FINAL

AMENDMENT 4

TO THE FISHERY MANAGEMENT PLAN FOR

SPINY LOBSTER
IN THE GULF OF MEXICO AND SOUTH ATLANTIC

INCLUDING THE
REGULATORY IMPACT REVIEW
AND
ENVIRONMENTAL ASSESSMENT

DECEMBER 1994

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prepared by the
South Atlantic and Gulf of Mexico Fishery Management Councils

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ACTION 1. Allow the harvest of two lobsters per person per day for all fishermen all year long but only north of the Florida/Georgia border. This measure would be added to the framework procedure so that future potential changes to the limit would not require a plan amendment. 12

The following item was eliminated from detailed consideration in this amendment because the Council approved implementing this change as a technical amendment.

ACTION 1. Provide an exemption for the incidental catch of spiny lobsters by headboat hook and line vessels and limit them to five lobsters per headboat per day. This measure is to apply throughout the entire South Atlantic Council's area of jurisdiction. A-1

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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).

Problems and Objectives

The general problems and objectives are found in the fishery management plan, as amended. This amendment proposes to allow greater access to the spiny lobster resource by recreational fishermen in the states north of Florida while protecting the biological integrity of the resource. Further exposition of these issues are found in the biological discussions under the proposed action.

Methodology and Framework for Analysis

This RIR analyzes the probable impacts on fishery participants of the proposed amendment to the Fishery Management Plan for the Spiny Lobster Fishery of the Gulf of Mexico and South Atlantic Region (FMP). The discussion for the proposed action is incorporated in the text under socioeconomic impacts. 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 harvesters of spiny lobster and the intermediate sector to processors and dealers of spiny lobster. Final users of the resource are taken to refer to the individuals that derive benefits from consuming spiny lobster. 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 the spiny lobster fishery. 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.

1.0 PURPOSE AND NEED

Amendment 4 to the Spiny lobster Fishery Management Plan was developed to address the different fishing pattern in the states north of Florida and the rare harvest of spiny lobster by headboats throughout the South Atlantic. The South Atlantic and Gulf of Mexico Fishery Management Councils are concerned about access to the spiny lobster resource by affected fishermen in this area, and is proposing to implement a bag limit year round off the States of North Carolina, South Carolina and Georgia for recreational and commercial fishermen and to allow fishermen on headboats to retain rare catches of spiny lobsters on hook and line gear. The bag limit will be implemented through Amendment 4, while the headboat issue will be addressed through a technical amendment (see Appendix A).

The original management plan (GMFMC and SAFMC, 1982) included a Final Environmental Impact Statement. Amendments 1, 2 and 3 included Environmental Assessments. Amendment 4 includes an Environmental Assessment.

Current Regulations

Regulations currently in effect north of Florida that apply to the recreational fishery are shown in Table 1 below:

Table 1. Spiny lobster regulations affecting the recreational fishery north of Florida.

	Council FMP	Georgia	S. Carolina	N. Carolina
Minimum size	>3" Carapace length ≥5.5" Tail length		Same	
Bag limit	6/person/day		Same	
Special recreational season	Last Sat. & Sun. of July; 6/person/day		Same	
Open season	Aug. 6 - March 31		Same	
Prohibit possession of lobsters with eggs	No lobsters with eggs Can't remove eggs		Same	Same
Gear	Can't harvest with spears, hooks or similar devices. No poisons/explosives. No directed nets or trawls. Traps allowed with requirements.		Same	

Georgia has no regulations specifically for spiny lobster. South Carolina track federal regulations. North Carolina's regulations are not specific to spiny lobster but prohibit possession of egg-bearing lobsters or lobsters from which the eggs have been removed.

Amendment 4 will impact recreational and commercial fishermen fishing in states north of Florida by limiting everyone to two lobsters per person per day (which equates to per trip given no allowance for multi-day limits) year round.

Management Objectives

Objectives currently identified in the management plan, as amended, are as follows (GMFMC and SAFMC, 1989) (Note: Some of these objectives are outdated and have been accomplished; the objectives listed will be addressed in the next amendment to the spiny lobster management plan):

1. Protect long-run yields and prevent depletion of lobster stocks.
2. Increase yield by weight from the fishery.
3. Reduce user group and gear conflicts in the fishery.
4. Acquire the necessary information to manage the fishery.
5. Promote efficiency in the fishery.
6. Provide for a more flexible management system that minimizes regulatory delay to assure more effective, cooperative state and federal management of the fishery.

Objectives addressed in this amendment are presented below.

- Protect long-run yields and prevent depletion of lobster stocks.
- Reduce user group and gear conflicts in the fishery.

Issues/Problems to be Considered

Problems/issues currently identified in the management plan, as amended, are as follows (GMFMC and SAFMC, 1989) (Note: Some of these problems are outdated and have been corrected; the problems listed will be addressed in the next amendment to the spiny lobster management plan):

1. The number of undersize lobster taken or sold illegally continues to be a problem.
2. Whereas the present practices involving the use of undersize lobsters as attractants is causing significant mortality to undersize lobsters and subsequent loss in yield to the fishery, there is controversy over the methods to reduce the mortality of undersize lobsters used as attractants in traps.
3. There is an excessive number of traps in the fishery.

4. Incompatible federal and state regulations hinder effective management and enforcement and delay in implementing federal rules compatible with those of the state exacerbates this problem.

5. Abandonment of traps creates some ghost fishing mortality that represents loss in yield to the fishery.

6. The major user groups of the resource are not adequately defined to insure fair and equitable treatment. The existing Florida permit system is not sufficient in identifying major user groups resulting in an inability to properly assess the impacts of alternative management measures on the users of the resource. While tagging studies indicate that recreational harvest is likely to be about ten percent of the commercial harvest, additional data on the recreational harvest is needed. Existing data sources will need to be supplemented, especially as future allocations of the resource are considered. (Note: By current state rule, commercial fishermen must have both permit and products license.)

7. The increasing recreational harvest, especially in the special season, may be impacting the resource and needs to be evaluated as to amount of harvest and impacts on handling and short mortality.

Issues/problems addressed in this amendment are as follows:

Fair and Equitable Treatment of Major User Groups

- What is the most equitable method to provide access to the spiny lobster resource by recreational fishermen north of Florida?

Increasing Recreational Harvest

- What steps should be taken to prevent impacting the spiny lobster resource?

History of Management

The Fishery Management Plan for the Spiny Lobster Fishery of the Gulf of Mexico and South Atlantic was prepared by the Gulf of Mexico and South Atlantic Fishery Management Councils (GMFMC and SAFMC, 1982) to protect long-run yields and prevent depletion of lobster stocks, increase yield, reduce user group and gear conflicts, acquire the necessary information to manage the fishery and to promote efficiency in the fishery. Amendment 1 (GMFMC and SAFMC, 1987) required a commercial permit, limited possession of undersized lobsters as attractants and required a live well, modified recreational possession and season regulations, modified closed season regulations, required the immediate release of egg-bearing lobsters, modified the minimum size limit, required a permit to separate the tail at sea and prohibited possession or stripping of egg-bearing slipper lobsters. Amendment 2 (GMFMC and SAFMC, 1989) modified the problems/issues and objectives of the fishery management plan, modified the statement of optimum yield, established a protocol and procedure for an enhanced cooperative management system, and added to the vessel

safety and habitat sections of the fishery management plan. A definition of overfishing and clarification that the National Marine Fisheries Service (NMFS) may charge the administrative cost of issuing permits was added in Amendment 3 (GMFMC and SAFMC, 1990).

Issues/Problems Requiring Amendment 4

- **Fair and Equitable Treatment of Major User Groups** - The Councils want to provide access to the spiny lobster resource for recreational fishermen north of Florida without undue hardship on the commercial sector or damage to the spiny lobster resource.
- **Increasing Recreational Harvest** - The Councils are concerned about the potential impacts on the resource from an increasing recreational harvest.

The original Spiny Lobster Fishery Management Plan (GMFMC and SAFMC, 1982) established a management program for the spiny lobster resource in the Gulf of Mexico and South Atlantic which included a minimum size limit, gear limitations, possession limits and seasonal restrictions. The most recent assessment of the status of the spiny lobster fishery was prepared by the National Marine Fisheries Service, Miami Laboratory (Harper, 1993). The summary is presented below:

> "Total Florida spiny lobster commercial landings have averaged around 6.1 million pounds since 1975 while lobster landings in states excluding Florida have been very small and inconsequential. During the 1992 season, which included the passage of hurricane Andrew through south Florida on August 24, commercial fishermen harvested 5.3 million pounds of spiny lobster or about 1.7 million pounds less than in the 1991 season. The spiny lobster became the most valuable species landed in Florida for 1991 and 1992 surpassing the pink shrimp which had previously ranked as Florida's top commercial species. In the 1992 season, the estimated number of traps in the spiny lobster fishery reached a record high of 977,000, and seasonal catch per trap, which has been declining slightly since 1975, reached a record low of approximately 5.5 pounds. For the last three seasons, mean catch per seasonal and monthly trip based on FMTTS data has remained fairly stable, despite the use of more traps. The general upward trend in mean carapace size for spiny lobster harvested by commercial and recreational fishermen continued into the 1992 season for most statistical regions, although mean carapace length varied significantly within regions between years. Catch per commercial fishing trip was essentially the same in 1992 when compared to 1991, while the number of trips and therefore total commercial landings declined in 1992. This decline in number of commercial spiny lobster fishing trips and landings is probably the result of Hurricane Andrew's devastating impact on the south Florida commercial fishing industry."

The Council conducted four scoping meetings on issues facing fishermen north of Florida (Atlantic Beach, North Carolina - November 3, 1993; St. Augustine, Florida - February 7, 1994; Brunswick, Georgia - April 20, 1994; and Duck Key (Marathon), Florida - June 20, 1994) and also convened their advisory panel (Miami, Florida - April 21, 1992 and Duck Key, Florida - June 20, 1994). Recreational fishermen north of Florida indicated that they only have access to the resource during the summer and early fall when the weather is calm and the water warm. This also coincides with the closed season for spiny lobsters.

Seven public hearings were held at the following locations: Savannah, Georgia - September 19, 1994; St. Augustine, Florida - September 20, 1994; Cocoa Beach, Florida - September 21, 1994; Palm Beach, Florida - September 22, 1994; Marathon, Florida - September 23, 1994; Charleston, South Carolina - October 6, 1994; and Wrightsville Beach, North Carolina - October 25, 1994. This information is included as Appendix B. Public input was very limited during the public hearing process in large part to fishermen's agreement with the proposed actions and the extensive scoping process that was recently completed (scoping information available from the South Atlantic Council).

2.0 ALTERNATIVES INCLUDING THE PROPOSED ACTION

National Environmental Policy Act (NEPA) regulations indicate that Section 2.0 should present the environmental impacts of the proposal 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 Council's approach, used successfully in Snapper Grouper Amendments 6 and 7, is to present the bulk of the evaluation of alternatives and discussion about the effects on the environment in Section 4.0 Environmental Consequences of Fisheries Activities. Section 2 Alternatives, is presented as a summary of Section 4.0. In Section 2.0, the Council makes extensive use of matrices to provide the reader with an overview of the alternatives considered and resulting environmental impacts for each management measure. The Council concluded that this meets the intent of NEPA regulatory requirements.

Management measures (proposed actions) are intended to address the management objectives and issues discussed above. Each management measure has a number of alternatives that have been considered by the Council. The following table summarizes the 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.

The proposed action addresses the issues/problems of (1) fair and equitable treatment of major user groups by providing access to all fishermen north of Florida year round and (2) increasing recreational harvest by limiting mortality through a reduction in the bag limit from six to two per person per day. The proposed action provides the greatest access to recreational fishermen north of Florida while protecting the continued biological productivity of the spiny lobster resource. The rejected options would not have provided a similar level of access and could have resulted in user group and gear conflicts. See the detailed analysis of impacts for each alternative in Section 4.0 Environmental Consequences.

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

ACTION 1. MODIFY THE RECREATIONAL SEASON AND BAG LIMIT:

ISSUES/PROBLEMS

Alternatives	Fair & Equitable Treatment of Major User Groups	Increasing Recreational Harvest
Proposed Action: 2-lobsters/person per day for all fishermen all year long north of Florida	Allocates equally for all fishermen	Controls harvest levels north of Florida
Rejected Option 1. No Action	Does not address problem	Does not address problem
Rejected Option 2. 2-lobsters/person per day for all fishermen all year long north of Cape Canaveral or northeast FL	Allocates equally for all fishermen north of FL but impacts commercial fishermen in northeast FL	Controls harvest levels north of northeast FL
Rejected Option 3. Recreational harvest of 1-lobster per person per day during April, May, June & July north of Florida	Provides some access to recreational fishermen but not equitably	Does not limit recreational catch during rest of year
Rejected Option 4. Recreational harvest of 1-lobster per person/day year-round north of FL	Provides some access to recreational fishermen but not equitably	Controls harvest levels north of Florida
Rejected Option 5. 1-lobster/person (rec & com) year-round north of FL & framework	Allocates equally for all fishermen north of Florida but not necessarily all fishermen	Controls harvest levels north of Florida
Rejected Option 6. Consider including northeast Florida	Fair to northeast Florida recreational fishermen	Limit catch in northeast Florida
Rejected Option 7. Trip limit per boat per day	Could allocate equally	Could control harvest

3.0 AFFECTED ENVIRONMENT

The following information contains a description of the existing environment for the spiny lobster fishery. The original Fishery Management Plan (GMFMC and SAFMC, 1982) and Amendment 1 (GMFMC and SAFMC, 1987) describe the fishery, utilization patterns and condition of the stock. In summary [directly from Amendment 3 (GMFMC and SAFMC, 1990)], this information indicates that (1) the fishery is heavily overcapitalized with excess fishing capacity (traps) well beyond that needed to harvest the resource; (2) although landings have been stable and no recruitment overfishing is occurring, growth overfishing is occurring partially as a result of mortality of sublegal lobsters from fishing practices; (3) the fishery landings are dependent on recruitment of small lobster each year, i.e., no multiple age class structure; (4) source of larval recruitment to the fishery has not been resolved, i.e., pan-Caribbean or Gulf or local or a combination of sources; and (5) an effort reduction limited entry system has been developed by industry, the State of Florida, and the Gulf of Mexico and South Atlantic Councils for future implementation. (Note: The effort reduction program is now in place.)

Additional information concerning the spiny lobster fishery and the affected environment is presented in Section 7.0, Item C. Appendix B in Amendment 2 (GMFMC and SAFMC, 1989) contains the Council's habitat concerns. To aid in the review of Amendment 4, information from the original fishery management plan, Amendment 1 and Amendment 2 (including Appendix B referenced above) is included as Appendix C.

A. Optimum Yield

Optimum yield (OY) is all spiny lobster with carapace or tail lengths equal to or larger than the minimum legal lengths that are harvested legally under the provisions of the FMP. OY is estimated at 9.5 million pounds. (GMFMC and SAFMC, 1989). The current legal size specified in the regulations is lobsters larger than 3.0 inches carapace length or for those fishermen with a tailing permit, lobster tails equal to or larger than 5.5".

B. Definition of Overfishing

Overfishing was defined in Amendment 3 as follows (GMFMC and SAFMC, 1990): "Overfishing exists when the eggs per recruit ratio of the exploited population to the unexploited population is reduced below five percent and recruitment of small lobsters into the fishery has declined for three consecutive fishing years. Overfishing will be avoided when the eggs per recruit ratio of exploited to unexploited populations is maintained above five percent."

Should overfishing occur, the Councils and State of Florida will take one or more of the following actions by regulatory amendment as authorized under this measure: (1) modify season

length, (2) increase minimum carapace length, (3) limits on use of shorts, (4) require escape gaps, and (5) reduce number of traps.

C. Commercial Fishery

Information is from Harper (1993), Vondruska (1992) and Harris et al. (1993 and 1994). Harper (1993) provided the most recent description of the commercial fishery (Tables and Figures cited refer to Harper's paper and are not included in this amendment):

> "Seasonal total Florida spiny lobster landings since 1975 have fluctuated, averaging about 6.1 million pounds through 1992 with a range of 4.3 to 7.9 million pounds. In recent seasons, an increase from 5.4 million pounds in 1986 to 7.8 million pounds in 1989 is noted. The **preliminary** estimated harvest for the 1992 season is 5.3 million pounds or about 1.7 million pounds less than the 7.0 million pounds landed during the 1991 season.
>
> After 1985, number of craft has increased rapidly from a low of 517 in 1985 to a record high of 825 in 1992. The primary fishing gear for lobster in the commercial fishery is the wooden slat trap. The number of traps in the fishery has fluctuated, yet has maintained a steadily increasing trend from a low of 52,000 in 1961 to a maximum of 977,000 in 1992; and averaged 879,000 traps during the 1987-1992 seasons.
>
> Commercial lobster landings by gear type from U.S. southeastern states other than Florida for 1980-1992 obtained from the NMFS Accumulated Landings database are shown in Table 3. During this time period, Alabama had reported landings of 5,652 pounds followed by South Carolina with 1,356 pounds. No landings were reported from North Carolina or Louisiana.
>
> Seasonal catch per trap exceeded 25 pounds, from 1960 to 1974 (Fig. 4). A sharp decline in pounds harvested per trap from 43.6 pounds to 12.1 pounds occurred from 1972 through 1975. Since 1975, seasonal catch per trap has steadily declined with a record low 5.5 pounds per trap estimated for the 1992 season.
>
> The general trend of increased mean lobster size in the commercial landings from the Florida Keys since 1987 as reported by Harper (1992) continued into the 1992 season. The one exception to this general trend can be seen in the data from FDEP area 7 (Key West-Dry Tortugas). With the inclusion of 1992 data, Area 7 is the only statistical area in the Florida Keys to exhibit a decreasing trend in mean lobster size. The sharp increase in mean lobster size seen in NMFS Grid 2.0 (Fig 10) is the result of a shifting of fishing effort and sampling data collection into the lobster fishing ground west of the Dry Tortugas."

Vondruska (1992) updated previous economic assessments of the spiny lobster fishery of the southeastern continental United States, which now occurs mostly on the southern tip of Florida. Vondruska's assessment was only for the commercial fishery given the scant data on the recreational fishery.

Divers in the snapper grouper fishery also harvest lobsters. Data is available for 1992 and 1993 (Harris et al., 1993 and 1994). The catch of spiny lobsters was estimated to be 95,840 pounds during 1992 and 48,789 pounds during 1993. The catch of slipper lobster was 202 pounds and 51 pounds during 1992 and 1993 respectively. This data indicated that during 1992 only 0.3% of the 95,840 pounds of spiny lobster was harvested north of Florida (the harvest was from North

Carolina). Of the 1993 catches, the only harvest north of Florida was 1,334 pounds of spiny lobster in South Carolina.

D. Recreational Fishery

Harper (1993) provided the most recent description of the recreational fishery (Tables and Figures cited refer to Harper's paper and are not included in this amendment):

> "Summaries and analysis of results from the lobster shellfishing questionnaire conducted during the 1991 MRFSS telephone survey for the southeastern U.S. coastal states were reported by Harper (1992) and Jones (1993). In U.S. southeastern states other than Florida (excluding Texas which was not included in MRFSS telephone survey), the number of households that participated in recreational lobster fishing was small, as measured in this survey. In Florida, the seasonal pattern of recreational lobstering activity was as expected, with more directed trips in the late summer than in the remainder of the year. Although no lobstering trips were reported by households contacted in the states of Georgia and South Carolina during the 1991 MRFSS telephone survey, an informal telephone survey of dive clubs and dive shops by NMFS during late March and early April 1993 did indicate at least some spiny lobster were harvested by recreational divers in these states (Schmied, 1993). Schmied (1993) also reported that over the last two years, general diver interest in targeting spiny lobster seems to be on the increase in North Carolina but is staying relatively flat in South Carolina, Georgia, and Louisiana. In all states, outside of Florida, recreational lobster harvest levels appear small.
>
> The MRFSS program conducted 178 intercept surveys of the spiny lobster fishery in south Florida between July 25, and August 20, 1992. Table 5 summarizes data for number of interviews conducted, hours fished per trip, and lobster catch per fishing party and fisherman from these surveys during the Federal mini-season, the state mini-season and the regular lobster fishing season. The mean number of lobster landed per fisherman was lowest for the Federal mini-season (1.84) and highest for the regular lobster season (5.01). Interview sites were located in Dade (25 interviews) and Monroe (153 interviews) counties. County of residence was reported as Dade county for 23 of 25 (92.0%) of the interviews conducted in Dade, while only 13 of 147 (8.5%) fishermen interview in Monroe lived in Monroe county. In Monroe county, the most frequently reported counties of residence were: Dade (18 interviews, 11.8%), Broward (17 interviews, 11.1%) and Palm Beach (13 interviews, 8.5%). All 178 interviews recorded mode of fishing as private/rental boats.
>
> Mean sizes of measured lobster carapace lengths (mm) from recreational trips sampled during the intercept surveys conducted by National Park Service personnel from boat ramps within and adjacent to the Biscayne National Park, south Dade County, Florida from 1976 through 1992 were examined (Figure 12). Overall the mean carapace length was 84.4 mm (range = 65 to 168 mm; sd = 7.48) from a total of 20,245 lobster measurements recorded during this Biscayne National Park Creel Census. Most of these data were obtained during the special two-day sport lobster season which precedes the regular lobster season. Although there was much variation in mean carapace length over time, there is a slight bias toward increased mean lobster size in these recreational harvests (Fig. 12). The large decrease in mean lobster carapace length recorded during the 1983-4 season may be the result of an El Nino event which occurred during 1983.
>
> The FDEP utilized a mail survey to estimate recreational spiny lobster harvest during the two-day Special Sport Season (July 27-28) and the first month of the regular lobster season during 1991 (Bertelsen and Hunt, 1991). The estimated statewide harvest during the two-day season was 403,002 lobsters (435,240 pounds); and 1,188,322 lobsters (1,283,388 pounds) during the first month of the regular season. Approximately 80% of these harvests came from the Florida Keys. Preliminary estimates of the first month of the

1992 regular lobster season indicate that statewide 719,487 lobsters were harvested with 472,765 lobsters taken in the Keys (Hunt, pers. comm.). These preliminary 1992 estimates indicated decreases of 60.5% statewide and 49.4% from the Florida Keys for comparable 1991 recreational spiny lobster harvests."

Information on the fishery north of Florida is lacking. Information on the North Carolina fishery was provided during the scoping meeting in North Carolina (November 3, 1993) and is summarized below. The detailed information is contained as Appendix D.

The fishery takes place about 30 miles offshore in at least 100 feet of water. The ledges are scarps from old shorelines and riverbeds that have eroded and broken apart. The resulting hard substrate attracts invertebrates that form a tropical community. There are not very many small lobsters in these areas; most are around 2-3 pounds, up to 15-16 pounds. These large lobsters are very strong and must be dragged out from the ledges. The diving time in 100 feet of water is around 25 minutes; a typical dive trip offshore results in a little over one-half hour total search time.

During the colder months lobsters are sluggish. The breeding season does not begin until July due to the colder water temperature, and divers have seen egg bearing lobsters in September and early October. Most recreational dives take place during the summer months.

The headboats have an incidental hook-and-line catch of 12-15 lobsters per year off North Carolina; the most caught in one day was three and most of the time the catch is one lobster per month. Most of these lobsters are in the 7-15 pound range. The lobsters are caught tangled in the line and sometimes actually hooked with the rod-and-reel gear. Most headboat fishing occurs May through November.

E. Status of the Stocks

The spiny lobster resource is not overfished but the exploitation rate is high. The abundance of lobsters north of Florida is unknown.

4.0 ENVIRONMENTAL CONSEQUENCES

A. Introduction

This section is divided into two major parts. The first part addresses management measures and alternatives considered by the Council. The second depicts the consequences of management. The regulatory impact review (RIR) analysis and information for analyses required by the Regulatory Flexibility Act are incorporated into the discussion under each of the proposed action items.

The Regulatory Impact Review (RIR) is part of the process of developing and reviewing fishery management plans and amendments and is prepared by the Regional Fishery Management Councils with assistance from the National Marine Fisheries Service, as necessary. The regulatory impact review provides a comprehensive review of the level and incidence of economic impact associated with the proposed regulatory actions. The purpose of the analysis is to ensure that the regulatory agency or Council systematically considers all available alternatives so that public welfare can be enhanced in the most efficient and cost effective way.

The regulatory impact review also serves as the basis for determining if the proposed regulations are major under 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). 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, to the extent possible.

Each Action is followed by four subheadings: Biological Impacts, Enforcement Impacts, Socioeconomic Impacts, and Conclusion. These are self explanatory with the first three presenting the impacts of each measure considered. The Council's rationale is presented under the heading "Conclusion".

B. Management Measures

ACTION 1. MODIFY THE RECREATIONAL SEASON AND BAG LIMITS

Allow the harvest of two lobsters per person per day for all fishermen all year long but only north of the Florida/Georgia border. This measure will be added to the framework procedure in the next amendment so that future potential changes to the limit would not require a plan amendment. The prohibition on retention of berried lobsters (lobsters with eggs) remains in effect and the reference to two lobsters per person per day above is in effect two lobsters per person per trip because the Councils have not made provision for multi-day limits in the spiny lobster fishery.

Biological Impacts

The importance of larvae spawned north of Florida to the U.S. fishery is unknown. There is scientific debate over the issue of recruitment with some scientists concluding that these lobster

larvae are lost to the fishery. That is, the larvae drift north and do not subsequently settle to grow as adult lobsters. There are other scientists who believe that these larvae may settle in Bermuda and may also survive to subsequently settle in the Caribbean and possibly Florida. The National Marine Fisheries Service, Southeast Fishery Science Center has certified that the Council has based this action on the best available scientific information, thereby recognizing that the issue of recruitment is unresolved.

The closed season provides protection to the stock by eliminating fishing mortality during the closed season which allows individual lobsters to grow and by protecting reproducing lobsters. The level of fishing mortality is much lower in states north of Florida which reduces the need to reduce fishing mortality with a closed season. Large increases in fishing mortality by allowing year round harvest are moderated by reducing the bag limit from six per person per day to two per person per day. The result should protect the spiny lobster resource north of Florida from large increases in fishing mortality.

Lobsters reproduce later in the year in states north of Florida which reduces the benefits of a closed season. Continuation of the prohibition on harvesting lobsters with eggs will provide sufficient protection of spawning lobsters.

Enforcement Impacts

The states north of Florida would have to adopt similar regulations to result in dockside enforcement. State regulations are shown in Table 1 in Section 1.0. South Carolina tracks federal regulations; changes to their season and possession limits will be made. Georgia is expected to modify their regulations and North Carolina is in the process of modifying their regulations.

Having the same regulations in state and federal waters will enhance voluntary compliance. Approval of the change in fishing season and possession limit will improve voluntary compliance given the support from fishermen and the fact that this request was initiated by fishermen. Treating all fishermen equally will simplify enforcement.

Law enforcement personnel have informed the Council that having a bag limit year round in states north of Florida will make enforcement of the closed season in Florida more difficult.

Socioeconomic Impacts

This action will only affect spiny lobster commercial and recreational fishermen in North Carolina, South Carolina and Georgia. There has been no report of commercial landings of spiny lobster in North Carolina. The latest report of spiny lobster commercial landings in South Carolina was in 1989 when 85 pounds were landed by divers. In Georgia, 33 pounds and 45 pounds were landed in 1991 and 1992 respectively (Harper, 1993). No lobstering trips were reported by households contacted in the states of Georgia and South Carolina during the 1991 MRFSS telephone

survey. However, an informal telephone survey of dive clubs and dive shops by NMFS during late March and early April 1993 indicates that at least some spiny lobster were harvested by recreational divers in these states (Schmied, 1993). Also, Schmied (1993) reports that over the last two years, general diver interest in targeting spiny lobster seems to be on the increase in North Carolina and Georgia.

Given the minimal quantity of spiny lobster production by fishermen in the states north of the Florida/Georgia border, the two lobsters per person per day for all fishermen all year long will have little or no effect on fishermen or on the status of the spiny lobster stock. In the long term, it will impose a limit on harvest if the level of effort should increase in the fishery. At the same time it will allow recreational fishermen north of Florida to catch spiny lobster during the months when the weather is favorable in their area. (Recreational fishermen north of Florida do not fish for spiny lobster during the winter months because of bad weather conditions.)

Conclusion

The Council concluded that the benefits resulting from allowing a controlled level of access to the spiny lobster resource for all fishermen north of Florida outweigh any potential negative impacts on recruitment to the fishery. The Council concluded that any contribution to the U.S. fishery resource, or any other fishery resource, is likely low if there is any contribution at all. In addition, the bag limit will provide a cap on potential recreational harvest thereby providing some biological protection. Also, the Council believes that harvest of two lobsters per trip north of Florida is equitable to six lobsters per trip in Florida with the established fishing season.

Adopting this measure increases the likelihood of the states north of Florida adopting similar measures and compatible state/federal regulations increase the effectiveness of enforcement. The Council concluded that the benefits resulting from this measure outweigh the negative law enforcement impacts identified from enforcing the closed season in northeast Florida.

The Council did not propose these changes for the fishery in Florida because: (1) the fishing mortality rate is much higher in Florida, (2) there is evidence of local recruitment in Florida whereby lobster larvae are retained and grow to adults, (3) such measures would result in incompatible state/federal regulations and (4) such measures would not be consistent with Florida's Coastal Zone Management program. Large, negative biological impacts to the resource would result, and would not outweigh short-term benefits to fishermen. Such measures would likely result in stock collapse.

This action addresses the two problems identified: (1) fair and equitable treatment of major user groups and (2) increasing recreational harvest. Also, this action is consistent with the objective of protecting long-run yields and preventing depletion of lobster stocks because the lower bag limit and limits on diving time (weather factors, water depth, distance from shore, etc.) provide sufficient biological protection. The Council will monitor the level of fishing in states north of Florida and if

fishing mortality increases such that additional measures are necessary, the regulations will be modified through a framework procedure. This action is also consistent with the objective of reducing user group and gear conflicts in the fishery by limiting all fishermen to two lobsters per person per day and by allowing year round harvest. The level of commercial harvest in states north of Florida is insignificant, thus impacts from this action are insignificant to commercial fishermen. This action will provide greater access to the resource by recreational fishermen without potential user group and gear conflicts now or in the future. This will in effect provide equity between the recreational fishermen in Florida and those north of Florida.

