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Atlantic States Marine Fisheries Commission

Amendment 3 to the Interstate Fishery Management Plan For American Lobster

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AMENDMENT 3 TO THE INTERSTATE FISHERY MANAGEMENT PLAN FOR LOBSTER

Prepared by

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This Amendment was prepared in cooperation with the Atlantic States Marine Fisheries Commission's Lobster Management Board, Lobster Advisory Panel, Lobster Technical Committee, and Stock Assessment Subcommittee.

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EXECUTIVE SUMMARY

The lobster fishery presents a unique dilemma for fishery managers and fishermen. Scientific advice is that the fishery is catching too many lobsters the first year they shed into legal size. In most areas a high percentage have not had a chance to extrude eggs before being harvested. This is the basis for the scientific advice that lobsters are overfished and that fishing mortality should be reduced.

At the same time, the lobster population is currently at a very high level and lobster landings are at record levels. In addition, most areas have experienced good recruitment, meaning that there are sufficient numbers of juvenile lobsters in the population that should provide a healthy fishery in the immediate future. However, in other areas recruitment levels have steadily declined since 1990.

The fundamental issue that confronts both managers and lobstermen is this: given that the high recruitment and population levels are probably due to environmental conditions (such as higher water temperatures, decreased predation, or some other factors which we do not understand or control), is current abundance creating a false sense of security and leading us to believe that we can continue to fish at high exploitation rates?

Amendment #3 completely replaces all previous fishery management plans and amendments for the Atlantic States Marine Fisheries Commission. The plan, when fully implemented, is designed to minimize the chance of a population collapse due to recruitment failure. The goal of Amendment 3 is to have a healthy American lobster resource and a management regime which provides for sustained harvest, maintains appropriate opportunities for participation, and provides for cooperative development of conservation measures by all stakeholders. To achieve this goal, the plan adopts the following objectives:

1) Protect, increase or maintain, as appropriate, the brood stock abundance at levels which would minimize risk of stock depletion and recruitment failure. See Section 2.4.

2) Develop flexible regional programs to control fishing effort and regulate fishing mortality rates;

3) Implement uniform collection, analysis, and dissemination of biological and economic information; improve understanding of the economics of harvest;

4) Maintain existing social and cultural features of the industry wherever possible;

5) Promote economic efficiency in harvesting and use of the resource;

6) Minimize lobster injury and discard mortality associated with fishing;

7) Increase understanding of biology of American lobster, improve data, improve stock assessment models; improve cooperation between fishermen and scientists;

8) Evaluate contributions of current management measures in achieving objectives of the lobster FMP;

9) Ensure that changes in geographic exploitation patterns do not undermine success of ASMFC management program;

10) Optimize yield from the fishery while maintaining harvest at a sustainable level;

11) Maintain stewardship relationship between fishermen and the resource.

The management unit for American Lobster is the entire Northwest Atlantic Ocean and its adjacent inshore waters where lobsters are found, from Maine through North Carolina. This fishery management plan is written to provide for the management of lobsters throughout their range. The FMP is designed to specify a uniform program regardless of lines that separate political jurisdictions, to the extent possible. For management purposes, the management unit is subdivided into seven areas (fig.1) which are thoroughly described in Appendix 1.

This fishery management plan seeks to restore egg production from the American lobster resource in each of the management

[1]Management in federal waters will require cooperation with the Secretary of Commerce through his authority under the Magnuson-Stevens Act or the Atlantic Coastal Fisheries Cooperative Management Act (see section 3.8 of this FMP)

areas to greater than the overfishing definition within eight years from adoption of the FMP, i.e., before the end of 2005. The American lobster resource is overfished when it is harvested at a rate that results in egg production from the resource, on an egg-per-recruit basis, that is less than 10% of the level produced by an unfished population.

The basic thrust of Amendment #3 is to initiate coastwide measures designed to prevent escalation of effort in the first two years of the plan, followed by additional measures in the "out" years to reach the target egg production goals. The additional measures needed will be decided primarily via the adaptive management process (see section 3.6). Amendment 3 management measures are split into 3 primary sections: Coastwide measures that can be changed only by a plan amendment; Coastwide measures that can be changed via adaptive management; and, area specific measures which can be changed by adaptive management.

COASTWIDE REQUIREMENTS

Measures in this section are required for all states and all areas and can only be changed by amending the fishery management plan.

It shall be unlawful to possess a lobster which has eggs or from which the eggs have artificially removed by any method.

It shall be unlawful for fishermen to possess lobster meats, detached tails or claws, or any other part of a lobster that has been separated from the lobster.

It shall be unlawful to possess a lobster which has an outer shell which has been speared.

It shall be unlawful to possess a V-notched female lobster. The prohibition on possession of a V-notched female lobster applies to all persons, including, but not limited to: fishermen, dealers, shippers, and restaurants.

All Lobster traps not constructed entirely of wood (excluding heading or parlor twine and the escape vent) must contain a ghost panel.

The minimum size for American lobster shall be no lower than 3-$^{1}/_{4}$ inches carapace length.

Landings by fishermen using gear or methods other than traps (non-trap fishermen) will be limited to no more than 100 lobsters per day (based on a 24-hour period) up to a maximum of 500 lobsters per trip, for trips 5 days or longer.

MEASURES APPLICABLE TO ALL STATES AND AREAS ALONG THE ATLANTIC COAST

This section describes all of the measures that must be applied by all states in all areas. Nothing in this section precludes any state or area from promulgating different regulations as long as it can be shown to the Boards' satisfaction that alternate regulations provide for equivalent conservation of the lobster resource (see Section 3.6).

All commercial fishermen must have a permit in order to land or possess an American lobster. The permit must be issued by the jurisdiction in which the lobster is possessed. Lobsters caught or possessed in federal waters require a federal permit, plus a permit for each subsequent jurisdiction into which the lobster is brought before it is landed.

All lobster traps, whether fished commercially or recreationally, must contain at least one rectangular escape vent per trap with a minimum size of 1-$^{15}/_{16}$ inches by 5-$^{3}/_{4}$ inches.

It shall be unlawful to possess a trap with a volume larger than 22,950 cubic inches in all areas except Area 3, where traps may not exceed a volume of 30,100 cubic inches.

Fishermen in any area must apply to their respective states for an exemption to this section by March 1, 1998 to continue to use existing (i.e., in use as of November, 1997) larger traps.

MEASURES APPLICABLE TO COMMERCIAL FISHING IN LOBSTER MANAGEMENT AREAS

Any changes made to area-specific plans will be done via addendum under Section 3.6.

Area 1, Inshore Gulf of Maine

The following limits on the number of traps must be implemented according to the following schedule: 1998 - 1200 traps per vessel; 1999 - 1000 traps per vessel; 2000 - 800 traps per vessel.

It shall be unlawful to possess a lobster greater than 5 inches carapace length by any person or vessel permitted to fish in Area

1.

Area 2, Inshore Southern New England

The Area 2 Lobster Conservation Management Team (LCMT), constituted under section 3.4. below, shall develop a program to cap and then reduce effort for the purpose of achieving the egg production rebuilding schedule by October 1, 1998 and be designed for implementation effective July 1, 1999. If no plan is submitted, the following trap limits shall become effective according to the following schedule: 1998 - 1200 traps per vessel; 1999 - 1000 traps per vessel; 2000 - 800 traps per vessel.

Area 3, Offshore Waters

The Area 3 LCMT shall develop a program to cap and then reduce effort, based upon historical participation, vessel size or other relevant criteria, for the purpose of achieving the egg production rebuilding schedule by July 1, 1998 and be designed for implementation effective January 1, 1999. If no plan is submitted, a limit of 2,000 traps per vessel shall be implemented on January 1, 1999.

Area 4, Area 5, Area 6

The Area 4, 5, and 6 LCMTs shall investigate the need for trap reductions, or other measures to achieve the egg production rebuilding schedule contained in Section 2.5. A program to achieve the egg production rebuilding schedule (designed for implementation by July 1, 1999) shall be presented to the Lobster Management Board by October 1, 1998.

Outer Cape Lobster Management Area

The following limits on the number of traps must be implemented according to the following schedule: 1998 - 1200 traps per vessel; 1999 - 1000 traps per vessel; 2000 - 800 traps per vessel.

ESTABLISHMENT OF LOBSTER CONSERVATION MANAGEMENT TEAMS

In each Area, a Lobster Conservation Management Team will be formed to advise the Board concerning all aspects of the implementation of this Amendment, and to recommend changes to the management program. The plan specifies a minimum number of members for each of the LCMTs. Membership on the LCMTs shall be decided by the states. State personnel, including representatives from the American Lobster Technical Committee, are expected to staff meetings of LCMTs. Members of the Lobster Conservation Management Teams will serve without compensation or reimbursement from the Commission, although the state may reimburse members for travel.

RECOMMENDATIONS FOR ACTIONS IN FEDERAL WATERS

The Atlantic States Marine Fisheries Commission believes that the measures contained in Amendment #3 are necessary to stop the expansion of effort in the lobster fishery and to rebuild egg production to recommended levels. The Atlantic States Marine Fisheries Commission recommends that the federal government promulgate all necessary regulations to implement the measures contained in sections 2 and 3. In addition, Amendment 3 calls for the Board to make additional changes to Amendment 3 via adaptive management, and as such changes are made, the Board will recommend additional measures to the Secretary. The Commission recognizes that such action may be taken under the Atlantic Coastal Fisheries Cooperative Management Act or the Magnuson-Stevens Fishery Conservation and Management Act.

OTHER MANAGEMENT MEASURES

Amendment #3, as well as most Commission plans, allows states and the Lobster Management Board the flexibility to change certain measures of the plan to account for changing fishery conditions and to allow for innovation and new management measures. All of these changes must be approved by either the Board or the full Commission.

Because of the impending development of the Atlantic Coastal Cooperative Statistics Program, the Board chose to not develop a comprehensive monitoring and reporting section at this time. However, the Board recognized the need for such a program and will work to ensure that the necessary information to support lobster management is collected.

ACKNOWLEDGEMENTS

The Plan Development Team (PDT) for Amendment #3 consisted of: Mr. Frank Lockhart, Lobster FMP Coordinator, Atlantic States Marine Fisheries Commission, who served as plan writer and chair of the PDT; Dr. James M. Acheson, University Of Maine; Bill Andrews, New Jersey Division of Fish, Game & Wildlife; Thomas Angell, Rhode Island Division of Environmental Management; Mark Blake, Connecticut Bureau Of Marine Fisheries; Bruce Estrella, Massachusetts Division Of Marine Fisheries; Chris Finlayson, Maine Dept. Of Marine Resources; Ms. Karen Graulich, New York State Dept. Of Environmental Conservation, Marine Resources; Mr. Jay Krouse, Maine Dept. Of Marine Resources;Mr. David McCarron, Massachusetts Division of Marine Fisheries; James Wilson, University Of Maine.

Individuals who either drafted and edited portions of the plan or who prepared reports from which the plan writers liberally borrowed text were: Robin Alden, former Commissioner, Maine Dept. Of Marine Resources; Dr. Josef Idoine and Dr. Paul Rago, Northeast Fisheries Science Center, National Marine Fisheries Service; and Tina Berger, Atlantic States Marine Fisheries Commission.

The PDT wishes to thank the many individuals who made contributions to the preparation of Amendment #3. These include the professional staff of the state and federal fishery management agencies who have reviewed the Amendment and provided their comments and suggestions for improvements. Included also are the many representatives of commercial and recreational fishermen as well as public interest groups who have written letters and attended public hearings to express their opinions and ideas.

The PDT worked under the direction of the American Lobster Management Board (Chair, David Borden, Rhode Island Division of Environmental Management) and the guidance of the Advisory Panel (Chair, Ralph Maling, Massachusetts), and Technical Committee (Chair, Mark Blake, Connecticut Bureau Of Marine Fisheries).

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1 INTRODUCTION

1.1 BACKGROUND INFORMATION

1.1.1 Statement Of The Problem

The lobster fishery presents a unique dilemma for fishery managers and fishermen. Scientific advice is that the fishery is catching too many lobsters the first year they shed into legal size. In most areas a high percentage have not yet had a chance to extrude eggs. This is the basis for the scientific advice that lobsters are overfished and that fishing mortality should be reduced.

At the same time, the lobster population is currently at a very high level and lobster landings are at record levels. In addition, most areas have experienced good recruitment, meaning that there are sufficient numbers of juvenile lobsters in the population that should provide a healthy fishery in the immediate future. However, in other areas, most notably in Massachusetts Bay, an area responsible for a significant portion of Massachusetts landings, recruitment levels have steadily declined since 1990. Also, in recent years the catch of newly settled lobsters has been below normal.

The fundamental issue that confronts both managers and lobstermen is this: given that the high recruitment and population levels are probably due to environmental conditions (such as higher water temperatures, decreased predation, or some other factors which we do not understand or control), is current abundance creating a false sense of security and leading us to believe that we can continue to fish at high exploitation rates? Furthermore, can we manage the fishery to learn enough about the dynamics of the lobster fishery so that we can know how to properly respond to changes in recruitment or environmental conditions?

