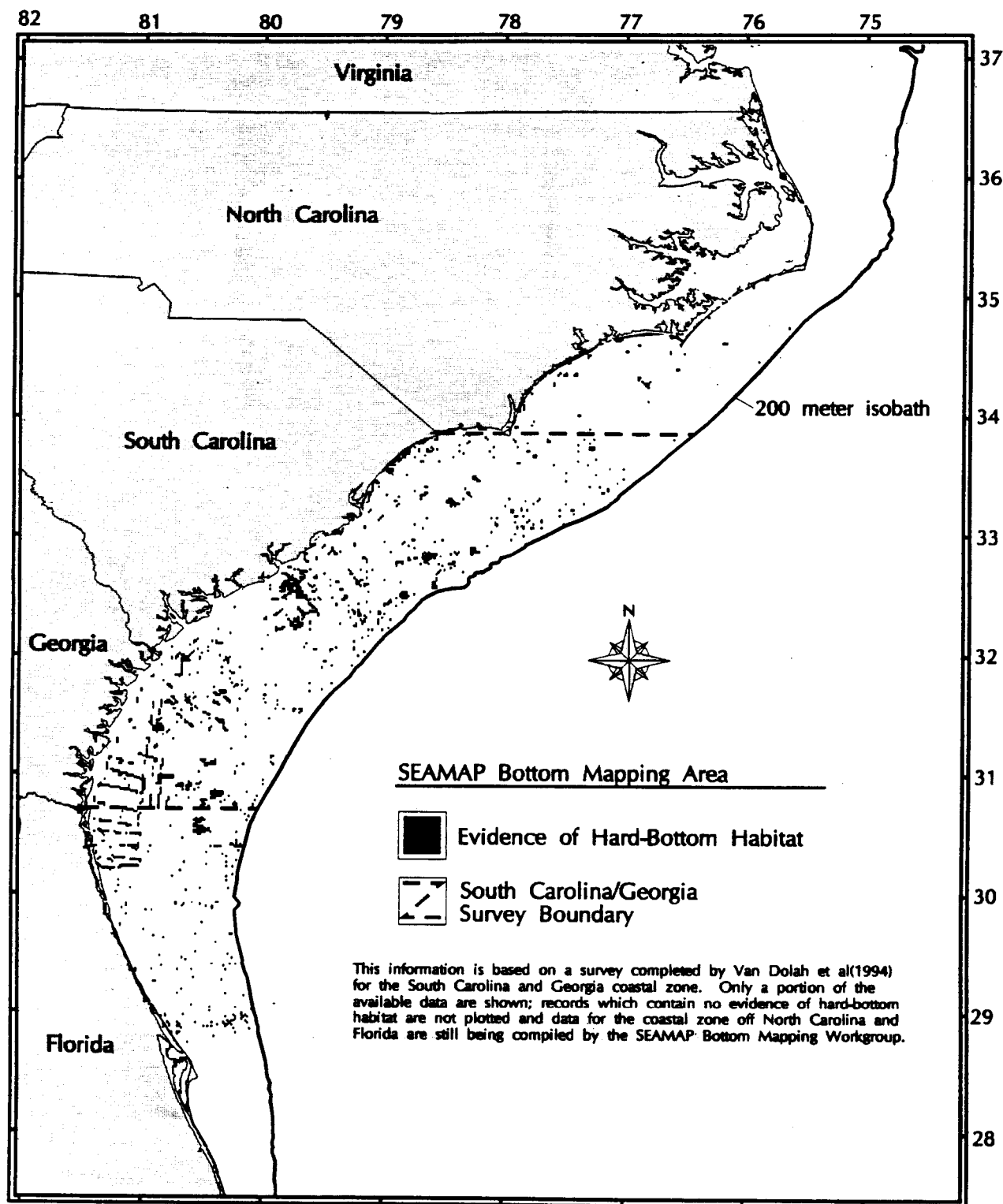
(k) The lease fee shall be paid on or before January 1 each year.

(l) The assignment or transfer of an aquaculture lease, in whole or in part, shall be accompanied by a transfer fee of \$100.00 payable by the transferee for each transaction.

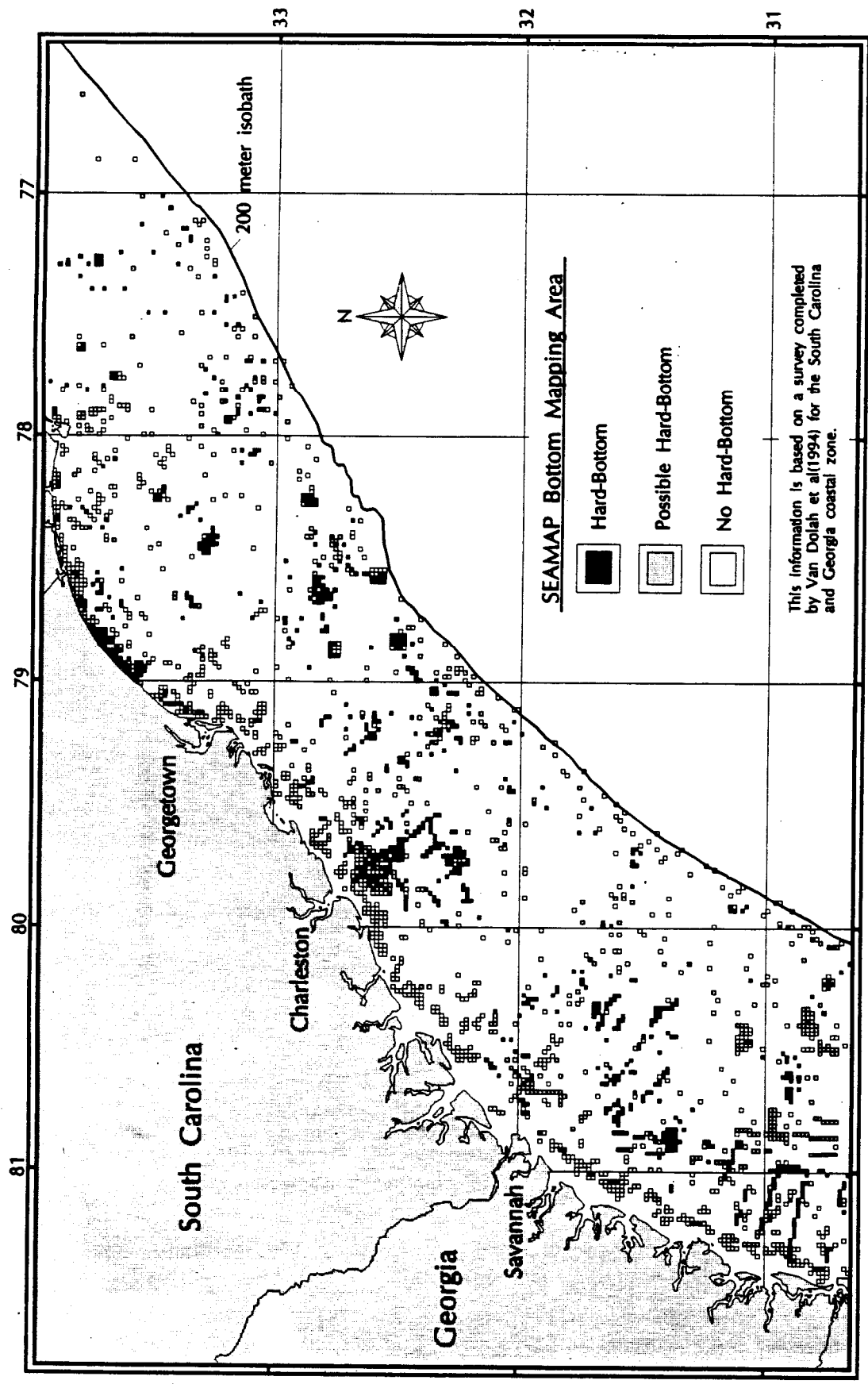
(m) Aquaculture lease fees, including application fees, site inspection fees, annual rental fees, and transfer fees shall be deposited in the Marine Biological Research Trust Fund of the Department of Environmental Protection.

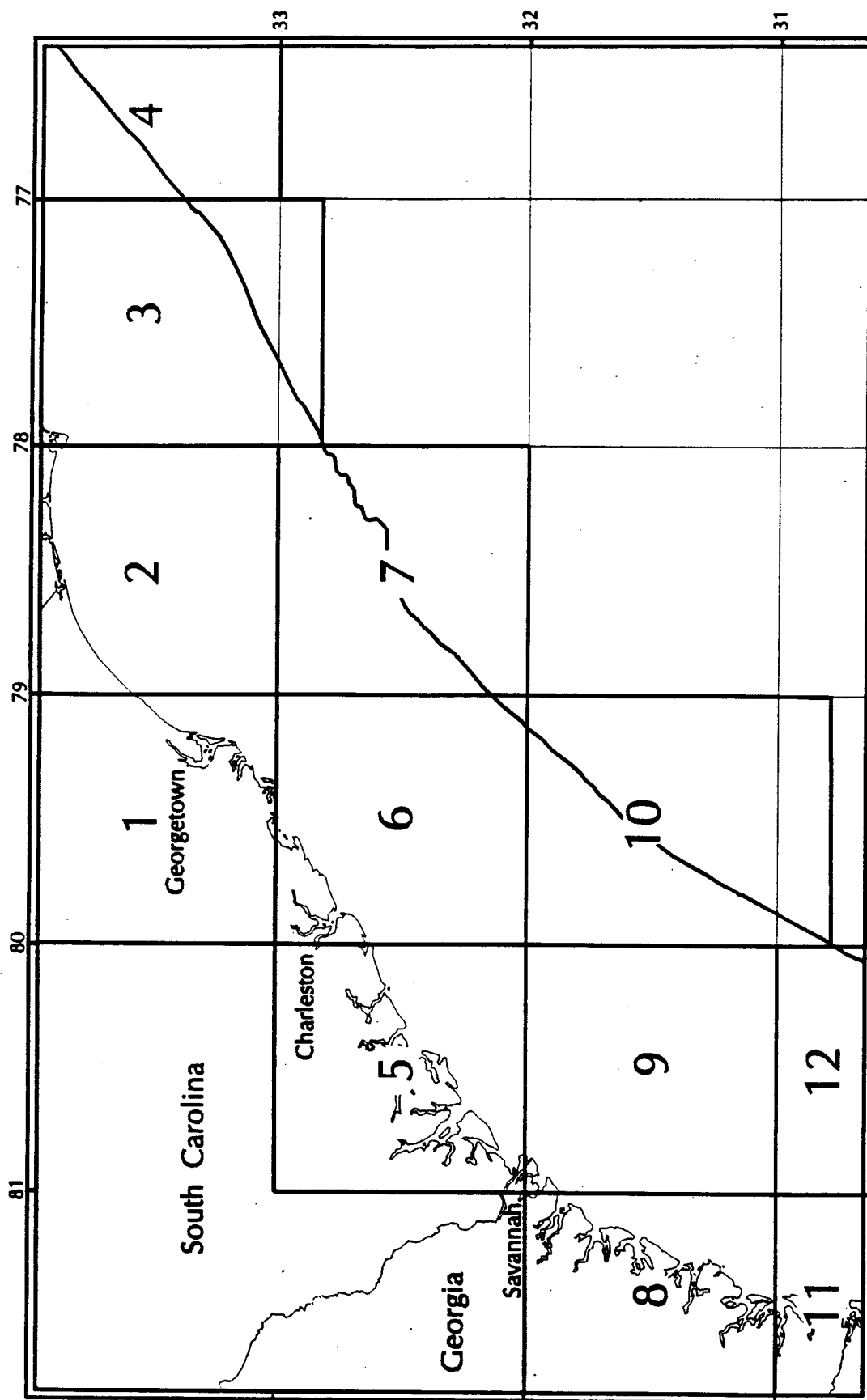
Specific Authority 253.03(7), 253.73 FS. Law Implemented 253.03, 253.115 FS. History -- New 3-27-82, Amended 5-18-82, 8-1-83, 9-5-84, 10-20-85, Formerly 16Q-21.11, Transferred from 16Q-21.011, Amended 1-25-87, 9-6-87, 3-15-90, \_\_\_\_\_.

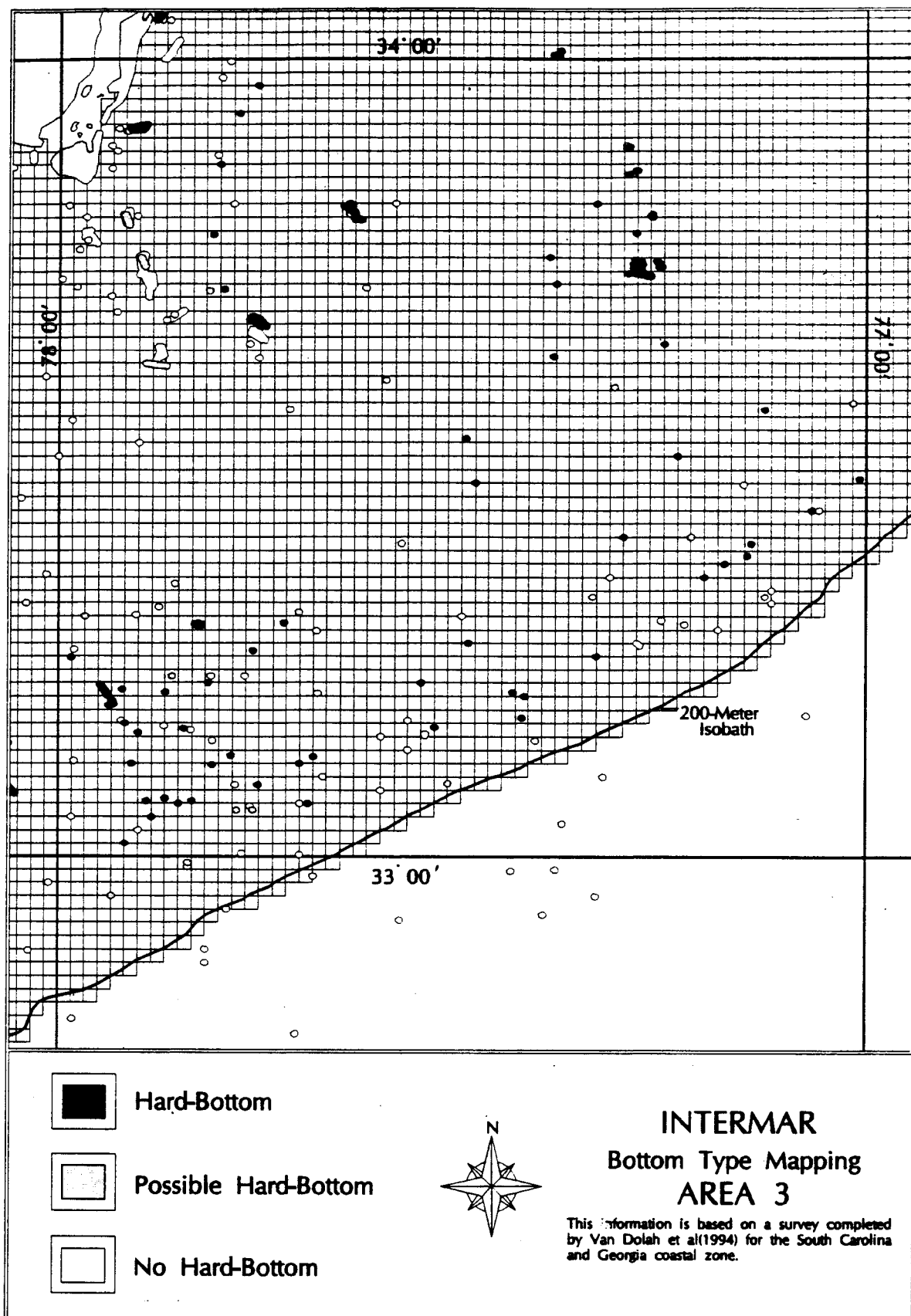
**Appendix I. Distribution of Bottom Habitats on the Continental Shelf off South Carolina and Georgia. (SEAMAP Bottom Mapping Program)**