Rejected Options for Action 1

Rejected Option 1. No action.

Biological Impacts

The potential exists for recreational harvest to increase given the six lobster bag limit and the availability of lobsters north of Florida could be rapidly reduced.

Enforcement Impacts

This option would leave current regulations in place and would reduce voluntary compliance.

Socioeconomic Impacts

Taking no action would prevent recreational fishermen from retaining spiny lobsters when they appear in their catches. Testimonies at scoping meetings indicated that spiny lobsters do appear occasionally in the catches of these groups. Since the quantities of spiny lobsters that appear in these catches are minimal, their retention would not hurt the fishery. Thus, a no action option will diminish the utility obtained by recreational fishermen from their fishing activities.

Conclusion

The Council rejected taking no action because it would continue to limit access to fishermen north of Florida and would not address the problems identified.

Rejected Option 2. Allow the harvest of two lobsters per person per day for all fishermen all year long but only north of Cape Canaveral or some other boundary in the northeast Florida area. This measure would be added to the framework procedure so that future potential changes to the limit would not require a plan amendment.

Biological Impacts

See proposed action.

Enforcement Impacts

See proposed action. Including the northeast Florida area would result in incompatible state and federal regulations unless the State of Florida adopted similar regulations.

Socioeconomic Impacts

In addition to spiny lobster fishermen in the states of North Carolina, South Carolina and Georgia, fishermen in Florida whose spiny lobster activities are concentrated in the area north of Cape Canaveral will also be affected by this action. Harper (1993) indicates that the mean catch per trip by commercial fishermen between 1984 and 1992 was 182.2 pounds. Assuming that mean catch per trip in the area north of Cape Canaveral is identical to that of the State of Florida, that the mean weight of spiny lobster in this area is approximately 10 pounds and that three fishermen are onboard a lobster boat, the mean number of spiny lobsters caught per person per trip is estimated at 6. This action would reduce the mean catch per person per trip for commercial fishermen in the area north of Cape Canaveral by over 65 percent.

The MRFSS intercept survey of spiny lobster fishery in south Florida (August 6 through August 20, 1992) indicates that the mean catch per person per trip was 0.61 lobster (federal waters only). Thus, this action will not impose any restriction on the catches on recreational fishermen in the area north of Cape Canaveral.

Conclusion

Portions of this option are included in the proposed action. The Council rejected this option for the northeast Florida area because of the increased enforcement difficulty and because of the impact on commercial divers in the northeast Florida area.

Rejected Option 3. Allow recreational harvest of one lobster per person per day during the months of April, May, June and July (one or more of these months to be selected based on input from public hearings indicating which are important to the recreational dive and headboat industries) but only north of the Florida/Georgia border. The recreational bag limit would remain at six per person per day during the open season.

Biological Impacts

See proposed action.

Enforcement Impacts

See proposed action.

Socioeconomic Impacts

Currently, the State of Florida enforces a closed season for the spiny lobster fishery from April through August 5th. This action will limit the taking of spiny lobster north of Florida by recreational fishermen when the Florida closure is in effect. At the same time it will allow recreational fishermen north of Florida to catch spiny lobster during the months when the weather is favorable in their area. (Recreational fishermen north of Florida do not fish for spiny lobster during the winter months because of bad weather conditions.) However, the quantity of spiny lobster landed by recreational fishermen in Georgia, South Carolina and North Carolina is very minimal and this option would not impact their activities.

Conclusion

The Council rejected this option because it would not have provided sufficient access for fishermen north of Florida and because it would not have limited commercial harvest.

Rejected Option 4. Allow the recreational harvest of one lobster per person per day year-round north of the Florida/Georgia border.

Biological Impacts

See proposed action.

Enforcement Impacts

See proposed action.

Socioeconomic Impacts

This option will allow recreational fishermen north of the Florida/Georgia border to retain spiny lobster. However, both commercial and recreational fishermen indicated at scoping meetings that sometimes when they go out they would come up with two lobsters and at other times they would come up with none. Thus, they would like to retain the two lobsters whenever they are fortunate to catch them. Thus, restricting catch to one per person per trip will sometimes impact their activities negatively.

Conclusion

The Council rejected this option because it would not have provided sufficient access for fishermen north of Florida and because it would not have limited commercial harvest.

Rejected Option 5. Allow the harvest of one lobster per person (recreational and commercial) per day year-round north of the Florida/Georgia border and establish a framework procedure to modify the bag limit as data becomes available.

Biological Impacts

See proposed action.

Enforcement Impacts

See proposed action.

Socioeconomic Impacts

See discussion under Rejected Option 4.

Conclusion

The Council rejected this option because it would not have provided sufficient access for fishermen north of Florida.

Rejected Option 6. Consider the northeast Florida area (e.g., north of Cape Canaveral or some other boundary) for inclusion in these alternatives.

Biological Impacts

See proposed action.

Enforcement Impacts

See proposed action.

Socioeconomic Impacts

See discussion under Rejected Option 2. Fishermen in this area testified that such restrictions will impose severe hardship on them.

Conclusion

The Council did not include the northeast Florida area because of enforcement concerns and because of the potential impact on commercial divers.

Rejected Option 7. Consider some level of limit per boat per day.

Biological Impacts

See proposed action.

Enforcement Impacts

Trip limits can be enforced dockside and would require that all states adopt similar regulations.

Socioeconomic Impacts

The number of persons per boat varies according to the size of the boat. This is particularly true for the recreational fishery. Headboats in particular would need a separate allocation to make the measure equitable. There is not enough information at present to make this type of allocation.

Conclusion

The Council rejected trip limits in favor of a low bag limit per fisherman. Trip limits would not address the problems identified.

C. Unavoidable Adverse Effects

Without management, recreational fishing effort could increase and catches in the spiny lobster fishery north of Florida would decline. In the absence of additional management measures limiting fishing mortality rates, such declines would be expected to continue and could reach such low levels that the recreational spiny lobster fishery would no longer be feasible.

Implementation of the 2-lobster bag limit on all fishermen year round will have minimal impacts on fishermen. The bag limit will reduce commercial catches but catches in states north of Florida are minimal or non-existent.

D. Relationship of Short-term Uses and Long-term Productivity

Short-term uses will be impacted slightly. This level of reduction is necessary to ensure the long-term productivity of these important species. Without such reductions, the long-term yield would be jeopardized.

The Council weighed the short-term losses to fishermen against the long-term yield and stability of these species and concluded that the proposed actions would result in net benefits to society.

E. 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 action to reduce fishing mortality on these overfished species and to establish the other regulations, substantial reductions in catches and future net benefits would be expected.

F. 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 Appendix B in Spiny Lobster Amendment 2 (GMFMC and SAFMC, 1989). Appendix C contains information on the spiny lobster environment including Appendix B from Amendment 2.

The fishery, as presently prosecuted, does not substantially impact the live bottom habitat that is essential to the reef species under Council management. The Council will continue to monitor the fishery and if it becomes apparent that a particular gear or fishing practice results in habitat damage, action will be proposed through the framework procedures to mitigate or minimize damage.

Public Health and Safety

The proposed actions, and their alternatives, are not expected to have any substantial adverse impact on public health or safety. The Council's proposed bag limit year-round will allow fishermen to harvest during better weather conditions and will not have any substantial adverse risk 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 spiny lobster resource or any related stocks, including sea turtles.

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

The economic impacts are summarized below. The impacts are discussed in detail under each action/alternative earlier in Section 4.0 - see headings of Socioeconomic Impacts. The Council analyzed these impacts and determined that the resulting impacts will not have a significant economic impact under E.O. 12866.

ACTION	POSITIVE IMPACTS	NEGATIVE IMPACTS	NET IMPACTS
ACTION 1:BAG LIMITS	Positive for recreational fishermen north of Florida	None	Positive
REJECTED OPTION 1	None	Some negative impacts on recreational fishermen north of Florida	Negative
REJECTED OPTION 2	Positive for fishermen north of Florida	Negative impact for fishermen in north east Florida	Unknown
REJECTED OPTION 3	Some positive effect north of Florida	Would allow greater harvest	Unknown
REJECTED OPTION 4	None	Some negative impact	Negative
REJECTED OPTION 5	None	Some negative impact	Negative
REJECTED OPTION 6	Unknown	negative	Unknown
REJECTED OPTION 7	Unknown	Unknown	Unknown

H. Public and Private Costs

The 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. The costs associated with specific actions in this amendment are shown below:

Council costs of document preparation, meetings, public hearings and information dissemination	$10,000
NMFS administrative costs of document preparation, meetings and review	$2,500
Total	$12,500

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 plan is that of recreational spiny lobster fishermen and commercial spiny lobster fishermen. The impacts of the proposed action on these entities have been discussed under each action in Section 4.0. 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 the 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 action 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/Nonsignificant 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, 1991). For the 1993 fishing season, the most recent year for which data on numbers of commercial participants are available for all south Atlantic states, there were 830 individuals and corporations holding spiny lobster permits. 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. All 830 holders of spiny lobster permits readily fall within the definition of small business. Since the proposed action will directly and indirectly affect many of these permittees (impacts are expected to be minimal), 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%; b) increase in total costs of production by more than 5% as a result of an increase in compliance costs; c) compliance costs as a percent of sales for small entities are at least 10% 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% of small business entities being forced to cease business operations (NMFS, 1991).

The Council examined the following action and alternatives: (1) Spiny lobster bag limit of two per person per day year-round (page 12). Given that for the proposed action (a) any impact would be equivalent to much less than a 5% reduction in annual gross revenues, (b) any increase in

compliance costs would 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, the Council determined that the 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 (pages 1-5). Basically, this amendment addresses preventing overfishing of spiny lobster and increasing access to the resource by recreational fishermen in the states north of Florida.

Objectives and Legal Basis for the Rule

Refer to Section 1.0 (page 1) for the Management Objectives. Objectives addressed in this amendment are: (1) Protect long-run yields and prevent depletion of lobster stocks and (2) Reduce user group and gear conflicts in the fishery. The Magnuson Fishery Conservation and Management Act of 1976 as amended provides the legal basis for the rule.

Demographic Analysis

Refer to the original fishery management plan (GMFMC and SAFMC, 1982), Amendment 1 (GMFMC and SAFMC, 1987) and Section 3.0 (pages 8-11) of this amendment. Data on fishermen is very limited.

Cost Analysis

Refer to the summary of the impacts (Section 4.0, Subsections F and G; pages 19-20) and the summary of government costs (Section 4.0, Subsection H; page 20). The Council concluded that the benefits of the preferred alternatives outweigh the costs.

Competitive Effects Analysis

The industry is composed entirely of small businesses (harvesters and fish houses). 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 overlapping regulations with any state regulations or other Federal laws.

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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Dr. Theophilus R. Brainerd, Fishery Economist, South Atlantic Fishery Management Council
Wayne Swingle, Executive Director, Gulf of Mexico Fishery Management Council

The work of the Council's Scientific and Statistical Committee and Advisory Panel is recognized. Members are as follows:

Scientific and Statistical Committee
Dr. James Easley (Chairman), North Carolina State University
Dr. Robert G. Muller (Vice-Chairman), Florida Department of Environmental Protection
Dr. Charles M. Adams, University of Florida
Dr. Nelson Ehrhardt, RSMAS, University of Miami
Dr. Don Hayne, Retired
Frank "Stu" Kennedy, Florida Department of Environmental Protection
Dr. Linda Mercer, North Carolina Division Marine Resources
Dr. James C. Sabella, University of North Carolina
Dr. Suzanna Smith, University of Florida
Dr. James R. Waters, NMFS SEFSC, Beaufort Laboratory
David Whitaker South Carolina Wildlife & Marine Resources Department
Arnold "Spud" Woodward, Georgia Department of Natural Resources

Advisory Panel
Bill Mansfield, North Carolina
Jack Hill, Florida
Gary Nichols, II, Florida
Robert L. Rowe, Florida
Billy Sandefur, Florida

The 1992 and 1993 logbook program and final reports were extremely useful. Thanks are due many persons, including the fishermen completing the logbooks, the NMFS SERO for issuing permits, the NMFS SEFSC for issuing the logbooks and in particular Ken Harris and Alex Chester for their work in developing the 1992 and 1993 logbook reports.

The monitoring report prepared by Doug Harper of the NMFS Miami Lab was very useful in preparing this amendment.

6.0 LIST OF AGENCIES AND ORGANIZATIONS

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List of Agencies and Persons Consulted:
Atlantic Coast Conservation Association
Atlantic States Marine Fisheries Commission
SAFMC Law Enforcement Advisory Panel
SAFMC Snapper Grouper Advisory Panel
SAFMC Scientific and Statistical Committee
SAFMC Snapper Grouper Plan Development Team
North Carolina Coastal Zone Management Program
South Carolina Coastal Zone Management Program
Florida Coastal Zone Management Program
Florida Department of Natural Resources
Florida Marine Fisheries Commission
Georgia Department of Natural Resources
South Carolina Department of Natural Resources
Marine Fish Conservation Network
North Carolina Department of Environment, Health, and Natural Resources
National Marine Fisheries Service
- Southeast Region
- Southeast Center

United States Coast Guard
United States Environmental Protection Agency, Region IV
Center for Marine Conservation
Gulf of Mexico Fishery Management Councils
Florida League of Anglers
South Atlantic Fisheries Development Foundation
Marine Advisory Agents
National Coalition for Marine Conservation
North Carolina Fisheries Association, Inc.
Southeastern NC Waterman's Association
Organized Fishermen of Florida
Southeastern Fisheries Association
Sportfishing Institute

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 this amendment to the Spiny Lobster Fishery Management Plan. 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 the spiny lobster fishery.

This determination has been submitted to the responsible state agencies for their review (Appendix E). The Office of Ocean and Coastal Resource Management (South Carolina) certified that Amendment 4 is consistent with South Carolina's Coastal Zone Management Program to the maximum extent practicable. The Florida State Clearinghouse and the Department of Environmental

Protection determined that Amendment 4 is consistent with the Florida Coastal Management Program. No response was received from the State of North Carolina.

C. ENDANGERED SPECIES AND MARINE MAMMAL ACTS

The following information summarizes the Section 7 consultation process under the Endangered Species Act on this biological assessment of the spiny lobster fishery of the Gulf of Mexico and South Atlantic Region and the proposed management measures contained in Amendment 4 to the Fishery Management Plan for the Spiny Lobster Fishery of the Gulf of Mexico and South Atlantic Region. (Source: Memorandum from Georgia Cranmore to Chuck Oravetz dated March 16, 1993)

1.0 Spiny Lobster Fishery of the Gulf of Mexico and South Atlantic

1.1 Description of the Fishery

The fishery management unit includes the spiny lobster (***Panulirus argus***) and the slipper (Spanish) lobster (*Scyllarides nodifer*) in the coastal waters and the exclusive economic zone (EEZ) of the U.S. Gulf of Mexico and South Atlantic from the Texas/Mexico border to the Virginia/North Carolina border. Commercial and recreational fisheries for spiny lobster are limited primarily to southeastern Florida and the Florida Keys. Slipper lobster are taken incidentally by shrimp trawls in the EEZ off west Florida and the Florida Panhandle.

Most spiny lobster are landed in Monroe County. Traps made of wood slats and wire mesh are the principle gear in the commercial fishery. Lobster are also taken by hand by recreational and commercial divers. Trawls are not allowed in the directed fishery. Most divers use SCUBA in the channels under the Overseas Highway and in other shallow habitats between the Florida Keys and the offshore reef tract. Significant commercial diving occurs in Florida Bay south of the Everglades National Park and into the Gulf of Mexico. A small amount of recreational catch is taken with lights and bully nets at night on shallow flats and bays.

Little fishing effort for spiny lobster occurs north of Monroe County on the west coast of Florida. The majority of lobsters caught outside Monroe County come from the east coast, off Dade and Broward Counties. Commercial harvest by diving is not common in Dade County. Commercial trapping is sharply curtailed north of Broward County. Limited diving effort, primarily recreational, occurs as far north as the West Palm Beach area.

The commercial and recreational fishing season in the EEZ begins on August 6 and ends on March 31. Currently, a 2-day special recreational season is scheduled for the last full weekend in July. Landings ranged from 4.5 million pounds (MP) in 1983 to 7.8 MP in 1989. The number of traps used in the fishery increased from 74,000 in 1960 to 675,000 in 1984 and a trap reduction

program is currently underway in Florida. The current estimate of the number of traps in use is 650,000-850,000 (1991). In 1989, the average number of traps per vessel was 1,368.

Productivity in terms of pounds landed per trap per year has remained relatively stable during the 1980s, but pounds per vessel increased due to an increase in the number of traps fished per vessel. The commercial sector is estimated at about 1,300 individuals. Monroe County and the Miami area accounted for about 75% of the commercial license holders and 75% of the lobster landings.

The fishery has a large recreational component, which accounts for about 41% of total landings during the first month of the 1991-92 regular season and about 29% of the 1990-91 total commercial harvest. The 1991 harvest of lobsters during the 2-day special season was an estimated 403,000 lobsters (about 435,240 lbs). The Florida Keys accounted for 78% (315,795 lobsters) A smaller but significant recreational harvest occurred along the Florida east coast (82,930 or 21%). Catch rates (lobsters caught per day) in the Florida Keys were more than twice those of other areas in Florida.

According to a 1991 mail survey of recreational lobster fishermen conduced by Florida Department of Natural Resources, the size of groups diving for lobsters during the 2-day season averages 4.1 (Palm Beach to the Florida Keys), but the catch rate per group (measured as lobsters caught per day) was 19.6 in the Florida Keys and only 9.8 on the southeast coast of Florida. Thus, each fisherman averages 4.8 lobsters per day during the 2-day season in the Keys, and 2.4 lobsters per day outside the Keys. It appears that the 6-lobster bag limit is not affecting catch rates in either area. A proposed increase to a 12-lobster bag limit in the Florida EEZ outside Monroe County is not expected to increase catch rates overall but may redistribute effort away from the Florida Keys.

1.2 Interactions with Endangered Species

The habitats of five species of threatened or endangered sea turtles are known to overlap with the habitat of the spiny lobster in the U.S. South Atlantic and the Gulf of Mexico: Kemp's ridley (*Lepidochelys kempii*), loggerhead (*Caretta caretta*), green (*Chelonia mydas*), hawksbill (*Eretmochelys imbricata*), and leatherback (*Dermochelys coriacea*).

Loggerhead turtles eat spiny lobsters and are known to damage spiny lobster traps. Florida Keys fishermen claim that they must reinforce their traps with wire mesh to prevent turtle damage. This attraction to the traps could result in sea turtle entanglement in buoys or trap lines. Anecdotal information indicates that there is some unknown level of sea turtle mortality associated with entanglement in lobster trap lines. (Some species of marine mammals are known to entangle in lobster pot lines in Maine fisheries.) Recreational and commercial fishermen who dive for lobsters are not known to have any significant conflict or interaction with sea turtles.

No directed trawl fishery for spiny or slipper lobster is allowed; however, trawlers take lobsters incidental to shrimp operations. There is a catch limit of 5% by weight of all fish aboard for this incidental harvest. The potential for incidental takes of endangered and threatened sea turtles in the shrimp fishery is the subject of Section 7 consultations on the FMPs for the shrimp fisheries of the Gulf of Mexico and the South Atlantic.

Increased boating activities associated with trap and dive fisheries for spiny lobster in shallow habitats, especially surrounding the Florida Keys, could increase the risk of vessel collisions with sea turtles (and marine mammals). Water pollution associated with the operation or storage of lobster vessels, including the large number of recreational vessels that assemble for the sport season in the Florida Keys, could adversely impact sea turtle (and marine mammals). The extent to which vessel activities associated with this fishery affect endangered and threatened sea turtles and their impact on the status of these populations is presently unknown.

1.3 Federal and State Regulatory Jurisdictions

Spiny lobster are managed under Federal regulations (50 CFR Part 640) and under regulations of the Florida Marine Fisheries Commission (Chapter 46-24, F.A.C.). Other states, from North Carolina through Texas in the southeastern U.S., have no appreciable commercial or recreational landings and no state regulations on spiny lobster. The Federal EEZ extends from 3 to 200 nautical miles in the U.S. South Atlantic and the Gulf of Mexico, except for Florida (and Texas) where state waters on the Gulf coast extend out to 9 nautical miles. (Note: States in the South Atlantic do have lobster regulations; see Table 1 in Section 1.0.)

1.4 Proposed Amendment 4

Amendment 4 will allow the harvest of two lobsters per person per day for all fishermen all year long but only north of the Florida/Georgia border. This measures is proposed to provide increased access to the spiny lobster resource by recreational fishermen north of Florida.

1.5 Previous Section 7 Consultations

All previous consultations on this FMP and its amendments have concluded that management actions are not likely to jeopardize the continued existence of threatened or endangered sea turtles or marine mammals, or result in the destruction, or adverse modification, of habitat that may be critical to these species. Section 7 consultations were held on the FMP (1980; 1989), on Plan Amendment 2 (1989) and 3 (1990), and on Regulatory Amendment 1 (1992) and 2 (1993).

1.6 Conclusion

Insofar as we can determine, neither the directed fisheries nor the proposed Amendment 4 for spiny lobster will adversely affect the recovery of endangered or threatened species, or their critical habitat.

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 additional permit or data collection programs within this amendment.

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 (FONSI)

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 is an adjustment of the original regulations of the fishery management plan to provide greater access by recreational fishermen while protecting the spiny lobster resource from depletion. The proposed action should not result in impacts significantly different in context or intensity from those described in the Environmental Impact Statement (EIS) published with the initial regulations implementing the approved fishery management plan. The preparation of a formal Supplemental Environmental Impact Statement (SEIS) is not required for this amendment by Section 102(2)(c)(c) of the National Environmental Policy Act or its implementation regulations.

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 fishery management plan, and lessen the environmental impacts of the fishery. Overall, the benefits to the nation resulting from implementation of this amendment are greater than management costs.

Finding of No Significant Environmental Impact (FONSI)

The Council's preferred action is to provide greater access to recreational fishermen with a year-round bag limit for all fishermen north of Florida. 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. Impacts of these actions are relative to the individuals that will be required to forego catches in the short-term and to the individuals, and society, in the long-term, because higher and more stable catches will be maintained. 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 action. The impacts are described for each action in Section 4.0 (See Section 4.0, Items G. Summary of Impacts and I. Effects on Small Businesses) and summarized in Section 2.0. Overall, adverse impacts of the bag limit are expected to be minor. Beneficial impacts are unquantifiable but preventing overfishing will ensure the long-term economic viability of the recreational and commercial fisheries.

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. Appendix B in Spiny Lobster Amendment 2 (GMFMC and SAFMC, 1989) contains information on habitat concerns. The Council's positions on a number of habitat

related issues are presented in that appendix. The Council evaluated the effects of the fishery on the environment (Section 4.0, Item F) and concluded that the fishery, as presently prosecuted, does not significantly impact the live bottom habitat that is essential to spiny lobster under Council management.

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 that are open to the public, by providing copies of the amendment to the list of agencies and organizations listed in Section 6.0, through meetings with the spiny lobster advisory panel, by holding 4 scoping meetings, through 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 well address 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. If the proposed actions were not implemented there would be a high level of uncertainty as to the future status of the species being managed.

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 impacts that could have a substantial effect on the spiny lobster resource or any related stocks, including sea turtles. (See Section 4.0, Item G. Summary of Impacts and I. Effects on Small Businesses).

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 significant scientific, cultural, or historical resources.

Endangered/Threatened Impacts

The proposed actions are not expected to adversely affect any endangered or threatened species or marine mammal population. (See Section 7, Item C. Endangered Species and Marine Mammal Acts.) A Section 7 consultation was conducted with the NMFS Southeast Regional Office. A biological assessment was prepared which concluded that the proposed actions will not adversely affect any threatened or endangered species or marine mammals.

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 protect the habitat supporting the spiny lobster resource. These positions are contained in Appendix B. Habitat Concerns in Spiny Lobster Amendment 2 (GMFMC and SAFMC, 1989).

Additional points analyzed by the Council in determining that a SEIS was not necessary are presented below. The Council will be preparing a SEIS as a part of the next amendment to the spiny lobster fishery management plan.

Effects of the Fishery on the Environment

Appendix B (Spiny Lobster Amendment 2; GMFMC and SAFMC, 1989) contains information on habitat concerns. The Council's positions on a number of habitat related issues are presented in Appendix B. The Council evaluated the effects of the fishery on the environment (Section 4.0, Item F) and concluded that the fishery, as presently prosecuted, does not significantly impact the live bottom habitat that is essential to the spiny lobster resource under Council management.

Bycatch

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

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

8.0 REFERENCES

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GMFMC and SAFMC. 1987. Amendment Number 1 to Spiny Lobster Fishery Management Plan for the Gulf of Mexico and South Atlantic Including Environmental Assessment, Supplemental Regulatory Impact Review, and Initial Regulatory Flexibility Analysis. Gulf of Mexico Fishery Management Council, Lincoln Center, Suite 331, 5401 West Kennedy Blvd., Tampa, Florida, 33609-2486. South Atlantic Fishery Management Council, 1 Southpark Circle, Suite 306, Charleston, South Carolina, 29407-4699. February 1987.

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9.0 APPENDIXES

APPENDIX A. Alternatives Eliminated from Detailed Consideration

Introduction

Throughout development of Amendment 4, the Council considered a range of possible alternatives to address the problems in the spiny lobster fishery. The Council decided to eliminate the following item from detailed consideration because the necessary action will be implemented as a technical amendment. This information is included to provide a record of the Council's deliberations during development of Amendment 4.

ACTION 1. HEADBOAT INCIDENTAL CATCH

Provide an exemption for the incidental catch of spiny lobsters by headboat hook and line vessels and limit them to five lobsters per headboat per day. This measure is to apply throughout the entire South Atlantic Council's area of jurisdiction; however, off Florida it would only apply during the open season. This exemption only applies to headboats on which hook-and-line is the only gear employed. Headboat means a vessel that holds a valid Certificate of Inspection issued by the Coast Guard to carry passengers for hire; a headboat is considered to be operating as a headboat when it carries a passenger who pays a fee or when there are more persons aboard than the number of crew specified in the vessel's Certificate of Inspection.

Biological Impacts

The importance of larvae spawned north of Florida to the U.S. fishery is unknown. There is scientific debate over the issue of recruitment with some scientists concluding that these lobster larvae are lost to the fishery. That is, the larvae drift north and do not subsequently settle to grow as adult lobsters. There are other scientists who believe that these larvae may settle in Bermuda and may also survive to subsequently settle in the Caribbean and possibly Florida.

The level of mortality from this exemption is expected to be low and inconsequential to the status of spiny lobster.

Enforcement Impacts

The states would have to adopt similar regulations so that enforcement could be accomplished dockside.

Socioeconomic Impacts

Testimony by Capt. Drake at scoping meeting in Atlantic Beach, North Carolina (November, 1993) indicated that recreational fishermen on headboats do have incidental catches of spiny lobster. This averages about 12 to 15 per year on his boat. The most that has been caught in one trip was three and usually it averages about one lobster per month. This action will enable these fishermen to retain incidental catches of lobster and hence add to the benefits from their fishing experience.

Because of the low level of incidental catches, this action is not expected to have any adverse affect on the stock.

Conclusion

The Council concluded that the benefits from allowing retention of the rare catch of a spiny lobster on hook-and-line headboats outweigh any increased enforcement costs and will not result in any significant fishing mortality. This measure will be addressed through a technical amendment.

Rejected Options for Action 1

Rejected Option 1. No action.

Biological Impacts

This option would not allow retention of the rare catch of spiny lobsters on headboats and would release any such lobsters to be caught again.

Enforcement Impacts

Prohibiting retention of the rare catch by hook-and-line headboat fishermen would reduce voluntary compliance.

Socioeconomic Impacts

The no action option will prevent recreational fishermen from retaining spiny lobster in their incidental catches. This will decrease the welfare obtained from their fishing experience while not providing any significant benefit to the stock.

Conclusion

The Council rejected taking no action because it would not provide hook-and-line headboat fishermen access to the spiny lobster resource.

Rejected Option 2. Provide an exemption for the incidental catch of spiny lobsters by headboat hook and line vessels and limit them to five lobsters per headboat per day. This measure is to apply only north of the Florida/Georgia border.

Biological Impacts

See proposed action.

Enforcement Impacts

See proposed action.

Socioeconomic Impacts

See discussion under Action 2. This option would not affect headboat hook and line vessels in Florida. They will be able to operate under the two spiny lobsters per person per trip.

Conclusion

The Council rejected limiting the exemption to fishermen north of Florida because it would not provide access to the resource by fishermen off Florida.

Rejected Option 3. Provide an exemption for the incidental catch of spiny lobsters by recreational and headboat hook and line vessels and limit them to five lobsters per headboat per day. This measure is to apply throughout the entire South Atlantic Council's area of jurisdiction or only north of the Florida/Georgia border.

Biological Impacts

See proposed action.

Enforcement Impacts

See proposed action.

Socioeconomic Impacts

See discussions under Action 2 and Rejected Option 2.

Conclusion

The Council rejected this option because recreational fishermen have not indicated that this is a problem and because an exemption for recreational fishermen could have resulted in a larger harvest.

Rejected Option 4. Provide an exemption for the incidental catch of spiny lobsters by all recreational vessels regardless of gear used and limit them to five lobsters per headboat per day. This measure is to apply throughout the entire South Atlantic Council's area of jurisdiction or only north of the Florida/Georgia border.

Biological Impacts

See proposed action.

Enforcement Impacts

Implementation of this option would have resulted in higher enforcement costs in order to prevent fishermen using hand held hooks to harvest lobsters illegally and then saying that they were caught on hook and line gear.

Socioeconomic Impacts

This option will encourage some headboat fishermen to direct effort on spiny lobster. This could have adverse effect on the stock. The magnitude of the impact cannot be determined because of lack of data.

Conclusion

The Council concluded that the proposed action provides sufficient access at this time and rejected this option in favor of the proposed action.