There are a number of concerns or changes in the fishery that are the subject of discussion. These issues, not all of which there is agreement upon, are described variously in the industry and elsewhere as follows:

- Changes in fishing technology such as new trap designs have escalated effort without evaluation of their effects on the lobster population.
- There are too many traps and lobstermen often complain of being caught in an "arms race", forced to fish more traps in order to catch their share of the resource and forced to waste time and money dealing with gear entanglements.
- Fishing strategies have changed: traps are setting longer; wet storage of traps ties up bottom, causes gear conflicts and environmental concerns, and allows the fishery to essentially become a "mobile" fishery, following lobster movements to a much greater degree than before.
- Fishing has moved into "non-traditional" areas and the impact of this has not been evaluated on effective broodstock or fishing mortality rate on the population as a whole.
- Increases in effort from redirection of effort from groundfish, other fisheries, or shoreside industries threaten traditional users.
- Mobile gear capture continues to be a very difficult issue within the industry.
- Lobsters are caught too small, too fast, too cheaply.
- Lobsters are being caught quickly after they shed with the result that there is poorer quality, lower price and overall lower value from the resource than if there were a wider range of size classes caught at different times of year.
- Effective broodstock protection is of particular concern given that most lobsters are harvested when they shed into legal size and that broodstock occurs in specific habitats or areas.
- Changes in the management regime may affect the number of participants in the fishery. However, a limited entry program, if properly designed, can slow down the rate of entrance to the fishery as a result of balancing entry with attrition. It will not necessarily affect the overall number of participants in the fishery unless desired in a given area to further reduce effort or harvest levels.

1.1.2 Benefits Of Implementation

The plan, when fully implemented, is designed to minimize the chance of a population collapse due to recruitment failure.

1.2 DESCRIPTION OF THE RESOURCE

1.2.1 Species Life History

The American lobster, *Homarus americanus*, is a bottom-dwelling, marine crustacean that has a shrimp-like body and ten legs, two of which are enlarged to serve as crushing and gripping appendages. The American lobster is widely distributed over the continental shelf of the Western North Atlantic. It belongs to a group of decapod crustaceans called "clawed lobsters"; its counterparts in the Eastern North Atlantic are the European lobster, *H. gammarus*, and the Norwegian lobster, *Nephrops norvegicus*. Along the inshore waters of the Western North Atlantic, the American lobster ranges from Labrador to Virginia; and along the outer continental shelf and slope within the U.S. Exclusive Economic Zone (EEZ) it ranges from Georges Bank to North Carolina. It has been found in waters of the intertidal zone and to as deep as 700 meters (about 2,300 feet). The meat of the lobster, which is located primarily in the claws and the tail, is so highly prized that it supports one of the most intense and valuable fisheries in North America.

The major lobster population centers are located within the Gulf of Maine and the New Brunswick and Nova Scotia coastal waters. These areas support inshore fisheries, which supply 90 percent of the total landings of American lobster. In waters of the United States, there are two important areas of population. The most important area is along the coastal zone from Maine to New Jersey and out to a depth of 40 meters (22 fathoms). This population supports the coastal trap fishery and accounted for 86 percent of the U.S. landings in 1993. A secondary area of production is on the continental shelf and margin from Corsair Canyon to Cape Hatteras in depths to 600 meters (333 fathoms). This population supports an offshore lobster fishery that employs both traps and bottom trawls. Offshore landings averaged 24% of U.S. landings (3400 metric tons) between 1970 and 1974 but declined to a 1978-1983 average of 17% or 2500 mt per year (NEFSC 1983). Despite short-term increases (5000 mt in 1990), offshore landings have not comprised more than 18% of total U.S. lobster landings since the mid 1970s (NEFSC 1994). Offshore landings accounted for 14% of total U.S. landings in 1993.

The management units addressed by this FMP each probably include numerous local groups of lobsters. Although discrete groups may exist, they are difficult to define; and the degree to which mixing occurs, as recruits or as adults, is not known. Newly-hatched lobster larvae are planktonic and, therefore, can be dispersed over wide areas. Coastal lobsters are concentrated in rocky areas where shelter is readily available, although occasional high densities occur in mud substrates suitable for burrowing. Offshore populations are most abundant in the vicinity of submarine canyons along the continental shelf edge. Early tagging experiments conducted in more northern inshore areas showed most lobsters usually remain within a radius of 3-5 km (Templeman 1935, 1940; Wilder 1963; Wilder and Murray 1958; Cooper 1970s; Cooper et al. 1975; Stasko 1980; Krouse 1980; Campbell 1982; Lawton et al. 1984). Lobster tagging studies conducted in offshore areas (Saila and Flowers 1968; Cooper and Uzmann 1971, 1980; Uzmann et al. 1977; Fogarty et al. 1980; Campbell et al. 1984) and in more southern inshore areas (Morrissey 1971; Briggs and Muschacke 1984, Estrella and Morrissey 1997) show significant movement of large, sexually mature lobsters which depict well-defined shoalward migrations.

Growth and reproduction are linked to the molting cycle. The lobster is encased in a hard external skeleton that provides protection and body support. The skeleton is cast off periodically, which allows the body size to increase and mating to take place.

Mating occurs when the female is soft after molting. Sperm is deposited and stored until the eggs are laid, which can be up to two years for most females. When the eggs are laid (5,000-100,000 depending on body size), they are fertilized and attached to the underside of the tail, where they are carried for a 9 to 11 month incubation period. Females are called "berried" during the time they are carrying the eggs. Hatching begins about mid-May to mid-June as water temperatures rise to about 15 C and may continue to mid-summer.

Newly-hatched lobsters go through a free-swimming (pelagic), larval stage during the first four molts, or for about 15-25 days. At this time they are planktonic and disperse according to the prevailing water movements. After the fourth molt the larvae resemble the adults and begin to seek the bottom.

Lobsters molt about 20 to 25 times (5-8 years) between hatching and sexual maturity. Ten of these molts are during the first year, and by age five they average one per year. Lobsters reach legal, commercial size after five to seven growing seasons, depending on water temperature. After sexual maturity, females molt and carry eggs in alternate years so that the molt frequency of the female may be only half that of the male; and older females tend to be smaller than males of the same age. A significant proportion of lobsters are landed before reaching sexual maturity, particularly in the Gulf of Maine.

1.2.2 Stock Assessment Summaries

1.2.2.1 Stock Assessment Workshop - 22

The stock assessment for lobster was recently reviewed at SAW-22 (NEFSC 1996) during summer 1996. The SAW document represents an analysis of the lobster stocks through 1994 and this subsection is summarized from that report. Overall, the SAW states that fishing effort is intense throughout the range of the species and that the stock is overfished and vulnerable to collapse.

For assessment purposes, the lobster population is split into three regions: Gulf of Maine (GOM), Georges Bank and South (GBS), and South of Cape Cod to Long Island Sound (SCCLIS). The quality and quantity of data do not currently permit the lobster population to be assessed at a greater level of detail.

Total landings were relatively constant at 14,000 metric tons (mt) through the late 1970s. Since then, landings have more than doubled, reaching a peak of nearly 32,000 mt in 1994. Landings in Maine and Massachusetts consistently constitute about one-half and one-quarter of yearly totals, respectively. Relative proportions of landings among states have remained fairly stable over the past decade; however, landings from Connecticut and New York have increased steadily in recent years.

The fishery remains dominated by landings from traps; in 1994, less than 1.3 % of lobsters were landed by gear other than traps. The average percentage of landings from the non-trap sector for the last thirty years (1964-1994) was 5.74%; the average percentage of landings from the non-trap sector for the last ten years (1984-1994) was 2.33%.

Increased fishing effort in the lobster fishery has been observed over the past three decades. The increase is due to several factors: a remarkable increase in the number of pots fished; an increase in the total area fished; a switch to more effective wire traps instead of wood traps; increased trap size; changes in trap design, most notably the rise of "double parlor" traps; and increased soak time. Although their precise contributions are difficult to quantify, technological changes, such as color depth finders, LORAN C, and GPS, have also likely led to increased effort.

Fishery independent surveys were used for estimation of the relative abundance of lobsters in each of the assessment areas. The Northeast Fisheries Science Center's (NEFSC) bottom trawl survey was the primary source of abundance indices. The state of Massachusetts' bottom trawl survey was also used for the GOM assessment area and the inshore trawl surveys from Connecticut and Rhode Island were used for the SCCLIS assessment area. All of the surveys are ineffective at sampling lobsters on hard-bottom lobster habitat. In addition, the high density of fishing gear in some areas (most notably Long Island Sound) can affect the sampling effectiveness for some of the surveys.

The relative abundance of lobsters of both sexes in the GOM assessment area increased substantially during 1983-1994, but in 1995, relative abundance declined. The decline in 1995 was more pronounced for pre-recruit lobsters than for fully-recruited lobsters. The relative abundance of lobsters in GBS assessment area varied without trend until the late 1980s. In the 1990s, there appears to be a downward trend for pre-recruits and recruits of both sexes, however, in 1995 pre-recruits were present at levels near their long-term averages. The relative abundance of lobsters in SCCLIS assessment area is not consistent for each of the three surveys available. The NEFSC survey shows no discernable trend for females up to 1995; males have been less abundant during the 1990s. In 1995, indices show increased abundance for both sexes and size classes. The Rhode Island survey shows a steadily increasing abundance through 1994. In 1995, fully recruited lobsters declined in abundance while pre-recruits increased in abundance. The Connecticut trawl survey shows that from 1986-1994, abundance of females has changed very little, while abundance of males, particularly pre-recruits, has increased substantially.

Examination of biological indicators can be used to investigate the indirect effects of fishing on the population structure, especially as they change through time. These indicators can provide tangible evidence of potential risks to the population. The fraction of total egg production coming from lobsters less than or equal to one molt increment above the minimum size limit is an indicator of the population's reliance upon first or second-time spawners for total egg production.

All areas show the trend of an ever increasing proportion of egg production coming from a smaller range of size classes. In the Gulf of Maine, egg production within one molt of legal size have increased from under 10% in the mid-1970s to roughly 60% in the 1990s. In Massachusetts, egg production within one molt of legal size has increased from over 80% in the early 1980s to over 90% in the 1990s. For the GBS stock, egg production within one molt of legal size has increased from roughly 10% in the mid 1970s to roughly 15-20% in the early 1990s. In Rhode Island, egg production within one molt of legal size has increased from 70% in the mid-1980s to roughly 95% in the 1990s. In Central and Western Long Island Sound, egg production within one molt of legal size consistently has been above 95% since the mid-1980s. Collectively, the analyses of potential egg production and catch composition imply increasing risk to the population by compression of spawning potential into an increasingly narrow size range and, by inference, age range. Furthermore, landings indicate an increasing reliance on newly molted lobsters to support the fishery. If the rate of recruitment of pre-recruits into the legal size limit either slows down or collapses, for whatever reason, both egg production and landings in the fishery will be adversely affected.

Incorporating the sum of fishery-dependent and -independent data, two model were used to assess the lobster population: Length Cohort Analysis (LCA) and Modified DeLury model. The LCA model uses the size frequency distribution of landings to estimate the abundance and fishing mortality for each sex. The LCA model showed fishing mortality is higher on males than females in all four areas and exceeds 1.0 for both sexes in most areas in recent years.

The DeLury model splits the lobster population into two life history stages, recruits and fully recruited animals, and uses a variety of fishery-dependent and -independent data to estimate abundance and mortality. The DeLury model calculated detailed results for each of the assessment areas.

In the GOM assessment area, total mortality of males from 1982 - 1994 was about 0.7 with a slight decline in recent years, probably due to increased recruitment. Total mortality of females from 1982 - 1994 ranged from 0.67-0.97 with a slight decline in recent years, probably due to increased recruitment. During this time period, estimated numbers of fully recruited males has increased from 13.2 million to over 40.4 million, and estimated numbers of fully recruited females has increased from 3.1 million to over 20.2 million. Fishing mortality rates on fully recruited males have hovered between 0.8-0.9 (roughly 55-60% annual exploitation rate), but have decreased to roughly 0.6 (roughly 45% annual exploitation rate) in the last two years. Fishing mortality rates on fully recruited females have ranged from 0.89 - 2.04 (roughly 59-87% annual exploitation rate), but have decreased to roughly 0.9 (roughly 59% annual exploitation rate) in the last two years.

In the GBS assessment area, total mortality of males from 1982 - 1994 has been increasing to levels approaching 1.0 in recent years. Total mortality of females from 1982 - 1994 has exceeded 0.5 every year except 1993. During this time period, estimated numbers of fully recruited males has decreased from 2.09 million to less than 1.6 million, and estimated numbers of fully recruited females has remained relatively consistent with a range between 3.2 and 4.6 million. Fishing mortality rates on fully recruited males has ranged between 0.92 - 1.97 (roughly 59-86% annual exploitation rate), but has remained above 1.2 (roughly 70% annual exploitation rate) in the last five years. Fishing mortality rates on fully recruited females have ranged from 0.45 - 1.09 (roughly 36-67% annual exploitation rate).

In the SCCLIS assessment area, total mortality of males from 1982 - 1994 has ranged from 0.55 - 3.97. Total mortality of females from 1982 - 1994 has ranged from 0.59 - 3.73. Using the Rhode Island trawl survey, estimated numbers of fully recruited males, has increased from 178,000 to a high of 588,000 in 1993, before declining to less than 260,000 in 1994; estimated numbers of fully recruited females has increased dramatically from 70,000 in 1982 to almost 3.5 million in 1994. Using the NEFSC trawl survey, estimated numbers of fully recruited males has decreased from 2.1 million to 421,000 in 1994; estimated numbers of fully recruited females has decreased from 2.06 million in 1982 to 637,000 in 1994. Fishing mortality rates on fully recruited males has ranged between 0.92 - 4.63 (roughly 60% to well over 95% annual exploitation rate), but has remained above 2.3 (roughly 90% annual exploitation rate) since 1988. Fishing mortality rates on fully recruited females have ranged from 1.18 to well over 4.0 (roughly 70 to well over 95% annual exploitation rate).

In Central and Western Long Island Sound, total mortality of males from 1984 - 1994 has ranged from 1.36 - 2.37. Total mortality of females from 1982 - 1994 has ranged from 1.26 - 2.27. Estimated numbers of fully recruited males has increased from 251,000 to a high of 425,000 in 1992, before declining to 385,000 in 1994. Estimated numbers of fully recruited females has decreased from a high of 542,000 in 1984 to a low of 183,000 in 1989 before rising somewhat to 448,000 in 1994. Fishing mortality rates on fully recruited males has ranged between 3.27 - 6.05 (well over 95% annual exploitation rate). Fishing mortality rates on fully recruited females have ranged from 2.18 -5.41 (well over 95% annual exploitation rate).