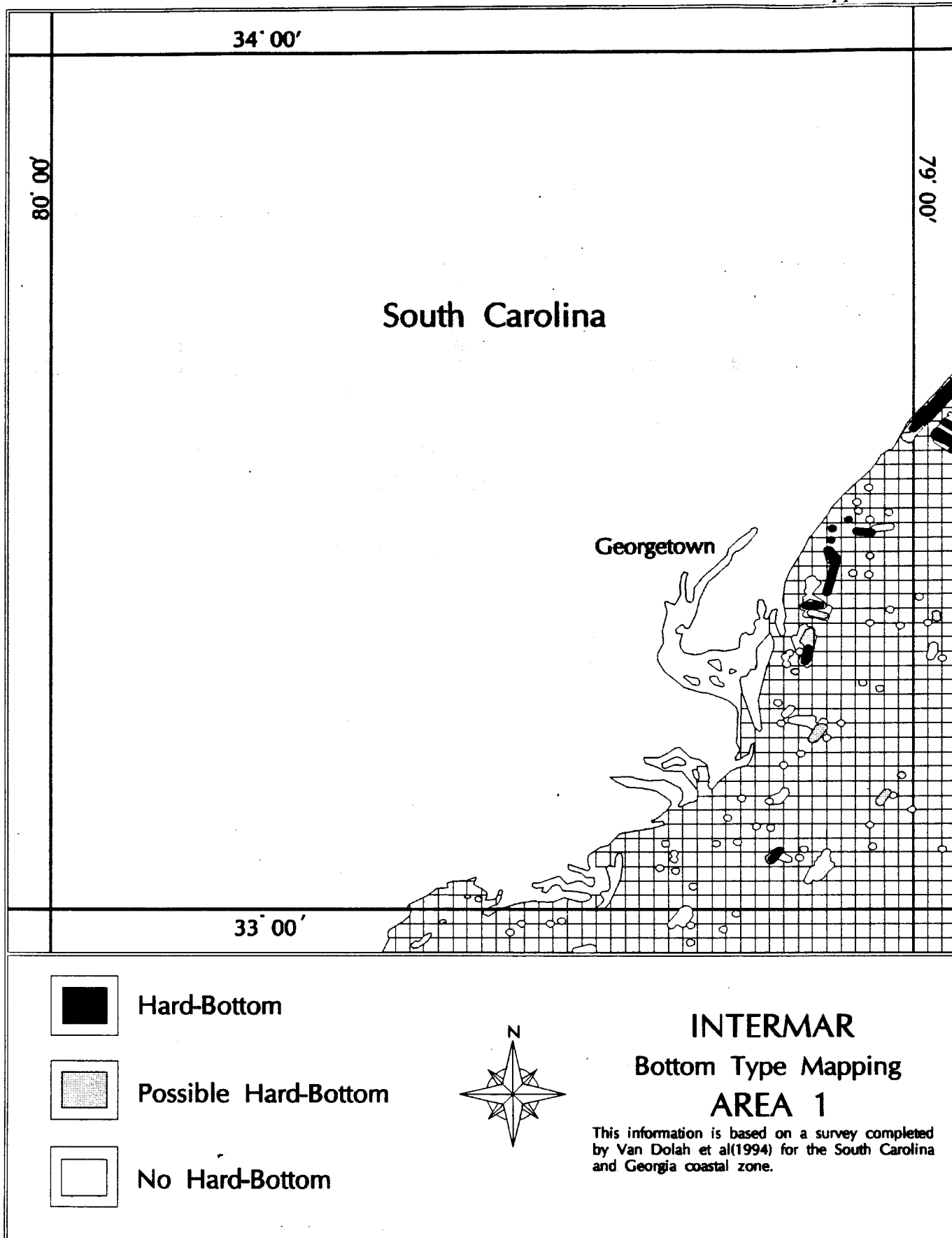


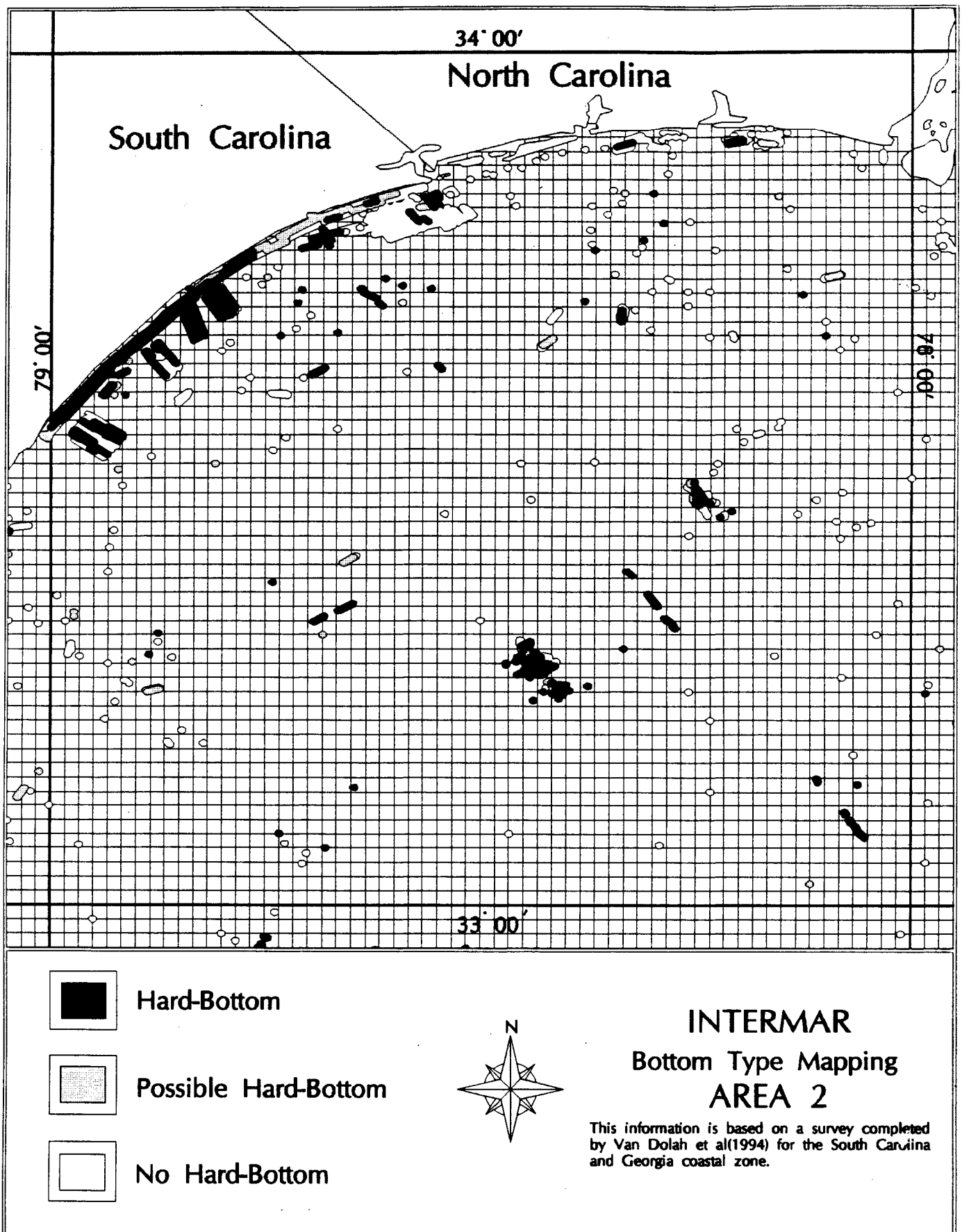


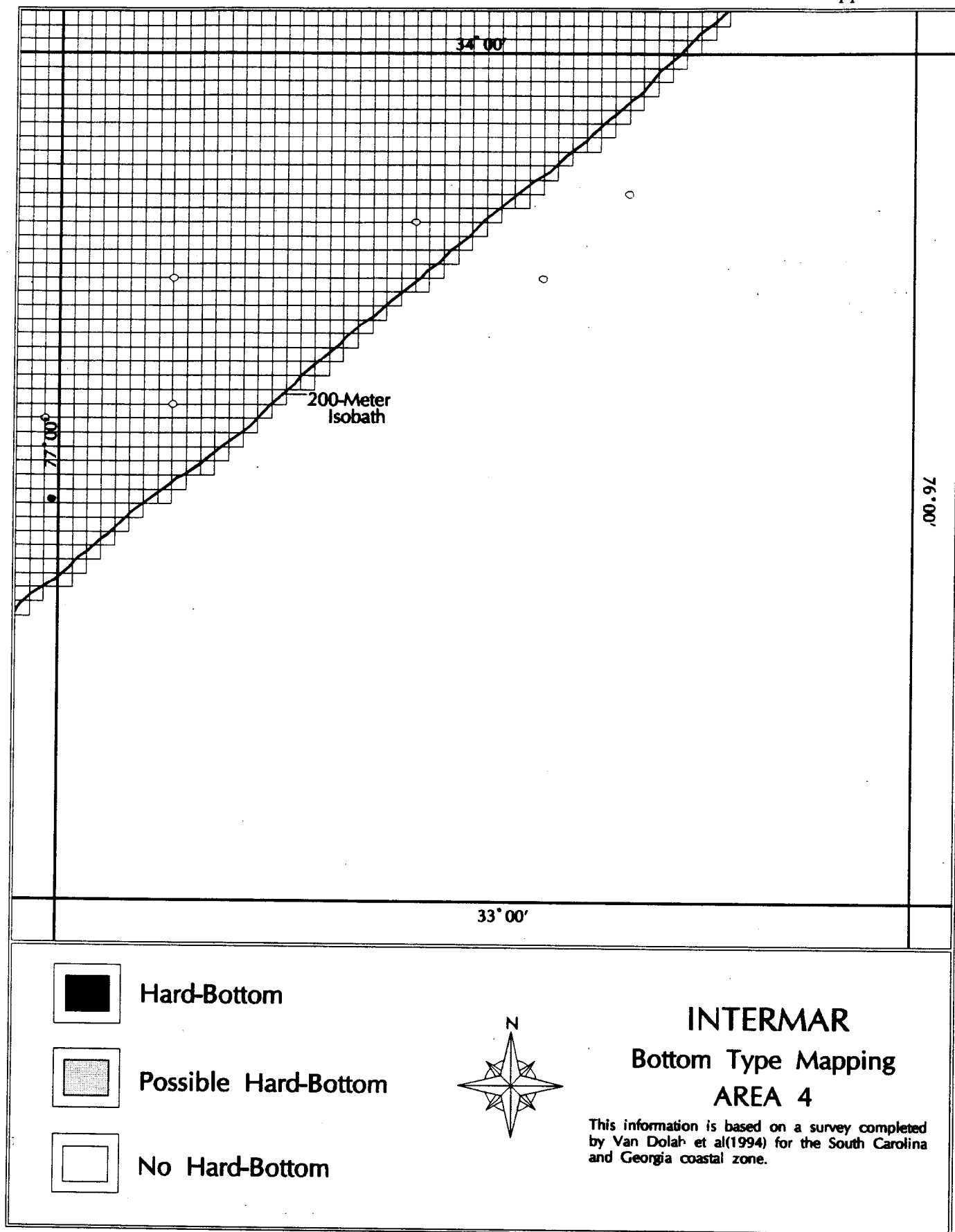


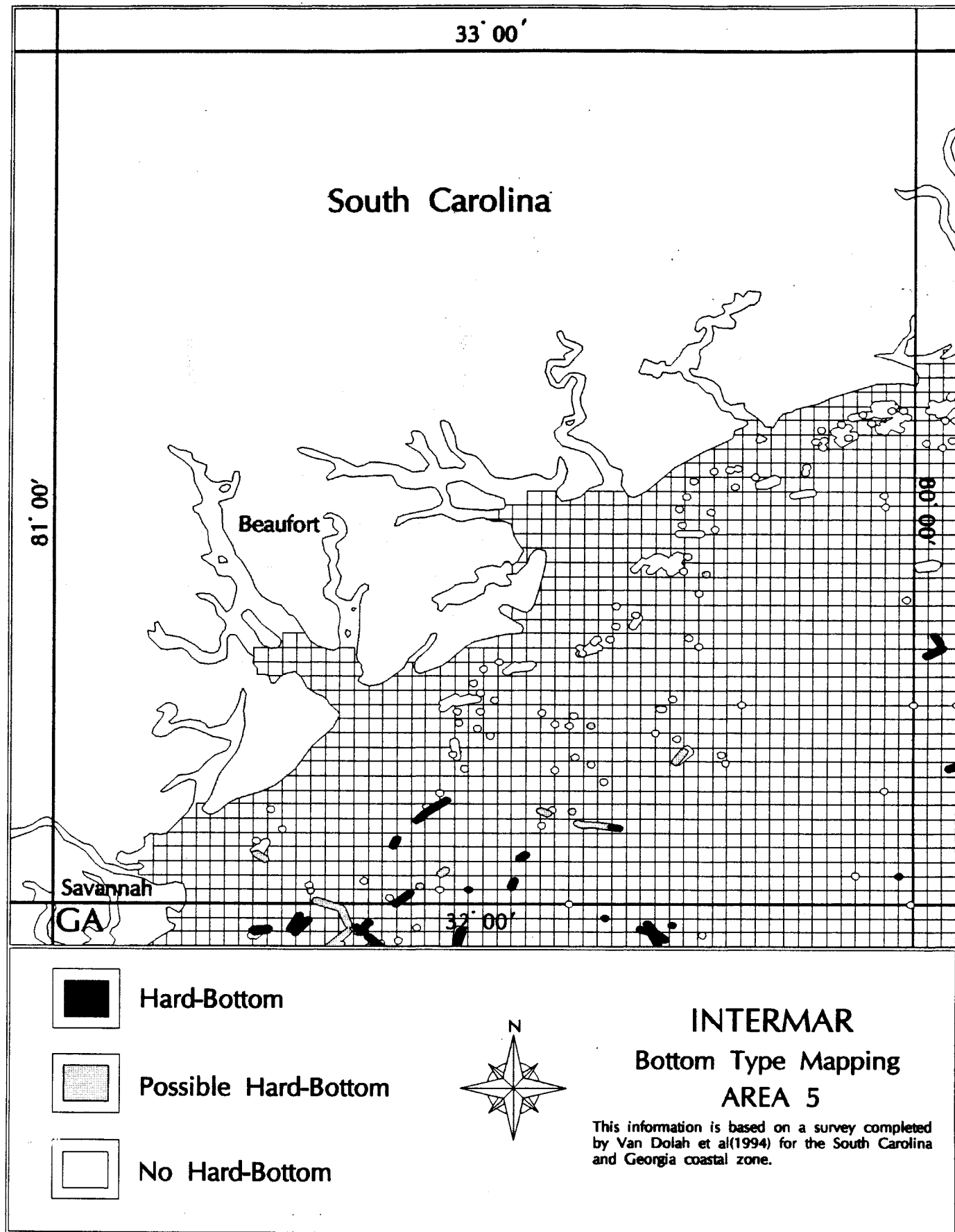


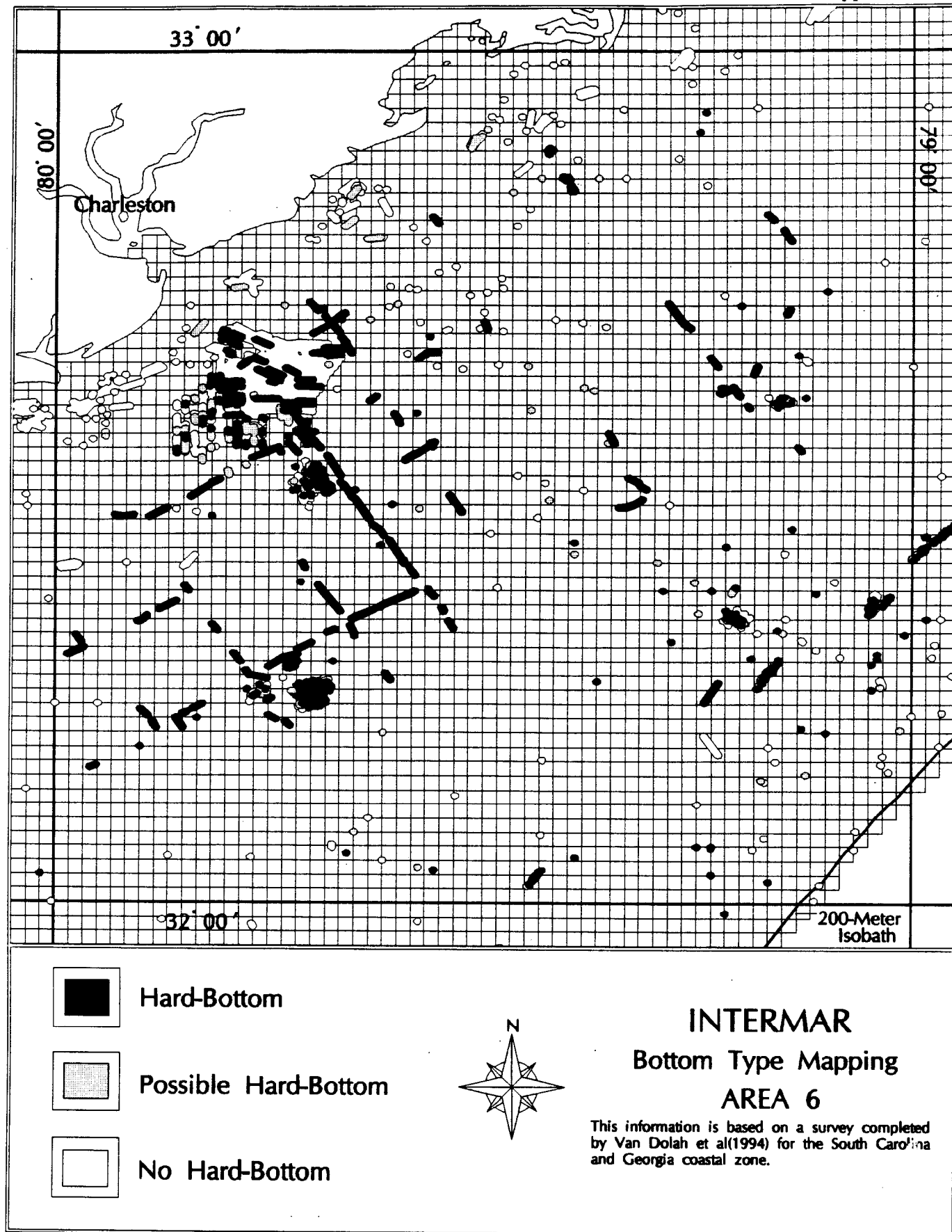




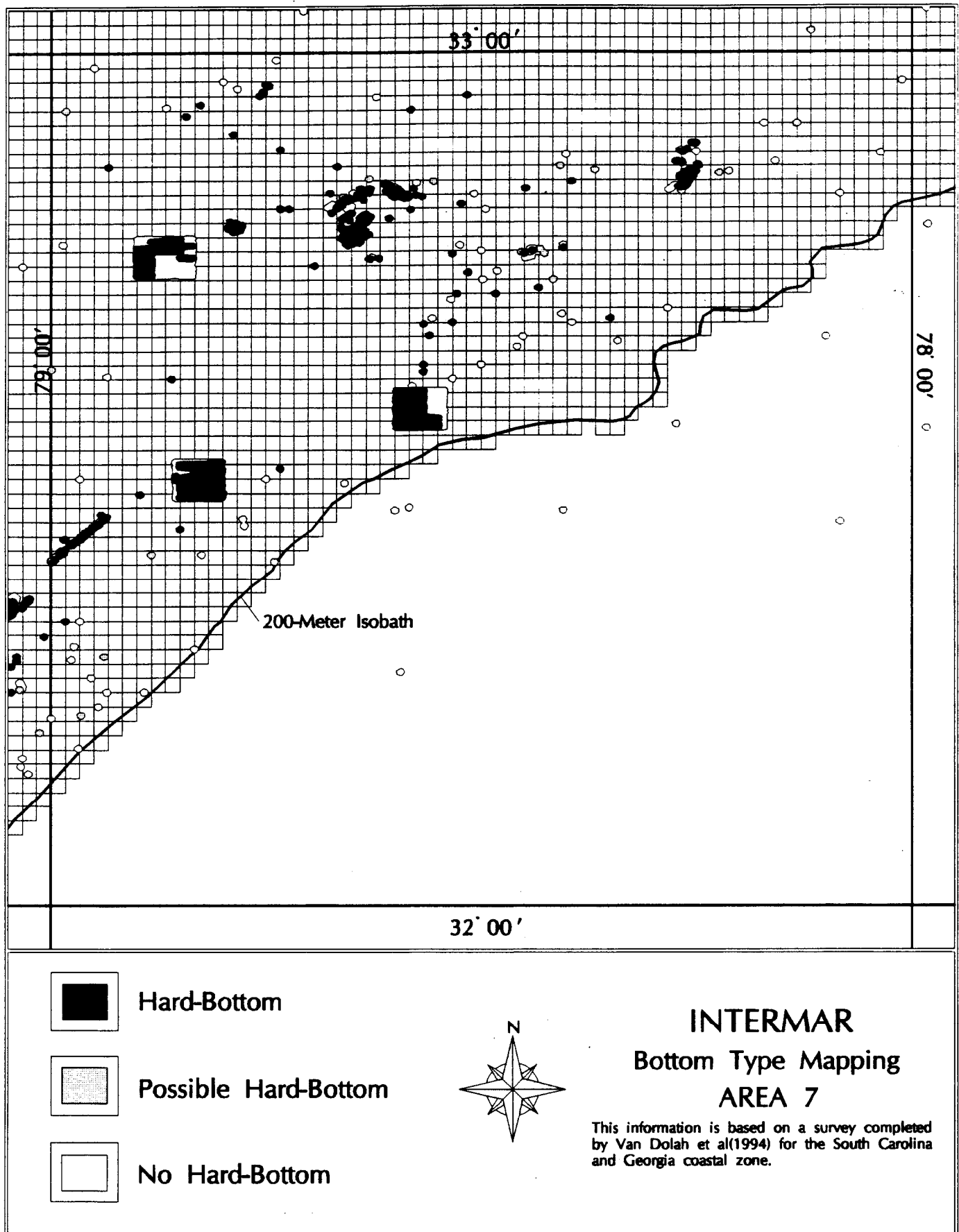


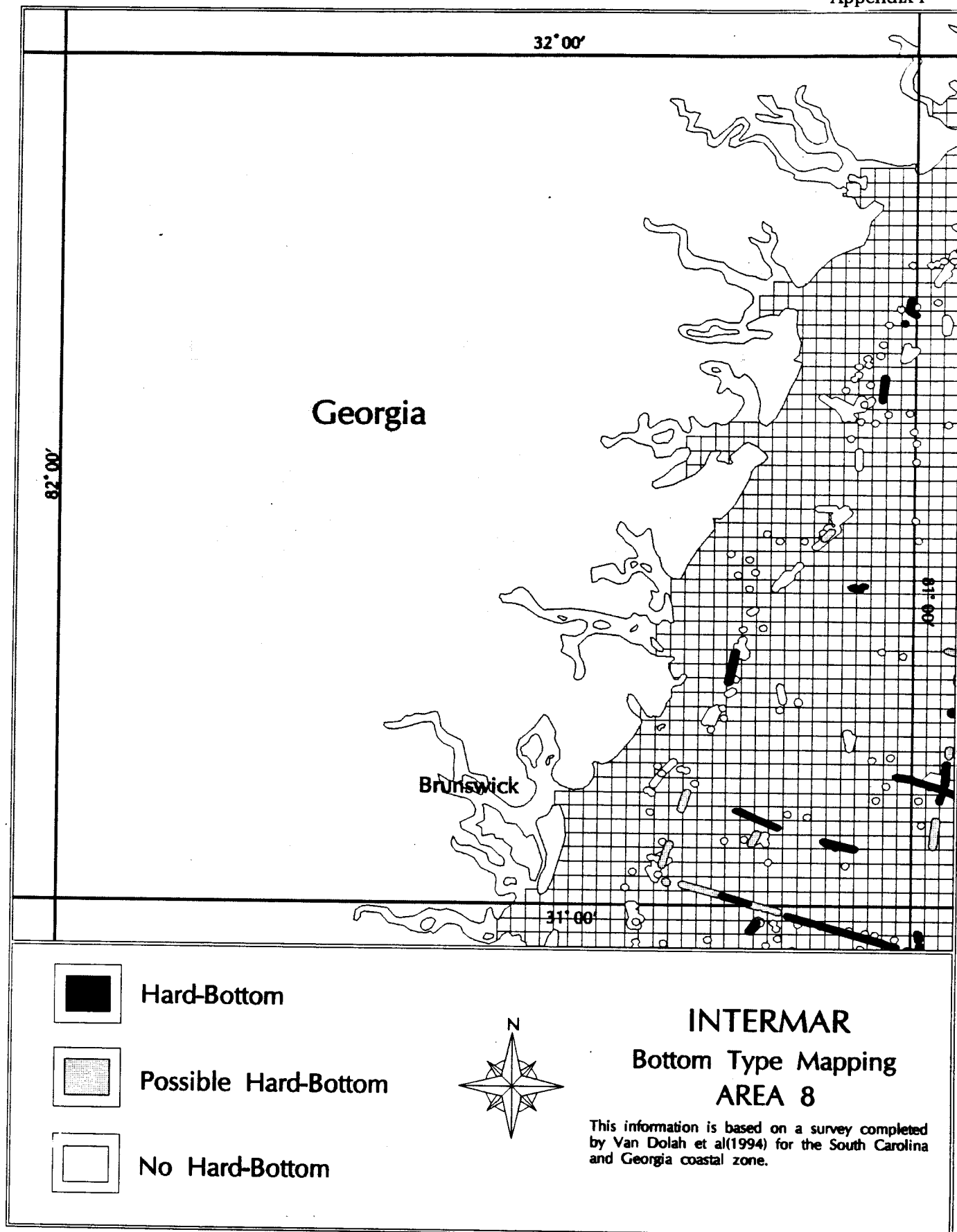


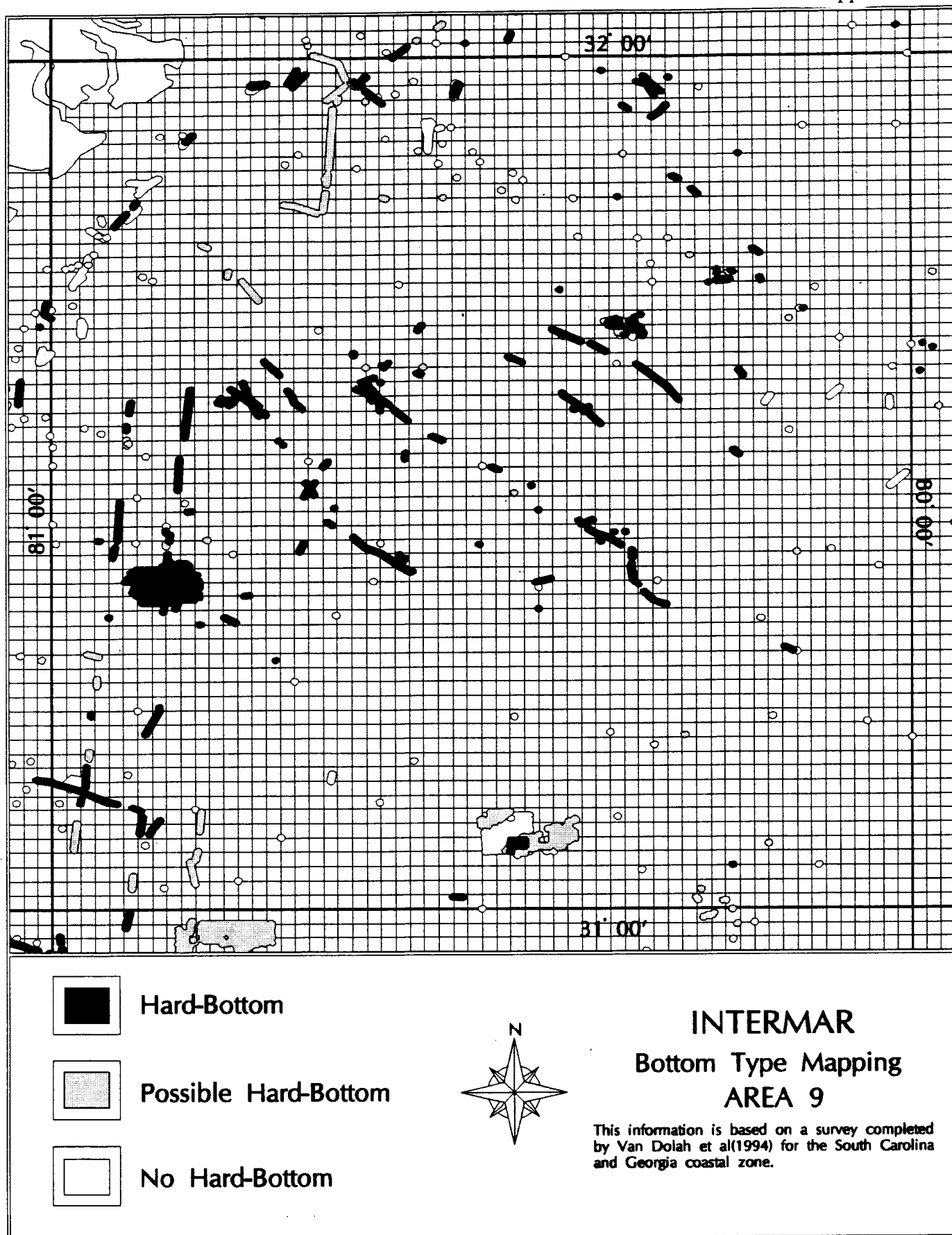


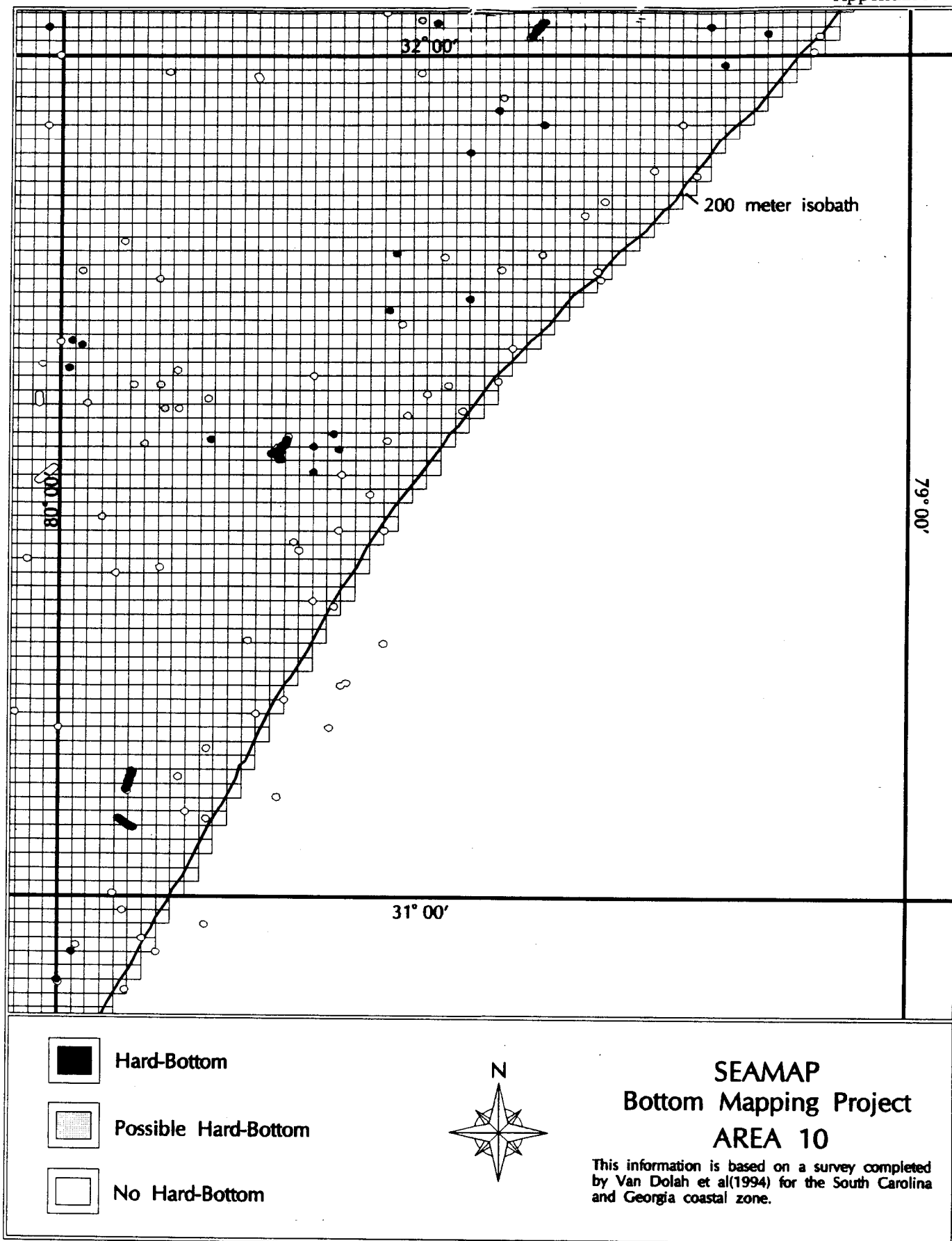


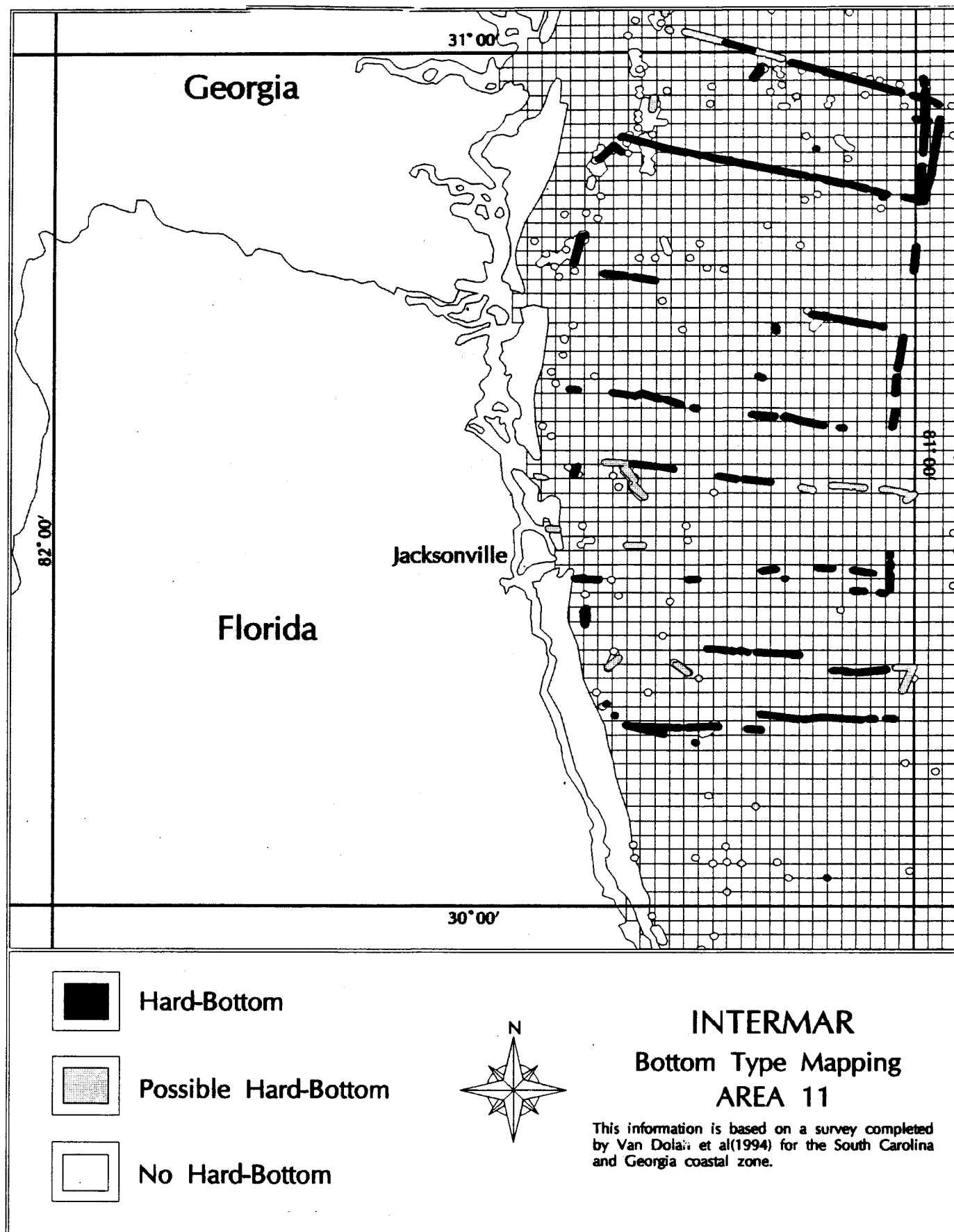


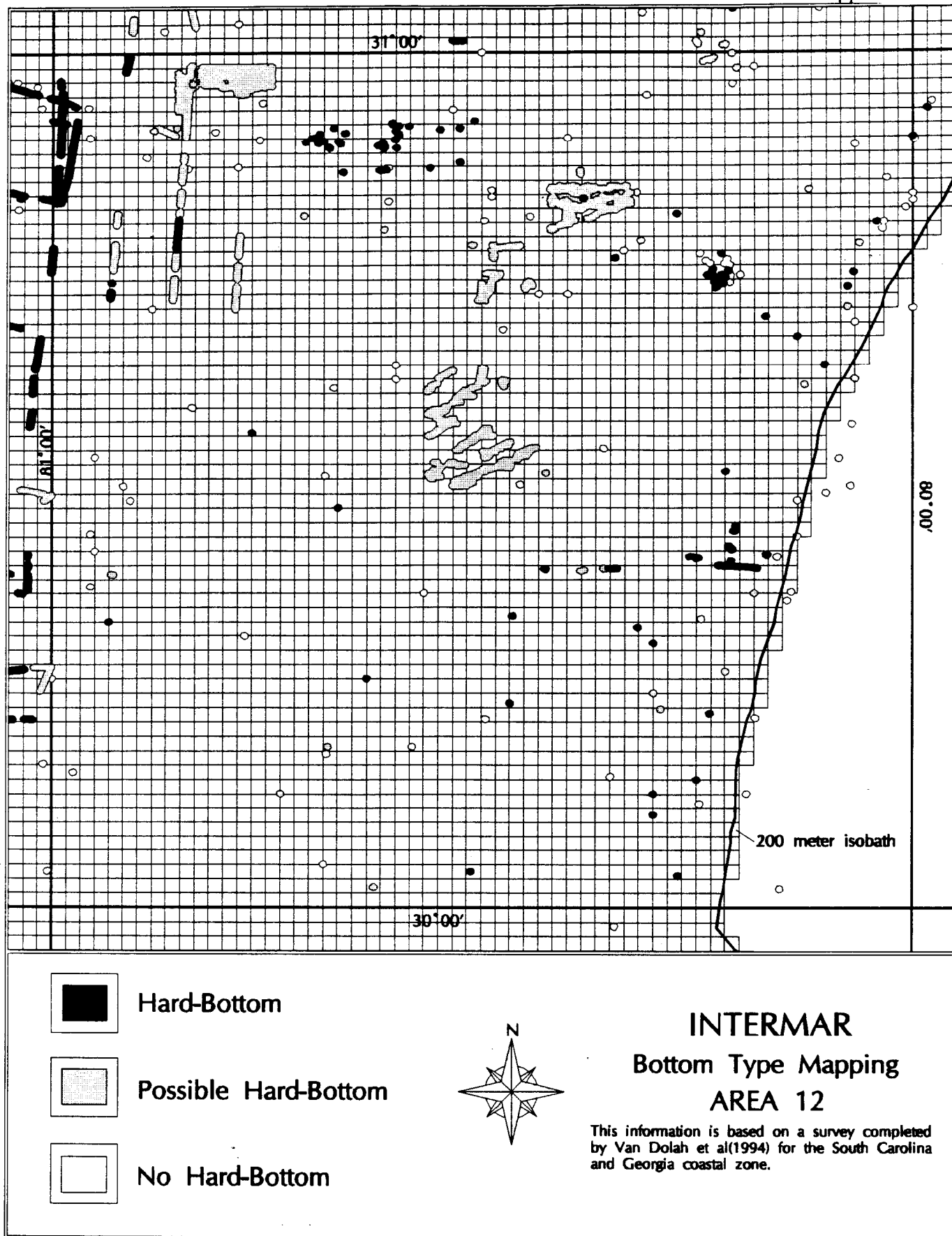












**Appendix J. Minerals Management Service- Jurisdiction and Live Rock Aquaculture**



**United States Department of the Interior**

**OFFICE OF THE SOLICITOR**  
Washington, D.C. 20340

**MAR 18 1994**

Mr. B. Michael McLamore  
Staff Attorney  
Office of General Counsel  
Southeast Region  
National Oceanic and Atmospheric Administration  
United States Department of Commerce  
9450 Kloger Blvd., Suite 116  
St. Petersburg, FL 33701

Dear Mr. McLamore:

**Re: Regulation of Harvest of "Live Rock"**

This responds to your January 13 letter to Dennis Daugherty of my staff asking whether a lease or other authorization from the Minerals Management Service is necessary for one to harvest non-OCS limestone (previously quarried elsewhere) which has been placed offshore to attract organisms, so-called "live rock."

The uses of the lands of the outer Continental Shelf (OCS) are clearly subject to federal control under the Submerged Lands Act, 43 U.S.C. 1301 et seq. See specifically 43 U.S.C. 1302 and 1314(a). However, the Minerals Management Service is only involved in administering the exploration, development, and production of minerals (including their transportation) under the Outer Continental Shelf Lands Act (OCSLA), 43 U.S.C. 1331 et seq.<sup>1</sup> It is not involved in the general regulation of the OCS. See United States v. Alexander, 602 F.2d 1228 (5th Cir. 1979). Naturally occurring limestone in the OCS is a mineral whose production is subject to leasing under the OCSLA, 43 U.S.C. 1337(k).<sup>2</sup>

Your question, however, relates to limestone for which the price of acquisition has already been paid, and which a party places on the OCS for aquacultural purposes. MMS would not assert title to the

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<sup>1</sup>The OCSLA provides the exclusive means for the issuance of mineral leases on the outer Continental Shelf. 43 U.S.C. 1333(a)(1). Such mineral leases are to be on the basis of competitive bidding. 43 U.S.C. 1337(k).

<sup>2</sup>The OCSLA defines the term "minerals" to refer to all minerals authorized by an Act of Congress to be produced from "public lands." 43 U.S.C. 1331(q). The Materials Act of 1947, 30 U.S.C. 601 et seq., authorizes the production and disposal of common variety mineral materials, such as limestone, from the public lands.

property of those who use the OCS pursuant to valid authorization of another federal agency under statutory or executive delegation to manage certain activities on the OCS, unless such property would be deemed abandoned under the law of the adjacent state.<sup>3</sup> For example, MMS authorizes its lessees to install facilities necessary for the production, processing, and transportation of minerals, subject to the obligation to remove those facilities within one year of the expiration of the lease. See sections 2 and 22 of the current OCS lease form, MMS-2005 (August 1986). Only thereafter would MMS assert that the property had been abandoned and had become subject to disposition by MMS. For the same reasons, MMS would respect the right of a NOAA or Corps of Engineers' permittee to harvest limestone to which it has valid title which the permittee placed on the OCS for aquacultural purposes pursuant to your authorization.

Mr. Lore's letter described to you the importance of coordination of agencies permitting aquaculture with MMS to minimize interference with the activities of offshore oil and gas lessees. We too would like to stress the importance and would very much appreciate the future coordination.

If we can be of further help, or if this does not fully address your questions, let me or Dennis Daugherty of my staff know. Our telephone number is (202) 208-5038.

Sincerely,



Milo Mason  
Assistant Solicitor  
Offshore Minerals

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<sup>3</sup> Adjacent state law is applied on the OCS to the extent not inconsistent with applicable federal law. 43 U.S.C. 1333(2)(A).



**Appendix K. Correspondence- NMFS to U.S. Army Corps of Engineers  
(Recommendations on Live Rock General Permit Criteria)**



**UNITED STATES DEPARTMENT OF COMMERCE**  
National Oceanic and Atmospheric Administration  
NATIONAL MARINE FISHERIES SERVICE  
Southeast Regional Office  
9721 Executive Center Drive  
St. Petersburg, FL 33702

AUG 3 1994

F/SE011:GC

Dr. John Hall, Chief  
Regulatory Division  
Department of the Army  
Jacksonville District  
Corps of Engineers  
P.O. Box 4970  
Jacksonville, FL 32232-0019

Dear Dr. Hall:

We request your advice and assistance in the development of a coordinated permit system for live rock aquaculture operations in federal waters. Live rock means certain living marine organisms or an assemblage thereof attached to a hard substrate (including dead coral or rock).

The Gulf of Mexico and South Atlantic Fishery Management Councils (Councils), established under the Magnuson Fishery Conservation and Management Act (16 U.S.C. 1801 *et seq.*), are planning to prohibit live rock harvesting in the exclusive economic zone (EEZ) from North Carolina through Texas because of impacts on fishery habitats. An exception will be made for aquaculture operations, which, as far as we know, are currently confined to waters off the state of Florida.

In order to implement the Councils' proposals, the National Marine Fisheries Service (NMFS) plans to issue permits to harvest and possess live rock taken from aquaculture operations in the Gulf of Mexico EEZ north and west of the Monroe/Collier County line in Florida. Although the prohibition on wild live rock harvesting will not go into effect off Florida's Gulf coast until January 1, 1997, at the earliest, potential aquaculturalists have indicated their intention to begin aquaculture immediately. We understand that the Corps has already issued a small number of permits to deposit base rock for the purpose of live rock aquaculture off Tampa Bay. In order to avoid overlapping, duplicative or contradictory requirements, we would like to coordinate our permit activities.

At your earliest convenience, we are requesting that you issue a general permit that accommodates the interests of both agencies and can be administered by NMFS. Enclosed are our recommendations on general permit conditions for live rock aquaculture that have been approved by the Gulf of Mexico Council. The South Atlantic Council, which includes the Florida

2

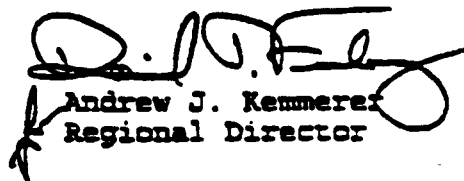
Keys, has not yet decided on permit conditions and is expected to take this subject up later this year.

Staff of the National Oceanic and Atmospheric Administration's Sanctuaries and Reserves Division have expressed interest in having a coordinated live rock aquaculture permit apply within the area of the Florida Keys National Marine Sanctuary. They will be working with the South Atlantic Council on specific conditions that may, in the future, require minor modification of the general permit.

Also enclosed, for your information, are copies of the Councils' proposals (Amendment 2 to the Fishery Management Plan for Coral and Coral Reefs of the Gulf of Mexico and South Atlantic) and two emergency rules that control live rock harvesting until Amendment 2 can be implemented, by December 1994.

Please let us know if you need additional information. We would be happy to meet with you and your staff to discuss these matters further.

Sincerely,



Andrew J. Kemmerer  
Regional Director

Enclosures:

1. Permit Criteria Recommendations
2. Amendment 2
3. Emergency Interim Rules

cc: (w/enclosure 1)  
GMFMC - Swingle  
SAFMC - Mahood  
N/ORM2 - Goldy/Causey  
FDEP - Conklin/Berrigan  
F/CM - Schaefer  
GCSE - Joy/McLemore  
F/SEO12 - Allen/Burgess/Davis-Martin  
F/SEO11 - Kimmel/Cranmore

**Recommendations**

on

**Live Rock Aquaculture General Permit Conditions****I. Site Characteristics/Selection Criteria**

1. A site evaluation report must be submitted by the applicant showing that the proposed site
  - (a) avoids hazards to safe navigation or hindrance of vessel traffic, traditional fishing operations or other public access; and
  - (b) avoids impacts on naturally occurring hard bottom habitat, i.e., natural underlying substrate should be primarily hard packed sand, hard shell hash, or sand over rock.
2. Sites larger than one acre shall not be approved under the general permit.

**II. Site and Product Marking**

1. Identify the site on a chart in sufficient detail to allow for site inspection.
2. Provide accurate coordinates so that site can be located using LORAN or Global Positioning System (GPS) equipment.
3. Rocks deposited on the aquaculture site must be geologically or otherwise distinguishable from the naturally occurring substrate or be indelibly marked or tagged.

**III. Operating Procedures**

1. Rocks may not be placed over naturally occurring reef outcrops, limestone ledges, coral reefs, or vegetated areas.
2. A minimum setback of at least 50 feet must be maintained from natural vegetated or hard bottom habitats.
3. All materials used in aquaculture operations must be nontoxic and deposited rocks must be free of contaminants.
4. No mechanical dredging or drilling is allowed.
5. Harvest of aquacultured live rock is by hand only.

#### IV. Monitoring and Reporting Requirements

1. Annual reports are required to document the source, type, and weight of rocks deposited on the aquaculture site and the weight of aquacultured product harvested.
2. Aquacultured live rock landed in the state of Florida must be reported to the Florida Bureau of Marine Research's Fisheries Statistics Section (Florida Department of Environmental Protection, 100 Eighth Avenue S.E., St. Petersburg, Florida 33701-5095, by using Form #33-610 (Florida Trip Ticket). (Harvesters need a Florida Saltwater Products License and a Marine Life Endorsement.)
3. Aquacultured live rock landed outside of Florida must be reported to the National Marine Fisheries Service, Southeast Fisheries Science Center, 75 Virginia Beach Drive, Miami, F. 33149, using logbook forms provided for this purpose.

#### V. Other Authorities

1. To be authorized under this general permit for activities within the Exclusive Economic Zone (EEZ), persons must have obtained a permit from the National Marine Fisheries Service to harvest and possess aquacultured live rock in the EEZ. Contact the Permit Division, Southeast Regional Office, 9721 Executive Center Drive, St. Petersburg, FL 33702.
2. Additional permits may be required for aquaculture operation in areas under the jurisdiction of other state or federal authorities, such as a National Marine Sanctuary.

**Appendix L. Landings from the Marine Life Industry**  
**(Bohnsack et al. 1994)**

**Table 8. Reported annual marine life catch in numbers for Florida South/East Coast Florida.**

<b>FISHES</b>					<b>INVERTEBRATES</b>				
	<b>Monroe SE COAST</b>					<b>Monroe SE COAST</b>			
<b>Common Name</b>	<b>1990</b>	<b>1991</b>	<b>1992</b>	<b>Mean</b>	<b>Common Name</b>	<b>1990</b>	<b>1991</b>	<b>1992</b>	
Angelfish, Blue	21,502	25,821	28,317	24,513	Anemone, Banded	14,584	12,401	21,788	
Angelfish, Chromefish	4,982	3,413	5,489	4,621	Anemone, Giant Caribbean	218,757	238,026	244,725	
Angelfish, French	1,980	4,828	3,931	3,479	Anemone, Other	75	344	5,956	
Angelfish, Grey	11,785	14,786	8,470	11,674	Anemone, Ringed	17,704	25,086	34,757	
Angelfish, Queen	5,957	10,318	9,722	8,668	Anemone, Sun	3,772	3,886	5,980	
Angelfish, Rock Beauty	18,410	23,286	24,908	21,838	Basket Starfish	886	1,087	832	
Balloonfish	650	848	1,027	842	Brittle Star, Other	20	80	384	
Beac, Beaked Sandfish	178	82	88	108	Brittle Star, Red Serpent	960	2,283	2,106	
Beac, Chalk	772	838	232	684	Brittle Star, Serpent	6,414	5,780	7,366	
Beac, Harlequin	2,258	2,848	3,193	2,667	Brittle Star, Spiny Ophiocoma	8,130	8,663	9,785	
Beac, Lantern	357	221	333	304	Brown	-	-	1	
Beac, Other	141	181	124	149	Chiton	-	8	16	
Beac, Tobaccofish	1,174	912	851	979	Clam, Jewel Box	287	284	40	
Bonny, Other	4,636	2,389	5,736	4,267	Clam, Other	39	6	1	
Bonny, Redlip	487	481	2,894	1,271	Conch, Florida Crown	88	8	4	
Bonny, Scaled	285	457	212	381	Conch, Florida Fighting	-	2	-	
Bonny, Saitin	372	282	1,838	729	Conch, Florida Horse	-	223	210	
Burfish	839	888	1,386	1,384	Conch, Milk	-	2	-	
Butterflyfish, Banded	841	732	1,444	1,012	Cornia, Atlantic Deer	18	47	118	
Butterflyfish, Bank	82	284	287	244	Cornia, Masked	1,855	1,887	1,131	
Butterflyfish, Foureye	8,956	10,171	8,775	9,301	Crab, Box	-	8	-	
Butterflyfish, Longsnout	184	389	303	297	Crab, false Arrow	728	2,274	4,340	
Butterflyfish, Reef	1,575	2,180	2,734	2,288	Crab, Furcated Spider	3,714	3,529	5,189	
Butterflyfish, Spotted	1,157	1,316	1,236	1,236	Crab, Horseshoe	5,883	10,784	8,810	
Carnalish, Flamefish	9,382	7,413	8,179	8,318	Crab, Nimble Spray	2,903	1,852	3,136	
Catfish	-	1	918	306	Crab, Other	5,453	4,787	6,880	
Clingfish	78	65	203	115	Crab, Polkaotted Hermit	8,808	11,486	9,547	
Cowfish, Honeycomb	3,826	8,886	8,140	7,211	Crab, Redfinger Rubble	100	105	251	
Cowfish, Screwed	-	14	1,087	370	Crab, Spotted Porcelain	2,630	2,015	3,375	
Damselfish, Besupregory	5,741	5,675	4,407	5,274	Crab, Thinstripe Hermit	30,571	37,543	86,773	
Damselfish, Bicolor	2,687	2,486	2,044	2,408	Crab, Yellowline Arrow	8,346	11,257	10,485	
Damselfish, Blue Chromis	12,803	10,183	15,131	12,708	Fisclan, Rough	44,817	50,310	60,823	
Damselfish, Dusky	382	271	316	323	Fisclan, Spiny	2,801	2,041	2,401	
Damselfish, Other	1,340	1,430	582	1,117	Gorgonian, Other	6,144	7,188	7,861	
Damselfish, Purple Reefish	3,050	2,619	2,638	2,789	Gorgonian, Red	5,867	8,306	5,432	
Damselfish, Sergeant Major	967	1,279	1,310	1,185	Gorgonian, Sea Blades	5,841	7,826	7,245	
Damselfish, Sunstreakfish	587	3,383	5,334	3,108	Jellyfish, Other	-	320	-	
Damselfish, Threespot	2,086	1,788	1,809	1,891	Jellyfish, Upside-down	7,006	8,209	5,408	
Damselfish, Yellowtail	2,455	2,205	2,555	2,405	Lobster, Caribbean Spiny	370	334	194	
Drum, High Hat	8,011	8,500	7,758	8,080	Lobster, Spanish Skipper	267	371	319	
Drum, Jacknife-fish	1,138	1,066	725	976	Nudibranch, Lettuce Sea Slug	375	423	1,286	
Filefish, Other	7	608	183	259	Nudibranch, Other	1,892	2,101	1,867	
Filefish, Parrotfish	967	1,533	2,571	1,680	Octopus, Atlantic Pygmy	160	208	275	
Filefish, Pygmy	-	-	520	173	Octopus, Caribbean Reef	-	9	35	
Filefish, Screwed	8	23	802	211	Octopus, Common	887	532	562	
Filefish, Whitespotted	157	416	758	444	Oyster, Atlantic Thorny	429	1,203	1,411	
Flounder	63	182	178	134	Penaeid	-	44	5	
Frogfish, Sergeantfish	117	189	450	235	Polychaete, Feather-duster	-	60	23	
Goatfish, Other	83	75	497	218	Polychaete, Horned Christmas-	-	282	426	
Goby, Neon	3,297	3,135	4,881	3,674	Polychaete, Other	48	11	841	
Goby, Other	181	129	273	184	Sand Dollar	210,226	985	34,016	
Grouper, Coney	435	405	333	391	Seahop, Other	178	563	378	
Grouper, Graysby	21	67	265	118	Sea Bream, Other	-	-	32,201	
Grunt, French	240	85	186	170	Sea Cucumber, Florida	2,818	2,372	1,383	
Grunt, Other	577	300	836	571	Sea Hare	-	-	84	
Grunt, Portfish	7,513	9,919	6,815	8,082	Sea Star, Cushion	126	101	63	
Hemids	3,384	4,644	5,885	4,678	Sea Star, Other	-	86	208	
Hogfish	172	374	339	295	Sea Star, Red Spiny	5,657	7,786	5,886	

Table 8 (cont.) Reported annual marine life catch in numbers for Florida South/East Coast Florida

FISHES					INVERTEBRATES				
Monroe SE COAST					Monroe SE COAST				
Common Name	1980	1981	1982	Mean	Common Name	1980	1981	1982	Mean
Hogfish, Spanish	3,400	4,128	4,370	3,933	Shrimp, Banded Coral	4,842	8,832	8,288	5,111
Hogfish, Spotted	1,888	4,380	4,388	3,478	Shrimp, Cleaner	110	88	118	105
Jack, Lookdown	-	83	818	180	Shrimp, Mantis	-	14	18	11
Jackfish, Dusky	140	178	782	386	Shrimp, Other	118	88	284	200
Jackfish, Yellowhead	5,843	4,286	14,881	7,987	Shrimp, Peppermint	18,838	21,838	12,882	18,916
Moray, Goldenail	133	281	227	207	Shrimp, Pistol	1,886	1,883	1,842	1,884
Moray, Green	118	128	128	124	Shrimp, Rock	-	141	484	188
Moray, Other	283	302	218	261	Shrimp, Spotted Cleaner	770	842	810	841
Moray, Spotted	484	235	288	305	Snail, Chestnut Turban	23,888	41,818	38,288	34,483
Parrotfish, Blue	178	286	288	288	Snail, Cone	-	8	20	8
Parrotfish, Other	1,800	2,386	2,180	2,015	Snail, Flamingo Tongue	884	883	1,246	1,088
Parrotfish, Princess	-	238	880	288	Snail, Helmet	-	4	-	1
Parrotfish, Redhead	28	183	318	179	Snail, Moon	-	188	284	144
Parrotfish, Striped	2,323	2,488	4,174	2,988	Snail, Murex	88	87	188	77
Papfish, Sargassum	288	1,888	1,482	987	Snail, Other	7,888	14,821	31,877	17,788
Porgy	-	281	284	285	Snail, P-Apple Sea	-	8	-	8
Puffer, Sharpnose	2,188	2,877	2,888	2,888	Snail, Rockshell	-	88	-	28
Ray, Butterfly	-	288	288	178	Snail, Star	-	8,227	1,887	2,171
Razorfish	118	188	188	137	Snail, Topshell	-	34	8,238	1,788
Scorpionfish, Reef	488	788	478	587	Snail, Triton	-	8	18	8
Seahorse, Dwarf	1,884	7,182	18,872	9,886	Snail, Tulip	881	1,883	1,147	1,188
Seahorse, Lined	2,888	4,888	4,843	4,184	Snail, Turbanella	41,881	88,887	118,340	81,878
Shark, Lemon	70	140	181	184	Snail, Vase	-	-	28	12
Shark, Nurse	888	882	871	878	Sponge, Other	884	883	721	873
Squirrelfish, Reef	324	288	882	418	Sponge, Red Ball	3,888	3,888	4,182	3,721
Songray, Yellow	88	123	148	112	Sponge, Red Finger	-	188	482	187
Tang, Blue	4,840	5,288	8,841	5,212	Sponge, Red Tree	8,288	10,878	7,781	8,281
Tang, Doctorfish	883	488	388	611	Tunicates, Sea Squirts	-	181	140	87
Tang, Ocean Surgeon	1,323	1,128	1,837	1,383	Urchin, Longspine	2,874	185	37	1,032
Triggerfish, Other	177	211	830	388	Urchin, Other	-	283	81	121
Wrasse, Bluehead	12,184	14,782	13,238	13,417	Urchin, Pencil	7,820	10,484	8,814	8,388
Wrasse, Clown	-	411	488	283	Urchin, Red Rock	8,178	8,872	8,833	8,188
Wrasse, Crocodile	2,728	3,818	4,188	3,578	Urchin, Variable	18,881	18,888	14,848	18,881
Wrasse, Other	3,845	3,883	4,883	4,037	Wink, Knobbed	-	1	4	2
Wrasse, Puddingwife	285	188	448	301	Wink, Lightning	-	-	183	81
Wrasse, Slippery Dick	28	185	215	138					
Wrasse, Yellowhead	1,280	1,385	1,882	1,382					
Other Fishes (> 72 species)*	10,810	2,821	4,142	5,788					
<b>TOTAL FISHES</b>	<b>223,884</b>	<b>288,888</b>	<b>303,878</b>						
					TOTAL INVERTEBRATES				
					788,883	738,288	877,188		
					Algae				
					Plant, Other	5,528	8,878	10,271	7,888
					Plant, Caulerpa, Box	1,333	2,888	3,118	2,347
					Plant, Caulerpa, Ice	5,833	3,288	2,227	3,783
					Plant, Caulerpa, no.	113	187	43	118
					Plant, Halimeda	8,124	5,517	2,511	4,717
					Plant, Mormon's Shaving Brush	8,731	8,818	8,880	8,848
					<b>TOTAL ALGAE</b>	<b>27,883</b>	<b>28,488</b>	<b>24,788</b>	
					Live Rock				
					Live Rock, Algae (lbs)	87,721	178,878	233,871	178,888
					Live Rock, False Coral (lbs)	25,818	18,818	22,820	22,281
					Live Rock, Sargassum (lbs)	12,883	11,883	18,813	13,888
					Live Rock, Rubble (lbs)	124,233	171,888	178,888	188,181
					Live Rock, Sea Mat (lbs)	41,888	28,288	21,888	28,888
					Live Rock, Serpulid Worm (lbs)	1,717	1,236	41	888
					<b>TOTAL LIVE ROCK</b>	<b>303,888</b>	<b>488,177</b>	<b>482,188</b>	

\* These fishes have mean abundance &lt; 100.

# Appendix M. U. S. Army Corps of Engineers Individual Live Rock Aquaculture Permit Application.



DEPARTMENT OF THE ARMY  
JACKSONVILLE DISTRICT CORPS OF ENGINEERS  
P. O. BOX 4970  
JACKSONVILLE, FLORIDA 32232-0970

REPLY TO  
ATTENTION OF

Regulatory Division  
South Permits Branch

## PUBLIC NOTICE

26 JUL 1994

Permit Application No. 199402350 (IP-LS)

**TO WHOM IT MAY CONCERN:** This district has received an application for a Department of the Army permit pursuant to Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403) as described below:

**APPLICANT:** Sea Life Incorporated  
Ken Redmeyer, President  
212 Silver Palm Avenue  
Tavernier, Florida 33070

**WATERWAY & LOCATION:** In the Straits of Florida (Atlantic Ocean) in the open water approximately 1.25 miles west-southwest of Pickles Reef in Township 63 South, Range 39 East, approximately 3.5 to 4 miles east-southeast of Tavernier, Monroe County, Florida.

**LATITUDE & LONGITUDE:** Latitude North Longitude West

**WORK & PURPOSE:** The applicant proposes to hand place approximately 250 cubic yards of pre-selected clean limestone rocks/boulders (predominately Miami Oolite quarried from the uplands) on the unvegetated/barren sea bed. The material ranges in size from 3 to 12 inches in diameter (free-form with no defined shapes) and would be placed in an area 50 by 100 feet (5,000 square feet) that is at least 50 feet from any existing grass beds or coral hard bottoms. The water depths are approximately 30 feet and the materials would be stacked in piles 2 to 3 feet high which is not expected to adversely impact navigation. The rocks/boulders would be hand sorted, pressure washed, and marked with a non-toxic "blue wax" (for identification purposes) on the upland. The materials would then be taken to the project site by small boat and placed on the bottom in loads of 2 to 3 thousand pounds. After each "load drop" divers would inspect and rearrange materials as required. The purpose of the project is to provide a new source of "live rocks" for salt water aquariums to replace existing "wild or natural" live rock harvests which will be phased out in the near future. The proposed site was selected by diving the area to identify a suitable sandy substrate with no existing marine grasses and/or corals, fans, hard bottoms, etc. Related work includes the harvest and replenishment of selected materials as they mature. The area can be characterized as open-water with barren (sandy) bottom supporting no vegetative communities.

**NOTE:** This public notice is being issued based on information furnished by the applicant. This information has not been verified.

**AUTHORIZATION FROM OTHER AGENCIES:** State Department of Environmental Protection: The State application number is 442513695 and has received an exemption from the State dated May 27, 1994.

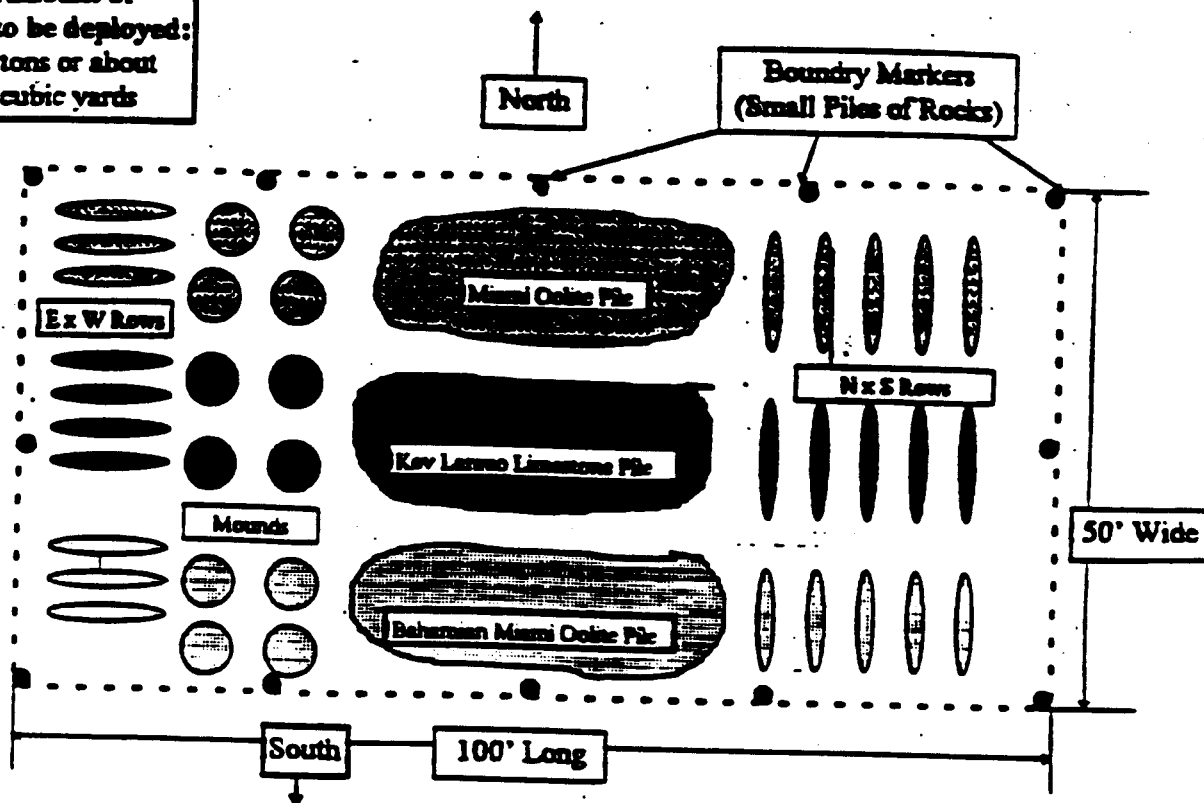
Comments regarding the application should be submitted in writing to the District Engineer at the above address within 30 days from the date of this notice.

If you have any questions concerning this application, you may contact Lonnie Shephardson of this office, telephone 904-232-1677.

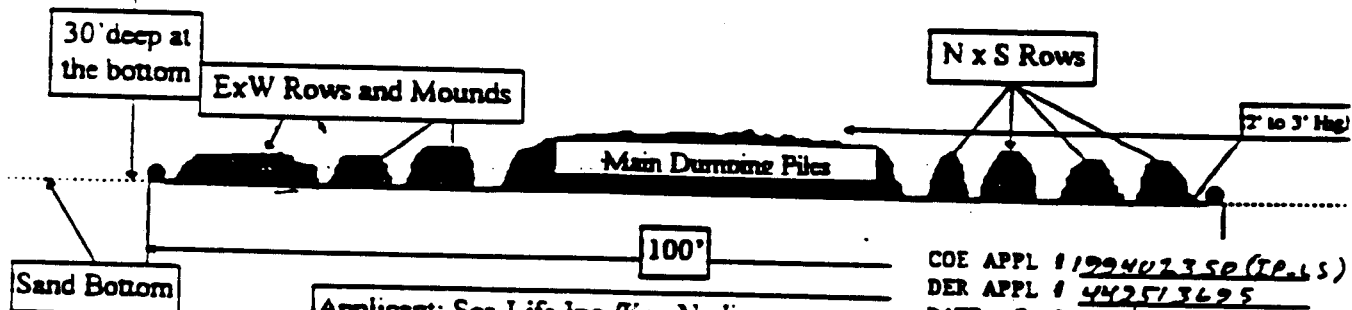
**Location:** Center  
 N 24.58'94"  
 W 80.26.13  
**Size:** 50' X 100'  
 or about 1/8th acre  
**Water Depth:** 30'  
**Total Amount of  
 Rock to be deployed:**  
 250 tons or about  
 250 cubic yards

# Proposed Site Layout

## Sea Life Inc. Live Rock Aquaculture Lease



## Longitudinal Cross Section

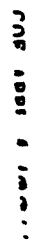


Applicant: Sea Life Inc./Ken Nedimyer  
 Water Body: Atlantic Ocean East of Tavernier Fl. (EEZ)  
 County: Monroe Purpose: Artificial Reef for Live Rock Aquaculture

COE APPL 1199402350 (T.P. 15)  
 DER APPL 1 442513695  
 DATE 6-2-94



CONFIDENTIAL



## Appendix N. Submersible Studies of Deep-Water *Oculina* and *Lophelia* Coral Banks Off Southeastern U.S.A. (Source John K. Reed, 1992)

### SUBMERSIBLE STUDIES OF DEEP-WATER *OCULINA* AND *LOPHELIA* CORAL BANKS OFF SOUTHEASTERN U.S.A.

*John K. Reed*

Division of Biomedical Marine Research  
Harbor Branch Oceanographic Institution  
5600 Old Dixie Highway  
Fort Pierce, FLORIDA 34946 U.S.A.

