AMENDMENT #1

TO THE

FISHERY MANAGEMENT PLAN

FOR THE

NORTHEAST MULTISPECIES FISHERY

INCORPORATING AN

ENVIRONMENTAL ASSESSMENT

AND

SUPPLEMENTAL REGULATORY IMPACT REVIEW/

REGULATORY FLEXIBILITY ANALYSIS

Prepared by

New England Fishery Management Council

in Consultation with

Mid-Atlantic Fishery Management Council

May 1987

TABLE OF CONTENTS

E Key to the Environmental Assessment
R Key to the Supplemental Regulatory Impact Review and the Supplemental Regulatory Flexibility Analysis

Page

E Key to the Environmental Assessment
R Key to the Supplemental Regulatory Impact Review and the Supplemental Regulatory Flexibility Analysis

I. INTRODUCTION

The New England Fishery Management Council proposes to amend the Northeast Multispecies Fishery Management Plan (Multispecies FMP). The Multispecies FMP was conditionally approved by the Northeast Regional Director of the National Marine Fisheries Service (upon the delegated authority of the Secretary of Commerce) on July 17, 1986. Regulations implementing the Multispecies FMP were promulgated by the Department of Commerce (NOAA) on August 20, 1986, became effective on September 15, 1986 and will expire on October 1, 1987. This amendment to the Multispecies FMP, prepared by the New England Fishery Management Council, responds to deficiencies that were identified by the Regional Director, and which were judged by him to result in the violation of National Standard #1. This amendment has been prepared with a view toward approval and implementation by October 1, 1987, thus avoiding either a hiatus in management or the preemption of Council authority through the implementation of a Secretarial FMP.

II. PURPOSE AND NEED FOR ACTION

In his letter to the Council dated July 17, 1986, the Northeast Regional Director explained that

the Council's Northeast Multispecies FMP could not be implemented for more than one year because he determined that the FMP failed to meet National Standard #1, which states "conservation and management measures shall prevent overfishing while achieving, on a continuing basis, the optimum yield from each fishery." The Regional Director cited several specific concerns which led to his determination, including the necessity of tightening up the exempted fisheries measures, which together with an increased mesh size in the large mesh area, would allow juveniles of all regulated species a better opportunity to achieve spawning age; an unnecessary level of juvenile cod and haddock (in particular) mortality, and subsequently the need for more direct methods for controlling and reducing fishing mortality on cod, haddock, redfish and several severely depleted flatfish species; the questionable enforceability of many of the FMP's proposed measures; evidence that haddock spawning closed areas I and II are no longer spatially or temporally consistent with concentrations of spawning haddock; and finally, regulatory measures which must be made more practical and cost-effective, e.g., only one mesh should be allowed on deck or on board in the large mesh area.

The Regional Director also stated in his letter that "if suitable amendments are not in place by October 1, 1987, the Secretary of Commerce will be forced to exercise his prerogatives under the Magnuson Act and take whatever appropriate action may be necessary to fulfill his stewardship responsibilities for the nation's marine resources." The Regional Director concluded by stating his interest in working with the Council to achieve the Plan's objectives.

In September, 1986, the Council began the process of developing this amendment to the Multispecies FMP. The Council analyzed the Regional Director's guidance and asked the Technical Monitoring Group[1/] to address

---

[1/] The independent, technical advisory group created by the Council to monitor the multispecies management program and provide guidance to the Council in support of continuing management.

several specific issues including, the spatial and temporal location of the haddock spawning areas; means of tightening up the exempted fisheries program to minimize any unnecessary level of juvenile mortality on the regulated species; and means of directly (or indirectly) reducing the mortality of regulated species. The Council independently addressed the issues of enforceability and the practicality/cost effectiveness of management measures.

In the process of developing this Amendment, the Council undertook a course of action that is both responsive to the substantive issues raised by the Regional Director and carefully timed to meet the October 1 deadline, while still satisfying all procedural requirements for public input and Secretarial review. The proposed measures detailed in Part III(b) of this document reflect actions that the Council believes truly refine or improve the Multispecies management program, consistent with the achievement of the Council's management objectives. It is conceivable that other measures may be required in the future to support the management program; however, the process of continuing management, to which the Council has committed itself, is expected to bring forth modifications that are justifiable, credible, timely, and scientifically sound.