Biological reference points for the lobster population were calculated for the GOM, GBS, and SCCLIS assessment areas. The fishing mortality rate resulting in maximum yield per recruit was 0.24, 0.15, and 0.33 for GOM, GBS, and SCCLIS, respectively. The level of fishing mortality resulting in egg production per recruit of 10% of the maximum was 0.32, 0.36, and 0.44 for GOM, GBS, and SCCLIS, respectively.

1.2.2.2 A Review of the Population Dynamics of American Lobster in the Northeast

The National Marine Fisheries Service and Atlantic States Marine Fisheries Commission jointly sponsored a panel of independent scientists to review the population dynamics of American lobster. The panel met during March 25-29, 1996 in

[2] The Lobster Technical Committee is currently evaluating the potential use of different parameters to be used in the model for each of the assessments areas. The results of these discussions could be particularly important for the Long Island Sound assessment results.

Warwick, Rhode Island and issued their final report in July 1996 (NMFS and ASMFC 1996). The panel provided advice on six broad areas to the National Marine Fisheries Service and Atlantic States Marine Fisheries Commission: stock structure, the stock assessment, changes in abundance, management, and benthic ecology. Selected research recommendations are included in the following sections.

Stock Structure

The panel viewed the lobster population as a "meta-population", i.e. a number of sub-populations linked by larval dispersal. There was concern raised that the very heavily fished inshore population depends critically on the larval subsidy provided from the offshore and canyon areas. The recent expansion of fishing into the offshore area could be a significant threat to population persistence. The panel recommended that the patterns of egg production by area and larval dispersal be modeled more precisely to better define the relationship between inshore and offshore lobster populations.

Stock Assessment

Overall, the panel concurred with the findings of SAW-16. They believe landings per effort data shows conclusively that an increase in recruitment has occurred since the mid-1980s, but cautions that this pattern may show geographic differences. In spite of the recent increases in recruitment, the panel cautions that "at low levels of egg production...stock collapse could come quickly and without warning." The panel therefore recommended that the current overfishing definition be maintained in order to spur managers to avoid low levels of egg production and therefore, lessen the chances of stock collapse.

The panel concurred with the SAW - 16 assessment that the lobster population is, by definition, overfished in all areas.

Changes In Abundance

Lobster landings have continued to markedly increase throughout the 1980s and early 1990s. The increase in landings has occurred over a wide geographic area, covering a wide range of habitats, fisheries and management regimes, which suggests a "global" cause. Although the data does not allow strong conclusions to be made, the panel believed the increase in landings was due to a combination of fishing effort and temperature, the latter affecting recruitment (lagged by 6 years) through either increased survival or growth of larvae and juveniles. Other factors that may have played a role include changes in larval transport and regime shifts". The panel believed it unlikely that the increased amount of bait on the sea bed caused any recruitment increases.

Management

The lobster fishery is by definition overfished and fishing effort is removing an unacceptably high proportion of animals from each recruitment cohort. Even if the abundance increase is due to an increase in recruitment, the stock and fishery are vulnerable to any reversal of the factor causing the abundance change. The panel believed that "the risk of stock collapse would be contained or reduced if the fishing effort were capped or reduced, and legal size increased." Furthermore, "it would...be prudent to assume that the offshore stocks provide a larval subsidy...and the level and pattern of offshore exploitation should be controlled. In the absence of data for the relationship between fishing effort and fishing mortality, a pragmatic first step would be to set an effort ceiling."

Benthic Ecology

Abundance of benthic lobster can critically depend on the delivery of larvae to suitable sites. Larval transport involves many processes including passive transport, wind effects, active larval swimming, and behavior directed at finding suitable habitat. In addition, some research suggests that the absence of juveniles in otherwise suitable habitat may be correlated with the presence of water below 15 C. After settlement, abundance may be affected by predation, migration, and agonistic encounters. However, to date, field studies provide no evidence for an ecological bottleneck, i.e. for lobster abundance to be limited by a particular habitat type or density-dependent mortality prior to recruitment to the fishery. The panel strongly recommends that ongoing research in this area be continued, including the possibility of working with fishermen on a wide-scale, long-term program to deploy settlement collectors for predicting lobster recruitment.

1.3 DESCRIPTION OF THE FISHERY

The principal fishing gear used to catch lobsters is the trap. Lobsters are also taken as a bycatch with otter trawls and gillnets. Recreational fishing occurs, especially in coastal waters, but estimates of the catch are not available. Foreign fishing in US waters is insignificant. Total landings have effectively doubled during the last two decades concurrent with dramatic increases in fishing effort (NEFSC 1996). Landings increased from an average 14,000 mt during the mid 1970s to 28,800 mt in 1991, declined to the 26,000-27,000 level in 1992-1993, then increased to an estimated 31,700 mt in 1995. In 1993, total U.S. landings were around 25,600, a slight rise from the previous year but about a 12 percent drop from 1991. The Scotia-Fundy region of Canada has experienced similar trends in landings to those of the U.S. during this time period except that Scotia-Fundy landings have continued to decline since 1991 with a net drop of 17 percent (D. Pezzack, DFO, Halifax Nova Scotia, personal communication).

1.3.1 Commercial Fishery

Inshore Fishery

Nominal landings in the U.S. inshore fishery were relatively stable from 1965 to 1975, ranging from 10,300 to 12,200 mt, averaging 11,100 mt. Landings then rose steadily from 12,900 mt in 1978 to a record 24,000 mt in 1991, an increase of about 86 percent. This increase can be attributed both to increased abundance and a continuing increase in effort, especially in the number of pots and area fished. Some of this effort increase may be in response to recent increases in minimum size limits and other proposed management measures. Fishermen appear to be fishing more pots in the inshore areas, as well as expanding the areas and seasons fished. However, in 1992, inshore landings decreased to 20,971 mt (-13 percent). This decrease was seen throughout the U.S. fishery. In 1993, a 6 percent increase in inshore landings (22,129 mt) resulted in total U.S. landings (25,634 mt) only slightly higher than the 1992 value of 25,300 mt. This rise was entirely due to increases from Maine, since other areas reported no change or declines. Inshore landings in 1994 increased by 24%. However, the mean size of lobsters landed is still within one or two molts of the minimum size, representative of a continuing dependency on newly recruited animals (i.e., those lobsters that have just grown into legal size). In addition, data from Massachusetts and Maine indicate the majority of egg production is coming from small females.

Offshore Fishery

Prior to 1950, lobsters were primarily taken offshore as incidental trawl catches in demersal fisheries. Reported offshore lobster landings increased dramatically from about 400 mt during the 1950s to an average of more than 2,000 mt in the 1960s. In 1969, technological advances permitted the introduction of trap fishing to the deeper offshore areas. Landings from offshore traps rose from 50 mt in 1969 to 2,900 mt in 1972 and remained relatively stable at around 2,000 mt from 1975 to 1983.

From 1985 through 1989 trap landings averaged around 2,800 mt. This increase in offshore trap landings has been accompanied by a decrease in trawl landings from a peak of 3,200 mt in 1971 to 500 mt in 1984. In subsequent years the trawl component of the fishery has averaged a little over 300 mt. Total offshore landings rose to an average of around 3,200 mt in the late 1980s, peaked at 5,000 mt in 1990 and have steadily declined since to 3190 mt in 1994, 10 percent of the U.S. total. Offshore landings have never comprised more than 20 percent of the U.S. total.

1.3.2 Recreational Fishery

Information on recreational lobster fishing is sparse. Basic descriptions of the Massachusetts and New Jersey fisheries are presented here.

Massachusetts

In 1995, the state of Massachusetts issued 11,486 recreational lobster licenses, with 8,726 of these license holders reporting that they fished for lobster. The number of traps fished recreationally has risen steadily for the past few years (27,490 traps in 1995) while the number of hours spent diving for lobster has continued to decline from 1992 levels (61,465 hours diving in 1995). Landings amounted to 284,936 lobsters (calculated to be 364,718 pounds) which is 2.3 percent of the commercial landings. Individuals who do not report back to the state are not able to renew their recreational licenses the following year; in 1995, one-quarter of the licensees did not report and therefore could not renew their licenses from 1994.

New Jersey

The high expense of fishing gear and commitment of time required to tend lobster traps has relegated recreational harvest of lobster in New Jersey to SCUBA divers that frequent New Jersey's coastal wrecks, artificial reefs, and rock jetties. The New Jersey Division of Fish, Game and Wildlife conducted telephone surveys of New Jersey's wreck/reef SCUBA diving activities to determine the level of participation for 1991 and 1995 (Figley 1992 and 1996). The survey estimated that divers caught 21,000 lobsters in 1991 and 23,605 in 1995. In 1995, New Jersey's SCUBA diving fleet made 2,753 boat trips which involved an estimated 19,853 diver trips and 43,999 dives. Divers reported that an average of 44.8 percent of their activities were focussed on lobstering.

1.3.3 Interactions with other fisheries, species, and other users

The carnivorous habits of lobster larvae and postlarvae result in their almost exclusive dependence upon zooplankton during their first year (Lavalli 1988). In larval stomach analyses performed by Juinio and Cobb (1992), nine taxonomic prey groups were found. Copepods and decapod larvae are common prey items but cladocerans, fish eggs, nematodes and diatoms have been noted.

Adult lobster are omnivorous, feeding largely on crabs, molluscs, polychaetes, sea urchins, and sea stars (Ennis 1973; Carter and Steele 1982a,b; Weiss 1970s). Fish and macroalgae are also part of the natural diet.   Lobster are opportunistic feeders so their diet may vary regionally depending upon the abundance of prey species.

Lobster are in turn preyed upon by bottom or reef inhabiting species, including teleost fish, sharks, rays, skates, octopuses, and crabs (Philips et al. 1980). Larval and postlarval lobster are subject to heavy predation. Even after settlement they are vulnerable to mud crabs, cunner, and an array of other bottom feeding finfish species depending upon prevailing habitat type and suitable shelter. When not burrowbound, the foraging early benthic phase and larger juvenile lobsters are prey for sculpin, cunner, tautog, black sea bass, and sea raven (Cooper and Uzmann (1977), Atlantic cod, wolffish, goosefish, tilefish, and several species of sharks consume lobsters up to 100 mm CL (Cooper and Uzmann 1977; Herrick 1909). It has been suggested that large, hard-shelled lobster are immune to predation (Herrick 1909). Nevertheless, man is probably the most effective predator on this species.

A number of finfish and invertebrate species can be found entrapped with lobsters in both inshore and offshore fisheries. Off Massachusetts, finfish such as cod, tautog, scup, black sea bass, eels, and flounder are frequently captured. Invertebrate species of commercial importance which are found in the bycatch include rock crabs, jonah crabs, red crabs, and conchs. Tautog and black sea bass are notorious for inflicting injury and mortality to entrapped lobsters.

Tautog were the second most abundant species (23%) after scup (30%) of the finfish bycatch in lobster pots during New York State Department of Environmental Conservation's (NYSDEC) 1994 monitoring of New York's lobster fishery (Graulich 1995). While tautog made up only 1% of the total lobster pot catch (with respect to lobsters and finfish only) from all areas sampled, estimates of catch per unit effort varied noticeably between areas. Bycatch (as number of tautog per pot per year) was greatest in the ocean (2.3), least in eastern Long Island Sound (0.13), and was 1.5 in western Long Island Sound. This bycatch become significant when multiplied by the number of traps. A survey of resident commercial lobstermen provided a self-reported estimate of 160,572 traps in use in New York waters and in the EEZ during 1994 (P. T. Briggs, NYSDEC, East Setauket, personal communication). Further, lobstermen in some areas target tautog when lobstering slows down by using longer sets without bait (K. Graulich, NYSDEC, East Setauket, personal communication). Unpublished data from NYSDEC's lobster fishery monitoring in 1993 and 1994 shows that the mean length of tautog (N'956) caught in lobster pots was 10.3 inches (pots sampled had escape vents of either 1 15/16 inches rectangular or 2.5 inches circular). Eighty percent of these fish were under the proposed coastwide minimum size limit of 14 inches, seventy-two percent were under 12 inches, and eighty-seven percent were under 16 inches.

1.3.4 Interactions with protected species

1.3.4.1 MMPA Requirements

Since its passage in 1972, one of the underlying goals of the Marine Mammal Protection Act (MMPA) has been to reduce the incidental serious injury and mortality of marine mammals permitted in the course of commercial fishing operations to insignificant levels approaching a zero mortality and serious injury rate. Under 1994 Amendments, the Act requires the National Marine Fisheries Service (NMFS) to develop and implement a take reduction plan to assist in the recovery or prevent the depletion of each strategic stock that interacts with a Category I or II fishery. Category I and II fisheries are those that have frequent or occasional incidental mortality and serious injury of marine mammals, respectively. A strategic stock is defined as a stock: (1) for which the level of direct human-caused mortality exceeds the potential biological removal (PBR) level; (2) which is declining and is likely to be listed under the Endangered Species Act (ESA) in the foreseeable future; or (3) which is listed as a threatened or endangered species under the ESA or as a depleted species under the MMPA.

1.3.4.2 ESA Requirements

The taking of endangered sea turtles is prohibited under Section 9 of the ESA. There are several mechanisms established in the

ESA to avoid the takings prohibition in Section 9. First, the (Secretary) may issue Section 4(d) protective regulations "necessary and advisable to provide for the conservation of [threatened] species." These implementing regulations provide conservation measures to reduce incidental take and thus allow for the exemption from the taking prohibition. Section 10(a)(1)(B) of the ESA authorizes the Secretary to permit, under such terms and conditions as he or she may prescribe, any taking otherwise prohibited by Section 9 of the ESA, if the taking is incidental to, and not the purpose of, carrying out an otherwise lawful activity. Finally, Section 7(a) requires the Secretary to consult with each federal agency to ensure that any action that is authorized, funded, or carried out by such agency is not likely to jeopardize the continued existence of any listed species. Section 7(b) authorizes incidental take of listed species after full consultation and identification of reasonable and prudent alternatives or measures to monitor and minimize such take.