Two types of deep-water coral banks occur off the coast of southeastern United States: *Oculina* and *Lophelia/Enallopsammia*. The *Oculina* banks form an extensive reef system at depths of 70-100 m along the shelf edge off central eastern Florida. These reefs are comprised of >100 individual pinnacles and ridges which are up to 24 m in height. Each pinnacle is actually a bank of unconsolidated sediment and coral debris that is capped on the slopes and crest with living colonies of *Oculina pericosa*, the ivory tree coral. In comparison, deep-water banks of *Lophelia* and *Enallopsammia* corals occur at depths of 490-870 m along the base of the Florida-Hatteras slope on the west side of the Florida Straits and also on the Blake Plateau off South Carolina and Georgia. The morphology and functional structure of both the *Oculina* and *Lophelia* banks are similar. This paper summarizes 10 years of submersible studies on the deep-water *Oculina* reefs and describes recent submersible reconnaissance of the *Lophelia* banks off southeastern U.S.A.

#### Introduction

Deep-water coral banks typically consist of mounds of unconsolidated sediment and coral rubble. They are found in regions of fairly strong currents where the coral structures capture suspended sediment and build up mounds to heights of a few meters to >150 m. Average depths are from 70 m to >1000 m. At these depths the corals lack zooxanthellae, the algal symbionts found in shallow, hermatypic reef corals; however, the deep-water banks still form a thriving reef community.

Two types of deep-water coral banks are common off the southeastern United States, primarily between Florida and South Carolina. *Oculina* coral banks form an extensive reef system at depths of 70-100 m along the shelf-edge off central eastern Florida (Avent *et al.*, 1977; Reed, 1980). In contrast, banks of *Lophelia* and *Enallopsammia* corals occur at greater depths, 490-870 m, in the Florida Straits and on the Blake Plateau off the coasts of Florida, Georgia and South Carolina (Stetson *et al.*, 1962; Milliman *et al.*, 1967; Uchupi, 1968; Neumann and Ball, 1970; Emery and Uchupi, 1972).

This paper compares these two systems of deep-water banks off southeastern U.S.A. and contrasts them with the deep-water lithoherms (Neumann *et al.*, 1977) in the Florida Straits off the Bahamas.

#### Methods

Data on the *Oculina* banks are based on research over a ten-year period with Johnson-Sea-Link (JSL) submersibles. The four-person JSL submersible is capable of dives to 915 m and is outfitted with an array of photographic and collection equipment including a manipulator arm with clam-shell grab and suction hose; 12-bin rotating collection buckets; environmental data recorder to log temperature,

conductivity, salinity, depth, and light; a modified Edgerton 35-mm camera with 35 or 80 mm lens and 750 exposure film; and a color video camera system (Tietze and Clark, 1986). Lockout dives to depths of 100 m were utilized on the Oculina banks. Data on the Lophelia banks and lithoherms were gathered with Harbor Branch Oceanographic Institution's (HBOI) JSL submersible and CORD, a remotely-operated-vehicle (ROV). Additional information was summarized from published literature on submersible dives with ALVIN (Milliman *et al.*, 1967; Neumann *et al.*, 1977) and ALUMINAUT (Neumann and Ball, 1970) and from surveys using echo-soundings, dredges, and camera sleds (Stetson *et al.*, 1962; Mullins *et al.*, 1981).

## Results and Discussion

### Coral Description and Distribution:

The dominant corals forming deep-water banks in this region are Oculina varicosa, Lophelia prolifera, and Enallopsammia profunda, although other branching Scleractinia may also occur, including Solenosmilia variabilis and Madrepora oculata. Numerous solitary coral species are also common.

Oculina varicosa (Lesueur, 1820): In deep water (>60 m), O. varicosa forms spherical, dendroid, bushy colonies that are 10 cm to 1.5 m in diameter and height (Fig. 1). The branches average 6 mm in diameter near the tips and frequently anastomose. Individual corals may coalesce forming linear colonies 3-4 m in length or massive thickets of contiguous colonies on the slopes and tops of the banks (Reed, 1980). The deep-water form lacks zooxanthellae, whereas in shallow water O. varicosa is usually golden brown with the algal symbiont and colonies average <30 cm in diameter with thicker branches. O. varicosa ranges from the Caribbean to Bermuda and the Gulf of Mexico, at depths of 5-152 m. Deep-water banks of the coral, however, are only known from 27°32'N and 79°59'W to 28°59'N and 80°07'W (Fig. 2, Site A and A1).

Lophelia prolifera (Pallas, 1766): Similar in gross morphology to Oculina, this coral also forms massive, dendroid, bushy colonies, 10-50 cm in diameter, with anastomosing branches (Fig. 1). Its distribution ranges in the western Atlantic from Nova Scotia to Brazil and the Gulf of Mexico, and also in the eastern Atlantic, Mediterranean, Indian, and eastern Pacific Oceans at depths of 60-2170 m (Cairns, 1979).

Along with Enallopsammia profunda, it is the primary constituent of banks at the base of the Florida-Hatteras slope and at depths of 500-800 m from Miami to South Carolina (Fig. 2, Sites B and C). In addition, over 200 banks have been mapped at depths of 640-869 m (Site D) on the outer eastern edge of the Blake Plateau (Stetson *et al.*, 1962). Elsewhere Lophelia banks are known from the Gulf of Mexico (Ludwick and Walton, 1957; Moore and Bullis, 1960) and the eastern Atlantic off Norway and Scotland (Teichert, 1958; Wilson, 1979). On the Lophelia banks in the eastern Atlantic, Madrepora oculata commonly occurs with Lophelia rather than E. profunda.

Enallopsammia profunda (Portales, 1867) (= Dendrophyllia profunda): This species also forms dendroid, massive colonies up to 1 m in diameter (Fig. 1). Its distribution ranges from the Antilles in the Caribbean to Massachusetts at depths of 403-1748 m (Cairns, 1979). E. profunda occurs with L. prolifera at Sites B, C, and D (Fig. 2). It appears to be the primary constituent of the banks at Site D except at the tops of the mounds where L. prolifera is more prevalent (Stetson *et al.*, 1962).

### Site Descriptions:

Site A: Dozens of isolated banks have been mapped within Site A along a 90 nmi stretch near the shelf-edge break at 70-100 m depths (Reed, 1980; Thompson and Gulliland, 1980). A typical bank is a pinnacle-shaped structure with a maximum relief of 24 m and several hundred meters in diameter (Fig. 3 top). The tops of the banks are usually one or more linear ridges with east-west orientation. Greatest concentration of live coral occurs on the 30-45° southern slopes whereas the northern slopes are often

more gradual ( $<25^\circ$ ) with more dead coral rubble and scattered live colonies, 0.5-2 m in diameter. Some of the banks are completely covered with dead coral rubble with no live coral colonies.

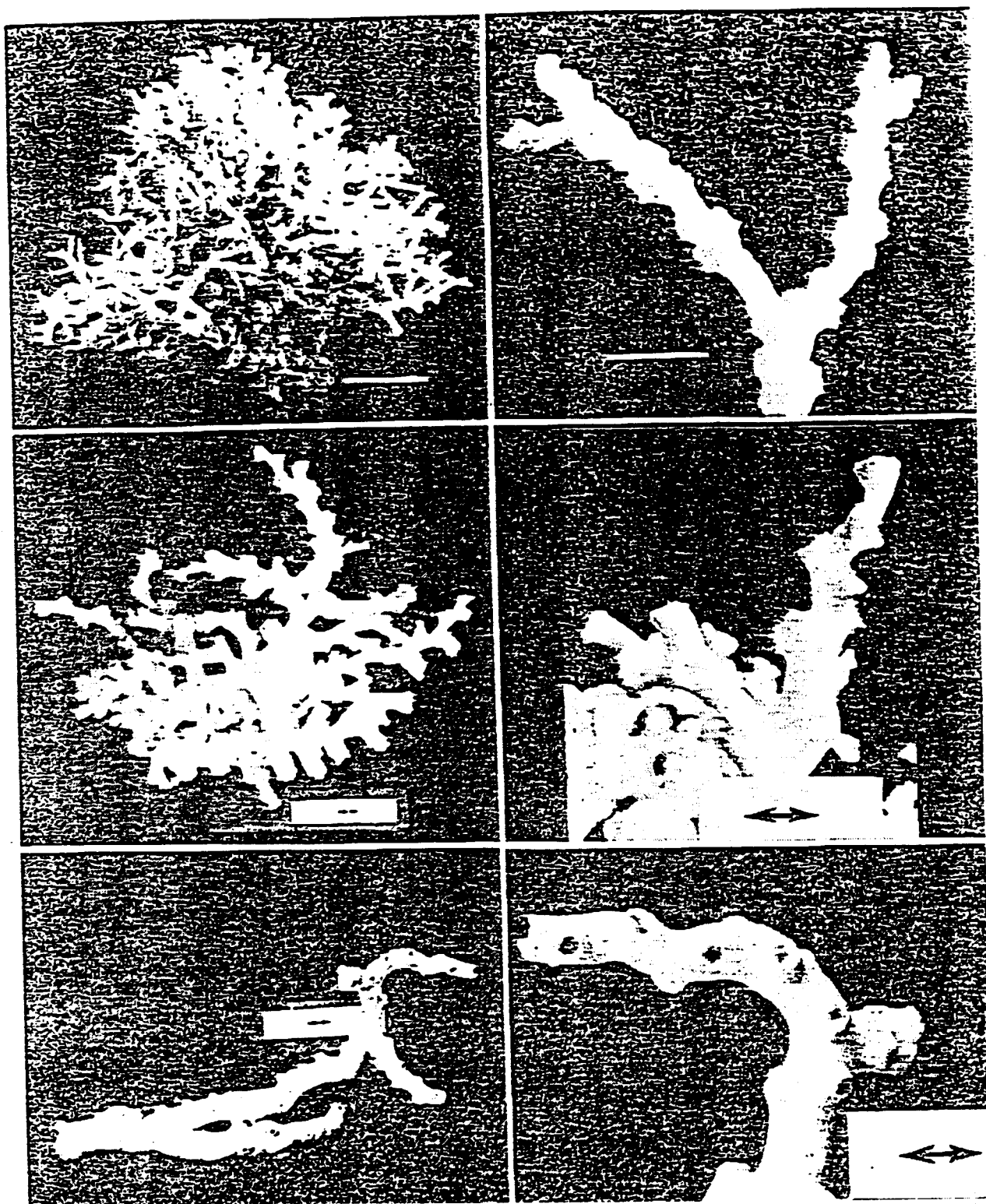


Figure 1. Colony and branch tip for : top - *Oculina varicosa* (80m); middle - *Lophelia prolifera* (490 m); bottom - *Enallopsammia profunda* (585 m). (scale lines = 1 cm; top left fig. scale = 5 cm).

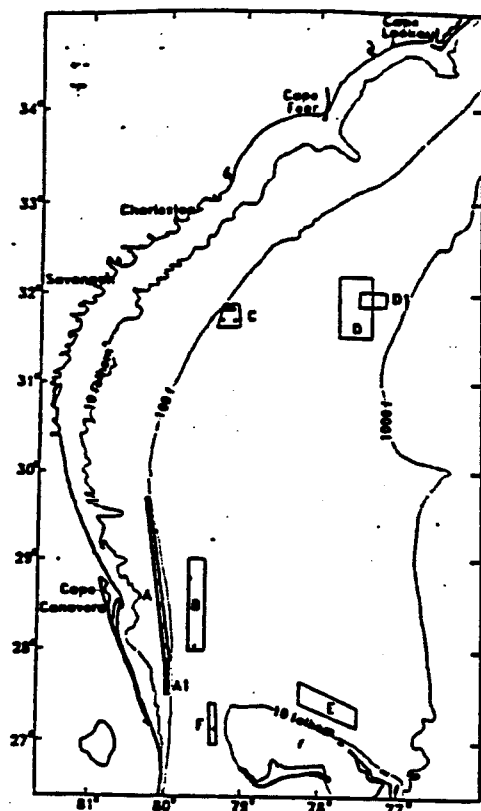


Figure 2. Deep-water coral banks off southeastern U.S.A. \* = Johnson-Sea-Link I and II Sites, Δ = Alvin Sites, A = *Oculina* Bank, A1 = *Oculina* HAPC Site, B-E = *Lophelia* Banks, F = *Lithohierms*

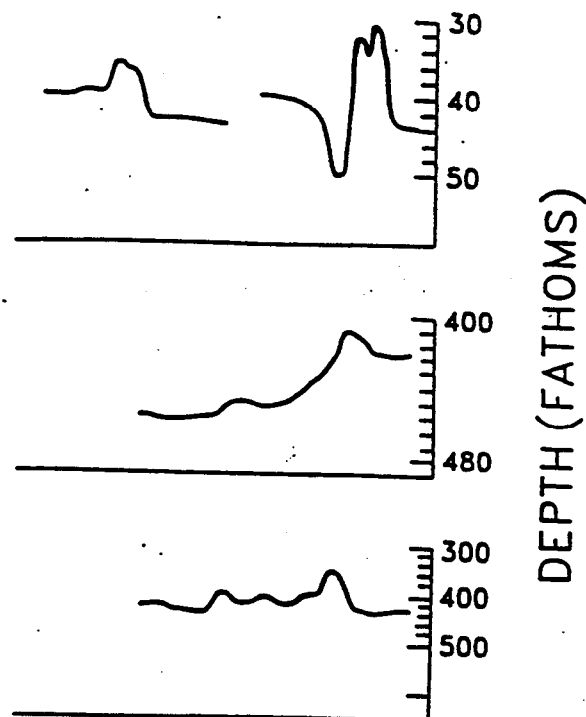


Figure 3. Bottom profiles of deep-water coral banks. Top-*Oculina* coral banks (Site A1); Middle-*Lophelia* coral bank (Site B); Bottom-*Lophelia* coral bank (Site D).

Greater growth on the southern facies may indicate exposure to the northerly flowing Gulf Stream (Florida Current); however, the clear, warm waters of this current rarely penetrate below the upper 50 m in this region. Current meters recorded average currents of 8.6 cm/s (0-58.5), which consisted of east-west tidal currents, a northerly flow (16% of total flow) and a southerly countercurrent (11% of total flow) (Hoskin *et al.*, 1987). Temperatures averaged 16.2°C and ranged from 7.4 to 26.7°C (Table 1). Intrusions of cold-water upwelling drop the temperature below 10°C episodically throughout the year (Reed, 1983). Nutrient levels of nitrates also increase nearly 10-fold during upwelling events.

A 92 sq.mi. portion (Fig. 2, Site A1) of the *Oculina* bank system is protected as a Habitat Area of Particular Concern within the Fishery Management Plan for Coral and Coral Reefs (NOAA, 1982) and was selected to the final site evaluation list of potential National Marine Sanctuaries (Federal Register, vol. 48, 1983; Reed, 1992).

**Site B:** Isolated *Lophelia* banks at the base of the Florida-Hatteras slope occur at depths of 700-850 m along the western edge of the Florida Straits and 15-25 nmi east of the *Oculina* banks. At a site east of Cape Canaveral (JSL-I dive 2474) a few small (<30 cm) colonies of *Lophelia*? were observed on slopes of nearly 100% dead coral rubble. At the southern end of Site B eight pinnacles were traced near a dive site documented by an ROV (CORD dive 85), and one pinnacle had 97 m relief (Fig. 3 middle). Near the peak a steep 45° slope consisted of coral rubble with a 5% cover of live coral colonies, 30-50 cm in diameter. Some upright dead colonies were also present. The northwest slope was muddy with less coral rubble. Temperatures ranged from 6.5 to 8.4°C and currents were northerly at 15 cm/s. Further

south in the Florida Straits off Miami, Neumann and Ball (1970) using the ALUMNAUT submersible found thickets of *Lophelia*, *Enallopsammia* (= *Dendrophylia*), and *Madrepora* growing on elongate depressions, sand ridges and mounds. It is uncertain whether these are true coral banks. Large quantities of *L. prolifera* and *E. profunda* have also been dredged from 738-761 m at 26°22-24'N and 79°35-37'W (Cairns, 1979).

Table 1. Site summary for *Oculina*, *Lophelia*, and Lithoherm Banks off Southeastern U.S.A.

Site Reference	Depth (m)	Max. Relief (m)	Temp. (°C)	Current (cm/s) (Dir. sec)	Salinity (ppt)	Visibility (m)	Coordinates
A) Reed, 1980	70-100	24	7.4-26.7 (3=16.2)	0-58.5 (N.S) (3=8.6)	35.7-36.4	0-30	27°32.8'N, 79°58.8'W to 28°59.2'N, 80°06.6'W
B) JSL I-2474	762-793	30	6.5	15 (315°)		15	28°46.72'N, 79°41.17'W
CORD-85	741-838	97	7.6-8.4				28°02.04'N, 79°36.51'W
C) JSL II-1690	490-503	13					31°41.23'N, 79°17.46'W
JSL II-1697	541		8.75	25-40 (50°)		15	31°41.82'N, 79°08.60'W
JSL II-1698	499-532	33	7.97-8.4	25-45 (50°)			31°41.5'N, 79°18.06'W
ALVIN-203	500-550	54	7.5	35-60 (NE)		30	31°48'N, 79°15'W
D) Stetson, et al. 62	640-869	146	7-10		35		31°30'N, 77°45'W to 32°10'N, 77°20'W
E) Mullins, et al. 81	1000-1300	40	4-6	50			27°40'N, 78°15'W to 27°10'N, 77°30'W
F) Neumann, et al. 77	639-675	50		2-7 (N)			-27°N-27°25'N, 79°20'W
JSL II-1522, 1523, 1533	610-631		8.25-9.58	0-15 (N)		15-30	28°56.72'N, 79°16.02'W to 27°02.66'N, 79°18.29'W

\* Sites A-F (see Fig. 1). JSL and CORD = Harbor Branch Oceanographic Institution's Johnson-Sea-Link submersibles and CORD ROV. ALVIN = Woods Hole Oceanographic Institution's submersible.

**Site C:** This is a continuation of the *Lophelia* banks along the base of the Florida-Hatteras slope from Site B. Not much information is available between these sites. Site C is at the western edge of the Blake Plateau and occurs in a region of phosphoritic sand, gravel and rock pavement. Coral banks occur at depths of 490-550 m and have maximum relief of 54 m. JSL-II dives 1690, 1697 and 1698 found a coral rubble slope with <5% cover of 30 cm, live coral colonies. On top of the bank were 30-50 cm diameter colonies covering ~10% of the bottom. Some areas consisted of a rock bottom with a thin veneer of sand, coral rubble, and 5-25 cm phosphoritic rocks. At ALVIN dive sites 200 and 203, Milliman *et al.* (1967) reported elongate coral mounds, approximately 10 m wide and 1 km long, that were oriented NNE-SSW. The mounds had 25-37° slopes and 54 m relief. Live colonies (10-20 cm diameter) of *E. profunda* (= *D. profunda*) dominated and *L. prolifera* were common. No rock outcrops were observed. Currents at all dive sites within Site C were to the northeast at 25-60 cm/s and temperatures averaged 7-9°C (Table 1).

**Site D:** This site is on the outer eastern edge of the Blake Plateau at depths of 640-869 m. Over 200 coral mounds up to 146 m in height occur over this 1800 sq.mi. area (Stetson *et al.*, 1962; Uchupi, 1968). These are steep-sloped structures with active growth on top of the banks (Fig. 3 bottom). Live coral colonies up to 0.5 m in diameter were observed with a camera sled. *E. profunda* (= *D. profunda*) was the dominant species in all areas although *L. prolifera* was concentrated on top of the mounds. Densest coral growth occurred along an escarpment at Site D1 (Fig. 2).

**Site E:** This is a deeper site (1000-1300 m) north of Little Bahama Bank and consists of 5-40 m high mounds of unconsolidated sediment with coral debris (Mullins *et al.*, 1981). These contrast with the other sites in that *Lophelia* sp. and *E. profunda* (= *Dendrophyllia* sp.?) were absent. The dominant live branching coral was *Solenosmilia* sp.

**Site F:** On the east side of the Florida Straits and along the western slope of Little Bahama Bank a region of lithohermes occurs at depths of 600-700 m (Neumann *et al.*, 1977). In contrast with *Lophelia* and *Oculina* banks which are unconsolidated, these are mounds of lithified carbonate sediment. Dives with ALVIN found these 30-50 m high lithohermes to be elongated north-south in a northerly flowing current which averaged <15 cm/s. The 20-30° slopes have a thin veneer of sediment. Although individual colonies of *Lophelia* and *Enallopsammia* are a common component on top of the mounds, these are not true coral banks.

#### Bank Geomorphology:

The internal structure of deep-water coral banks is not well documented. Attempts were made on an *Oculina* bank (Site A1, Figs. 2 and 3 top) to determine whether live coral capped a mound of unconsolidated sediment or lithified rock. Using a JSL submersible, a lockout dive was made at a depth of 71 m in a small flat sand area on the flanks and midway between the top and base of a 16 m high *Oculina* bank. A 1.3-cm diameter steel rod was used to probe to a depth of 4 m on the mound without hitting bedrock. Rock outcrops were not observed on the bank although rock pavement occurs within 50 m of the base on a flat sand bottom. A 6-cm diameter aluminum tube was used to core the flank of the bank. The cores consisted of coral branch fragments and mud sediment but only penetrated 22 cm. An *Oculina* branch taken at a depth of 8-12 cm within the core had a radiocarbon age of 480+/-70 yr B.P. (Hoskin *et al.*, 1987).

These results support the hypothesis that deep-water coral banks are accumulations of coral debris and sediment that are initially built upon a hard substrate. The formation of a deep-water bank may progress through the following hypothetical sequence as proposed in part by Mullins *et al.* (1981): 1) coral larvae initially settle and develop into isolated colonies on rock pavement or outcrops; 2) a coral thicket forms as other colonies grow nearby either by sexual reproduction or by branch fragmentation and regrowth; 3) a coppice stage or mound develops from trapped sediment and coral debris; 4) and finally the coppice develops into a coral bank which is a large structure of unconsolidated coral debris and sediment and is capped with live coral.

Seismic profiles of *Lophelia*/*Enallopsammia* banks do not adequately show their internal structure (Stetson *et al.*, 1962; Mullins, 1981). The banks, however, are probably associated with hardbottom. The banks within Site B are concentrated along the rims of linear depressions that may be erosional features of the Gulf Stream (Emery and Uchupi, 1972). The banks on the Blake Plateau (Site D) are best developed on the crest of an escarpment and also tend to follow bathymetric trends and depressions that may indicate rock outcrops (Stetson *et al.*, 1962; Uchupi, 1968).

#### Sediments:

Sediments from deep-water coral banks and nearby interbank areas have been analyzed for both the *Oculina* and *Lophelia* banks (Stetson *et al.*, 1962; Mullins *et al.*, 1981; Hoskin *et al.*, 1987). Each of these studies reported a greater percentage of mud (silt + clay) in the reef sediments than the non-reef sediments, indicating that the reef structure was trapping the finer sediments. The percentage of gravel, mainly from coral debris, was also generally greater at the reef sites. As the coral dies and erodes (Hoskin *et al.*, 1983), a portion of the sand and mud components from the coral may be transported from the reef by currents while the gravel-size branch fragments remain behind to form the bank structure.

Hoskin *et al.* (1987) found the sediment components of the *Oculina* banks to be more similar to shallow, hermatypic reefs than to other deep-water banks. Sediments of both *Oculina* banks and shallow reefs have a greater percentage of mollusc components whereas the *Lophelia* banks have

higher percentages of planktonic sand components such as foraminiferans and pteropods. The Oculina bank sediments, however, lack sand components from calcareous green algae that are abundant on shallow reefs.

#### Coral Growth:

Coral from both the Oculina and Lophelia banks lack zooxanthellae, the algal symbiont that enhances the growth rates of hermatypic corals. Average growth rate of Oculina varicosa at a depth of 80 m was 16 mm/yr (Reed, 1981). Light levels at this site averaged 0.33% of transmitted surface light but did not support the growth of algae (including zooxanthellae). Comparable growth rates of 6-15 mm/yr have been estimated for colonies of Lophelia prolifera collected from deep-water cables (Teichert, 1958; Wilson, 1979). Greatest coral growth for both the Oculina and Lophelia banks is on the top or on the current-facing side of the mound. The banks are in areas of fairly strong currents (up to 60 cm/s), undoubtedly contributing to the growth of the corals.

#### Coral Communities:

The deep-water banks support very rich communities of associated invertebrates. Faunal diversity on the Oculina banks is equivalent to that of many shallow tropical reefs. Over 20,000 individual invertebrates were found living among the branches of 42 small Oculina colonies, yielding 230 species of molluscs, 50 species of decapods, 47 species of amphipods, 21 species of echinoderms and numerous other phyla and species (Reed *et al.*, 1982; Reed and Hoskin, 1987; Reed and Mikkelsen, 1987). A striking difference between the Oculina and Lophelia banks is that larger sessile invertebrates such as massive sponges and gorgonians are not common on the Oculina banks. The Oculina coral itself is the dominant component on these reefs. The maximum percentage of live coral coverage is less on the Lophelia banks (5-10% at Sites B and C) compared to the Oculina banks (100% on some banks); however, both types of banks have extensive areas where the bottom is covered with 100% dead coral rubble and no live coral.

The Lophelia banks at Site C support large populations of massive sponges and gorgonians in addition to the smaller macroinvertebrates that have not been studied in detail. Dominant macrofauna include large plate-shaped sponges (Pachastrellidae, Choristida) and stalked, fan-shaped sponges (Phakellia ventilabrum?, Axinellida), up to 90 cm in diameter and height. At certain sites (JSL-II dive 1697), these species were estimated at 0.1 colony/m<sup>2</sup>. Densities of small stalked spherical sponges (Stylodordyla sp., Hadromerida) were estimated in some areas at 17 colonies/m<sup>2</sup>. Hexactinellid (glass) sponges such as Farrea? sp. are also common. Dominant gorgonacea include Eunicella sp. (Plexauridae) and Plumarella portalesi? (Primnoidae). At this same site, colonies of these two species averaged 10-25 cm in height with maximum densities of 3-10 colonies/m<sup>2</sup> and 1 colony/m<sup>2</sup>, respectively. The axes of all these fan-shaped sponges and gorgonians were perpendicular to the current, which was constantly to the northeast during all ALVIN and JSL dives. Piles of sediment were on the lee side of these colonies.

At the Lophelia banks of Site D, Stetson *et al.* (1962) reported an abundance of hydroids, alcyonaceans, echinoderms, actiniaria, and ophiuroids, but a rarity of large molluscs. The flabelliform gorgonians were also current-oriented.

The lithoherm banks at site F (JSL-II dives 1522, 1523, and 1533) also share some species of large sessile macroinvertebrates with the Lophelia banks. Large current-oriented fan sponges up to 90 cm in diameter (Phakellia ventilabrum?) are common, as well as several species of plate sponges (Pachastrella sp., Choristida) and hexactinellid sponges (Euplectella? sp. and Farrea? sp.). Fan-shaped gorgonians are common (e.g., Paragorgia johnsoni?, Corallium sp., Paramuricea sp., and Narella sp.) but are of different genera than those found on the Lophelia banks. Unstalked crinoids are also common on the rock substrate (Neocomatella pulchella and Crinometra brevipinna). In addition, numerous stalked crinoids (Neocrinus decorus, Endoxocrinus parrae, Isocrinus blakei, and Diplocrinus maclearanus) are common on the lithohermes but absent on the Oculina banks or Lophelia banks at Sites B, C and D.



### Summary

The geomorphological structure of the deep-water Oculina banks is similar to that of Lophelia banks. Their occurrence in high current regimes where fine sand, mud and coral debris are trapped results in similarly functioning ecosystems that support a rich community of invertebrates. Lacking zooxanthellae, Oculina varicosa and Lophelia prolifera have comparable growth rates. The primary difference appears in the species associated with these banks. The Oculina banks are on the shelf edge and have moderate faunal affinities with the shallow shelf reefs. The Oculina banks also lack large sessile invertebrates common to the Lophelia banks and lithoherms. The different faunal assemblages are reflected in the components of the sediment that also differ between the two types of bank systems.

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**Appendix O.  
1990)**

**Amendment #1 To the Coral FMP (GMFMC and SAFMC**

**AMENDMENT 1  
TO THE  
FISHERY MANAGEMENT PLAN  
FOR  
CORAL AND CORAL REEFS  
(Including Environmental Assessment,  
Regulatory Impact Review, and  
Initial Regulatory Flexibility Analysis)**

**Gulf of Mexico Fishery Management Council  
5401 West Kennedy Boulevard, Suite 881  
Tampa, Florida 33609  
813-228-2815**

**South Atlantic Fishery Management Council  
One Southpark Circle, Suite 306  
Charleston, South Carolina 29407-4699  
803-571-4366**

**SEPTEMBER 1990**

## I. Introduction

The Fishery Management Plan for Corals and Coral Reefs (FMP) was submitted by the Gulf and South Atlantic Fishery Management Councils for Secretarial approval on April 19, 1982, and was finally implemented on August 22, 1984 (49 FR 29607). The current FMP set optimum yield (OY) for stony corals and sea fans at zero, except as may be authorized for scientific and educational purposes under permit issued by the Southeast Regional Director (RD) of National Marine Fisheries Service (NMFS). OY for octocorals, except for sea fans, was set at the level harvested by U.S. fishermen with the expected level of harvest estimated to be 1,463 colonies annually from the exclusive economic zone (EEZ). The FMP provides that the condition of the stocks of octocorals and the harvest be monitored so that the Secretary can take appropriate action should there be a threat of overfishing. Management Measure 1 establishes a procedure whereby the Secretary through regulatory amendment or emergency action can restrict harvest of one or more species of octocorals to a specific level or restrict harvest from specific areas or restrict methods of harvest, if in the judgement of the Gulf of Mexico and South Atlantic Fishery Management Councils (Councils) there is a threat of localized depletion or overfishing of any of the octocorals.

Persons utilizing chemicals to collect fish in coral areas must first obtain a permit from the RD or the State of Florida where most collecting occurs. Persons who propose collecting prohibited corals or any coral from the habitat areas of particular concern (HAPCs) established by the FMP must also obtain a scientific permit from the RD. Regulations promulgated through the FMP prohibit non-permitted persons from damaging, harming, killing, or collecting prohibited coral which includes all stony coral, sea fans, and coral reefs and coral in HAPCs. Coral taken incidentally in other fishing activities must be returned to the water in the area of fishing as soon as possible, except that scallop and groundfish vessels with unsorted catch may land coral taken incidentally, but not sell it. Groundfish vessels operate in the central Gulf area where there is generally no stony coral. Scallop vessels generally operate off Cape Canaveral and Apalachicola, Florida.

## II. Description of the Fishery and Utilization Patterns

Since the FMP was implemented, NMFS has issued the following number of annual permits for the harvest of prohibited coral:

FY	Permits
1985	4
1986	1
1987	5
1988	3
1989	5
1990	2

All of these permits were issued to universities or research institutions.

In the South Florida area, the marine life industry harvests octocorals (primarily gorgonions) for the aquarium trade. There are probably less than 100 commercial collectors. At the time of drafting the FMP, this harvest level was estimated to be 5,845 colonies annually, 1,463 of which came from the EEZ. Current harvest levels are unknown, but an industry spokesman has estimated the 1989 harvest from the EEZ at about 10,000 to 20,000 colonies, and collectors usually wait for an order before harvesting octocorals (Dr. Henry Feddern, personal communication).

A rough estimate of the abundance of octocorals on a one-meter wide transect across the 6,000 patch reefs of the Florida Keys of at least 30 million colonies was made by Jennifer Wheaton (personal communication). This can be extrapolated for the entire surface of the patch reefs to be 4.7 billion colonies. Octocorals also occur on hard bottoms.

The Florida Department of Natural Resources (FDNR) is instituting a licensing and reporting system under the state trip ticket system in 1990 for products landed by the marine life industry, including soft corals by number (Dr. Robert Muller, personal communication). This system will include and identify products landed from federal and state waters.

Currently, the State does not restrict the harvest of octocorals other than the two species of sea fans outside of its parks, sanctuaries, and preserves<sup>1</sup>. The FMP similarly does not currently restrict harvest of octocorals, other than the two species of sea fans, outside of the HAPCs but monitors changes in abundance through the scientific community and authorizes the Secretary at the request of the Councils to prevent overfishing of any species or localized area by regulatory action. Neither the Councils nor the State of Florida placed harvest limitations on octocorals because abundance levels were high, especially in State waters, and directed harvest levels were moderate<sup>2</sup>. Octocorals rejuvenate removed portions and grow much faster than stony coral.

Incidental bycatch by trawls generally consists of sea pansies (*Renilla*) and sea whips (*Leptogorgia*), which are widely distributed. *Leptogorgia* is common along Gulf beaches in windrows following storms.

### III. Statement of the Problem

NMFS in July, 1989, published revised guidelines for fishery management plans that interpretatively address the Magnuson Act national standards (50 CFR Part 602). These guidelines require each FMP to include a scientifically measurable definition of overfishing and an action plan to arrest overfishing should it occur. The Councils reviewed these requirements and concluded that overfishing of corals could not occur; and, therefore, the plan was consistent with the guidelines since the provisions of the FMP provided for harvest of prohibited coral only for scientific and educational purposes by permit controlled by NMFS and provided a procedure to prevent overfishing of other corals. NMFS determined that an amendment to the plan was necessary because it did not include a measurable definition of overfishing.

### IV. Proposed Action

The actions proposed in this Amendment to the FMP are as follows:

- o inclusion of octocorals in the management unit as a controlled species;
- o restatement of Optimum Yield (OY) for the fishery to include octocorals;
- o inclusion of a definition of overfishing
- o inclusion of a permit system to take octocorals

---

<sup>1</sup> The Florida Marine Fisheries Commission (FMFC) will begin review of the marine life industry in 1990 to assess whether regulation is needed. Commercial harvesters will be requested to have a permit.

<sup>2</sup> Directed harvest for aquarium use was believed to affect nine species (FMP Section 5.1.1.5). Testimony from marine life collectors suggests that at least 14 species are currently collected.

- o provide reporting requirements for those taking corals under federal permit
- o inclusion of a FMP section on Vessel Safety Considerations
- o revision of the FMP section on Habitat of the Stocks.

#### **ACTION 1: The Management Unit**

##### **A. Preferred Option**

The management unit consists of coral reefs, stony corals, and octocorals including the two sea fans (Gorgonia ventalina and Gorgonia flabellum) in the EEZ in the jurisdiction of the Gulf of Mexico and South Atlantic Fishery Management Councils.

##### **The Species Included**

Included in this management unit are:

**Coral Reefs:** The hard bottoms, deepwater banks, patch reefs, and outer bank reefs as defined in this plan.

**Stony Corals:** For the purpose of this plan, includes species belonging to the Class Hydrozoa (fire corals and other hydrocorals) and Class Anthozoa, Subclass Zoantharia (stony corals and black corals).

**Octocorals:** Includes Class Anthozoa, Subclass Octocorallia (soft corals, horny corals, sea fans, whips, and pens).

##### **Rationale:**

- a. **Ecological:** The FMP implemented in 1984 included coral reefs, stony corals, and octocorals in the management unit but only regulated the taking of reefs, stony corals, and sea fans. No regulation of the other octocorals was provided unless they occurred in HAPCs. An OY for those octocorals was established from a crude estimate of the 1981 harvest by the Florida marine life trade. The estimated harvest was 5,845 colonies of which 1,463 came from the EEZ. OY was set at all octocorals that may be harvested by U.S. fishermen. The current (1989) commercial harvest from the EEZ is estimated at 10,000 to 20,000 colonies (Dr. Henry Feddem, personal communication). The amount of octocorals taken recreationally for personal use in aquaria is not known but is believed to be a fraction of that taken commercially.

The Councils noted that should harvest of octocorals become accelerated, they may use a procedure whereby if the Scientific and Statistical Committee or other sources notified the Councils of excessive harvest, the Councils would request the Secretary to utilize any available procedures to restrict the harvest. Neither the Councils nor anyone else has an accurate estimate of the current harvest of octocorals; although it is generally believed to be well within the ability of the resource to maintain itself.

The State of Florida is initiating a monitoring process for all commercial marine products which would include octocorals. Almost all of the directed harvest of octocorals in the management area comes from Florida waters or the adjacent EEZ. In the absence of federal regulation, Florida could regulate its own registered vessels in the taking of octocorals. Florida regulations currently protect only living stony corals and sea fans.

Octocorals are principally found on hard bottoms where they provide cover and habitat for fishes and invertebrates. The octocoral habitat is particularly critical to lobsters in the 20-40 mm size range (Jennifer Wheaton, personal communication).

While the current fishery for octocorals is well within the capacity of the resource to maintain itself, it is possible that harvest could become accelerated on some species and recruitment overfishing could occur. The Councils' technical advisors have recommended that all octocorals be included in the management unit and that a limit be placed on the harvest of species other than sea fans which are to remain as prohibited corals.

- b. **Socioeconomic:** With octocorals included in the management unit, they must be included in the definition of overfishing, OY, and a program to prevent overfishing. Inclusion of octocorals in the management unit is bound to add to management costs, especially that octocorals currently appear to have the potential for a growing commercial utilization. This inclusion could have minor or major economic and social implications depending on the measures adopted to manage this resource. Reportedly, there are under 100 commercial harvesters of octocorals, and the wholesale value of the harvest is estimated to range from \$40,000 to \$120,000. Because the number of recreational users and the amount of their harvest is not known, it is not possible to evaluate their activity at this time.

#### B. Rejected Alternative

Exclude octocorals from the management unit.

#### Rationale:

- a. **Ecological:** While octocorals are ecologically important as habitat for important marine species and are aesthetically valuable to recreational divers, the current directed EEZ fishery is estimated to be under 20,000 colonies a year. The standing population of octocorals on the patch reefs of the Florida Keys has been estimated to be above 4.7 billion colonies. There is the concern that harvest could be accelerated on one or more species thus leading toward overfishing of the stocks and depletion of the habitat for other species.

In the absence of management regulations for species in a fishery management plan, however, a state may regulate its registered vessels in the harvest of those species in federal waters. No state currently restricts octocoral harvest.

- b. **Socioeconomic:** There are probably under 100 commercial harvesters of octocorals. The wholesale value of the current estimated harvest is \$2 to \$6 per colony or \$40,000 to \$120,000. Exclusion of octocorals from the management unit could mean less potential restrictions on the industry currently exploiting the resource. However, there is also the potential for the users to overfish the resource as eventually to impair the utility of the resource as habitat for several marine species or to support the industry itself.

### ACTION 2: OPTIMUM YIELD (OY)

#### A. Preferred Option

Section 12.3.1 is revised as follows:

OY for coral reefs, stony corals, and sea fans (Gorgonia ventalina and Gorgonia flabellum), hereafter to be referred to as prohibited corals, in the EEZ is to be zero (0) except as may be authorized for scientific and educational purposes. The level of harvest is expected to be about

140 kilograms per year. Harvest of allowable octocorals (those other than sea fans) in the EEZ is not to exceed 50,000 colonies per year. Fishing for octocorals in the EEZ will cease when the quota is reached.

Rationale:

- a. Ecological: This option would allow limited harvest of allowable octocorals in the EEZ somewhat above the current level. It is believed to be conservative and sustainable.

The Councils noted that the conservative estimate of standing stock of allowable octocorals on the patch reefs of the Keys alone is 4.7 billion colonies. Some 14 of the 77 octocoral species are being harvested. This would be 18 percent of the species and, if evenly distributed by number (which is not likely but our best assumption), would comprise a standing stock of 846 million colonies. A very conservative harvest level of one percent would be 8.5 million colonies. The allowable OY of 50,000 colonies would provide an ample harvest for commercial and recreational users until such time as better data become available without compromising the stock.

The Scientific and Statistical Committee of the Gulf Council recommended some level of harvest reflecting current use which would be consistent with this option. Directed harvest of allowable octocorals is occurring almost entirely in and off South Florida (principally Monroe County). The State of Florida currently is not regulating harvest levels of octocorals, but has initiated a program to evaluate the marine life industry that collects marine organisms for the aquarium trade. Since the great majority of the reef tracts lies within or adjacent to State jurisdiction, the implementation of an EEZ harvest limitation level by the FMP will be difficult to enforce until the State concludes that data support regulation of octocorals within its jurisdiction. There is little coral within other state jurisdictions.

- b. Socioeconomic: A continuation of the current harvest of allowable octocorals would not disrupt current business practices of the marine life harvesters. If at the time of implementation the currently perceived level of use is maintained, the immediate impact of this redefinition is expected to be minimal. If demand has significantly increased, the net effect of this measure may no longer be minimal. On the negative side, growth of the commercial industry may be stunted. On the positive side, the new OY could prevent the eventual occurrence of over-commitment of resources into the industry and at the same time preserve the value of the resource to non-consumptive users. Non-disturbance of ecological balance and subsequent prevention of negative impacts on other fisheries may also be achieved. At present, however, it is not known what precise harvest level would be deleterious to the fishery as a whole, but a harvest level of 50,000 colonies appears to be acceptable to harvesters who provided testimony at public hearings. This quota applies only to the EEZ, and filling of this quota and closure of the harvest does not apply to harvest in state waters.

B. Rejected Alternative:

Section 12.3.1 is revised as follows:

OY for species in this management unit which includes coral reefs, stony corals, and sea fans is to be zero (0) except as may be authorized for scientific and educational purposes. The level of harvest is expected to be about 140 kilograms per year. (This option, consistent with Action 1, Option B, excludes octocorals from the management unit.)

Rationale:

See rationale for Action 1, Option B.



## C. Rejected Alternative:

Section 12.3.1 is revised as follows:

OY for species in this management unit which includes coral reefs, stony corals, and octocorals is to be zero (0) except as may be authorized for scientific and educational purposes. The level of harvest is expected to be about 140 kilograms per year.

Rationale:

- a. Ecological: This option includes all octocorals as prohibited species available only under very limited scientific collecting. The exclusion of octocorals from harvest retains them as habitat for lobsters and fishes that inhabit the hard bottoms.
- b. Socioeconomic: An OY of zero simply closes out commercial and recreational harvest of allowable octocorals from the EEZ. The industry is mainly composed of marine life dealers who collect marine specimens for the aquarium trade. An estimate of harvest from the EEZ by this group has been made at 10,000 to 20,000 colonies valued at about \$2 to \$6 per colony at the wholesale level and about \$18 or more per colony at the retail level (Dr. Henry Feddern, personal communication). There also may be some collecting by individual hobbyists, but the extent of this take is unknown.