APPENDIX B. Public Hearing Comments

The following information represents the public comments received during the Magnuson Act public hearing process including NEPA input. The Councils held seven public hearings: Savannah, Georgia on September 19, 1994; St. Augustine, Florida on September 20, 1994; Cocoa Beach, Florida on September 21, 1994; Palm Beach, Florida on September 22, 1994; Marathon, Florida on September 23, 1994; Charleston, South Carolina on October 6, 1994; and Wrightsville Beach, North Carolina on October 25, 1994.

In addition, the Councils held four scoping meetings: Atlantic Beach, North Carolina on November 3, 1993; St. Augustine, Florida on February 7, 1994; Brunswick, Georgia on April 20, 1994; and Duck Key (Marathon), Florida on June 20, 1994. Limited copies of the scoping meeting information are available from the South Atlantic Council.

All comment applicable to the proposed action have been incorporated and/or addressed in the final Amendment 4 document.

SOUTH ATLANTIC FISHERY MANAGEMENT COUNCIL

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John D. Brownlee, Chairman
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SPINY LOBSTER FMP AMENDMENT 4

PUBLIC COMMENTS FROM THE MAGNUSON ACT PUBLIC HEARING PROCESS INCLUDING NEPA INPUT

I. PUBLIC HEARING DOCUMENT
II. MINUTES FROM PUBLIC HEARINGS
III. LETTERS FROM INDIVIDUALS
IV. LETTERS FROM ORGANIZATIONS

OCTOBER 1994

NOTE: This material is provided by the SAFMC to facilitate the Magnuson and NEPA review processes. Limited additional copies are available from the Council. This is a publication of the South Atlantic Fishery Management Council pursuant to National Oceanic and Atmospheric Administration Award No. NA47FC0006

I. PUBLIC HEARING DOCUMENT

PUBLIC HEARING SUMMARY

AMENDMENT 4 TO THE FISHERY MANAGEMENT PLAN FOR SPINY LOBSTER IN THE GULF OF MEXICO AND SOUTH ATLANTIC

The following hearings to solicit input will be held beginning at 7 pm:

1. Monday, September 19: Holiday Inn Midtown on 7100 Abercorn St. in Savannah, GA
2. Tuesday, September 20: Ponce de Leon Golf and Resort on 4000 U.S. 1 North in St. Augustine, FL
3. Wednesday, September 21: Holiday Inn on 1300 N. Atlantic Ave. in Cocoa Beach, FL
4. Thursday, September 22: Brazilian Court on 301 Australian Ave. in Palm Beach, FL
5. Friday, September 23: Banana Bay on 4590 Overseas Highway in Marathon, FL
6. Thursday, October 6: Town and Country Inn on 2008 Savannah Highway in Charleston, SC

Written comments must be received in the Council office (address shown below) by October 11, 1994. (This summary is from the Amendment document. A complete copy of the amendment is available from the Council office.)

SEPTEMBER 1994

South Atlantic Fishery Management Council
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A publication of the South Atlantic and Gulf of Mexico Fishery Management Councils pursuant to National Oceanic and Atmospheric Administration Award Numbers NA47FC0006 and NA 47FC0005

4.0 ENVIRONMENTAL CONSEQUENCES

A. Introduction

This section is divided into two major parts. The first part addresses management measures and alternatives considered by the Council. The second depicts the consequences of management. The regulatory impact review (RIR) analysis and information for analyses required by the Regulatory Flexibility Act are incorporated into the discussion under each of the proposed action items.

The Regulatory Impact Review (RIR) is part of the process of developing and reviewing fishery management plans and amendments and is prepared by the Regional Fishery Management Councils with assistance from the National Marine Fisheries Service, as necessary. The regulatory impact review provides a comprehensive review of the level and incidence of economic impact associated with the proposed regulatory actions. The purpose of the analysis is to ensure that the regulatory agency or Council systematically considers all available alternatives so that public welfare can be enhanced in the most efficient and cost effective way.

The regulatory impact review also serves as the basis for determining if the proposed regulations are major under 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). 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, to the extent possible.

Each Action is followed by four subheadings: Biological Impacts, Enforcement Impacts, Socioeconomic Impacts, and Conclusion. These are self explanatory with the first three presenting the impacts of each measure considered. The Council's rationale is presented under the heading "Conclusion".

B. Management Measures

ACTION 1. MODIFY THE RECREATIONAL SEASON AND BAG LIMITS

Allow the harvest of two lobsters per person per day for all fishermen all year long but only north of the Florida/Georgia border. This measure would be added to the framework procedure so that future potential changes to the limit would not require a plan amendment.

Biological Impacts

The importance of larvae spawned north of Florida to the U.S. fishery is unknown. There is scientific debate over the issue of recruitment with some scientists concluding that these lobster larvae are lost to the fishery. That is, the larvae drift north and do not subsequently settle to grow as adult lobsters. There are other scientists who believe that these larvae may settle in Bermuda and may also survive to sebsequently settle in the Caribbean and possibly Florida.

Enforcement Impacts

The States north of Florida would have to adopt similar regulations to result in dockside enforcement. Having the same regulations in state and federal waters will enhance voluntary compliance. Treating all fishermen equally will simplify enforcement.

Socioeconomic Impacts

This action will only affect spiny lobster commercial and recreational fishermen in North Carolina, South Carolina and Georgia. There has been no report of commercial landings of spiny lobster in North Carolina. The latest report of spiny lobster landings in South Carolina was in 1989 when 85 pounds were landed by divers. In Georgia, 33 pounds and 45 pounds were landed in 1991 and 1992 respectively (Harper, 1993). No lobstering trips were reported by households contacted in the states of Georgia and South Carolina during the 1991 MRFSS telephone survey. However, an informal telephone survey of dive clubs and dive shops by NMFS during late March and early April 1993 indicates that at least some spiny lobster were harvested by recreational divers in these states (Schmied, 1993). Also, Schmied (1993) reports that over the last two years, general diver interest in targeting spiny lobster seems to be on the increase in North Carolina and Georgia.

Given the minimal quantity of spiny lobster production by fishermen in the states north of the Florida Georgia border, the two lobsters per person per day for all fishermen all year long will have little or no effect on fishermen or on the status of the spiny lobster stock. In the long term, it will impose a limit on harvest if the level of effort should increase in the fishery.

Conclusion

The Council concluded that the benefits resulting from allowing a controlled level of access to the spiny lobster resource for all fishermen north of Florida outweigh any negative impacts on recruitment to the fishery. The Council concluded that any contribution to the U.S. fishery, or any other fishery, is likely low if there is any contribution at all. Adopting this measure increases the likelihood of the States north of Florida adopting similar measures and compatible state/federal regulations increase the effectiveness of enforcement. In addition, the bag limit will provide a cap on potential recreational harvest thereby providing some biological protection.

Rejected Options for Action 1

Rejected Option 1. No action.

Biological Impacts

The potential exists for recreational harvest to increase given the six lobster bag limit and the availability of lobsters north of Florida could be rapidly reduced.

Enforcement Impacts

This option would leave current regulations in place and would reduce voluntary compliance.

Socioeconomic Impacts

Taking no action would prevent recreational and headboat fishermen from retaining spiny lobsters when they appear in their catches. Testimonies at scoping meetings indicated that spiny lobsters do appear occasionally in the catches of these groups. Since the quantities of spiny lobsters that appear in these catches are minimal, their retention would not hurt the fishery. Thus, a no action option will diminish the utility obtained by recreational fishermen from their fishing activities and the pleasure of having spiny lobsters in their priced collections.

Conclusion

The Council rejected taking no action because it would continue to limit access to fishermen north of Florida.

Rejected Option 2. Allow the harvest of two lobsters per person per day for all fishermen all year long but only north of Cape Canaveral or some other boundary in the northeast Florida area. This measure would be added to the framework procedure so that future potential changes to the limit would not require a plan amendment.

Biological Impacts

See proposed action.

Enforcement Impacts

See proposed action. Including the northeast Florida area would result in incompatible State and Federal regulations unless the State of Florida adopted similar regulations.

Socioeconomic Impacts

In addition to spiny lobster fishermen in the states of North Carolina, South Carolina and Georgia, fishermen in Florida whose spiny lobster activities are concentrated in the area north of Cape Canaveral will also be affected by this action. Harper (1993) indicates that the mean catch per trip by commercial fishermen between 1984 and 1992 was 182.2 pounds. Assuming that mean catch per trip in the area north of Cape Canaveral is identical to that of the state of Florida, that the mean weight of spiny lobster in this area is approximately 10 pounds and that three fishermen are onboard a lobster boat, the mean number of spiny lobsters caught per person per trip is estimated at 6. This action would reduce the mean catch per person per trip for commercial fishermen in the area north of Cape Canaveral by over 65 percent.

The MRFSS intercept survey of spiny lobster fishery in south Florida (August 6 through August 20, 1992) indicates that the mean catch per person per trip was 0.61 lobster (federal waters only). Thus, this action will not impose any restriction on the catches on recreational fishermen in the area north of Cape Canaveral.

Conclusion

Portions of this option are included in the proposed action. The Council rejected this option for the northeast Florida area because of the increased enforcement difficulty and because of the impact on commercial divers in the northeast Florida area.

Rejected Option 3. Allow recreational harvest of one lobster per person per day during the months of April, May, June and July (one or more of these months to be selected based on input from public hearings indicating which are important to the recreational dive and headboat industries) but only north of the Florida Georgia border. The recreational bag limit would remain at six per person per day during the open season.

Biological Impacts

See proposed action.

Enforcement Impacts

See proposed action.

Socioeconomic Impacts

Currently, the state of Florida enforces a closed season for the spiny lobster fishery from April through July. This action will limit the taking of spiny lobster north of florida by recreational fishermen when the Florida closure is in effect. At the same time it will allow recreational fishermen north of Florida to catch spiny lobster during the months when the weather is favorable in their area. (Recreational fishermen north of Florida do not fish for spiny lobster during the winter months because of bad weather conditions.) However, the quantity of spiny lobster landed by recreational fishermen in Georgia, South Carolina and North Carolina is very minimal and this option would not impact their activities.

Conclusion

The Council rejected this option because it would not have provided sufficient access for fishermen north of Florida and because it would not have limited commercial harvest.

Rejected Option 4. Allow the recreational harvest of one lobster per person per day year-round north of the Florida/Georgia border.

Biological Impacts

See proposed action.

Enforcement Impacts

See proposed action.

Socioeconomic Impacts

This option will allow recreational fishermen north of the Florida/Georgia border to retain spiny lobster. However, both commercial and recreational fishermen indicated at scoping meetings that some times when they go out they would come up with two lobsters and at other times they would come up with none. Thus, they would like to retain the two lobsters whenever they are

fortunate to catch them. Thus, restricting catch to one per person per trip will some times impact their activities negatively.

Conclusion

The Council rejected this option because it would not have provided sufficient access for fishermen north of Florida and because it would not have limited commercial harvest.

Rejected Option 5. Allow the harvest of one lobster per person (recreational and commercial) per day year-round north of the Florida/Georgia border and establish a framework procedure to modify the bag limit as data becomes available.

Biological Impacts

See proposed action.

Enforcement Impacts

See proposed action.

Socioeconomic Impacts

See discussion under Rejected Option 4.

Conclusion

The Council rejected this option because it would not have provided sufficient access for fishermen north of Florida.

Rejected Option 6. Consider the northeast Florida area (e.g., north of Cape Canaveral or some other boundary) for inclusion in these alternatives.

Biological Impacts

See proposed action.

Enforcement Impacts

See proposed action.

Socioeconomic Impacts

See discussion under Rejected Option 2. Fishermen in this area testified that such restrictions will impose severe hardship on them.

Conclusion

The Council did not include the northeast Florida area because of enforcement concerns and because of the potential impact on commercial divers.

Rejected Option 7. Consider some level of limit per boat per day.

Biological Impacts

See proposed action.

Enforcement Impacts

Trip limits can be enforced dockside and would require that all states adopt similar regulations.

Socioeconomic Impacts

The number of persons per boat varies according to the size of the boat. This is particularly true for the recreational fishery. Headboats in particular will need separate allocation to make the measure equitable. There is not enough information at present to make this type of allocation.

Conclusion

The Council rejected trip limits in favor of a low bag limit per fisherman.

ACTION 2. HEADBOAT INCIDENTAL CATCH

Provide an exemption for the incidental catch of spiny lobsters by headboat hook and line vessels and limit them to five lobsters per headboat per day. This measure is to apply throughout the entire South Atlantic Council's area of jurisdiction.

Biological Impacts

The importance of larvae spawned north of Florida to the U.S. fishery is unknown. There is scientific debate over the issue of recruitment with some scientists concluding that these lobster larvae are lost to the fishery. That is, the larvae drift north and do not subsequently settle to grow as adult lobsters. There are other scientists who believe that these larvae may settle in Bermuda and may also survive to sebsequently settle in the Caribbean and possibly Florida.

The level of mortality from this exemption is expected to be low and inconsequential to the status of spiny lobster.

Enforcement Impacts

The states will have to adopt similar regulations so that enforcement could be accomplished dockside.

Socioeconomic Impacts

Testimony by Capt. Drake at scoping meeting in Atlanti Beach, North Carolina (November, 1993) indicated that recreational fishermen on headboats do have incidental catches of spiny lobster. This averages about 12 to 15 per year on his boat. The most that has been caught in one trip was three and usually it averages about one lobster per month. This action will enable these fishermen to retain incidental catches of lobster and hence add to the benefits from their fishing experience. Because of the low level of incidental catches, this action is not expected to have any adverse affect on the stock.

Conclusion

The Council concluded that the benefits from allowing retention of the rare catch of a spiny lobster on hook-and-line headboats outweigh any increased enforcement costs and will not result in any significant fishing mortality.

Rejected Options for Action 2

Rejected Option 1. No action.

Biological Impacts

This option would not allow retention of the rare catch of spiny lobsters on headboats and would release any such lobsters to be caught again.

Enforcement Impacts

Prohibiting retention of the rare catch by hook-and-line headboat fishermen would reduce voluntary compliance.

Socioeconomic Impacts

The no action option will prevent recreational fishermen from retaining spiny lobster in their incidental catches. This will decrease the welfare obtained from their fishing experience while not providing any significant benefit to the stock.

Conclusion

The Council rejected taking no action because it would not provide hook-and-line headboat fishermen access to the spiny lobster resource.

Rejected Option 2. Provide an exemption for the incidental catch of spiny lobsters by headboat hook and line vessels and limit them to five lobsters per headboat per day. This measure is to apply only north of the Florida/Georgia border.

Biological Impacts

See proposed action.

Enforcement Impacts

See proposed action.

Socioeconomic Impacts

See discussion under Action 2. This option would not affect headboat hook and line vessels in Florida. They will be able to operate under the two spiny lobsters per person per trip.

Conclusion

The Council rejected limiting the exemption to fishermen north of Florida because it would not provide access to the resource by fishermen off Florida.

Rejected Option 3. Provide an exemption for the incidental catch of spiny lobsters by recreational and headboat hook and line vessels and limit them to five lobsters per headboat per day. This measure is to apply throughout the entire South Atlantic Council's area of jurisdiction or only north of the Florida/Georgia border.

Biological Impacts

See proposed action.

Enforcement Impacts

See proposed action.

Socioeconomic Impacts

See discussions under Action 2 and Rejected Option 2.

Conclusion

The Council rejected this option because recreational fishermen have not indicated that this is a problem and because an exemption for recreational fishermen could have resulted in a larger harvest.

Rejected Option 4. Provide an exemption for the incidental catch of spiny lobsters by all recreational vessels regardless of gear used and limit them to five lobsters per headboat per day. This measure is to apply throughout the entire South Atlantic Council's area of jurisdiction or only north of the Florida/Georgia border.

Biological Impacts

See proposed action.

Enforcement Impacts

Implementation of this option would have resulted in higher enforcement costs in order to prevent fishermen using hand held hooks to harvest lobsters illegally and then saying that they were caught on hook and line gear.

Socioeconomic Impacts

This option will encourage some headboat fishermen to direct effort on spiny lobster. This could have adverse effect on the stock. The magnitude of the impact cannot be determined because of lack of data.

Conclusion

The Council concluded that the proposed action provides sufficient access at this time and rejected this option in favor of the proposed action.

C. Unavoidable Adverse Effects

Without management, recreational fishing effort would increase and catches in the spiny lobster fishery north of Florida would decline. In the absence of additional management measures limiting fishing mortality rates, such declines would be expected to continue and could reach such low levels that the recreational spiny lobster fishery would no longer be feasible.

Implementation of the bag limit on all fishermen and the exemption for hook and line headboats will have minimal impacts on fishermen. The bag limit will reduce commercial catches.

D. Relationship of Short-term Uses and Long-term Productivity

Short-term uses will be impacted slightly. This level of reduction is necessary to ensure the long-term productivity of these important species. Without such reductions, the long-term yield would be jeopardized.

The Council weighed the short-term losses to fishermen against the long-term yield and stability of these species and concluded that the proposed actions would result in net benefits to society.

E. 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 action to reduce fishing mortality on these overfished species and to establish the other regulations, substantial reductions in catches and future net benefits would be expected.

F. 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 Appendix B in Spiny Lobster Amendment 2.

The fishery, as presently prosecuted, does not substantially impact the live bottom habitat that is essential to the reef species under Council management. The Council will continue to monitor the fishery and if it becomes apparent that a particular gear or fishing practice results in habitat damage, action will be proposed through the framework procedures to mitigate or minimize damage.

Public Health and Safety

The proposed actions, and their alternatives, are not expected to have any substantial adverse impact on public health or safety. The Council's proposed bag limit year-round will allow fishermen to harvest during better weather condictions and will not have any substantial adverse risk 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 spiny lobster resource or any related stocks, including sea turtles.

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

ACTION	POSITIVE IMPACTS	NEGATIVE IMPACTS	NET IMPACTS
ACTION 1:BAG LIMITS	Positive for recreational fishermen north of Florida	None	Positive
REJECTED OPTION 1	None	Some negative impacts on recreational fishermen north of Florida	Negative
REJECTED OPTION 2	Positive for fishermen north of Florida	Negative impact for fishermen in north east Florida	Unknown
REJECTED OPTION 3	Some positive effect	None	Positive
REJECTED OPTION 4	None	Some negative impact	Negative
REJECTED OPTION 5	None	Some negative impact	Negative
REJECTED OPTION 6	Unknown	negative	Unkown
REJECTED OPTION 7	Unknown	Unknown	Unknown
ACTION 2: HEADBOAT INCIDENTAL CATCH	Positive	None	Positive
REJECTED OPTION 1	None	Negative	Negative
REJECTED OPTION 2	None	Negative	Negative
REJECTED OPTION 3	None	Negative	Negative
REJECTED OPTION 4	None	Negative	Negative

H. Public and Private Costs

The 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. The costs associated with specific actions in this amendment are shown below:

Council costs of document preparation, meetings, public hearings and information dissemination	$10,000
NMFS administrative costs of document preparation, meetings and review	$2,500
Total	$12,500

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 plan is that of recreational spiny lobster fishermen and commercial spiny lobster fishermen. The impacts of the proposed action on these entities have been discussed under each action in Section 4. 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 the 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 action 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, 1991). For the 1993 fishing season, the most recent year for which data on numbers of commercial participants are available for all south Atlantic states, there were 830 individuals and corporations holding spiny lobster permits. 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. All 830 holders of spiny lobster permits readily fall within

the definition of small business. Since the proposed action will directly and indirectly affect many of these permittees, 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%; b) increase in total costs of production by more than 5% as a result of an increase in compliance costs; c) compliance costs as a percent of sales for small entities are at least 10% 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% of small business entities being forced to cease business operations (NMFS, 1991).

The Council examined the following actions and alternatives: (1) Spiny lobster bag limit of two per person per day year-round (page 17) and (2). Exemption for hook and line headboats (page 22).

Given that for each action (a) any impact would be equivalent to much less than a 5% reduction in annual gross revenues, (b) any increase in compliance costs would 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, the Council determined that the 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 (pages 1-4). Basically, this amendment addresses preventing overfishing of spiny lobster and increasing access to the resource by recreational fishermen in the states north of Florida and by all hook and line headboat fishermen.

Objectives and Legal Basis for the Rule

Refer to Section 1.0 (page 1) for the Management Objectives. Objectives addressed in this amendment are: (1) Protect long-run yields and prvent depletion of lobster stocks and (2) Reduce user group and gear conflicts in the fishery. The Magnuson Fishery Conservation and Management Act of 1976 as amended provides the legal basis for the rule.

Demographic Analysis

Refer to the original fishery management plan (GMFMC and SAFMC, 1982), Amendment 1 (GMFMC and SAFMC, 1987) and Section 3.0 (pages 7-16) of this amendment. Data on fishermen is very limited.

Cost Analysis

Refer to the summary of the impacts (Section 4.0, Subsections F and G; pages 25-26) and the summary of government costs (Section 4.0, Subsection H; page 27). The Council concluded that the benefits of the preferred alternatives outweigh the costs.

Competitive Effects Analysis

The industry is composed entirely of small businesses (harvesters and fish houses). 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 overlapping regulations with any state regulations or other Federal laws.

Conclusion

The proposed measures will not have a significant effect on small businesses.

II. MINUTES FROM PUBLIC HEARINGS

A. SAVANNAH, GA - SEPTEMBER 19, 1994

B. ST. AUGUSTINE, FL - SEPTEMBER 20, 1994

C. COCOA BEACH, FL - SEPTEMBER 21, 1994

D. PALM BEACH, FL - SEPTEMBER 22, 1994

E. MARATHON, FL - SEPTEMBER 23, 1994

F. CHARLESTON, SC - OCTOBER 6, 1994

G. WRIGHTSVILLE BEACH, NC - OCTOBER 25, 1994

SOUTH ATLANTIC FISHERY MANAGEMENT COUNCIL

SPINY LOBSTER AMENDMENT 4
PUBLIC HEARING
SAVANNAH, GEORGIA
SEPTEMBER 19, 1994

SUMMARY MINUTES

Ms. Flanagan called the public hearing to order. Ms. Susan Shipman and Mr. Fulton Love of the South Atlantic Council; Mr. Roger Pugliese, S.A.F.M.C. Staff Biologist and Sarah Scott, S.A.F.M.C., Staff Recording Secretary were also present. Mr. Henry Ansley of the Georgia DNR was present for the hearing. She covered the intent and purpose of the hearing and instructed the individuals attending the public hearing to keep comments to the management of spiny lobster in the South Atlantic federal waters.

Mr. Pugliese provided an overview of the proposed management actions presented in the South Atlantic Council's Amendment 4. These actions were contained in the public hearing summary which is a part of the administrative record.

Ms. Flanagan opened the meeting for public comment.

Dr. Matthew Gilligan said he was a Professor of Marine Biology at Savannah State College and he was not speaking on behalf of the college. He noticed something interesting in Florida this past year that down in the Harbor Branch Oceanographic Institution he had a chance to speak to some of the biologists and other people in the area. He did some diving on the reefs right off that area. He thinks the impact of the loss of the spiny lobsters from reef habitats has maybe been grossly underestimated. And that the commercial and recreational harvest of spiny lobsters may have already had much more significant impact on live bottom coral reef type habitats than heretofore really recognized. The example is a limestone outcropping that used to be similar to a coral reef right off of the Ft. Pierce, Florida area. Twenty years ago it probably looked a lot like the reefs in the Keys in south Florida. Today it is a virtual sterile wasteland of rock with quite a few sea urchins. The sea urchins while they are interesting animals are voracious predators that graze over the entire reef. There is an analogy to this in California. When the people who harvested abalone would try to get rid of all the sea otters, because they also harvest abalone to eat, they would go out and shoot them. But then popular sentiment caused people to want to protect the sea otters because they are cute. It was contentious between the harvesters of abalone and the people wanting to preserve sea otters. Sea otters eat sea urchins and the sea urchins there were overrunning the reefs which destroyed the habitat. They basically killed the kelp beds because they would graze away at the base of the stipe of the big sea weeds and this can devastate the kelp beds. As it turns out you have to have some predators to get rid of sea urchins so that you can have healthy kelp beds. The same he thinks is going to be found to be true for the reefs with respect to the sea urchin grazing in the South Atlantic. To get to the point of the whole story, he said, lobsters eat sea urchins. They are voracious predators on sea urchins, especially the smaller sizes. If you remove too many lobsters the sea urchin population gets too big and grazes over the whole reef and devastates it. He has a feeling though that it is possible we may be overharvesting although we can maintain a harvest of spiny lobsters and when they are no longer there, this may have been important in maintaining the reef type communities. And, he said, this is not based on any biology that he has done and he is not an expert in spiny lobsters regarding this particular predator and prey relationship on reefs. His comments were based

on cursory observations and discussions with some biologists at Harbor Branch Oceanographic Institution. He said it is worth looking into and he thinks it is worth erring on the side of conservation when the council tries to manage spiny lobsters. It is clear that everybody in the world wants to go to Florida and bring lobsters back. But it is also clear that not everybody can do that plus maintain a population or maintain the ecosystem.

Ms. Shipman said to Dr. Gilligan that he was very knowledgeable about the offshore areas and the live bottoms through his study. She asked if he had any feel for the role of these large lobsters off the coast of Georgia? They are adamantly fairly rare and not very common.

Dr. Gilligan responded he did not and this is really difficult. A single spiny lobster based on statistics from the Keys Marine Lab can eat hundreds and hundreds of small gastropod mollusks (snails) per evening. So one large spiny lobster probably has significant impact on a fairly large area of reef that it inhabitants in terms of keeping prey populations low in feeding on the thing which is most abundant at the time keeping any one of it's prey items from becoming too abundant and negatively impacting the reef by becoming too abundant. He couldn't answer the question directly and how. He said it would be a perfect kind of experiment to do. This would be to find a reef area that has at least some lobsters. Then do a removal experiment to see how the community changes with controls. He restated that it would be a nice experiment especially in the Georgia area.

Ms. Shipman asked did he have a feel for whether 1 or 2 lobsters was okay to harvest? If you had to recommend what kind of bag limit what would it be? This has been discussed in the council and they have heard some sentiment for only going with 1 lobster and some with going with 2.

Dr. Gilligan said he didn't know enough about the statistics and the effort and it is hard to say. They might not have any difference at all if there are enough people jumping in the water to grab lobsters but would err on the side of conservation by doing some studies. Another thing to add to this whole thing is that nationally we are way behind the times in terms of the fishery conservation zones. We do not have enough habitat set aside where newwst is prohibited so that we can evaluate what our fishing pressure is on species and what the fishery does. We don't have the place set aside off the Georgia coast or any other place except for the Keys Sanctuaries where there are a few of them. But even the sanctuaries that do exist are not true sanctuaries in the sense of the word that they are a sanctuary for marine life. You can still go fishing, lobstering and other things within these so called sanctuaries. We really do not have any fishery reserves. We ought to have some fishery reserves where we can see what would happen if we had no fishing pressure and what it would look like because then you can measure the impact. Then you can go in and say what the normal situations are by stating how many urchins and lobsters there are and if you take a certain number away, how it changes this. He thinks the council needs the fishery managed by fishery conservation zones for the information that they need to manage the resource.

Mr. Love asked do you think the lobsters off of Georgia, North Carolina, and South Carolina have any big input into the spawning stock of the lobster stock that is in Florida?

Dr. Gilligan answered that he didn't even know the geographic distribution of the spiny lobster. He asked if anyone knew how far north it gets?

Ms. Shipman responded that it goes up to North Carolina.

Dr. Gilligan said he suspects most of the spiny lobster that we get colonizing and establishing in the South Atlantic are like a lot of the other tropical species that inhabit live rock and bottom off the Georgia coast. They are arriving as eggs and larvae in the plankton in the ocean currents from other tropical areas. So consequently how much of spawning if it occurs off the Georgia coast ends up somewhere else maybe the lobsters in North Carolina are the result of spawning in Georgia. Georgia is a result of spawning further south but that gets into a whole area of physical fisheries oceanography trying to predict how far and how long the eggs and larvae lasts. He said that is a combination of fisheries and oceanography which is a whole other area of research. He said to answer the question, he can't tell you the extent to which our lobsters contribute to someone else's fishery or areas elsewhere. Or even our own as to how many of those eggs and larvae that are spawned locally make it back to the live bottom off the South Atlantic Bight in this area.

Mr. Henry Ansley said they did some studies back on lobster off Georgia. We did not have much luck trapping them which was the first thing we were looking at even though we modified the gear. From looking at it we did run into berried females and females with tar so obviously there was some spawning activity going on. But as far as where that is going again like Dr. Gilligan said, this is kind of a question. The postlarvae have up to a nine month planktonic life. So they could possibly and theoretically could go all the way around the ocean and end up back off South America or in the Caribbean. But whether that is so or not is hard to tell.

Mr. Love asked if the lobsters spawn from Florida all the way to North Carolina?

Ms. Shipman replied they have found berried lobsters up in North Carolina. She was pretty sure this was from the testimony by Mr. Bill Mansfield when he talked to the council at the North Carolina meeting. Now whether they get up above Cape Hatteras she did not know. She stated she has never heard anyone talk about them off the Virginia coast or the northern part.

Ms. Flanagan said one of the main reasons for doing this for Georgia, South Carolina, and North Carolina was because the season is so short. And by the time the season opens the waters are basically too cold for the divers to get out there and do it. She asked if Mr. Ansley or Dr. Gilligan saw a problem with implementing a plan like this?

Dr. Gilligan said you are saying that our season is short because of weather conditions?

Ms. Flanagan responded it is the cold weather and the rough waters.

Ms. Shipman said the way the fishery is now, you are allowed six lobster per person and you can take them from August through April. She asked Mr. Dearmin how many it was per boat?

Mr. Ron Dearmin responded it is 24 per boat.

Ms. Shipman said this was primarily off south Florida. So we have a very compressed season but you can take a whole lot per person per day during the season if the weather is good and you can get out to dive. The council thought it would be more effective if they lowered the bag limit and went with a year round season so when the weather is good you can get out. Also if you ran across a lobster you could harvest it. But this would keep it to a real low harvest level so that it wouldn't impact the stock.

Mr. Dearmin asked is the rule about not taking the berried females still going to be in effect?

Ms. Shipman said yes the egg bearing females would still not be able to be harvested regardless of what time of year. This was even if we went with a year round season.