1.3.4.3 Protected Species with Potential Fishery Interactions

Marine Mammals

The Gulf of Maine/U.S. mid-Atlantic lobster trap/pot fishery is currently classified as a Category I fishery (under the MMPA) that has a historical incidental bycatch of four large whales -- the North Atlantic right whale (*Eubalaena glacialis*), the Western North Atlantic stock of humpback whales (*Megaptera novaeangliae*), the Western Atlantic stock of fin whales (*Balaenoptera physalus*) and Canadian East Coast stock of minke whales (*Balaenoptera acutorostrata*). The lobster trap/pot fishery was one of several fisheries addressed in the Atlantic Large Whale Take Reduction Team Report which was submitted to NMFS on February 5, 1997. On April 1, 1997, NMFS released its proposed take reduction plan and implementing regulations to reduce serious injury and mortality of right, humpback, fin and minke whales which occur incidental to several fisheries -- one of which being American lobster trap/pot fisheries along the Atlantic coast. On July 22, 1997, NMFS released its Interim Final Rule of the Atlantic Large Whale Take Reduction Plan Regulations (Federal Register Vol. 62, No. 142, 39157-39188). The regulatory information in this section summarizes the findings of the Interim Final Rule.

Sea Turtles

All sea turtles that occur in U.S. waters are listed as either endangered or threatened under ESA. Five species occur along the U.S. Atlantic coast, namely, loggerhead (*Caretta caretta*), Kemp's ridley (*Lepidochelys kempii*), green (*Chelonia mydas*), leatherback (*Dermochelys coriacea*), and hawksbill (*Eretmochelys imbricata*).

The Atlantic seaboard is considered to provide important developmental habitat for post-pelagic juveniles, as well as foraging and nesting habitat for adult sea turtles. The distribution and abundance of sea turtles along the Atlantic coast is related to geographic location and seasonal variations in water temperatures. Water temperatures dictate how early northward migration begins each year and is a useful factor for assessing when turtles will be found in certain areas. In the lower latitudes along Florida's east coast, the Canaveral ship channel supports aggregations of sea turtles during all months of the year and particularly during cooler winter months. North of Canaveral, turtles are seasonally abundant. Moderate to high abundances of sea turtles have been observed both offshore and nearshore when water temperatures are greater than or equal to 21^{o} C. As water temperatures decline below 11^{o} C, abundance declines markedly and turtles typically move from cold inshore waters in the late fall to move offshore to the warmer waters in the Gulf stream, generally south of Cape Hatteras, North Carolina. Conversely, in the late spring and early summer, they migrate from the Gulf Stream waters into the sounds and embayments.

1.3.4.4 Type of Interaction (by gear, region, season)

Marine Mammals

Documented whale behavior and information from entanglement records suggest that both vertical (e.g., buoy lines) and horizontal (e.g., lobster pot trawl groundlines) components of fishing gear represent entanglement risks to large whales. Based on data from 1991 through 1996, U.S. fishing gear is estimated to be responsible for approximately 35 percent (six events) of known human-caused serious injury and mortality to right whales. NMFS estimates that a minimum of 1.1 right whales are seriously injured or killed annually by entanglement in U.S. fishing gear. Of those entangled whales, fixed lobster gear is estimated to have entangled an average of 0.4 whales over the last five years. The estimated PBR level for this stock is 0.4.

For humpback whales, NMFS estimates that a minimum annual average of 4.1 whales (1991 - 1996) were seriously injured or killed due to fishing gear entanglements. This annual average is well below the stock's estimated PBR level of 9.7. Although there have been documented cases of serious injury and mortality to fin whales due to gear entanglement over the period from 1991 to 1996, none of these cases can be conclusively attributed to the lobster trap/pot fishery. In its Interim Rule, released on July 22, 1997, NMFS determined that a reduction in take for the western North Atlantic stock of this species is not required to meet the Plan's six-month goal of reducing the mortality and serious injury of strategic stocks to below the stock's established PBR level.

Although serious injury and mortality due to entanglement has been documented for the Western Atlantic stock of fin whales over the 1991-1995 period, none of the events can be conclusively attributed to Atlantic American lobster pot fisheries. The total known fishery-related mortality and serious injury rate for this stock is less than 10 percent of the PBR level, which is calculated to be 3.4 whales per year. Therefore, NMFS has determined that a reduction in take for this stock is not required to meet the Plan's six-month goal of reducing the mortality and serious injury of strategic stocks to below the stock's established PBR level.

The 1996 NMFS stock assessment report estimates that 2.5 minke whales are seriously injured or die from fishery-related encounters. This level does not exceed the PBR level of 21 animals for this stock. Therefore, NMFS has determined that a reduction in take for this stock is not required to meet the Plan's six-month goal of reducing the mortality and serious injury of strategic stocks to below the stock's established PBR level. The four primary regions of potential interaction between lobster trap/pot fishing gear and large whales are: (1) Cape Cod Critical Habitat Area; (2) Great South Channel Critical Habitat Area; (3) Stellwagen bank/Jeffreys Ledge Area; (4) all U.S. federal and state waters.

Sea Turtles

NMFS maintains records of stranded and incidentally captured sea turtles under the Sea Turtle Stranding and Salvage Network (STSSN). STSSN records from 1983 to 1993 in the northeast Atlantic region show 45 leatherbacks and three loggerheads were taken incidentally in lobster gear. Interactions with lobster gear were reported for Massachusetts south through New Jersey. Sea turtles occur in the northeast region during the months of the highest effort of the lobster fishery. Entanglements are highest in July and August with a secondary peak in October.

Longline fishermen have reported that jellyfish adhere to surface gear and slide down the vertical lines, which are similar to the lines of lobster trawls. Leatherbacks prefer jellyfish as a food source and may be attracted to the accumulation on the lines. It has also been suggested that marine debris or algae may accumulate along lobster trawl lines. Leatherbacks may mistake the accumulation for jelly fish. As the leatherback hits the misidentified prey, the lobster line jerks and becomes wrapped around the turtle's flippers. This is evidenced by direct observations of leatherbacks towing lobster lines and records of the stranded animals with constriction wounds and lines attached. In addition, many stranded animals have ingested plastic, including bags and mylar balloons.

1.3.4.5 Population Status

Marine Mammals

Three of the four whale stocks that are addressed in NMFS proposed rule -- namely, right, humpback and fin -- are classified as strategic stocks under the MMPA and are, therefore, the primary focus of the proposed rule. Above all, the species of greatest concern is the right whale, which is one of the most endangered species in the world, numbering only around 300 animals.

Sea Turtles

All sea turtles that occur in U.S. waters are listed as either endangered or threatened under ESA. Five species occur along the U.S. Atlantic coast, namely, loggerhead (*Caretta caretta*), Kemp's ridley (*Lepidochelys kempii*), green (*Chelonia mydas*), leatherback (*Dermochelys coriacea*), and hawksbill (*Eretmochelys imbricata*).

1.3.4.6 Existing and Proposed Federal Regulations/Actions

Marine Mammals

The Atlantic Large Whale Take Reduction Plan has two goals: (1) reduce serious injuries and mortalities of right whales in U.S. commercial fisheries to below 0.4 animals per year by January 1, 1998; and (2) reduce by April 30, 2001 entanglement-related serious injuries and mortalities of right, humpback, fin and minke whales to insignificant levels approaching a zero mortality and serious injury rate. In its Interim Final Rule, NMFS identified two approaches to achieve these goals. One approach proposed to reduce takes through extensive closures of large areas of the ocean to lobster and gillnet fishermen. While this approach was expected to achieve significant reduction in entanglements with marine mammals, it was deemed too high a price to many fishermen.

The second approach, which is the preferred approached, will close critical habitat areas only and modify fishing practices in a manner designed to create a realistic potential of achieving MMPA objectives without sacrificing large parts of a vital fishing industry. Generally, the rule requires that all lobster gear be rigged in such as a way as to prevent the buoy line from floating at the surface at any time, and has established the following list of gear characteristics that are expected to decrease the risk of entanglement:

Lobster Take Reduction Technology List:

1. All buoy lines are 7/18-inches in diameter or less

2. All buoys are attached to the buoy line with a weak link having a maximum breaking strength of up to 1100 lbs. Weak lines may include swivels, plastic weak links, rope of appropriate breaking strength, hog rings, or rope stapled to a buoy stick.

3. For gear set in offshore lobster areas only, all buoys are attached to the buoy line with a weak link having a maximum breaking strength up to 3780 lbs.

4. For gear set in offshore lobster areas only, all buoys are attached to the buoy line by a section of rope no more than 3/4 the diameter of the buoy line.

5. All buoy lines are composed entirely of sinking line.

6. All ground lines are made of sinking line.

Lobster pot gear used in low risk areas will be required to have at least one of the above gear characteristics. Similar gear set in high risk areas are required to have at least two of these characteristics. There are slightly different requirements for inshore and offshore lobster fisheries because of the much heavier gear requirements for fishing offshore. Additionally, the Interim Final Rule prohibits “wet storage” of lobster pot gear and requires marking of six categories of gear, including inshore and offshore lobster pot gear. Wet storage of lobster gear, or the practice of storing gear in the water, will be prohibited through a requirement that gear be hauled in at least every 30 days. The final details of the gear marking requirements are still being developed. The main purpose of the gear modification requirements is to help achieve the long-term goal by initiating a flexible process of gear modification over the next four years.

More specifically, NMFS Interim Final Rule calls for a closure of the Great South Channel right whale critical habitat to lobster pot gear during the high right whale use period (April 1 through June 30), but will allow lobstering with strict gear requirements from July 1 through March 31 throughout the same area. From January 1 through May 15, lobster pot gear may only be set in the Cape Cod Bay critical habitat if it meets certain criteria. Specifically, all lobster pot gear set during that time must have all four of the following characteristics: (1) All buoys must be attached to the buoy line with a weak link with a maximum breaking strength of up to 1100 lbs.; (2) All pots must be set in trawls of four or more pots; (3) All buoy lines must be made of sinking line, except for the bottom third of the line which may be floating line; and (4) All ground lines between pots must be made of sinking lines. From May 16 to December 31, lobster pot gear set in the federal portion of the Cape Cod Bay critical habitat must have at least two characteristics from the Lobster Take Reduction Technology List.

In the Stellwagen Bank/Jeffreys Ledge area -- defined as all federal waters in the Gulf of Maine that lie to the south of 43^{o} 15’N lat. line and west of 70^{o} W long. line, except right whale critical habitat -- all lobster pot gear must always have at least two characteristics from the Lobster Take Reduction Technology List. In all other areas, lobster pot gear must be set with at least one gear characteristic from the list. This requirement applies year-round in the inshore and offshore lobster pot fishery north of 41o 30’N lat. , and from December 1 through March 31 in the inshore and offshore lobster fishery south of 41^{o} 30’N lat.

1.4 HABITAT CONSIDERATIONS

Habitat may be defined according to an array of environmental factors which include temperature, salinity, dissolved oxygen, light intensity, current, and substrate (Mercaldo-Allen and Kuropat 1994). However, contaminants from man's manipulation of the environment cannot be overlooked as potentially impacting on the well-being of the lobster resource and fishery. These environmental factors, as discussed by Mercaldo-Allen and Kuropat (1994), are summarized below relative to three life history stages of the lobster: eggs/embryos, larvae/postlarvae, and juveniles/adults.

1.4.1 Components of Habitat

1.4.1.1 Temperature

Environmental influences on the reproductive and developmental processes of lobster can occur in a number of ways. Water temperature may have a significant impact; temperature must reach seasonal extremes (i.e., decline to ~8-10^{O} C during winter) to maintain a balance between the synchronization of the molt and ovarian cycles of female lobster (Aiken and Waddy 1985). Warmer winter temperatures favor molting and oocyte resorption (Aiken and Waddy 1986) although photoperiod has been implicated as a factor governing spawning (Nelson et al. 1983).

Temperature has a strong effect on embryonic development with the onset of hatching varying with year and location and the temperature history of individual females (Aiken and Waddy 1986). Since temperature can affect the rate at which the embryo assimilates lipids, delayed hatching may result in the premature utilization of lipid reserves which are important to survival during the pelagic larval stages.

The duration of the planktonic phase is dependent upon seawater temperature. Time from hatching to stage IV is approximately 10 days at 22- 24^{O} C and nearly 2 months at 10^{O} C. At 5^{O} C larvae generally die without reaching stage IV (Templeman 1936).

Temperature may have a significant impact on juvenile and adult lobster growth, survival and reproduction. Aiken and Waddy (1986) reported that juvenile and adult lobsters are found seasonally in waters ranging from 0^{o} C to 25^{o} C. Acclimation to the upper lethal limit depends upon acclimation temperature but tolerance to any temperature declines as optimal dissolved oxygen and salinity levels decrease.

1.4.1.2 Currents

Larvae tend to concentrate in surface waters where currents converge and in windrows where floating debris may provide refuge (Cobb et al. 1983; Harding et al. 1982). Thus, wind-induced circulation patterns, for example, prevailing southwesterly winds in the northeast U.S. during the period of larval availability, may influence larval recruitment to coastal areas (Fogarty 1983). The active swimming capability of Stage IV postlarvae may also affect distribution patterns.

1.4.1.3 Salinity

The impermeable egg membrane may provide some measure of protection for the embryo against low salinity because embryos require a longer adaptation time to low salinities than hatchlings or prelarvae (Charmantier and Aiken 1987). Larval lobsters are sensitive to salinities below 20 ppt and swim to greater depths to avoid lower salinity surface waters. In contrast, juveniles and adults can tolerate a broader range of salinities, from 15-32 ppt (Harding 1992).