**ACTION 3: DEFINITION OF OVERFISHING**A. Preferred Alternative: Section 5 of the FMP is amended to add:

Overfishing is defined as an annual level of harvest that exceeds OY.

Rationale:

- a. Ecological: OY for coral reefs, stony corals, and sea fans is set at zero. OY for allowable octocorals is to be 50,000 colonies per year, a scientifically acceptable level of harvest well within the sustainable yield of the resource.
  - b. Socioeconomic: This action provides the required definition of overfishing. The only change is a restriction of harvest of octocorals which is discussed under Action 2, OY.
- B. Rejected Alternative – No Action – No definition of overfishing.

Discussion: If this alternative was selected, the FMP would not be in compliance with 50 CFR Part 602.11 regarding overfishing.

**ACTION 4: REVISION OF MANAGEMENT MEASURE 1**A. Preferred Option: Add octocorals to the managed corals.

Management Measure 1 of the FMP is revised as follows:

Prohibit the taking of stony corals or octocorals or the destruction of these corals and coral reefs in the EEZ of the Gulf of Mexico and South Atlantic Fishery Management Councils' geographic area of authority, except as provided by permit in this plan.

Rationale:

- a. Ecological: This action adds octocorals other than sea fans, which are already included, to the regulated species. It would regulate the harvest of these species to maintain harvest levels within OY.
  - b. Socioeconomic: The proposed allowable level of harvest of octocorals is judged to be adequate to supply current users and harvesters.
- B. Rejected Alternative – No change in Measure 1

Measure 1: Prohibit the taking of stony corals or sea fans or destruction of these corals and coral reefs in the EEZ of the Gulf and South Atlantic Fishery Management Councils' geographical area of authority, except as provided for by permit in this plan.

Rationale:

- a. Ecological: This alternative is in conflict with Action 2 because it would allow overfishing of octocorals which had not previously been included as prohibited species.
- b. Socioeconomic: See rationale for Action 2.

ACTION 5: SUPPLEMENT TO MANAGEMENT MEASURE 2

- A. Preferred Option: Management Measure 2A is added as follows:

Measure 2A:

A valid federal or state of landing permit is required for any person harvesting allowable octocorals in the EEZ, and any person using a state or federal permit to take octocorals in the EEZ must agree that catch and gear must conform to regulations in the state of landing or federal regulation regardless of where harvested; and if state regulations differ from federal regulations, those harvesting must comply with the more restrictive regulations. A closure on reaching the quota in federal waters is not intended to affect harvest in state waters, nor is such a closure in state waters intended to affect harvest in federal waters.

The regional director of NMFS is authorized to issue a recreational permit with a fee of \$5.00 per year which would allow take of a daily bag limit of octocorals other than sea fans. A commercial permit with a fee of administrative cost of issuance (estimated cost about \$20.00) would allow harvest without a daily bag limit.

Rationale:

- a. Ecological: The permit system for taking allowable octocorals would identify harvesters and allow monitoring of the catch to assure that OY is not exceeded. Florida has begun to monitor commercial harvest with trip tickets, but recreational take is not monitored. Florida has, however, stated that it can determine the amount of the catch with samples of license holders. This fishery is almost entirely located in South Florida. That state is developing a plan for the marine life fishery and will regulate the harvest of all forms of marine life. In the absence of license or permit requirements by the state where landed, a federal permit is required to take or possess octocorals in the EEZ.
- b. Socioeconomic: A permit system utilizing existing state commercial and recreational permits (or in their absence, federal permits) to harvest octocorals would provide a mechanism to identify harvesters

in order to monitor catch. Of the states having licenses which apply to harvest of octocorals, only Florida with its commercial marine life permit monitors octocoral catch and is likely to propose regulations for state waters. Because almost all of the known current harvest of allowable octocorals occurs off Florida where state permits are already required, the number of federal permits issued is expected to be low.

The requirement that a person using a state or federal permit for octocorals to fish in the EEZ must agree to abide by the more stringent of state or federal harvest regulations regardless of where harvested currently would require conformance to federal regulations; as no state currently has harvest regulations. Essentially, this would require that recreational harvesters who fish in the EEZ and state waters must abide by the federal bag limit and that octocorals taken incidentally without a permit (except for the groundfish and scallop vessel exclusions) must return the octocorals in state as well as federal waters. Because octocorals are sessile organisms, a separate OY has been established for federal waters and a closure on reaching a quota should not deter fishing in another area where a quota has not been attained.

The only significant change would be the application of the federal bag limit to recreational harvesters in Florida waters. However, the limit of six colonies per person per day was deemed to be ample and acceptable according to public testimony.

#### Permit, Reporting and Catch Regulations Applicable to Octocorals by State

	<u>Texas</u>	<u>LA</u>	<u>MS</u>	<u>AL</u>	<u>FL</u>	<u>GA</u>	<u>SC</u>	<u>NC</u>
Commercial Permit	-	Yes	-	-	Yes	-	-	-
Recreational Permit	-	Yes	-	-	Yes	-	-	-
Commercial Catch								
Reported	-	-	-	-	Yes	-	-	-
Regulations	-	-	-	-	-	-	-	-

#### B. Rejected Alternative -- No permit required for harvesting allowable octocorals

No Action: No federal permit is required for harvest of octocorals in the EEZ.

#### Rationale:

- a. Ecological: No state currently requires a permit specifically for taking octocorals. Florida does have a commercial permit for harvesting marine life for sale. Reporting has begun in 1990 which will provide an estimate of commercial landings of octocorals in that state. In other states where licenses may be required for catch or sale of marine products, which includes octocorals in some instances, there is no program for reporting octocoral catch. In order to determine the extent of this harvest, a federal permit is proposed in absence of a state permit.
- b. Socioeconomic: Because almost all known octocoral harvest occurs in or off Florida, most commercial and recreational harvesters are already permitted (licensed) by the state.

#### ACTION 6: BAG LIMITS FOR OCTOCORALS

##### A. Preferred Option: Management Measure 2B is added as follows:

**Measure 2B:**

**Bag Limits for Recreational Permits:** A recreational bag limit of six colonies of allowable octocorals per person per day is allowed for recreational permit holders.

**Rationale:**

- a. **Ecological:** This action would limit daily harvest in excess of six colonies to those operating under a commercial permit. The commercial users are more easily identified and their catches monitored, particularly in Florida where almost all of the harvest occurs. Recreational users, whose total catch will be difficult to identify, will be restricted to the bag limit.
- b. **Socioeconomic:** This level of catch was recommended by recreational aquarium hobbyists as being adequate. The projected short-term impact of this measure on the recreational sector is negative but expected to be minimal. In the long-term, this measure would enable the resource to support on a continuing basis an increasing number of recreational users. The lower license fee of \$5.00 would separate the users. Because most of the harvest is landed in Florida, where a recreational fishing license applies to octocorals, few federal permits are expected to be issued.

**ACTION 7: INCIDENTAL CATCH OF OCTOCORALS**

- A. **Preferred Option:** Management Measure 3 is revised to address bycatch of octocorals as follows:

**Measure 3:** Prohibited species of coral taken incidentally in other fisheries must be returned to the water in the general area of capture as soon as possible. An exception is provided for the groundfish, scallop, or other similar fisheries where the entire unsorted catch is landed. In such instances, the corals may be landed but may not be sold. Allowable octocorals taken as bycatch without a state or federal permit are to be treated as prohibited species.

**Rationale:**

- a. **Ecological:** This prohibits taking of prohibited species and octocorals without a permit, even those taken incidentally as bycatch. Allowance is still made for unsorted bycatch in scallop and groundfish fisheries.
- b. **Socioeconomic:** The economic impact of this action is negligible. It merely provides for enforcement of the management of harvest.

The Councils recognize that an unavoidable bycatch of some corals occurs with bottom trawls used to take groundfish, scallops, and shrimp. The catch of the latter is usually sorted with unwanted bycatch returned to the water. In the groundfish and scallop fishery, however, the entire catch is usually landed without sorting. Some corals occur on trawlable bottom and have been taken and landed without apparent damage to the stock. The Councils do not wish to disrupt these fisheries, however, they do not wish to provide a legal opening for the development of a fishery for prohibited corals.

- B. **Rejected Alternative - No change;** Octocorals not to be returned as bycatch.

**Measure 3:** Stony corals and sea fans taken incidentally in other fisheries must be returned to the water in the general area of capture as soon as possible. An exception is provided for the groundfish, scallop, or other similar fisheries where the entire unsorted catch is landed. In such instances, the corals may be landed but may not be sold.

**Rationale:**

- a. **Ecological:** Allowing the retention and sale of incidentally harvested octocorals could result in difficulty in enforcement of the management measures and exceeding the OY.
- b. **Socioeconomic:** The current use of octocorals taken as bycatch is not known but is likely to be insignificant.

**ACTION 8: REPORTING OF CATCH**

- A. **Preferred Option:** The Councils recommend a mandatory reporting system for catch statistics of allowable octocorals to be on selection from federal permittees by the Science and Research Director of NMFS.

**Rationale:**

- a. **Ecological:** Reporting of catch is necessary to determine if catch exceeds OY and overfishing occurs. Florida will monitor commercial octocoral take landed in Florida. The extent of other catch is not known. The Research and Science Director is authorized to implement a reporting requirement if needed to monitor catch under federal permits.
  - b. **Socioeconomic:** The expected number of federal permittees is unknown; however, the number is believed to be small. There would be no duplication of state and federal reporting requirements. Some unquantifiable cost would be borne by some permittees, but benefits afforded by better information are deemed to outweigh such cost.
- B. **Rejected Alternative:** No action -- No federal statistical reporting requirement

**Rationale:**

- a. **Ecological:** Florida requires reporting of harvest of marine life including octocorals. Recreational catch is not known. Most commercial and recreational catch is landed in Florida.
- b. **Socioeconomic:** Statistical reporting always imposes some cost to users and administrators. However, in this instance the number of federal permits is expected to be low, and catch may be insignificant enough that reporting requirements may be determined by the Science and Research Director to be unnecessary.

**ACTION 9: VESSEL SAFETY CONSIDERATIONS**

Section 13.0 of the FMP is modified by adding a new subsection 13.11 Vessel Safety Considerations to read as follows:

**13.11 Vessel Safety Considerations**

No management measures included in the FMP or in this Amendment constrain access to the fishery such that vessel safety would be compromised due to weather or unsafe ocean conditions. Permitted persons may harvest the allowable amount of coral at any time during the fishing year (October 1 - September 30) and, thereby, may avoid unsafe conditions.

## **ACTION 10: HABITAT OF THE STOCKS**

Since corals are sessile animals the FMP section on Description of the Stocks (5.0) and the FMP section on Description of the Habitat (6.0) adequately describe the habitat of the stocks (105 pages in aggregate), including condition of the stocks as well as man-induced and natural impacts to the habitat. Therefore, this Amendment modifies the FMP by including the following updated revised subsections: 6.4 Habitat Information Needs; 6.5 Habitat Protection Programs; and 6.6 Habitat Recommendations. These revisions are in Appendix A.

### **V. Coastal Zone Consistency**

Copies of the proposed action were provided to the Coastal Zone Management Offices of the Gulf and South Atlantic states. The action as proposed will be consistent with plans of coastal states.

### **VI. Environmental Consequences**

**Physical Environment** - The proposed actions in this amendment will have no adverse impact on the physical environment.

**Fishery Resource** - The proposed actions are intended to maintain the coral and coral reefs and to prevent them from becoming overfished.

**Human Environment** - Some marine life fishermen would be affected by restrictions intended to conserve the stocks of octocorals. Long-term benefits are expected to exceed short-term loss.

**Effect on Endangered Species and Marine Mammals** - The proposed amendment will have no effect on endangered species and marine mammals. A Section 7 consultation was held for this amendment with a "no jeopardy opinion" being rendered. The proposed actions do not alter provisions of the FMP that would affect these animals.

**Effect on Wetlands** - The proposed amendment will have no effect on any flood plains, wetlands, trails, or rivers.

### **VII. Conclusions**

The NMFS requires a Regulatory Impact Review (RIR) for all regulatory actions that are of public interest. The RIR does three things: 1) it provides a comprehensive review of the level and incidence of impacts associated with a proposed or final regulatory action, 2) it provides a review of the problems and policy objectives prompting the regulatory proposals and an evaluation of the major alternatives that could be used to solve the problem, and 3) it ensures that the regulatory agency systematically and comprehensively considers all available alternatives so that the public welfare can be enhanced in the most efficient and cost effective way.

The RIR also serves as the basis for determining whether any proposed regulations are major under criteria provided in Executive Order 12291 (E.O. 12291) and whether the proposed regs will have a significant economic impact on a substantial number of small entities in compliance with the Regulatory Flexibility Act of 1980 (RFA). The primary purpose of the RFA is to relieve small businesses, small organizations, and small governmental jurisdictions (collectively: "small entities") of burdensome regulatory and record-keeping requirements. An Initial Regulatory Flexibility Analysis (IRFA) has been done as part of the RIR to determine whether the requirements pursuant to this amendment, if promulgated, would not have a significant effect on a substantial number of small entities.

The analyses of the impacts of alternative measures considered under this amendment have been done in previous sections and are deemed to satisfy the basic elements for RIR/IRFA. Table 1 is a summary of impacts of the proposed and rejected measures.

**TABLE 1**  
**Summary of Impacts**

<b>Actions</b>	<b>Preferred Option</b>	<b>Rejected Option</b>
Action 1	+ or -	- or +
Action 2	-	+ or -
Action 3	- or +	Will not meet regulatory guidelines
Action 4	-	+ or -
Action 5	no impact	no impact
Action 6	- or o short term, + long term	N/A
Action 7	no impact	
Action 8	- short term, + long term	N/A
Action 9	no short term impact; + long term	N/A
Action 10	no short term impact; + long term	N/A

**Mitigating Measures Related to the Proposed Action** - No significant environmental impacts are expected; therefore, on mitigating actions are proposed.

**Unavoidable Adverse Effects** - None: no change is proposed.

**Relation Between Local, Short-Term Users of the Resource and Enhancement of Long-Term Productivity** -A small fishery for octocorals would be prohibited.

**Irreversible or Irretrievable Commitment of Resources** - None.

**Enforcement Costs** - Costs of this action are estimated to be \$85,000.

**Finding of No Significant Environmental Impact**

Having reviewed the environmental assessment and available information relating to the proposed actions, I have determined that the proposed actions will not significantly affect the human environment and that preparation of an environmental impact statement is not required.

Assistant Administrator for Fisheries

Date

**RESPONSIBLE AGENCIES**

Gulf of Mexico Fishery Management Council  
Lincoln Center, Suite 881  
5401 West Kennedy Boulevard  
Tampa, Florida 33609  
813-228-2815

South Atlantic Fishery Management Council  
One Southpark Circle, Suite 306  
Charleston, South Carolina 29407-4699  
803-571-4366

National Marine Fisheries Service  
Duval Building, 9450 Koger Boulevard  
St. Petersburg, Florida 33702  
813-893-3141

**LIST OF AGENCIES AND PERSONS CONSULTED**

Gulf of Mexico Fishery Management Council  
- Coral Advisory Panel  
- Scientific and Statistical Committee

South Atlantic Fishery Management Council  
- Coral Advisory Panel  
- Scientific and Statistical Committee

National Oceanic and Atmospheric Administration (NOAA)  
- Office of General Counsel (SER)

National Marine Fisheries Service (SER)  
- Southeast Regional Office  
- Southeast Fisheries Center  
Florida Marine Life Association  
Florida Marine Aquarium Society  
Project Reefkeeper

**LIST OF PREPARERS**

Gulf of Mexico Fishery Management Council  
- Wayne Swingle, Biologist  
- Terrance Leary, Biologist  
- Antonio Lamberte, Economist  
South Atlantic Fishery Management Council  
- Roger Pugliese, Biologist



**LOCATION AND DATES OF PUBLIC HEARINGS**

June 11, 1990  
Key West, Florida  
Casa Marina Hotel

July 9, 1990  
Key Biscayne, Florida  
Sheraton Royal Biscayne Hotel

## APPENDIX A

### 6.4 Habitat Information Needs

The following research needs relative to coral habitat are provided so that state, federal, and private research efforts can focus on those areas that would allow the Councils to develop measures to better manage corals and their habitat:

1. Identify optimum environmental and habitat conditions that limit coral production;
2. Determine the relationship between coral reefs and estuarine habitat conditions;
3. Quantify the relationships between coral growth and production and habitat;
4. Identify additional areas of particular concern for coral;
5. Determine methods for restoring reef habitat and/or improving existing environmental conditions that adversely affect reefs;
6. Identify mitigative methods for preserving and/or establishing reef;
7. Determine the impacts of trap fishing and trawling on coral and reef habitats.

### 6.5 Habitat Protection Programs

State and federal agencies and laws and policies that affect coral habitat are found in Section 7.0 of the Coral EIS and FMP (1982). Specific involvement by other federal agencies are identified below.

**Office of Coastal Zone Management, Marine Sanctuaries Program, NOAA:** Specifically, this program manages and funds the marine sanctuaries program. On-site management and enforcement are generally delegated to the states through special agreements. Funding for research and management is arranged through grants.

**National Marine Fisheries Service:** The enactment of the Magnuson Act provides for exclusive management of fisheries seaward of state jurisdiction. This includes both specific fishery stocks and habitat. The process for developing FMPs is highly complex. It includes plan development by various procedures through fisheries management councils. National Marine Fisheries Service implements approved plans. The Coast Guard, National Marine Fisheries Service, and states enforce fishery management plans. Fishery management plans for billfish, corals, and coral reefs, coastal migratory pelagics, red drum, reef fish, shrimp, spiny lobster, stone crab, sharks, snapper and grouper, and swordfish are in force in the Gulf of Mexico and South Atlantic.

**National Park Service:** National parks and monuments are under the jurisdiction of National Park Service. Management, enforcement, and research are accomplished in house.

**Minerals Management Service:** This agency has jurisdiction over mineral and petroleum resources on the continental shelf. Management has included specific lease regulations and mitigation of exploration and production activities in areas where coral resources are known to exist.

**Fish and Wildlife Service:** Fish and Wildlife Service assists with environmental impact review, develops biological resource evaluations, and administers the endangered species program with the NMFS. In the Keys area, the Fish and Wildlife Service manages several national refuges for wildlife.

**Geological Survey:** In the coral reef areas, the Geological Survey has conducted considerable reef research and assisted or cooperated with other institutions and agencies to facilitate logistics and support of coral reef research.

**Coast Guard:** The 1978 Waterways Safety Act charges the Coast Guard with marine environmental protection. The Coast Guard is the general enforcement agency for all marine activity in the federal zone. Among the duties are enforcement of sanctuary and fishery management regulations, managing vessel salvage, and coordinating oil spill cleanup operations at sea.

**U.S. Army Corps of Engineers:** The Corps contracts and regulates coastal engineering projects, particularly harbor dredging and beach renourishment projects. The Corps also reviews and is the permitting agency for coastal development projects, artificial reefs, and offshore structures.

**Environmental Protection Agency:** This agency has a general responsibility for controlling air and water pollution. Disposal of hazardous wastes and point-source discharge permitting are Environmental Protection Agency functions. Certain mineral and petroleum exploration and production activities are managed by Environmental Protection Agency. Environmental research germane to waste disposal and pollution also are funded.

Federal environmental agencies such as the National Marine Fisheries Service, Minerals Management Service, Fish and Wildlife Service, and the Environmental Protection Agency also analyze projects proposing inshore and offshore alterations for potential impacts on resources under their purview. This is similar to the function of the Council's Habitat Protection Committees. Recommendations resulting from these analyses are provided to the permitting agencies (the Corps for physical alterations in inshore waters and territorial seas, the Minerals Management Service for physical alterations in the Outer Continental Shelf or the offshore Exclusive Economic Zone (EEZ) and Environmental Protection Agency for chemical alterations). Even though the Corps of Engineers issues permits for oil and gas structures in the EEZ, they only consider navigation and national defense impacts, thus leaving the rest to the Department of the Interior, in a nationwide general permit.

In administering the oil and gas resources on the Outer Continental Shelf, the Department of the Interior, through the Minerals Management Service, has not been recognizing the authority of the Fish and Wildlife Coordination Act. Instead they have contended that the Outer Continental Shelf Lands Act, as amended, supersedes the Fish and Wildlife Coordination Act. They also require that the oil and gas lease permit stipulations be more closely coordinated with other Department of the Interior bureaus, e.g., Fish and Wildlife Service, as provided in Departmental Manual 655. Coordination with other federal and state agencies is less frequent. For example, coordination between National Marine Fisheries Service and Minerals Management Service results from NOAA participation in the Outer Continental Shelf Advisory Board's Gulf of Mexico Regional Technical Working Group, which usually convenes three times a year, and from authorities under the Endangered Species Act and National Environmental Policy Act. The latter involves the periodic review of environmental statements for proposed lease sales. While review under the Endangered Species Act generally involves exploration and development plans, it is very difficult for agencies like National Marine Fisheries Service to have Minerals Management Service implement less environmentally damaging procedures in oil and gas operations around reefs, etc., if the Fish and Wildlife Service has not already objected to the procedure during the Department of the Interior, DM 655 coordination. However, though not required to do so, the Fish and Wildlife Service frequently informally coordinates their proposed actions under DM 655.

with National Marine Fisheries Service. None of the Fish and Wildlife agencies have veto power over Minerals Management Service permitting for oil and gas exploration, development and production on the Outer Continental Shelf, or on essentially the EEZ.

Environmental Protection Agency is the permitting agency for chemical discharges into the Gulf of Mexico, under the National Pollution Discharge Elimination System (NPDES) program of the Clean Water Act for chemicals used or produced in the Gulf (i.e., drilling muds, produced water or biocides) and then released, or under the Ocean Dumping Regulations of the Marine Protection, Research and Sanctuaries Act if the chemicals are transported into the Gulf for the purpose of dumping. When discharge or dumping permits are proposed, federal and state Fish and Wildlife Agencies may comment and advise under the Fish and Wildlife Coordination Act and National Environmental Protection Act. The Councils may do likewise under the Magnuson Act and National Environmental Protection Act. The Councils also protect reef fish habitat under the Corals and Coral Reefs Fishery Management Plan.

#### 6.6 Habitat Recommendation

The coral resources contribute to the food supply, economy, health of the nation, and provides habitat for recreational and commercial fishing opportunities and aesthetic enjoyment. The continued use of these resources can only be assured by the wise management of all aspects of habitat. Increased productivity may not be possible without habitat maintenance and regulatory restrictions.

Recognizing that all species are dependent on the quantity and quality of their essential habitats, it is the policy of the Councils to protect, restore, and improve habitats upon which commercial and recreational marine fisheries depend, to increase their extent and to improve their productive capacity for the benefit of the present and future generations. This policy shall be supported by three objectives which are to:

1. Maintain the current quantity and productive capacity of habitats supporting important commercial and recreational fisheries, including their food base. (This objective may be accomplished through the recommendation of no loss and minimization of environmental degradation of existing habitat);
2. Restore and rehabilitate the productive capacity of habitats which have already been degraded; and
3. Create and develop productive habitats where increased fishery productivity will benefit society.

To achieve these goals the Councils have formed Habitat Protection Committees and Advisory Panels. The purpose of the committees is to bring to the Councils' attention activities that may affect the habitat of the fisheries under their management. The Councils pursuant to the Magnuson Act, will use its authorities to support state and federal environmental agencies in their habitat conservation efforts and will directly engage the regulatory agencies on significant actions that may affect habitat. The goal is to ensure that habitat losses are kept to the minimum and that efforts for appropriate mitigation strategies and applicable research are supported.

**Appendix P.  
Rock.****State of North Carolina Regulations on Coral and Live  
PROHIBIT LIVE ROCK AND CORAL HARVEST****(Revised November 1994)**

**ISSUE:** 'Live rock' consists of living marine organisms attached to a hard substrate such as dead coral or rock and is harvested primarily for the aquarium industry. In the South Atlantic, live rock occurs as calcium carbonate outcrops and loose rubble associated with coral reef tract. Live rock is collected by divers and sold in the marine aquarium industry where it serves as the basis for mini-reef aquariums. In the South Atlantic live rock has become a very lucrative multi-million dollar fishery, providing tons of this material for the aquarium industry. Presently, North Carolina has no statutes or rules that address the taking of either live rock or coral in its jurisdiction.

**ORIGINATION:** MFC Water Quality, Habitat and Interagency Liaison Committee

**BACKGROUND:** The removal of corals and live rock is regarded as a serious habitat destruction problem by both the South Atlantic Fishery Management Council (SAFMC) and the Gulf of Mexico Fishery Management Council (GMFMC) because this substrate functions as feeding grounds, nursery and breeding grounds, and provides refuge for numerous species. They also provide nitrogen and carbon for adjacent communities. The original Federal Coral and Coral Reef Plan approved in 1982 prohibits the taking of certain live coral without a permit. Permits are issued only for scientific or educational purposes. The SAFMC during its February meeting approved Amendment #2 to the Coral and Coral Reef Management Plan. Included in the Plan Amendment was a definition of "live rock", the prohibition of the taking of live rock in the Exclusive Economic Zone (EEZ) north of Dade County, Florida and an annual quota and a phase out of live rock harvest in all other Florida waters under SAFMC jurisdiction by the end of 1995. The Council requested the closure in the EEZ north of Dade County be accomplished as rapidly as possible through emergency action. The emergency action was approved and published in the Federal Register effective June, 1994. The GMFMC is also amending the Coral and Coral Reef Plan to phase out live rock harvest in three years and effective May 16, 1994, by an emergency rule requested by the GMFMC, live rock harvest was prohibited in the Gulf from north of Tampa Bay to the Mississippi State boundary. The State of Florida has prohibited the taking of live rock and coral. South Carolina is also drafting legislation to prohibit live rock and coral harvest.

With the two year phase out in federal waters off the Florida keys and a three year phase out in the Gulf of Mexico, live rock harvesters will be seeking new areas to fish. Federal and state (FL and SC) provisions are being established to convert live rock production and harvest over to an aquaculture program; however, during the interim and for those not in aquaculture, North Carolina state waters may provide that source.

This item was discussed by the Water Quality, Habitat and Interagency Liaison Committee and was recommended to go to the full MFC for public hearing agenda.

## PROPOSED ACTION:

Prohibit the harvest of live rock and coral.

## Recommendation:

Adopt a new rule under Subchapter I, as follows:

### 3I .0016 CORAL AND LIVE ROCK

- 1) It is unlawful to harvest or possess aboard a vessel coral or live rock as defined in 15A NCAC 3I .0001(24) and (25).
- 2) Live rock and coral shall be returned immediately to the waters where taken.

History Note: Statutory Authority G.S. 113-134; 113-182; 143B-289.4;  
Eff. March 1, 1995

Amend 15A NCAC 3I .0001 by adding (24) and (25) as follows:

### .0001 DEFINITIONS

- (24) Live rock. Living marine organisms, or an assemblage thereof, attached to a hard substrate including dead coral or rock (excluding mollusk shells). For example, such living marine organisms associated with hard bottoms, banks, reefs, and live rock may include but are not limited to:

(A) Animals:

- (i) Sponges (Phylum Porifera):
- (ii) Hard and Soft Corals, Sea Anemones (Phylum Cnidaria):
  - (I) Fire corals (Class Hydrozoa):
  - (II) Gorgonians, whip corals, sea pansies, anemones, Solenastrea (Class Anthozoa):
- (iii) Bryozoans (Phylum Bryozoa):
- (iv) Tube Worms (Phylum Annelida):
  - (I) Fan worms (Sabellaridae):
  - (II) Feather duster and Christmas tree worms (Serpulidae):
  - (III) Sand castle worms (Sabellaridae):
- (v) Mussel banks (Phylum Mollusca:Gastropoda):
- (vi) Colonial barnacles (Arthropoda:Crustacea:Megabalanus sp.).

(B) Plants:

- (i) Coralline algae (Division Rhodophyta):
- (ii) Acetabularia sp., Udotea sp., Halimeda sp., Caulerpa sp. (Division Chlorophyta):
- (iii) Sargassum sp., Dictyopteris sp., Zonaria sp. (Division Phaeophyta).

**(25) Coral**

- (A) Fire corals and hydrocorals (Class Hydrozoa):**
- (B) Stony corals and black corals (Class Anthozoa, Subclass Scleractinia):**
- (C) Octocorals, Gorgonia corals (Class Anthozoa, Subclass Octocorallia):**
  - (i) Sea fans (Gorgonia sp.):**
  - (ii) Sea Whips (Leptogorgia virgulata and Lophogorgia sp.):**
  - (iii) Sea Pansies (Renilla sp.):**

**History Note:** Statutory Authority G.S. 113-134; 143B-289.4;  
 Eff. January 1, 1991;  
 Amended Eff. March 1, 1995; March 1, 1994; October 1, 1993; July 1, 1993; November 1, 1991.

**DISCUSSION:** The proposed rule would prohibit the taking of coral or live rock in North Carolina state waters. An existing rule, 3I .0006 (Scientific Collecting Permit), would allow the taking of coral and live rock for scientific or educational purposes.

Aquaculture of live rock will be allowed in the EEZ by the federal plan and rules. General statutes would have to be changed to allow live rock aquaculture in state waters. North Carolina General Statute 113-201 which authorizes the MFC to make rules and take all steps necessary to develop and improve cultivation, harvesting and marketing applies only to shellfish. The bottom and water column lease statutes also only apply to shellfish.

Live rock landings have not been verified in North Carolina. During the public hearings one individual indicated they had harvested live rock off North Carolina. NMFS has received a request for licensing information for a new business planning to land live rock in North Carolina. Prohibiting harvest at this early stage would minimize economic impact and protect an important habitat.

**MORATORIUM CRITERIA:**

- ☒ **X** Prevent further endangerment of the resources
- ☐ Involves user conflicts
- ☐ Necessary to maintain State control of its own fishery resources in order to avoid the exercise of federal fishery management authority over those resources
- ☐ None of the above

**DIVISION OF MARINE FISHERIES RECOMMENDATION:**

Recommend approval

*is an additional deterrent to violators.*

*15A NCAC 3I .0016 - Prohibits the taking of coral or live rock. Emergency action in federal waters and prohibitions in waters of some southern states may cause more pressure on North Carolina's limited amount of this natural resource.*

*15A NCAC 3J .0106 - Restricts area where channel nets are allowed. This is needed for navigational safety.*

*15A NCAC 3J .0401 - Extends the expiration date for this rule another year. Conflicts with gear in all areas is yet to be resolved.*

*15A NCAC 3M .0504 - Allows, through proclamation, for larger size limit on hook-and-line caught weakfish. This will allow for a larger creel limit as required for compliance by the Atlantic Coastal Fisheries Cooperative Management Act.*

*15A NCAC 3M .0513 - Establishes a closed season for taking of blueback herring, alewife, American shad and hickory shad. Populations of these species are at low levels and stocks are considered stressed.*

*15A NCAC 3O .0210 - Establishes procedures for transfer of vessel license both from one vessel to another or from one individual to another. Transfer from one vessel to another was authorized by 1993 (Regular Session 1994), c. 576, s. 3.*

*15A NCAC 3O .0201 - Outlines process for determination of production and marketing on leases and franchises. This amendment is necessary based on a recent contested case ruling.*

*15A NCAC 3O .0205 - Clarifies process for denial of renewals because of pollution. This amendment is necessary based on a recent contested case ruling.*

*15A NCAC 3O .0208 - Requires new lease or franchise owners to meet production and marketing requirements. This amendment is necessary based on a recent contested case ruling.*

*Comment Procedures: Comments and statements, both written and oral, may be presented at the hearings. Written comments are encouraged and may be submitted to the Marine Fisheries Commission, PO Box 769, Morehead City, NC 28557. These written and oral comments must be received no later than 10 A.M., December 1, 1994. Oral presentation lengths may be limited depending on the number of people that wish to speak at the public hearings.*

#### **BUSINESS SESSION**

*The Marine Fisheries Commission will conduct a Business Session on December 2 - 3, 1994, at the MDS Center 422 Raleigh Road, Smithfield, NC, beginning at 9:00 A.M. on the morning of December 2, 1994, to decide on these proposed rules.*

### **CHAPTER 3 - MARINE FISHERIES**

#### **SUBCHAPTER 3I - GENERAL RULES**

##### **.0001 DEFINITIONS**

- (a) All definitions set out in G.S. 113, Subchapter IV apply to this Chapter.
- (b) The following additional terms are hereby defined:
  - (1) **Commercial Fishing Equipment.** All fishing equipment used in coastal fishing waters except:
    - (A) Seines less than 12 feet in length;
    - (B) Spears;
    - (C) A dip net having a handle not more than eight feet in length and a hoop or frame to which the net is attached not exceeding 60 inches along the perimeter;
    - (D) Hook-and-line and bait-and-line equipment other than multiple-hook or multiple-bait trotline;
    - (E) A landing net used to assist in taking fish when the initial and primary method of taking is by the use of hook and line; and
    - (F) Cast Nets.
  - (2) **Fixed or stationary net.** A net anchored or staked to the bottom, or some structure attached to the bottom, at both ends of the net.
  - (3) **Mesh Length.** The diagonal distance from the inside of one knot to the outside of the other knot, when the net is stretched hand-tight.
  - (4) **Possess.** Any actual or constructive holding whether under claim of ownership or not.
  - (5) **Transport.** Ship, carry, or cause to be carried or moved by public or private carrier by land, sea, or air.



- of varying density.
- (22) North Carolina Trip Ticket. Multiple-part form provided by the Department to fish dealers who are required to record and report transactions on such forms.
- (23) Transaction. Act of doing business such that fish are sold, offered for sale, exchanged, bartered, distributed or landed. The point of landing shall be considered a transaction when the fisherman is the fish dealer.
- (24) Live rock. Living marine organisms or an assemblage thereof attached to a hard substrate including dead coral or rock (excluding mollusk shells). For example, such living marine organisms associated with hard bottoms, banks, reefs, and live rock may include, but are not limited to:
- (A) Animals:
- (i) Sponges (Phylum Porifera):
  - (ii) Hard and Soft Corals, Sea Anemones (Phylum Cnidaria):
    - (I) Fire corals (Class Hydrozoa):
    - (II) Gorgonians, whip corals, sea pansies, anemones, Solenastrea (Class Anthozoa):
  - (iii) Bryozoans (Phylum Bryozoa):
  - (iv) Tube Worms (Phylum Annelida):
    - (I) Fan worms (Sabellidae):
    - (II) Feather duster and Christmas tree worms (Serpulidae):
    - (III) Sand castle worms (Sabellariidae):
  - (v) Mussel banks (Phylum Mollusca:Gastropoda):
  - (vi) Colonial barnacles (Arthropoda:Crustacea:Merabalanus sp.).
- (B) Plants:
- (i) Coralline algae (Division Rhodophyta):
  - (ii) Acetabularia sp., Udotea sp., Halimeda sp., Caulerpa sp. (Division Chlorophyta):
  - (iii) Sargassum sp., Dictyopteris sp., Zostera sp. (Division Phaeophyta).
- (25) Coral:
- (A) Fire corals and hydrocorals (Class Hydrozoa):
  - (B) Stony corals and black corals (Class Anthozoa, Subclass Scleractinia):
  - (C) Ocrococals; Gorgonian corals (Class Anthozoa, Subclass Octocorallia):
    - (i) Sea fans (Gorgonia sp.):
    - (ii) Sea whips (Leptogorgia sp. and Lophogorgia sp.):
    - (iii) Sea pansies (Renilla sp.).
- (26) Shellfish production on leases and franchises:
- (A) The culture of oysters, clams, scallops, and mussels, on shellfish leases and franchises from a sublegal harvest size to a marketable size.
  - (B) The transplanting (relay) of oysters, clams, scallops and mussels from designated areas closed due to pollution to shellfish leases and franchises in open waters and the natural cleansing of those shellfish.
- (27) Shellfish marketing from lease and franchises. The harvest of oysters, clams, scallops, mussels, from privately held shellfish bottoms and lawful sale of those shellfish to the public at large or to a licensed shellfish dealer.
- (28) Shellfish planting effort on leases and franchises. The process of obtaining authorized cultch materials, seed shellfish, and polluted shellfish stocks and the placement of those materials on privately held shellfish bottoms for increased shellfish production.

Statutory Authority G.S. 113-134; 143B-289.4.

#### .0015 REPLACEMENT COSTS OF MARINE AND ESTUARINE RESOURCES - FISH

- (a) Fish, as used throughout this Rule, is defined in G.S. 113-129(7).
- (b) Replacement Costs Distinguished. As it applies to fishes the term "replacement costs" must be distinguished from the "value" of the fish concerned. Except in cases where fish may lawfully be sold on the open market, as with commercially reared species, the monetary value of the specimens cannot be determined easily. The degree of special interest or concern in a particular species by the public, including not only anglers, but conservationists and those to whom the value of fishes is primarily aesthetic, cannot be measured in dollar amounts. The average cost of fish legally taken by anglers including travel and lodging, fishing equipment and bait, excise taxes on equipment, licenses and other fees, may fairly be estimated. This too,

- (G) the cost of necessary telephonic communications;
- (H) any other expense directly related to and necessitated by the investigation.
- (2) Computation of Costs. In assessing the cost of time expended in completing the investigation, the time expended by each person required to take part in the investigation shall be recorded in hours, the value of which shall be computed according to the ratio between the annual cost of service of the employee and his total annual working hours (2087 hours reduced by holidays, annual leave entitlement, and earned sick leave). Other costs shall be assessed as follows:
- (A) subsistence: the per diem amount for meals, reasonable gratuities, and lodging away from home, not to exceed the then current maximum per diem for state employees;
- (B) transportation: total mileage by motor vehicle multiplied by:
- (i) the then current rate per mile for travel by state-owned vehicle; or
- (ii) the then current rate per mile for travel by privately owned vehicle, as applicable;
- (C) boat and motor: ten dollars (\$10.00) per hour;
- (D) uniform and clothing cleaning and repair: actual cost;
- (E) telephonic communications: actual cost;
- (F) other expenses: actual cost.

*Statutory Authority G.S. 113-134; 113-267; 143B-289.4.*

#### **.0016 CORAL AND LIVE ROCK**

- (a) It is unlawful to harvest or possess aboard a vessel coral or live rock as defined in 15A NCAC 3I .0001 (24) and (25).
- (b) Live rock and coral shall be returned immediately to the waters where taken.

*Statutory Authority G.S. 113-134; 113-182; 143B-289.4.*

### **SUBCHAPTER 3J - NETS, POTS, DREDGES, AND OTHER FISHING DEVICES**

#### **SECTION .0100 - NET RULES, GENERAL**

#### **.0106 CHANNEL NETS**

- (a) It is unlawful to use a channel net:
- (1) Until the Fisheries Director specifies by proclamation, time periods and areas for the use of channel nets and other fixed nets for shrimping.
- (2) Without yellow light reflective tape on the top portion of each staff or stake and on any buoys located at either end of the net.
- (3) With any portion of the set including boats, anchors, cables, ropes or nets within 50 feet of the center line of the Intracoastal Waterway Channel.
- (4) ~~In the middle third of any navigation channel marked by Corps of Engineers and/or U.S. Coast Guard.~~ With any portion of the net including buoys, within any navigational channel marked by State or Federal agencies.
- (5) Unless amended by the fisherman who shall be no more than 50 yards from the net at all times.
- (b) It is unlawful to use or possess aboard a vessel any channel net with a corkline exceeding 40 yards.
- (c) It is unlawful to leave any channel net, channel net buoy, or channel net stakes in coastal fishing waters from December 1 through March 1.
- (d) It is unlawful to use floats or buoys of metallic material for marking a channel net set.
- (e) From March 2 through November 30, cables used in a channel net operation shall, when not attached to the net, be connected together and any attached buoy shall be connected by non-metal line.
- (f) It is unlawful to leave channel net buoys in coastal fishing waters without yellow light reflective tape on each buoy and without the owner's identification being clearly printed on each buoy. Such identification must include one of the following:
- (1) Owner's N.C. motorboat registration number; or
- (2) Owner's U.S. vessel documentation name; or
- (3) Owner's last name and initials.
- (g) It is unlawful to use any channel nets, anchors, lines, or buoys in such a manner as to constitute a hazard to navigation.

# Appendix Q. U. S. Army Corps of Engineers/National Marine Fisheries Service- Live Rock Aquaculture General Permit Application

U.S. Department of Commerce National Oceanic & Atmospheric Administration National Marine Fisheries Service <b>PERMIT APPLICATION TO HARVEST          AQUACULTURED LIVE ROCK IN THE EEZ</b>					
<b>APPLICATION FEE: \$100.00</b>				<b>FOR OFFICE USE ONLY.</b> PERMIT NO. REVIEWER'S INITIALS/COMMENTS.	
<b>SECTION 1 APPLICANT INFORMATION</b>					
Applicant's Name					Area Code/Telephone No.
Address				City	
State	Zip Code	Social Security No./Federal ID No.	Date of Birth/Date Corp. Formed	Florida SPL# (a)	
Affiliation (if any) (Business, University, Government Agency) and Address					
<b>SECTION 2 SITE INFORMATION</b>					
<b>LOCATION:</b> Identify the site with accurate coordinates using LORAN or Global Positioning System (GPS) equipment.					
<b>GPS POSITION</b>			<b>LORAN COORDINATES</b>		
Latitude	Longitude	W.	N.	E.	S.
<b>SECTION 3 VESSEL(S) INFORMATION</b>					
<b>VESSEL 1</b>					
Official Number (Coast Guard # or State Registration #)		Vessel Name		Vessel Length (ft.)	
Home Port (City & State)	Port of Landing	Engine Horsepower	Hold Capacity (tons)	Live Well Capacity (gal)	
<b>VESSEL 2</b>					
Official Number (Coast Guard # or State Registration #)		Vessel Name		Vessel Length (ft.)	
Home Port (City & State)	Port of Landing	Engine Horsepower	Hold Capacity (tons)	Live Well Capacity (gal)	
<b>SECTION 4 APPLICANT'S SIGNATURE</b>					
Signature:				Date:	
Name (print):				Position, if incorporated:	

01/11/85

**MAIL REQUESTED INFORMATION TO:**  
 National Marine Fisheries Service (F/SEO12)  
 9721 Executive Center Drive N.  
 St. Petersburg, FL 33702

## **GENERAL INSTRUCTIONS**

1. Type or print legibly in ink. Incomplete or unreadable applications will be returned.
2. An applicant for an aquacultured live rock permit must identify each vessel that will be depositing material on or harvesting aquacultured live rock from the proposed aquacultured live rock site, must specify the port of landing of aquacultured live rock, and must provide a site evaluation report prepared pursuant to generally accepted industry standards.
3. Questions may be telephoned to (813) 570-5326.
4. Mail the completed application and a check (payable to U.S. Treasury) to:  
  

**National Marine Fisheries Service**  
**9721 Executive Center Drive N., F/SEO12**  
**St. Petersburg, FL 33702**
5. The owner of a permitted vessel must notify the Regional Director within 30 days after any changes in the application information. The permit is VOID if any change in the information is not reported within 30 days.