Dr. Gilligan said to answer Ms. Shipman's question off the Georgia coast, from his experience with recreational lobster harvesters, they tend to be divers and spearfishermen who if they see a lobster and happen to have a glove and bag or spears, will take one. However they are not really targeting them. He realized they can't spear them anymore but it was many years ago this knowledge comes from. He said even then with a boat of six people on it he is not sure he ever saw a boat with six divers on it come back with more than one or two lobsters. He thinks this is indicative that they are not targeted because divers recognize that they are not going to see too many if any at all when they go diving out there. So they are going to be spearfishing or whatever. So he didn't know and it is a naturally regulated thing. There aren't too many out therefore the pressure isn't really heavy. He could be misreading and he hasn't been keeping tabs on the recreational harvest of lobsters here lately.

Mr. Dearmin said the only thing he would say contrary to that is again the guys who were targeting the lobsters are like in 80 feet of water. There is an area off of St. Augustine where they go. That is going to be the council's problem when you have this state line. Where if you are doing this north of Florida two is okay but if you are doing this off of St. Augustine they are going to say, I have six coming to me because these were taken off of St. Augustine. He said that is going to be the problem with a regulation like this. The guys who target them and he has worked with some guys out at the Center when he was stationed there who targeted them. They always told him that their problem was the deep water and they just had to go down. They said when they got to the bottom they just grabbed real quick because they had only about five minutes of bottom time but they got all they wanted plus as big as they wanted; this was off of Georgia. There is a real honey hole about 35 miles due southeast of St. Augustine sea buoy. This is where the State of Florida does a lot of cases. They have a lot of problems with guys coming back there and a lot of egg bearing females during the closed season. This is again off of here and there are some guys who work out of Daufuskie Island that dive off of Brunswick, Georgia. There is a honey hole out there. He has seen pictures by a U.S. Customs agent who was holding the lobsters straight out by the antennas and the tails were touching the ground which is proof these are big guys.

Ms. Shipman said this is another reason why we were looking at going on a very low bag limit because the lobsters are much bigger than the Florida lobsters are. So one or two lobsters is quite adequate for a number of people the council felt.

There being no more public comments, the public hearing was adjourned.

TAPE OF PROCEEDINGS ON FILE (1 TAPE)

Transcribed By:
Sarah L. Dopson Scott
September 28, 1994

SOUTH ATLANTIC FISHERY MANAGEMENT COUNCIL

SPINY LOBSTER AMENDMENT 4
PUBLIC HEARING
SAVANNAH, GEORGIA
SEPTEMBER 19, 1994

ATTENDEES

COUNCIL MEMBERS:
Belinda Flanagan, Chairman
Susan Shipman
Fulton Love

COUNCIL STAFF:
Roger Pugliese
Sarah Scott

SPEAKER:
Dr. Matthew R. Gilligan

OBSERVERS/PARTICIPANTS:
Beth Eckard
Henry Ansley
Robert Manson
Ron Dearmin
Capt. Jim Anderson

SOUTH ATLANTIC FISHERY MANAGEMENT COUNCIL

SPINY LOBSTER AMENDMENT 4
PUBLIC HEARING
ST. AUGUSTINE, FLORIDA
SEPTEMBER 20, 1994

SUMMARY MINUTES

Mr. Love called the public hearing to order. Mr. Roger Pugliese, South Atlantic Fishery Management Council Staff Biologist and Ms. Sarah Scott, S.A.F.M.C. Staff Recording Secretary were present. He covered the intent and purpose of the hearing and instructed the individuals attending the public hearing to keep comments to the management of spiny lobster in the South Atlantic federal waters.

Mr. Pugliese provided an overview of the proposed management actions presented in the South Atlantic Council's Amendment 4. These actions were contained in the public hearing summary which is a part of the administrative record.

Mr. Love opened the hearing for public comment and then closed the hearing because no one was in attendance to discuss spiny lobster.

The public hearing was adjourned.

TAPE OF PROCEEDINGS ON FILE (1 TAPE)

Transcribed By:
Sarah L. Dopson Scott
September 28, 1994

SOUTH ATLANTIC FISHERY MANAGEMENT COUNCIL

SPINY LOBSTER AMENDMENT 4
PUBLIC HEARING
ST. AUGUSTINE, FLORIDA
SEPTEMBER 20, 1994

ATTENDEES

COUNCIL MEMBERS:
Fulton Love, Chairman

COUNCIL STAFF:
Roger Pugliese
Sarah Scott

OBSERVERS/PARTICIPANTS:
None

SOUTH ATLANTIC FISHERY MANAGEMENT COUNCIL

SPINY LOBSTER AMENDMENT 4
PUBLIC HEARING
COCOA BEACH, FLORIDA
SEPTEMBER 21, 1994

SUMMARY MINUTES

Mr. Brownlee called the public hearing to order. Mr. Roger Pugliese, South Atlantic Fishery Management Council Staff Biologist and Ms. Sarah Scott, S.A.F.M.C. Staff Recording Secretary were present. He covered the intent and purpose of the hearing and instructed the individuals attending the public hearing to keep comments to the management of spiny lobster in the South Atlantic federal waters.

Mr. Pugliese provided an overview of the proposed management actions presented in the South Atlantic Council's Amendment 4. These actions were contained in the public hearing summary which is a part of the administrative record.

Mr. Brownlee opened the hearing for public comment and then closed the hearing because no one was in attendance to discuss spiny lobster.

The public hearing was adjourned.

TAPE OF PROCEEDINGS ON FILE (1 TAPE)

Transcribed By:
Sarah L. Dopson Scott
September 28, 1994

SOUTH ATLANTIC FISHERY MANAGEMENT COUNCIL

SPINY LOBSTER AMENDMENT 4
PUBLIC HEARING
COCOA BEACH, FLORIDA
SEPTEMBER 21, 1994

ATTENDEES

COUNCIL MEMBERS:
John Brownlee, Chairman

COUNCIL STAFF:
Roger Pugliese
Sarah Scott

OBSERVERS/PARTICIPANTS:
None

SOUTH ATLANTIC FISHERY MANAGEMENT COUNCIL

SPINY LOBSTER AMENDMENT 4
PUBLIC HEARING
PALM BEACH, FLORIDA
SEPTEMBER 22, 1994

SUMMARY MINUTES

Mr. Brownlee called the public hearing to order. Mr. Roger Pugliese, South Atlantic Fishery Management Council Staff Biologist and Ms. Sarah Scott, S.A.F.M.C. Staff Recording Secretary were present. He covered the intent and purpose of the hearing and instructed the individuals attending the public hearing to keep comments to the management of spiny lobster in the South Atlantic federal waters.

Mr. Pugliese provided an overview of the proposed management actions presented in the South Atlantic Council's Amendment 4. These actions were contained in the public hearing summary which is a part of the administrative record.

Mr. Brownlee opened the hearing for public comment and then closed the hearing because no one was in attendance to discuss spiny lobster.

The public hearing was adjourned.

TAPE OF PROCEEDINGS ON FILE (1 TAPE)

Transcribed By:
Sarah L. Dopson Scott
September 28, 1994

SOUTH ATLANTIC FISHERY MANAGEMENT COUNCIL

SPINY LOBSTER AMENDMENT 4
PUBLIC HEARING
PALM BEACH, FLORIDA
SEPTEMBER 22, 1994

ATTENDEES

COUNCIL MEMBERS:
John Brownlee, Chairman

COUNCIL STAFF:
Roger Pugliese
Sarah Scott

OBSERVERS/PARTICIPANTS:
None

SOUTH ATLANTIC FISHERY MANAGEMENT COUNCIL

SPINY LOBSTER AMENDMENT 4
PUBLIC HEARING
MARATHON, FLORIDA
SEPTEMBER 23, 1994

SUMMARY MINUTES

Mr. Hartig called the public hearing to order. Mr. Roger Pugliese, South Atlantic Fishery Management Council Staff Biologist and Ms. Sarah Scott, S.A.F.M.C. Staff Recording Secretary were present. He covered the intent and purpose of the hearing and instructed the individuals attending the public hearing to keep comments to the management of spiny lobster in the South Atlantic federal waters.

Mr. Pugliese provided an overview of the proposed management actions presented in the South Atlantic Council's Amendment 4. These actions were contained in the public hearing summary which is a part of the administrative record.

Mr. Hartig opened the hearing for public comment and then closed the hearing because no one was in attendance to discuss spiny lobster.

The public hearing was adjourned.

TAPE OF PROCEEDINGS ON FILE (1 TAPE)

Transcribed By:
Sarah L. Dopson Scott
September 28, 1994

SOUTH ATLANTIC FISHERY MANAGEMENT COUNCIL

SPINY LOBSTER AMENDMENT 4
PUBLIC HEARING
MARATHON, FLORIDA
SEPTEMBER 23, 1994

ATTENDEES

COUNCIL MEMBERS:
Ben Hartig, Chairman

COUNCIL STAFF:
Roger Pugliese
Sarah Scott

OBSERVERS/PARTICIPANTS:
None

SOUTH ATLANTIC FISHERY MANAGEMENT COUNCIL

SPINY LOBSTER AMENDMENT 4
PUBLIC HEARING
CHARLESTON, SOUTH CAROLINA
OCTOBER 6, 1994

SUMMARY MINUTES

Mr. Peace called the public hearing to order. Mr. Gregg Waugh, South Atlantic Fishery Management Council Deputy Executive Director was present. He covered the intent and purpose of the hearing and instructed the individuals attending the public hearing to keep comments to the management of spiny lobster in the South Atlantic federal waters.

Mr. Waugh provided an overview of the proposed management actions presented in the South Atlantic Council's Amendment 4. These actions were contained in the public hearing summary which is a part of the administrative record.

Mr. Peace opened the hearing for public comment and then closed the hearing because no one was in attendance to discuss spiny lobster.

The public hearing was adjourned.

TAPE OF PROCEEDINGS ON FILE (1 TAPE)

Transcribed By:
Sarah L. Dopson Scott
October 7, 1994

SOUTH ATLANTIC FISHERY MANAGEMENT COUNCIL

SPINY LOBSTER AMENDMENT 4
PUBLIC HEARING
CHARLESTON, SOUTH CAROLINA
OCTOBER 6, 1994

ATTENDEES

COUNCIL MEMBERS:
Bony Peace, Chairman

COUNCIL STAFF:
Gregg Waugh

OBSERVERS/PARTICIPANTS/SPEAKERS:
None

SOUTH ATLANTIC FISHERY MANAGEMENT COUNCIL

SPINY LOBSTER PUBLIC HEARING
WRIGHTSVILLE BEACH, NORTH CAROLINA
OCTOBER 25, 1994

SUMMARY MINUTES

Mr. Hartig called the public hearing to order. He covered the purpose and intent of the hearing and instructed the individuals attending the public hearing to keep their comments to the management of spiny lobster in the South Atlantic waters.

Mr. Waugh provided an overview of the proposed management actions presented in the South Atlantic Council's Amendment 4. These actions were contained in the public hearing summary which is a part of the administrative record.

Mr. Hartig opened the meeting to public comment.

Ms. Ellen Peel said she was with the Center for Marine Conservation and her comments would be directed specifically to the two fish per person per day year round provision. The Center has two concerns with this provision and they urge the council to consider these when developing future management actions for managing spiny lobsters. First, year round harvest allows the taking of spawning lobsters which they prefer measures that would protect spawning stock and potential recruits. She appreciated Mr. Waugh clarifying that the possession of berried lobsters is still prohibited. Second, since spiny lobsters are prey for loggerhead turtles, they prefer measures that protect the predator prey relationship between these creatures as well as other creatures that are important to a healthy ecosystem. However, she said, that and recognizing that there is an increase in effort to harvest spiny lobsters, we believe the two per person per day year round limit does provide a cap on effort and therefore we can support this provision.

Mr. Bill Mansfield said he wanted to address the issue that was just mentioned. We seemingly have adequate data that would support the theory. We do have adequate information that tells us that the spawning stock is lost in the Gulf Stream in this area. So we do not think we are impacting spawning stocks and hurting recruitment. There have been a lot of theories proposed that anything much north of the Florida Keys actually gets lost in the Gulf Stream. These things are water borne for 11 months. Unless there is a gyre created which would be unpredictable, these eggs are probably lost and we don't think we are going to be hurting the breeding stock.

He said this is not the type of controversy we ran across in Florida and this pales to insignificance relative to all the trap fisheries down there. But he did see some parallels that he wanted to bring up to the council. He said he was getting a new slant to this deep water lobster issue. If you think about the problems that the guys in Florida had, they were basically creating a smorgasbord for turtles offshore. They are trapping lobsters and that is going to attract turtles. As they encroach deeper from Florida shallow waters they are getting more and more into this domain that they have not been in before. Therefore, it appears to him that the trap issue is tied in with deep water lobsters and possibly a difference in the tactics while fishing for lobster. They really do have that bigger problem closer in when the lobsters are small. If you tie it into the same theme that happened in the

Dry Tortugas, those guys were asking for tailing permits. The reason they were asking for tailing permits would be that they are catching lobsters 8-15 lb. down there and they don't have enough room to store the whole thing. So if you are in a small boat, logically you would like to be able to break the head off and store 50%. Therefore, you could get twice as much in tails. So he is beginning to tie all this together and that maybe deep water or bigger lobsters, by default, they don't exist in shallow water because they are already gone from the shallow water. Maybe we should consider a method to manage deep water lobsters differently from the shallow water lobsters. If you stop and think about when the rules were created, we didn't know they were out there. All these initial lobster rules were created for shallow water reef dwellers down in Florida which are easy access. These are a little tougher, they have been there for thousands of years, and nobody had messed with them. Now we are finding them. He said maybe we should manage them a little bit differently.

He said he didn't think they were going to hurt the stocks again from a breeding standpoint because these lobsters are already coming in up here. The other thing that we are trying to address with the new amendment will be to basically legalize what is already happening here. He said 80% of our dives in this area come during the lobster closed season so only 20% of them are legal. That is if you assume that 20% comes during the season we can take them. We can't get offshore in the winter. So what is happening here, as confused as it might sound, we are bringing in lobsters that are illegal because they are coming in during the summer. He said you are not going to be able to get to these people because it is in the private sector; it is not commercial. It is private individuals going offshore and pulling in lobsters. They go to dive shops and get air and no one knows what they are doing.

He said he had something which frightens him even worse which is an article out of a diving magazine that started out as a dive article until he dug something out of it which seems parallel here. It is from Rodale's Scuba Diving and is about diving in Honduras. What is happening down there, which this article is addressing the issue of sudden death, perhaps 20 divers a year who are dying as a result of embolism, ruptured lungs, asphyxiation, and other diving accidents. What is happening here is very parallel to what he sees happening in Florida. They have already taken all of their available stock in shallow water and they are now encroaching further and further offshore to where divers are now going to 150 feet to pull in lobsters. They have no constraints and they make these people dive 8 times a day at that depth. And quite frankly it is killing them which is what this article is about. The subissue here is what is happening to the lobster stocks in Honduras. See if you see a parallel. He said this is from the seafood industry. "Diving is too effective and is not only killing the Indians but it is killing the resource." A few years ago lobster divers could still work in 40-60 feet of water but overharvest has forced them to deeper and deeper dives each season. This year they might be 150 feet and at this rate our entire industry will disappear within a few years. There is a good chance that the Honduran lobsters are the breeding stock we are talking about for our recruitment. This is down off of Nicaragua and Honduras. He said they have actually created a moratorium temporarily on lobster diving down there so that they can gather together some rules and get some training for their divers. He said their lobster fleet hit the waves again July 15, 1994 and the last comment is that both the Miskito divers and their spiny-tailed prey will move another season closer to becoming an endangered species. He said they are getting concerned about it and he sees a parallel. He said we might want to look at deep water lobsters differently from the shallow water lobsters.

Mr. Spitsbergen asked if there was any comment on the headboat issue allowing headboats to possess up to 5 lobsters?

Mr. Mansfield replied what we are doing there is we are not going to increase the take because you are talking about basically an accident anyway. That is the other side of what we are trying to do with the divers and to legalize an act that is already occurring. So he thinks that could do nothing but help the headboat industry and that they won't have to tell people to throw these things away now.

Dr. Nelson asked on the first issue the two per person bag limit, was Mr. Mansfield supporting that provision?

Mr. Mansfield said he didn't think they were going to hurt a thing by allowing that and he supported the provision. He said we are going to do two things positive by doing that. Since we are getting off into some bigger, deeper lobsters now, he can't imagine anyone should be entitled to take six 15 pound lobsters in one day. He said imagine how old they are under optimum conditions and you are talking about growing these things about a half a pound a year in Florida. So what we are saying there is, at the bare minimum these guys are going to be 15 years old. You do not have optimal growing conditions up in this area. These guys are on the verge of dying 2-3 months out of the year because of lower temperatures. He said he wouldn't venture to guess how old they are and 30 is the minimum.

Mr. James Atack said he was a recreational diver who has been diving in the area since 1986. He has bagged a lot of lobsters and he would like to continue to do so. He said he is against the proposal and the reason he is against it is that he would like to protect future stocks and be able to catch lobsters 10 years down the road. Like Mr. Mansfield said, 15 pound lobsters are pretty old. If you don't protect that stock now you are not going to have them 10 years down the road.

He said a year round season will negatively affect the ability of the species to reproduce. And in order to maintain current population of average sizes he thinks a closed spawning season is suggested as is the current law. He said North Carolina lobsters carry eggs from July through late September and when the season comes in August most of the females still have lots of eggs on them. So if anything, the season up in that area should be skewed and not opened up year round. The current proposal has a good possibility of attracting commercial lobster fishermen from out of state. This would negatively effect the stocks. Currently there are some spearfishermen from his area in Southport, North Carolina and they do go after lobster with spears. He doesn't think it is right and it is a natural resource that we need to protect. He said these are not all deep water lobsters. He said there are a lot of areas around there, 40-50 feet, 35 miles offshore and it is his favorite hobby. He said he would like to continue to do it down the road and get enough enjoyment out of grabbing a 12 pound lobster as he does today.

He said he would recommend that the council look at some more data collecting and research before they open the season up to a season year round. He would propose something that they have in South Carolina, he believed in the Charleston area, where they have a stamp or something that has to be purchased before you can collect stuff from underwater. He said he was down there once and read about it. He said he believes the stamps are required for lobster catching, spearfishing, artifact collecting, or specimen collecting which would be tropical fish and stuff like that. He said such a stamp would be for all recreational divers that want to do any harvesting and they would be required to buy

it by law. They could be sold at the dive shops and could also be used for education on the loss. This would be so that people that are out taking them out of season, illegally taking them, would be educated and that would actually increase the stocks.

He said he knows that Mr. Mansfield has the other opinion. Yes they are water borne and he guesses they come from the south but this proposal is for Florida up. He said who knows where our stock is coming from, such as whether it is coming from South Carolina or Georgia. And either way we are not going to have the lobster stocks that we have now. So he would propose against the recommendation.

Dr. Nelson asked have you been diving in the Wilmington, North Carolina area for eight years or so, do you dive during the present open season?

Mr. Atack said he does dive during the open season and he also dives during the closed season but he doesn't take lobsters.

Dr. Nelson asked what he typically catches when he is diving for lobsters and how many does he catch in a trip?

Mr. Atack responded that he will catch 2 or 3 on a good day and you see various sizes but we try to take the bigger ones. On a boat load you might get as many as 8-9 lobsters which he has seen. You have to know where to go because they are only in certain areas and after years of diving he has learned where they are.

Mr. Spitsbergen asked if he was aware that the rule the council is proposing will prohibit the taking of berried lobsters and that North Carolina has a rule that prohibits the taking of berried lobsters?

Mr. Atack said he agrees with that and was aware of that. He said even if that is the recommendation, you are still going to have problems because we still need to educate people. You already have people right now who will spear them, people who will take them with eggs, and he knows of instances where people try to take the eggs off of them. He thinks there was someone who was caught in Southport, North Carolina by the Coast Guard. But a lot more of that goes on than he likes to see and a lot of people do not know and are not aware of the laws. He said it is hard to get a copy of the laws in North Carolina on lobster. He said that his resource for obtaining information was Mr. Mansfield.

Mr. Waugh said you mentioned here that one of the reasons you are against it is because it could attract commercial lobster and spearfishermen from out of state. He asked how he saw this happening with just two per person per trip?

Mr. Atack responded that most commercial fishermen go out and not for just one day but for several days. And there is more than one person on a boat usually. He said there is a guy out of Southport, North Carolina who says he has a tailing permit. He talked to him personally and he is aware of him going out and bringing back just tails. And he said he is firmly against that also because you have no control of how those lobsters are caught. Face it, if you have a tailing permit you are shooting lobster and taking the tails off.

Mr. Spitsbergen said again, this will be 2 per person per trip bag limit. Spearing and tailing are illegal, unless you have a permit for tailing, so what this will do is limit even if the people are out for a week they can only bring in 2 lobsters.

Mr. Atack said he agreed but you are going to be messing with the stock if they don't have a closed season to spawn. People will be bothering them.

Ms. Shipman said her question was related to the comment that he just made. Do you ever see small lobsters and where did he think the lobsters were recruiting from up in the area?

Mr. Atack said he has seen lobsters from a demonstrated hand gester size to 15 pounds.

Ms. Shipman asked where was he seeing the smaller ones?

Mr. Atack said he sees them on offshore ledges. He said it is the same area he sees the bigger ones and most of them are 35 miles or further offshore. He said it is in the ledgy areas with lots of seaweed and such type ground cover.

Ms. Shipman said your testimony is the first that she has heard from anybody who is seeing small ones in these offshore areas.

Mr. Atack said he has seen lots of small ones. He has video tapes of lobsters and one of the video tapes shows 40 lobsters on one dive. He said you can see groups of lobsters with maybe 15 in a group that are less than the 1 lb. size or in the 2 lb. size. A lot of lobsters are taken out of season like Mr. Mansfield said. He starts to dive in February or March, and luckily if he can get out in good weather in March, he will get a couple of lobsters then he will monitor them April, May, June, and July. As the end of July comes around there is probably a 1/4 of the lobsters that you see in April and May. He said a lot of the people are taking them.

Ms. Flanagan asked if there was a certain time of the year when he sees the smaller lobsters or is it constant?

Mr. Atack responded that he generally hasn't seen them in the colder months but when the water is warmer, like June, July, and August. He doesn't remember seeing any, maybe the first ones are in late April. But January and February he hasn't really seen the smaller ones then. He said the water temperature is probably 64-68 degrees and one year the low was 64. And last year it got down to 58 degrees. But generally it is 64 degrees or above.

Mr. Moffitt asked if he was opposed to the two per person per day year round and what specifically would he be for in lieu of that?

Mr. Atack responded that he would be for a closed spawning season because he thinks it is needed. And to be correct with it, it needs to be during the spawning season. He would propose skewing it but he knows that might be a control problem. This is because you are going to have a different season in every state as you move up the U.S. coastline because of water temperatures. He said his opinion of spawning season is like June 1 through the end of September when most of the eggs are gone. But in September almost every female that you get is loaded.

Mr. Spitsbergen asked was he aware that there is a six lobster bag limit now during the open season?

Mr. Atack said yes but he has never taken more than that in one day.

Mr. Spitsbergen asked if he supports maintaining the six in the season the way it is now?

Mr. Atack said yes he does.

Mr. Spitsbergen asked then you support staying with the six bag limit?

Mr. Atack said yes and asked if that is six per person?

Mr. Spitsbergen said that was correct.

Mr. Atack said so if you have four people in the boat that is a lot of lobster.

Mr. Spitsbergen replied that is almost a commercial activity.

Mr. Peace said Ms. Shipman was asking about the smaller lobsters and in talking to some of the local divers at home in South Carolina, they report seeing the smaller lobsters too, the undersized lobsters. He said usually on a dive these guys are looking for the big lobsters and usually don't mess with the smaller ones.

Mr. John Michaux said he is a recreational diver like Mr. Mansfield and Mr. Atack in the local area out of Long Beach, North Carolina. He has also seen many small lobsters and about a month ago he was out there and saw probably 20-30 under one rock at one time. He thinks the issue with two lobsters per day per person would be difficult to enforce. This is mainly because of what he envisions. And because there are always one to two divers on a boat whether it be recreational or a charterboat that are more adapt at catching lobster than other divers. He feels the council would be in a situation where they would have more than two divers per person even though that is the way the law would read. You would end up with one diver with a number of lobster and that would be year round. He didn't know what the statistics were but there are a lot more dives made during the peak season, June, July, and August than any other time of the year. He feels as though the divers would be taking many more lobsters if the council decreases the limit and opens the season up year round. It would be because of that reason alone. He thinks the closed season needs to be kept into effect and like Mr. Atack said, it might be skewed further back into the season. But it still needs to be there just to limit the shear numbers of lobsters that they are taking out of our waters.

Mr. Peace asked how would he feel about 1 lobster per person year round per day?

Mr. Michaux said he is in favor and prefers to see the catch bag limit decreased but still have the closed season. The open season if you cut down on the number lobster wouldn't affect him very much because he doesn't catch that many lobsters. He said they do catch 2-3 per trip per person. So that wouldn't impact him very much. The closed season would be a good thing for the time period when they have the most divers in the water off our coast.

Mr. Floyd asked what were his feelings about the tailing permits as there was a comment earlier about tailing permits? He asked did he have any comments on those?

Mr. Michaux responded he did not.

Ms. Shipman asked from your observations of what the spawning season is up here, what months would that be?

Mr. Michaux replied like Mr. Atack said, it should be extended later in the fall, maybe through September and October.

Ms. Shipman asked but beginning when and when do you start seeing berried lobsters up here?

Mr. Michaux responded it is some where in June.

Mr. Mansfield said part of the possible discrepancy we are hearing here about small lobsters, these guys are diving in a very isolated area if you think about the entire coast of the southeast United States. They are diving on Frying Pan Shoals. They are talking about 50-60 feet of water in a lot of places that is true. But most of the coast between here and the Florida Straits is not Frying Pan Shoals, it is deep ledges in excess of 100 feet which is where most of the data that we had been examining before was coming from. The question he would still have is, if we are going to believe the data from Florida about the spawning stock and eggs being lost in the Gulf Stream, he still doesn't think he understands how they could hurt the population. He would hope they wouldn't hurt the population by picking up animals that are dispensing their eggs into the Gulf Stream. Diving on Frying Pan Shoals, that is what is happening to them and they are certainly getting caught in that current because they are within and sometimes the Gulf Stream comes inshore of Frying Pan Tower. So it can be as close as 30 miles in that particular location.

Mr. Floyd said he was interested earlier about the comment on the tailing permits and the spearguns. He thinks the comments were basically, if you had a tailing permit it was assumed you shot them and brought them in. He asked if he had any knowledge of that sort of operation with any of the individuals that had tailing permits?

Mr. Mansfield said he didn't know anyone personally with a tailing permit but he does know an awful lot of people who spear lobsters. He said clearly if the head was gone the evidence would be gone with it.

Mr. Floyd said on the deep water species where you have a 10-15 pound lobster, wouldn't it be advantageous to him as a diver to have a tailing permit and be able to shoot that lobster, tail it,and then bring it up? He said then you can go catch several more.

Mr. Mansfield responded that personally he doesn't think the council should allow any tailing permits and for just that reason.

Mr. Floyd said that was what he wanted to find out.

The meeting was adjourned because there were no other speakers.

Transcribed by:
Sarah L. Dopson Scott
November 4, 1994

SOUTH ATLANTIC FISHERY MANAGEMENT COUNCIL

SPINY LOBSTER PUBLIC HEARING MEETING
WRIGHTSVILLE BEACH, NORTH CAROLINA
OCTOBER 25, 1994

ATTENDEES

COUNCIL MEMBERS:

John Brownlee, Chairman
Bill Cole
Belinda Flanigan
Ben Hartig
Fulton Love
Dr. Russell Nelson
Jerry Schill
LCDR Chris Sinnett
David Cupka, Vice Chairman
Jack Dunnigan
John Floyd
Dr. Andrew Kemmerer
Pete Moffitt
Bony Peace
Susan Shipman
Dennis Spitsbergen

COUNCIL STAFF:

Bob Mahood
Roger Pugliese
Carrie Knight
Sarah Scott
Gregg Waugh
Dr. Theo Brainerd
Cindy Glaser

SPEAKERS:

Ellen Peel
James Atack
Bill Mansfield
John Michaux

PARTICIPANTS/OBSERVERS:

Donce Norment
Steve McDaniel
Dr. John Merriner
Robert Fields
Mike McLemore
Jeff Pearson
Paul Raymond
Wingate C. Evans
Jeff Radonski

PH Wrightsville Bch
Oct 25, 1994

To: Marine Fisheries Council October 25, 1994

From: Jim Atack

Re: Proposed Lobster Ammendment # 4

I am against the proposal for the following reasons:

1. A year round season will negatively affect the ability of the species to reproduce. In order to maintain current population and average sizes a closed spawning season is suggested(probably required) as is the current law.

2. North Carolina lobsters carry eggs from early July thru late September. If the off season were to be changed to better protect the egg carrying lobster it should probably be skewed to June 1 thru October 1.

3. The current proposal could attract commercial lobster and spearfisherman from out of state and negatively affect stocks.

I recommend the following as a compromise:

Require a "collecting stamp" to be purchased by everyone that participates in collecting of underwater resources. The collecting stamp would be similar to a fishing license but would be mainly for scuba divers. It would be useful in collecting data about how many people are involved and what activities they partake in. I believe Charleston S.C. has a program like this in effect. A questionaire could be filled out each year when the stamps are purchased. The money raised could go for research and data collecting. The underwater resources pertaining to the stamp would be:
a) lobster catching
b) Spearfishing
c) Artifact collecting
d) Specimen collecting (tropical fish to live rock)

I am a recreational diver and have been diving off the coast of N.C. for the past seven years. The reefs and ledges off N.C. are my favorite places to dive and I'd like to keep them that way. If we don't start collecting more data and enforce more conservation it won't be long before they lose some of the qualities that make them so great. I would like nothing more than to be able to dive these reefs 10 to 20 years from now and still see the beauty and quantity of species that we can see today. I am willing to give up catching more lobsters each year now as the proposed amendment would allow me to, in exchange for still seeing 5 to 15 pound lobsters 10 to 20 years in the future.