Stage IV lobsters will delay settlement if faced with unsuitable habitat (Botero and Atema 1982; Cobb et al. 1983). Larval stages 1-3 were more adaptable to low salinities than stage IV (Charmantier et al. 1984) and less resistant to elevated salinity than postlarvae and juveniles (Charmantier et al. 1985). No stage 3 or 4 larvae survived salinities below 12.5 ppt. No larval molting occurred beyond a salinity of approximately 40 ppt. Salinity presents a greater problem for pelagic larvae subject to rainfall than for juveniles and adults (Aiken and Waddy 1986). Although excessive run-off can lower bottom salinities and cause mortality. Lobster prefer higher salinities (20-25 ppt) over lower (10-15 ppt) (Jury 1992). Males can tolerate lower estuarine salinities better than females.

1.4.1.4 Dissolved Oxygen

Miller et al. (1992) found that larval lobsters appear twice as sensitive as juveniles and adults to reduced DO. The result may be retarded growth and molt rate.

Juvenile and adult lobsters approaching molt are more susceptible to low DO since oxygen consumption peaks at this time (Penkoff and Thurberg 1982). Oxygen consumption also increases with stress, feeding, increased activity and water temperature (McLeese 1956).

1.4.1.5 Light Intensity

Larval lobsters are phototaxic. A minimum light intensity is required to attract larvae to the sea surface but early stage larvae seek lower depths in bright sunlight (Templeman 1933). Juvenile and adult lobsters in Long Island Sound remained in burrows when ambient light exceeded 4 X 10^{-2} µW/c m2 (Weiss 1970s). Emergence from burrows occurred 25 minutes after sunset when underwater light intensity was 2 X 10^{-2} μW/cm2 from June - November. During December and January they waited until 40 minutes after sunset (0.02 X 10^{-2} μW/cm2).

1.4.1.6 Substrate

The pelagic larval period ends when stage IV postlarvae settle to the bottom. Postlarvae will actively seek suitable substrate with a series of descents and will delay molting to fifth stage until successful settlement is completed. Howard and Bennett (1979) and Pottle and Elner (1982) found that lobster tend to choose gravel rather than silt/clay substrates. However, when Botero and Atema (1982) included macroalgal-covered rock in the choice options, it was preferred by settling lobster, followed by rocks on sand, mud, and sand. Cobb et al. (1983) found postlarvae settle rapidly into rock/gravel, macroalgal-covered rock, salt-marsh peat, eel grass, and seaweed substrates. Barshaw et al. (1985) and Barshaw and Bryant-Rich (1988) observed postlarval lobster to settle quickly into eelgrass, followed by rocks with algae in sand, then mud. Barshaw and Bryant-Rich (1988) emphasized the importance of macroalgal-covered rock habitat and the faster settlement of post larval lobster into it compared to rock and mud, and a lower rate of lobster mortality experienced on it. Although mud habitat is the least preferred, the demonstrated ability of lobster to burrow into it (MacKay 1926; Cobb 1971; Berrill and Stewart 1973; Botero and Atema 1982) implies that when mud habitat is the only option, postlarvae will settle into it and construct and maintain burrows there. Under experimental conditions Stage IV lobsters settled within 34 hours of searching on macroalgal-covered rocks, within 38 hours on scattered rocks in sand, and within 62 hours over mud bottom (Harding 1992).

The importance of macroalgal covered rock, eel grass, peat and other habitat types which greatly exceed the total area that inshore cobble represents throughout the range of the lobster may have been underrated when considering a bottleneck hypothesis (Caddy 1986) which isolates cobble as the key habitat. Appropriate habitats protect postlarvae from predation and provide food and shelter thereby minimizing movement and exposure. Lobster may not leave their burrows until they reach a carapace length between 20 and 40 mm (Bryant-Rich and Barshaw 1988). However, a shift from this shelter- based existence to a wider ranging, foraging lifestyle may occur with the greater energy needs and possible mitigation of predation associated with increasing body size.

Lobsters in this early benthic phase (5-40 mm CL) were found by Wahle (1988) and Wahle and Steneck (1991) to be most abundant in cobble and macroalgal-covered bedrock and rare in featureless mud, sand, or bedrock. However, it is difficult to conclude that shelter-providing substrate, cobble in particular, represents a natural demographic bottleneck when juvenile lobsters occur in other substrates, e.g. eelgrass, bedrock, and mud (Addison and Fogarty 1992). The definition of suitable lobster habitat is complex with its attractiveness determined by shelter sites, prey distribution, species composition, abundance and availability. The range of habitat types available to juvenile lobsters increases as pressure from predation declines.

The need for specific shelter size may be resolved by the lobster's ability to manipulate its environment which can result in the construction of suitable shelter from otherwise uninhabitable substrate. The excavation of shelters under man-made objects is common among juvenile and adult lobsters and may be important on featureless bottom (Cooper and Uzmann 1977).

1.4.2 Anthropogenic Impacts On Lobsters And Their Habitat

Human activities can have a significant impact on the lobster resource and its environment. Siltation and turbidity from deforestation, poor agricultural practices, urban development, quarrying, dredging, construction, or oil drilling can destroy lobster habitat and adversely affect larval growth, development, and survival (Aiken and Waddy 1986; Harding 1992). Ocean dumping can affect bathymetry, sediment grain size, and trace element concentration disturbing benthic biota and population structure (Aiken and Waddy 1986). The disposal of soft sediments from harbor dredging can directly impact lobster habitat and disrupt food resources; however, the dumping of course, uncontaminated material may enhance lobster habitat once it is colonized with prey organisms (Harding 1992).

For over 60 years (1924-1986) a marine dump site off New York in the New York Bight apex (12-mile site) received an annual average of 8 million metric tons of sewage sludge from sewer districts in the New York/New Jersey area. This location, at the head of Hudson Canyon, has been noted for its heavy metal contamination, high fecal coliform counts, black oozy substrate, and anoxic layer of bottom water. The area has been largely devoid of fishing practices. Elevated incidence of shell disease and black gill disease was observed in crustaceans collected at this site.

Since dumping at the 12-mile site ended in 1987, followed by a shift to a deepwater, 106-mile site, studies have shown some improvement in contaminant levels, bacterial counts, and in the low dissolved oxygen readings, which previously characterized the area. However, shortly after dumping began in the 106-mile site reports were made by offshore fishermen of a high rate of shell disease in lobsters and rock crabs in that area and a concurrent decline in landings. As a result, a joint NOAA/EPA Working Group met between 1988 and 1989 to assess if a relationship existed between shell disease prevalence and crustacean population fluctuations, determine if shell disease is pollution-related, and if shell disease results in mortality (Sindermann et al. 1989). The conclusions were that, although mortalities from shell disease have been observed in laboratory or impounded situations, and shell disease may pre-dispose crustaceans to predation or disease-related mortality, there is no conclusive evidence that shell disease causes fluctuations in crustacean populations in the New York Bight apex. Evidence has been published that shows an association between habitat degradation and shell disease, however, there was no conclusive evidence to associate shell disease in offshore populations with sludge dumping at the 106-mile site. Subsequent studies conducted in the 12-mile site have been unable to conclude, due to highly variable data, if improvements in shell disease prevalence have occurred since the sludge dumping was suspended.

The construction of the Canso Causeway in Nova Scotia is believed to have interfered with larval distribution patterns and stopped larval lobster recruitment to the Atlantic coast from St. Georges Bay in the southern Gulf of St. Lawrence. A long-term population decline precipitated leading to the conclusion that bridges or tunnels are preferable alternatives to causeways (Harding 1992).

Thermal patterns may be altered by effluents from municipalities, industrial plants, and power plants resulting in local effects on larval survival, growth, and development (Harding 1992; Sastry 1980).

Lobster resources adjacent to industrialized areas are exposed to a number of pollutants. Embryos and larvae are very sensitive to contaminants.

Connor (1972) estimated that larvae are 14-1000 times more susceptible than adults. The deleterious effects of petroleum products, industrial chemicals, and heavy metals are well published and include reduced survival, growth, molt inhibition, regeneration, malformation, and changes in metabolism, energetics, and behavior (Aiken and Waddy 1986).

Lobsters are highly sensitive to certain pollutants, particularly pesticides. Organochlorines (e.g., DDT, PCDD, Endosulfan, Endrin, Dieldrin, Chlordane), pyrethoid pesticides (e.g., Permethrin, Cypermethrin, and Fenvalerate) and organophosphate pesticides have very low lethal thresholds for lobster (Harding 1992).

Heavy metals such as copper, mercury, zinc, and lead are toxic at various concentrations. First stage lobster larvae are quite sensitive to heavy metals. Although mortality resulted from test exposures to all three metals, toxicity to mercury was the greatest for first stage larvae followed by copper, then cadmium. Exposure to higher concentrations of copper (56 vs. 30 μg/L) was necessary for a lethal effect on juveniles and adults; however, only sublethal effects were observed in juveniles from significant cadmium contamination while adults were not affected. Pollutants such as PCB's, may not have detrimental effects upon lobsters themselves but may render them unfit for human consumption. Large quantities of PCB's were discharged, by electrical component manufacturers, into New Bedford Harbor and the adjacent Acushnet River in Massachusetts over several decades (Weaver 1984). The harbor sediments and biota still contain relatively large concentrations of PCB's which resulted in a significant segment of this estuarine system being closed to commercial lobstering.

Many studies have been conducted on the effects of crude oil on lobsters. Toxicity varies with the level of refinement of oil and the concentration to which the animals are exposed. For example, the more highly refined no. 2 fuel oil is more toxic than no. 6 oil. Responses to exposure range from mortality to sublethal effects of chemosensory interference or loss of coordination and equilibrium (Harding 1992). Larval forms are particularly sensitive since oil co-occurs in surface waters with them. Oil pollution also severely and negatively effects the small food organisms critical to larval lobsters. Larvae which were fed oil contaminated Artemia exhibited disruption in energetics (including reduced lipid levels), molting delays, reduction in respiration rate, slowed growth rate, and changes in the oxygen/nitrogen ratio (Capuzzo and Lancaster 1981; 1982; Capuzzo et al. 1984).

Oil pollution also effects lobsters in their adult stages. For example, laboratory studies have indicated that small quantities of crude oil can interfere with specific, perhaps chemosensory, behavior of lobsters. Feeding behavior has been shown in these studies to be affected, with the period between first noticing food and going after it being doubled. Because of changes in feeding and other behavior, it is possible that crude oil will interfere with the ability of male lobsters to detect sex pheromones released by female lobsters, which could severely interfere with reproductive activity.

Drilling muds also can be toxic at lethal and sublethal stages. Potentially lethal components of drilling muds include petroleum hydrocarbons, asphalts, aromatic lignosulphates, heavy metals and calcium-like cations such as barium and strontium. Observed reactions of lobsters to these include, depending on the concentrations, impaired coordination, cessation of feeding, loss of mobility, and death. Inhibition of burrowing behavior of Stages IV and V lobsters has been demonstrated. Drilling muds

also affect habitat by their tendency to settle in depressions or flow downhill, a particular problem for lobsters whose natural habitat is offshore canyon areas.

Human impact on the American lobster resource has its greatest effect through commercial fishing practices. In most of the state's inshore lobster fisheries where over 80% of the lobsters are captured, more than 90% of those landed are new recruits. Cull lobsters (those with missing or regenerating claws) are attributed to anthropogenic as well as natural causes. An annual average of 16% of the marketable lobsters and 19% of sublegal lobsters sampled from commercial lobster trapping operations in Massachusetts coastal waters were culls (Estrella and Cadrin 1992). Inter- and intra-specific aggression in lobster traps, as well as handling by fishermen contribute to claw loss which may also occur in the wild as a result of not only territoriality but molting. The relative contribution of each potential cause is unknown. The regulation of escape vents in traps has helped to reduce in-trap aggression.

Mobile gear fisheries contribute to lobster shell damage and can result in mortality. Observations of fresh shell damage and claw loss were made when investigating the impact of bottom trawling off Duxbury Beach, Massachusetts (Estrella 1989). A strong relationship with molt stage was clearly defined. The occurrence of fresh shell damage in new-shelled lobster was consistent with the results reported by Ganz (1980) in Rhode Island waters and Smith and Howell (1987) in Long Island Sound. Although Spurr (1978) did not record molt stage of the lobster he studied off New Hampshire, he reported that the highest damage incidence occurred in July. This is when new-shelled lobster are expected to be abundant.

Some level of delayed mortality occurs to new-shelled lobster which are damaged by trawling operations. Smith and Howell (1987) observed delayed mortality in 33.3% of the eighteen new-shelled lobster they tested. Similar results were found by Witherell and Howe (1989) who calculated 29.5% mortality. The mortality to undamaged hardshell lobster was 0.6 percent (Smith and Howell 1987).

Among potential fishery-induced injuries, other than death, claw loss significantly impacts market value. Krouse (1976) calculated that cull lobster weighed from 14 to 20% less than fully clawed lobster. However, an overlooked impact of culling is its effect in reducing the growth rate due to the energy partitioning between molt and regeneration (Aiken 1980). This can delay recruitment to minimum commercial size, and, if maturity is more a function of age than size, as it is in the spiny lobster (Davis 1981), then the size at maturity will be lowered.

Claw loss can also affect lobster behavior. It is possible that since dominant lobster "claim" the optimal shelters, lobster which are behaviorally subordinate due to claw loss are forced to congregate on less optimal habitat, i.e. open sand or mud areas which lack structure. A number of lobstermen claim that there are areas which they refer to as "hospital grounds" where large numbers of culls can be found. This hypothesis needs to be investigated.