## **APPLICATION INSTRUCTIONS**

**SECTION 1** - If applicant is an individual, enter his/her social security number and date of birth. If the applicant is a corporation or partnership, enter the Federal ID number and date the corporation/partnership was formed. Give affiliation (name and address), if any.

**SECTION 2** - A site evaluation report must be submitted by the applicant showing that the site meets the following criteria: (a) avoids hazards to safe navigation or hinderance of vessel traffic, traditional fishing operations, or other public access; and (b) avoids impacts on naturally occurring hard bottom habitat, i.e., natural underlying substrata should be primarily hard packed sand, hard shell hash, or rock covered by sand not more than 6 inches deep.

**LOCATION** - Identify site using LORAN coordinates or Global Positioning System (GPS).

**SECTION 3** - Enter official number, vessel name and length of vessel as they appear on documentation or, if not documented, on the state registration certificate. Under "Home Port", enter the city and state where the vessel is customarily kept, not necessarily the home port on a certificate of documentation, and enter the Port of Landing.

**SECTION 4** - An application for a permit must be signed by the applicant, or an officer or shareholder for a corporate vessel, or a general partner of a partnership.

Public reporting burden for this collection of information is estimated to average 20 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to Edward E. Burgess, National Marine Fisheries Service, F/SEO12, 9721 Executive Center Drive N., St. Petersburg, FL 33702; and to the Office of Information and Regulatory Affairs, Office of Management and Budget, Washington, D.C. 20503. OMB No. 0648-0205, OMB Approval Expires: 04/30/97.

**KNOWINGLY SUPPLYING FALSE INFORMATION FOR THE PURPOSE OF OBTAINING A PERMIT IS A VIOLATION OF FEDERAL LAW PUNISHABLE BY A FINE AND/OR IMPRISONMENT.**

# SITE EVALUATION REPORT

**LOCATION:** Identify the site with accurate coordinates using LORAN or Global Positioning System (GPS) equipment.

## GPS POSITION

## LORAN COORDINATES

LATITUDE		LONGITUDE	

W:	X:	Y:	Z:

**SIZE:** Sites MUST NOT individually or cumulatively total more than one acre (43,560 sq. ft.). Sites will be round, centered at the above point with a radius not to exceed 0.019 nautical miles or 117.75 feet.

## RADIUS

--

**You must show this site on the largest scale nautical chart of the area in sufficient detail to allow for site inspection.**

1) Discuss possible hazards to safe navigation or hindrance to vessel traffic, interference with traditional fishing operations or other public access that may result from aquacultured rock at the site.

**2) Describe the naturally occurring bottom habitat at the site.**

3) Specify the type, size, amount and origin (where acquired and geological origin) of material to be deposited on the site and how it will be distinguishable from the naturally occurring substrate. Provide sample of material to be deposited.

**Experience/Qualifications of Preparer:**

**Preparer's Signature:**

**Time:**

Name (print) \_\_\_\_\_

**Position:**

## GENERAL INSTRUCTIONS

1. A site evaluation report must be submitted by the applicant to the National Marine Fisheries Service, Permit Branch, Southeast Regional Office, 9721 Executive Center Drive N., St. Petersburg, FL 33702. The report, which may include videotapes of underwater surveys, shall be prepared by an independent source pursuant to generally accepted industry standards and shall demonstrate that the proposed site:
  - a) is not a hazard to safe navigation or a hinderance to vessel traffic; and
  - b) avoids traditional fishing operations, or other public access; and
  - c) avoids impacts to naturally occurring hard bottom habitat and submerged aquatic vegetation; and
  - d) contains natural underlying substrate that is primarily hard packed sand, hard shell hash, or rock covered by sand not more than 6 inches deep.
2. The applicant shall identify the site on a nautical chart in sufficient detail to allow for site inspection, and shall provide accurate coordinates so that the site can be located by LORAN or Global Positioning System (GPS) equipment. Site inspection may be required on a case by case basis.
3. Sites which individually or cumulatively total more than one acre will not be authorized. Multiple sites shall be contained within the one-acre envelope.

Public reporting burden for this collection of information is estimated to average 45 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other suggestions for reducing this burden to Edward E. Burgess, National Marine Fisheries Service, F/SEO12, 9721 Executive Center Drive N., St. Petersburg, FL 33702; and to the Office of Management and Budget, Paperwork Reduction Project (0648-0205), Washington, D.C. 20303.

OMB No. 0648-0205, OMB Approval Expires: 04/30/97

**KNOWINGLY SUPPLYING FALSE INFORMATION FOR THE PURPOSE OF OBTAINING A PERMIT IS A VIOLATION OF FEDERAL LAW PUNISHABLE BY A FINE AND/OR IMPRISONMENT.**

National Oceanic & Atmospheric Administration  
National Marine Fisheries Service

### AQUACULTURED LIVE ROCK LOG REPORT

A person with an aquacultured live rock permit must report each deposition of material on a site. A person who takes aquacultured live rock that is landed other than in Florida must submit a report of harvest. These reports must be submitted to the address below not later than 7 days after deposition or harvest.

Southeast Regional Office  
9721 Executive Center Drive N.  
St. Petersburg, FL 33702

Name of Permit Holder:		Social Security No./Federal ID No.	
Address:		City:	
State:	Zip Code:	Permit Number of Site:	
<b>DEPOSIT</b>			
Source Name:			
Source Address:			
Geological Origin:			
DEPOSIT DATE		POUNDS DEPOSITED	
<div style="border: 1px solid black; width: 150px; height: 20px; margin: 0 auto; position: relative;"> <div style="position: absolute; left: 20px; bottom: 5px;">Mo</div> <div style="position: absolute; left: 50px; bottom: 5px;">Day</div> <div style="position: absolute; left: 80px; bottom: 5px;">Yr</div> </div>		<div style="border: 1px solid black; width: 150px; height: 20px; margin: 0 auto; position: relative;"> <div style="position: absolute; left: 20px; bottom: 5px;"> </div> <div style="position: absolute; left: 40px; bottom: 5px;"> </div> <div style="position: absolute; left: 60px; bottom: 5px;"> </div> <div style="position: absolute; left: 80px; bottom: 5px;"> </div> <div style="position: absolute; left: 100px; bottom: 5px;"> </div> </div>	
<div style="border: 1px solid black; width: 100px; height: 20px; margin: 0 auto; position: relative;"> <div style="position: absolute; left: 20px; bottom: 5px;">SIZE</div> </div>			
<p>Sketch site profile showing actual configurations and locations of the deposited materials, the distance from existing naturally occurring hard bottom habitat and submerged aquatic vegetation and height of material deposited.</p>			
<b>HARVEST (If landed outside Florida)</b>			
Dealer Name:			
Dealer Address:			
Dealer Federal ID No.:			
LANDING DATE		POUNDS HARVESTED	
<div style="border: 1px solid black; width: 150px; height: 20px; margin: 0 auto; position: relative;"> <div style="position: absolute; left: 20px; bottom: 5px;">Mo</div> <div style="position: absolute; left: 50px; bottom: 5px;">Day</div> <div style="position: absolute; left: 80px; bottom: 5px;">Yr</div> </div>		<div style="border: 1px solid black; width: 150px; height: 20px; margin: 0 auto; position: relative;"> <div style="position: absolute; left: 20px; bottom: 5px;"> </div> <div style="position: absolute; left: 40px; bottom: 5px;"> </div> <div style="position: absolute; left: 60px; bottom: 5px;"> </div> <div style="position: absolute; left: 80px; bottom: 5px;"> </div> <div style="position: absolute; left: 100px; bottom: 5px;"> </div> </div>	
		UNIT PRICE	DOLLAR VALUE
		<div style="border: 1px solid black; width: 100px; height: 20px; margin: 0 auto;"></div>	<div style="border: 1px solid black; width: 100px; height: 20px; margin: 0 auto;"></div>
Signature:		Date:	
Name (print):		Position, if incorporated:	

01/11/95

## GENERAL INSTRUCTIONS

1. Type or print legibly in ink. Incomplete or unreadable reports will be returned.
2. A person with an aquacultured live rock permit must report to the Regional Director each deposition of material on a site. Reports must be postmarked not later than 7 days after deposition and must contain the following information: (1) permit number of site and date of deposit; (2) geological origin of material deposited; (3) amount of material deposited; (4) source of material deposited, that is, where obtained, if removed from another habitat, or from whom purchased.
3. A person who takes aquacultured live rock that is landed in Florida, must submit Florida trip tickets as required by Florida statutes and regulations.
4. A person who takes aquacultured live rock that is landed other than in Florida, must submit a report of harvest to the Regional Director.
5. Questions may be telephoned to (813) 570-5326.
6. Mail the completed report to:  

National Marine Fisheries Service  
 9721 Executive Center Drive N., F/SEO11  
 St. Petersburg, FL 33702.
7. Rocks deposited on the aquaculture site must be geologically or otherwise distinguishable from the naturally occurring substrate or they must be indelibly marked or tagged.
8. All rocks must be placed on the site by hand, or lowered completely to the bottom by crane. Deposited materials shall not be allowed to "free fall" to the bottom, and all deposition shall occur while the vessel is "at anchor". Rocks may not be placed over naturally occurring reef outcrops, limestone ledges, coral reefs, or vegetated areas. A minimum setback of 50 feet must be maintained from naturally vegetated or hard bottom habitats. The actual configurations and locations of the deposited materials and the distance from existing naturally occurring hard bottom habitat and submerged aquatic vegetation shall be clearly depicted.
9. All materials used in aquaculture operations must be nontoxic and all deposited rocks must be free of contaminants and non-indigenous flora and/or fauna.
10. Harvest of aquacultured live rock shall be by hand only; no mechanical dredging, drilling, blasting, etc. is authorized under this general permit.

## APPLICATION INSTRUCTIONS

1. Enter name of permit holder, social security number, address and permit number of site.
2. **DEPOSIT INFORMATION:** Enter source name, source address, geological origin, deposit date, pounds deposited and size.
3. **HARVEST INFORMATION:** Enter dealer name, dealer address, dealer Federal ID number, landing date, pounds harvested, unit price and dollar value.
4. The report must be signed by the preparer.

Public reporting burden for this collection of information is estimated to average 415 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other suggestions for reducing this burden to Edward E. Burgess, National Marine Fisheries Service, F/SEO12, 9721 Executive Center Drive N., St. Petersburg, FL 33702; and to the Office of Management and Budget, Paperwork Reduction Project (0648-0016), Washington, D.C. 20303.

OMB No. 0648-0016, OMB Approval Expires: 09/30/97



Regulatory Division  
General Permit  
Number SAJ-71

PUBLIC NOTICE

GENERAL PERMIT SAJ-71

TO WHOM IT MAY CONCERN: To simplify and speed evaluation of Department of the Army permit applications, the Jacksonville District, U.S. Army Corps of Engineers, pursuant to Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403), proposes to issue General Permit SAJ-71, which gives general authority to the National Marine Fisheries Service to administer the Department of the Army permit numbered above for the deposition of materials for the purpose of live rock aquaculture in the exclusive economic zone (EEZ) off the coasts of Florida.

BACKGROUND: Live rock consists of certain living marine organisms or an assemblage thereof attached to a hard substratum (including dead coral or rock). During the past twenty years, a large demand for live rock has occurred, due to a large increase in the number of public and private marine aquaria. In meeting this large demand for live rock, commercial harvesters have adversely impacted areas of naturally occurring reefs and hard bottom areas. In response, in 1989, the State of Florida prohibited the taking of live rock. This, in turn, caused the harvesters to shift their efforts out of State waters and into the exclusive economic zone [The EEZ surrounding the state of Florida encompasses the area between approximately 9 nautical miles offshore and 200 nautical miles offshore on the Gulf coast, and the area between approximately 3 nautical miles offshore and 200 nautical miles offshore on the Atlantic coast.] Because of fishing pressure in the EEZ, the Gulf of Mexico and the South Atlantic Fishery Management Councils, established under the Magnuson Fishery Conservation and Management Act (16 U.S.C. 1801 et seq.), are planning to prohibit live rock harvesting in the EEZ from North Carolina through Texas. An exception will be made for aquaculture operations.

PROPOSED LANGUAGE OF THE NEW GENERAL PERMIT:

A copy of the general permit, as proposed for issuance follows:

SPECIAL CONDITIONS:

1. The work authorized herein includes the deposition of materials for the purpose of cultivating live rock.
2. A site evaluation report must be submitted by the applicant showing that the proposed site:
  - a) avoids hazards to safe navigation or hinderance of vessel traffic, traditional fishing operations, or other public access; and
  - b) avoids impacts on naturally occurring hard bottom habitat, i.e., natural underlying substrata should be primarily hard packed sand, hard shell hash, or less than 6-12 inches of sand over rock.

3. The applicant shall identify the site on a nautical chart in sufficient detail to allow for site inspection, and shall provide accurate coordinates so that the site can be located by LORAN or Global Positioning System (GPS) equipment.
4. Sites which individually or cumulatively total more than one acre will not be authorized under this general permit. Multiple sites shall be contained within the one-acre envelope.
5. Rocks deposited on the aquaculture site must be geologically or otherwise distinguishable from the naturally occurring substrata or they must be indelibly marked or tagged.
6. All rocks must be placed on the site by hand. Rocks may not be placed over naturally occurring reef outcrops, limestone ledges, coral reefs, or vegetated areas. A minimum setback of 50 feet must be maintained from naturally vegetated or hard bottom habitats.
7. All materials used in aquaculture operations must be nontoxic and all deposited rocks must be free of contaminants.
8. Harvest of aquacultured live rock shall be by hand only; no mechanical dredging, drilling, blasting, etc. is authorized under this general permit.
9. The permittee shall be required to submit annual reports to the National Marine Fisheries Service which document the source, type, and weight of rocks deposited on the aquaculture site. Reports shall be sent to: Permit Division, Southeast Regional Office, National Marine Fisheries Service, 9721 Executive Center Drive, St. Petersburg, Florida 33702.
10. The permittee shall be required to report on the weight of aquacultured product harvested as follows:
  - a) For aquacultured live rock landed in the State of Florida, the permittee shall be required to report to the Fisheries Statistics Section of the Florida Bureau of Marine Research (Florida Department of Environmental Protection), 100 Eighth Avenue SE., St. Petersburg, Florida 33701-5095. The reports shall be made on Form #33-610 (Florida Trip Ticket). Harvesters will need to obtain a Florida Saltwater Products License and a Marine Life Endorsement.
  - b) For aquacultured live rock landed outside of Florida, the permittee shall be required to report to the Permit Division, Southeast Regional Office, National Marine Fisheries Service, 9721 Executive Center Drive, St. Petersburg, Florida 33702. The reports shall be made on logbook forms, which will be provided to the permittee by the National Marine Fisheries Service.
11. To be authorized under this general permit for activities within the EEZ, parties shall be required to obtain a permit from the National Marine Fisheries Service to harvest and possess aquaculture live rock in the EEZ. Permits can be obtained from the Permit Division, Southeast Regional Office, National Marine Fisheries Service, 9721 Executive Center Drive, St. Petersburg, Florida 33702.
12. Additional permits may be required for aquaculture operations in areas under the jurisdiction of other state or federal authorities, such as a National Marine Sanctuary.
13. No work shall be authorized by this general permit that will affect any registered properties, or properties listed as eligible for inclusion in the National Register of Historic Places.

14. This general permit will be valid for five years from the above date or until suspended or revoked by issuance of a public notice by the District Engineer. Periodic review will be conducted to determine if continuation of the permit is not contrary to the public interest.

15. Conformance with descriptions and quantities contained herein does not necessarily guarantee authorization under this general permit.

16. The District Engineer reserves the right to require that any request for authorization under this general permit be processed as an individual permit.

17. The General conditions attached hereto are made a part of this permit. (Attachment 1)

IMPACT ON NATURAL RESOURCES: Preliminary review of this proposal indicates that an Environmental Impact Statement will not be required. Coordination with the U.S. Fish and Wildlife Service, Environmental Protection Agency, the National Marine Fisheries Service, and other Federal, State, and local agencies, environmental groups, and concerned citizens generally yields pertinent environmental information that is instrumental in determining the impact the proposed action will have on the natural resources of the area. By means of this notice we are soliciting comments on the potential effects of the proposed general permit on threatened or endangered species or their habitat.

IMPACT ON CULTURAL RESOURCES: The activities authorized by this proposed general permit are not expected to have any adverse impacts on cultural resources that would affect or disturb properties listed or eligible for inclusion in the National Register of Historic Places.

EVALUATION: The decision whether to issue the proposed general permit will be based on an evaluation of the probable impacts, including cumulative impacts, of the proposed activity on the public interest. That decision will reflect the national concern for both protection and utilization of important resources. The benefits which reasonably may be expected to accrue from the proposal must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the proposal will be considered including cumulative impacts thereof; among those are conservation, economics, esthetics, general environmental concerns, wetlands, historic properties, fish and wildlife values, flood hazards, floodplain values, land use, navigation, shoreline erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs, consideration of property ownership, and, in general, the needs and welfare of the people. Evaluation of the impact of the activity on the public interest will also include application of the guidelines promulgated by the Administrator, EPA, under authority of Section 404(b) of the Clean Water Act or of the criteria established under authority of Section 102(a) of the Marine, Protection, Research, and Sanctuaries Act of 1972. A permit will be granted unless its issuance is found to be contrary to the public interest.

REQUEST FOR PUBLIC HEARING: Any person may request a public hearing. The request must be submitted in writing to the District Engineer within the designated comment period of this notice and must state the specific reasons for requesting the public hearing.

Comments regarding the proposed renewal should be submitted in writing to the District Engineer at the above address within 30 days from the date of this notice.

If you have any questions concerning this application, you may contact Mr. Stuart L. Santos of this office, at the letter head address above or by telephone at 904-232-2018.

John R. Hall  
Chief, Regulatory Division

bcc:  
CESAJ-RD-CT  
CESAJ-RD-NF  
CESAJ-RD-NC  
CESAJ-RD-SM

Santos/CESAJ-RD-CP  
Story/CESAJ-RD-CP  
Silver/CESAJ-RD-C  
Hall/CESAJ-RD

## Attachment 1

## GENERAL PERMIT

GENERAL CONDITIONS

- a. That all activities identified and authorized herein shall be consistent with the terms and conditions of this permit; and that any activities not specifically identified and authorized herein shall constitute a violation of the terms and conditions of this permit which may result in the modification, suspension or revocation of this permit, in whole or in part, as set forth more specifically in General Condition j hereto, and in the institution of such legal proceedings as the United States Government may consider appropriate, whether or not this permit has been previously modified, suspended, or revoked in whole or in part.
- b. That all activities authorized herein shall, if they involve a discharge or deposit into navigable waters or ocean waters, be at all times consistent with applicable water quality standards, effluent limitations and standards of performance, prohibitions, and pretreatment standards established pursuant to Sections 301, 302, 306, and 307 of the Federal Water Pollution Control Act of 1972 (P.L. 92-500; 86 Stat. 816), or pursuant to applicable State and local law.
- c. That when the activity authorized herein involves a discharge or deposit of dredged or fill material into navigable waters, the authorized activity shall, if applicable water quality standards are revised or modified during the term of this permit, be modified if necessary, to conform with such revised or modified water quality standards within 6 months of the effective date of any revision or modification of water quality standards, or as directed by an implementation plan contained in such revised or modified standards, or within such longer period of time as the District Engineer, in consultation with the Regional Administrator of the Environmental Protection Agency, may determine to be reasonable under the circumstances.
7. That the permittee agrees to make every reasonable effort to prosecute the construction or work authorized herein in a manner so as to minimize any adverse impact of the construction or work on fish, wildlife, and natural environmental values.
- e. That the permittee(s) agree to prosecute the construction or work authorized herein in a manner so as to minimize any degradation of water quality.
- f. That the permittee shall permit the District Engineer or his authorized representative(s) or designee(s) to make periodic inspections at any time deemed necessary in order to assure that the activity being performed under authority of this permit is in accordance with the terms and conditions prescribed herein.
- g. That the permittee shall maintain the structure or work authorized herein in good condition and in accordance with the plans and drawings that are approved.
- h. That this permit does not convey any property rights, either in real estate or material, or any exclusive privileges; and that it does not authorize any injury to property or invasion of rights or any infringement of Federal, State, or local laws or regulations, nor does it obviate the requirement to obtain State or local assent required by law for the activity authorized herein.

SAJ-RD  
GENERAL PERMIT

i. That this permit does not authorize the interference with any existing or proposed Federal project and that the permittee shall not be entitled to compensation for damage or injury to the structures or work authorized herein which may be caused by or result from existing or future operations undertaken by the United States in the public interest.

j. That this permit may be either modified, suspended, or revoked in whole or in part if the Secretary of the Army or his authorized representative determines that there has been a violation of any of the terms or conditions of this permit or that such action would otherwise be in the public interest.

k. That in issuing approval to perform work under this permit the Government has relied on the information and data which the permittee has provided in connection with his application. If, subsequent to the issuance of approval, such information and data prove to be false, incomplete, or inaccurate, this permit may be modified, suspended, or revoked, in whole or in part and/or the Government may, in addition, institute appropriate legal proceedings.

l. That any modification, suspension, or revocation of this permit shall not be the basis for any claim for damages against the United States.

m. That no attempt shall be made by the permittee to prevent the full and free use by the public of all navigable waters at or adjacent to the activity authorized by this permit.

n. That if the display of lights and signals on any structure or work authorized herein is not otherwise provided for by law, such lights and signals as may be prescribed by the United States Coast Guard shall be installed and maintained by and at the expense of the permittee.

o. That this permit does not authorize or approve the construction of particular structures, the authorization or approval of which may require authorization by the Congress or other agencies of the Federal Government.

p. That if and when the permittee desires to abandon the activity authorized herein, unless such abandonment is part of a transfer procedure by which the permittee is transferring his interests herein to a third party, pursuant to General condition s hereof, he must restore the area to a condition satisfactory to the District Engineer.

q. That if the recording of this permit is possible under applicable State or local law, the permittee shall take such action as may be necessary to record this permit with the Registrar of Deeds or other appropriate official charged with the responsibility for maintaining records of title to and interests in real property.

r. That there shall be no unreasonable interference with navigation by the existence or use of the activity authorized herein.

s. That authorization under this permit may not be transferred to a third party without prior written notice to the District Engineer by the transferee's written agreement to comply with all terms and conditions of this permit. In addition, if the permittee transfers the interests authorized herein by conveyance of realty, the deed shall reference this permit and the terms and conditions specified herein and this permit shall be recorded along with the deed with the Registrar of Deeds or other appropriate official if law permits.

t. The term "permittee" means the party or parties authorized by the District Engineer to accomplish work under this general permit.

**Appendix R. State Coastal Zone Consistency Responses.**

State of North Carolina  
Department of Environment,  
Health and Natural Resources  
Division of Coastal Management

James B. Hunt, Jr., Governor  
Jonathan B. Howes, Secretary  
Roger N. Schecter, Director



**RECEIVED**

**OCT 05 1994**

**SOUTH ATLANTIC FISHERY  
MANAGEMENT COUNCIL**

09/30/94

Mr. Robert K. Mahood Executive Director  
South Atlantic Fishery Mngt Council  
One Southpark Circle Suite 306  
Charleston, SC 29407

REFERENCE: CD94-31  
Draft Fishery Mngt Plan for Coral, Reefs, Live/Hard Bottom Habitat

Dear Mr. Mahood:

The State of North Carolina received your consistency determination dated 09/15/94 concerning a proposed Federal Activity pursuant to 15 CFR 930.30 on 09/23/94. Your determination, which we have assigned the number CD94-31, has been circulated to the appropriate state agency reviewers for comment. We have requested that our reviewers respond by 10/14/94 and, provided no serious problems are identified, will provide the state's position on this proposal on or before 11/07/94.

Should you have any questions concerning our program or the status of the review, please call me at (919)733-2293.

Sincerely,

Stephen B. Benton  
Consistency Coordinator

State of North Carolina  
Department of Environment,  
Health and Natural Resources  
Division of Coastal Management

James B. Hunt, Jr., Governor  
Jonathan B. Howes, Secretary  
Roger N. Schecter, Director



October 24, 1994

RECEIVED

OCT 28 1994

SOUTH ATLANTIC FISHERY  
MANAGEMENT COUNCIL

Mr. Robert K. Mahood, Executive Director  
South Atlantic Fisheries Management Council  
One South Park Circle  
Charleston, SC 29407

REFERENCE: CD94-31 Draft Fishery Management Plan for Coral,  
Coral Reefs, and Live/Hard Bottom Habitats of the  
South Atlantic Region

Dear Mr. Mahood:

The State of North Carolina has completed its review pursuant to 15 CFR 930 Subpart C - Consistency for Federal Activities, of the referenced document describing the proposed Fishery Management Plan for Coral, Coral Reefs Live/Hard Bottom Habitats. Based upon our review, we agree with your determination that the proposed amendment is consistent with the North Carolina Coastal Management Program.

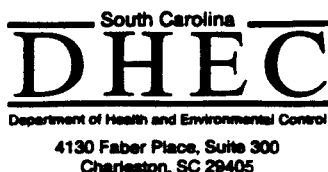
If you have any questions, please contact Steve Benton or Caroline Bellis, Division of Coastal Management, at (919) 733-2293. Thank you for your consideration of the North Carolina Coastal Management Program.

Sincerely,

*Roger N. Schecter*  
for Roger N. Schecter

cc: Michael W. Street, NC Division of Marine Fisheries





Commissioner: Douglas E. Bryant

Board: Richard E. Jabbour, DDS, Chairman  
Robert J. Stripling, Jr., Vice Chairman  
Sandra J. Molander, Secretary

Promoting Health, Protecting the Environment

John H. Burnes  
William M. Hull, Jr., MD  
Roger Laska, Jr.  
Burnet R. Maybank, III

**Office of Ocean and Coastal Resource Management**

H. Wayne Beam, Ph. D., Deputy Commissioner

Christopher L. Brooks, Assistant Deputy Commissioner

(803) 744-5838

(803) 744-5847 (fax)

November 2, 1994

RECEIVED

NOV 04 1994

Mr. Robert K Mahood  
South Atlantic Fishery Management Council  
One Southpark Circle, Suite 306  
Charleston, South Carolina 29407-4699

SOUTH ATLANTIC FISHERY  
MANAGEMENT COUNCIL

Re: South Atlantic Fishery  
Management Council  
For Coral Reefs & Live/Hard  
Bottom Habitats  
Various Counties  
Federal Consistency

Dear Mr. Mahood:

The staff of the Office of Ocean and Coastal Resource Management (OCRM) certifies that the above referenced project is consistent with the Coastal Zone Management Program to the maximum extent practicable. This certification shall serve as the final approval by the OCRM.

Interested parties are provided ten days from receipt of this letter to appeal the action of the OCRM. The action approved herein shall become final ten days from receipt of this letter provided no appeal is received.

Sincerely



H. Stephen Snyder  
Director of Coastal  
Zone Management

JHA  
JHA/20575/A8/jk

cc: Dr. H. Wayne Beam  
Mr. Christopher L. Brooks  
Mr. H. Stephen Snyder



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NOV 23 1994

SOUTH ATLANTIC FISHERY  
MANAGEMENT COUNCIL

STATE OF FLORIDA  
DEPARTMENT OF COMMUNITY AFFAIRS

2740 CENTERVIEW DRIVE • TALLAHASSEE, FLORIDA 32399-2100

LAWTON CHILES  
Governor

LINDA LOOMIS SHELLEY  
Secretary

November 18, 1994

Mr. Robert Mahood  
Executive Director  
South Atlantic Fishery  
Management Council  
One Southpark Circle, Suite 306  
Charleston, South Carolina 29407-4699

RE: Regional Fishery Management Councils - Public Hearing Draft  
- Draft Environmental Impact Statement - Fishery Management  
Plan for Coral, Coral Reefs, and Live/Hard Bottom Habitats  
of the South Atlantic Region - Florida  
SAI: FL9409290983C

Dear Mr. Mahood:

The Florida State Clearinghouse, pursuant to Presidential Executive Order 12372, Governor's Executive Order 93-194, the Coastal Zone Management Act, 16 U.S.C. §§ 1451-1464, as amended, and the National Environmental Policy Act, 42 U.S.C. §§ 4321, 4331-4335, 4341-4347, as amended, has coordinated a review of the above-referenced project.

The Department of Environmental Protection (DEP) has provided its Florida Marine Research Institute's comments and recommendations regarding the above-referenced document. Please refer to the enclosed DEP comments.

Based on the information contained in the notification of intent and the enclosed comments provided by our reviewing agencies, the state has determined that the proposed actions are consistent with the Florida Coastal Management Program.

Very truly yours,

A handwritten signature in cursive script, reading "Linda Loomis Shelley".  
Linda Loomis Shelley  
Secretary

LLS/rk  
Enclosure

cc: Carliane Johnson, Department of Environmental Protection

EMERGENCY MANAGEMENT • HOUSING AND COMMUNITY DEVELOPMENT • RESOURCE PLANNING AND MANAGEMENT



## Department of Environmental Protection

Lawton Chiles  
Governor

Marjory Stoneman Douglas Building  
3900 Commonwealth Boulevard  
Tallahassee, Florida 32399-3000

Virginia B. Wetherell  
Secretary

November 3, 1994

**RECEIVED**  
NOV 7 1994

Suzanne Traub-Metlay  
State Clearinghouse  
Office of Planning and Budgeting  
Executive Office of the Governor  
The Capitol  
Tallahassee, FL 32399-0001

Florida Coastal  
Management Program

RE: NMFS/Public Hearing Draft - Fishery Management Plan for  
Coral, Coral Reefs, and Live/Hard Bottom Habitats of the  
South Atlantic Region  
SAI: FL9409290983C

Dear Ms. Traub-Metlay:

The Department has reviewed the above-referenced Fishery Management Plan (FMP) and based on the information provided, we find the proposed management actions consistent with our authorities in the Florida Coastal Management Program.

Staff of the Department's Florida Marine Research Institute (FMRI) have reviewed the proposal. The attached memo describes the FMP and includes recommendations or suggested changes for each of the proposed actions. Questions concerning these comments should be directed to Jennifer Wheaton, FMRI, at (813) 896-8628 or suncom 523-1011.

If I can be of further assistance, please feel free to contact me at 487-2231.

Sincerely,

  
Carliane D. Johnson  
Environmental Specialist  
Office of Intergovernmental Programs

/cdj  
Attachment  
cc: Ed Irby, Marine Resources  
Jennifer Wheaton, FMRI

"Protect, Conserve and Manage Florida's Environment and Natural Resources"

Printed on recycled paper.

COUNTY: STATE

DATE: 10/10/94

COMMENT DUE DATE: 10/24/94

SAI#: FL9409290983C

OPB POLICY UNITS

## STATE AGENCIES

<input type="checkbox"/>	Agriculture
<input type="checkbox"/>	Board of Regents
<input type="checkbox"/>	Commerce
<input checked="" type="checkbox"/>	Community Affairs
<input type="checkbox"/>	Education
<input checked="" type="checkbox"/>	Environmental Protection
<input type="checkbox"/>	Game & Fish Comm
<input type="checkbox"/>	Health & Rehab Srv
<input type="checkbox"/>	Highway Safety
<input type="checkbox"/>	Labor & Employmnt
<input type="checkbox"/>	Law Enforcement
<input checked="" type="checkbox"/>	Marine Fish Comm
<input type="checkbox"/>	State Library
<input type="checkbox"/>	State
<input type="checkbox"/>	Transportation
<input type="checkbox"/>	Trans Disad. Comm
<input type="checkbox"/>	DEP District

## LOCAL/OTHER

<input type="checkbox"/>	NFWFMD
<input type="checkbox"/>	SFWMD
<input type="checkbox"/>	SWFWMD
<input type="checkbox"/>	SJRWMD
<input type="checkbox"/>	SRWMD

<input type="checkbox"/>	Public Safety
<input type="checkbox"/>	Education
<input checked="" type="checkbox"/>	Environment/C & ED
<input type="checkbox"/>	General Government
<input type="checkbox"/>	Health & Human Srv
<input type="checkbox"/>	Revenue & Eco. Ana
<input type="checkbox"/>	SCH
<input checked="" type="checkbox"/>	SCH/CON

RECEIVED

OCT 13 1994

MARINE FISHERIES  
COMMISSION

The attached document requires a Coastal Zone Management Act/Florida Coastal Management Program consistency evaluation and is categorized as one of the following:

- ☐ Federal Assistance to State or Local Government (15 CFR 930, Subpart F). Agencies are required to evaluate the consistency of the activity.
- ☒ Direct Federal Activity (15 CFR 930, Subpart C). Federal Agencies are required to furnish a consistency determination for the State's concurrence or objection.
- ☐ Outer Continental Shelf Exploration, Development or Production Activities (15 CFR 930, Subpart E). Operators are required to provide a consistency certification for state concurrence/objection.
- ☐ Federal Licensing or Permitting Activity (15 CFR 930, Subpart D). Such projects will only be evaluated for consistency when there is not an analogous state license or permit.

FOR CONSISTENCY PROJECTS, SEE REVERSE SIDE FOR INSTRUCTIONS.

To: State Clearinghouse

EO. 12372/NEPA

Federal Consistency

Executive Office of the Governor -OPB  
Room 1603, The Capitol  
Tallahassee, FL. 32399-0001  
(904) 488-8114 (SC 278-8114)

- ☐ No Comment  
☐ Comments Attached  
☐ Not Applicable

- ☒ No Comment/Consistent  
☐ Consistent/Comments Attached  
☐ Inconsistent/Comments Attached  
☐ Not Applicable

Florida Coastal Management Director  
Department of Community Affairs  
Suite 305, Rhyne Building  
Tallahassee, FL. 32399-2100  
(904) 922-5438 (SC 292-5438)

From:

Division/Bureau: Marine Fisheries CommissionReviewer: Ray O. WebbDate: 10-26-94

Enforcement of harvest will be simplified after the total prohibition of wild harvest in the EEZ.

Socioeconomic Impacts

The fees provided in this document for State leasing were provided by Wanda Prentis who is responsible for our Division's handling of lease requests. Testimony at all workshops to date, both State and Federal, has underlined the excessive cost of the application fee.

ACTION 2. Prohibit octocoral harvest (north of Florida, north of Dade County, Florida, or throughout the South Atlantic area of jurisdiction).

The main impetus for this action came from concerned constituents of the South Atlantic in the Carolinas and Georgia. Octocorals constitute a major source of habitat in the live/hard bottom habitats of these areas. The general consensus was to prohibit harvest north of Florida (Option 2) and to develop more specific information on the octocoral fishery in Florida. Although these organisms are also a major benthic constituent off Florida, the standing crop is orders of magnitude greater. Target species need to be specifically identified and correspondingly more specific codes need to be incorporated in the trip ticket system to develop a more realistic management regime for octocorals of Florida's EEZ.

ACTION 3. Prohibit anchoring in the Oculina bank habitat area of particular concern.

This action is consistent with regulations proposed under the snapper/grouper plan and with increased conservation of this HAPC.

The remainder of the draft consists of appendices and supporting documentation.

cc: G. P. Schmahl, Manager Lower Keys Region, FKNMS

SAFMC to follow in developing their Army Corps and NMFS permits.

U. S. Army Corps Permit (basically for filling/deposition)

- I. Site Characteristics/Selection Criteria
  1. The coral panel recommended adding
    1. c. avoids impact to SAV (seagrass).
  2. One acre is reasonable; however, some limit on the number of sites should be instituted.
- II. Site Product and Marking
  3. product must be geologically distinguishable or marked.
  5. Although surface marking of the sites will be temporary (see 4), permanent bottom markers must be installed.
- III. General Operating and Coordination Procedures.
  1. add... or seagrass communities.
  2. the setback was discussed at length, all parties felt the maximum of 500 was unreasonable; the minimum of 50 was generally accepted.
  6. Deposition is to be accomplished while at anchor.
- IV. Monitoring and Reporting Requirements
  1. The source, type, and weight (amount) of rock to be deposited on the site should be documented in a development plan prior to issuance of any permits.
- V. Other Authorities
  1. Delete reference to a Federal Aquaculture Zone.

NMFS Aquaculture Permit (basically for harvest)

The exemption for otherwise prohibited hard corals and octocorals is only for that still attached to cultured rock. The SAFMC position of no chipping is to be enforced on aquaculture product also. Instead of notifying enforcement, recommendation was for a list of lease holders to be supplied to enforcement for spot checking.

Discussion regarding the other federal agencies indicated the permits being developed would satisfy their requirements. The Florida Keys National Marine Sanctuary is expected to continue to conduct site surveys; however, the Sanctuary will essentially defer to the Councils and NMFS in the permitting process. Prior requirements for special activities licenses and liability insurance have been abandoned. The State and Sanctuary personnel have co-conducted one live rock aquaculture survey; however, several others in State waters have been conducted with in-house staff only.

Biological Impacts

Prohibited corals settled on aquaculture product will be available for harvest and sale. The only restriction is that the substrate on which they are attached must be identifiable as cultured rock.

Enforcement Impacts

## Memorandum

Florida Department of  
Environmental Protection

RECEIVED

OCT 28 1994

DATE: 26 October 1994

TO: Ed Irby, Assistant Director  
Division of Marine Resources

THROUGH: George Henderson, Senior Research Scientist  
FMRI

FROM: Jennifer Wheaton, Associate Research Scientist  
FMRI

SUBJECT: Review of SAI# 9409290983C, Public Hearing Draft  
Fishery Management Plan for Coral, Coral Reefs, and  
Live/Hard Bottom Habitats, Proposed SAFMC Actions

This public hearing draft outlines proposed SAFMC actions and alternatives for management under the above mentioned plan. These actions are in response to changes and or additions to the Plan made under Amendment 2 and will essentially constitute Amendment 3. I attended the September 23rd public hearing in Marathon and chaired the SAFMC Coral Advisory Panel meeting on September 24th regarding this document. My review also takes into account discussions at both of these meetings.

Three management issues are addressed here: live rock aquaculture in the EEZ, octocoral harvest and anchoring in the Oculina HAPC. The intent of the actions are to:

- 1) facilitate live rock aquaculture in the EEZ by developing permit criteria and monitoring requirements,
- 2) modify the management for octocorals to ensure protection for a major component of live/hard bottom habitat, particularly that of the Carolinas and Georgia EEZ and throughout SAFMC jurisdiction.
- 3) prohibit anchoring in the recently established experimental closed area of the Oculina HAPC.

All of the proposed actions have elements of conservation of habitat and appear to be consistent with the provisions of the State of Florida's Coastal Management Program.

ACTION 1. Establish a live rock aquaculture permit system for the South Atlantic Exclusive Economic Zone.

Since beginning their deliberations on management of wild harvest, the fishery management councils of both the Gulf and South Atlantic have been closely tracking the development of live rock aquaculture in State waters. The revision of Ch. 18-21 and development of a General Permit for State leases have provided a pattern for the

The attached Notification of Intent to Apply for Federal Assistance (Standard Form 424 Application) or other federally required document (e.g., Environmental Impact Statement, Fishery Management Plan, Consistency Determination, etc.) is forwarded to your agency for review and comment pursuant to Presidential Executive Order 12372 and Governor's Executive Order 93-194, and in accordance with the Coastal Zone Management Act (CZMA) Reauthorization Amendments of 1990 and Federal Regulations (15 CFR 930) requiring an evaluation of the document for consistency with the Florida Coastal Management Program (FCMP).

Your review and comments for State Clearinghouse projects should address themselves to the extent to which the project is in accord with or contributes to the fulfillment of your agency's plans or the achievement of your projects, programs and objectives.

For consistency review purposes, it is suggested that your comments in response to the attached document be expressed as follows. Based on an analysis of the mandatory enforceable provisions and recommended policies of the core FCMP statutes and implementing rules which your agency administers, the proposed activity is: Consistent or Inconsistent. Objections to an activity must describe how the proposed project is inconsistent with the specific provisions included in the FCMP and alternatives if any, which if adopted, would allow the activity to be consistent.

Should you need additional information from the applicant for intergovernmental coordination and review process (IC&RP) purposes or to evaluate the consistency of the project with the FCMP, please contact the applicant for the required information and notify this office by the due date. Should a conference be necessary, please contact this office as soon as possible.

Timely response is essential in order to preserve the state's rights in both IC&RP and CZMA Consistency proceedings. If we do not receive a response by the due date, we will assume your agency has no adverse comments.

Please check the appropriate box on the front, provide any comments on your agency's stationery and return to the State Clearinghouse by the due date. In both telephone conversation and written correspondence, please refer to the State Application Identifier (SAI) number, project title and applicant's name.

Please forward all correspondence to both the State Clearinghouse and the Department of Community Affairs at the addresses below:

State Clearinghouse  
Executive Office of the Governor  
Room 1603, The Capitol  
Tallahassee, Florida 32399-0001  
Telephone (904)488-8114 (Suncom 278-8114)  
Fax (904)488-9005

Florida Coastal Management Director  
Department of Community Affairs  
Suite 305  
2740 Centerview Drive  
Tallahassee, Florida 32399-2100  
Telephone (904)922-5438 (Suncom 292-5438)  
Fax (904)487-2899

Enclosure



# Appendix S. Federal Register Notice- Final Rule Coral Amendment #2.

66776 Federal Register / Vol. 59, No. 248 / Wednesday, December 28, 1994 / Rules and Regulations

anticipates that ensuring the safety of CNG vehicles will encourage their use, NHTSA believes that the rule will have positive environmental impacts. CNG vehicles are expected to have near-zero evaporative emissions and the potential to produce very low exhaust emissions as well.

## E. Civil Justice Reform

This final rule does not have any retroactive effect. Under 49 U.S.C. 30103, whenever a Federal motor vehicle safety standard is in effect, a State may not adopt or maintain a safety standard applicable to the same aspect of performance which is not identical to the Federal standard, except to the extent that the State requirement imposes a higher level of performance and applies only to vehicles procured for the State's use. 49 U.S.C. 30161 sets forth a procedure for judicial review of final rules establishing, amending or revoking Federal motor vehicle safety standards. That section does not require submission of a petition for reconsideration or other administrative proceedings before parties may file suit in court.

## List of Subjects in 49 CFR Part 571

Imports, Incorporation by reference, Motor vehicle safety, Motor vehicles.

## PART 571—[AMENDED]

In consideration of the foregoing, 49 CFR Part 571 is amended as follows:

1. The authority citation for Part 571 continues to read as follows:

Authority: 49 U.S.C. 322, 30111, 30115, 30117 and 30166; delegation of authority at 49 CFR 1.50. (inches).

### § 571.304 [Amended]

2. Section 571.304 is amended by revising S5.5.1, S6.2, and S7.2.2, as follows:

S5.5.1 Compute stresses in the liner and composite reinforcement using National Aeronautics and Space Administration (NASA) NAS 3-6292, *Computer Program for the Analysis of Filament Reinforced Metal-Shell Pressure Vessels*, (May 1966), or its equivalent.

S6.2 Each CNG fuel container manufactured on or after March 27, 1995 shall meet the requirements of S7 through S7.4.

S7.2.2 Each Type 2, Type 3, or Type 4 CNG fuel container shall not leak when subjected to burst pressure and tested in accordance with S8.2. Burst pressure shall be no less than the value

necessary to meet the stress ratio requirements of Table 3, when analyzed in accordance with the requirements of S5.5.1. Burst pressure is calculated by multiplying the service pressure by the applicable stress ratio set forth in Table Three.