JDA-2

DEATH comes to the MOSQUITO COAST

GREED, DRUGS and compressed air have brought a plague of DCS to Central America's Miskito Indians

By James D. Gollin

It was shortly before dawn, the dark jungle quiet as death, when the commercial dive ship *Harmac 1* out of Roatan dropped anchor near the mouth of the Patuca River on the Mosquito Coast of Honduras.

Ricardo Alvarez, chief of divers, climbed in his small dory and headed toward the shore in search of divers to harvest lobster from the Caribbean's warm, rich waters. He didn't have to search long. Before he reached the coast, Indians in three dozen *cayucos*, dugout canoes each hand-carved from a single rain forest tree, paddled out to meet him. Some of them had traveled over a hundred miles through a complex system of rivers, lagoons, swamps and forests that stretches north along the Caribbean coast of Nicaragua into Honduras, an area once known as the Mosquito Kingdom.

Quietly, the Indians scrambled up the ropes dangling from the *Harmac 1*, hauled in their canoes and stacked them neatly on the deck, then began to drain bottle after bottle of *guaro*, a cheap cane liquor, as they mumbled prayers for a safe voyage and protection against what each feared the most— "the mermaid's curse," a crippling and deadly sickness that we call "the bends."

"I half hoped that the divers would not show up," Alvarez told me two weeks later as workers unloaded the *Harmac*'s bounty of lobster tails at Oak Ridge Harbor in Roatan. He glanced at the

FEW MISKITO INDIAN LOBSTER DIVERS ESCAPE "THE MERMAID'S CURSE"; THIS VICTIM OF DECOMPRESSION SICKNESS (LEFT) LIES PARALYZED AT A CLINIC IN THE REMOTE VILLAGE OF AHUAS; INDIANS TRAVEL THREE DAYS IN DUGOUTS TO THE VILLAGE OF WAMPU SIRPI TO RISK LIFE AND LIMB AS LOBSTER DIVERS (TOP LEFT).

two rusting compressors mounted on the boat's stern, kicked at a dented scuba tank with his foot and admitted that three of the divers were permanently paralyzed.

Soon the *Harmac*'s crew was filling her holds with ice, preparing for another trip, another load of divers, another round of prayers.

No BCs, No Gauges, 12 Dives a Day

For centuries the Miskito Indians have supplemented their diets and incomes by harvesting lobster and conch, earning renown as some of the best free divers in the world in the process. But over the past two decades, Honduran ship captains from the Bay Islands have equipped their boats with primitive scuba gear and used the Miskitos to turn lobster diving into a major export industry.

"During a good year our industry harvests around 3 million pounds of lobster tail," says James Rukin, president of Mariscos de Bahia, a seafood processing plant on Roatan. "We pay about $9.50 per pound to the boat captains, and they pay their divers around $1.50 a pound." Rukin notes that nearly all of his product is sold in the U.S. market in Miami (where the price doubles), with the rest going to Europe and Japan.

On a two-week trip, divers can make about $500, or as much as a typical Honduran would earn in half a year. Most Indians head home to their villages between dive trips and, in many cases, blow their income on alcohol, prostitutes and cheap cocaine. "The money they make is significant, but it's not significant," says Rukin. "For most of them it just means a better drunk and profits for the drug dealers." Osvaldo Munguia, executive director of a Miskito Indian organization called MOPAWI, agrees that alcoholism and drug abuse soak up the lion's share of the divers' pay, but also points out, "The divers still manage to support their extended families, or about half of La Mosquitia's population of 45,000."

Dr. Fermin Lopez, a Honduran physician who operates the Cornerstone Emergency Medical Mission on Roatan, is concerned that divers drink alcohol, smoke marijuana and snort cocaine not only on shore, but also on dive trips in order to numb their bodies to the initial symptoms of decompression sickness.

"They have no BCs, no watches, no depth or pressure gauges," says Lopez, who has spent the last three years treating divers at the clinic. "They have never heard of nitrogen and can't read dive tables. In most cases, they can't even read."

A lobster diver simply straps on a tank, drops to the bottom, spears lobsters until his air runs out, then ascends rapidly to a waiting canoe, paddled by his *cayucero* partner. The diver exchanges his empty tank for a full one and heads back down to the bottom, while the *cayucero* follows him on the surface, occasionally returning to the "mother ship" for more full tanks. The Indians dive all day every day in water from 90 to 120 feet deep.

"If we did this, we would die," says Dr. Lopez.

Most divers go through eight to 12 tanks daily, though some report using up to 20 in one day. "After the first tank most divers experience Stage I decompression illness," says Lopez. "Their joints begin to ache and they feel numbness in the extremities. By the end of the day, all they can do is drink, smoke marijuana or crack, and lie in their canoes, rubbing their knees and elbows. Some blame the pain on rheumatism, others believe they are victims of a supernatural 'mermaid's curse.' "

When the pain and numbness of Stage I DCS blossoms into full-blown, paralytic Stage II illness, the crippled Indians are dropped off on the Mosquito Coast at the end of the trip. They seek the help of traditional *curandero* medicine men or attempt to make their way to a clinic such as the one operated by the Moravian Church in the Miskito village of Ahuas.

Dr. Benno Marx, the clinic's director and a Duke-educated physician, was unprepared for the epidemic of decompression sickness in his remote clinic. Marx wrote to Dr. Tom Millington, director of hyperbaric medicine at California's St. Johns Pleasant Valley Hospital, asking for help. In response, Millington arranged for an old Vickers monoplace chamber to be sent to Marx, and then flew to Ahuas to teach him the basics of hyperbaric and diving medicine.

Of the first 60 patients treated, two-thirds responded well. The other 20, however, remained partially or completely paralyzed. In addition, because of the Mosquito Coast's humid heat, the crippled Indians frequently develop skin infections. Because they must self-insert a catheter to urinate, they frequently suffer bladder and kidney infections. According to Dr. Millington, most are dead within three years. Other Indian divers, perhaps 20 a year, die more suddenly from embolisms, ruptured lungs and asphyxiation. Although no accurate figures exist, Millington, Marx and Lopez agree that the number of deaths is increasing, especially as the Indians must dive progressively deeper each year as the lobster population diminishes.

"It's frustrating work," says Millington at his Southern California office. "The clinic down there is always short of oxygen and other supplies, and the patients who manage a full recovery

Sudden Death comes to perhaps 20 divers a year as a result of embolisms, ruptured lungs and asphyxiation.

PHOTOGRAPHY BY JAMES D. GOLLIN

often head right back to the coast to sign up for another diving trip."

In his small office at the Cornerstone Mission at Anthony's Key Resort on Roatan, Dr. Lopez reviews his log of patients. He treated 117 divers last year in the only multiplace, multilock chamber in Honduras. Eighty percent of them were Miskito Indians. He points to the name of Javier Lainez, age 23. "After three days of 12 tanks a day at 90 feet, he was crippled with lower back pain." Following two days of treatment in the chamber, Javier's pain subsided and he went home to Uhi in La Mosquitia to rest up for his next dive trip.

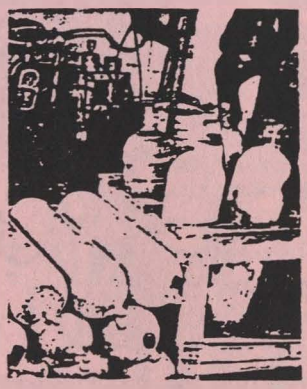
"Here's one who is 20 and will never walk again," says Lopez, running his finger down the list. "And here's a 21-year-old, completely paralyzed." Lopez touches the small of mya back as he explains the long-terma effects of untreated decompressiona sickness. "Nitrogen bubbles in thea spinal cord have the same effect as aa complete severing of the spine. Damage is permanent."a

Since divers often do not make it to the clinic until weeks after they become ill, especially if the lobstering is going well and neither captain nor crew is eager to return, permanent damage is often the final prognosis for the injured divers.

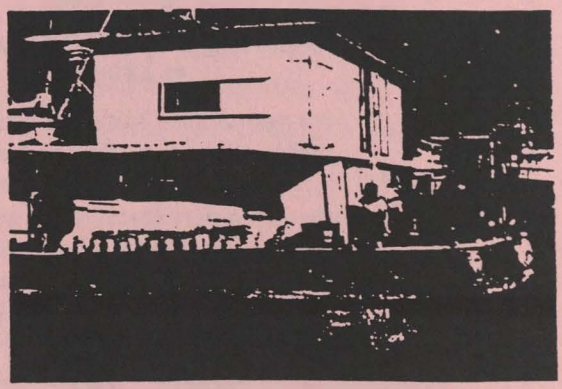
Last year, Lopez signed on for a 21-day voyage on one of the commercial lobster dive boats, sharing crowdeda space with 34 divers and their 34a *cayuceros*. He examined the Indians before and after their dives, concluding that every one had some symptoms of DCS. "I treated two of the most severe cases with oxygen and IV fluids," remembers Lopez, noting that most boats have no one trained in first aid, and that on-board medication is usually limited to aspirin or Tylenol.

When Lopez put Suunto dive computers on the divers' wrists, he was shocked by the profiles recorded. A Miskito diver named Roy Rivas was typical: his first dive was to 98 feet for 43 minutes, then 100 feet for 89 minutes, then 103 feet for 20 minutes—all in one morning. Roy used six tanks that morning, but three of his surface intervals were too short to count as such. After a quick lunch in the canoe, Roy headed back down for an afternoon of lobster diving, draining six more tanks while logging approximately the same depths and times.

According to all known principles of hyperbaric medicine, Roy should be dead. Why isn't he? Lopez and Millington theorize that over the years Miskito divers, like native Hawaiian coral divers, have adapted by developing a form of protein in their blood that increases their natural resistance to the bends and thus enables them to survive repeated deep dives. Unfortunately it doesn't protect them from the after-effects.



FROM LEFT: DUKE MEDICAL SCHOOL GRADUATE DR. BENNO MARX, WHO GREW UP IN THE MISKITO VILLAGE OF AMUMAS, WITH A RECONDITIONED VICKERS RECOMPRESSION CHAMBER; MOST LOBSTER DIVERS GO THROUGH EIGHT TO 12 TANKS DAILY—FEW OF THEM WELL-MAINTAINED; THE TYPICAL MISKITO FAMILY SURVIVES ON ABOUT $1,000 A YEAR; A LOBSTER BOAT IS LOADED WITH ANTIQUATED SCUBA GEAR AT AGUA AZUL'S WHARF.



Who's To Blame?

Dr. Lopez points to greed and drugs, and believes lobster diving should be banned. "The Indians could never endure the pain if the boat captains didn't encourage them to do drugs and stay high." A Berkeley-based KTVU News special report on the lobster divers, aired in August 1993, downplayed drug abuse and instead laid the blame for 60 recent Miskito Indian deaths on the insatiable demand of the U.S. market. KTVU specifically targeted the Red Lobster restaurant chain.

"We were unfairly singled out just because we have the word 'lobster' in our name," says Dick Munroe, Red Lobster's vice president for public relations. After donating $7,000 to help fund Miskito diver training in June 1992, the company has recently come out in favor of a total ban on lobster diving. Red Lobster now claims that its share of the Honduran lobster harvest is down from 400,000 pounds per year to 250,000, or about 17 percent of the Honduran harvest and only 7 percent of the chain's annual consumption of 3.5 million pounds of lobster. Further, Red Lobster requires that Honduran suppliers certify that those lobster were caught in traps.

Bobby Gough, manager of Roatan's Agua Azul factory, whose largest client is Red Lobster, insists that all of his lobsters are now trap-caught. But not everyone familiar with the situation is willing to take such assurances at face value. Gough refused to let me photograph the plant. But at the wharf in front of the factory I watched crews of two fishing boats, equipped with air compressors and hundreds of scuba tanks, filling the holds with ice from an Agua Azul conveyor belt.

"Relying on 'certification' by Honduran boat captains as to the origin of their product is comparable to accepting at face value the 'guarantee' that the Rolex you just purchased for $20 is the real thing," says marine ecologist Bill Alevizon, a professor at the University of California at Berkeley and director of the Ocean Conservation and Environmental Action Network (OCEAN). Even if Agua Azul and Red Lobster are truthful in their claims that they no longer traffic in lobster caught by

divers. the fact remains that divers continue to harvest lobster that eventually reaches the U.S. market.

James Rukin of the seafood processor Mariscos de Bahia admits that it isn't always possible to tell whether a tail comes from a trapped or speared lobster, and estimates that only 30 percent of the Honduran harvest is trap-caught. Rukin would also like to see commercial lobster diving made illegal. "Diving is too effective," he says. "It's not only killing the Indians, it's killing the resource."

A few years ago, lobster divers could stille work in 40 to 60 feet ofe water, but over-harvesting has forced deeper and deeper dives each season, with a corresponding increase in incidents of DCS. "Last year the lobsters were at over 100 feet," says Rukin. "This year they might be at 150 feet. At this rate our entire industry will disappear within a few years."

Decreasing lobster harvests—down to half of the approximately 3-million-pound level of previous years—have prompted business interests to support a government-enforced diving moratorium from March 15 to July 15, 1994. But with lobsters now concentrated only at depths of well over 100 feet, Indian leaders are gearing up for an epidemic of DCS as soon as the 1994 season begins.

Osvaldo Munguia, executive director of MOPAWI, doesn't support a ban on diving. Nearly 10 percent of the male Miskito population works on the dive boats; their pay represents the bulk of La Mosquitia's cash economy. Instead, MOPAWI's strategy is to educate divers while asking the government to regulate the industry, including the requirement that only certified divers be allowed to harvest lobster.

In 1993, MOPAWI and the Moravian Church brought Robert Armington, a former U.S. Navy diver, to the remote Mosquito Coast town of Cocobilla to set up a diver training school. Student divers learn about nitrogen levels, basic equipment maintenance and strategies for minimizing bottom time.

Of the 80-plus divers who have graduated from the school, Armington reports that they are well-accepted by boat captains and fellow divers since their knowledge and skills decrease everyone's chances of injury. As word of the school spreads, other Indian divers have tried to enroll, but space is limited due to a lack of funds. Undaunted, Armington, who runs the school on $100 a month, hopes to open a second training facility in Kaukira if MOPAWI can raise the necessary funds.

Professor Alevizon agrees that diver education and resource diversification are the keys to reducing the tragedy of DCS and the pressure on a single marine resource. Alevizon, who works primarily in Nicaraguan Mosquitia, established a dive school that certified six divers before it ran out of funds. Alevizon and fellow Berkeley professor Bernard Nietzschman helped to set up a dive shop that sells Indians gauges, BCs and other equipment at wholesale prices, and they are currently trying to raise funds to reopen the dive school.

In 1989 the Honduran government attempted to solve the lobster diving problem with Resolution 04-89, outlawing all commercial fishing with scuba. But the law was rescinded almost immediately due to the protest of the Miskito divers threatened with unemployment. The Fisheries Department of the Ministry of Natural Resources is now trying to extend the current four-month moratorium on lobster diving to six months. It has also called for increased industry regulation, including requiring that all divers graduate from a government-approved school.

The Honduran government is sensitive to North American pressure to address this issue, and also to the problems that lobster diving is causing with its neighbors, especially Nicaragua. "Honduran boats are poaching lobsters from Nicaraguan waters, threatening a $30 million-a-year industry," claims Alevizon. He charges that Honduran boats sometimes purchase a permit for one boat to harvest Nicaraguan lobster, photocopy it, and send in a small fleet of ships with identical names. "Nicaraguans are pulling out guns and hunting for Hondurans," says Alevizon. "The situation is explosive."

As usual, it's the divers who get hurt. Honduran boats are likely to cut and run at the first sign of a Nicaraguan gun boat, and they're reportedly not too fastidious about picking up all their divers. James Rukin recalls the story of a diver who was abandoned nearly 100 miles out to sea. "He made it back to shore by himself, but not before his fins had cut through the tendons in his feet."

In fact, most of the veteran divers are damaged goods. When hyperbaric physician Tom Millington visited La Mosquitia, he found that nearly 100 percent of the veteran divers suffer significant neurological damage. "I went for a walk on the beach at Cocobilla and realized that all the men I saw were limping," recalls Millington. "When I shook their hands, their grips were weak." Millington's tests showed that many of *(Continued on page 102)*

(Continued from page 70)

the divers could not feel needles inserted into their legs, others had lost control of their bladders and colons. "They call themselves 'half men,'" he says, referring to the impotence that is yet another side effect of DCS.

An Endangered Species

The story of the Miskito lobster divers is a tale of poverty and waste, bravery and drug abuse, dedicated professionals and short-sighted profiteers. The Indians, many of whom continue to dive even when they understand the risks, are not simply victims of a cruel collusion of Bay Island capitalists and lobster-hungry Americans.

Throughout the world, a familiar pattern has emerged wherever indigenous peoples are impacted by the modern economy. Their traditional cultures dissolve in a flood of new diseases, alcohol and the exigencies of living in a cash economy. In the case of the Mosquito Coast, landless peasants and cattle barons are gradually extending roads, logging and burning the forests, and "colonizing" the lands that the Indians used to hunt, trap and fish. It is difficult to convince a diver used to making $500 in two weeks to return to subsistence farming when he feels himself powerless to defend his traditional land and livelihood.

"The Miskito Indians are the spotted owls of Central America," says Reverend Gus Salbador, missionary director of the Cornerstone Medical Mission on Roatan. "They are an indicator of the health of the eco-system."

When the four-month moratorium ends on July 15 and the lobster fleet sails out of Roatan for another season of indiscriminate harvest at depths of up to 150 feet, both the Miskito divers and their spiny-tailed prey will move another season closer to becoming endangered species.

James D. Gollin is a freelance writer based in Sante Fe, N.M., who has also written for The New York Times.

III. LETTERS FROM INDIVIDUALS

SOUTH ATLANTIC FISHERY MANAGEMENT COUNCIL
ONE SOUTHPARK CIRCLE
SUITE 306
CHARLESTON, SOUTH CAROLINA 29407-4699
TEL 803/571-4366 FAX 803/769-4520

John Brownlee, Chairman
David Cupka, Vice-Chairman

Robert K. Mahood, Executive Director

MEMORANDUM

DATE: September 19, 1994

TO: Technical Staff

FROM: Carrie Knight, Public Information Officer

SUBJECT: Public Comments Regarding Fisheries Issues

In the beginning of September, I received a phone call from John Peel, a long-time commercial fisherman who resides in Palm Beach Gardens, FL. He docks his boat in Fort Pierce, FL (407/694-2245).

He said he preferred to telephone us with his comments:

He called to complain that people were fishing illegally in the Oculina Bank, particularly at night. He referenced "big shrimpers and draggers at depths of 80 to 250 feet" fishing for rock shrimp and pink shrimp. He also said that recreational fishermen were illegally fishing there as well.

Regarding mackerel, he said mackerel permit requirements should be increased significantly from 10 percent, and it should read "total income" and not "earned income".

SPINY LOBSTER

Regarding spiny lobster, he said fishermen shouldn't be able to harvest lobster with a dive tank.

He said spear guns should be prohibited.

He also said that the net ban in Florida addressing purse seines proposes that they be banned only for harvesting food fish. He said goggle eyes are being caught and sold in the Northeastern United States as a food fish.

cc: Sinnett, Mahood

IV. LETTERS FROM ORGANIZATIONS

GULF OF MEXICO FISHERY MANAGEMENT COUNCIL
Lincoln Center, Suite 331 • 5401 W. Kennedy Blvd.
Tampa, Florida 33609-2486 • 813/228-2815 • Fax 813/225-7015

September 23, 1994

Mr. Robert K. Mahood
Executive Director
South Atlantic Fishery Management Council
One Southpark Circle, Suite 306
Charleston, South Carolina 29407-4699

Dear Bob:

Our Council approved your draft Amendment 4 to the Spiny Lobster FMP for the purposes of holding public hearings. In taking this action it was the understanding of the Council that the following editorial changes will be made in the amendment. Under Action 1 a framework procedure will be developed in a subsequent amendment to allow revision of bag limit. Recreational harvest of berried lobster is prohibited under this provision. Under Action 2 retention of lobster by headboats off Florida is prohibited during the closed season.

Our understanding is that you will provide us with the revised amendment, public comments and SSC/AP recommendations for final action at our November meeting.

Best personal regards.

Sincerely

Wayne E. Swingle
Executive Director

WES:plb

c: Julius Collins
Kenneth Roberts
Spiny Lobster Management Committee
Technical Staff

memo\sacoral4.rev

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 13 1994

F/SEO11:GC

Mr. Robert K. Mahood
Executive Director
South Atlantic Fishery
Management Council
1 Southpark Circle, Suite 306
Charleston, SC 29407-4699

Dear Bob:

These are our informal comments on Amendment 4 to the Fishery Management Plan for the Spiny Lobster Fishery of the Gulf of Mexico and South Atlantic.

General Comments

We suggest that the amendment begin with discussion of what rules are currently in effect north of Florida (i.e., 6 per person bag limit, season from August 6 - March 31, 2-day sport season, etc.), including any state rules that may apply, and a discussion of how Amendment 4's proposal will change the biological and economic status quo. This approach should make it easier for the public to judge the effects of these proposals.

The amendment would benefit from a thorough, technical edit. Some inconsistent and irrelevant information could be eliminated and discussions focused on the effects of the proposed actions. For example, discussions of shorts, traps, Monroe County landings, and commercial fishing in general are not relevant except in a history of the fishery section. Also, the amendment frequently references the need to reduce recreational harvests without explaining how these proposals could possibly address this problem.

The amendment could be strengthened by including analyses of impacts of certain measures (e.g., daily bag limits of 2, no closed season) throughout the management area as opposed to just the northern areas considered, and a discussion of why that option is not the preferred alternative. The implication is that if these measures were implemented off Florida, for example, the impact would be significant, although that is not expressly stated in the discussion of alternatives and impacts.

The Southeast Fisheries Science Center finds that the proposed actions are based on the best available scientific information. Attached is a copy of comments from NMFS Headquarters offices, including comments on NEPA compliance. Also attached is a copy of Amendment 4 with a number of editorial suggestions.

Specific Comments

(1) Objectives and Problems in the Fishery

- Amendment 4's Objective no. 1 (page 1) does not appear to be consistent with anticipated effects. It may not have a significant adverse effect on lobster populations, but Amendment 4 is not likely to contribute to the long-term productivity of the stocks since it allows harvest of spawning stock and could reduce the number of larval recruits.

- Complaints about the inability of Florida to identify major user groups (Problem no. 6, page 2) are outdated and inaccurate. In addition to the Florida trip ticket system used to track commercial landings, Florida licenses recreational fishermen (Crawfish Stamp) and interviews about 10 percent annually. Harvest estimates are probably more accurate than for most other recreational fisheries.

- On page 2, the statement "While tagging studies indicate the recreational harvest is likely to be about ten percent of the commercial harvest, ..." is incorrect. Tagging studies have provided little, if any, information concerning the Florida recreational spiny lobster harvest. Results of mail surveys (Bertelsen and Hunt, 1991) indicate that the recreational harvest was about 29% of the total Florida commercial spiny lobster harvest.

(2) Modification to Recreational Season and bag limits

- Although Amendment 4 does not address this issue, we understand that the Council intends to continue the prohibition on taking berried lobsters north of Florida. We recommend that Amendment 4 clearly state this position. It makes good biological sense to protect all potential recruits.

- We understand that a framework procedure will be developed under a subsequent amendment to allow review of bag limits north of Florida.

(3) Headboat Incidental Catch

- This measure technically conflicts with current regulations prohibiting use of gear containing hooks or similar devices. The Council needs to reconcile the existing gear restrictions with an exemption for hook and line headboats.

- Amendment 4 should include a definition of "headboats."

- What is the rationale for an exemption of 5 lobsters? The only evidence available indicates that one captain's record was 3 on one trip and the usual catch rate is about 1 per month.

- We understand that action 2 will be revised to prohibit retention of lobster by headboats off Florida during the closed season.

- As mentioned above, the Council's intention to retain the prohibition on possession of berried lobsters north of Florida needs to be clearly stated.

(4) Economic Impacts

- There is no mention of increased enforcement costs. The amendment states the need for compatible state regulations; hence, increased Federal and state costs of developing, implementing, and enforcing the new regulations are implied.

- Once enforcement related costs are estimated, it should be possible to examine the total costs and present a discussion of the probability that benefits will exceed costs.

- Overall, the best conclusion that the RIR can reasonably come to is "unknown." These actions seem biologically inconsequential and the only real question is whether or not the costs outweigh the benefits when it can be argued that the benefits are very small or even negative.

- There is no major effect on small business entities. The language on page 28 has the effect of doing an IRFA when none is required. Note: the latter comment applies in all such cases and to other SAFMC amendments currently under consideration.

Sincerely,

Andrew J. Kemmerer
Regional Director

Attachments

cc: F/SE01, F/SE011, F/SE012, F/SE03, F/SEC, F/CM, GCSE, GMFMC

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Silver Spring, Maryland 20910

OCT -6 1994

MEMORANDUM FOR: F/SERO11 - Georgia Cranmore

FROM: F/CM2 - Paula N. Evans

SUBJECT: Washington Office Comments on Draft Amendment 4 to the Fishery Management Plan for the Spiny Lobster Fishery of the Gulf of Mexico and South Atlantic

The subject document has been reviewed by staff members in the NMFS headquarters and other offices within NOAA. Copies of the comments that we received have been sent to your office and are attached to this memo.

Substantive Comments

General Comments

1. Quality of Document

This document does not contain enough information on the proposed management measures to determine whether it is acceptable for submission for Secretarial review. The South Atlantic Fishery Management Council needs to revise the amendment and address the concerns presented in the comments below.

2.n Compliance with NEPA

a.n General. The NOAA Office of Ecology and Conservationn (OEC) has informed us that even though, the actions proposed under this amendment would certainly fall under the scope of an environmental assessment (EA), the EA does not contain information necessary to analyze the actions, or meet the Council on Environmental Quality requirements. The following comments address the four basic components of the EA.

b.n Purpose and Need. This section is well written andn explains why the proposed actions are being considered. The only addition would be to include the list of actions found on page (1)n somewhere in this section.n

c. Alternatives. This section fails to provide the information necessary to analyze the EA. The matrix on pages 5 and 6 is a good reference guide, but by itself does not adequately support the EA. This matrix does not even contain a section on environmental impacts of the actions. The alternative section of the EA is one of the most important sections, and the reference to the environmental consequences section for further

information is not sufficient. The alternative section of the EA should have at the minimum, a followup paragraph addressing each alternative. This paragraph should define the alternative action and its environmental impacts. It should provide information needed to make comparisons between the alternatives. The Council's preferred alternative should be identified in this section and the reasoning for choosing that alternative. Since this information has not been provided in this document, the preferred alternative must be identified in the final EA.

d.o Affected Environment. This section only provideso information in regards to the spiny lobster fishery, and focuses more on the economics than the environment. The affected environment section should provide a description of the physical and biological environment in which the lobster and fishery exist. That should also include a brief description of othero species found in the lobster habitat, especially species thato interact directly with the spiny lobster. The informationo provided from the scoping meeting can be part of the EA, buto should be located in another section or an appendix.o

e.o Environmental Consequences. This section should analyze the environmental consequences of each alternative. In this EA, the majority of information addresses economic and enforcement consequences. That information should be included in the EA, but should not be where the major emphasis is given.

2.o In the alternatives section, there should be a discussion ofo the current regulations for the harvesting of spiny lobstero in Georgia and South Carolina.o

Other (Including Editorial Changes)

General Comment

This document is not well organized. It is confusing and difficult to follow.

1.o The title is incorrect. The correct title is "Fisheryo Management Plan for the Spiny Lobster Fishery of the Gulf ofo Mexico and South Atlantic." It needs to be corrected on theo cover and the title page.o

2.o The Table of Contents will have to be revised to reflect theo changes that need to be made.o

3.o The section on Management Objectives and Issues/Problems too be Considered should be placed before the section on Purpose ando Need.o

4.o The regulatory impact review discussion on page iii should beo placed in a separate section after the discussion ofo alternatives.o

5. The socioeconomic impacts for all of the alternatives shouldo be discussed separately under the heading of "Economic Analysis of Impacts of All Measures." This should be followed by theo listing of the public and private costs, including enforcement costs, if available.o

6. The summary of expected changes on page 26 should be expanded and presented as a summary of regulatory impacts for all of the alternatives. A paragraph is needed explaining why this amendment is not significant under Executive Order 12866. I recommend that you look at Amendment 7 to the Fishery Management Plan for the Shrimp Fishery of the Gulf of Mexico for the appropriate language for this paragraph.

7.o On page 27, the title before the last paragraph should readO "Description of Economic Impact on Small Entities." It is poor form to refer to a "Determination of Significant Economic Impact on a Substantial Number of Small Entities, when in fact, sucho a determination is not being made.o

8.o On page 29, under conclusion, a second sentence should beo added as follows: "Therefore, an IRFA is not required."o

9.o On page 33, the section on the description of the fisheryo should be placed before the section on issues and problems to be considered. Also, numbers 1.3 and 1.4 do not belong under theo discussion of Endangered Species and Marine Mammal Acts.o

Typographical Errors

1.o The word "subsequently" is misspelled in two places. First, in Section 4.0, on the last line of the second paragraph undero management measures on page 17, and second, on page 22, on theo last line of the second paragraph under Action 2.o

2.o Under Action 2 on page 22, under socioeconomic impacts, the word "Atlantic" is misspelled.o

3.o Under objectives and legal basis for the rule on page 28, the word "prevent" is misspelled.o

4.o Under 1.1 of Section C in the second paragraph on page 33, the word "wire" is misspelled.o

Attachments

SUBJECT: Comments on Amendment 4 EA to the FMP for the Spiny Lobster Fishery of the Gulf and South Atlantic

I have reviewed the subject EA and offer the following comments for your consideration. Please call me if there is a need to further discuss them.

GENERAL
Although the actions proposed under this amendment would certainly fall under the scope of an EA/FONSI, the EA does not contain information necessary to analyze the actions, or meet CEQ requirements. The following comments address the four basic components of the EA.