III. DESCRIPTION OF ALTERNATIVES AND THEIR IMPACTS

A. No Action Alternative

The "no action alternative" is not available to the Council. As a consequence of the Regional

Director's decision, the Secretarial approval for the Multispecies FMP expires on October 1, 1987. In the absence of an amendment to the FMP to carry management of the multispecies fishery forward under the policies and objectives of the New England Fishery Management Council, the expiration date would signal the surrender of management control to the Secretary of Commerce. The Council continues to support its position that the Multispecies FMP contains objectives that are scientifically sound and achievable under its provisions; that the FMP embodies the correct balance between the need for long-term stock conservation and the requirements of the multispecies industry that utilizes those stocks; that the FMP represents a consensus position within the bounds of what is desirable, possible and justifiable at this point in the management process; and finally that the FMP, with the proposed changes, properly supported and administered, will generate benefits well in excess of costs. Therefore, the Council remains committed to effective management of the multispecies fishery and is prepared to take responsibility for making changes that are responsive to the concerns of the Regional Director and will enhance the overall effectiveness of the management program.

B. Proposed Measures (preferred alternative)

The measures proposed and analyzed below are responsive to four issues: 1) the Regional Director's concern for fishing mortality on key regulated species, in general, and, in particular, for juvenile mortality as a by-product of small-mesh fishing; 2) the Regional Director's concern for the enforceability/ cost-effectiveness of management measures; 3) new information, gained through the continuing management process; and 4) the Council's position that the management program is fundamentally sound and should not be prematurely modified without benefit of effective agency implementation, monitoring and information/data analysis.

ISSUE #1

In support of the first issue, the Regional Director has stated that "the Council's conservation approach through % MSP is a valid concept. The Secretary is concerned, however, that attainment of % MSP levels may be frustrated by increases in fishing mortality, and by juvenile finfish mortality which occurs from widespread use of small mesh fishing gear." Further, the Regional Director has stated that "the establishment of a small mesh fishing area does not limit small mesh fishing in that area; it only circumscribes the area where traditional small mesh fishing takes place. NMFS data indicate that substantial concentrations of juvenile stages of regulated species occur in the small mesh area. Continued juvenile mortality will impede the success of the Multispecies Plan."

The Council proposes to adopt four measures designed to address the above concerns. The measures include two that relate to the exempted fisheries program (EFP), and two that relate to the mortality or age-specific mortality of regulated species.

Proposal 1: The winter exempted fishery for whiting will be limited to the exempted fisheries area that occurs west and south of the line that begins at the intersection of the territorial sea and 69°00'W, and proceeds south along 69°00'W to the intersection with the outer boundary of the exempted fishing area (see Figure 1). In addition, the allowable by-catch of regulated species under the whiting exemption will be determined in reference to the combined landings of shrimp and whiting.

Rationale: In effect, this proposal eliminates those portions of statistical areas 511 and 512 (that occur within the exempted fishing area) from vessel access under the provisions of the winter

whiting small-mesh exemption. The purpose of reducing the geographical area of the December-January exempted fishery for whiting is to limit the extent to which regulated species are exposed to small-mesh gear. With a negligible impact on whiting landings, the potential impact of small-mesh fishing on sensitive species such as redfish, gray sole and dab is substantially reduced. This measure is intended to respond to NMFS' concern for potentially excessive mortality in the EFP. The justification for combining whiting and shrimp landings as the basis for calculating the acceptable by-catch of regulated species is that shrimp is a legitimate small-mesh species that is routinely caught in combination with whiting, and its inclusion will reduce the wasteful discard of legal-size, regulated species.

Biological Benefits: In order to evaluate Proposal #1 in terms of how it increases or decreases the likelihood that regulated species might be subject to fishing with small mesh gear, the concept of "vulnerability of regulated species to small mesh gear" is used. The vulnerability of regulated species to small mesh gear is estimated by the percentage of landings of a particular species that come from an area when small mesh fishing is allowed. This percentage is not the same as the percentage of a particular species which is landed by small mesh gear; unfortunately, the landings data do not contain this information. The main concern here is with the potential discard of regulated species in a small mesh fishery. Because there is no information about the amount of regulated species that are discarded, the potential exposure of a species to small mesh fishing is all that can be estimated. The Reserved for Figure 1
actual exposure of a species to small mesh fishing will be less than the potential to the extent some fishermen use large mesh in these areas.