TABLE THREE—STRESS RATIOS

Material	Type 2	Type 3	Type 4
E-Glass .....	2.65	3.5	3.5
S-Glass .....	2.65	3.5	3.5
Aramid .....	2.25	3.0	3.0
Carbon .....	2.25	2.25	2.25

Issued on December 21, 1994.

Ricardo Martinez,  
Administrator.

[FR Doc. 94-31847 Filed 12-22-94; 10:49 am]

BILLING CODE 4810-00-P-M

## DEPARTMENT OF COMMERCE

### National Oceanic and Atmospheric Administration

#### 50 CFR Parts 204 and 638

[Docket No. 940973-4352; I.D. 08294A]

RIN 0648-AF85

#### Coral and Coral Reefs of the Gulf of Mexico and South Atlantic

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

ACTION: Final rule; notice of OMB control numbers.

SUMMARY: NMFS issues this final rule to implement Amendment 2 to the Fishery Management Plan (FMP) for Coral and Coral Reefs of the Gulf of Mexico and South Atlantic. Amendment 2: Prohibits the taking of wild live rock in the exclusive economic zone (EEZ) off the southern Atlantic states (South Atlantic) from the North Carolina/Virginia boundary to the Dade/Broward County line in Florida and in the EEZ of the Gulf of Mexico (Gulf), except off Florida north of Monroe County; phases out wild live rock harvests in the South Atlantic EEZ south of the Dade/Broward County line by 1996; phases out wild live rock harvests in the Gulf EEZ off Florida north of Monroe County by 1997; establishes restrictions on live rock harvesting and possession and requires permits and reporting during the phase-out periods; and allows and facilitates live rock aquaculture. In addition, NMFS amends the regulations

to correct and conform them to current standards, informs the public of the approval by the Office of Management and Budget (OMB) of new collection-of-information requirements contained in this rule, and publishes the OMB control number for those collections. EFFECTIVE DATE: December 22, 1994, except that § 638.25(c)(3) is effective December 22, 1994, through December 31, 1994, and §§ 638.4(a)(1)(iv)(A) and (b)(2) and 638.7(a)(4) are effective March 1, 1995.

FOR FURTHER INFORMATION CONTACT: Georgia Cranmore, 813-570-5305.

SUPPLEMENTARY INFORMATION: The FMP for Coral and Coral Reefs of the Gulf of Mexico and South Atlantic was prepared by the South Atlantic Fishery Management Council (South Atlantic Council) and the Gulf of Mexico Fishery Management Council (Gulf Council) and is implemented through regulations at 50 CFR part 638 under the authority of the Magnuson Fishery Conservation and Management Act (Magnuson Act). With implementation of Amendment 2, the single FMP is separated into two FMPS—the FMP for Coral and Coral Reefs off the Southern Atlantic States under the purview of the South Atlantic Council and the FMP for Coral and Coral Reefs of the Gulf of Mexico under the purview of the Gulf Council. Regulations implementing both FMPS remain in 50 CFR part 638.

At the request of the Gulf Council, NMFS published an emergency interim rule on May 16, 1994 (59 FR 25344), effective May 16 through August 14, 1994, and extended the rule, with modifications, through November 12, 1994 (59 FR 42533; August 18, 1994). At the request of the South Atlantic Council, NMFS published an emergency interim rule on June 27, 1994 (59 FR 32938), effective through September 26, 1994, and extended the rule through December 25, 1994 (59 FR 47563; September 16, 1994). When the 1994 quota was reached, the live rock fishery in the South Atlantic EEZ was closed November 1, 1994, through December 25, 1994 (59 FR 54841; November 2, 1994). These rules were intended to slow the rate of harvest, prevent serious damage to habitat, and prevent geographical extension of harvest until long-term measures could be implemented through Amendment 2. This final rule implements the measures contained in Amendment 2, which include the basic measures in the emergency interim rules.

The rationale for the measures in Amendment 2 and for additional measures proposed by NMFS were contained in the proposed rule (59 FR

49377, September 28, 1994) and are not repeated here.

#### Comments and Responses

Comments on the proposed rule were received through November 7, 1994, and are summarized below, according to subject, followed by NMFS' response:

#### Harvests off the Florida Panhandle

**Comment:** The Florida Marine Fisheries Commission (Florida), Georgia Department of Natural Resources (Georgia), the Professional Association of Diving Instructors (PADI), and the Center for Marine Conservation (CMC) recommend that NMFS close the EEZ off the Florida Panhandle to live rock harvesting during the harvest phase-out period. The following local groups also requested an immediate ban on harvesting: Okaloosa County Board of Commissioners; City of Destin, Destin Charter Boat Association, Destin Fisherman's Cooperative Association, Inc., Okaloosa County Economic Development Council, Destin Fishing Fleet, Inc., Emerald Coast Convention and Visitors Bureau, South Walton Tourist Development Council, 16 local businesses, including nine dive shops, and 24 private citizens. These commenters requested closure of the EEZ off the Panhandle because hard bottom areas in the northern Gulf are scarce, and thus more vulnerable to overfishing. They indicated that similar environments off Alabama, Louisiana, Mississippi, and Texas will be closed to live rock harvesting under Amendment 2 and that closures in the South Atlantic will result in shifting of harvesting effort to the Gulf area where harvesting is still allowed. They also indicated there will be adverse economic impacts on sport fishing, diving, and tourism in the Florida Panhandle due to destruction of valuable reef habitats.

**Response:** At its November meeting, the Gulf Council decided to include among options being considered in FMP Amendment 3 a management measure to close the EEZ off the Panhandle area. Amendment 3 is on the agenda for the next Gulf Council meeting in January 1995. NMFS' options were, however, to approve, disapprove, or partially disapprove the Council's recommendations in Amendment 2; disapproval of Amendment 2 would not have resulted in an immediate prohibition on harvests.

#### National Standard 4 of the Magnuson Act

**Comment:** Florida and PADI claim that the Gulf Council has violated national standard 4 of the Magnuson Act by treating Florida residents

differently from residents of Texas, Alabama, Mississippi, and Louisiana. They assert that only in the Gulf off Florida, and especially in the Panhandle area, is the harvest of wild live rock allowed to continue during a phase-out period. These commenters believe that Florida fishermen and citizens are being denied the protections that are being extended to the other states.

**Response:** NMFS disagrees. National standard 4 states:

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

The Gulf Council's recommendation, and NMFS' decision, to allow wild live rock harvests off Florida merely continues existing fishing practices and has no discriminatory effect. Citizens of other states may participate in the fishery off Florida, however, the only known landings of live rock from this area have been made by Florida citizens. Amendment 2 does not violate national standard 4 by allowing live rock harvesting off Florida during the phase-out period, especially since it also establishes mitigating or restrictive measures limiting the extent and effects of this harvest, such as gear limitations and a daily vessel limit.

#### Live Rock Quota in the Gulf

**Comment:** Florida, Georgia, CMC, and PADI urged NMFS to impose a quota in the Gulf to prevent serious depletion of resources during the harvest phase-out period. They are especially concerned that when South Atlantic quotas are met the Gulf will become the sole domestic source of wild live rock.

**Response:** NMFS cannot use Amendment 2 to impose measures not recommended (or rejected) by the Councils. The Gulf Council is preparing Amendment 3 to the FMP specifically to address live rock quotas. Amendment 3 will be under consideration at the Gulf Council's meeting in January 1995.

#### Octocorals

**Comment:** Florida asked NMFS not to approve the provision that allows the harvest in the Gulf of Mexico off Florida of rock substrate within 3 inches (7.6 cm) of the base of an allowable octocoral. At recent State public hearings on the issue, live rock

harvesters testified that, especially in the Florida Keys, it would be easy to pick up 6-inch (15.2-cm) rocks with small octocorals attached and that this provision will allow the harvest of wild live rock to continue under the octocoral quota. Under recently published State rules, only the substrate within 1 inch (2.5 cm) of the holdfast will be allowed to be landed anywhere in Florida under the octocoral quota.

**Response:** Individuals harvesting octocorals for the aquarium industry testified that they need some attached substrate to anchor the octocoral in the aquarium. This rule defines "allowable octocorals" to include the substrate within 1 inch (2.5 cm) of the octocoral in the EEZ off the southern Atlantic states and the substrate within 3 inches (7.6 cm) of the octocoral in the Gulf EEZ. However, according to a long-standing policy on octocoral regulations, the more restrictive state or Federal rule applies. (See old § 638.4(a)(2)(ii) or new § 638.3(c)). In this case, since Florida now has a 1-inch (2.5-cm) rule, § 638.3(c) would require a person landing allowable octocorals in Florida (on both the east and Gulf coasts) to comply with the more restrictive State regulation. Individuals harvesting allowable octocorals in the Gulf EEZ and landing outside Florida would still be able to take attached substrate up to 3 inches (7.6 cm) from the octocoral.

#### Separation of the FMP into Two Jurisdictions

**Comment:** The U.S. Fish and Wildlife Service and the State of Georgia recommended that NMFS approve the separation of the FMP into two fishery management plans, one covering coral and coral reef resources in the Gulf EEZ and one for such resources in the EEZ of the South Atlantic. Florida does not oppose separation but is concerned that it will result in management objectives and regulations that are inconsistent between Florida's east and west coasts. One live rock harvester asked for consistent rules in both jurisdictions and two harvesters claimed that the inconsistent regulations give Florida west coast firms an unfair commercial advantage over the southeast commercial interests.

**Response:** NMFS approved the separation of the FMP into two fishery management plans because: both Councils have requested it; the resource is sessile and will not move between adjacent Council jurisdictions; and the public may benefit due to decreased travel costs for attending Council meetings—members of the public who use the resource under the jurisdiction

of only one or the other Council will only need to attend the meetings of one Council. It does appear that there may be an increasing divergence between the management regimes of the two Councils. Any economic advantage accruing to the west coast dealers in live rock will be short-lived since the harvest of wild live rock in the Gulf will end on January 1, 1997. The Gulf Council is considering adopting harvest quotas for wild live rock for 1995 and 1996.

#### *Accuracy of Scientific Data*

*Comment:* Two live rock harvesters questioned the accuracy of scientific data in Amendment 2, specifically the relationship between live rock harvest and reef fish habitat availability and the nonrenewable nature of the live rock resource.

*Response:* The NMFS Southeast Fisheries Science Center has certified that the management measures contained in Amendment 2 are based on the best scientific information available.

#### *Phase-out Dates*

*Comment:* The Pet Industry Joint Advisory Council (PIJAC), American Aquarist Society (AAS), Marine Aquarium Societies of North America (MASNA), six pet shops, and five individuals objected to the January 1, 1996, termination date for wild live rock harvests in the South Atlantic area. These commenters believe that there may not be enough time to develop aquaculture to replace these wild harvests. On the other hand, PADI asked NMFS to move up the phase-out dates to 1995 in the South Atlantic and 1996 in the Gulf EEZ. The Environmental Defense Fund (EDF) said that waiting to ban live rock collection, in certain areas off Florida, until an aquaculture industry is in place creates no incentives for the development of the industry. EDF believes that it is not NMFS' responsibility to ensure that an aquaculture industry exists to replace fisheries that must be shut down because they are unsustainable.

*Response:* NMFS has approved the phase-out dates requested by the Councils as part of Amendment 2. Approval of these dates by NMFS was based on an agency determination that these dates represent a reasonable balancing of concerns for the live rock resource and concerns for the effect of immediate closures on the aquarium industry. Following a series of public hearings and discussions beginning in 1993, the South Atlantic Council weighed the requests of live rock harvesters for time to produce a marketable aquaculture product against

the continuing loss of fisheries habitat and the potential degradation of the Florida Reef Tract from wild live rock harvests in the South Atlantic area. The Council decided that January 1, 1996, or approximately a 1-year delay in a ban on commercial harvests was reasonable, especially since testimony indicated that a marketable product could be produced from base rock in about one year. Eliminating or reducing the phase-out periods, as some commenters suggested, were options rejected by the Councils because of the unacceptable adverse economic impacts on live rock harvesters.

#### *Personal-Use Harvests*

*Comment:* PIJAC, AAS, MASNA, six pet shops, and five individuals asked for a personal-use allowance of a 5-gal bucket (19-L) container of live rock per person per day. EDF believes that this allowance is an excessive amount to maintain one aquarium and is concerned about enforcement problems and the potential for abuse. EDF requests that the potential impacts of such a provision be closely examined.

*Response:* In developing Amendment 2, the Council and NMFS rejected a personal-use harvest that could result in a total of up to 1,825 gal (6,908 L) of live rock per person per year. The harvest of wild live rock is a take of an essentially nonrenewable resource and results in a net loss of fishery habitat. While NMFS agreed with the Councils' final recommendation to delay the ban on commercial harvests in order to mitigate adverse economic impacts on the industry and allow a transition to live rock aquaculture, this justification is not applicable to the recreational sector. Further, live rock is likely to contain prohibited corals. Commercial harvesters testified that they must carefully choose pieces to avoid taking prohibited corals. Occasional recreational divers are less likely to be able to make these distinctions and any allowable recreational take of live rock could result in increased takes of prohibited corals. Finally, the State of Florida banned both commercial and recreational harvest of live rock from State waters in 1989. A personal-use harvest from the EEZ off Florida could seriously complicate State enforcement efforts. The Gulf Council intends to reconsider this issue during development of FMP Amendment 3.

#### *Aquaculture Permits*

*Comment:* Florida, Georgia, and the CMC support the live rock aquaculture provisions. Pet industry groups and two commercial harvesters are concerned about delays in development of permit

systems for aquaculture. PADI believes that aquaculture development should occur away from the natural environment so as to provide supervisory agencies the ability to monitor aquaculture activities without ambiguity between what may be harvesting aquacultured versus wild live rock. The South Atlantic Council forwarded the minutes of its Coral Advisory Panel (AP) meeting that resulted in recommended changes to the draft aquacultured live rock permit criteria. The AP was particularly concerned that any required site evaluation report be prepared by an independent source to eliminate bias and that placement of rocks used for aquaculture be conducted in an environmentally sound manner.

*Response:* NMFS and the U.S. Army Corps of Engineers (COE) are developing a coordinated permit system for live rock aquaculture that will expedite applications. Rather than requiring application to both agencies, one to COE for deposition of materials in Federal waters and one to NMFS for harvest and possession of live rock in the EEZ, permits will be issued by NMFS that will, among other things, authorize individuals to deposit materials under a COE general permit. Several individuals will be "grandfathered" into the COE permit because they already hold COE individual permits under the authority of the Rivers and Harbors Act, and have placed rocks in designated sites for the purpose of live rock aquaculture. These individuals will still need to apply for a NMFS harvest and possession permit and abide by NMFS' reporting and other regulatory requirements. The COE general permit is expected to be available in January 1995. Land-based aquaculture, as suggested by PADI, was opposed by the live rock harvesting industry representatives that attended State of Florida and Council public hearings on this issue because it is costly and technically more difficult than open-water aquaculture.

As a result of the Coral AP's recommendations, NMFS has made certain changes from the proposed rule. The site survey, which is required to be submitted with an application for an aquacultured live rock permit, must be prepared pursuant to generally accepted industry standards. Additionally, clarifications have been made to the deposition procedures for live rock aquaculture to further the intent of the permit criteria, namely, the protection of natural hardbottom areas. Thus, this final rule explains that the rocks must be placed by hand or lowered completely to the bottom under restraint, that is, not allowed to fall

freely, and must be placed from a vessel that is anchored to help ensure that the deposited materials do not drift onto natural hardbottom or vegetated areas.

#### *Concerns of the South Atlantic Council*

**Comment:** The South Atlantic Council expressed its concern about certain proposed measures. It reiterated that allowable octocorals in the South Atlantic include only the substrate covered by and within 1 inch (2.5 cm) of the holdfast and noted that Florida intended to establish this definition in its waters. Also, the Council reiterated its request for a separate FMP for coral and coral reef resources in the area of its jurisdiction and noted its intent to prohibit chipping under aquaculture permits through a subsequent FMP amendment.

**Response:** NMFS refers the Council to discussions above regarding the amount of substrate that can be landed with an allowable octocoral. In light of Florida's recent publication of a rule allowing the landing of only 1 inch (2.5 cm) of substrate surrounding the octocoral, individuals landing allowable octocorals in Florida will have to abide by the more restrictive State rule. NMFS has agreed to the South Atlantic Council's request and divided the single, joint Council FMP into two FMPs, each under the respective jurisdiction of the Gulf and South Atlantic Councils. Regarding chipping, the final rule prohibits this practice in areas of the South Atlantic where wild live rock harvesting is allowed, i.e., south of the Dade/Broward County line in Florida. Amendment 2 does not give NMFS the authority to address aquaculture permits in the South Atlantic. However, the Council is free to include a chipping prohibition in the aquaculture measures it intends to forward for NMFS approval early next year.

#### **Approval of Amendment 2**

On November 25, 1994, the Director, Southeast Region, NMFS (Regional Director), approved Amendment 2.

#### *Changes from the Proposed Rule*

As discussed above, § 638.4(b)(4) is revised to require that the site survey, which is required to be submitted with an application for an aquacultured live rock permit, be prepared pursuant to generally accepted industry standards.

By emergency interim rule, a quota for wild live rock from the EEZ off the southern Atlantic states was established for the current fishing year. That quota was reached and the fishery was closed effective November 1, 1994. Accordingly, the quota for the current

fishing year is removed from § 638.25(c)(1) and provisions for continuing the closure through December 31, 1994, are temporarily added at § 638.25(c)(3).

As noted above, § 638.27(b)(2) is revised to require that material deposited on an aquaculture site must be placed on the site by hand or lowered completely to the bottom under restraint (that is, not allowed to fall freely) and must be placed from a vessel that is anchored.

#### **Classification**

The Regional Director determined that Amendment 2 is necessary for the conservation and management of coral and coral reefs off the southern Atlantic states and in the Gulf of Mexico and that it is consistent with the Magnuson Act and other applicable law.

This action has been determined to be not significant for purposes of E.O. 12866.

The Councils prepared a final supplemental environmental impact statement (FSEIS) for Amendment 2; a notice of availability was published on August 29, 1994 (59 FR 44398). According to the FSEIS, the measures contained in Amendment 2 will benefit the natural environment by phasing out activities that result in damage to live bottom habitat areas. Potential adverse economic impacts on fishermen will be mitigated by the harvest of aquacultured live rock.

The Councils prepared an initial regulatory flexibility analysis (RFA) for this action. The initial RFA has been adopted as final without change. The initial and final RFAs conclude that this action may have a significant economic impact on a substantial number of small entities. The specifics of that conclusion are summarized in the proposed rule and are not repeated here. Copies of the document may be obtained from the Gulf of Mexico Fishery Management Council, 5401 W. Kennedy Boulevard, Suite 331, Tampa, FL 33609-2486, FAX 813-225-7015, or from the South Atlantic Fishery Management Council, Southpark Building, One Southpark Circle, Suite 306, Charleston, SC 29407-4699, FAX 803-769-4520.

This final rule contains collection-of-information requirements subject to the Paperwork Reduction Act—specifically, applications for permits to take wild live rock, applications for permits to take aquacultured live rock, site evaluation reports for aquacultured live rock, reports of live rock harvests, and notification of intent to harvest aquacultured live rock. These collections of information have been approved by OMB under OMB control

numbers 0648-0205, and 0648-0016. The public reporting burdens for these collections of information are estimated to average 15, 15, 45, 15, and 2 minutes per response, respectively, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. This rule also revises a collection-of-information requirement subject to the Paperwork Reduction Act—namely, applications for prohibited coral, allowable chemical, and allowable octocoral permits. This collection of information is estimated to average 15 minutes per response and was previously approved by OMB under OMB control number 0648-0205. Send comments regarding these burden estimates or any other aspect of the collections of information, including suggestions for reducing the burdens, to Edward E. Burgess, NMFS, 9721 Executive Center Drive N., St. Petersburg, FL 33702 and to the Office of Information and Regulatory Affairs, OMB, Washington, DC 20503 (Attention: NOAA Desk Officer).

In the EEZ off the southern Atlantic states, the substantive measures in this final rule, that is, non-administrative measures that affect the conservation of coral and coral reefs, are currently in effect under an emergency interim rule. In the EEZ of the Gulf of Mexico, the substantive measures were in effect through November 12, 1994, under an emergency interim rule. It is in the public interest to continue the effectiveness of these measures off the southern Atlantic states without hiatus and to minimize the period of time that these measures are not in effect in the Gulf of Mexico. The other measures in this final rule are continuations or clarifications of existing measures or administrative measures that do not affect current fishing practices. Delay in effectiveness of these other measures serves no useful purpose and is not in the public interest. Accordingly, the Assistant Administrator for Fisheries, NOAA, finds for good cause, under section 553(d)(3) of the Administrative Procedure Act, that the effectiveness of this final rule should not be delayed.

#### **List of Subjects**

##### **50 CFR Part 204**

Reporting and recordkeeping requirements.

##### **50 CFR Part 638**

Fisheries, Fishing, Reporting and recordkeeping requirements

Dated: December 21, 1994.  
**Charles Karnella,**  
*Acting Program Management Officer,*  
*National Marine Fisheries Service.*

For the reasons set out in the preamble, 50 CFR parts 204 and 638 are amended as follows:

**PART 204—OMB CONTROL NUMBERS FOR NOAA INFORMATION COLLECTION REQUIREMENTS**

1. The authority citation for part 204 continues to read as follows:

Authority: Paperwork Reduction Act of 1980, 44 U.S.C. 3501-3520 (1982).

**§ 204.1 [Amended]**

2. In § 204.1(b), the table is amended by removing from the left column "638.4(g)" and "638.7", and their corresponding entries in the right column, and by adding in their place, in the left column, in numerical order, "638.4", "638.5", and "638.27(d)" and in the right column, in corresponding positions, the control numbers "-0205", "-0205", and "-0016".

**PART 638—CORAL AND CORAL REEFS OF THE GULF OF MEXICO AND THE SOUTH ATLANTIC**

3. The authority citation for part 638 continues to read as follows:

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

4. Section 638.1 is revised to read as follows:

**§ 638.1 Purpose and scope.**

(a) The purpose of this part is to implement the Fishery Management Plan for Coral and Coral Reefs off the Southern Atlantic States and the Fishery Management Plan for Coral and Coral Reefs of the Gulf of Mexico developed under the Magnuson Act by the South Atlantic Fishery Management Council and the Gulf of Mexico Fishery Management Council, respectively.

(b) This part governs conservation and management of coral, coral reefs, and live rock in the EEZ off the southern Atlantic states and in the Gulf of Mexico. "EEZ" in this part 638 refers to the EEZ in those geographical areas, unless the context clearly indicates otherwise.

5. In § 638.2, the definition of "Scientific and educational purpose" is removed; in the definition of "Allowable chemical", paragraphs (a) and (b) are redesignated as paragraphs (1) and (2), respectively; the definitions of "Allowable octocoral", "HAPC", "Prohibited coral", and "Regional Director" are revised; and new definitions of "Aquacultured live rock", "Chipping", "Gulf of Mexico", "Live

rock", "Off the southern Atlantic states", "Scientific, educational, or restoration purpose", "Trip", and "Wild live rock" are added in alphabetical order to read as follows:

**§ 638.2 Definitions.**

*Allowable octocoral* means an erect, nonencrusting species of the subclass Octocorallia, except the seafans *Gorgonia flabellum* and *G. ventalina*, plus the attached substrate—

- (1) Within 1 inch (2.54 cm) of an allowable octocoral in or from the EEZ off the southern Atlantic states; and
- (2) Within 3 inches (7.62 cm) of an allowable octocoral in or from the Gulf of Mexico EEZ.

*Aquacultured live rock* means live rock that is harvested under an aquacultured live rock permit issued pursuant to § 638.4.

*Chipping* means breaking up reefs, ledges, or rocks into fragments, usually by means of a chisel and hammer.

*Gulf of Mexico* means the waters off the southern states from the boundary between the Atlantic Ocean and the Gulf of Mexico, as specified in § 601.11(c) of this chapter, to the Texas/Mexico border.

*HAPC* means habitat area of particular concern.

*Live rock* means living marine organisms, or an assemblage thereof, attached to a hard substrate, including dead coral or rock (excluding individual mollusk shells).

*Off the southern Atlantic states* means the waters off the east coast from 36°34'55" N. lat. (extension of the Virginia/North Carolina boundary) to the boundary between the Atlantic Ocean and the Gulf of Mexico, as specified in § 601.11(c) of this chapter.

*Prohibited coral* means—

- (1) Coral belonging to the Class Hydrozoa (fire corals and hydrocorals);
- (2) Coral belonging to the Class Anthozoa, Subclass Hexacorallia, Orders Scleractinia (stony corals) and Antipatharia (black corals);
- (3) A seafan, *Gorgonia flabellum* or *G. ventalina*;
- (4) Coral in a coral reef, except for allowable octocoral; or
- (5) Coral in an HAPC, including allowable octocoral.

*Regional Director* means the Director, Southeast Region, NMFS, 9721 Executive Center Drive N., St. Petersburg, FL 33702, telephone 813-570-5301; or a designee.

*Scientific, educational, or restoration purpose* means the objective of gaining

knowledge for the benefit of science, humanity, or management of coral or returning a disturbed habitat as closely as possible to its original condition.

*Trip* means a fishing trip, regardless of number of days duration, that begins with departure from a dock, berth, beach, seawall, or ramp and that terminates with return to a dock, berth, beach, seawall, or ramp.

*Wild live rock* means live rock other than aquacultured live rock.

6. In § 638.3, in paragraph (a), the reference to "paragraph (b) of this section" is revised to read "paragraphs (b) and (c) of this section"; and paragraph (c) is added to read as follows:

**§ 638.3 Relation to other laws.**

(c) If a state has a catch, landing, or gear regulation that is more restrictive than a catch, landing, or gear regulation in this part, a person landing in such state allowable octocoral taken from the EEZ must comply with the more restrictive state regulation.

**§§ 638.8, 638.6 (Redesignated as §§ 638.9, 638.8)**

7. Section 638.8 is redesignated as § 638.9; § 638.6 is redesignated as § 638.8; §§ 638.4, 638.5, and 638.7 are revised, and new § 638.6 is added to read as follows:

(Note: This revision supersedes the amendments to § 638.5 published in the emergency interim rule on June 27, 1994 (59 FR 32933) and extended on September 16, 1994 (59 FR 47563).)

**§ 638.4 Permits and fees.**

(a) *Applicability.* (1) *Federal permits.* Federal permits are required for specified activities in the EEZ as follows:

(i) *Prohibited coral.* A Federal permit is required for an individual to take or possess prohibited coral and will be issued only when the prohibited coral will be used for a scientific, educational, or restoration purpose.

(ii) *Allowable chemical.* A Federal permit is required for an individual to take or possess fish or other marine organisms with an allowable chemical in a coral area, other than fish or other marine organisms that are landed in Florida.

(iii) *Allowable octocoral.* A Federal permit is required for an individual to take or possess allowable octocoral, other than allowable octocoral that is landed in Florida.

(iv) *Wild live rock.* (A) A Federal permit is required for a vessel to take or possess wild live rock. A wild live rock

vessel permit will not be issued unless the current owner of the vessel for which the permit is requested had the required Florida permit and endorsements for live rock on or before February 3, 1994, and a record of landings of live rock on or before February 3, 1994, as documented on trip tickets received by the Florida Department of Environmental Protection before March 15, 1994. For landings other than in Florida, equivalent state permits/endorsements, if required, and landing records may be substituted for the Florida permits/endorsements and trip tickets. An owner will not be issued permits in numbers exceeding the number of vessels for which the owning entity had the requisite reported landings. An owner of a permitted vessel may transfer the vessel permit to another vessel owned by the same person by returning the existing permit with an application for a vessel permit for the replacement vessel.

(B) A Federal permit is required for an individual to take or possess wild live rock for a scientific, educational, or restoration purpose and an individual permit will be issued only for such purpose. Such individual wild live rock permit may authorize the taking and possession of wild live rock in or from areas not otherwise allowed by the regulations in this part.

(v) *Aquacultured live rock.* A Federal permit is required for a person to take or possess aquacultured live rock. Each aquacultured live rock permit will be issued for a specific site, which may not exceed 1 acre (0.4 ha). Aquacultured live rock permits are available only for harvests in the Gulf of Mexico.

(2) *Florida permits.* Appropriate Florida permits and endorsements are required for the following activities, without regard to whether they involve activities in the EEZ or Florida's waters:

(i) Landing in Florida fish or other marine organisms taken with an allowable chemical in a coral area.

(ii) Landing allowable octocoral in Florida.

(iii) Landing live rock in Florida.

(b) *Application.* An application for a Federal permit must be signed and submitted by the applicant on an appropriate form, which may be obtained from the Regional Director. The application must be submitted to the Regional Director at least 30 days prior to the date on which the applicant desires to have the permit made effective. Information must be provided as follows:

(1) *Basic information.* (i) Name, mailing address including zip code, telephone number, social security

number, and date of birth of the applicant.

(ii) Name and address of any affiliated company, institution, or organization.

(iii) Information concerning vessels and harvesting gear/methods requested by the Regional Director.

(iv) Any other information that may be necessary for the issuance or administration of the permit.

(2) *Scientific, educational, or restoration purpose.* An applicant for a prohibited coral permit or a wild live rock permit for a scientific, educational, or restoration purpose must specify the amount and size of prohibited coral or wild live rock to be harvested, by species, its intended use, and proposed locations and periods of fishing.

(3) *Allowable chemical.* An applicant for an allowable chemical permit must specify the type of chemical to be used, species to be harvested and their intended use, and proposed locations and periods of fishing.

(4) *Aquacultured live rock.* An applicant for an aquacultured live rock permit must identify each vessel that will be depositing material on or harvesting aquacultured live rock from the proposed aquacultured live rock site, must specify the port of landing of aquacultured live rock, and must provide a site evaluation report prepared pursuant to generally accepted industry standards that—

(i) Provides accurate coordinates of the proposed harvesting site so that it can be located using LORAN or Global Positioning System equipment;

(ii) Shows the site on a chart in sufficient detail to determine its size and allow for site inspection;

(iii) Discusses possible hazards to safe navigation or hindrance to vessel traffic, traditional fishing operations, or other public access that may result from aquacultured live rock at the site;

(iv) Describes the naturally occurring bottom habitat at the site; and

(v) Specifies the type and origin of material to be deposited on the site and how it will be distinguishable from the naturally occurring substrate.

(c) *Change in application information.* An individual, the owner of a vessel, or a person with a permit must notify the Regional Director within 30 days after any change in the application information specified in paragraph (b) of this section. The permit is void if any change in the information is not reported within 30 days.

(d) *Fees.* A fee is charged for each permit application submitted under paragraph (b) of this section. The amount of the fee is calculated in accordance with the procedures of the NOAA Finance Handbook for

determining the administrative costs of each special product or service. The fee may not exceed such costs and is specified with each application form. The appropriate fee must accompany each application.

(e) *Issuance.* (1) The Regional Director will issue a permit at any time to an applicant if the application is complete. An application is complete when all requested forms, information, and documentation have been received and the applicant has submitted all applicable reports specified at § 638.5.

(2) Upon receipt of an incomplete application, the Regional Director will notify the applicant of the deficiency. If the applicant fails to correct the deficiency within 30 days of the date of the Regional Director's letter of notification, the application will be considered abandoned.

(f) *Duration.* A permit remains valid for the period specified on it unless it is revoked, suspended, or modified pursuant to subpart D of 15 CFR part 904 or the permitted vessel is sold.

(g) *Transfer.* A permit issued pursuant to this section is not transferable or assignable, except as provided under paragraph (a)(1)(iv)(A) of this section for a wild live rock vessel permit. An individual or person who desires to conduct an activity for which a permit is required must apply for a permit in accordance with the provisions of paragraph (b) of this section. The application must be accompanied by a copy of a signed bill of sale or equivalent acquisition papers if the application involves a current permit for aquacultured live rock.

(h) *Display.* (1) An individual permit issued pursuant to this section must be available when the permitted activity is being conducted, including the landing of species taken as a result of that activity.

(2) A vessel permit for wild live rock issued pursuant to this section must be carried on board the vessel and such vessel must be identified as required by § 638.6.

(3) An aquacultured live rock permit issued pursuant to this section, or a copy, must be carried on board a vessel depositing or possessing material on an aquacultured live rock site or harvesting or possessing live rock from an aquacultured live rock site, and such vessel must be identified as provided for in § 638.6.

(4) The operator of a vessel or an individual must present the permit for inspection upon the request of an authorized officer.

(i) *Sanctions and denials.* A permit issued pursuant to this section may be revoked, suspended, or modified, and a

permit application may be denied, in accordance with the procedures governing enforcement-related permit sanctions and denials found at subpart D of 15 CFR part 904.

(j) *Alteration.* A permit that is altered, erased, or mutilated is invalid.

(k) *Replacement.* A replacement permit may be issued. An application for a replacement permit will not be considered a new application. A fee, the amount of which is stated with the application form, must accompany each request for a replacement.

#### § 638.5 Recordkeeping and reporting.

(a) An individual with a Federal prohibited coral or wild live rock permit for a scientific, educational, or restoration purpose must submit a report of harvest to the Regional Director. Specific reporting requirements will be provided with the permit.

(b) An individual with a Federal allowable octocoral permit must submit a report of harvest to the Science and Research Director. Specific reporting requirements will be provided with the permit.

(c) A person with an aquacultured live rock permit must report to the Regional Director each deposition of material on a site. Such reports must be postmarked not later than 7 days after deposition and must contain the following information:

(1) Permit number of site and date of deposit.

(2) Geological origin of material deposited.

(3) Amount of material deposited.

(4) Source of material deposited, that is, where obtained, if removed from another habitat, or from whom purchased.

(d) The owner of a vessel that takes wild live rock, and a person who takes aquacultured live rock that is landed in Florida, must submit Florida trip tickets as required by Florida statutes and regulations.

(e) A person who takes aquacultured live rock that is landed other than in Florida must submit a report of harvest to the Regional Director. Specific reporting requirements will be provided with the permit.

(f) Additional data will be collected by authorized statistical reporting agents, as designees of the Science and Research Director, and by authorized officers. An owner or operator of a fishing vessel, an individual or person with a coral permit issued pursuant to § 638.4, and a dealer or processor are required upon request to make prohibited coral, fish or other marine organisms taken with an allowable

chemical, allowable octocoral, or live rock available for inspection by the Science and Research Director or an authorized officer.

#### § 638.6 Vessel identification.

(a) *Official number.* A vessel with a Federal permit for wild live rock or operating under an aquacultured live rock permit, issued pursuant to § 638.4, must display its official number—

(1) On the port and starboard sides of the deckhouse or hull, and on an appropriate weather deck, so as to be clearly visible from an enforcement vessel or aircraft;

(2) In block arabic numerals in contrasting color to the background;

(3) At least 18 inches (45.7 cm) in height for fishing vessels over 65 ft (19.8 m) in length and at least 10 inches (25.4 cm) in height for all other vessels; and

(4) Permanently affixed to or painted on the vessel.

(b) *Duties of operator.* The operator of each fishing vessel must—

(1) Keep the official number clearly legible and in good repair; and

(2) Ensure that no part of the fishing vessel, its rigging, fishing gear, or any other material aboard obstructs the view of the official number from any enforcement vessel or aircraft.

#### § 638.7 Prohibitions.

In addition to the general prohibitions specified in § 620.7 of this chapter, it is unlawful for any person to do any of the following:

(a) Without a Federal permit, take or possess in the EEZ—

(1) Prohibited coral,

(2) Fish or other marine organisms with an allowable chemical in a coral area,

(3) Allowable octocoral,

(4) Wild live rock, or

(5) Aquacultured live rock—as specified in § 638.4(a)(1).

(b) Falsify information specified in § 638.4(b) on an application for a permit.

(c) Fail to display or present a permit, as specified in § 638.4(h).

(d) Falsify or fail to submit required reports or trip tickets, as specified in § 638.5(a), (b), (c), (d), and (e).

(e) Fail to make prohibited coral, fish or other marine organisms taken with an allowable chemical, allowable octocoral, or live rock available for inspection, as specified in § 638.5(f).

(f) Falsify or fail to display and maintain vessel identification, as required by § 638.6.

(g) Fail to return immediately to the sea prohibited coral, allowable octocoral, or live rock taken as incidental catch, or, in fisheries in

which the entire catch is landed unsorted, sell, trade, or barter, or attempt to sell, trade, or barter prohibited coral, allowable octocoral, or live rock; as specified in § 638.21.

(h) Use or possess a toxic chemical in a coral area in the EEZ, as specified in § 638.22(a).

(i) Use a power-assisted tool in the EEZ to take prohibited coral, allowable octocoral, or live rock, or possess in the EEZ such coral or live rock taken with a power-assisted tool, as specified in § 638.22(b).

(j) Fish for or possess prohibited coral or allowable octocoral in the West and East Flower Garden Banks HAPC or the Florida Middle Grounds HAPC, except as authorized by a permit, as specified in § 638.23(a)(1) and (b)(1).

(k) Use prohibited fishing gear in an HAPC, as specified in § 638.23(a)(2), (b)(2), and (c).

(l) After the fishery for allowable octocoral is closed, harvest or possess allowable octocoral in the EEZ, or purchase, barter, trade, or sell allowable octocoral so harvested or possessed, or attempt any of the foregoing, as specified in § 638.24(b).

(m) Harvest or possess wild live rock in the EEZ off the southern Atlantic states north of 25°58.5' N. lat., or in the Gulf of Mexico EEZ west of 87°31'06" W. long. or south of 25°20.4' N. lat., as specified in §§ 638.25(a) and 638.26(a).

(n) Harvest wild live rock by chipping or possess wild live rock taken by chipping in the EEZ off the southern Atlantic states south of 25°58.5' N. lat. or in the Gulf of Mexico EEZ from 87°31'06" W. long. east and south to 28°26' N. lat., as specified in §§ 638.25(b) and 638.26(b)(1).

(o) After the fishery for wild live rock is closed in the EEZ off the southern Atlantic states, harvest or possess wild live rock in that area, or purchase, barter, trade, or sell wild live rock so harvested or possessed, or attempt any of the foregoing, as specified in § 638.25(c).

(p) In the Gulf of Mexico EEZ from 28°26' N. lat. to 25°20.4' N. lat., harvest or possess wild live rock taken other than by hand or by chipping with a nonpower-assisted, hand-held hammer and chisel, as specified in § 638.26(b)(2).

(q) Exceed the daily vessel harvest and possession limit applicable to the harvest or possession of live rock in or from the Gulf of Mexico EEZ, as specified in § 638.26(c).

(r) Fail to comply with the restrictions applicable to aquacultured live rock sites specified in § 638.27(b).

(s) Mechanically dredge or drill, or otherwise disturb, aquacultured live



rock or harvest live rock other than by hand, as specified in § 638.27(c).

(t) Falsify or fail to provide information 24 hours prior to harvesting aquacultured live rock, as specified in § 638.27(d).

(u) Harvest live rock from a site for which the person does not have an aquacultured live rock permit, as specified in § 638.27(e).

(v) Make any false statement, oral or written, to an authorized officer concerning the taking, catching, harvesting, landing, purchase, sale, possession, or transfer of allowable octocoral, prohibited coral, or live rock.

(w) Interfere with, obstruct, delay, or prevent by any means an investigation, search, seizure, or disposition of seized property in connection with enforcement of the Magnuson Act.

#### Subpart B—Management Measures

8. Subpart B of part 638 is revised to read as follows:

(Note: This revision supercedes the amendments to subpart B published in the emergency interim rule on June 27, 1994 (59 FR 32933) and extended on September 16, 1994 (59 FR 47563).)

#### Subpart B—Management Measures

- 638.20 Fishing years.
- 638.21 Harvest limitations.
- 638.22 Gear restrictions.
- 638.23 Habitat areas of particular concern.
- 638.24 Octocoral quota and closure.
- 638.25 Wild live rock off the southern Atlantic states.
- 638.26 Wild live rock in the Gulf of Mexico.
- 638.27 Aquacultured live rock.
- 638.28 Specifically authorized activities.

#### Subpart B—Management Measures

##### § 638.20 Fishing years.

The fishing year for live rock begins on January 1 and ends on December 31. The fishing year for prohibited coral and allowable octocoral begins on October 1 and ends on September 30.

##### § 638.21 Harvest limitations.

Except as authorized by a permit issued pursuant to § 638.4, prohibited coral, allowable octocoral, and live rock taken as incidental catch must be returned immediately to the sea in the general area of fishing. In fisheries where the entire catch is landed unsorted, such as the scallop and groundfish fisheries, unsorted prohibited coral, allowable octocoral, and live rock are exempt from the requirement for a Federal permit and may be landed; however, no person may sell, trade, or barter or attempt to sell, trade, or barter such prohibited coral, allowable octocoral, or live rock.

##### § 638.22 Gear restrictions.

(a) A toxic chemical may not be used or possessed in a coral area in the EEZ.

(b) A power-assisted tool may not be used in the EEZ to take prohibited coral, allowable octocoral, or live rock, and the possession in the EEZ of such corals or live rock taken with a power-assisted tool is prohibited.

##### § 638.23 Habitat areas of particular concern.

The following areas are designated as HAPCs:

(a) *West and East Flower Garden Banks.* The West and East Flower Garden Banks are geographically centered at 27°52'14.21" N. lat., 93°48'54.79" W. long. and 27°55'07.44" N. lat., 93°36'08.49" W. long., respectively. On each bank, the HAPC extends from its geographical center to the 50-fathom (300-ft) (91.4-m) isobath. The following restrictions apply in the HAPC:

(1) Fishing for or possessing prohibited coral or allowable octocoral is prohibited, except as authorized by a permit issued pursuant to § 634.4; and

(2) Fishing with bottom longlines, traps, pots, dredges, or bottom trawls is prohibited.

(b) *Florida Middle Grounds.* The Florida Middle Grounds is bounded by rhumb lines connecting the following points:

Point	North latitude	West longitude
A .....	28°42.5'	84°24.8'
B .....	28°42.5'	84°16.3'
C .....	28°11.0'	84°00.0'
D .....	28°11.0'	84°07.0'
E .....	28°26.6'	84°24.8'
A .....	28°42.5'	84°24.8'

The following restrictions apply in the HAPC:

(1) Fishing for or possessing prohibited coral or allowable octocoral is prohibited, except as authorized by a permit issued pursuant to § 634.4; and

(2) Fishing with bottom longlines, traps, pots, dredges, or bottom trawls is prohibited.

(c) *Oculina Bank.* The Oculina Bank is located approximately 15 nautical miles east of Fort Pierce, FL, at its nearest point to shore, and is bounded on the north by 27°53' N. lat., on the south by 27°30' N. lat., on the east by 79°56' W. long., and on the west by 80°00' W. long. In the HAPC, fishing with bottom longlines, traps, pots, dredges, or bottom trawls is prohibited. See § 646.26(d) of this chapter for prohibitions on fishing for snapper-grouper in the Oculina Bank HAPC.

##### § 638.24 Octocoral quota and closure.

(a) The quota for allowable octocoral from the EEZ is 50,000 colonies per fishing year.