PURPOSE AND NEED
This section is well written and explains why the proposed actions are being considered. The only addition would be to include the list of actions found on page (i) somewhere in the Purpose and Need section.e

ALTERNATIVESe
This section consists of only a matrix and fails to provide information necessary to analyze the EA. The matrix is a good reference guide, but by itself does not adequately support thee EA. This matrix does not even contain a section on environmentale impacts of the actions. The alternative section of an EA is onee of the most important sections, and the reference to thee environmental consequences section for further information is note sufficient. The Alternative section of the EA should have at thee minimum, a follow up paragraph addressing each alternative.e This paragraph would better define the alternative action and itse environmental impacts. It should further provide informatione needed to make comparisons between the alternatives. Thise section should also label the councils preferred alternative fore each action and give the reasoning for it.e

AFFECTED ENVIRONMENTe
This section only provides information in regards to the spiny lobster fishery, and has more of an economic focus than an environmental focus. The affected environment section should provide a description of the physical and biological environment in which the lobster and this fishery exist. That should also include a brief description of other species found in the lobsters habitat, especially species that interact directly with the spiny lobster. The information provided from the scoping meeting is good and can be part of the EA, but should be located in another section or an appendix.

ENVIRONMENTAL CONSEQUENCES
This section should analyze the environmental consequences of each alternative. In this EA the majority of information addresses economic and enforcement consequences. That information should be included in the EA, but should not be where

the main emphasis is given.

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Silver Spring, Maryland 20910

OCT 06 1994

MEMORANDUM FOR: F/CM2 - Joe P. Clem

FROM: F/HP1 - Jim Burgess

SUBJECT: Draft Amendment 4 to the Fishery Management Plan for the Spiny Lobster Fishery of the Gulfo of Mexico and South Atlantic

Thank you for the opportunity to review the subject document. The proposed amendment will not have any affect on the habitat ofo this or other resources. We therefore have no comment on this amendment. We note, however, that the habitat section for this Plan was written in 1982 and is therefore more than ten years outo of date. For example, reference is made in section 6.3 to Florida "currently developing its Coastal Zone Management Program". Florida's Coastal Zone Management Plan was approved in 1981 and contains habitat protection measures that should be mentioned in this section. In addition, reference is made in section 6.2 to experimental plantings of marine seagrasses and a statement is made that "Without more proof that the Thalassia detritus food web produces animals of direct benefit to man, theo replanting should not be sponsored by the lobster industry." Theo issue of industry sponsorship aside, NMFS' Beaufort Science Center has done considerable research over the past decade on seagrass beds and any statements about the benefit of seagrass beds to living marine resources should reflect NMFS' current understanding of these ecosystems. We suggest that you contacto Dr. Gordon Thayer at the Beaufort Science Center for more information.

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Silver Spring, Maryland 20910

OCT 7 1994

MEMORANDUM FOR: F/CM2 - Joe P. Clem

FROM: F/EN - Office Director

SUBJECT: Amendment 4 to the Fishery Management Plan for the Spiny Lobster Fishery of the Gulf of Mexico and South Atlantic

We have reviewed the subject Fishery Management Plan amendment and have the following comments:

Proposed Action 1 - Allow the harvest of two lobsters per person per day for all fishermen all year long but only north of the Florida/Georgia border.

Only a limited amount of spiny lobster is harvested north of the Florida/Georgia border, and virtually all of this is taken from the EEZ. It would seem, then, that states north of Florida would have very little interest in seeing that their spiny lobster regulations are consistent with the Federal regulations. If they, indeed, had such an interest, we would have seen efforts to make the regulations compatible in the past. We have seen no such efforts. We take exception, therefore, with the statements in the Enforcement Impacts section which imply that the states would seek to implement regulations which would conform to Federal regulations. We also disagree with the statement in this section, "Having the same regulations in state and federal waters will enhance voluntary compliance." In our experience, compliance never comes voluntarily from fishermen but only as a result of rigid enforcement.

We have no problems with enforcing the current seasonal closure north of the Florida/Georgia border. The proposed action would only complicate what is a fairly straightforward seasonal closure. Accordingly, we recommend against this proposed action. We would prefer that no action be taken per rejected option 1.

Proposed Action 2 - Provide an exemption for the incidental catch ~~of spiny lobsters~~ by headboat hook and line vessels and limit them to five lobsters per headboat per day.

The driving force behind this proposed action seems to be only the testimony of one headboat captain that he catches about one lobster a month. We are alarmed that the Council, and now NMFS, is wasting valuable time in addressing such a trivial issue. Further, we are opposed to the notion of creating special exemptions for individual ~~fishermen~~ who want their activities legitimized for reasons having nothing to do with conserving or managing fisheries resources. Such exemptions serve only to complicate the regulations and make enforcement more difficult. We strongly oppose creating this exemption.

APPENDIX C. Information on Spiny Lobster Habitat

FISHERY MANAGEMENT PLAN

ENVIRONMENTAL IMPACT STATEMENT AND

REGULATORY IMPACT REVIEW

FOR

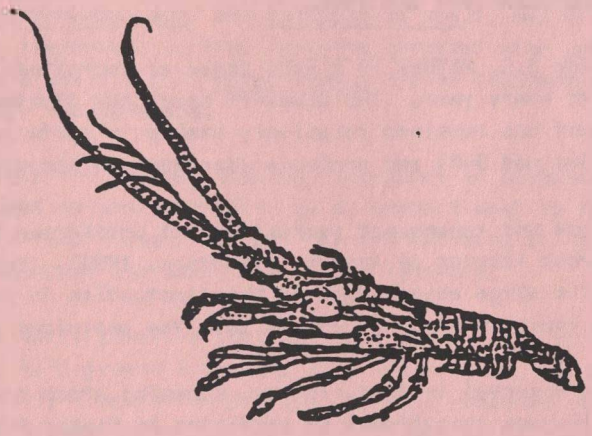
SPINY LOBSTER

IN

THE GULF OF MEXICO

AND

SOUTH ATLANTIC



GULF OF MEXICO AND SOUTH ATLANTIC

FISHERY MANAGEMENT COUNCILS

March, 1982

The true abundance of spiny lobster in Florida, as elsewhere, is unknown. Relative abundance is indicated by catch (c) and catch per unit effort (c/e). Data have been summarized by Smith (1958: 28) for 1925-1958, by Robinson and Dimitriou (1963) for 1953-63, and by Johnson (1974) and Joyce (1974) to 1973. Historical landings in Florida are shown in Exhibit 8-1.

Total Florida landings must be adjusted for catches from the Bahamas and in other foreign waters. In recent years over half of the "Florida" landings came from abroad. The Bahamian concern for their lobster resources reduced effort in their waters in 1975, but illegal fishing, mostly by United States resident alien fishermen who land lobster in Miami, still occurs (see Section 8.2.1.1).

Intensive fishing effort has reduced the size distribution of the population and substantially reduced reproductive capacity. Lyons, et al. (manuscript) estimates that the total number of eggs spawned on reef areas in the Florida Keys has been reduced to 12 percent of the unfished condition. The effect of this reduction depends on the spawner:recruit relationship of the species. For P. argus this relationship is unknown. Normally, species with a very high fecundity, such as spiny lobster, do not show a very close relationship between the number of eggs spawned and the subsequent recruitment.

Limited data on juvenile abundance indicate substantial variation by area and from year to year which may indicate variations in recruitment. In Biscayne Bay, Davis (1978) reports a 67 percent decline in catch rate of juvenile lobster in commercial shrimp trawls between two studies done during 1968-69 and 1976-78. Davis (personal communication) reported an increase of nearly an order of magnitude in juvenile abundance in Florida Bay between 1977 and 1978.

The reported commercial catch for U.S. waters is a good index of recruitment because the fishery takes about all the available recruits every year. The domestic catch has fluctuated very little since 1969, indicating that recruitment has remained relatively stable in spite of very large increases in fishing effort (e.g. Exhibits 5-4 and 5-6) and probable decreases in spawning.

A relation between spawning stock and subsequent recruitment of postlarvae has been shown for Panulirus cygnus, the western rock lobster of Australia (Morgan, 1980). Density dependent growth and mortality effects in the juvenile stage absorb most of the fluctuation in postlarvae recruitment, resulting in relatively stable recruitment of juveniles into the exploited population.

Within the range of stock sizes observed in that fishery, spawning stock reductions are positively correlated with increasing postlarvae recruitment as predicted by Ricker (1975). So far, no reductions in recruitment have occured. At some point, further reductions in spawning stock will result in decreasing recruitment. At this time, it is impossible to predict where that point may be.

This Australian species is significant because of the close similarity with P. argus. The western rock lobster has a very similar life cycle, ecology and size at sexual maturity. The fishery operates with the same three inch size limit, has a very high exploitation rate, and has reduced the spawning stock by an amount similar to that in the U.S. fishery. The Australian experience supports present indications that large reductions in spawning have not adversely affected recruitment in the U.S. fishery. It also indicates that recruitment should be closely watched in the future if spawning continues to decrease.

5.3 Ecological Relationships

Throughout the life of the spiny lobster, it interacts with other species. The larvae are suspected of feeding on small planktonic crustacean larvae and medusae (Provenzano, 1969). Young juveniles were found to feed on molluscs (Peacock, 1974). Large juveniles and adults in the reef habitat contained algae, foraminifera, sponge spicules, polychaetes, sand, bivalve remains, gastropod mollusc remains and crustacean remains in their guts (Peacock, 1974). Allsopp (FAO, 1968) reports P. argus feeding on fish, crustaceans (including other lobsters) and molluscs, particularly the turkey wing clam, Arca zebra.

Juveniles generally live in the shelter of corals, rocks, or other cover. Occasionally they live in association with sea urchins (Davis, 1971) and sponges (Khandker, 1964), which also offer shelter.

Adults serve as attachment sites for barnacles (Balanus eburneus) (Buesa Mas, 1965). The exoskeleton is attacked by a chitinoclastic bacteria yielding a "shell disease" (Iversen and Beardsley, 1976). Sindermann and Rosenfield (1967) mention a microsporidian infection causing a condition similar to "cotton shrimp." Fungi are known from gills of the related P. vulgaris (Sordi, 1958), and a parasitic barnacle, Octolasmis forresti (Stebbing, 1894), has been reported from the gills of P. argus (Pearse, 1954).

No extensive parasite or disease research has been conducted on P. argus or other Florida lobsters.

Interspecific competition with P. guttatus and P. laevicauda is suspected to be minimal due to the scarcity of P. laevicauda thoughout much of the range and scarcity and ecological differences in P. guttatus. No direct studies of interspecific competition have been conducted.

Larvae are preyed upon by a number of pelagic fishes, including tunas, Katsuwonus pelamis and Thunnus atlanticus (Baisre, 1964). Juveniles are presumably subject to predation by numerous fishes while occupying the mangrove and grass flat habitats. Major predators of adults and subadult stages include skates (Dasyatis spp.), sharks (especially Ginglymostoma cirratum), various snappers (Lutjanus), grouper (Mycteroperca spp. and Epinephelus spp.), and octopus (Buesa Mas, 1965). Dolphins (Tursiops) and loggerhead turtles (Caretta caretta) also prey on lobster Munro (1974). Allsopp (1968) reported a small snail, Murex pomum, killed lobsters in traps, and presumably in nature, by boring through the carapace.

Munro (1974) showed a relation between fishing, abundance of predatory fishes and natural mortality of spiny lobster. He assumes natural mortality to be proportional to the biomass of predators on the reef. Since the Jamaican south coast fishery heavily exploits all predators, the effect of fishing reduces predators and improves the survival rate of lobsters.

Witham (1973) has shown early juvenile lobsters will not survive at temperatures below 10°C nor above 35°C. Between 16°C and 32°C growth increased with temperature, but survival was best near 27-30°C. Gradual decreasing salinity from 35 to 20 ppt (parts per thousand) was tolerable, but salinity below 19 ppt or rapid changes proved lethal to postlarval lobsters (Witham, et al., 1968). No scientific studies have been conducted on the reaction of adult lobsters to temperature and salinity.

Welsh (1934) had indicated the presence of a caudal photoreceptor in lobsters and Hess (1938 and 1940) has commented on overall light sensitivity in newly molted animals.

Sound production of P. argus is discussed by Mulligan and Fischer (1977).

5.4 Estimates of Maximum Sustainable Yield

A surplus yield model using only recorded catch and effort data for the commercial trap fishery in the primary fishing areas was used to estimate a sustainable yield of 5.9 million pounds with the present size limit (Section 5.4.d). After considering other unrecorded harvest and optimum size at recruitment, MSY was estimated as 12.7 million pounds (Section 5.4.2). Size at maximum yield per recruit given present fishing effort was estimated to be between 3.7 and 3.9 inches carapace length (94-99 mm). The present 3.0 inch minimum size was estimated to provide between 85 and 91 percent of the maximum yield per recruit at present effort levels (Section 5.4.3).

6.0 DESCRIPTION OF HABITAT OF THE STOCK

6.1 Condition of the Habitat

The spiny lobster occupies three major habitats during its life cycle. Larvae occur in the open ocean in the epipelagic zone of the Caribbean Sea, Gulf of Mexico and Straits of Florida. Postlarvae and juveniles occupy shallow coastal waters of bays, lagoons, and reef flats while the adults generally occur at seaward reefs and rubble areas.

The epipelagic open ocean environment of the Caribbean and Straits of Florida is characterized by relatively constant temperature, salinity and constantly low concentrations of nutrients and phytoplankton. For details of the physics and chemistry see Wust (1924), Corcoran and Alexander (1963), Vargo (1968), Wood (1968), and Capurro and Reid (1970).

The shallow near-shore rocks, grass beds and mangroves are suitable habitats for postlarvae (puerull) and juveniles. Puerull are generally cryptic members of the subtidal fouling community on rocks, red mangrove prop roots, pilings, seawalls, and boat bottoms. Juveniles take shelter in sponges, natural holes and crevices (Davis, 1978) and among urchins (Davis, 1971). Generally, as the size increases movement toward deeper water occurs.

The reef habitat of Florida curves south and westward from Miami to Key West and the Dry Tortugas. The length is approximately 325 kilometers. The Florida coral reef tract varies from half a meter below mean low water to a depth of about 25 m. Extensive rocky reef areas are found in depths out to 200 fathoms. Spiny lobster are known to occupy such areas out to at least 100 fathoms (E. Perez, personal communication).

The zonation from shore to Straits includes an urchin-encrusting algae zone, a Porites coral zone, an Acropora coral zone, an Alcyonarian soft coral zone, and a massive Montastraea coral zone (see for example Storr, 1964: 560.

Craig (1974) described the bottom topography and distribution of "reef" along the 40 miles of coastline between Port Everglades and Palm Beach. Much of this consists of rocky ledges and hard bottom instead of true coral reefs. In spite of the non-coralline nature of this habitat, lobster population densities apparently reach 3,000-5,000/mi^2 based on conservative extrapolation of average catch data, but rapid changes are known to occur (Craig, 1974). Localized transitory movements between inshore and offshore reefs are known to fishermen and are statistically evident.

6.2 Habitat Areas of Particular Concern

The open ocean epipelagic zone of the phyllosoma larvae is subject to oil and tar pollution of increasing magnitude. International law concerning bilge water and oil spills and continued educational efforts should minimize this impact.

Research on the culture of phyllosomes has shown that water which is heavily laden with sediment is detrimental to the larvae since the silt settles on them and weighs them down, causing death (Crawford and de Smidt, 1922). Open ocean dumping should therefore be controlled to reduce flocculent materials.

The shallow water mangrove and grass flat nursery areas have been subject to past abuses of development, dredge and fill, sewage discharge, modified fresh-water discharge, brine discharge, thermal discharge, etc. Existing laws protecting emergent and submergent vegetation from dredge and fill and present water quality laws of the Florida Department of Environmental Regulation, and federal

agencies, Environmental Protection Agency and U.S. Corps of Engineers, offer protection to these environments if they are enforced.

There is a correlation between normal high salinity and the occurrence of P. argus. Austin (1972) suggested lobster phyllosomes cannot tolerate the shallow, nearshore waters of the west Florida estuarine system which were less saline than the offshore loop current in the Gulf of Mexico. As a result of Hurricane Alma in June 1966, and the St. Lucie canal discharge, the salinity of the Indian River estuary dropped to 6 o/oo on the surface and interrupted the normal monthly influx of puerull (Witham, et al., 1968). Discharge of fresh water from the flood control structures was discontinued in September 1966, and monthly recruitment resumed in October (Witham, et al., 1968). Hence an increase of fresh-water discharge into the major lobster nurseries along south Florida could affect recruitment. Point sources of fresh-water discharge near major inlets in southern Biscayne Bay, Florida Bay or between various Keys could, if of sufficient magnitude, hinder recruitment and reduce extent of bay habitat for juveniles.

After puerull settlement and after pigmentation is fully developed, rocky shallow-water habitats with mangroves and sea grass (Thalassia testudinum) beds are the most favored environment and serve as nursery areas for pre-adult populations (Munro, 1974). At the tip of south Florida adjacent to the Keys, turtle grass meadows are a principal vegetation type (Moore, 1963). They are common as well south of the Featherbed Bank in Biscayne Bay and Card Sound (Roessler and Beardsley, 1974), and in Florida Bay (Tabb and Manning, 1961), and throughout shallow areas of the Florida Keys (Turney and Perkins, 1972).

Some experimental replanting of areas devoid of marine sea grasses turtle grass (Thalassia testudinum) and halodule (Halodule wrightii) has been undertaken (Kelly, et al., 1971; Thorhaug, 1974).

The economics of replanting (Thorhaug and Austin, 1976) indicate a very high cost. The need to import seeds without a quarantine period also opens the danger of accidental introduction of diseases, parasites or competitors from insular areas. Without more definite proof that the Thalassia detritus food web produces animals of direct benefit to man, the replanting should not be sponsored by the lobster industry.

P. argus is found on most shelf areas which offer adequate shelter in the form of reefs, rocks, or other forms of cover (Munro, 1974m). Artificial reefs and other forms of man-made cover provide shelter from natural predators, but the evidence is inconclusive if the effect is one of concentration or if habitat improvement actually increases the standing stock or reduces natural predation. Chittleborough (1970) has shown that the natural mortality of pre-recruit P. longipes cygnus in Western Australian waters is directly related to the density of the pre-recruit populations, and postulated that the amount of shelter on a given reef might be a limiting factor, leading to high mortality amongst individuals which are unable to find a safe refuge by day. However, in coralline areas it seems unlikely that the amount of shelter offered by a reef would ever be a limiting factor, but this might be important in shelf areas which have a sparse coral cover (Munro, 1974m). Davis (1976m) created a concrete block shelter in south Biscayne Bay but demonstrated no net increase in the lobster population of the area after seven months, despite recruitment of small (35 mm CL, 1.4 inch) lobsters and migration of 90 mm CL (3.6 inch) subadults. The artificial habitat attracted lobsters in larger numbers from adjacent areas, but the overall population per unit area remained constant (Davis, 1976m).

While shelter may not be a limiting factor on juvenile spiny lobsters in south Florida (Davis, 1976), during periods of movement from shallow nursery areas to offshore reefs it probably plays an important role as a refuge from predatory pressure.

Man-induced damage has occurred to reef habitats due to dredging, removal of corals and shellfish, and anchor damage in areas of high boater use, such as John Pennekamp Coral Reef State Park. Stirring of sand or mud at the bottom of a lobster den is sometimes used by recreational fishermen to cause the

lobster to vacate a den (Dunaway, 1974). Silting of the spiny lobster habitat downstream from a sewage outfall construction (dredging) seemed to reduce commercial catches with a definite dumplume avoidance of the reef habitat by lobsters (Craig, 1974). It is generally thought that the reef tract in the Florida Keys is healthy (stable), though present research is concerned with both natural and man-induced disturbances affecting the total coral reef habitat.

Both dredge and fill and sewage outfall programs are regulated by state (Department of Environmental Regulation) and federal (EPA/Corps of Engineers) permits with public hearings. Adequate consideration of lobster stocks can be assured by active participation by the Gulf of Mexico and South Atlantic Fishery Management Councils.

6.3 Habitat Protection Programs

Mangrove islands, tidal passes, and surrounding shallow water habitats of southern Dade County are protected in Biscayne National Monument. The first 30 miles of coral reefs from Key Largo south are preserved as the John Pennekamp Coral Reef State Park and the Key Largo Coral Reef Marine Sanctuary. Further south, a five square mile coral reef off Big Pine Key will be protected under proposed regulations as the Looe Key Coral Reef National Marine Sanctuary. The Marquesas Keys are a National Wildlife Refuge, while the Dry Tortugas are preserved as a National Monument. In addition, the Everglades National Park preserves a large portion of the mangrove habitat of the state, vast acreages of shallow grass beds and in its southern reaches, protects some lobster habitat.

Section 7 of Article II of the Florida Constitution provides that it shall be the policy of the State to conserve and protect its natural resources and scenic beauty. The Florida code (Ch. 17-4.28 and 4.29) regulates dredge and fill activities, (Ch. 7-4.02) protects submerged lands, (Ch. 17-3, Fla. Admin. Code) provides water quality standards and (Ch. 161 F.S.) protects beaches and shorelines. In addition, the Randall Act (Ch. 253 F.S.) prevents the sale of state-owned lands, except after conservation considerations are met. This Act stopped sale of state-owned submerged lands. By definition, submerged lands in Florida are those lands covered by the categories of water listed in Section 17-4.28(2), Fla. Admin. Code, and having plant dominance as therein listed. Some of the dominant plants are mangroves (black, red and white), as well as the major marine grasses (halodule, manatee, and turtle grass).

In addition Florida has established special use areas, including Aquatic Preserve System, State Wilderness System, the Environmentally Endangered Lands Program, the state park system, and wildlife refuges, with special protection for wildlife and a special Outstanding Florida Waters (OFW) designation.

Other programs, including the Land and Water Management Act of 1972, established special concern for "Areas of Critical State Concern" including the Florida Keys and "Developments of Regional Impact" which may need special regional environmental regulation.

The Federal Coastal Zone Management Act of 1972 (amended and given new authority in 1975) also encouraged Florida to set up programs "to preserve, protect, develop, and where possible, to restore or enhance the resources of the nations coastal zone for this and succeeding generations." Florida is currently developing its Coastal Management Program which will address environmental, economic, and institutional programs within a general resource management framework.

AMENDMENT NUMBER 1

TO

SPINY LOBSTER

FISHERY MANAGEMENT PLAN

FOR

THE GULF OF MEXICO AND SOUTH ATLANTIC

INCLUDING ENVIRONMENTAL ASSESSMENT, SUPPLEMENTAL REGULATORY IMPACT REVIEW, AND INITIAL REGULATORY FLEXIBILITY ANALYSIS

FEBRUARY 1987

GULF OF MEXICO FISHERY MANAGEMENT COUNCIL
LINCOLN CENTER, SUITE 881
5401 WEST KENNEDY BOULEVARD
TAMPA, FLORIDA 33609
(813)228-2815

AND

SOUTH ATLANTIC FISHERY MANAGEMENT COUNCIL
1 SOUTHPARK CIRCLE
CHARLESTON, SOUTH CAROLINA 29407
(803)571-4366

through August. Interest in the harvest of slipper lobster is fueled by a favorable market that provides a wholesale price equal to that of the spiny lobster.

There is concern that the new fishery, if not managed, may impair the productivity of the slipper lobster stock particularly because a large proportion of the landings occur during the spawning season and that egg-bearing females are being harvested. Also, some Scyllarid fisheries elsewhere in the world have been unable to sustain a commercial fishery (Martins, 1985).

Specification of MSY, OY, TALFF, and EDAH

The current database is insufficient to quantitatively determine MSY, therefore MSY is set to be the same as OY. The OY for slipper lobster is specified to be all non egg-bearing slipper lobster that can be legally harvested by commercial and recreational fishermen given existing technology and prevailing economic conditions. Estimated EDAH is equal to OY and TALFF is set at zero pounds.

5.6 Description of Related Habitats

5.6.1 Condition of the Habitat

The spiny lobster occupies three major habitats during its life cycle. Larvae occur in the open ocean in the epipelagic zone of the Caribbean Sea, Gulf of Mexico and Straits of Florida. Postlarvae and juveniles occupy shallow coastal waters of bays, lagoons, and reef flats while the adults generally occur at seaward reefs and rubble areas. The slipper lobster exhibits a similar larval history but appears to exist as juveniles and adults on the outer continental shelf areas characterized by sandy bottom with rockey outcroppings (Lyons 1970; Ogren 1977). No specific information exists on the habitat requirements for the slipper lobster.

The oceanic environment of the Caribbean and Straits of Florida is characterized by relatively constant temperature, salinity and constantly low concentrations of nutrients and phytoplankton. For details of the physics and chemistry see Wust (1924), Corcoran and Alexander (1963), Vargo (1968), Wood (1968), and Capurro and Reid (1970).

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The zonation from shore to Straits includes an urchin-encrusting algae zone, a Porites coral zone, an Acropora coral zone, an Alcyonarian soft coral zone, and a massive Montastraea coral zone (see for example Storr, 1964: 56).

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AMENDMENT 2

to

The Fishery Management Plan

for

Spiny Lobster

in

The Gulf of Mexico

and

South Atlantic

including

Environmental Assessment

and

Regulatory Impact Review

Gulf of Mexico Fishery Management Council
5401 West Kennedy Boulevard
Suite 881
Tampa, Florida 33609-2486
(813) 228-2815

South Atlantic Fishery Management Council
Southpark Building, Suite 306
1 Southpark Circle
Charleston, South Carolina 29407-4699
(803) 571-4366

July, 1989

APPENDIX B

REVISED HABITAT SECTION

SPINY LOBSTER

FISHERY MANAGEMENT PLAN

6.2 Description of habitat of the stocks comprising the management unit

The U.S. spiny lobster fishery is confined to south Florida; primarily Monroe County (Figure 6-1). The principal habitat used is offshore coral reefs and seagrasses. In south Florida the Mesozonic and Cenozoic strata of the Florida Platform dominate. The Florida Platform is fronted by shelf-edge reef complexes of the Cretaceous Era. It is characterized by three regional structures but only the Southwest Florida Reef Tract is of prime importance to spiny lobster. The bottom is composed of sand and shell inshore and coral-sponge farther offshore. Salinity and temperature are high throughout most of the year and are generally higher than in the area north of Tampa. Bottom topographies on the continental shelf have high relief; i.e., coral reefs, artificial reefs, rocky hard-bottom substrates, ledges and caves, sloping soft-bottom areas, and limestone outcroppings. More detail on these habitat types is found in the fishery management plan (FMP) for Coral and Coral Reefs (GMFMC and SAFMC, 1982).

The spiny lobster spawns in offshore waters along the deeper reef fringes (Lyons et al. 1981). Although adult males and females sometimes inhabit bays, lagoons, estuaries, and shallow banks, none are known to spawn there (Marx and Herrnkind 1986). Requirements of offshore spawning habitat are high shelter quality, suitable water conditions (stable temperature and salinity, low surge and turbidity), and adequate larval transport by oceanic currents (Kanciruk and Herrnkind 1976 in Marx and Herrnkind 1986).

The following excerpt from Marx and Herrnkind (1986) detail habitat requirements for the various spiny lobster life stages:

> "Phyllosoma larvae inhabit the epipelagic zones of the open ocean, which are characterized by relatively constant temperature and salinity, low levels of suspended sediments, and few pollutants. Relatively stable, natural conditions are apparently required for optimum survival. Ingle and Whitham (1968) noted that 'spiny lobster larvae are extremely delicate, physically, and inordinately fastidious, physiologically.' Larvae are particularly sensitive to silt particles, which can, in extreme instances, lodge on their setae, weigh them down, and cause death (Crawford and De Smidt 1922). Because nutritional requirements change throughout the life of the larvae (Provenzano 1968; Phillips and Sastry 1980), enhanced growth and survival require a diverse, productive oceanic plankton community. Positive correlations between plankton biomass and density of late-stage phyllosomes were reported by Ritz (1972). Although pueruli settle on isolated oceanic banks where the minimum depth exceeds 10 m (Munro 1974), productive fisheries apparently require well-vegetated shallow habitat for juvenile development. Biscayne Bay and Florida Bay are critical nurseries for Florida lobsters (Davis and Dodrill 1980). These bays are characterized by extensive meadows of benthic vegetation, primarily turtlegrass (Thalassia testudinum), shoalgrass (Halodule wrightii), and various algae (Tabbs et al. 1962; Hudson et al. 1970; Eldred et al. 1972). Macroalgal

communities interspersed among these area apparently are important for the earliest benthic stages. Red algae, Laurencia spp., are abundant in waters supporting concentrations of young juveniles (Eldred et al. 1972; Andree 1981; Marx 1983). Intricate algal branching provides young lobsters with cryptic shelter and supports a diverse assemblage of small gastropods, crustaceans, and other prey.

Juveniles larger than 20 mm CL take refuge in both biotic (sponges, small coral heads, sea urchins) and abiotic (ledges, solution holes) structures. The importance of shelter availability on population distribution is magnified because, unlike clawed lobster, spiny lobsters can modify but not construct dens (Kanciruk 1980). Substantial addition of artificial shelters in Biscayne Bay caused population redistribution but did not increase the numbers of lobsters in the area (Davis 1979). The south Florida juvenile lobster population may be limited by recruitment, emigration, food, and perhaps other factors (Davis 1979).

Adults inhabit coral reef crevices or overhangs, rocky outcroppings, ledges, and other discontinuities in hard substrate. Residential patterns of habitation are apparent in large, permanent dwellings near extensive feeding grounds (Herrnkind et al. 1975). Soft-substrate shelters, like grass-bed ledges, are occupied primarily during nomadic movements. Muddy, turbidity-prone substrates are usually avoided (Herrnkind et al. 1975; Kanciruk 1980).

Throughout benthic life spiny lobsters use other habitats besides those providing shelter. Lobsters concentrated during the day in localized dens disperse at night to forage over adjacent grass beds, sand flats, and algal plains (Herrnkind et al. 1975). Interactions between population density of spiny lobster and food availability have not been studied in south Florida. Extreme variation in growth rates, both among individuals and by habitat, suggests that food abundance is a critical factor, as demonstrated in spiny lobster species elsewhere (Chittleborough 1976)."