Almost all (99.6%) of the whiting caught in December and January in the exempted fisheries area is caught in the southern part in statistical areas 513 and 514 (see Figure 1). In other words, restricting the winter exempted fishery for whiting to areas 513 and 514 would reduce the catch of whiting from this fishery by less than 1%. The resource benefits of proposal #1 would be a significant reduction in the vulnerability of regulated species to small mesh whiting gear during this period. Based on landings data from 1984 and 1985, the proposal would reduce the vulnerability of regulated species to whiting gear by the percentages given in Table 1. Species such as gray sole, Am. plaice, haddock and redfish will be substantially less vulnerable to small-mesh fishing in the months of December and January; however, regulated species would still be vulnerable to small mesh gear in the shrimp fishery until such time that reliably selective fishing gear is developed for shrimp and implemented in the traditional shrimp fishery.

Table 1: Percentage of Gulf of Maine Landings from areas where exempted fishing for whiting would no longer be allowed during December and January

Whiting	0.0%	Am. plaice	2.4%
Cod	1.4%	Haddock	3.1%
Blackback	0.6%	Redfish	2.1%
Gray sole	4.7%	Pollock	2.6%

Economic Considerations: The fishery for whiting has taken on economic significance in recent years with the decline of valuable species such as haddock and cod. In 1987, the winter fishery

for whiting witnessed unusually high prices (blue sheet prices of $1.00/lb were common) and generated economic value for an otherwise depressed industry. The Council understands that in the absence of an opportunity to fish for whiting, vessels from Gulf of Maine ports will be forced to focus on cod, haddock and the flounders. In this proposal the Council seeks only to focus the small-mesh whiting fishery on traditional fishing areas, thereby reducing the exposure of regulated species to juvenile discard mortality. The Council continues to assert that the 10% landing allowance over 30 days will be effective in steering the whiting fishery away from concentrations of regulated species, and will reduce regulated species mortality to the practical minimum.

Implementation Considerations: Administratively, the effect of proposal 1 will be negligible, except to the extent that it may narrow participation in the Exempted Fisheries Program to only those fishermen who propose to fish legitimately with small mesh for whiting. From an enforcement perspective, proposal 1 is not likely to either increase or decrease costs.

Proposal 2: For the June to November exempted fishery, the species against which the 10% landings allowance of regulated species may be calculated are limited to dogfish, herring, mackerel, ocean pout, red hake, silver hake, shrimp and squid.

Rationale: The Council recognizes the importance allowing a legitimate small-mesh fishery in the coastal Gulf of Maine as an alternative to a large mesh fishery for regulated species. The Council accepts that a legitimate by-catch of regulated species will result from small-mesh fishing, but does not wish to encourage a small-mesh fishery that preys upon regulated species. Therefore, the Council has limited the number of species against which the regulated species by-catch may be calculated in order to encourage only legitimate small-mesh fishing.

Biological Considerations: The June-November exempted fishery is designed to allow fishermen the opportunity to fish for seasonally abundant species such as whiting, squid, mackerel, red hake and dogfish using small-mesh nets, while minimizing the by-catch of regulated species. Under the terms of the current June-November small-mesh exemption, fishermen are allowed to land regulated species not to exceed 10% of their total landings during their participation period ($\leq$ 30 days). The Council has been concerned that the current by-catch constraint is too loose and actually allows regulated species to be calculated into the weight against which the by-catch is determined. By restricting the target species to the seven listed above, the by-catch allowance assures that regulated species will be taken incidentally to a legitimate small-mesh fishery. As a consequence, this proposal acts to reduce potential EFP-induced mortality on the regulated species.

Economic Considerations: In relation to the expectation of revenue derived from small-mesh fishing under the EFP, proposal 1 will have no measurable impact. It is only to the extent that fishermen might land significant quantities of regulated species in a virtually non-directed small-mesh fishery that any revenue reductions might occur. Because the Multispecies FMP has not be implemented long enough to gather empirical data on the June-November exempted fishery, proposal #2 anticipates a situation that could develop to the detriment of the management program.