(b) When the quota specified in paragraph (a) of this section is reached or is projected to be reached, the Assistant Administrator will file notification to that effect with the Office of the Federal Register. On and after the effective date of such notification, for the remainder of the fishing year, allowable octocoral may not be harvested or possessed in the EEZ and the purchase, barter, trade, or sale, or attempted purchase, barter, trade, or sale, of allowable octocoral in or from the EEZ is prohibited. The latter prohibition does not apply to allowable octocoral that was harvested and landed prior to the effective date of the notification in the Federal Register.

##### § 638.25 Wild live rock off the southern Atlantic states.

(a) *Closed area.* No person may harvest or possess wild live rock in the EEZ off the southern Atlantic states north of 25°58.5' N. lat. (extension of the Dade/Broward County, Florida, boundary).

(b) *Gear limitation.* In the EEZ off the southern Atlantic states south of 25°58.5' N. lat., no person may harvest wild live rock by chipping and no person may possess in that area wild live rock taken by chipping.

(c) *Quota and closure.* (1) The quota for wild live rock from the EEZ off the southern Atlantic states is 485,000 lb (219,992 kg) for the fishing year that begins January 1, 1995. Commencing with the fishing year that begins January 1, 1996, the quota is zero.

(2) When the quota specified in paragraph (c)(1) of this section is reached, or is projected to be reached, the Assistant Administrator will file notification to that effect with the Office of the Federal Register. On and after the effective date of such notification, for the remainder of the fishing year, wild live rock may not be harvested or possessed in the EEZ off the southern Atlantic states and the purchase, barter, trade, or sale, or attempted purchase, barter, trade, or sale, of wild live rock in or from the EEZ off the southern Atlantic states is prohibited. The latter prohibition does not apply to wild live rock that was harvested and landed prior to the effective date of the notification in the Federal Register.

(3) The 1994 quota for wild live rock from the EEZ off the southern Atlantic states was reached and the fishery was closed effective November 1, 1994. The provisions of paragraph (c)(2) of this section regarding harvest or possession



of wild live rock and the purchase, barter, trade, or sale, or attempts thereof, of wild live rock are effective December 22, 1994, through December 31, 1994.

**§ 638.26 Wild live rock in the Gulf of Mexico.**

(a) *Closed areas.* No person may harvest or possess wild live rock in the Gulf of Mexico EEZ—

(1) West of 87°31'06" W. long. (extension of the Alabama/Florida boundary); or

(2) South of 25°20.4' N. lat. (extension of the Monroe/Collier County, Florida boundary).

(b) *Gear limitations.* (1) In the Gulf of Mexico EEZ from 87°31'06" W. long. east and south to 28°26' N. lat. (extension of the Pasco/Hernando County, FL. boundary), no person may harvest wild live rock by chipping and no person may possess in that area wild live rock taken by chipping.

(2) In the Gulf of Mexico EEZ from 28°26' N. lat. to 25°20.4' N. lat., wild live rock may be harvested only by hand, without tools, or by chipping with a nonpower-assisted, hand-held hammer and chisel, and no person may possess in that area wild live rock taken other than by hand, without tools, or by chipping with a nonpower-assisted, hand-held hammer and chisel.

(c) *Harvest and possession limits.* Through December 31, 1996, a daily vessel limit of twenty-five 5-gallon (19-L) buckets, or volume equivalent (16.88 ft<sup>3</sup> (478.0 L)), applies to the harvest or possession of wild live rock in or from the Gulf of Mexico EEZ from 87°31'06" W. long. east and south to 25°20.4' N. lat., regardless of the number or duration of trips. Commencing January 1, 1997, the daily vessel limit is zero.

**§ 638.27 Aquacultured live rock.**

(a) Aquacultured live rock may be harvested from the Gulf of Mexico EEZ only under a permit, as required by § 638.4(a)(1)(v). A person harvesting aquacultured live rock is exempt from the prohibition on taking prohibited coral for such prohibited coral as attaches to aquacultured live rock.

(b) The following restrictions apply to individual aquaculture activities:

(1) No aquaculture site may exceed 1 acre (0.4 ha) in size.

(2) Material deposited on the aquaculture site must be geologically or otherwise distinguishable from the naturally occurring substrate or be indelibly marked or tagged; may not be placed over naturally occurring reef outcrops, limestone ledges, coral reefs, or vegetated areas; must be free of contaminants; must be nontoxic; must be placed on the site by hand or lowered

completely to the bottom under restraint, that is, not allowed to fall freely; and must be placed from a vessel that is anchored.

(3) A minimum setback of at least 50 ft (15.2 m) must be maintained from natural vegetated or hard bottom habitats.

(c) Mechanically dredging or drilling, or otherwise disturbing, aquacultured live rock is prohibited, and aquacultured live rock may be harvested only by hand.

(d) Not less than 24 hours prior to harvest of aquacultured live rock, the owner or operator of the harvesting vessel must provide the following information to the NMFS Law Enforcement Office, Southeast Area, St. Petersburg, FL, telephone (813) 570-5344:

(1) Permit number of site to be harvested and date of harvest.

(2) Name and official number of the vessel to be used in harvesting.

(3) Date, port, and facility at which aquacultured live rock will be landed.

(e) Live rock on a site may be harvested only by the person, or his or her employee, contractor, or agent, who has been issued the aquacultured live rock permit for the site.

**§ 638.28 Specifically authorized activities.**

The Regional Director may authorize, for the acquisition of information and data, activities otherwise prohibited by the regulations in this part.

[FR Doc. 94-31832 Filed 12-22-94; 11:27am]  
BILLING CODE 3510-22-P

**50 CFR Parts 222**

[Docket No. 940822-4334; I.D. 101194C]

**Endangered and Threatened Species; Status of Snake River Spring/Summer Chinook Salmon and Snake River Fall Chinook Salmon**

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

ACTION: Proposed rule; request for comments.

**SUMMARY:** NMFS is issuing a proposed rule to reclassify permanently Snake River spring/summer and Snake River fall chinook salmon (*Oncorhynchus tshawytscha*) as endangered, a change from the previous threatened status, under the Endangered Species Act of 1973 (ESA). NMFS has determined that the status of Snake River spring/summer chinook salmon and the status of Snake River fall chinook salmon warrant reclassification to endangered, based on

a projected decline in adult Snake River chinook salmon abundance. Both species have already been temporarily listed as endangered through an emergency rule published on August 18, 1994, which allowed for waiver of notice and comment requirements of the Administrative Procedure Act.

**DATES:** Comments must be received by February 21, 1995. Requests for a public hearing must be received by February 6, 1995.

**ADDRESSES:** Comments on this proposed rule and requests for supporting documents should be sent to the Environmental and Technical Services Division, NMFS, Northwest Region, 525 NE Oregon Street, Suite 500, Portland, OR 97232-2737. The public hearing will be held in the Federal Complex, 911 NE 11th Ave., first floor, west side, Portland, OR.

**FOR FURTHER INFORMATION CONTACT:** Garth Griffin, 503-230-5430, or Marta Nammack, 301-713-1401.

**SUPPLEMENTARY INFORMATION:**

**Background**

For background, see Federal Register documents 55 FR 37342 (September 11, 1990), 56 FR 29547 (June 27, 1991), and 59 FR 42529 (August 18, 1994).

**Current Status**

**Spring/Summer Chinook Salmon**

Since the listing of Snake River spring/summer chinook salmon as a threatened species in 1992, redd counts in index areas have remained at the low levels observed during the 1980s. Data from 1994 indicate that the situation is much worse than in recent years, indicating that the Snake River spring/summer chinook salmon faces an imminent threat of extinction throughout all or a significant portion of its range. While NMFS has determined that both the spring and summer runs constitute a single "species" (distinct population segment), returning adults are counted separately as "spring" or "summer" fish. The pre-season estimate of adult Columbia River upriver spring chinook salmon returning in 1994 was 49,000, the third lowest on record since 1938. However, this year's final count of adult spring chinook salmon (of hatchery origin and naturally spawned) at Bonneville Dam was only 20,185 (Fish Passage Center 1994), about 43 percent of the previous record low return. Further upstream at Lower Granite Dam, the final 1994 count of adult spring and summer chinook salmon was 3,915 (Fish Passage Center 1994), about 16 percent of the recent 10-year average. The estimated escapement

## Appendix T. NMFS Correspondence- Florida Keys Sanctuary



UNITED STATES DEPARTMENT OF COMMERCE  
National Oceanic and Atmospheric Administration  
NATIONAL MARINE FISHERIES SERVICE  
Southeast Regional Office  
9721 Executive Center Drive N.  
St. Petersburg, FL 33702

OCT 21 1994

F/SEO11:GC

OCT 26 1994

SOUTH ATLANTIC FISHERY  
MANAGEMENT COUNCIL

MEMORANDUM FOR: Fx1 - Gary Matlock

FROM: F/SE - Andrew J. Kemmerer

SUBJECT: Comments on the National Ocean Survey's (NOS)  
Revised Draft Environmental Impact Statement/  
Management Plan (EIS/MP) and Regulations for  
the Florida Keys National Marine Sanctuary

We have reviewed the 3-volume revised draft EIS/MP for the Florida Keys National Marine Sanctuary and its proposed implementing regulations and have the following comments to offer:

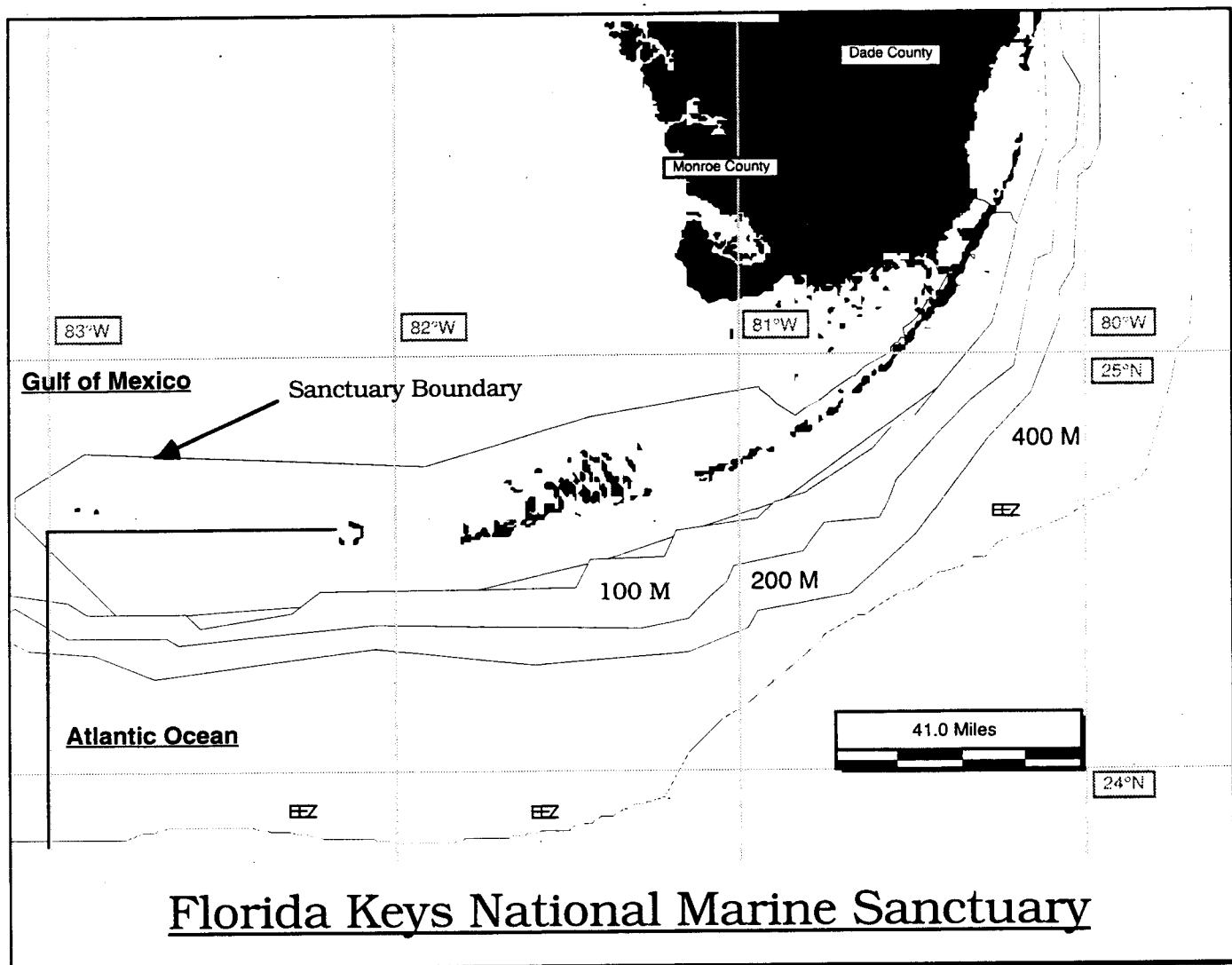
To meet the requirements of section 304 (a) (5) of the National Marine Sanctuary Act, NOS consulted with the Gulf and South Atlantic Fishery Management Councils during June-July, 1994. Our comparison between the Councils' recommendations and this revised draft EIS/MP indicates that NOS has done an excellent job in addressing fishery management concerns.

We note the inclusion of the revised draft Protocol on Cooperative Fisheries Management in the "Action Plans: Regulatory" section of the EIS/MP (Vol. I, p. 147). This will help the public understand the proposed continuing roles of the Councils and the Florida Marine Fisheries Commission in the development of fishing regulations within the Sanctuary.

We are also pleased to note that NOS intends to provide an exception to the general prohibition on live rock harvest within the Sanctuary for holders of our aquacultured live rock permits (Proposed Sanctuary Rule, section 925.5(a)(2)(ii)). The General Permit we are developing with the Corps of Engineers will not be available for aquaculture sites within the Sanctuary without the concurrence of the Sanctuary staff.

Thank you for giving us this opportunity to comment.

cc: F/SEO1, F/SEO11, F/SEO12, F/SEO2, GCSE, F/CM, ~~SAPMC~~, GMFMC



Appendix U.  
HAPC.

## NOAA General Council- Legal Opinion on Anchoring in an



UNITED STATES DEPARTMENT OF COMMERCE  
National Oceanic and Atmospheric Administration  
NATIONAL MARINE FISHERIES SERVICE  
Washington, D.C. 20235

TO: GCF - Jay S. Johnson  
FROM: GCF - Gaylin Soponis 15/  
SUBJECT: Fishery Management Plan for Coral and Coral Reefs of the Gulf of Mexico and South Atlantic (FMP)

**Issue:** Does the Magnuson Fishery Conservation and Management Act authorize a fishery management council, through a fishery management plan, to regulate the activity of vessels in the FCZ, not otherwise engaged in fishing, if such activity results in a "taking" of fish in the broad sense that fish are killed or damaged? More specifically, can anchoring in areas of high coral concentration, which results in coral mortality, by vessels not otherwise engaged in fishing, be construed as a "taking", and such "taking" be considered to constitute "fishing" so as to be regulated within the authority of the Magnuson Act?

**Conclusion:** The killing of coral by anchoring might be considered a "taking" in the broad sense of that term, and regulation of anchoring might be a justifiable regulation of "fishing" in this limited instance due to the unique character of the species. However, to construe the term "fishing" so broadly as to authorize regulation of any and all FCZ activities which result in damage to or killing of fish or fishery resources would overreach the legislative intent, as such construction effectively diminishes the distinction between fishing, which was intended to be regulated, and other activities, to which the Magnuson Act was not intended to be applied. Thus, while anchoring may constitute a "taking" in the broad sense of that term, to interpret such a taking to constitute "fishing" would require an overly broad interpretation of statutory authority which would not be likely to withstand judicial review.

BACKGROUND

The final "Fishery Management Plan for Coral and Coral Reefs of the Gulf of Mexico and South Atlantic" (FMP) was submitted for secretarial review on April 22, 1982 by the Gulf of Mexico and South Atlantic Fishery Management Councils (Councils). The FMP, under management measure 5, identifies "habitat areas for corals which may be threatened or subject to degradation" (habitat areas of particular concern, "HAPCs") and provides a special management program for such areas not already managed as a National Marine Sanctuary, National Monument, or National Park. (FMP, p. 12-9). Within the East and West Flower Garden Banks (nominated National Marine Sanctuary) the management measure prohibits "the taking of corals and the use of bottom longlines, traps and pots, bottom trawls, and anchoring by vessels 100 feet or more in registered length ...". (FMP, p. 13-2). The FMP specifies that this measure is intended to protect the coral in this HAPC from "anchor damage caused by large vessels such as freighters and tankers". (FMP, p. 12-9).



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The Magnuson Fishery Conservation and Management Act (16 U.S.C 1801 et seq.; hereinafter "Magnuson Act") provides that -

The United States shall exercise exclusive fishery management authority, in the manner provided for in this Act, over the following:

- (1) All fish within the fishery conservation zone.
- (2) All anadromous species throughout the migratory range of each such species beyond the fishery conservation zone; ...
- (3) All continental shelf fishery resources beyond the fishery conservation zone. (Magnuson Act, 16 U.S.C. 1812).

To exercise this exclusive fishery management authority, the Magnuson Act empowers regional fishery management councils to prepare fishery management plans. Section 303(a) of the Magnuson Act (16 U.S.C. 1853) requires that any fishery management plan

...contain the conservation and management measures, applicable to foreign fishing and fishing by vessels of the United States, which are - (A) necessary and appropriate for the conservation and management of the fishery;...

Thus, the authority of the Magnuson Act extends to fish in the FCZ, and the authority of Councils is clearly directed to the regulation of fishing activities. The negative inference is that statutory authority does not extend to waters of the FCZ, or to users other than fishing vessels. It is well settled that fishery management councils, like other creatures of statute, have "only those powers expressed granted to [them] by Congress or included by necessary implication from the Congressional grant." See Soriano v. United States, 494 F 2d. 681, 683 (9th Cir. 1974); see also Courtney v. Island Creek Coal Co., 474 F 2d 468, 472 (6th Cir. 1973). Leaving aside, for purposes of this memorandum, issues as to whether the anchoring prohibition is adequately justified in the FMP as a "necessary and appropriate" measure, this provision can be valid as to vessels not otherwise engaged in fishing only if such anchoring can be considered "fishing" within the meaning and authority of the Magnuson Act.

#### DISCUSSION

The Magnuson Act defines "fishing" as:

- (A) the catching, taking, or harvesting of fish;
- (B) the attempted catching, taking, or harvesting of fish;
- (C) any other activity which can reasonably be expected to result in the catching, taking, or harvesting of fish; or
- (D) any operations at sea in support of, or in preparation for, any activity described in subparagraphs (A) through (C).

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Such term does not include any scientific research activity which is conducted by a scientific research vessel. (16 U.S.C. 1802(10).)

Reference to definitions of "fishing" in regulations implementing other fishery management plans is not very helpful in resolving the issue here. Most either parrot or paraphrase the language of the statute. It is noteworthy that regulations for some specific fisheries define "catch, take, or harvest" to include any activity which results in killing, or mortality to, the species being regulated. (See regulations for Atlantic Groundfish, 50 CFR 651.2; Atlantic Herring, 50 CFR 653.2; Atlantic Squid, 50 CFR 655.2; Atlantic Mackerel, 50 CFR 656.2; Atlantic Butterfish, 50 CFR 657.2). This definition is required to permit regulation of incidental catches in the course of any fishing activity; it has never been extended to attempted regulation of activities other than the taking of a species resulting from intentional fishing in the traditional sense. Further, the regulations promulgated to govern foreign fishing define "fishing" as

...any activity, other than scientific research, which: (1) Does, or is intended to, or can reasonably be expected to result in the catching or removal from the sea of fish over which the United States exercises exclusive fishery management authority (50 CFR 611.2(r)).

This definition indicates that "fishing" has been interpreted in a more traditional, limited sense of that activity for administrative purposes.

The lowering of an anchor by a vessel not otherwise engaged in fishing into an area where coral is concentrated does not amount to the "catching" or the "harvesting" of the coral in the traditional sense of fishing activity. The Magnuson Act does not define the word "taking". In common sense or ordinary use, the term can mean anything from "to get possession of by force or skill" to "to remove by death" to "to subtract" to "to remove a part; detract". (Webster's New World Dictionary of the American Language, 2d College Ed., 1970). In order to determine whether the term "taking" can or should be interpreted broadly as applied to coral, it is necessary to understand something of the unique nature of coral and coral reefs.

As coral and coral reefs are sedentary, and cannot move to escape stress, they are peculiarly susceptible to depredation and destruction, and can be distinguished from the subjects of any other fishery management plan. Moreover, unlike most other fisheries resources, coral growth rates are so slow for most species, that "In most respects many corals may be considered as a nonrenewable resource." (FMP, p. 5-62). The corals covered by the FMP are generally at the northernmost limit of their geographical range, and are thus even less tolerant of stress. (FMP, p. 5-42).

Despite the paucity of information regarding coral growth, recruitment, and mortality, it cannot be disputed that the dropping

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of an anchor on coral or a coral reef will cause death and damage. Live coral which is broken off or removed is likely to perish. In addition to the damage caused by actual severing or smashing of live coral, the stress induced by the anchor itself and by the denudation and abrasion caused by anchor chains may temporarily or permanently depress coral health and stability.

Some of the more common responses to stress include polyp retraction, altered physiological or behavioral patterns, and modified energy cycles; ...Lastly, damaged corals (abraded from anchor chains, storm damaged, etc.) may provide a starting point for infection with the blue green algae, Oscillatoria submembranacea, that can potentially kill entire specimens. (FMP, p. 6-10).

Nor is the damage inflicted by anchoring restricted to the live coral which comes into contact with the anchor or anchor chain. Damage to, and disruption of, the coral ecosystem and associated habitats, of which dead corals are a most important abiotic component, may result.

Ecosystems which include coral ... often represent unique arrays of plants and animals in a balanced, highly productive system. The key to many of these systems, if there can be one most important link, is often the coral itself, since the corals provide habitat and/or food for most of the other members of the ecosystem. (FMP, p. 5-14).

Both living and non-living components of the ecosystem are significant in assessing value as habitat, and this value can be substantially reduced or destroyed by damage to dead as well as live corals. The FMP also discusses the value of coral as a buffer, and as a source of energy, all of which values necessarily decrease with the destruction of the coral and coral reefs. (FMP, p. 5-44).

The Flower Garden Banks, within which the FMP would prohibit anchoring of vessels over 100 feet, is an especially important HAPC:

Geologically and ecologically, outer bank reefs represent perhaps the oldest, most structurally complex, and diverse type of coral assemblage. ...these reefs are the height of ecological complexity for systems actually formed by corals and their associated organisms. (FMP, p. 6-7)

HAPCs are so designated by the FMP because they represent "the most important coral concentrations in the management area." (FMP, p. 6-18). The Flower Garden Banks satisfy a number of the criteria for selection as an HAPC, (FMP, pp. 6-22, 6-23) and their value and fragility is further stressed:

Coral assemblages and habitat at East and West Flower Garden Banks comprise a unique resource. The coral reefs on those banks are the northwestern - most reefs in the Gulf of Mexico. Hence the

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biota they support are stressed...and susceptible to collapse should existing populations be destroyed (FMP, p. 6-24).

Thus, due to the unique characteristics of coral as a species, it is not necessary to remove the coral from the water, or to catch or harvest it in the traditional fisheries sense, to "take" it in the sense that it is destroyed or removed by death, or its value as the main component of ecosystems and habitats decreased or destroyed.

It is important to distinguish the arguments that can be made in favor of a liberal interpretation of "fishing" as it applies to the taking of coral from arguments that "taking" encompasses any sort of activity which results in indirect damage to a species by destruction of its environment or habitat. This office has consistently held that a Council may not, under authority of the Magnuson Act, "prescribe conservation and management measures which propose to regulate activities affecting the marine environment or fishery habitats unless such activities comes within the purview of the term 'fishing' as defined in the Act." (See opinion of GCNE, August 7, 1979, copy attached). This opinion was issued in response to proponents of the theory that a Council could, under the Magnuson Act, prescribe pollution control measures as conservation and management measures "... (A) which are required to rebuild, restore, or maintain... any fishery resource and the marine environment and (B) which are designed to assure that ... (ii) irreversible or long-term adverse effects on fishery resources and the marine environment are avoided ..." (Magnuson Act, 3(2)). The opinion concludes that the legislative history of the Magnuson Act, and other provisions of the statute, clearly establish that a Council may only regulate "fishing" by foreign and domestic vessels through a management plan.

This opinion, however, does not solve the instant dilemma, as in addition to the damage to the environment and habitats which anchoring may cause, there remains the direct, immediate, and quite literal impact of the anchoring on the coral. The Councils are not attempting to protect only reef fish or other denizens of coral reefs by prescribing measures to protect their environment. The concern of the Council is not restricted to the ancillary, indirect effects of anchoring activity on coral ecosystems. In this case the Councils have identified an activity, a direct action, within discrete area, that will have an immediate effect on species in that they are killed, damaged and destroyed. Due to the nature of coral and the damage inflicted by anchoring, it is not necessary to rely on, or even reach, the discredited argument that "fishing" includes all activities which have adverse impacts on the environment or habitat of fisheries resources. It is not unreasonable to interpret "taking" within the definition of "fishing" to encompass an activity which directly takes the life of the coral.

It can also be argued that anchoring within the Flower Garden Banks constitutes an activity "which can reasonably be expected to result in the catching, taking or harvesting of fish" within the



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statutory definition of "fishing." As "HAPCs are taken only to localities where large concentrations of adult (sedentary) corals are found," (FMP p. 6-18) it can reasonably be expected that anchoring within this area will result in a taking of the coral which will be hit by the anchor or abraded by the chain. By designation of the Flower Garden Banks as an HAPC, the Councils have established a presumption that anchoring within this defined area is likely to cause such destruction of species as would constitute a taking; whether such taking can be regulated within the meaning of the Magnuson Act remains in question. In this regard, the measure seems close, by analogy, to the closing of an area to fishermen to protect spawning stock, or a stock as a whole from overfishing.

In this analogy however the crux of the dilemma becomes clear: while the authority of a Council to close an area to fishermen would not be disputed, can this authority be extended to regulate the activities of vessels which, except for the unintended effects of an action normally associated with ordinary and legitimate use of the FCZ, are not otherwise engaged in fishing? If a crewman on a tanker threw fishing gear over the side, the action would clearly constitute "fishing", and his activities, as well as those of the vessel from which the activity was taking place, could be regulated under the Magnuson Act. The problem that must be confronted is that once you interpret "taking" to include an activity which directly damages or destroys fish or fishery resources, however limited by area or species, the distinction between fishing and non-fishing activities may be blurred or lost. Even if the broad interpretation of a taking is restricted to coral in a specific area, by acknowledgement of an exception or otherwise, it appears that statutory authority would be extended in a way never contemplated by Congress.

That Congress only contemplated the regulation of fishing activities in strict and traditional sense of this term is clear in the statute and its legislative history. As cited above, the statute specifies that the "United States shall exercise exclusive fishery management authority" (emphasis added, 16 U.S.C. 1812) through fishery management plans containing measures "...applicable to foreign fishing and fishing by vessels of the United States...". (Emphasis added, 16 U.S.C. 1853). The exclusive management authority granted is only extended to fish and to fishing. Framers of the statute were acutely aware of the implications of the unilateral extension of U.S. authority, and took extreme care to emphasize that the statute was limited in effect to the regulation of fishing. During Senate debates, Senator Taft stated:

There should be a very clear understanding on the part of the international community that this bill applies only to the question of reasonable regulation of fishing and absolutely nothing else. [Secs. 2; 101; 102] I believe it is incumbent upon our State Department to make that known throughout the world... To do otherwise, it seems to me, would work against our own interests with respect to

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having a positive result of the Law of the Sea Conference. [Sec 401]

If, indeed, the purpose were to go beyond a mere fishing area, I am sure that many Senators, including myself, would have serious doubts about the legislation. (A Legislative History of the Fishery Conservation and Management Act of 1976, Committee on Commerce, 94th Congress, 2d Sess. October, 1976, p. 386 [hereinafter cited as "Legislative History"]).

Opponents of the Magnuson Act, including the Department of State and the Joint Chiefs of Staff, repeatedly argued that the statute constituted a violation of international law, our treaty obligations, and would undermine if not destroy our efforts to reach an international solution to a range of issues through the Law of the Sea Conference. In response to objections, proponents such as Rep. Leggett stated:

...where we talk about the only thing we are affecting on the high seas is fishing, it is to reaffirm that the 3-mile limit still applies, but anything beyond 3 miles is the high seas, and that the only activity in that area that we intend to relate to is, not oil, not drilling, not submarine cables, not navigation, but the only thing we relate to is fishing.... (Legislative History, p. 944-5).

A memorandum to the Foreign Relations Committee from the Committee on Commerce states:

...the extension of U.S. jurisdiction as proposed by S. 961 is strictly limited to fishery resources. Such activities as navigation, vessel passage through straits, general navigation and overflight, scientific research, deep seabed mining, and other ocean-related issues are not addressed by this legislation. Thus, S. 961 contemplates no action unrelated to fishery conservation and, therefore, is reasonable in scope. (Legislative History, p. 624)

The Report on the Senate Committee on Commerce states, regarding the definition of "Fishery Conservation Zone", states:

As the concept is used in this act, a fishery conservation zone is a special purpose jurisdiction zone, i.e. a geographic area within which legal competence to control, regulate, and establish rights of access to fish is asserted for the specific purpose of conserving fishery resources. It is not an assertion of territorial jurisdiction, a concept which approached plenary authority. Consequently, it does not change the status of the waters included within the zone for uses and activities other than fishing. (Legislative History, p. 675).

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It could be argued that these expressions of the limited scope of statutory authority are not dispositive of the issue here because the taking of coral by anchoring is, by definition, fishing, that the measure prohibiting anchoring is in fact a fishery conservation measure, and thus is valid within the expressed statutory policy:

to authorize no impediment to, or interference with, recognized legitimate uses of the high seas, except as necessary for the conservation and management of fishery resources, as provided for this Act; (16 U.S.C 1801(c)(1)).

This argument in a circle is inconclusive -- to say that Congress only intended to deal with fishing activity, or bestow no authority to regulate activities other than fishing, is of little value if any number of activities can be interpreted to be fishing. To define any activity that, due to an intended or unintended effect, takes fisheries resources may remove any limits from statutory authority without shedding any light on questions of what should, within Congressional intent, be construed to be fishing.

Various other arguments can be raised in support of, and in opposition to, the legitimacy of the regulation of anchoring in a coral HAPC under the authority of the Magnuson Act. Most of the arguments in support of the regulation are based on, or extrapolated from, the unique character of coral. The regulation does not seem, as presented by the FMP, to be unduly burdensome or unreasonable. The FMP cites the particular danger to coral in the Flower Garden Banks from commercial vessels, as this HAPC is located "...only 11 km (6 n m) from the Gulf Safety Fairway, a major east-west corridor for tankers and cargo vessels into and out of Texas ports." (FMP, p. 6-14) As the areas within which anchoring would be prohibited are relatively small, 20 and 24 square miles, the statement in the Regulatory Impact Review of the FMP that the anchoring measure has little to no economic impact, as "...vessels may easily anchor in other locations in the same general area" seems reasonable. (FMP, p. RIR-8). The general freedom of navigation, which is not an unqualified right in any case, is not unduly disrupted, as the freedom to transit the area is not affected. The FMP states that vessel operators may be unaware of the importance or even presence of coral in the HAPC. (FMP, RIR-8). With implementation of the FMP, the Flower Garden Banks would be marked on standard nautical charts as off-limits for anchoring. In commenting on the anchoring prohibition, the Department of the Interior found the regulation not only to be not unreasonable, but not strict enough on the basis of their finding that "...anchoring is the single most important cause of damage to coral areas...." (FMP, L-11).

However, because a measure is not unreasonable does not mean we can conclude that it is duly authorized under a particular statute. This point is particularly pertinent here, as the type of protection

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sought to be afforded the Flower Garden Banks through the FMP can be obtained through other more specific statutes. As noted above, the Flower Garden Banks are a nominated marine sanctuary, and if so designated, all activities within the area can be regulated under the Marine Sanctuaries Act (16 U.S.C. 1431-1434). The disposition of any materials in the area can be regulated through the Ocean Dumping provisions of the Marine Protection Research, and Sanctuaries Act (33 U.S.C. 1401-1444). Coral and coral reefs may also be afforded some protection under various other statutes, including the Outer Continental Shelf Lands Act (43 U.S.C. 1331 et seq.), the Clean Water Act (33 U.S.C. 1251 et seq.), the Oil Pollution Act (33 U.S.C. 1001-1016), the Ports and Waterways Safety Act of 1972 (33 U.S.C. 1221-1227), the Coastal Zone Management Act (16 U.S.C. 1451-1464), the Endangered Species Act (16 U.S.C. 1531-1543) and the Fish and Wildlife Coordination Act (16 U.S.C. 661-66c).

That the scope of activities intended to be regulated under the Magnuson Act could be rendered meaningless by an over-broad interpretation of "fishing" is the central theme of the opposition to the management measure. The argument that Congress never intended such an interpretation is supported by reference to two other statutes administered (at least in part) by this agency, both of which predate the Magnuson Act, and both of which contain definitions of "take". The Endangered Species Act of 1973, which prohibits taking of endangered species, defines "take" as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in such conduct". (16 U.S.C. 1531-43). Similarly, the Marine Mammal Protection Act of 1972 specifies that "take" means "to harass, hunt, capture, or kill, or attempt to harass, hunt, capture or kill any marine mammal." (16 U.S.C. 1361 et seq.). It would be difficult to argue that, in drafting a later statute, legislators who professed an intention to limit authority to the regulation of fishing intended to have the concept of "take" expanded to include "harass", "harm", or "kill", absent the clear statutory language provided elsewhere. To define the term administratively to establish authority over activities commensurate with that which is clearly specified in other statutes seems unjustified in view of the expressed legislative intent.

To include within the scope of Magnuson Act authority the regulation of an activity which is totally unrelated to fishing except by unintended effect, however limited by area or species, will, it is argued, open a Pandora's box of attempts to regulate activities other than fishing. If anchoring in a coral HAPC is fishing, is the discharge of a pollutant by a tanker in the same area not also fishing? Could the fixing of an oil rig to a coral reef be prohibited under the Magnuson Act? Even more broadly, could the movements of tankers and freighters be regulated if it is shown that their propellers kill fish? Clearly, these arguments can quickly be advanced to illogical extremes.

To argue that, if anchoring in a coral HAPC can be prohibited under the Magnuson Act, the scope of statutory authority is rendered limitless,

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and to thereby prophesize eventual chaos by the attempted regulation of all high seas activities, is unduly alarmist. Statutory interpretation, as tasked to the agencies that must implement the law, does not transpire in a vacuum, and cannot be reduced to a formula to fit all cases and situations. The parameters of statutory authority, rarely static, must be assessed relative to, and be responsive in light of, sometimes far-ranging circumstances. There is no evidence in this case that legislators ever considered the unique character of coral in drafting the statute. Although there seems to be good logic and basis in fact for distinguishing a "taking" of coral from a "taking" of other fish and fishery resources, such an interpretation unarguably constitutes a significant departure from the limitation of regulatory authority to fishing and fishing activities in the traditional sense. In order that such a broad interpretation of authority withstand judicial scrutiny, either a clear mandate in the language of the statute itself, or in the legislative history, or in the history of the administrative interpretation of the language would be required. It seems unlikely that a reviewing court would sanction such a drastic departure from the traditionally understood and limited scope of authority, and thereby risk further distortion of the legitimate bounds of the statute, when the statute itself, its history and implementation indicate a much more limited construction.

**Appendix V. Status of Coral Reefs and Live/Hard bottom Habitats in the SA Region (Presentation made by Dr. Walter Jaap FDEP/FMRI to the SAFMC Habitat Advisory Panel in June, 1993)**

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**Status of Coral Reefs and Live/Hard Bottom Habitats in Southeast Region Coral Reef Damage Area Enhancement Efforts**

Mr. Jaap said in this issue we are underwater, it is very deep, and so in some cases it is very difficult to put hard numbers on some of these things. He said there is a Coral and Coral Reef Management Plan that was jointly developed by this council and the Gulf of Mexico Council. Ms. Wheaton and himself were both involved with that process. One of the things he would like to point out in the coral reef habitat, which is perhaps somewhat different than the rest of these habitats, is the visual aspect. These are areas where people spend a great deal of time and money just to have an opportunity to look at things. They don't necessarily extract anything other than a visual experience or taking some photographs. Perhaps in the sense of the Magnuson legislation, this is a very different sort of situation. In terms of status, if we go back to 1977, Don Marzaleck produced a series of maps in which he described the amount of coral reef habitat in the Florida Keys. This is not very quantitative it only gives us a little insight on to it. He identified 95.8 kilometers of linear bank reef habitat and 6,035 patch reefs. He cautioned to take these values very liberally because he used a geological mapping unit which is perhaps is not really appropriate. The new maps that are being developed by NOAA jointly with DNR or DEP will give us a much better handle on that habitat, both for the reefs, the seagrasses, the sediments and the hard grounds. He said a little later Gary Davis was out at Dry Tortugas and he gave a very good example of what was out there in terms of reef habitat and he identified approximately 866 hectares of reef and around 4,000 hectares of octocoral dominated hard grounds. He said that is just for the Dry Tortugas area. The earliest work that was ever done out there was Alexander Agasy in 1883 published a map of habitats around Tortugas. He said he identified 44 hectares of the elkhorn coral. Mr. Davis, looking at this issue again in 1982, noted that there were only 600 square meters of elkhorn habitat in Tortugas. Recently he returned to that area and we identified around 700 square meters. There was a tremendous die off of this particular species from 1882 to around 1960. Looking at hard grounds in general, Parker in 1983 with some other colleagues, defined some habitat areas throughout the southeast and he looked at areas from 27 to 101 meters and he looked at areas between Key West from Cape Hatteras to Cape Canaveral, Key West to the Mexican border. There was big gap in his data between Cape Canaveral and Key West. Obviously, there is a lot of hard ground habitat and reefs in that particular area. He said in the depth regime, he sort of left out the inshore habitat out to either 18 or 27 meters. From Cape Hatteras to Cape Fear we had around 15,000 square kilometers of habitat or 14 percent of the area from Cape Fear to Cape Canaveral around 24,900 kilometers or roughly 30 percent and from Key West to Pensacola 117,573 kilometers or around 38 percent. From Pensacola to the Mexican border it reduced significantly the amount of hard ground or reef type habitat. He mentioned NOAA in cooperation with the DEP is mapping the area all the way from Miami to Tortugas. It will be a map of similar quality and it will include all the major undersea habitats. In terms of trends, right now there is a major program in the Keys called Sea Keys which is funded by the McArthur Foundation, Florida DNR, the National Park Service, and also some money from NOAA. This particular project has 12 sampling sites for benthic communities. Jim Porter is one of the principle investigators. Since 1989, he has looked at six stations in which he has identified coral cover loss it's five of six stations. He reports six stations lost biological diversity and he found no net recruitment. Ms. Wheaton and himself and working out of dry Tortugas. We have a set of five stations out there. In contrast to Porter's findings, our coral cover did not show any trend of loss. The diversity and evenness did not exhibit a trend of loss and recruitment was evident, although, it was low. The Corp of Engineers is doing a study in conjunction with the Fish and Wildlife Service for Palm Beach, Broward, and Dade County to look at hard ground or reef habitat to protect it from beach renourishment projects, which are chronic in those particular counties and they have done a great deal of damage over the years from misguided dredging operations. He is aware that the Flower Gardens Bank at the present time is a pre RFP stage for a monitoring program at that particular site. He thinks NOAA Nerk has a small program off Wilmington looking at hard grounds in terms of status and trends. Generally, there is no coherent comprehensive program that is evaluating the status and trends of

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hard bottom habitat throughout the southeast or Gulf. In contrast, the Australians have committed to a fairly large program over the next five years. Six million Australian dollars to look at status and trends in the great barrier reef, both in terms of water quality as well as benthic communities.