The impact of trawling on sandy habitat is negligible and of short- term duration (Estrella 1989; Spurr 1978). Graham (1955) and Gibbs et al. (1980) found no detectable changes in benthic fauna as a result of trawling in their sandy study areas. Smith and Stewart (1985) concluded that no longlasting impressions or habitat loss resulted from trawl door furrowing in soft mud bottom and only minor sediment disturbance (<1" depth) occurred in the sweep path.

Bridger (1970s) stated that the nature and extent of marks in the substrate depends on the gear used and composition of the seabed. It should be emphasized that research results may differ on hard bottom areas. It seems logical that lobster vulnerability should not be as great on rough rocky substrate where boulders would prevent the sweep from riding close to the bottom. However, nocturnal vs. diurnal behavior may be important factors in lobster catchability. Smith and Stewart (1985) discussed the potential for greater lobster activity during daytime in dark deep water environments compared to lighter shoal areas. Ideally, similar research should be conducted on all bottom types.

Ghost traps can be detrimental to the lobster resource and fishery. They have been estimated to continue to fish at a rate of 10% the effectiveness of a baited trap with 25% of the ghost trap lobsters dying (Pecci et al. 1978). This has been estimated to represent approximately 3% to 6% loss in annual landings in the U.S. (Harding 1992). Regulations addressing ghost fishing through a requirement of biodegradable escape panels or hinges are now in place in most states.

1.4.3 Description Of Programs To Protect, Restore, Preserve, And Enhance Lobster Habitat

Federal marine pollution research and monitoring activities are coordinated by NOAA. National Ocean Pollution Program Office. Short and long- term anthropogenic effects on the marine environment are also assessed. NOAA's Ocean Pollution Program

Office coordinates interagency responsibilities while the Ocean Assessments Division (OAD) of the Office of Oceanography and Marine Assessments, National Ocean Service manages assessments.

1.4.4 Recommendations For Further Habitat Research

The mapping, characterization, and quantifying of lobster habitat types needs to be accomplished throughout U.S. waters. The identification of habitat important to postlarval settlement and early benthic phase lobster is necessary in order to calculate a density index and evaluate a stock- recruitment relationship. Changes in species composition by area, from a hard bottom complex to a soft bottom complex and prey diversity on each bottom type should be determined. This information is an important precursor to recruitment assessments and to mobile gear impact studies.

Mobile gear impact research has been conducted on sand and mud substrates. Valuable data has been collected on its effects on lobster and habitat; however, similar research is sorely lacking on hard bottom habitat.

The effects of hypoxia on incubating lobster eggs should be assessed. The adult eggbearing female may be able to withstand low D.O., but its external eggs may be adversely affected. If so, the potential effects on larval production and recruitment need to be studied.

The effects of hypoxia on early benthic phase (EBP) lobsters should also be investigated since EBP's lack the mobility necessary to avoid hypoxic areas. Attempts to move would result in exposure to predation and increased mortality. Does hypoxia enhance total annual mortality and therefore decrease year-class strength? What are the effects of reduced EBP growth rates at the population level?

The contribution of many crustacean diseases to natural mortality rates of lobster is largely unknown due to the fact that animals may succumb in the obscurity of the ocean floor. Gaffkemia is a bacterial disease which is responsible for significant losses in holding facilities but occurs naturally and is suspected of epizootic die-offs in wild populations. In captivity, spread of the causative agent, Aerococcus viridans, from infected lobsters and entry into others, has been assumed to occur through a breach in the lobster's integument. It needs to be determined if the mode of infection in the wild includes physical contact with the free-living bacteria present in sediments and surface slimes. The contribution of this disease to natural mortality and its role in population fluctuations should be assessed.

2 GOALS AND OBJECTIVES

2.1 GOAL

The Atlantic states will have a healthy American lobster resource and a management regime which provides for sustained harvest, maintains appropriate opportunities for participation, and provides for cooperative development of conservation measures by all stakeholders.

2.2 OBJECTIVES

1) Protect, increase or maintain, as appropriate, the brood stock abundance at levels which would minimize risk of stock depletion and recruitment failure. See Section 2.4.

2) Develop flexible regional programs to control fishing effort and regulate fishing mortality rates;

3) Implement uniform collection, analysis, and dissemination of biological and economic information; improve understanding of the economics of harvest;

4) Maintain existing social and cultural features of the industry wherever possible;

5) Promote economic efficiency in harvesting and use of the resource;

6) Minimize lobster injury and discard mortality associated with fishing;

7) Increase understanding of biology of American lobster, improve data, improve stock assessment models; improve cooperation between fishermen and scientists;

8) Evaluate contributions of current management measures in achieving objectives of the lobster FMP;

9) Ensure that changes in geographic exploitation patterns do not undermine success of ASMFC management program;

10) Optimize yield from the fishery while maintaining harvest at a sustainable level;

11) Maintain stewardship relationship between fishermen and the resource.

2.3 SPECIFICATION OF THE MANAGEMENT UNIT

The management unit for American Lobster is the entire Northwest Atlantic Ocean and its adjacent inshore waters where lobsters are found, from Maine through North Carolina. For the purposes of Amendment 3, the term “state” includes: Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Delaware, Maryland, Virginia and North Carolina.

This fishery management plan is written to provide for the management of lobsters throughout their range. The FMP is designed to specify a uniform program regardless of lines that separate political jurisdictions, to the extent possible. The different management authorities are expected to take necessary actions to apply the provisions of this FMP in waters under their respective jurisdictions.

For management purposes, the management unit is subdivided into seven areas (fig.1) which are thoroughly described in Appendix 1.

[3] Management in federal waters will require cooperation with the Secretary of Commerce through his authority under the Magnuson-Stevens Act or the Atlantic Coastal Fisheries Cooperative Management Act (see section 3.10 of this FMP)

American lobster Management Areas established for the purpose of regional lobster management.

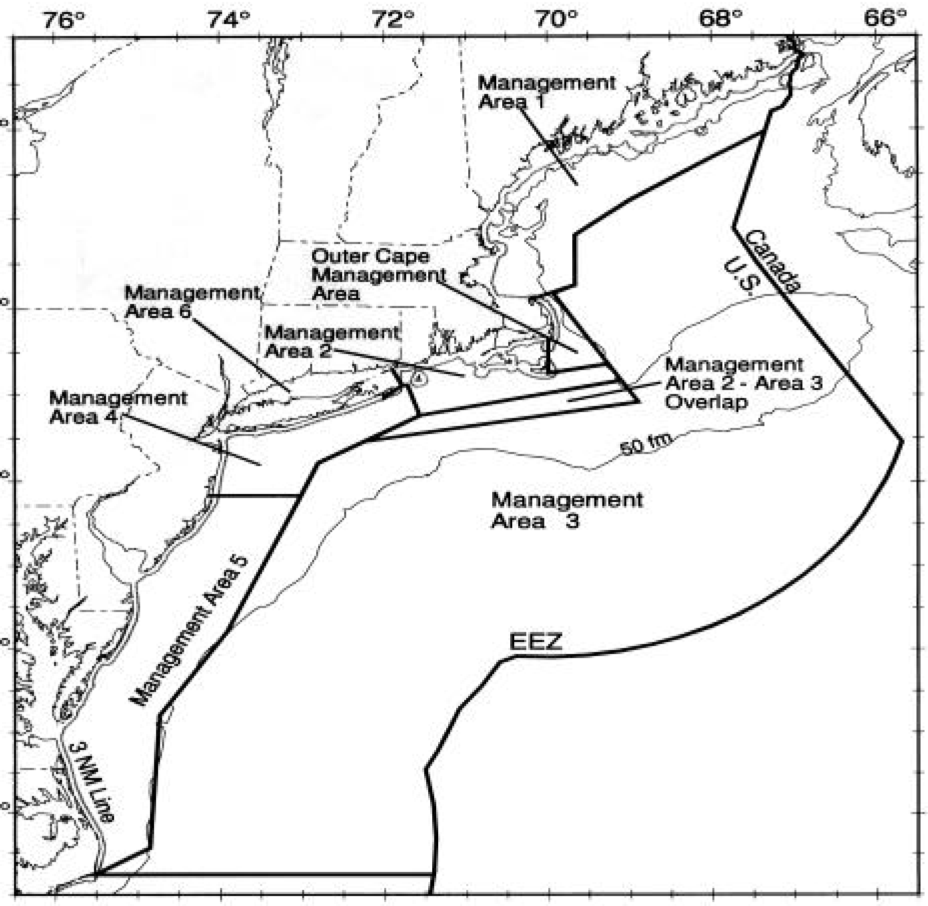

Figure 1: Map of Management Areas. Area 1, Inshore Gulf of Maine; Area 2, Inshore Southern New England; Area 3, Offshore Waters; Area 4, Inshore Northern Mid-Atlantic; Area 5, Inshore Southern Mid-Atlantic; Area 6, New York and Connecticut State Waters; OCLMA Outer Cape Lobster Management Area. Exact Coordinates of areas are described in Appendix One. Note: boundaries between US & Canada and the seaward boundary of the EEZ are approximate.

2.4 DEFINITION OF AN OVERFISHED RESOURCE

The American lobster resource is overfished when it is harvested at a rate that results in egg production from the resource, on an egg-per-recruit basis, that is less than 10% of the level produced by an unfished population. The level of 10% of maximum egg production per recruit was originally chosen as an overfishing definition goal to account for average long-term conditions.

This overfishing definition will be continually reviewed by the Commission's Lobster Management Board as part of its ongoing monitoring of the effectiveness of the fishery management program, and may be revised according to the procedures specified for adaptive management in Section 3.6.

2.5 EGG PRODUCTION REBUILDING SCHEDULE

This fishery management plan seeks to restore egg production from the American lobster resource in each of the management areas to greater than the overfishing definition within eight years from adoption of the FMP, i.e., before the end of 2005. This restoration is expected to result from the application of the conservation and management measures contained in Sections 3 and 4, below. Modifications may be made as necessary according to the adaptive management procedures contained in Section 3.6 if ongoing monitoring demonstrates that such modifications are necessary to meet the FMP goal, objectives and rebuilding target date.

Each area will be required to meet the egg production rebuilding schedule listed in Table 1. Area 1 will follow the Gulf of Maine schedule; Area 2 and 6 will follow the "SCCLIS" schedule; and Areas 3, 4, 5 and the OCLMA will follow the Georges Bank and South schedule. Upon further analysis, the Board has the option to change, under Section 3.6, the rebuilding schedule to reflect current data.

Table 1: Schedule for increasing egg production in each of the current assessment areas, although the Board may revise this schedule in the future according to the adaptive management procedures contained in Section 3.6.

	Egg Production* (Percent of Maximum)							
	Year							
	1998	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**
Gulf of Maine	3.25	3.25	4.375	5.5	6.625	7.75	8.875	10+
Georges Bank & South	1.68	1.68	3.07	4.46	5.85	7.24	8.63	10+
SCCLIS	2.21	2.21	3.51	4.81	6.11	7.41	8.71	10+

*egg production in 1998 & 1999 based upon adoption of v-notch protection and increased vent size; projected egg production from 2000 forward is based upon a requirement for proportional increases for each of the areas from the level of egg production in 1999.

2.6 IMPLEMENTATION SCHEDULE

The following section details the implementation schedule for Amendment #3. Please note that this is not the same as the compliance schedule, which is listed in section 5. The following sections are scheduled to be implemented by the dates listed below:

January 1, 1998

- 3.1.7 Non-Trap Landings limits implemented
- 3.3.1 Area 1 Trap Limits implemented
- 3.3.6 OCLMA Trap Limits implemented

March 1, 1998

- 3.2.3 Max Trap Size, applications for exemption due

July 1, 1998

- 3.3.3.1 Area 3 Trap limit Proposal due

October 1, 1998

- 3.3.2.1 Area 2 Trap limit Proposal due
- 3.3.4.1 Area 4 Proposal due
- 3.3.5.1 Area 5 Proposal due
- 3.3.6.1 Area 6 Proposal due

January 1, 1999

- 3.1.4 V-notch prohibition
- 3.2.1 Permitting requirements and Trap tag system
- 3.2.3 Maximum Trap Size
- 3.3.3.1 Area 3 Trap reduction implemented
- 3.3.1.3 Area 1 maximum gauge size implemented

March 1, 1999

- 3.2.2 Escape vent size implemented

July 1, 1999

- 3.3.2.1 Area 2 Trap Proposal implemented
- 3.3.4.1 Area 4 Proposal implemented
- 3.3.5.1 Area 5 Proposal implemented
- 3.3.6.1 Area 6 Proposal implemented

3 MANAGEMENT PROGRAM IMPLEMENTATION

Amendment 3 completely replaces all previous fishery management plans and amendments for the Atlantic States Marine Fisheries Commission.

3.1 COASTWIDE REQUIREMENTS AND PROHIBITED ACTIONS

Measures in this section are required for all states and all areas and can only be changed by amending the fishery management plan.

3.1.1 Prohibition on possession of berried or scrubbed lobsters

It shall be unlawful to possess a lobster which has eggs or from which the eggs have artificially removed by any method.

3.1.2 Prohibition on possession of lobster meats, detached tails, claws or other parts of lobster

It shall be unlawful for fishermen to possess lobster meats, detached tails or claws, or any other part of a lobster that has been separated from the lobster.

3.1.3 Prohibition on spearing lobsters

It shall be unlawful to possess a lobster which has an outer shell which has been speared.

3.1.4 Prohibition on possession of V-notched female lobsters

It shall be unlawful to possess a V-notched female lobster. The prohibition on possession of a V-notched female lobster applies to all persons, including, but not limited to: fishermen, dealers, shippers, and restaurants.

V-notched female lobster means any female lobster bearing a V-shaped notch (i.e. a straight-sided triangular cut without setal hairs, at least 1/4 inch in depth and tapering to a sharp point) in the flipper next to the right of the center flipper as viewed from the rear of the female lobster. V-notched female lobster also means any female which is mutilated in a manner which could hide, obscure or obliterate such a mark. The right flipper will be examined when the underside of the lobster is down and its tail is toward the person making the determination.