Implementation Considerations: Proposal 2 is not expected to increase or decrease the administrative burden of the FMP, and will likewise have no impact upon enforcement.

Proposal 3: Change the lower boundary of the regulated mesh area on Georges Bank east of 69°40'W, by substituting in place of LORAN bearing 43500 the line that begins at the intersection of 69°40'W and LORAN bearing 43400, follows the latter bearing east to its intersection with 69°00'W, then northward along 69°00'W to its intersection with LORAN 43450, then eastward along LORAN 43450 to the intersection with 68°00'W, then northward along 68°00'W to the intersection with LORAN 43500, then eastward as currently specified (see Figure 2).

Reserved for Figure 2

Alternatives to this proposal that were considered at public hearing included:

a) substitute in its place the line which begins at the intersection of 69°40'W and 40°10'N, following 40°10'N to its intersection with 69°00'W, then northward along 69°00'W to its intersection with LORAN 43450, then eastward along LORAN 43450 to the intersection with LORAN 30750, then northeastward along LORAN 30750 to the outer boundary of the EEZ.

b) substitute in its place, between 69°40'W and 69°00'W, the LORAN bearing 43400, and eastward of 69°00'W, the LORAN bearing 43450 as described in (a) above.

c) substitute in its place either proposal options (a) or (b) in the area west of 68°00'W, and retain the existing lines (LORAN bearings 43500 and 30750) east of 68°00'W.

As a consequence of comment received a public hearing, the Council selected a preferred option that is a combination of options (b) and (c) above.

Rationale: This action, in any of its optional forms, will (a) enhance the achievement of the management objective for Southern New England and Georges Bank yellowtail flounder stocks by making significantly more yellowtail along the southern perimeter of Georges Bank subject to large-mesh fishing, and (b) reduce the potential vulnerability of cod, haddock and other flounders to small-mesh fishing on the southern perimeter of Georges Bank. Of the three options above, option (a) will protect yellowtail to the maximum extent possible by incorporating into the regulated mesh area potentially important whiting and squid grounds; whereas, options (b) and (c) will have a lesser impact on the fisheries for whiting, squid and mackerel that has taken place in the past and might take place again along the southern edge of the Bank.

Biological considerations: The southern boundary of the regulated mesh area on Georges Bank was adopted as the appropriate compromise between achieving maximum mesh coverage for the cod, haddock and yellowtail flounder stocks on Georges Bank, and providing the regulatory flexibility to accommodate potential joint venture and/or domestic fisheries for whiting, squid an other small-mesh species along the southern perimeter of Georges Bank. At issue is the significant potential for a small mesh yellowtail fishery in the portion of southwest Georges that is not regulated with respect to mesh. Such a fishery could place in jeopardy the achievement of the management objectives for yellowtail flounder. Although the plan has not been implemented long enough to assess the true potential for such a fishery, it is clear that the justification for leaving the southern perimeter of Georges Bank unregulated with respect to mesh is not appropriate in view of the risk to yellowtail.

An analysis of 10'square interviewed landings data from 1983-1985 reveals that just over 6 million pounds of yellowtail flounder, on average, or 24% of the total Georges Bank landings come from the area below the LORAN 43500 bearing, east of 69°40'W. In addition to yellowtail,

the only other regulated species with significant landings in the area is cod, with 1.3 million pounds being taken on average over the 1983-1985 period. Still, these cod landings represent only 2% of the total Georges Bank cod catch (see Table 2). The choice among options (a), (b) and (c) was made on the basis of detailed information obtained from fishermen, because the fishery data used to calculate the values in Table 2 are not on a fine enough scale to detect meaningful differences among the options.

Economic considerations: Over the 1983-1985 period, 7.5% of the Georges Bank whiting and 34.7% of the Georges Bank squid (spp.) landings came from below LORAN 43500, east of 69°40'W. In terms of volume, these percentages represent 200,000 pounds and 52,000 pounds, respectively. These amounts, which are not significant, represent the probable current magnitude of the impact if small mesh trawling were eliminated in this area. It is important to note that the actual position of the southern boundary (options a, b or c), vis a vis the distribution of regulated vs small-mesh species, may have a mitigating effect on the potential reduction in whiting, mackerel or squid landings.