6.2.1 Habitat condition.

In southeast Florida, lobsters are distributed in accord with the habitats serving each life stage. Reproductively active adults are mainly found along the oceanic (eastward) and gulfward (west) reef and hard substrate fringes of the Keys and Florida Bay. However, some of these individuals transit back and forth to the bay during non-reproductive periods. Juveniles above 20 mm CL are abundant but scattered throughout middle and lower Florida Bay wherever benthic conditions provide refugia. The larger juveniles wander over all intervening habitats and feed extensively in vegetated substrates; they make up the bulk of animals captured in traps within the bay. The distribution and abundance of young juveniles between settlement and 20 mm CL are yet to be quantitatively estimated. Based on recent ecological studies (Marx and Herrnkind, 1985, Herrnkind and Butler, 1986, Herrnkind, et al., 1988), it is likely that settlement occurs wherever swimming postlarvae are brought into contact with inshore stands of benthic algae and other fouling assemblages. Slightly older individuals can be reliably found in mixed substrates within and adjacent to such areas. Upon

outgrowing the algal habitat, the young juveniles take on an increasingly nomadic lifestyle as they gain locomotory proficiency.

Maintaining healthy settlement and early juvenile habitat is crucial both because it is essential for regional lobster recruitment and because it is so vulnerable to human and natural impacts. Nearshore and shallow water vegetated habitats are especially subject to degradation by pollution, physical disturbance (e.g., prop damage, dredging, burial), turbidity, etc., (see below), as well as natural cold chill, vegetation die-off and salinity flux. Each hectare (10,000 m^2) of red algal meadow is calculated to nurture 1,000 juvenile lobsters annual as new settlers continually recruit monthly, then grow and emigrate to other habitats after several months (Marx, 1986).

Offshore areas used by adults appear to be the least affected by nearshore habitat alterations and water quality degradation. Since most of the catch comes from offshore, there is an unknown effect of pesticides, herbicides, and other harmful wastes which have been considered as deleterious to many inshore fisheries. Nearshore reefs and seagrasses have been adversely affected to various degrees by man (see later discussion), but overall are in good condition. Some coral reef and seagrass tracts are protected as marine and estuarine sanctuaries. These include Dry Tortugas (Ft. Jefferson National Monument), Everglades National Park, Biscayne National Park and other important areas listed under Section 6.2.1.1.

The coastal areas used by spiny lobsters are stressed by alterations of the environment coupled with local changes in environmental parameters such as temperature and salinity. Natural and man-induced changes have altered freshwater inflow and removed much habitat. Natural wetland losses result from forces such as erosion, sea level rises, subsidence, and accretion. The major man-induced activities that have impacted environmental gradients in the estuarine and nearshore zone are:

1. construction and maintenance of navigation channels;
2. discharges from wastewater plants and industries;
3. dredge and fill for land use development;
4. agricultural runoff;
5. ditching, draining, or impounding wetlands;
6. oil spills;
7. thermal discharges;
8. mining, particularly for phosphate, and petroleum;
9. entrainment and impingement from electric power plants;
10. dams;
11. marinas;
12. alteration of freshwater inflows to estuaries;
13. saltwater intrusion;
14. non-point-source discharges of contaminants;
15. the setting of traps on reefs;
16. ghost fishing by lost or abandoned traps; and
17. the use of oil in treating traps.

All of south Florida's coastal areas have been impacted to some degree by one or more of the above activities. The bays and estuaries also have been the most impacted by water quality degradation. Numerous pollution-related reports and

publications exist, but there still is no complete list of chemical contaminants, their effects, or concentrations. A comprehensive inventory to assess how seriously the coastal areas are polluted also is needed.

Florida's spiny lobsters spend a substantial part of the adult period offshore and carry out reproduction in waters stabilized by oceanic conditions. Such habitat is subject to human impact, although less so than nearshore areas. There, the apparent obligatory relationship between young juveniles and shallow bay algal habitats makes essential the identification, management and protection of such areas for this species. The degree to which variable estuarine conditions impact lobster recruitment (e.g., in upper Florida Bay) also should be assessed as such habitat is necessary for recruiting other economically important species including shrimp, red drum and snook.

6.2.1.1 - Habitats of particular concern (HPC) are those which play an essential role in the life cycle of the species. Specific areas have been identified in the Gulf of Mexico in the Coral and Coral Reefs FMP (GMFMC and SAFMC, 1982). These include the Biscayne National Park, Biscayne Bay Lobster Sanctuary, the Key Largo Coral Reef Marine Sanctuary, the John Pennekamp Coral Reef State Park, and the Dry Tortugas (Figure 6-2). Since these reefs also provide excellent spiny lobster habitat, they are again identified here as HPCs.

6.2.1.2 - Spiny lobster postlarvae may avoid settling in heavily silted stands of benthic algae (Herrnkind, et al., 1988). Based on this and the above discussion (6.2.1), it is likely that the vegetated habitat in areas of high postlarval settlement and early juvenile development will be identified as HPC as information permits.

6.2.1.3 - We are unaware of any current habitat condition that affects the ability to harvest and market spiny lobster resources. However, low levels of DDT, PCB, endrin, and dieldrin organochlorines have been found in other offshore species such as red and black grouper, gag, and red snapper. If the residue levels of organochlorines or other pesticides in spiny lobsters ever become dangerous to humans it is likely that the marketability of spiny lobster could be adversely affected.

6.2.2 Habitat threats.

Currently, the primary threat to nearshore habitat comes from oil and gas development and production, offshore dumping, dredging and dredged material disposal, and the discharge of contaminants by river systems which empty into south Florida nearshore waters. The destruction of suitable benthic algal stands and seagrass beds, as well as reefs (natural and man-made) or other types of hard bottom areas also may prove deleterious to this fishery as the species requires these habitats. Natural impacts on reef habitat may arise from severe weather conditions such as hurricanes and excessive freshwater discharge resulting from heavy rain. Human impacts on reef habitat result from activities such as pollution, dredging and treasure salvage, boat anchor damage, fishing and diving

related perturbations, and petroleum hydrocarbons (Jaap 1984). Ocean dumping and nutrient overenrichment also may cause local problems.

Nearshore reefs, especially off Florida, may be impacted by coastal pollution such as sewage and non-point-source discharges, urban runoff, herbicides, and pesticides (Jaap 1984). Residues of the organochlorine pesticides DDT, PCB, dieldrin, and endrin have been found in gag, red grouper, black grouper, and red snapper (Stout 1980). Heavy metal accumulations in sediment and reef biota near population centers have been noted (Manker 1975). Disposal of wastes has created local problems. Jaap (1984) reports of batteries and refuse disposed of on the reef flat at Carysfort Lighthouse in Florida.

Dredging and salvaging near or on reefs is potentially the most damaging physical human activity. Dredge gear impacts reefs by dislodging corals and other organisms and by creating lesions or scars that lead to infection or mortality. Sedimentation from dredging may seriously damage reefs. Dredged sediments may be anaerobic and bind up available oxygen thereby stressing corals and other sessile reef organisms. If the organisms cannot purge the sediments deposited on them, they generally are killed. Silt generated by dredging may remain in the area for long periods and continue to impact reefs when suspended during storms. Spiny lobster larvae are especially sensitive to mortality from sedimentation. Reef habitat also may be removed by dredging for borrow materials and disposal on beaches and by dredging and filling associated with navigation channel construction and maintenance.

Anchor damage is a significant threat to reefs, especially those composed of corals. Anchors, ground tackle, lines, and chains can break hard and soft corals, scar reefs, and open lesions which can become infected. Heavy use of reef areas by boaters can compound the problem. Although anchoring by oil and gas lease operators is prohibited on most of the coral reefs in the Gulf of Mexico, anchoring for other purposes is not restricted. Fishing gear such as bottom trawls, bottom longlines, and traps also may damage reefs. Effects would be similar to anchor damage. Hook-and-line fishing and related losses of line, leaders, hooks, and sinkers also may damage corals. Disposal of garbage by boats has been identified as a problem at Pulaski Shoal near Dry Tortugas (Jaap 1984).

Recreational spearfishing, especially with explosive power heads, has damaged corals and may become more of a problem in areas of heavy diver concentration. Divers often overturn corals and cause other damage. Specimen collecting also may result in localized reef damage, especially when chemical collecting agents are improperly used.

6.2.3 Habitat information needs.

The following research needs relative to spiny lobster habitat are provided so that state, federal, and private research efforts can focus on those areas that would allow the GMFMC and SAFMC to develop measures to better manage spiny lobster and their habitats:

1. Identification of optimum habitat and environmental conditions for all life stages, especially the crucial settlement and early juvenile stages about which little is presently known;

2. The quantitative relationships between recruitment and production and their relationship to habitat;
3. Effects of water quality degradation on production;
4. Identification of areas of particular concern;
5. Determination of habitat conditions that limit production;
6. Methods for restoring habitat and/or improving existing environmental conditions that adversely affect production and;
7. Determination of the larval origin of spiny lobster.

6.2.4 Habitat conservation programs.

State and federal agencies and laws and policies that affect spiny lobster habitat are found in Section 7.0 of the FMP for Coral and Coral Reefs and the FMP for Spiny Lobster (GMFMC & SAFMC 1982). Also see Figure 6-3. Specific involvement by other state and federal agencies are noted as follows. However, state involvement is limited mainly to Florida where the resource is centered.

State Programs

State of Florida Department of Natural Resources (DNR). Is responsible for management of all marine fishery resources in state waters. DNR has policing powers through the Florida Marine Patrol to enforce state and some federal statutes. In the area of specific regulations for reef management, the department enforces statute 370.110 (prohibition of harvest, damage, or sale of fire coral, sea fans, and the true stony corals), 370.114 (protection of all corals in John Pennekamp Coral Reef State Park), 370.08 (management of fish collecting chemicals), and 370.15 (fishery gear regulation). The Division of Recreation and Parks manages and operates state parks and federal marine sanctuaries through agreements with the National Oceanic and Atmospheric Administration (NOAA). The Division of Marine Research conducts scientific research to support management in the area of coral reef ecology and fisheries.

State of Florida Department of Environmental Regulation (DER). Within state waters DER has management powers over environmental change caused by human activity. All major engineering projects must be reviewed prior to permitting. Both environmental monitoring and research are conducted. In the area of permitting, DER reviews permits for any human activity that affects the marine environment. Coastal dredging is managed through 370.03 and marine pollution under statute 370.09.

State of Florida Department of Administration (DOA). Under special powers the DOA can enact "State Area of Critical Concern" and decree special regulations for indefinite periods if growth or other activities overload the capacity of local government to adequately manage the resources.

State of Florida Department of State (DOS). DOS manages salvage of historical artifacts in state waters. In the Keys area this includes numerous vessels sunk offshore. The activity is managed through the licensing of salvagers and monitoring of operations.

Florida Aquatic Preserve System. By special legislative action, the Florida Aquatic Preserve Act of 1975 (Florida Statutes, Sections 258.35-258.44) was created to establish a direct means of permanently preserving submerged, state-owned lands. The Act defined an aquatic preserve as a "biologically, aesthetically or scientifically ... exceptional area of submerged lands and its associated waters set aside for maintaining the area essentially in its natural or existing condition (Florida Statutes, Section 258.37-258.38). The aquatic preserves created under this Act include only lands and water bottoms owned by the state (Florida Statutes, Section 253.03) and other lands or water bottoms that another government agency might authorize for preservation. No privately owned lands or water bottoms are included in the Act unless by special agreement with the private owner. Other specific exclusions from the aquatic preserves are areas altered by channel maintenance, by other public works projects and, lastly, lands lost by artificially induced erosion.

The original Florida Aquatic Preserves Act of 1975 outlined boundaries for 31 Preserves. Although most of these are in inshore waters, such as rivers and estuaries, ocean areas also may be included. At least three preserves in the Florida Keys probably include coral habitats - the Coupon Bight Aquatic Preserve adjacent to and south of Big Pine Key, Florida; Lignumvitae Key Aquatic Preserve to the south of Key Largo, Florida; and the Biscayne Bay Aquatic Preserve in Biscayne Bay, Florida.

Florida State Park System. The relevance of the State Park System to spiny lobster habitat is due principally to the John Pennekamp Coral Reef State Park on and off Key Largo, Florida. This outstanding park adjacent to Key Largo Coral Reef Marine Sanctuary contains significant coral reef habitats. The John Pennekamp State Park was established in 1959 and includes over 125 km^2 (36 nm^2) of state waters.

State Laws, Regulations, and Policies Under Florida's coral law, it is unlawful for any person to take, otherwise destroy, sell, or attempt to sell the following: 1) any sea fan of the species Gorgonia flabellum, or the species Gorgonia ventalina; 2) any hard or stony coral (Scleractinia); or 3) any fire coral (Millepora). Possession of any fresh, uncleaned, or uncured specimen of these species without a certified invoice of importation from a foreign country or proof that the specimen was taken before July 1, 1976, is also illegal. Sea fans or stony corals may be taken for scientific or educational purposes only by permit from the Department of Natural Resources [Fla. Stat. (370.114)]. The Florida Marine Patrol must be informed of the time, place, method, quantity, and species to be collected. Dead corals and coral rubble (i.e., coral rock) may be collected without a permit. It is unlawful to take dead or live coral from, or possess it within, John Pennekamp Coral Reef State Park [Fla. Stat. (370.114)]. By a joint management agreement between the State of Florida and the NOAA, state park rangers and Coast Guard personnel patrol (Cooperative Agreement No. 04-6-158-44116 between Florida DNR and U.S. Department of Commerce, NOAA, and 15 C.F.R. 929) both the State Park and the Key Largo Coral Reef Marine Sanctuary (KLCRMS).

Indirect authorities with relevance to corals include fishery gear regulations [Fla. Stat. (370.15)], a permit system for the use of chemicals to collect marine specimens [Fla. Stat. (370.08)] ocean water contamination regulations [Fla. Stat. (370.09)], and dredge and fill regulations [Fla. Stat. (370.03)]. State habitat

programs include Aquatic Preserves [Fla. Stat. (258.35)], Areas of Critical State Concern [Fla. Stat. (380.05)], Environmentally Endangered Lands [Fla. Stat. (259)], and State Parks.

Section 7 of Article II of the Florida Constitution provides that it shall be the policy of the State to conserve and protect its natural resources and scenic beauty. The Florida code (Ch. 17-4.28 and 4.29) regulates dredge and fill activities, (Ch. 7-4.02) protects submerged lands, (Ch. 17-3, Fla. Admin. Code) provides water quality standards and (Ch. 161 F.S.) protects beaches and shorelines. In addition, the Randall Act (Ch. 253 F.S.) prevents the sale of state-owned lands, except after conservation considerations are met. This Act stopped the sale of state-owned submerged lands. By definition, submerged lands in Florida are those lands covered by the categories of water listed in Section 17-4.28(2), Fla. Admin. Code, and having plant dominance as therein listed. Some of the dominant plants are mangroves (black, red, and white), as well as the major marine grasses (halodule, manatee, and turtle grass).

Florida's Coastal Zone Management Program has been approved by the federal government. Included in the program are all the codified statutes and rules of the DNR and the DER that pertain to the marine environment.

Federal Programs

Office of Coastal Zone Management, Marine Sanctuaries Program (MSP), NOAA. Specifically, this program manages and funds the marine sanctuaries program (MSP). On-site management and enforcement are generally delegated to the states through special agreements. Funding for research and management is arranged through grants.

In terms of complementing the protection of coral habitat from a site-specific perspective, this is one of the most important federal programs. This program was authorized under Title III of the Marine Protection Research and Sanctuaries Act (MPRSA) of 1972. Its purpose is to preserve or restore the conservation, recreational, ecological, or aesthetic values of localized area "... as far seaward as the outer edge of the continental shelf, ...(and in) other coastal waters whether the tide ebbs and flows ..." (MPRSA, Section 302a). In effect, the MSP is a coastal water counterpart to the more familiar national park, forest, wildlife refuge, and wilderness systems.

Site management and administrative responsibility for a sanctuary may either be retained by OCZM or delegated with necessary funding support to other appropriate management units.

The NSP is particularly interested in protecting outstanding coral reef areas. One of the six existing sanctuaries - the KLCRNMS off Key Largo, Florida, complements state efforts at John Pennekamp State Park by protecting a 343 km^2 (100 nm^2) section of the upper Florida reef tract. A management plan for the Key Largo sanctuary has been designed to provide the protection necessary and insure long-term viability of the ecosystem. The management plan also addresses public education, environmental and regulatory enforcement monitoring, and regulatory enforcement needs at the site. Enforcement is conducted cooperatively by the DNR (Marine Patrol and Park Rangers) and the U.S. Coast Guard.

The Looe Key National Marine Sanctuary covers a 5 nm^2 coral reef area located 6.7 nm east of Big Pine Key, Florida. It was designated in January 1981 to maintain, protect, and enhance the quality of the natural, biological, aesthetic and cultural resources of the Looe Key system, to promote and stimulate marine research efforts directed toward improved management decision making and identification and analysis of marine ecological interrelationships, and to enhance public awareness of the functioning of the Looe Key coral reef system.

National Marine Fisheries Service (NMFS). 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. NMFS implements approved plans. The Coast Guard, NMFS, and states enforce FMPs. FMPs for coral and coral reefs, reef fish, grouper and snapper, and spiny lobster are in force.

NMFS has implemented rules for Council FMPs that directly or indirectly protect the habitat of spiny lobster. Rules for the Coral FMP (50 CFR Part 638) prohibit harvest and possession of coral except by scientific permit and establish HAPCs where certain fishing gear is prohibited. Rules for the Reef Fish FMP (50 CFR Part 641) establish a stressed area (encompassing most natural reef areas in the Gulf) where certain gear is prohibited (i.e., roller trawls, power heads, fish traps). Rules for the Shrimp FMP (50 CFR Part 658) establish the Tortugas Sanctuary that encompasses all the Florida Reef Tract and most of Florida Bay within which trawling is prohibited. Rules for the Stone Crab FMP (50 CFR Part 654) establish a "line of separation" seaward of the Tortugas Sanctuary within which trawling is prohibited from January 1 to May 20.

National Park Service (NPS). National parks and monuments are under the jurisdiction of NPS. Management, enforcement, and research are accomplished in house. The system of national parks and monuments operated by the NPS, in the broadest terms, preserve for all times scenic beauty, wilderness, native wildlife, indigenous plant life and areas of scientific significance and antiquity {16 U.S.C. (1)}. Although the NPS includes several marine areas, their distinctly land-based orientation makes them somewhat less likely to include new marine areas within their system. Nevertheless, areas operated by the NPS within the present study area include and manage significant coral resources - the Everglades National Park, the Biscayne National Park north of Key Largo, Florida, and the Fort Jefferson National Monument in the Dry Tortugas, Florida.

Both the statement for management for the Jefferson National Monument and the general management plan for Everglades National Park and Biscayne National Park, include as major management objectives the protection of natural resources (including corals) within their boundaries. At the Fort Jefferson Monument, all areas within the Monument's administrative boundaries (with the exception of Garden Key), are classified as an outstanding natural area under the NPS's land classification system. Prohibited activities include commercial fishing and the taking of lobsters, while allowed uses include sport fishing and nonconsumptive recreational activities.

Minerals Management Service (MMS). This agency has jurisdiction over mineral and petroleum resources on the continental shelf. The MMS along with the U.S. Geological Survey is charged with administering mineral exploration and development on the Outer Continental Shelf (OCS), pursuant to the OCS Lands Act (OCSLA), as amended in 1978 [43 U.S.C. (1331 et seq.)]. The MMS serves as the administrative agency for leasing submerged federal lands.

Of particular interest is MMS' the ability to withdraw tracts from proposed OCS mineral lease sales for lack of information, aesthetic, environmental, geologic, or other reasons. The presence of coral reefs, hard bottoms, or other marine areas containing significant resources could be reasons for withdrawing tracts. Further, the OCSLA [43 U.S.C. (1341)] also provides for permanent disposition from leasing; Key Largo Coral Reef was provided such protection by President Eisenhower, through Proclamation No. 3339 (55 CFR 2552) which established the KLCRMS.

During 1988, the Governor of the State of Florida requested that OCS drilling not be allowed south of 26 N. latitude to assure protection of coral reef habitats. The Oil Pollution Convention (T.I.A.S. 4900,6109) and the Oil Pollution Act [33 U.S.C. (1001-1016)] also prohibit oil discharges within 50 nm of shore by U.S. and foreign vessels.

Fish and Wildlife Service (FWS). FWS assists with environmental impact review, develops biological resource evaluations, and administers the endangered species program with the NMFS. Three National Wildlife Refuges are located in the Florida Keys which undoubtedly contain coral habitats: The National Key Deer Refuge, The Great White Heron National Wildlife Refuge, and the Key West National Wildlife Refuge. These areas, however, rely on the coral permitting authority of the State of Florida to protect the corals.

Geological Survey (USGS). In the coral reef areas USGS has conducted considerable reef research and assisted or cooperated with other institutions and agencies to facilitate logistics and support of coral reef research. The USGS also is charged with supervising mineral development operations on the OCS. Further, the USGS must ensure oil company compliance with regulations and lease stipulations once a lease is sold. This represents a key management authority for ensuring protection of coral communities. Although these authorities are not comprehensive, they are significant because of the widespread interest in current OCS oil and gas development and its potential impacts on corals.

Coast Guard. The 1978 Waterways Safety Act charges the CG with marine environmental protection. The CG 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 COE contracts and regulates coastal engineering projects, particularly harbor and channel dredging and beach renourishment projects. The COE also reviews and is the permitting agency for coastal development projects, artificial reefs, and offshore structures.

Environmental Protection Agency (EPA). This agency has a general responsibility for controlling air and water pollution. Disposal of hazardous wastes and point-source discharge permitting are EPA functions. Certain mineral and petroleum exploration and production activities also are managed by EPA. Environmental research germane to waste disposal and pollution also are funded. EPA regulates chemical discharges into Gulf of Mexico and south Atlantic waters, under the National Pollution Discharge Elimination System (NPDES) program of the Clean Water Act for chemicals used or produced in the Gulf and south Atlantic area (i.e., drilling muds, produced water or biocides) and then released, or under the Ocean Dumping Regulations of the MPRSA if the chemicals are transported into the Gulf and south Atlantic area for the purpose of dumping.

Federal environmental agencies such as the NMFS, FWS, and the EPA also analyze projects proposing inshore and offshore alterations for potential impacts on resources under their purview. Recommendations resulting from these analyses are provided to the permitting agencies (the COE for physical alterations in inshore waters and territorial sea, the MMS for physical alterations in the OCS or the offshore Exclusive Economic Zone (EEZ) and EPA for chemical alterations). Even though the COE 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 Interior (DOI), in a nationwide general permit.

6.2.5 Habitat recommendations.

The spiny lobster fishery contributes to the food supply, economy, and health of the nation, and provides recreational and commercial fishing opportunities. The fishery is dependent upon the survival of spiny lobster resources, which can only be assured by the wise management of all aspects of the habitat. Increased productivity of spiny lobster stocks 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 GMFMC and SAFMC 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 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 net 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 GMFMC and SAFMC have formed Habitat Committees and Advisory Panels for the Gulf and south Atlantic states. 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 their 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 spiny lobster habitat. The goal is to insure that spiny lobster habitat losses are kept to the minimum and that efforts for appropriate mitigation strategies and applicable research are supported.

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Tabb, D.C., D.L. Dubrow, and R.B. Manning. 1962. The ecology of northern Florida Bay and adjacent estuaries. Fla. State Board Conserv. Tech. Ser. No. 39. 81 pp.

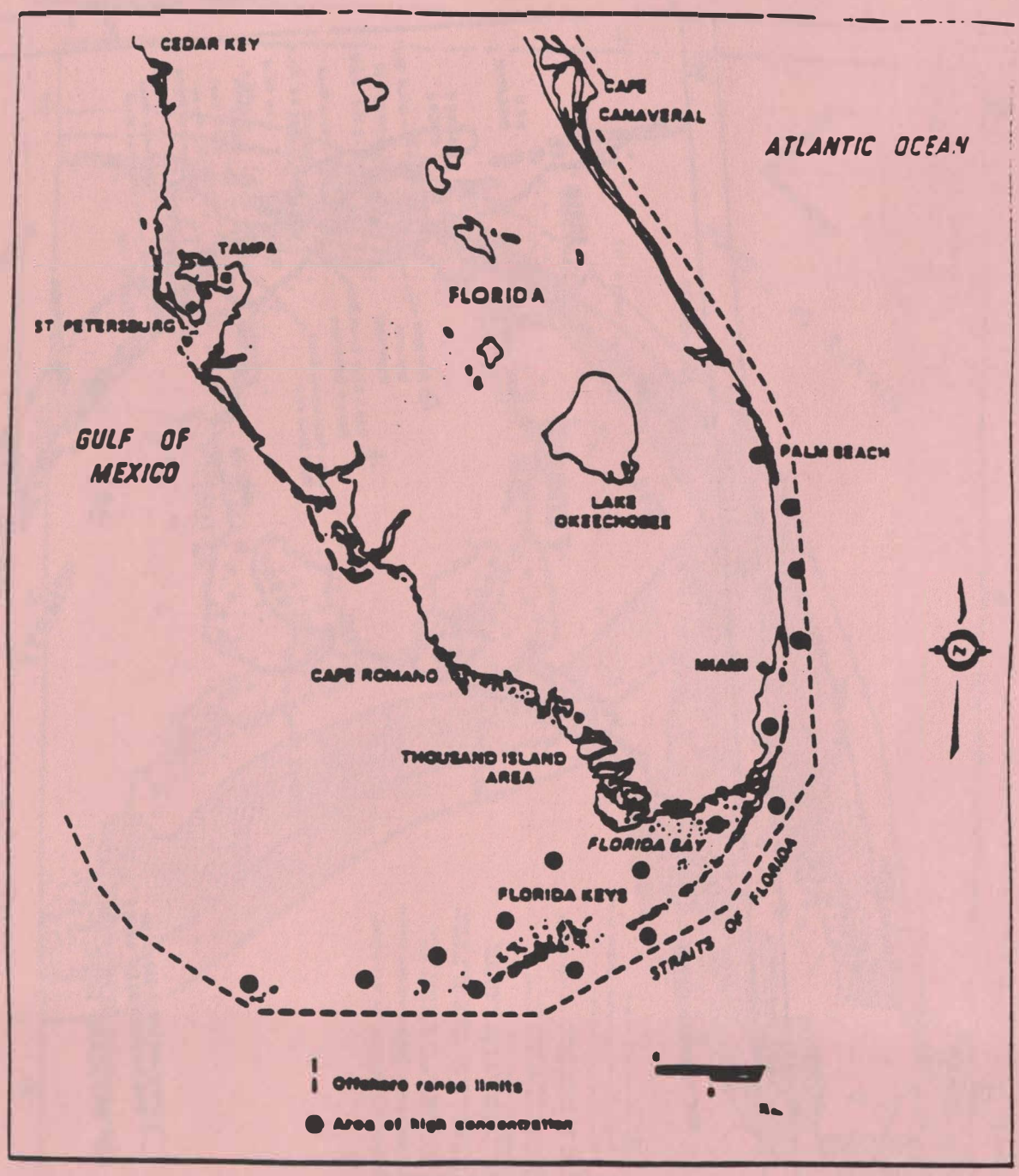

Figure 6-1. Distribution of the spiny lobster on the south Florida coast.

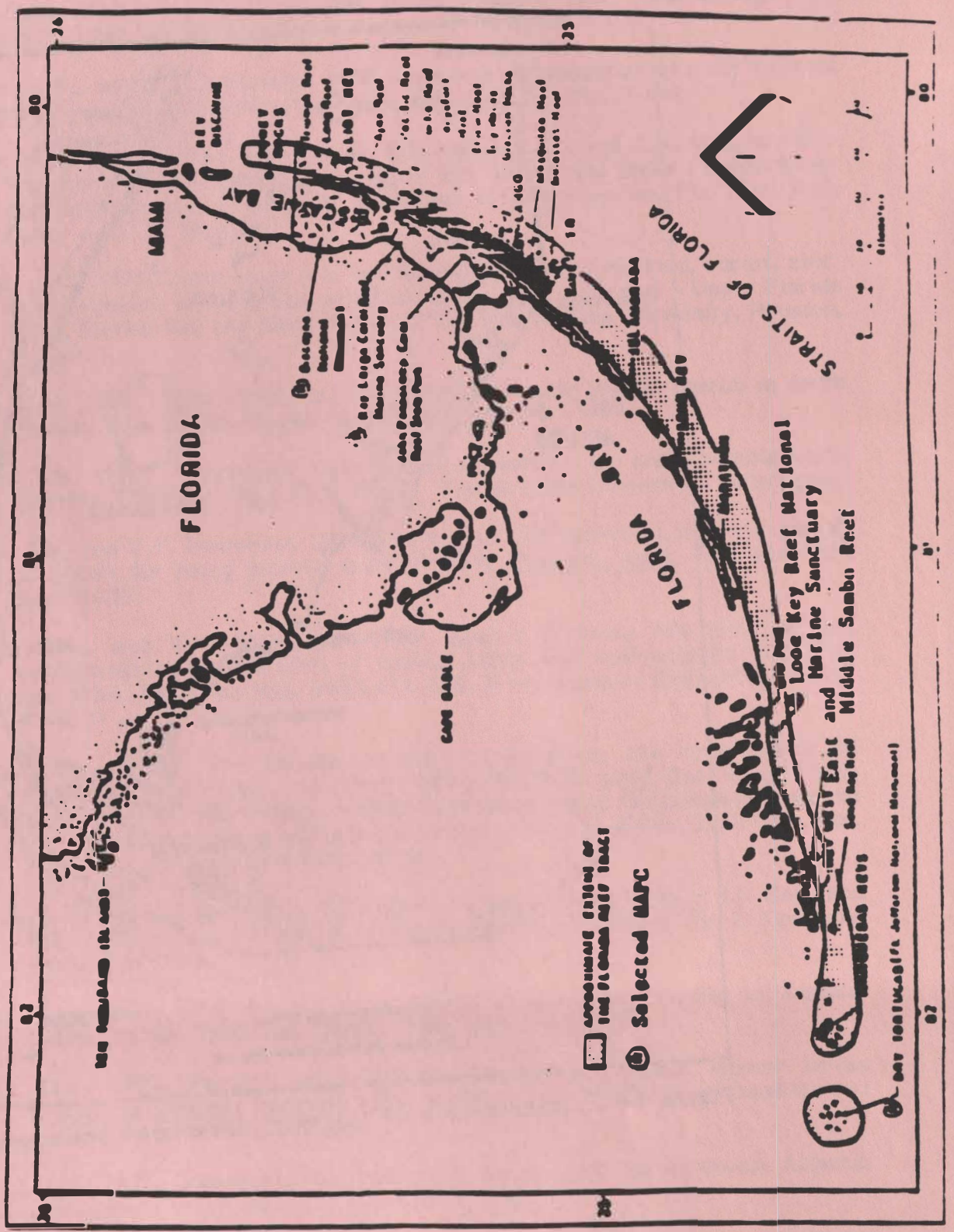

Figure 6-2. Florida Reef Tract selected as Habitat Areas of Particular Concern.