He moved on to his slide presentation. He said he can cover many of the impacts and insults that have been going on in the last decade. He said coral reefs are highly diverse and highly complex communities. They represent the equivalent of a situation similar to a tropical rain forest in terms of the biological complexity and the interactions that are occurring on the reef. He said this is a particular habitat which is dominated by elkhorn coral. It provides a great deal of refuge. It is a popular site for people to come snorkeling and diving. The economy of southeast Florida, particular in the Keys, some \$200,000,000 or more annually is generated from the tourism. Coral reefs tend to concentrate biological diversity and complexity into small spatial areas. We also have many nursery areas, smaller fish that find other niches in particularly not high relief areas the habitat that is dominated by octocorals. If we look at the system it has generally been defined from around Folly Rocks to Dry Tortugas. There are major offshore reefs and inshore reefs. There is generally a trend towards major reef development off the area of Key West and then up around Key Largo. The inner or middle part of the Keys, because of the influence of Florida Bay, has poor reef development. He showed an example of the reefs one might find if they went to Key West. He said from the air the reefs have a definite signature. A typical pattern you might see off the Keys is the coastal mangrove system, sediments, live bottom, seagrasses, patch reefs, and then further offshore five to six miles, the outer bank reefs and then you slip into the deeper waters going eventually down to the straights of Florida. He said just to show the complexity, we have reefs, sediments, sands, and all complex in together in to a sort of a mosaic that is quite common in the area. He showed Dry Tortugas, Florida. It is around 60 miles west of Key West. We have five sites out there and we added a sixth one when a ship went aground up near Pulaski Shoal recently. It is a very interesting area. It has limited human activity out there in terms of the rest of the Florida Keys due to its remoteness and the National Parks management regime. It is funded by a number of different agencies. We have sampling which includes quadrats, transects, photographic stations, video work and recruitments. The typical station has a stainless steel stake. Several of these put in to use as reference so we can get back to the same precise place and collect our information. He showed an area off Loggerhead Key. He said this is an aerial photograph. This is the area where the Carnegie Institute had a laboratory up until about 1937. In the old days this was dominated by stag horn corals. Around 1978 or 1979, we had a cold front come through and it virtually killed off 95 percent of the stag horn coral. It started coming back. Around 1981 there was a disease epidemic. It died back again. Now it is going through a process of what we hope is recovery. He said we have another site off Bird Key Reef which is to the right of the Ft. Jefferson area. He said that particular reef habitat is characterized by massive boulders of coral and bisected by valleys that intersect that. Looking at transect data, looking at the change in pattern over years, from 1989 through 1991, the pattern of the dominant corals show a general trend of either increasing or no change. In terms of coral cover, the first year we only had one sample, but then there were replicates of three samples the following year to show the percentage of coral cover on these transects which range between 20 to 25 percent showing virtually no change over the three year period. The diversity or H prime determined by the cover again showed virtually all stations were relatively stable, the same thing with the evenness. The K-dominance curve which utilizes a method of cumulative richness versus the species rank is virtually the same all three years. Classification analysis divided our stations into groups which one would perceive that each station would sort of group temporally and that is what of what we had happen. In looking at quadrat sampling, it is somewhat similar. He showed the octocoral abundance in terms of total numbers, five replicates at each station. He showed density of octocoral colonies. One station in particular, Pulaski Shoal had significantly greater numbers of individuals than any of the other stations. We had some sort of recruitment phenomena that went on out there between these two years where

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we had quite a bit of increase over that time. He showed the density of stony coral colonies. He said Bird Key Reef and Texas Rock had quite a bit higher abundance of the coral colonies density. He said diversity is virtually flat showing very little change over the three years. He moved on to recruitment. He showed devices that they put with bathroom tiles on them. The goal was to try to accumulate biomass and eventually attract corals to settle on these particular plates. He showed one months worth of exposure to the sea water. It starts to gain a thin scum of algae on it. The goal is to try to track these little planula larvae, which are the planktonic forms of the corals to settle on these plates to see how many are actually coming into the habitat to replace the older corals. He showed one that had been out for approximately three years. He said this is a lettuce coral which has settled on that particular plate. They will collect corals, not as many as the natural habitat, but to give you some idea of recruitment. It has some short comings. He said you can see the fire coral. He said 34.9 was the number of recruits per square meter for that particular species. The octocoral is quite a bit higher, but it was only one species that really recruited. In the stony corals roughly 14 per square meter were found on there. He said this is in contrast to his colleague Jim Porter. Mr. Porter is working in Biscayne National Park, Looe Key, and Carries Fort Reef off Key Largo. In his findings he got zero recruitment on his plates. It is kind of an interesting contrast to what is going on there. We are taking environmental data also. He said this is a thermograph. We collect data on temperature every two hours. It gives us some impression useful towards looking at patterns over long periods of time as well as the global climate issues. One of the interesting phenomenas that occurred out there and occurs periodically are up welling events with cold water. He said this is in August of 1988 and the water went from 28/29 degrees all the way down to 22 degrees and then continued to fluctuate back and forth as a result of tidal reversals. This was going on for a period of several days. It probably influences recruitment to some degree because the cold water stress may cause them to slow down. He showed Isle of Rock where we installed a satellite environmental station. It collects meteorological data as well as oceanographic data. It pumps it up to a satellite and we can get it back in days time or so. This gives you barometric pressure over a period of several days. He showed air and sea water temperature fluctuations. He said one of the things about Tortugas that is very interesting is that there is no harvest of spiny lobster out there. It is one of the few areas where you can go and expect to see them. He showed what the habitat looked like in the mid '70s. The stag horn corals dominated much of the habitat in Dry Tortugas. Between the cold water event and a disease this particular species has gone into decline and we are hoping that we are seeing another recovery right now. He showed a picture taken immediately following Hurricane Andrew. It came through and caused massive damage to terrestrial habitats and mangroves in south Florida. The overall impression is it didn't cause much damage to the coral reefs. There were some localized damage in some areas. By in large, this is an elkhorn coral formation, if that hurricane had come through and had lasted for very long, its speed across the water made the damage or impact, minimized the impact. This particular stand of elkhorn didn't suffer at all from it and it was within about ten miles of eye. We have had about five coral bleaching events in the last decade. He said what happens is the corals lose all their color when zooxanthella or algosibants disappear. The corals will respond to any sort of stress. He said in this particular case it was heat and temperature. They discolor. It is a very concerning visual aspect. Most of them tend to recover. We have seen only ten percent mortality because of this in particular species. One of the things that apparently occurs after the zooxanthella or algae are lost the corals cease to grow and they do not reproduce, at least limited data would support that. He showed a brain coral. All the color is lost from it. They are not dead, they still have tissues, but they are transparent. He showed a model of what happens in some cases. You get a very doldrum like affect where the wind drops off in the middle or late summer, the salinity becomes high on the surface because of evaporation, it sinks with a hot water layer, comes down and strikes the corals, and basically impacts stress on them and then they respond by discoloring. Another factor that is impacting reefs in the Keys is disease. He showed the black ban disease. It is caused by a blue-green algae. Many corals in the summer time are showing signs of being inoculated with this disease. In some cases the corals may recover from it and some they



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completely die out. There is a pilot program where they have used antibiotics and other techniques and basically cured the coral of the particular impact. It is very labor intensive and probably not a very manageable thing. Another problem we are having in some parts of Florida, particularly in Palm Beach and Broward counties is a algae bloom. This is a particular algae codium which in the spring, summer and fall has come into reefs and really buried them. It is a very interesting algae. It grows in deeper water and apparently when an up welling event occurs off the Gulf stream it is dislodged from its normal habitat, it floats in great masses, and then because it has these little hair like structures can adhere to a new substrate. In some cases they adhere and other cases they just lie in loose mats on the sea floor. They have caused a great deal of impact on reefs off the Palm Beach County area. He showed an example of an under sea rover that they use to evaluate. One of the major problems in the Keys as far as human impact or anthropogenic activity is boat groundings and ship groundings. A small boat will just scrape across the coral, puts some scars in there. The coral may recover or it may become infected with the ban disease and basically die from that. If we get a larger vessel such as a large sailboat that might be 40 feet long and it crashes through the reef it causes impacts that will not recover in a short period of time, it will take quite awhile. It may actually damage the reefs structure itself. It basically cracks the framework of the coral reef and this leaves it open to disturbance. It is unstable. A big storm can come and basically dislodge all the material, move it around, and continue to cause chronic problems in that particular localized area. Larger ships can obviously do more damage. He showed the Wellwood in 1984 that went a ground at Molasses Reef. It was one of the first large vessel groundings in the Keys in a number of years. He showed what the sea floor or reef looked like after the vessel was removed. It is sort of like a parking lot that hasn't been paved. There are large pieces of rubble that have been basically dislodged and rolled over. He showed the grounding of the Mavro Vetric. It went aground near Pulaski Shoal in Dry Tortugas. It was a matter of poor navigation. They didn't have any mechanical problems and it wasn't a storm or anything, they just used poor judgment. He showed what it looked like undersea. The facts were it was almost 500 feet long, had a draft of 30 feet, it was carrying phosphate, fortunately they didn't spill any, it occurred in October of 1989 and was removed on November 2. The damage that was done was around 15,800 square meters, but the real damage area that was really concerning was roughly 3,500 square meters that was totally scrapped barren. The rest of it, the prop wash area and the burial areas were quite small by contrast. He showed a map they created when the ship was aground to try to show where the damage was. We put a number of stakes around and measured the distance and tried to get some idea of the spatial area where the damage occurred. When the vessel came in it came sort of from the north. It apparently went aground and then used its own power to try to free itself and in the process moved around and did quite a bit of damage in that area and eventually came to rest. Later after we completed our survey work we used a GIS technique to try to map the various kinds of damage. He showed the bow of the ship and the stern. He said there was a final settlement out of court for around 3.3 million dollars by the Lloyds of London, the owner of the ship was Yugoslavian and they were reluctant to pay. Some of the issues on these groundings are the fact that when you tear up a reef with a ground like that the carrying capacity of the habitat is obviously impacted. There is possibilities of environmental contamination both from cargo that might be lost or fuel that spilled, in our case we didn't have that, we were fortunate. There is probably reduced recruitment in the sense that you have an unstable platform that is basically going to be washed around when storms come through and probably going to kill or make the particular recruited animal or plant kill it off. There are unstable substrates which continue to chronically affect the habitat. This March 13 storm that came through this year did a lot of that. This particular area had been relatively stable because there hadn't been storms through there of very large magnitude over the last couple of years, but that storm completely revisited the area and re landscaped so to speak. He showed what the habitat looked like, pretty much barren, very flattened where the ship had come to rest. You can see a little bit of turf algae growing on the top of the rock. We did a chemical evaluation of the substrate and it was high in iron and sulfur. That may have been affecting the overall suitability for recruitment on that particular habitat. He

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said Shinn in 1972 reported on Hurricane Donna and Hurricane Betsy and recommended that roughly five years were required for some reefs off Key Largo to recover. Done is working in Australia and following crown a thorn starfish. He said these two studies revolve around the Wellwood accident in 1984 and they both are saying two decades and Dennis Hanisak is saying decades as well. It takes a long time for the recovery process to occur on a reef. They may be very liberal values in the sense that no one really knows the answer to this. We had started a small experiment to try to look at enhancing recruitment rate and recovery on the particular area where the ship came to rest. We established three sites, one was control, one was a rubble rock site, and one was transplanting. They are 3X3 meters. He showed what the rubble site looks like, large pieces of the rock that were dislodged by the vessel piled up to provide some relief and heterogeneity and a little bit of refuge in these chorines. He showed a blue print plan in which we were trying to accomplish a task of doing transplanting in the same densities with the same species composition as was occurring in the very close by adjacent areas. This is the best we could do, so we came up with this sort of plan. These five sites, square meters, had transplanting occur. The ones in-between were left natural or left barren. He said there are no coral nurseries, so we just have to take from Peter to pay Paul. He said that is one of the problems in transplanting coral. If we can't go to a nursery and buy it and put it down some place, so we were taking small chisels and hammers and relieving another site to transplant in to. The park service was very concerned, so we could only do this on a very small scale. He showed the typical Portland cement that was used. It can be used underwater. It creates a certain amount of stress, but it will settle up and harden underwater. It basically attaches the corals to the substrate and keeps them from moving. Very large sea plumes and octocorals were found. We could transplant them provided we took a large enough piece of base rock and eventually it became clear that the best way to do this was to take larger pieces of reef with several organisms attached on them rather than to try to take individual organisms and transplant them. One of the problems that we noted early on was after you used the cement to transplant, in particularly the octocorals started showing stress by lesions of tissue along their stems. Fortunately, they did recover and we didn't lose them from that, but it was a concern. Final result, you can see five sites. He thinks they transplanted 127 different species, including sponges, algae, and corals into these particular habitat. We have a method that we can photograph this area to create a mosaic and we also census both with visual as well as video. He showed the area that was undamaged to give you some idea of the natural numbers of things that were found in a particular area and versus the transplant. We did duplicate quite closely what was found in the natural adjacent areas. Relatively similar transplanting, densities in each one of the five square meters that we transplanted on to. The concern is the amount of time that it took to do this. Total time underwater was close to 80 hours to do this work. It is very time consuming and quite expensive. It is not a cheap operation. It is much better to put your money into prevention. We are not sure yet whether we are going to have real success with this. The ship groundings occur almost chronically now in the Florida Keys. He showed the grounding of Jacquely L off Western Sambo. We are using aerial photography and GIS to try to get an idea of how much area was damaged, it is roughly 510 square meters. This is all elkhorn type habitat, prime type coral reef habitat. The US Navy ran one of their submarines aground off Dania, the USS Memphis. He showed the stealth type material that may be very toxic, we are not sure, that got embedded in the reef. They created a trench about nine feet deep and over 30 feet long. With 35,000 horse power to play with you can really do a lot of work. One of the other concerns out there is the Navy over the years has installed a number of cables that go out to some sort of sensors that are probably highly secret and when they go bad apparently they don't recover the old cables they just put new ones down. There is spaghetti all over the bottom out there from that activity. One of the benefits from this happening was we have been able to gather corals that apparently started to grow around three thousand years ago and they were part of the reef framework. Dick Dodge, with Nova University, has been looking at those trying to age and growth them. We are getting some scientific information out of the accident.

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Mr. Dunlap thanked Mr. Jaap. He moved on to Dr. Van Dolah's presentation. He suggested holding general discussion on coral and hard bottom until tomorrow morning. He asked for questions for Mr. Jaap.

Dr. Thayer asked about writings of solitary corals. How long a period of time is it between the time the solitary coral is tipped off and writing it and it will survive?

Mr. Jaap said you will have a large coral head that gets turned over probably within 48 hours or so, if it is lying on its side, that particular area that is buried on the sediment or wherever is going to have some mortality on it. If you write it will survive. The pattern has changed. In the Wellwood accident the lawyers told us not to touch anything and leave everything alone, don't bother it, because it is a crime scene. We have now reversed their opinion about that and they say to document what happened and then you can do the rehabilitation process. His feeling is that it should probably be returned to its natural state as quick as possible.

Dr. Van Dolah asked if they are collecting any growth rate data on the octocorals, sponges, or hard corals.

Mr. Jaap said on that particular area that we are transplanting on we are more documenting the abundance and the presence and absence of these species over time. Recruitment was a critical issue. The hypothesis was by going out in that barren area, if the recruitment is localized or requires a chemical signal from its own species of be able to want to settle, that by putting those out there in that barren area we would enhance the overall possibilities of animals and plants settling in that area and recovering quicker. Growth wise, there are a number of studies that have been done in the Florida Keys on various species, not every species.

Ms. Wheaton said octocorals are not real easy to measure for growth. Our main thrust was to see if the organisms that we transplanted even made it through the first year. We wanted to see if there was success with the transplant. What we found was that the larger octocorals did not succeed as well as the smaller ones. The stony corals had virtually 100 percent success in the transplant, but we lost several of the large octocorals because the cement, the cure time, it sets up really fast, but the cure time and the water motion, like the size of the fan or the size of the plume that we had transplanted, was too great for the resistance to the water and so we lost a percent. We had real good success with the majority of the sponges. There have been different studies done on octocoral growth over the years and there have been different ways of measure. Most of them take into consideration branching, third order, second order, it is very time consuming. She has been interested over the years in trying to document octocoral growth on dated substrates, particularly artificial reefs. She hasn't been able to have time to do that because of the other things. She is still going to try to pursue that. She just back from an artificial reef meeting in Tallahassee and got many contacts. Dated substrates are the easiest way to get a handle on octocoral growth if you can do that.

Mr. Jaap said those that are interested in artificial placement, another concern is these big storms will move these ships around and they are not as stable as one might assume.

Mr. Kenworthy asked how much damage was done to coral reefs.

Mr. Jaap said in Biscayne National Park there was a patch reef Bocky Shoals and probably 1/3 of the coral heads had been dislodged. A deep reef area off Ajax Reef that we looked at seemed to have more damage than the shallow reefs. Apparently, when the water currents or masses of water hit the reef shoaled up it just was an automobile hitting a wall and it just sheared off many corals and sponges and there was quite a bit of damage in the deeper waters, 60 to 80 feet. Up on the top, on these patch reefs, there didn't seem to be as much damage as we might assume. We

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some elkhorn stand, some of them would have a few broken branches, but by in large they remained in tact. It was kind of surprising. He expected after all the damage to the mangroves that we saw that the reefs themselves would have shown more damage. He would say it was no worse than a major winter storm.

Mr. Dunlap asked for further comments or questions.

**Appendix W. Maps of critical habitat designated under the Endangered Species Act for the Northern Right Whale and proposed critical habitat for Johnson Seagrass.**

26808

Federal Register / Vol. 59, No. 106 / Friday, June 3, 1994 / Rules and Regulations

**DEPARTMENT OF COMMERCE**

National Oceanic and Atmospheric Administration

50 CFR Part 226

[Docket No. 930363-4145, LD. 0127938]

Designated Critical Habitat; Northern Right Whale

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

ACTION: Final rule.

**SUMMARY:** NMFS is designating critical habitat for the northern right whale (*Eubalaena glacialis*). The designated habitat includes portions of Cape Cod Bay and Stellwagen Bank, the Great South Channel (each off the coast of Massachusetts), and waters adjacent to the coasts of Georgia and the east coast of Florida. This designation provides notice to Federal agencies and the public that a listed species is dependent on these areas and features for its continued existence and that any Federal action that may affect these areas or features is subject to the consultation requirements of section 7 of the Endangered Species Act (ESA).

**EFFECTIVE DATE:** July 5, 1994.

**ADDRESSES:** Requests for copies of this rule should be addressed to the Director, Office of Protected Resources, National Marine Fisheries Service (NMFS), 1335 East-West Highway, Silver Spring, MD 20910.

**FOR FURTHER INFORMATION CONTACT:** Michael Payne, Protected Species Management Division, NMFS, 301/713-2322; Charles Oravetz, Southeast Regional Office, NMFS, 813/893-3141; or Doug Beech, Northeast Regional Office, NMFS, 508/281-0254.

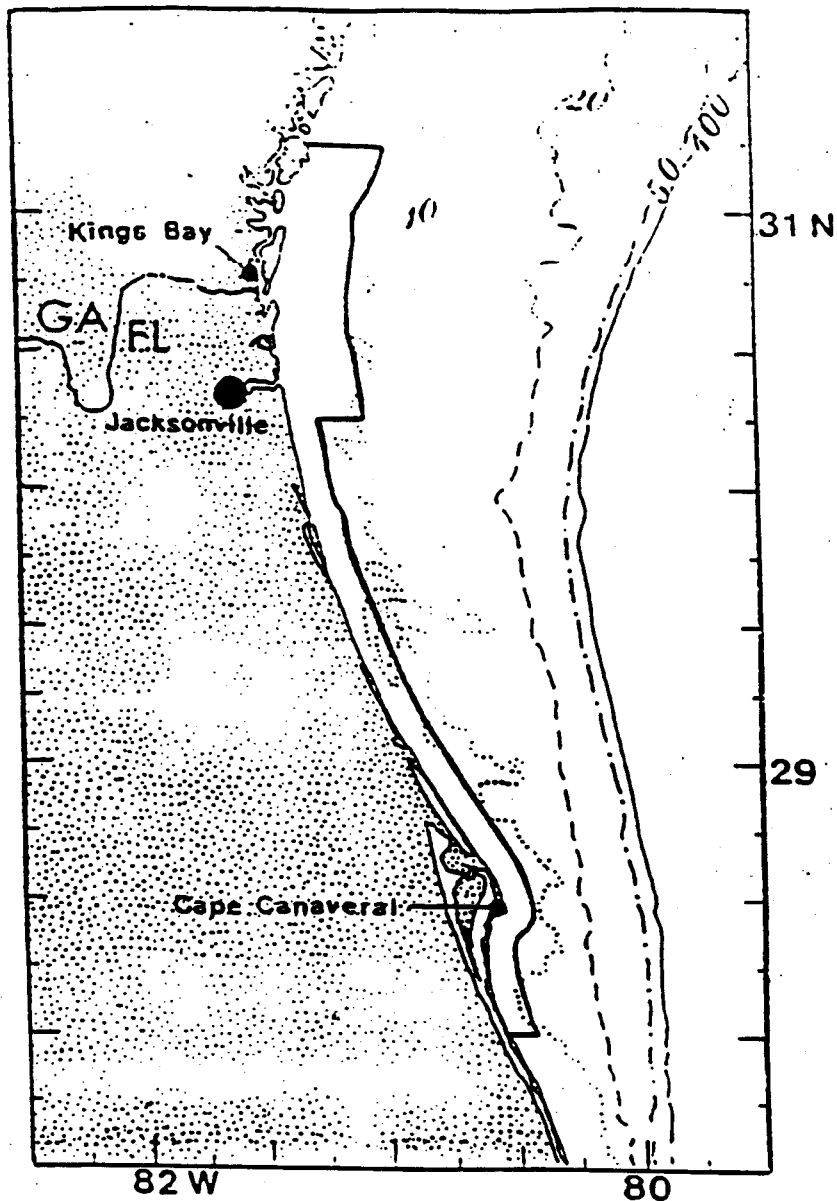


Figure 8. The area designated as critical habitat in the Southeastern United States includes waters between 31°15'N (approximately located at the mouth of the Altamaha River, GA) and 30°15'N (approximately Jacksonville, FL) from the shoreline out to 15 nautical miles offshore, and the waters between 30°15'N and 28°00'N (approximately Sebastian Inlet, FL) from the shoreline out to 5 nautical miles.

(FR Doc. 94-13500 Filed 6-2-94; 8:45 am)

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**DEPARTMENT OF COMMERCE**

**National Oceanic and Atmospheric  
Administration**

**50 CFR Part 226**

**[Docket No. 940791-4301; LD. 1130838]**

**Designated Critical Habitat; Johnson's  
Seagrass**

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

**ACTION:** Proposed rule.

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**SUMMARY:** NMFS is proposing to designate critical habitat for Johnson's seagrass (*Halophila johnsonii*) pursuant to section 4 of the Endangered Species Act (ESA). Because the subject matter of this proposed rule is closely related to a proposal published on September 15, 1993 (58 FR 48326), to list Johnson's seagrass as a threatened species, NMFS is announcing a public hearing to consider both proposed rules. NMFS is also reopening the comment period for the proposed rule to list Johnson's

seagrass. The hearing will be held September 20, 1994, in Vero Beach, FL. Johnson's seagrass is found on the east coast of Florida from Sebastian Inlet to central Biscayne Bay. Within this range, five areas in proximity to Sebastian Inlet, Ft. Pierce Inlet, St. Lucie Inlet, Jupiter Inlet and Lake Worth Inlet are proposed for critical habitat. In addition, the proposed critical habitat designation identifies those physical and biological features of the habitat that are essential to the conservation of the species and that may require special management consideration or protection. The economic and other impacts resulting from this critical habitat designation, over and above those arising from the listing of the species under the ESA, are expected to be minimal. The designation of proposed critical habitat provides explicit notice to Federal agencies and the public that these areas and features are vital to the conservation of the species.

**DATE:** Comments on both proposed rules must be received by October 13, 1994. The public hearing will be held on Tuesday, September 20, 1994, at 7:30 p.m.

**ADDRESSES:** Send comments and requests for the environmental assessment on the proposed designation of critical habitat and the status review for listing Johnson's seagrass to Dr. William W. Fox, Jr., Director, Office of Protected Resources, NMFS, 1335 East-West Highway, Silver Spring, MD 20910.

The public hearing will be held in the Commission Chambers of the Indian River County Administration Building, 1840 25th Street, Vero Beach, FL. **FOR FURTHER INFORMATION CONTACT:** Margaret C. Lorenz, Office of Protected Resources, NMFS, 301/713-2322, or Colleen Coogan, Southeast Region, NMFS, 813/893-3386.

#### **SUPPLEMENTARY INFORMATION:**

##### **Background**

NMFS published a proposed rule to list Johnson's seagrass as a threatened species on September 15, 1993 (58 FR 48326). Critical habitat was not proposed for designation at that time because the analysis of impacts of the proposed designation, as required by section 4(b)(2) of the ESA, had not been completed.

NMFS has now completed an environmental assessment (EA), pursuant to the National Environmental Policy Act (NEPA), to evaluate both the environmental and economic impacts of the proposed critical habitat designation (See **ADDRESSES**).

The proposed designation identifies those physical and biological features of the habitat that are essential to the conservation of the species and that may require special management consideration or protection. The direct economic and other impacts resulting from designating critical habitat, over and above those that result from listing the species, are expected to be minimal.

##### **Definition of Critical Habitat**

Critical habitat is defined in section 3(5)(A) of the ESA as "(i) the specific areas within the geographical area occupied by the species . . . on which are found those physical or biological features (I) Essential to the conservation of the species and (II) which may require special management considerations or protection; and (ii) specific areas outside the geographical area occupied by the species . . . upon a determination by the Secretary that such areas are essential for the conservation of the species." Areas outside the current range of a species can only be designated if a designation limited to the species' present distribution would be inadequate to ensure the conservation of the species. The term conservation, as defined in section 3(3) of the ESA, means " . . . to use and the use of all methods and procedures which are necessary to bring any endangered species or threatened species to the point at which the measures provided pursuant to this Act are no longer necessary."

The criteria to be considered in designating critical habitat are specified under 50 CFR 424.12. When designating critical habitat, NMFS considers physical and biological features that are essential to the conservation of the species and that may require special management consideration or protection, including but not limited to the following: (1) Space for individual and population growth, and for normal behavior; (2) food, water, air, light, minerals or other nutritional or physiological requirements; (3) cover or shelter; (4) sites for breeding, reproduction or rearing of offspring; and, generally, (5) habitats that are protected from disturbance or are representative of the historic geographical and ecological distributions of the species.

In addition, NMFS must list the known physical and biological features (primary constituent elements) within the designated area(s) that are essential to the conservation of the species and that may require special management considerations or protection. These essential features may include, but are not limited to, food resources, water

quality or quantity and vegetation and sediment types and stability.

##### **Consideration of Economic and Other Factors**

The economic, environmental and other impacts of a designation must also be evaluated and considered. NMFS must identify present and future activities that may adversely modify the proposed critical habitat or be affected by a designation. An area may be excluded from a critical habitat designation if NMFS determines that the overall benefits of exclusion outweigh the benefits of designation, unless the exclusion will result in the extinction of the species.

The impacts considered in this analysis are only those incremental impacts that specifically result from designating critical habitat, above the economic and other impacts attributable to listing the species. These incremental impacts are expected to be minimal (See **Significance of Designating Critical Habitat** section). In general, the designation of critical habitat duplicates and reinforces the substantive protection resulting from the listing itself.

Impacts attributable to listing include those resulting from the taking prohibitions under section 9 and associated regulations. With respect to fish and wildlife, "taking" as defined in the ESA includes harm to a listed species. Harm can occur through destruction or modification of habitat (whether or not designated as critical) that significantly impairs essential behaviors, including breeding, feeding or sheltering.

With respect to plants, section 9 of the ESA makes it unlawful for any person subject to U.S. jurisdiction to "remove and reduce to possession any such species from areas under Federal jurisdiction; maliciously damage or destroy any such species on any such area; or remove, cut, dig up, or damage or destroy any such species on any other area in knowing violation of any law or regulation of any state or in the course of any violation of a state criminal trespass law." Although this provision does not prohibit takings, such as harm or harassment of a species of fish or wildlife, it does provide protection for plants in areas under Federal jurisdiction and under state laws. As with the takings prohibition for fish and wildlife, these protections are triggered when a species is listed. Therefore, generally, the critical habitat designation will duplicate these protections. This is particularly true with respect to acts that "remove, cut, dig up or damage or destroy listed

plants in knowing violation of any law or regulation of any state."

Impacts attributable to listing also include those resulting from the responsibility of all Federal agencies under section 7 to ensure that their actions are not likely to jeopardize endangered or threatened species. An action could be likely to jeopardize the continued existence of a listed species through the destruction or adverse modification of its habitat, whether or not that habitat has been designated as critical.

#### Significance of Designating Critical Habitat

The designation of critical habitat does not, in itself, restrict state or private activities within the area. A critical habitat designation contributes to conservation of the species primarily by identifying critically important areas and describing the features within the areas that are essential to the species, thus alerting public and private entities to the importance of the area. Under the ESA, the only direct impact of a critical habitat designation is through the provisions of section 7. Section 7 applies only to actions with Federal involvement and does not affect state or private activities unless there is Federal involvement.

Under the section 7 provisions, a designation of critical habitat would require Federal agencies to ensure that any action they authorize, fund, or carry out is not likely to destroy or adversely modify the designated critical habitat. Activities that adversely modify critical habitat are defined as those actions that "appreciably diminish the value of critical habitat for both the survival and recovery" of the species (50 CFR 402.02). However, if no critical habitat has been designated, Federal agencies still must ensure that their actions are not likely to jeopardize the continued existence of the listed species. Activities that jeopardize a species are defined as those actions that "reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery" of the species (50 CFR 402.02). Using these definitions, activities that destroy or adversely modify critical habitat also are likely to jeopardize the species.

Therefore, the protection provided by a critical habitat designation usually only duplicates the protection provided under the section 7 jeopardy provision. Critical habitat may provide additional benefits to a species where areas outside of the species' current range have been designated. In these cases, it is expected that Federal agencies would consult on actions occurring in these areas for

which they would otherwise not need to consult.

A designation of critical habitat provides a clearer indication to the Federal agencies as to when consultation under section 7 is required, particularly in cases where the action would not result in direct mortality or injury to individuals of a listed species (e.g., an action occurring within the critical area when a migratory species is not present). The critical habitat designation, describing the essential features of the habitat, also assists in determining which activities conducted outside the designated area are subject to section 7 (i.e., activities that may affect essential features of the designated area). For example, disposal of waste material in water adjacent to a critical habitat area may affect an essential feature of the designated habitat (water quality) and would be subject to the provisions of section 7 of the ESA.

A critical habitat designation also assists Federal agencies in planning future actions, since the designation establishes, in advance, those habitats that will be given special consideration in section 7 consultations. This is particularly true in cases where there are alternative areas that would provide for the conservation of the species. With a designation of critical habitat, potential conflicts between projects and endangered or threatened species can be identified and possibly avoided early in the agency's planning process.

Another indirect benefit of designating critical habitat is that it helps focus Federal, state and private conservation and management efforts in those areas. Recovery efforts may address special considerations needed in critical habitat areas, including conservation regulations to restrict private as well as Federal activities. The economic and other impacts of these actions would be considered at the time of proposal, and, therefore, are not considered in the critical habitat designation process. Other Federal, state and local laws or regulations, such as zoning or wetlands protection, may also provide special protection for critical habitat areas.

#### Process for Designating Critical Habitat

Developing a proposal for critical habitat designation involves three main considerations. First, the biological needs of the species are evaluated and essential habitat areas and features are identified. If there are alternative areas that would provide for the conservation of the species, these alternatives are also identified. Second, the need for special management considerations or

protection of the area(s) or features is evaluated. Finally, the probable economic and other impacts of designating these essential areas as "critical habitat" are evaluated. After considering the requirements of the species, the need for special management, and the impacts of the designation, the proposed critical habitat is published in the Federal Register for comment. The final critical habitat designation, considering comments on the proposal and impacts assessment, should be published within 1 year of the proposal. Section 4 (e)(3)(A) of the ESA requires that, to the maximum extent prudent and determinable, NMFS designate critical habitat concurrently with a determination that a species is endangered or threatened. Final critical habitat designations may be revised, using the same process, as new data become available.

A description of the essential habitat, need for special management considerations, and impacts of designating critical habitat for Johnson's seagrass, as well as the proposed action, are described in the following sections.

#### Essential Habitat of Johnson's Seagrass

The biology of Johnson's seagrass is discussed in the proposed rule to list the species as threatened (56 FR 48326, September 15, 1993) and includes information on the status of the species, its life history characteristics and habitat requirements, as well as projects, activities and other factors affecting the species. The current status of Johnson's seagrass is presented in the EA prepared for this critical habitat designation.

The physical habitat that supports Johnson's seagrass includes both shallow intertidal as well as deeper subtidal zones. The species prospers and is able to colonize and maintain stable populations either in water that is clear and deep (2-5 m) or in water that is shallow and turbid. In tidal channels, it inhabits coarse sand substrates.

Based on published reports and discussions with seagrass experts, the distributional range of Johnson's seagrass is limited to the east coast of Florida from central Biscayne Bay (25°45' N. lat.) to Sebastian Inlet (27°50' N. lat.). There have been no reports of healthy populations of this species outside the presently known range. Although the species occurs throughout the Indian River Lagoon and Lake Worth, the five specific areas proposed for critical habitat encompass the largest known contiguous populations of Johnson's seagrass. While a population within Biscayne Bay has been confirmed by literature and observation,



It is discontinuous from the other areas where the species is found, and the area has not been studied or delineated.

The species is patchily distributed within its range. The dimensions of patches range from a few square centimeters to approximately 327 square meters. The survival of the species likely depends on maintaining its existing viable populations, especially the areas where the larger patches are found. The Sebastian Inlet population is believed to be the northern limit of its distribution and includes the largest known patch of Johnson's seagrass. The other areas proposed for critical habitat designation represent the core range of the species.

Spread of the species into new areas is limited by its reproductive potential. Johnson's seagrass possesses only female flowers; thus vegetative propagation, most likely through asexual branching, appears to be its only means of reproduction and dispersal. If an established community is disturbed, regrowth and reestablishment is extremely unlikely. If extirpated from an area, it is doubtful that the species would be capable of repopulation. This species' method of reproduction impedes its ability to increase distribution as establishment of new vegetation requires considerable stability in environmental conditions and protection from human-induced disturbances.

Based on the best available information, the essential features of the areas proposed for critical habitat designation include adequate (1) water quality; (2) salinity levels; (3) water transparency; (4) and stable, unconsolidated sediments that are free from physical disturbance.

#### Need for Special Management Consideration or Protection

NMFS has determined that the essential areas and features described in the previous section are at risk and may require special management consideration or protection. Special management may be required because of the following activities: (1) Vessel traffic and the resulting propeller dredging and anchor mooring; (2) maintenance dredging; (3) dock and marina construction; (4) water pollution; and (5) land use practices.

Activities associated with recreational boat traffic account for the majority of human use associated with the proposed critical habitat areas. The destruction of the benthic community due to boating activities, propeller dredging, anchor mooring and dock and marina construction was observed at all sites during a study by NMFS from

1990-1992. These activities severely disrupt the benthic habitat, breaching root systems and severing rhizomes and significantly reducing the viability of the benthic community. Propeller dredging and anchor mooring in shallow areas is a major disturbance to even the most robust seagrasses. This destruction is expected to worsen with the predicted increase in boating activity (Pat Rose, Florida Department of Natural Resources, personal communication). Trampling of seagrass beds, a secondary effect of recreational boating, also contributes to disturbing seagrass habitat. Populations of Johnson's seagrass inhabiting shallow water close to inlets where vessel traffic is concentrated will be most affected.

The constant sedimentation patterns in and around inlets require frequent maintenance dredging, which could either directly remove essential seagrass habitat or indirectly affect it by redistributing sediments, burying plants and destabilizing the bottom structure. Altering benthic topography or burying the plants may remove them from the photic zone.

Decreased water transparency caused by suspended sediments, water color and chlorophylls could have significant detrimental effects on the distribution and abundance of the deeper water populations of Johnson's seagrass. Evidence from a distribution survey in Hobe and Jupiter Sounds indicates that the abundance of this seagrass diminishes in the more turbid interior portion of the lagoon where reduced photosynthetically active radiation (PAR) limits photosynthesis.

Other areas of concern include seagrass beds located in proximity to rivers and canal mouths where low salinity, highly colored water is discharged. Freshwater discharge into areas adjacent to seagrass beds may provoke physiological stress upon the plants by reducing the salinity levels. Additionally, colored waters released into these areas reduce the amount of sunlight necessary for photosynthesis by rapidly attenuating shorter wavelengths of PAR.

Also, continuing and increasing degradation of water quality due to increased land use and water management threatens the welfare of seagrass communities. Nutrient overenrichment caused by inorganic and organic nitrogen and phosphorous loading via urban and agricultural land run-off stimulates increased algal growth that may smother Johnson's seagrass, shade rooted vegetation and diminish the oxygen content of the water. Low oxygen conditions have a

demonstrated negative impact on seagrasses and associated communities.

Special consideration and protection for these and other habitat features will be evaluated during the section 7 process and in development and implementation of a recovery plan. If adequate protection cannot be provided through consultation or through the recovery planning process, separate management actions with binding requirements may be considered.

#### Federal Activities that May Impact Essential Habitat and Features

A wide range of activities funded, authorized or carried out by Federal agencies may affect the essential habitat requirements of Johnson's seagrass. These include authorization by the U.S. Army Corps of Engineers for beach nourishment, dredging and related activities including construction of docks and marinas; actions by the U.S. Environmental Protection Agency to manage freshwater discharges into waterways; regulation of vessel traffic by the U.S. Coast Guard; authorization of oil and gas exploration by the Minerals Management Service; management of national refuges and protected species by the U.S. Fish and Wildlife Service; management of vessel traffic and other activities by the U.S. Navy; authorization of state coastal zone management plans by NOAA's National Ocean Service; and management of commercial fishing and protected species by NMFS.

#### Expected Impacts of Designating Critical Habitat

Under section 7 of the ESA, Federal agencies are required to ensure that actions that they authorize, fund or carry out are not likely to jeopardize the continued existence of listed species or to result in the destruction or adverse modification of listed species' critical habitat. Also, takings of Johnson's seagrass will be prohibited under the proposed regulations issued to list the species as threatened.

This designation will identify specific habitat areas that have been determined to be essential for the conservation of Johnson's seagrass and that may be in need of special management considerations or protection. It will require Federal agencies to evaluate their activities with respect to the critical habitat of this species and to consult with NMFS pursuant to section 7 of the ESA before engaging in any action that may affect the critical habitat.

However, if Johnson's seagrass is listed as proposed, Federal agencies active within the range of the species

will be required to consult with NMFS if projects and activities they authorize, fund or otherwise carry out may affect the species, regardless of whether critical habitat is designated. Therefore, it is unlikely that additional consultations will result from designating critical habitat for Johnson's seagrass.

In addition, it is not likely that designation of critical habitat for Johnson's seagrass will have any additional adverse economic impacts on Federal, state or private activities beyond those that would occur as a result of listing the species. As discussed in the section on activities that may impact essential habitat and features, the Federal activities that may affect critical habitat are the same activities that may affect the species itself. For plants, this is particularly true when analyzing the impacts of designating critical habitat. For example, the activities that affect water quality, an essential feature of critical habitat, also will be considered in terms of how they affect the species itself.

Should this proposed designation of critical habitat be adopted, Federal agencies will continue to engage in section 7 consultations to determine if the actions they authorize, fund or carry out are likely to jeopardize the continued existence of Johnson's seagrass; however, with designation, they would also need to address explicitly impacts to the species' critical habitat. This is not expected to affect materially the scope of future consultations or result in greater economic impacts, since the impacts to Johnson's seagrass habitat will already be considered in section 7 consultations.

The economic costs to be considered in a critical habitat designation are the incremental costs of designation above the economic impacts attributable to listing or attributable to authorities other than the ESA. NMFS has determined that there are no incremental net costs for areas within the species' current distribution, and no areas outside the current range are proposed for critical habitat designation.

#### Proposed Critical Habitat

Based on available information, NMFS proposes to designate critical habitat that is considered essential for the survival and recovery of Johnson's seagrass and that may require special management consideration or protection. The critical habitat designation proposed by this rule includes the largest contiguous areas that are currently utilized by Johnson's seagrass.

Although Johnson's seagrass is found throughout the Indian River Lagoon, Lake Worth and in some areas of Biscayne Bay, NMFS is not proposing to include these areas in the proposed designation until more information is available and the areas are delineated, and it can be determined that these areas meet the requirements for designation as critical habitat. For the same reason, NMFS is not including in the proposed designation any areas outside the species' currently known geographical area. NMFS has concluded that, at this time, proper management of the essential features of the areas in proximity to the five inlets will be sufficient to provide for the survival and recovery of this species. If the species is listed as proposed, Federal activities in any area occupied by Johnson's seagrass would be subject to the section 7 consultation process whether or not the area has been designated as critical habitat. In addition, NMFS may reconsider this evaluation and propose additional areas for critical habitat at any time.

The five areas proposed for critical habitat designation include the intertidal and subtidal areas in proximity to five inlets on the east coast of Florida. These areas are within 3 to 5 kilometers of the inlet and experience regular tidal flushing with salinity greater than 15 ppt. Maps are provided for reference purposes to guide Federal agencies and other interested parties in locating the general boundaries of the proposed critical habitat. They do not constitute the definition of the boundaries of critical habitat. Persons must refer to the regulations at 50 CFR 226.91 for the actual boundaries of the designated critical habitat.

#### Public Comments Solicited

NMFS is soliciting information, comments or recommendations on any aspect of this proposal from all interested parties. NMFS will consider all recommendations received before reaching a final decision. Because the proposed rule for adding this species to the List of Threatened and Endangered Species and designation of critical habitat are closely related, NMFS will hold a public hearing to receive comments on both rulings (see DATES and ADDRESSES).

#### Classification

This proposed rule has been determined to be not significant for purposes of E.O. 12866.

Pursuant to the Regulatory Flexibility Act, the General Counsel of the Department of Commerce has certified to the Chief Counsel for Advocacy of the

Small Business Administration that the proposed rule, if adopted, would not have a significant economic impact on a substantial number of small entities since it is primarily Federal agencies that will be affected. Therefore, a regulatory flexibility analysis is not required.

The Assistant Administrator for Fisheries (NOAA) has determined that the proposed designation is consistent to the maximum extent practicable with the approved Coastal Zone Management Program of the State of Florida. This determination has been submitted for review by the responsible state agency under section 3.7 of the Coastal Zone Management Act.

NOAA Administrative Order 216-6 states that critical habitat designations under the ESA are categorically excluded from the requirement to prepare an environmental assessment (EA) or an environmental impact statement. However, in order to evaluate more clearly the impacts of the proposed critical habitat designation, NMFS has prepared an EA. Copies of the assessment are available on request (see ADDRESSES).

#### List of Subjects in 50 CFR Part 226

Endangered and threatened species.

Dated: July 25, 1994.

Gary C. Metlock,  
Program Management Officer, National  
Marine Fisheries Service.

For the reasons set forth in the preamble, 50 CFR part 226 is proposed to be amended as follows:

#### PART 226—DESIGNATED CRITICAL HABITAT

1. The authority citation for part 226 continues to read as follows:

Authority: 16 U.S.C. 1533.

#### Subpart E—[Reserved]

2. A new subpart E is added to part 226 and reserved.

3. A new subpart F is added to part 226, consisting of § 226.91, to read as follows:

#### Subpart F—Critical Habitat for Marine Plants

§ 226.91 Johnson's seagrass (*Halophila johnsonii*).

(a) A portion of the Indian River Florida, within the following boundary: Beginning at the northwestern entrance of Sebastian Inlet, follow the shoreline north to the tip of Mud Hole; cross the Indian River at Mud Hole to the Intercoastal Waterway; follow the Intercoastal Waterway south for 7.5

miles; cross the Indian River and follow the shoreline north to the southwestern entrance of Sebastian Inlet (Sebastian, Fla., 1970, U.S.G.S. 7.5' quad.).

(b) A portion of the Indian River, Florida, within the following boundary: Beginning at the northwestern entrance to Ft. Pierce Inlet, follow the shoreline north to the North Beach Causeway and the A1A Bridge; move west across the river at the causeway and bridge and follow the shoreline south for 1.5 miles; cross the Indian River to the shoreline of the Jensen Beach to Jupiter Inlet Aquatic Preserve; follow the shoreline north to the southwestern entrance of Ft. Pierce Inlet (Fort Pierce, Fla., 1983, U.S.G.S. 7.5' quad.).

(c) A portion of the Indian River within the following boundary: Beginning at the northwestern entrance of St. Lucie Inlet follow the shoreline north to the A1A Bridge; cross the river at the bridge and follow the shoreline south to the entrance of the Intercoastal Waterway at St. Lucie State Park; follow the shoreline north to the southwestern entrance of St. Lucie Inlet (Fort Pierce, Fla., 1983, U.S.G.S. 7.5' quad.).

(d) A portion of Jupiter Sound and Hobe Sound, Florida, within the following boundary: Beginning at the northwestern entrance to Jupiter Inlet, follow the shoreline north to the Highway 707 Bridge; cross Hobe Sound at the bridge and follow the shoreline south; cross the Route 1 Bridge and

follow the shoreline to the southwestern entrance of Jupiter Inlet (Jupiter, Fla., 1983, U.S.G.S. 7.5' quad. and Hobe Sound, Fla., 1987, U.S.G.S. 7.5' quad.).

(e) A portion of Lake Worth, Florida, within the following boundary: Beginning at the northwestern entrance to Lake Worth Inlet, follow the shoreline north to the Riviera Beach bridge; cross Lake Worth at the bridge and follow the shoreline south for 2.5 miles; cross Lake Worth and follow the shoreline to the southwestern entrance of Lake Worth Inlet (Riviera Beach, Fla., 1983, U.S.G.S. 7.5' quad.).

4. Figures 9 through 13 are added in numerical order to the end of part 226 to read as follows:

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