Table 2: Landings by Species from the Georges Bank Area South of LORAN 43500 Compared to Total Georges Bank Landings

Species	Average GB Landings 1983-1985 (1,000 lb)	Average Landings South of 43500 East of 69°40' (1,000 lb)	% Landings in Area
Whiting	2,661	201	7.5%
Cod	65,406	1,304	2.0%
Blackback	14,954	455	3.0%
Gray sole	3,355	280	8.4%
Am. plaice	6,968	130	1.9%
Haddock	15,973	409	2.6%
Yellowtail	24,916	6,125	24.6%
Pollock	12,410	63	0.5%
Squids	150	52	34.7%

Implementation considerations: Proposal #3 is not expected to increase or decrease the administrative burden of the FMP. This proposal, however, is expected to improve enforcement of the regulated mesh area by making it unproductive for vessels to fish for regulated species along the boundary line with small-mesh gear.

Proposal 4: The Southern New England closed area will apply to dredge gear designed and used to take scallops.

An option to this position that was discussed at public hearings was that scallop dredge gear not be allowed in the area east of 71°30'W for the duration of the closure, and the operation of scallop dredge gear west of 71°30'W will be subject to a permit issued by the Regional Director and the

requirement that no regulated species be retained on board. This option received no support from the public and the Council concluded that the preferred option would be as stated.

Rationale: The Southern New England closed area is primarily designed to reduce fishing mortality on yellowtail flounder. Scallop dredge gear is known to be able to retain yellowtail flounder, which in the past has been sold for cash by crew members and is typically unreported. In order to preserve the effectiveness of the closure, the proposal seeks to ban or strictly limit scallop dredging activity. The area encompassed by the closure east of 71°30'W is insignificant for scallop dredging and the area west of 71°30'W is of minor significance to scallopers. The measure will enhance conservation of yellowtail, ease enforcement, reduce administrative oversight costs and have no net effect on scallop fishermen.

Biological considerations: Proposal #4 is expected to have a positive effect on the conservation of Southern New England yellowtail flounder by acting to reduce dredge induced mortality. Although scallop catches have not been historically significant within the closed area, the existence of a closure creates an impetus to actively fish for yellowtail within the closed area using other gear. This proposal eliminates that possibility.

Economic considerations: There has been only a small amount of scallops caught in the part of the Southern New England closed area east of 71°30'W. Average annual landings from this area in the years 1982 through 1985 were 5,800 lbs for the months March through April and 10,200 lbs. for the months March through May (the longest possible period for the closed area). In contrast, many scallops have been caught in the part of the closed area west of 71°30'. Average annual landings from this area in the years 1982 through 1985 were 159,300 lbs for the months March through April and 279,300 lbs. for the months March through May. Any area closure imposes some costs on fishermen; however, the lost opportunity to catch scallops would be kept at a minimum. It is likely that a large part of the estimated foregone catch from the area during the closure period would be caught later in the year.

Implementation considerations: Administratively, proposal 4 provides for a reduction in the current administrative burden associated with the SNE closed area, with particular regard to the collection of by-catch data. From an enforcement perspective, aerial surveillance would be simplified. The Coast Guard has indicated that it is difficult for them to distinguish scallop vessels from draggers on a quick overflight. This proposal would eliminate the need to make that distinction for all of the area covered by the closure.

ISSUE #2

The second issue raised by the Regional Director was the issue of the enforceability and/or cost-effectiveness of the management measures. In support of this issue, the Regional Director noted specifically that only one mesh should be allowed on deck or on board in the regulated mesh area. The Council already approved the concept of one mesh on board or on deck as a refinement to the original implementing regulations. In this Amendment, the Council proposes to continue that measure to aid in assuring that mesh violations are more easily detected and that efforts to circumvent the selective properties of the regulated mesh are not thwarted. In particular, the Council proposes to adopt two measures that are designed to substantially enhance both the enforceability of its mesh regulations and enhance the overall selectivity of the mesh by requiring that the trawl be constructed of a minimum mesh size throughout.

Proposal 5: Effective upon implementation, mobile gear mesh regulated under this FMP must extend for at least 75 continuous meshes forward of the terminus of the net. The Council will review this specification after one year in relation to its effectiveness for achieving the objectives of the FMP, and may either require that no mesh in any portion of a trawl net be smaller than the minimum size that is specified in the regulations (effective October 1, 1989), or take other appropriate action (including increasing the number of conforming meshes).