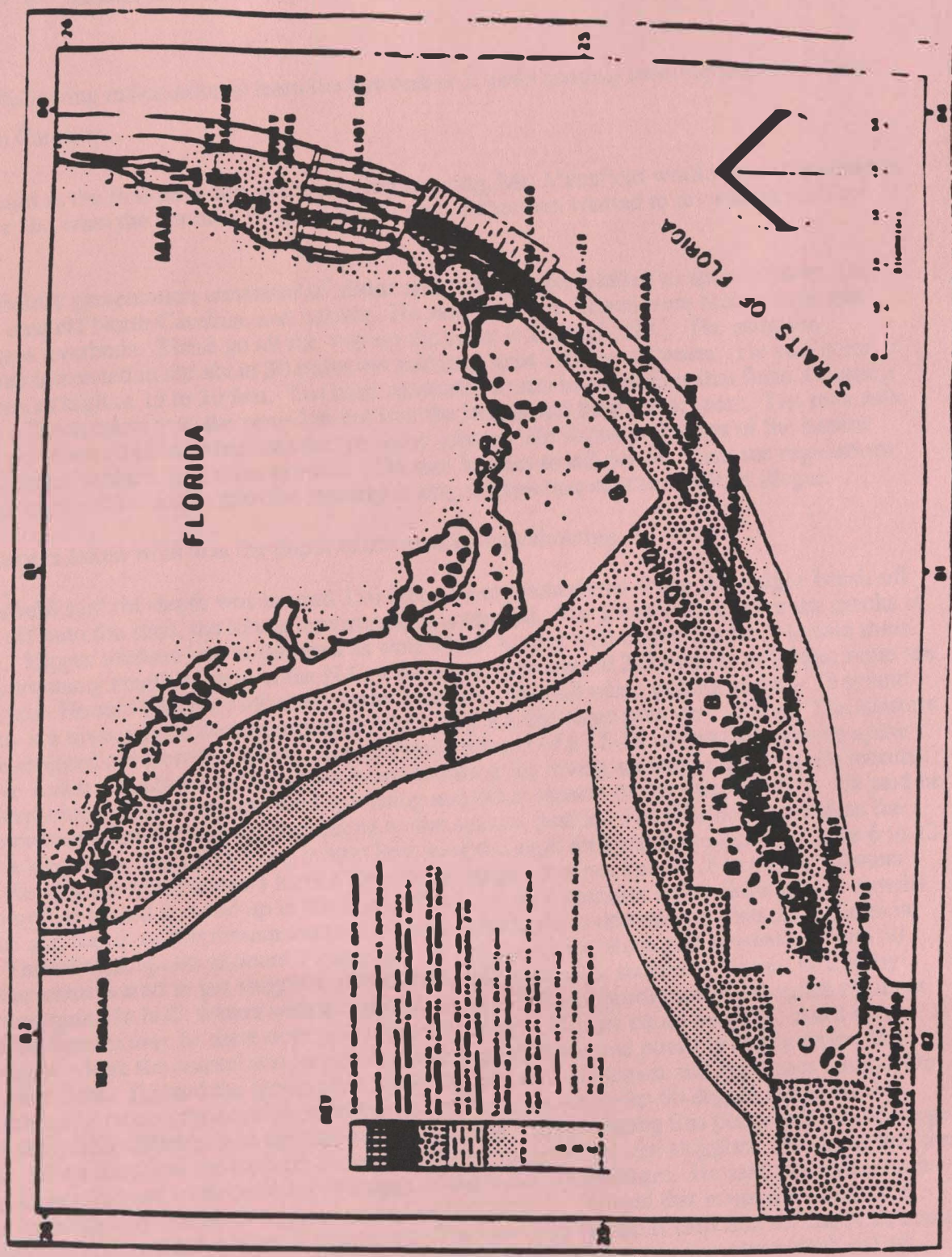

Figure 6-3. Habitat management authorities and associated programs along the Florida Reef Tract (after Marx and Herrnkind 1986).

APPENDIX D. Information on Recreational Spiny Lobster Fishery North of Florida

The following information is from the November 3, 1993 scoping meeting held in Atlantic Beach North Carolina.

Mr. Hartig said as the first item during the scoping meeting, Mr. Mansfield would give a briefing on spiny lobster and what the northern range of the Atlantic fishermen wanted to do with the lobster regulations.

Mr. Mansfield's presentation consisted of slides and information relative to spiny lobster, the geographic area off North Carolina, and habitat. He said the wave ledges were scarps from old shorelines and riverbeds. These go all the way up the coast to Raleigh, N.C. The ones the fishermen are interested in are about 30 miles out and in at least 100 feet of water. He said some of the ledges are as high as 15 to 20 feet. The hard substrate attracts invertebrates that form a tropical community. The erosion over the years has cut into the ledges and they break apart. The rock falls to the hard substrate and is a living area for the spiny lobster. He showed pictures of the habitat showing sponges, seafans, and algal growth. He said he tries to tell people what the regulations are although most of the people take the lobsters during the summer season which is illegal.

Mr. Spitsbergen asked what was the depth of the area he was showing.

Mr. Mansfield said the depth was around 110 feet. He explained that when the ledges break off and drops off onto the sand, the lobster environment is created. The lobsters live up in the cracks of the ledges. Slipper lobsters live in this area as well which is very well camouflaged. He said there were not very many small lobsters in the N.C. area as they are around 2-3 pounds or larger; none are of illegal size. He said the spiny lobsters cluster together. He said when talking about a 15 pound lobster they are massive and disproportionate when they are this large plus very strong. The lobsters have to be dragged out from the ledges. He showed a picture of a 15-16 pound fully grown spiny lobster. He said it was illegal to take these lobsters during the diving season in the summer months. He gave a species profile which covered spawning and other aspects of the spiny lobster. He said he wanted to present some facts to the committee on the species profile. The lobster eggs drift in the water for a long time. He said no one is sure how long the eggs drift but it is suspected to be 6 to 12 months. He said the spiny lobsters have a long larval stage. It is not known if the spiny lobsters make a complete circuit and end up in the Keys. The legal size averages out at about the 21 months time frame and that is with optimum temperature and conditions as determined with the lobsters in Florida. The lobsters spawn at about 75 degrees. When the temperature gets between 50 and 60 degrees the lobsters start to get sluggish and could possibly die. He showed a picture of a spiny lobster community in N.C. waters with a depth of about 100 feet, approximately 30 miles offshore and the Gulf Stream may be there depending upon the temperature or could be 20-30 miles away. He said this is where the coastal waters get the warming influence and possibly this is where the larvae comes from. He said the larvae could drop out of the Gulf Stream and grow into adults. He showed the temperature graph which reflected in January they are in the 60 degree range and by February the graph reflected it as the coldest month. The lobsters during this period are on the verge of dying. When they find the lobsters during the colder months they are sluggish. He stated that the breeding season did not come until July because of the water temperature. He said the divers have seen egg breeding lobsters up to September and early October. He said this is not the same as in Florida and this relates to the water temperature. The breeding season is different off the N.C. coast than in Florida. He said he could graph per month the number of dives he has completed and all were effectively during the summer months. He said the fishermen would like to figure out a way to manage the lobster fishery and get better access to the lobsters without hurting the lobsters' survival.

LCDR Sinnett asked if everyone was diving with regular compressed air or had anyone used or talked about using nitrox.

Mr. Mansfield answered the only people doing that are federal and some state people were doing studies with the universities. He said there was no sport use of nitrox at fishery at this time. He said it is hard to tell someone in July who has taken paying passengers out on a headboat that he has to throw the 15 pound lobster back into the water when it doesn't have eggs. He said North Carolinians wanted access to the lobsters without doing them in and without getting arrested.

Mr. Spitsbergen asked Mr. Mansfield if he had heard of anyone using Clorox.

Mr. Mansfield said no and he was surprised when he read about this. He said several years earlier people used a chemical called quinoline to catch fish. He said the fishermen and divers realized it would have the same stunning impact on lobsters and invertebrates. But he did not believe anyone would use that and then eat the lobsters. To his knowledge a chemical has never been used in his area.

Mr. Spitsbergen asked Mr. Mansfield if he knew about anyone using spears, bang sticks or was that a rumor that this was happening?

Mr. Mansfield said it was not a rumor and the problem he had was poaching. He said he didn't get a picture or slide of the 15 dead lobsters that were speared in one day in the middle of summer last year. He said he remembered talking to Mr. Spitsbergen about this last summer after it happened because it bothered him. He said not much could be done about that unless we use the Coast Guard. He said if you send a Coast Guard boat out to a lobster ledge one day you would change a lot of lives. But other than that most were trying to do it right.

Mr. Spitsbergen said the taking of the 15 lobsters was a multiple illegal, over the limit, out of season, and using something other than hands to catch the lobsters situation.

Mr. Mansfield said it was illegal because the four people involved had speared 15 lobsters that might have had eggs.

Mr. Hartig asked Mr. Mansfield when he dives what was the success rate and how many lobsters can be caught? He said the terrain appeared rough and hard to get to and he didn't know what type of holes the lobsters had to get up into.

Mr. Mansfield said this is why the lobsters get shot a lot. He explained if the lobsters are up underneath a rock that has eight or nine feet of undercut you cannot reach the lobsters. He said the only way to properly catch the lobsters is with your hands. He said the divers see a lot more lobsters than what is brought back because of the terrain. He said some of the proposals, even though at face value, look like these would put a hardship on the population. He stated that no one on the average brings back one lobster per dive and he had gotten only one this year. He said the people shoot the lobsters because they are frustrated and they can't outwit or out muscle the lobsters; so they kill them. He said this was unfortunate and he was not sure how this was going to be stopped. He said possibly education and attitude would help but the Coast Guard boat would help a lot.

Mr. Brownlee asked if anyone was enforcing that on the docks?

Mr. Mansfield said he knew of only two tickets that had been handed out so far this year and they were for out of season catches.

Mr. Brownlee asked if the tickets were for spearing?

Mr. Mansfield responded that the tickets were for out of season not spearing.

Mr. Brownlee asked for clarification that the tickets were not for the divers using spears.

Mr. Mansfield said he could not provide an answer to the question of spears being used.

Capt. Drake said he was the Captain of the Carolina Princess a headboat out of Morehead City, N.C. He said when the party is out fishing they are not going for lobster but there are 12 to 15 lobsters caught per year on his boat. Most of the lobsters caught are in the 7-15 pound range. He said it seemed a shame to the fishermen that such an exotic catch could not be kept and had to be thrown back. He said the most caught on the headboat in one day was three and most of the time it was about one lobster a month. He said it would be nice for the fishermen when they come up with that exotic catch, because this normally would be too expensive for the fishermen to buy, that they could keep the lobsters.

Mr. Spitsbergen asked Capt. Drake was there any time when they caught more than others? He said like if you were looking at a six month period, was there a preference like May through October. He asked would that be preferable because that would be when most of his headboating would be done?

Capt. Drake said May through November was when they did most of their fishing. He said they only catch a few and they do not have any records of the catch. He said they may catch one then go a month or two before another was caught. He said it was hard to throw the ones they had caught back into the water. He said sometimes they had been able to keep the lobsters. He said everyone was always wanting exemptions but so few are caught that it was a shame to throw them back into the water anytime of the year. He said catching a lobster on the hook and line was something that isn't done very often.

Mr. Spitsbergen asked Capt. Drake are they hooked or just tangled in the line and how were the lobsters brought up?

Capt. Drake said really both ways. He said sometimes you hook them and sometimes you bring them up and getting one on board is something else. He said after they get to the top of the water the fishermen get excited trying to get the lobsters on board. He said it was such a rarity but he knew the people wanted their picture taken so they could brag and show the lobsters off. He said he was given one of the lobsters and they are good eating but the quality doesn't have that much meat in them for a 15 pound lobster.

Mr. Jimmy Smith said he was a local diver from Wilmington, N.C. He said he wanted to point out that if you are at 100 feet of water most of the time when harvesting these and looking at the Navy dive tables at 100 feet, you are getting 25 minutes and with the newer improved PADI dive tables, you are getting 22 to 25 minutes. And this could be reduced depending on the actual location. He said at 120 feet of water according to PADI you have 15 minutes on the bottom. He said as you look at a dive trip your actual time for harvesting, hunting, finding, and getting is a very short time and this needed to be kept in mind when setting some regulations. He said a typical dive trip offshore nets you a little over 1/2 hour total search time. He said where in Florida and 40 feet of water you would be talking about 200 minutes of bottom time depending on whatever air you have. He said in 60 feet of water you can run 60 minutes. He said the lobsters are not found in 60 feet of water in this area and this area presents a different ball game. He would like to see spiny lobster illegal to sell, trap, and harvest because it would take away the motivation to commercialize this fishery. He said there was a small number and were hard to get and it is not worth getting into a commercial market. Additionally as in the slide show presentation, the lobsters are in the 10-15 pound range with a tail that is 10-12 inches long and 5 inches wide. He said the typical way to freeze or keep them is to freeze the lobsters in water and this takes up a lot of freezer space. He said

there was not a motivation to get 15 lobsters in his opinion. The fellows that caught 15 at one time went overboard and was not typical. He said in looking over the agenda he saw a note where bleach was used. He said there was a question on it being used and he was concerned over regulations and their wording. He asked the committee to be careful how the regulations were worded. He said fishermen did not catch fish with quinoline and this was the first he had ever heard of it to sedate fish for trapping or of it being used for lobster. He said at the same time he was a boat owner and he keeps bleach on his boat to keep the decks clean and white. He said he would hate to get ticketed because he had bleach in his cleaning supplies and a lobster on board in a cooler. He would hate to follow the letter and intent of the law and come into this meeting to set the law then become a victim of that law. He said his input would be to be careful on how that was worded.

LCDR Sinnett asked if anyone had stayed out through a surface interval and complete a second dive?

Mr. Smith answered yes. He gave the following typical profile: leave at 7 A.M. and run two hours out with decent sea conditions, run about 30 miles out, taking two hours to get there, 1 hour to 1 1/2 hours, 15- 20 minutes to find your spot, get suited up and go; you are out of the water at 10:30 or so, take 2 1/2 hour surface interval, which if you look at the Navy dive tables that would give you some remaining bottom time, and diving the standard tables, your second dive would be around ten or eleven minutes. He said the second dive would be pretty low. He said the computers give the diver more credit back for a quicker surface interval. He had only heard of a few people doing more than two dives per day and that was typically around the Frying Pan Tower area where there were shoals and they were talking 60 feet of water. He said the conditions were different there.

Mr. Peace asked Mr. Smith when he is out did he see any directed commercial fishing for the lobsters?

Mr. Smith said he had never seen a commercial person fishing for lobsters. He had never checked traps or any other thing of that nature to identify which was a fish trap versus a lobster trap. He had seen pictures of the Maine lobster traps and things like that but that was about the extent of his knowledge of how to identify a trap. But he had not seen any type of commercialization nor heard of any sales of the lobsters.

Mr. Peace said there are some commercial divers for snapper/grouper and he thought they might be after some lobsters too if they were in the same neighborhood.

Mr. Smith said there might not be a market for them. He said if regulations were put together to keep a market shut out then that might help the fishery from becoming commercialized.

Mr. Spitsbergen asked, with the short time on bottom, does the panel need to look at bag limits? He said it seemed like if you can only go down a couple of times that bag limits would not be necessary.

Mr. Smith said that had a lot of merit in this area because of depths and bottom times. He said Mr. Spitsbergen was talking about the opportunity to search, hunt, recover and capture in the bag, and return to the boat in a total of 30 minutes so that was one point of contention that would need to be thrown into the equation when writing your regulation.

Mr. Spitsbergen said however, if the divers were spearing the lobsters, which was illegal according to the present plan, this would make a difference. He asked could several be speared and be sent up on a stringer?

Mr. Smith said this would not be out of the question. If the lobsters could be found quickly yes. But on the typical dive, divers head to bottom, check anchor, you go out 20-40 yards from the anchor, spot a lobster, try and figure out how to get the lobster out from the over-cropping or hole, and you have approximately 11 minutes left.

Mr. Spitsbergen said to possibly solve the problem since spearing is illegal but to assure that would not go on, could a bag limit save one or two of the lobsters. He said the committee had talked about one and rethinking possibly two might be a more reasonable bag limit. He asked was this a reasonable way of going about it?

Mr. Smith said yes and he would agree with two being an appropriate limit and that would essentially say one per dive if you get lucky and could get two in a particular dive. He said then the diver would be ineligible. He said this was acceptable. He was in favor of maintaining the nonspearing and he said there had been stories of situations where people speared them and they turned out to be females. He asked then what do you do? He said that was the exact reason for the regulation and he understood that and was in favor.

Mr. Spitsbergen said Mr. Mansfield said he did not see anything smaller than a 3 pound lobster and didn't see any shorts at all.

Mr. Smith said this was true in his experience and he had seen but a few small lobsters. He said this one story he had was where he saw an outlying situation and to his disappointment he didn't see any that were of the large variety. This happened one time in his 150 dives off the coast of N.C. He was 25 miles offshore or better and saw shorts. In this instance he saw 10 lobsters and all were around the 1- 1/2 pound range. He said he collected one and checked it out. Then he saw a nice shell he wanted. He said the shell was fairly large and he debated on which one to take because he had the lobster in the bag. He took the lobster out and put the shell in and measured the lobster with his knife and he was 3 1/4 inches so he let him go. He said there were multiples of those and he did not see any of the large lobsters. This was one outlying situation and he had been diving off N.C. for eight years. He said it was odd and strange that they do not see any small lobsters out there but typically 30-35 miles offshore all you see are eight pounds or higher.

Mr. Hartig said that Mr. Smith mentioned he did not want to see bleach prohibited from his boat. He asked if the council put a limit on the amount of bleach the vessel could have, how much would he be comfortable with?

Mr. Smith said that would be hard to say. He asked Mr. Hartig if he was saying bleach bottles? He said hypothetically, say I had just gone to the store and put a full bottle on my boat because the other one was down to a cup full. He would not throw that cup full out and would wait until the next time he needed it and use the last cup. But at this time he needed 2 full cups. He said he would use the leftover one cup and then take an other cup from the new bottle. He said it would look like he had two gallons on the boat.

Mr. Brownlee asked Mr. Smith say we limit it to one gallon?

Mr. Smith said that would be his answer but what about the situation he gave. He said another situation would be he just finished one gallon off and used the empty jug as a marker. He said they throw out a marker jug and use an old milk jug, empty antifreeze jug or spent oil jug (all capped) with a fishline or string and weight sufficient to reach the bottom. He said he marks the ledge and goes across and finds the other areas, marks his line of ledge, traverses it, and finds the best place or spot. He said here goes your twenty minutes looking for the spot as is typically done. He said it would make people be careful on what kind of jugs they had in their boat. But he said there were opportunities and you know that this is the law that you cannot have a Clorox jug as a buoy.

Mr. Brownlee asked Mr. Smith why did he carry the bleach on the boat and not leave it at the dock?

Mr. Smith answered because he didn't have a dock box and didn't live at the beach but in town. He said he left all his gear with the boat at the beach and cleans everything up right there at the beach.

He said he did not want to carry this stuff back home with him. He said he leaves his rods, electronics and everything there. He said he was usually in a wet slip and all he has to do is hop on the boat and go because he does not transport all this back and forth.

Mr. Brownlee said it seemed to him that granting an exemption for an amount of bleach was patiently a bad idea. He didn't see why the bleach couldn't be thrown in the truck while Mr. Smith went fishing. He said he would not support any exemption for bleach. He understood this was a cheap way to keep the boat clean but said this would open a Pandora's box.

Mr. Hartig agreed with this regarding the bleach.

Mr. Smith asked did he mean throwing empty bleach jugs offshore?

Mr. Brownlee said he was talking about bleaching reefs. He said if the council allowed a certain amount of bleach on the boat to clean, you cannot say a certain amount. He added then the council would have to get into how much was needed to bleach a reef which is not a large amount. He said in south Florida it was done with a reasonably small amount of bleach. He thought they should continue with the prohibition of no bleach on the boat and have people put the bleach somewhere else away from the boat.

Mr. Smith said he had not heard of anyone in this area using bleach. But, he added, since the council sets the rules and regulations and no bleach was the rule, everyone would learn to abide by them. He asked if it could be worded and set up in such a way to limit quantity? He understood the hesitations. He said but at the same time to have some people who were honest Joes and not aware of the bleach regulation, then to have on board the bag limit with the beach and all posted regulations, and receive a citation would be bad.

Mr. Lindall asked Mr. Smith if he had been diving about eight years off the Carolinas and had he noticed any changes in the abundance of the large lobsters or changes in the size or anything?

Mr. Smith said he can't say that he had. He said the number of trips he had made into eligible water this year was three and one of those was being the weekend of the sportsmen season and of the other two, one was since the season opened and the other before. Two trips he said were eligible hunting trips but he had not noticed any degradation in the size or quantity.

APPENDIX E. Coastal Zone Consistency Letters & Responses

SOUTH ATLANTIC FISHERY MANAGEMENT COUNCIL

ONE SOUTHPARK CIRCLE, SUITE 306
CHARLESTON, SOUTH CAROLINA 29407-4699
TEL 803/571-4366 FAX 803/769-4520

John D. Brownlee, Chairman
David M. Cupka, Vice-Chairman

Robert K. Mahood, Executive Director

September 19, 1994

Mr. Estus Whitfield
Executive Office of the Governor
The Capitol
Room 1501
Tallahassee, Florida 32399-0001

Dear Mr. Whitfield:

This is to advise the State of Florida of proposed federal action and the conclusion of the South Atlantic Council on the consistency of such action with the provisions of Florida's Coastal Management Program. This letter is submitted pursuant to provisions of 15 CFR §930 *et seq.* and §307 of the Coastal Zone Management Act of 1972, as amended.

The proposed federal action is to modify the management program for the spiny lobster fishery. A copy of Amendment 4 is enclosed.

We have reviewed the proposed action with regard to the provisions of your State's Coastal Management Program and have concluded that it is consistent to the maximum extent practicable with the provisions thereof. In accordance with the provisions of 15 CFR §930.41 we are requesting that you advise us of your agreement or disagreement with our determination. In the event that there is no response from your agency within 45 days of receipt of this letter, we will presume your agency's concurrence with our determination of consistency.

If you have any questions, please do not hesitate to call me or Gregg Waugh at (803) 571-4366.

Sincerely,

Robert K. Mahood

Robert K. Mahood
Executive Director

RKM:GTW/mac

Enclosures

cc: Mr. Ralph Cantral w/cpy encl.
DCA/FCMP
SAFMC Council Members

SOUTH ATLANTIC FISHERY MANAGEMENT COUNCIL

ONE SOUTHPARK CIRCLE, SUITE 306
CHARLESTON, SOUTH CAROLINA 29407-4699
TEL 803/571-4366 FAX 803/769-4520

John D. Brownlee, Chairman
David M. Cupka, Vice-Chairman

Robert K. Mahood, Executive Director

September 19, 1994

Dr. H. Wayne Beam, Executive Director
South Carolina Coastal Council
AT&T Capitol Center
1201 Main Street, Suite 1520
Columbia, SC 29201

Dear Dr. Beam:

This is to advise the State of South Carolina of proposed federal action and the conclusion of the South Atlantic Council on the consistency of such action with the provisions of South Carolina's Coastal Management Program. This letter is submitted pursuant to provisions of 15 CFR §930 *et seq*. and §307 of the Coastal Zone Management Act of 1972, as amended.

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If you have any questions, please do not hesitate to call me or Gregg Waugh at (803) 571-4366.

Sincerely,

Robert K. Mahood
Executive Director

RKM:GTW/mac

Enclosures

cc: Mr. Heyward Robinson, Staff Biologist, w/copy encl.
Mr. Steve Snyder, Chief Planner, w/copy encl.
South Carolina Coastal Council
4130 Faber Place North, Suite 300
N. Charleston, SC 29405
SAFMC Council Members

SOUTH ATLANTIC FISHERY MANAGEMENT COUNCIL

ONE SOUTHPARK CIRCLE, SUITE 306
CHARLESTON, SOUTH CAROLINA 29407-4699
TEL 803/571-4366 FAX 803/769-4520

John D. Brownlee, Chairman
David M. Cupka, Vice-Chairman

Robert K. Mahood, Executive Director

September 19, 1994

Mr. William W. Cobey, Jr., Secretary
N.C. Department of Environment, Health & Natural Resources
P.O. Box 27687
Raleigh, North Carolina 27611-7687

Dear Mr. Cobey:

This is to advise the State of North Carolina of proposed federal action and the conclusion of the South Atlantic Council on the consistency of such action with the provisions of North Carolina's Coastal Management Program. This letter is submitted pursuant to provisions of 15 CFR §930 *et seq*. and §307 of the Coastal Zone Management Act of 1972, as amended.

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If you have any questions, please do not hesitate to call me or Gregg Waugh at (803) 571-4366.

Sincerely,

Robert K. Mahood

Robert K. Mahood
Executive Director

RKM:GTW/mac

Enclosures

cc: Mr. Roger N. Schecter, Director, w/copy encl.
Division of Coastal Management
SAFMC Council Members

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 - Environmental Assessment - Amendment 4 to the Fishery Management Plan for Spiny Lobster in the Gulf of Mexico and South Atlantic - Florida
SAI: FL9409290984C

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) indicates that the above-referenced document does not clearly state whether the proposed change affects the harvesting of lobsters on headboats during the closed season. Therefore, the DEP recommends that the final wording of the amendment include the statement that the closed season for lobster fishing in Florida applies to all methods. 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 amendment is consistent with the Florida Coastal Management Program.

Very truly yours,

Linda Loomis Shelley
Secretary

LLS/rk
Enclosures
cc: Carliane Johnson, Department of Environmental Protection

FLORIDA

Department of Environmental Protection

Marjory Stoneman Douglas Building
3900 Commonwealth Boulevard
Tallahassee, Florida 32399-3000

Lawton Chiles
Governor

Virginia B. Wetherell
Secretary

October 27, 1994

Suzanne Traub-Metlay
State Clearinghouse
Office of Planning and Budgeting
Executive Office of the Governor
The Capitol
Tallahassee, FL 32399-0001

RE: South Atlantic Fishery Management Council - Draft Amendment 4 to the Fishery Management Plan for Spiny Lobster in the Gulf of Mexico and South Atlantic
SAI: FL9409290984C

Dear Ms. Traub-Metlay:

The Department has reviewed the draft amendment 4 to the spiny lobster Fishery Management Plan (FMP). The proposed amendment is consistent with our authorities in the Florida Coastal Management Program, provided the following issue is addressed in the final amendment to the FMP.

The document is unclear regarding the proposed change to permit harvest of hook and line caught lobsters on headboats. Because the proposed action is to allow headboat incidental catch throughout the jurisdiction of the South Atlantic Council, the FMP should specifically state that in contiguous Florida waters, lobsters caught by headboat hook and line fishers may not be harvested during the closed season. Although we understand that it is the intent of the council to maintain the closed season for all fishers in Florida, regardless of fishing method, we request that this wording is explicitly stated in the final amendement 4.

If I can be of further assistance, please call me at 487-2231.

Sincerely,

Carliane D. Johnsonn
Environmental Specialist
Office of Intergovernmental Programs

/cdj
cc: Ed Irby, Marine Resources

COUNTY: STATE

COMMENT DUE DATE: 10/24/94

SAI#: FL9409290984C

STATE AGENCIES		LOCAL/OTHER		OPB POLICY UNITS	
—	Agriculture	—	NWFWMD	—	Public Safety
—	Board of Regents	—	SFWMD	—	Education
—	Commerce	—	SWFWMD	_X_	Environment/C & ED
_X_	Community Affairs	—	SJRWMD	—	General Government
—	Education	—	SRWMD	—	Health & Human Srv
_X_	Environmental Protection	—		—	Revenue & Eco. Ana
—	Game & Fish Comm	—		—	SCH
—	Health & Rehab Srv			_X_	SCH/CON
—	Highway Safety				
—	Labor & Employmnt				
—	Law Enforcement				
_X_	Marine Fish Comm				
—	State Library				
—	State				
—	Transportation				
—	Trans Disad. Comm				
—	DEP District				
—					
—					

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OCT 13 1994

MARINE FISHERIES COMMISSION

The attached document requires a Coastal Zone Management Act/Florida Coastal Management Program consistency evalutation 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.

_X_ 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
Executive Office of the Governor -OPB
Room 1603, The Capitol
Tallahassee, FL. 32399-0001
(904) 488-8114 (SC 278-8114)

Florida Coastal Management Director
Department of Community Affairs
Suite 305, Rhyne Building
Tallahassee, FL. 32399-2100
(904) 922-5438 (SC 292-5438)

EO. 12372/NEPA

☐ No Comment
☐ Comments Attached
☐ Not Applicable

Federal Consistency

☒ No Comment/Consistent
☐ Consistent/Comments Attached
☐ Inconsistent/Comments Attached
☐ Not Applicable

From:

Division/Bureau: Marine Fisheries Comm

Reviewer: [signature]

Date: 10-25-94

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

South Carolina
DHEC
Department of Health and Environmental Control

4130 Faber Place, Suite 300
Charleston, SC 29405

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)

October 3, 1994

Mr. Robert K. Mahood
Executive Director
South Atlantic Fishery Management Council
One SouthPark Circle, Suite 306
Charleston, South Carolina 29407-4699

Re: South Atlantic Fishery
Management Council
Spiny Lobster Fishery
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,

Rob D. Mikell
Director of Planning
and Federal Consistency

JHA
JHA:20725:C:js

cc: Dr. H. Wayne Beam
Mr. Christopher L. Brooks