3.1.5 Requirement for biodegradable “Ghost” panel for Traps

All Lobster traps not constructed entirely of wood (excluding heading or parlor twine and the escape vent) must contain a ghost panel.

Ghost panel means a panel, or other mechanism, designed to allow for the escapement of lobster after a period of time if the trap has been abandoned or lost. The opening to be covered by the ghost panel must be rectangular and shall not be less than 3 $^{3}/_{4}$ inches (9.53 cm) by 3 $^{3}/_{4}$ inches (9.53 cm). The panel must be constructed of, or fastened to the trap with, one of the following untreated materials: wood lath, cotton, hemp, sisal or jute twine not greater than 3/16 inch (0.48 cm) in diameter, or non-stainless, uncoated ferrous metal not greater than 3/32 inch (0.24 cm) in diameter. The door of the trap may serve as the ghost panel, if fastened with a material specified in this section. The ghost panel must be located in the outer parlor(s) of the trap and not the bottom of the trap.

3.1.6 Minimum Gauge Size

The minimum size for American lobster shall be no lower than 3-$^{1}/_{4}$ inches carapace length. Carapace length is the straight line measurement from the rear of the eye socket parallel to the center line of the carapace to the posterior edge of the carapace. The carapace is the unsegmented body shell of the American lobster.

3.1.7 Limits on Landings by fishermen using gear or methods other than traps

Landings by fishermen using gear or methods other than traps (non-trap fishermen) will be limited to no more than 100 lobsters per day (based on a 24-hour period) up to a maximum of 500 lobsters per trip, for trips 5 days or longer.

3.2 MEASURES APPLICABLE TO ALL STATES AND AREAS ALONG THE ATLANTIC COAST

This section describes all of the measures that must be applied by all states in all areas. Nothing in this section precludes any state or area from promulgating different regulations as long as it can be shown to the Boards’ satisfaction that alternate regulations provide for equivalent conservation of the lobster resource (see Section 3.6).

3.2.1 Permits and Licensing

All commercial fishermen must have a permit in order to land or possess an American lobster. Any fisherman that sells, barters or trades lobsters is defined as a commercial fisherman. The permit must be issued by the jurisdiction in which the lobster is possessed. Lobsters caught or possessed in federal waters require a federal permit, plus a permit for each subsequent jurisdiction into which the lobster is brought before it is landed, until or unless an area access program is approved by the Board. Nothing in this section precludes a state from licensing vessels or fishermen that fish in federal waters.

The States and the National Marine Fisheries Service shall cooperatively develop a license/area designation/trap tag allocation system during 1998, for implementation January 1, 1999. Fishermen will be required to designate each area in which they intend to fish, and may not fish in any zone not so designated. Fishermen are allowed to place traps in multiple areas, but must comply with the most restrictive management measures of all areas fished, including the smallest number of traps for the areas selected.

3.2.2 Escape Vents on Traps

All lobster traps, whether fished commercially or recreationally, must contain at least one rectangular escape vent per trap with a minimum size of 1-$^{15}/_{16}$ inches by 5-$^{3}/_{4}$ inches.

The Lobster Technical Committee will propose a complementary circular vent size which provides for equivalent conservation; and the new vent sizes for rectangular and circular to be implemented prior to March 1, 1999.

3.2.3 Maximum Trap Size

It shall be unlawful to possess a trap with a volume larger than 22,950 cubic inches in all areas except Area 3, where traps may not exceed a volume of 30,100 cubic inches.

Fishermen in any area must apply to their respective states for an exemption to this section by March 1, 1998 to continue to use existing (i.e., in use as of November, 1997) larger traps.

3.3 MEASURES APPLICABLE TO COMMERCIAL FISHING IN LOBSTER MANAGEMENT AREAS

The provisions of this section may be changed from time to time on an area-by-area basis in order to meet the goals and objectives specified in Section 2 and the egg production rebuilding schedule. Any changes made to area-specific plans will be done via addendum under Section 3.6. Area boundaries are specified in Appendix 1 and in figure 1.

States, areas and the National Marine Fisheries Service are encouraged to take action as soon as possible to reduce the number of traps, or otherwise to reduce fishing effort.

3.3.1 Area 1, Inshore Gulf of Maine

3.3.1.1 Limits on the number of traps per vessel

The following limits on the number of traps must be implemented according to the following schedule:

1998:	1200 traps per vessel
1999:	1000 traps per vessel
2000:	800 traps per vessel

States must be in compliance with the preceding requirement beginning January 1, 1999. States are allowed under conservation equivalency to use different trap limits as long as reviewed and approved by the Lobster Management Board, and the proposals are equivalent to or more restrictive than in Amendment 3.

The Lobster Conservation Management Teams, constituted for these areas under Section 3.4., shall continually review the trap reduction program and make recommendations as appropriate for changes to the preceding schedule that are consistent with the egg production rebuilding schedule contained in Section 2.5.

3.3.1.2 Maximum Trap Size

It shall be unlawful to possess a trap with a volume larger than 22,950 cubic inches.

Fishermen must apply to their respective states for an exemption to this section by March 1, 1998 to continue to use existing (i.e., in use as of November, 1997) larger traps.

3.3.1.3 Maximum Size Limit

It shall be unlawful to possess a lobster greater than 5 inches carapace length by any person or vessel permitted to fish in Area 1.

3.3.1.4 Proposal for Area closure

Lobster Conservation Management Teams for Lobster Conservation Area 1 and Area 3 are directed to develop a proposal for a closed area (closed to all lobster harvest) within the current boundary and the original EMT delineation area.

3.3.2 Area 2, Inshore Southern New England

3.3.2.1 Limits on the number of traps per vessel

In Area 2, the Lobster Conservation Management Team, constituted under section 3.4. below, shall develop a program to cap and then reduce effort for the purpose of achieving the egg production rebuilding schedule of Section 2.5. The program shall be presented to the ASMFC Lobster Management Board prior to October 1, 1998; and be designed for implementation effective July 1, 1999. In the event that an acceptable plan is not submitted, the following trap limits shall become effective according to the following schedule:

1998:	1200 traps per vessel
1999:	1000 traps per vessel
2000:	800 traps per vessel

States must be in compliance with the preceding requirement beginning January 1, 1999. States are allowed under conservation equivalency to use different trap limits as long as reviewed and approved by the Lobster Management Board, and the proposals are equivalent to or more restrictive than in Amendment 3.

The Lobster Conservation Management Teams, constituted for these areas under Section 3.4., below, shall continually review the trap reduction program and make recommendations as appropriate for changes to the preceding schedule that are consistent with the egg production rebuilding schedule contained in Section 2.5.

3.3.2.2 Maximum Trap Size

It shall be unlawful to possess a trap with a volume larger than 22,950 cubic inches. Fishermen must apply to their respective states for an exemption to this section by March 1, 1998 to continue to use existing (i.e., in use as of November, 1997) larger traps.

3.3.3 Area 3, Offshore Waters

3.3.3.1 Limits on the number of traps per vessel

In Area 3, the Lobster Conservation Management Team, constituted under Section 3.4., shall develop a program to cap and then reduce effort, based upon historical participation, vessel size or other relevant criteria, for the purpose of achieving the egg production rebuilding schedule of Section 2.5. The program may recommend alternative measures, besides effort control, that would achieve the stock rebuilding targets. The program shall be presented to the ASMFC Lobster Management Board prior to July 1, 1998; and be designed for implementation effective January 1, 1999. If a program is not forthcoming, a limit of 2,000 traps shall be implemented on January 1, 1999.

3.3.3.2 Maximum Trap Size

It shall be unlawful to possess a trap with a volume larger than 30,100 cubic inches.

Fishermen must apply to their respective states for an exemption to this section by March 1, 1998 to continue to use existing (i.e., in use as of November, 1997) larger traps.

3.3.3.3 Proposal for Area closure

Lobster Conservation Management Teams for Lobster Conservation Area 1 and Area 3 are directed to develop a proposal for a closed area (closed to all lobster harvest) within the current boundary and the original EMT delineation area.

3.3.4 Area 4, Inshore Northern Mid-Atlantic

3.3.4.1 Limits on the number of traps per vessel

In Area 4, the Lobster Conservation Management Teams, constituted under Section 3.4., below, shall investigate the need for trap reductions, or other measures to achieve the egg production rebuilding schedule contained in Section 2.5. A program to achieve the egg production rebuilding schedule shall be presented to the Lobster Management Board by October 1, 1998; and shall be designed for implementation effective July 1, 1999.

3.3.4.2 Maximum Trap Size

It shall be unlawful to possess a trap with a volume larger than 22,950 cubic inches.

Fishermen must apply to their respective states for an exemption to this section by March 1, 1998 to continue to use existing (i.e., in use as of November, 1997) larger traps.

3.3.5 Area 5, Inshore Southern Mid-Atlantic

3.3.5.1 Limits on the number of traps per vessel

The Lobster Conservation Management Teams, constituted under Section 3.4., below, shall investigate the need for trap reductions, or other measures to achieve the egg production rebuilding schedule contained in Section 2.5. A program to achieve the egg production rebuilding schedule shall be presented to the Lobster Management Board by October 1, 1998; and shall be designed for implementation effective July 1, 1999.

3.3.5.2 Maximum Trap Size

It shall be unlawful to possess a trap with a volume larger than 22,950 cubic inches.

Fishermen must apply to their respective states for an exemption to this section by March 1, 1998 to continue to use existing (i.e., in use as of November, 1997) larger traps.

3.3.6 3.3.6 Area 6, New York and Connecticut State Waters

3.3.6.1 Limits on the number of traps per vessel

In Area 6, the Lobster Conservation Management Teams, constituted under Section 3.4., below, shall investigate the need for trap reductions, or other measures to achieve the egg production rebuilding schedule contained in Section 2.5. A program to achieve the egg production rebuilding schedule shall be presented to the Lobster Management Board by October 1, 1998; and shall be designed for implementation effective July 1, 1999.

3.3.6.2 Maximum Trap Size

It shall be unlawful to possess a trap with a volume larger than 22,950 cubic inches.

Fishermen must apply to their respective states for an exemption to this section by March 1, 1998 to continue to use existing (i.e., in use as of November, 1997) larger traps.

3.3.7 Outer Cape Lobster Management Area

3.3.7.1 Limits on the number of traps per vessel

The following limits on the number of traps must be implemented according to the following schedule:

1998:	1200 traps per vessel
1999:	1000 traps per vessel
2000:	800 traps per vessel

States must be in compliance with the preceding requirement beginning January 1, 1999. States are allowed under conservation equivalency to use different trap limits as long as reviewed and approved by the Lobster Management Board, and the proposals are equivalent to or more restrictive than in Amendment 3.

The Lobster Conservation Management Teams, constituted for these areas under Section 3.4., below, shall continually review the trap reduction program and make recommendations as appropriate for changes to the preceding schedule that are consistent with the egg production rebuilding schedule contained in Section 2.5.

3.3.7.2 Maximum Trap Size

It shall be unlawful to possess a trap with a volume larger than 22,950 cubic inches. Fishermen must apply to their respective states for an exemption to this section by March 1, 1998 to continue to use existing (i.e., in use as of November, 1997) larger traps.

3.4 PROCEDURES FOR AREA MANAGEMENT

3.4.1 Establishment of Lobster Conservation Management Teams

In each Area, a Lobster Conservation Management Team will be formed to advise the Board concerning all aspects of the implementation of this Amendment, and to recommend changes to the management program. The Lobster Conservation Management Teams shall have at least the following minimum numbers of members chosen by the following states:

Area	Minimum number of members	States involved in selection of members
1	15	ME, NH, MA
2	10	MA, RI, CT, NY
3	10	ME, NH, MA, RI, CT, NY, NJ, DE, MD, VA, NC
4	7	NY, NJ
5	7	NJ, DE, MD, VA, NC
6	6	CT, NY
OCLMA	3	MA

LCMT members and designees shall be appointed by the respective states listed above. Each member shall have a designated alternate who shall attend meetings when the appointed members cannot attend. State personnel, including representatives from the American Lobster Technical Committee, are expected to staff meetings of LCMTs. Membership on the LCMTs shall be decided by the states.

The Lobster Conservation Management Teams will follow the standards and procedures described for Commission Advisory Panels. Members of the Lobster Conservation Management Teams will serve without compensation or reimbursement from the Commission, although the state may reimburse members for travel. The Commission will reimburse the chairs of each of the LCMTs only for travel to Lobster Management Board meetings.

3.5 ALTERNATIVE STATE MANAGEMENT REGIMES

Once approved by the Lobster Management Board, a state may not change its regulatory program except with the approval of the Board except that more restrictive measures can be implemented by states without Board approval. A state can request a change only if that state can show to the Board’s satisfaction that the target egg production will be achieved. Changes to state plans must be submitted in writing to the Board and to the ASMFC.

3.5.1 Procedures

A state may submit a proposal for a change to its regulatory program or any mandatory compliance measure under this amendment to the Commission, including a proposal for *De Minimis* status. Such changes shall be submitted to the chair of the

Plan Review Team, who shall distribute the proposal to the Board, the Plan Review Team, the Technical Committee, the Stock Assessment Committee and the Advisory Panel.

The Plan Review Team is responsible for gathering the comments of the Technical Committee, the Stock Assessment Committee and the Advisory Panel, and presenting these comments as soon as possible to the Board for decision.

The Board will decide whether to approve the state proposal for an alternative management program if it determines that it is consistent with the target fishing mortality rate then applicable, and the goals and objectives of this amendment.

3.5.2 Management Program Equivalency

The Lobster Technical Committee will review any alternative state proposals under this section and provide to the Board its evaluation of the adequacy of such proposals.