Rationale: A major concern has been raised by NMFS for the overall effectiveness and enforceability of mesh control. From a practical standpoint, mesh enforcement has suffered from the difficulty in defining a cod-end, the practice among some fishermen of choking off the net just above the cod-end, and the concern for the use of small mesh liners. The Council has already accepted the concept that a cod-end may be pragmatically defined as the portion of the net in which fish are retained. Although the Council has an increased understanding of the importance of the extension piece for size selection in some species (not all nets have extension pieces), a reliable definition of an extension piece is elusive.

The Council discussed at public hearings the possibility of requiring a minimum mesh throughout the net as soon as July 1, 1988, but was advised by both fishermen and net manufacturers that the proposal would be very costly. Most comments received were to the effect that requiring the terminal 50-100 meshes to meet the minimum specification would result in effective mesh management, without imposing unnecessary costs on the industry. Therefore, the Council determined that a practical definition of the functional end of the net where selection and retention occurs would be in terms of the number of meshes from the terminus. The Council selected 75 meshes based upon comments received at public hearings. However, the Council will review the effectiveness of the 75-mesh definition after 1 year of implementation and based upon its findings, the Council may require a minimum mesh throughout the net effective October 1, 1989. Therefore, this measure accomplishes three purposes. First, it increases the enforceability of mesh by removing any ambiguity regarding the definition of a cod end. Second, it enhances the conservation of regulated species by providing greatly increased opportunity for escapement. Third, it provides a mechanism to improve (as necessary) the effectiveness of mesh management without plan amendment.

Biological considerations: Proposal #5 directly enhances the selection characteristics of the net for many species, and by promoting the escapement of juveniles, the measure enhances the achievement of the management objectives. The proposal also enhances the conservation of the regulated species by reducing the possibilities for non-compliance.

Economic considerations: Proposal #5 would require fishermen to reconstruct nets with minimum twine; however, the built in lead time is expected to negate additional out of pocket expense because of scheduled net repair and replacement.

Implementation considerations: This proposal will neither increase nor decrease the administrative burden of the FMP. This proposal will promote compliance and assist greatly in the enforcement effort.

Proposal 6: No vessel fishing in or traversing the regulated mesh area may have on deck a net with a mesh smaller than that specified in the regulations. The Council interprets "on deck" as meaning available for immediate use, and regards nets that are stowed and lashed down, or stored on reels without any terminal, non-tapered twine attached, as conforming to

this requirement.

Rationale: Proposal #6 enhances the enforceability of the minimum mesh regulation by restricting the availability of small mesh for immediate use in the regulated mesh area and making it more difficult for fishermen to thwart monitoring/enforcement efforts. This proposal was specifically identified by the Regional Director as being an appropriate measure for inclusion in this Amendment.

Biological considerations: Proposal indirectly enhances the achievement of the management objectives by promoting compliance with the mesh regulations.

Economic considerations: The one mesh on deck provision allows fishermen to retain the flexibility to fish in and out of the regulated mesh area on the same trip, and therefore does not impose an economic burden.

Implementation considerations: Proposal #6 will neither increase nor decrease administrative costs; however, enforcement will be enhanced.

ISSUE #3

The third issue raised by the Regional Director and the Council is the availability of new information that benefits the design and implementation of the existing measures within the FMP. The Council proposes three measures that address this issue and are responsive either to new resource information, as is the case with the proposal to change the location of haddock spawning closed area #1, or to flexibilities that may be incorporated into the management plan that will enhance fishing opportunities without negatively effecting the achievement of the Council's management objectives.

Proposal 7: Upon implementation, change the dimensions of Closed Area I by eliminating the portion west of 69°00'W and north of 41°30'N, due to an absence of mature haddock, and subsequently change, by means of a regulatory amendment, the geographic position of Closed Area I (and the timing as appropriate) by shifting it to the south and east in order to better correlate the closure with the distribution of mature female haddock.

Rationale: The proper location of Closed Area I has not been determined. Although data are available on the distribution of mature female haddock, data on the regulatory impact of a geographic shift have not been assembled as yet. Nevertheless, it is noted that lower overall catch rates are likely to be encountered in the area to the south and east of Area I than in the area as it currently exists, and as a consequence, such a shift may have a positive impact on fishermen's catch. Research trawl data from 1977 - 1983 on the distribution of mature female haddock in the Spring of the year indicates that Area I is not properly located to protect spawning haddock. In fact, the data indicate that mature haddock are not particularly concentrated in the area between 41°20'N and 41°50'N, west of 69°00'W, in the northwest quadrant of the current Area I. Instead, the mature haddock appear to be concentrated in shoaler water in the southern and eastern portions of Area I and in the adjacent area of Georges Bank immediately to the south and east. So as not to impose an unnecessary regulatory burden on fishermen while the Council is assembling regulatory impact data on an area shift, the Council has chosen to provide regulatory relief by removing from Closed Area I the portion indicated.

Biological considerations: Proposal #7 reestablishes the validity of Area 1 by making it coincide geographically with documented haddock spawning activity.

Economic considerations: Preliminary analysis reveals that lower overall catch rates (of all species) are more likely in the area to the south and east of Area I than in Area I itself; therefore, such a shift would probably have a positive impact on fishermen's catch. However, the detailed analysis of impacts by species and by port has not been undertaken as yet, and the decision to reposition the area will be predicated upon a knowledge of those impacts. Nevertheless, the decision to open the northwest quadrant of Closed Area I will have a positive impact on fishermen who will now have access to productive fishing bottom.

Proposal 8: Fishing with hook and line gear is exempt from the Southern New England closed area. However, anyone fishing with hook and line gear in this closed area may not possess yellowtail flounder.

Rationale: Hook and line fishing in the Southern New England area is not expected to retain yellowtail flounder, and thus it is not appropriate to exclude this type of gear from the SNE Closed Area.

Biological considerations: Proposal #8 has no negative impacts on the management objectives for yellowtail flounder or other regulated species.

Economic considerations: Proposal #8 will allow a legitimate fishery to take place and effectively provide regulatory relief.

Implementation considerations: Proposal #8 will neither increase nor decrease the administrative burden of the FMP. Proposal #8 is not expected to increase enforcement costs because only legitimate recreational vessels are likely to participate and yellowtail flounder in the closed area is not susceptible to capture by the hook and line method.

Reserved for Figure 3

Proposal 9: The December-May exempted fishery for herring and mackerel is eliminated, but small-mesh, mid-water trawling is allowed during the period December through May, subject to a permit issued by the Regional Director and a by-catch possession limit of 1% (by weight) regulated species. In addition, the existing permitted exception for small-mesh, mid-water trawl gear to catch herring, mackerel and squid in the Georges Bank regulated mesh area is removed from the exempted fishery program but constrained to adhere to the by-catch possession limit of 1% regulated species.

Rationale: Bottom trawl landings of herring have been insignificant historically; herring is more often caught with non-trawl or mid-water trawl gears which produce little or no by-catch of regulated species. Mackerel is only caught in bottom trawls as a by-catch along with other regulated and non-regulated species. Mackerel should only be targeted by non-trawl or mid-water trawl gear with minimum by-catch of regulated species. Elimination of the herring/mackerel exempted fishery, along with changing the Georges Bank exception to a trip by-catch basis, will reduce the record keeping and reporting burden of the exempted fisheries program without cost to fishermen.

Biological considerations: Proposal #9 will indirectly enhance the achievement of the management objectives by constraining the opportunity to fish with bottom-tending, small-mesh gear for species that are not efficiently taken with such gear (herring) or species that cannot be efficiently targeted with such gear (mackerel), thereby reducing the small-mesh catch of juvenile regulated species.

Economic considerations: Average annual mackerel landings for 1984 and 1985 from the Gulf of Maine were 1,196,000 lbs. Otter trawlers, including those fishing primarily for shrimp, caught 237,000 lbs. (20%). Purse seines account for the majority of mackerel landings. It is not clear how much of this trawler caught mackerel came from small mesh or large mesh gear; however, the data reveal that as much as 50% of the mackerel catch is associated with directed whiting fishing and can be presumed to have been taken with small mesh. Average 1984/1985 landings of mackerel during the months of January through May were 112,000 lbs., worth about $16,000. Other traditional methods for conducting a fishery for mackerel are still available in the December-May period, including drift gill nets and purse seines. Furthermore, Proposal #9 provides for a mid-water trawl fishery, subject to a special permit from the Regional Director and a 1% trip by-catch of regulated species. The latter aspect of the measure provides opportunity for developing a directed mackerel fishery with minimum impact on juvenile regulated species.