3.6 ADAPTIVE MANAGEMENT

The Board may vary the requirements specified in this Amendment as a part of adaptive management in order to conserve the lobster resource. Specifically, the Board may change target egg production goals (section 2.5), the overfishing definition (section 2.4), management measures under sections 3.2 and 3.3, monitoring and reporting (section 4) and recommendations for actions in federal waters (section 3.8). Such changes will be instituted to be effective on the first fishing day of the following year, but may be put in place at an alternative time when deemed necessary by the Board.

3.6.1 Procedures

The Plan Review Team will monitor the status of the fishery and the resource and report on that status to the Board annually, or when directed to do so by the Board. The PRT will consult with the Technical Committee, the Stock Assessment Committee and the relevant Advisory Panel, if any, in making such review and report. The report will contain recommendations concerning proposed adaptive management revisions to the management program.

The Board will review the report of the PRT, and may consult further with the Technical Committee, the Stock Assessment Committee or the Advisory Panel. The Board may direct the PRT to prepare an addendum to make any changes it deems necessary. The addendum shall contain a schedule for the states to implement its provisions.

The PRT will prepare a draft addendum as directed by the Board, and shall distribute it to all states for review and comment. A public hearing will be held in any state that requests one. The PRT will also request comment from federal agencies and the public at large. After a 30-day review period, the PRT will summarize the comments and prepare a final version of the addendum for the Board.

The Board shall review the final version of the addendum prepared by the PRT, and shall also consider the public comments received and the recommendations of the Technical Committee, the Stock Assessment Subcommittee and the Advisory Panel; and shall then decide whether to adopt or revise and adopt the addendum.

Upon adoption of an addendum implementing adaptive management by the Board, states shall prepare plans to carry out the addendum, and submit them to the Board for approval, according to the schedule contained in the addendum.

3.7 EMERGENCY MEASURES

Emergency procedures may be used by the Lobster Management Board to require any emergency action that is not covered by or is an exception or change to any provision in Amendment #3. Procedures for implementation are addressed in the ASMFC Interstate Fisheries Management Program Charter.

3.8 RECOMMENDATIONS FOR ACTIONS IN FEDERAL WATERS

The Atlantic States Marine Fisheries Commission believes that the measures contained in Amendment #3 are necessary to stop the expansion of effort in the lobster fishery and to rebuild egg production to recommended levels. The Atlantic States Marine Fisheries Commission recommends that the federal government promulgate all necessary regulations to implement the measures contained in sections 2 and 3. In addition, Amendment #3 calls for the Board to make additional changes to Amendment #3 via adaptive management, and as such changes are made, the Board will recommend additional measures to the Secretary. The Commission recognizes that such action may be taken under the Atlantic Coastal Fisheries Cooperative Management Act or the

Magnuson-Stevens Fishery Conservation and Management Act.

Specifically, the Atlantic States Marine Fisheries Commission recommends that the Secretary take the following actions:

1. Implement the provisions of sections 3.1 and 3.2 in all waters of the Exclusive Economic Zone throughout the range of the species;

2. Implement the provisions of section 3.3 applicable to the respective areas in all waters of the Exclusive Economic Zone contained in each respective area (see Appendix I);

3. Continue current monitoring and reporting programs as regards collection of data pertinent to the lobster fishery.

4. Initiate discussions with the Canadian government concerning coordination of future gauge size changes.

4 MONITORING AND REPORTING

The Board will defer action on this measure until the Atlantic Coastal Cooperative Statistics Program comes forward with their recommendation for establishment of a coastwide statistics program. However, it is the sense of the Board that a program to collect accurate and comprehensive statistics on the lobster fishery is critical to support the area management system; the Board will work to ensure that this is accomplished as soon as possible. Any changes made to this section will be done under adaptive management procedures established in section 3.6.

States must maintain at least their current reporting and data collection programs.

5 COMPLIANCE

Full implementation of the provisions of this amendment is necessary for the management program to be equitable, efficient and effective. States are expected to implement these measures faithfully under state laws. Although the Atlantic States Marine Fisheries Commission does not have authority to directly compel state implementation of these measures, it will continually monitor the effectiveness of state implementation and determine whether states are in compliance with the provisions of this fishery management plan. This section sets forth the specific elements that the Commission will consider in determining state compliance with this fishery management plan, and the procedures that will govern the evaluation of compliance. Additional details of the procedures are found in the ASMFC Interstate Fisheries Management Program Charter (ASMFC 1995). States should be aware that federal law requires their compliance with the provisions of this fishery management plan.

5.1 ESSENTIAL COMPLIANCE ELEMENTS FOR STATES

A state will be determined to be out of compliance with the provisions of this fishery management plan, according to the terms of Section 7 of the ISFMP charter if:

- its regulatory and management programs to implement Section 3 have not been approved by the Board; or
- it fails to meet any schedule required by section 5.3 or any addendum prepared under adaptive management (see Section 3.6); or
- it has failed to implement a change to its program when determined necessary by the Board; or
- it makes a change to its regulations required under section 3 without prior approval of the Board.

5.1.1 Regulatory Requirements

Each state must submit its required lobster regulatory program to the Commission through the ASMFC staff for approval by the Board. Each state’s submission must include a copy of all relevant laws, regulations and policies. During the period from submission, until the Board makes a decision on a state’s program, a state may not adopt a less protective management program than contained in this Amendment or than contained in current state law.

Each state's required lobster regulations and management program must be approved by the Board. States may not implement any regulatory changes concerning lobster, nor any management program changes that affect their responsibilities under this Amendment, without first having those changes approved by the Board.

5.1.2 State Reporting

Each state must submit an annual report concerning its lobster fisheries and management program BY MARCH 1 of each year. The report shall cover:

- the previous calendar year's fishery and management program including activity and results of monitoring, regulations that were in effect, and harvest, including estimates of non-harvest losses; and
- the planned management program for the current calendar year summarizing regulations that will be in effect and monitoring programs that will be performed, highlighting any changes from the previous year.

5.1.3 Essential Measures To Be Included In State Programs

To be considered in compliance with this fishery management plan, all state programs must include a regime of restrictions on lobster fisheries consistent with the requirements of Sections 2, 3, and 4 except that a state may propose an alternative management program under Section 3.5., which, if approved by the Board, may be implemented as an alternative regulatory requirement for compliance.

5.2 PROCEDURES FOR DETERMINING COMPLIANCE

Detailed procedures regarding compliance determinations are contained in the ISFMP Charter, Section Seven.

In brief, all states are responsible for the full and effective implementation and enforcement of fishery management plans in areas subject to their jurisdiction. Written compliance reports as specified in the Plan or Amendment must be submitted annually by each state with a declared interest. Compliance with Amendment #3 will be reviewed at least annually. The Board, Policy Board or the ASMFC may request the Plan Review Team to conduct a review of Plan implementation and compliance at any time.

The Lobster Management Board will review the written findings of the PRT within 60 days of receipt of a State's compliance report. Should the Board recommend to the Policy Board that a state be determined to be out of compliance, a rationale for the recommended noncompliance finding will be included addressing specifically the required measures of Amendment #3 that the state has not implemented or enforced, a statement of how failure to implement or enforce required measures jeopardizes lobster conservation, and the actions a state must take in order to comply with Amendment #3 requirements.

The ISFMP Policy Board will review any recommendation of noncompliance from the Lobster Management Board within 30 days. If it concurs in the recommendation, it shall recommend at that time to the ASMFC that a state be found out of compliance.

The Commission shall consider any noncompliance recommendation from the ISFMP Policy Board within 30 days. Any state which is the subject of a recommendation for a noncompliance finding is given an opportunity to present written and/or oral testimony concerning whether it should be found out of compliance. If the Commission agrees with the recommendation of the ISFMP Policy Board, it may determine that a state is not in compliance with the Amendment #3, and specify the actions the state must take to come into compliance.

Any state that has been determined to be out of compliance may request that the Commission rescind its noncompliance findings, provided the state has revised its lobster conservation measures.

5.3 COMPLIANCE SCHEDULE

States management programs must have regulations to implement the following sections of Amendment 3 by the dates indicated in order to be in compliance with Amendment #3 to the Lobster FMP.

At the time of passage of amendment #3: 3.1.1 Prohibition on possession of berried or scrubbed lobsters, 3.1.2 Prohibition on possession of lobster meats, detached tails, claws or other parts of lobster, 3.1.3 Prohibition on spearing lobsters, 3.1.5 Requirement for biodegradable "Ghost" panel for Traps, 3.1.6 Minimum Gauge Size

By October 1, 1998: 3.1.7 Limits on Landings by fishermen using gear or methods other than traps

By January 1, 1999: 3.1.4 Prohibition on possession of V-notched female lobsters, 3.2.1 Permits and Licensing, 3.2.3 Maximum Trap Size, 3.3.1.1 Area 1 Trap Limits, 3.3.1.3 Area 1 Maximum Size Limit, 3.3.6.1 Outer Cape Trap Limits,

By March 1, 1999: 3.2.2 Escape Vents on Traps

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[4] These measures were previously required under Amendment #2 to the Lobster FMP **and apply herein under the same restrictions and conditions.**

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APPENDIX 1. COORDINATES OF MANAGEMENT AREAS.

Area 1: including state and federal waters that are near-shore in the Gulf of Maine, as defined by the area bounded by straight lines connecting the following points, in the order stated, and the coastline of Maine, New Hampshire, and Massachusetts to the northernmost point on Cape Cod:

Point	LATITUDE (° N)	LONGITUDE (° W)
A	43° 58' N	67° 22' W
B	43° 41' N	68° 00' W
C	43° 12' N	69° 00' W
D	42° 49' N	69° 40' W
E	42° 15.5'N	69° 40' W
G	42° 05.5' N	70° 14'W

Along the MA, NH, ME coast back to pt. A

Area 2: including state and federal waters that are near-shore in Southern New England, defined as follows:

Point	LATITUDE (° N)	LONGITUDE (° W)
H	41° 40'	70° 00'
I	41° 15'	70° 00'
J	41° 21.5'	69° 16'
K	41° 10'	69° 06.5'
L	40° 55'	68° 54'
M	40° 27.5'	72° 14'
N	40° 45.5	71° 34'
O	41° 07'	71° 43'
P	41° 06.5'	71° 47'
Q	41° 18' 30"	71° 54' 30"
R	41° 11' 30"	71° 47' 15"

From Pt "R" along the the maritime boundary between CT & RI to the coastal CT/RI bondary and then back to pt. "H" along the RI & MA coast

In the southern New England area, there shall be an area of overlap between Area 2 and Area 3, defined as follows:

Point	LATITUDE (° N)	LONGITUDE (° W)
K	41° 10’	69° 06.5’
L	40° 55’	68° 54’
M	40° 27.5’	72° 14’
N	40° 45.5	71° 34’

Area 3: comprised entirely of federal waters as defined by the area bounded by straight lines connecting the following points, in the order stated:

Point	LATITUDE (° N)	LONGITUDE (° W)
A	43° 58’	67° 22
B	43° 41’	68° 00’
C	43° 12.5’	69° 00’
D	42° 49’	69° 40’
E	42° 15.5’	69° 40’
F	42° 10’	69° 56’
K	41° 10’	69° 06.5’
N	40° 45.5	71° 34’
M	40° 27.5’	72° 14’
U	40° 12.5’	72° 48.5’
V	39° 50’	73° 01’
X	38° 39.5’	73° 40’
Y	38° 12’	73° 55’
Z	37° 12’	74° 44’
ZA	35° 34’	74° 51’
ZB	35° 14.5’	75° 31’
ZC	35° 14.5’	71° 24’

From pt. “ZC” along the seaward EEZ boundary to pt. “A”

Area 4: including state and federal waters that are near-shore in the northern Mid-Atlantic area, as defined by the area bounded by straight lines connecting the following points:

Point	LATITUDE (° N)	LONGITUDE (° W)
M	40° 27.5’	72° 14’
N	40° 45.5	71° 34’
O	41° 07’	71° 43’
P	41° 06.5’	71° 47’
S	40° 58’	72° 00’
T	41° 00.5’	72° 00’
From pt. “T”, along the NY/NJ coast to pt. “W”		
W	39° 50’	74° 09’
V	39° 50’	73° 01’
U	40° 12.5’	72° 48.5’

From pt. “U” back to pt. “M”

Area 5: including state and federal waters that are near-shore in the southern Mid-Atlantic area, as defined by the area bounded by straight lines connecting the following points, in the order stated:

Point	LATITUDE (° N)	LONGITUDE (° W)
W	39° 50’	74° 09’
V	39° 50’	73° 01’
X	38° 39.5’	73° 40’
Y	38° 12’	73° 55’
Z	37° 12’	74° 44’
ZA	35° 34’	74° 51’
ZB	35° 14.5’	75° 31’

From pt “ZB”, along the coasts of NC/VA/MD/DE/NJ back to pt. “W”

Area 6: New York and Connecticut State Waters

Point	LATITUDE (^{o} N)	LONGITUDE (^{o} W)
T	41^o 00.5’	72^o 00’
S	40^o 58’	72^o 00’
From pt. “S”, boundary follows the 3 mile limit of NY state waters as it curves around Montauk Pt. To pt. “P”		
P	41^o 06.5’	71^o 47’
Q	41^o 18’ 30’’	71^o 54’ 30’’
R	41^o 11’ 30’’	71^o 47’ 15’’

From pt. “R”, along the maritime boundary between CT & RI to the coast; then west along the coast of CT to the western entrance of Long Island Sound; then east along the NY coast of Long Island Sound and back to pt. “T”

OCLMA (Outer Cape Lobster Management Area; also called 3A during EMT process): including state and federal waters off of Cape Cod, specified as follows:

Point	LATITUDE (^{o} N)	LONGITUDE (^{o} W)
F	42^o 10’	69^o 56’
G	42^o 05.5’	70^o 14’
H	41^o 40’	70^o 00’
I	41^o 15’	70^o 00’
J	41^o 21.5’	69^o 16’

From pt. “J”, along the outer Cape Cod coast to pt. “F”