Average annual herring landings for 1984 and 1985 from the Gulf of Maine were 64 million lbs. Otter trawlers, including those fishing primarily for shrimp, caught 658,000 lbs. (about 1%). Trawlers landed an average of 248,000 lbs., worth about $24,000, in the period December through May. The major methods of catching herring are purse seine (75%), stop seine (15%), and weirs (5%). Other traditional methods of fishing for herring still available in the December-May exempted fishery are purse seines and, by virtue of the measure, mid-water trawl gear.

Implementation considerations: Proposal #9 is expected to decrease the burden of the FMP with respect to the administration of the exempted fishery program. Enforcement costs are expected to remain unchanged.

Proposal 10: Based upon a recommendation by the New England Fishery Management Council, the Regional Director, in consultation with ASMFC, may either permit the use of certain selective gear in the EEZ shrimp fishery as an alternative to participation in the Exempted Fishery Program, or prepare a regulatory amendment to the Northeast Multispecies FMP that implements a requirement for the use of certain selective gear in the EEZ shrimp fishery.

Rationale: During the development of this Amendment, the Council considered reducing the by-catch and discard mortality of regulated species by requiring that the shrimp fishery in the EEZ be conducted with trawl gear capable of separating shrimp from other species at a high (90%) level. Prototypes of highly selective gear have been developed and field tested. However, after much discussion with its industry advisors and knowledgeable state officials, the Council became convinced that it would be premature to require the use of such gear in the shrimp fishery next year. Nevertheless, the Council remains committed to the development of selective fishing gear for use in the shrimp fishery, and encourages the National Marine Fisheries Service to actively support systematic efforts to bring such technological developments about. In this regard, the Council favors the granting of experimental fishing/research exemptions to vessels who are willing to use separator trawl gear and cooperate with NMFS to provide fishery data. The Council also believes that as soon as it can be demonstrated that reliable, selective gear is available to vessels

that fish for shrimp, such gear should either be made available on an incentive basis or required in the EEZ portion of the fishery, and this frame work measure facilitates that implementation process.

C. Measures Considered but Rejected

Measure #1: In his decision memorandum, dated July 10, 1986, Mr. Schaefer elaborated upon his basic concerns for the overall effectiveness of the management program in achieving its objectives. One of the specific suggestions made by the Regional Director was:

> "substantially larger minimum mesh sizes than have been considered to date would be required to meet % MSP goals for some species ... fishermen will fish harder to adjust for declining availability of fish and the imposition of a larger mesh size. In view of this ... the initial implementation of a 5-1/2 inch mesh and the delayed implementation of a 6" mesh, in the absence of direct fishing morality controls is inadequate for conservation."

The Council, in developing the FMP, considered the alternative of imposing a 6 inch minimum mesh size immediately and rejected it. The multispecies management program constitutes a process by which management is moved forward in stages toward the effective achievement of the objectives. The Regional Director's evaluation of the adequacy of the mesh size measure, as it is proposed to be phased in, is divorced from the primary operational measure (minimum fish sizes) to achieve the percentage maximum spawning potential goals. Further, the FMP already provides the means to respond to fishing mortality beyond the initial specification of mesh. The Council reiterates its position that a single measure or a suite of measures, applied to a complex multispecies fishery, cannot hope to be equally effective for all species within the complex. The Council recognized that there would be tradeoffs in the achievement of its management objectives for the regulated species.

The Council infers from the Regional Director's comment that immediate implementation of a 6 inch or larger mesh is required. The Council considered this alternative in the development of the FMP. The analysis contained in the FMP, and reviewed at public hearings, suggested that the alternative should be rejected for two reasons: First, from a cost/benefit perspective, immediate implementation of 6 inch mesh results in approximately a loss of 2.6 million dollars and 164 man-years of employment in the first year relative to delayed implementation. Perhaps most importantly, however, the net present value (NPV) of the delayed implementation option is virtually equivalent to immediate implementation of 6 inch mesh when evaluated over 10 years. Finally, the overwhelming opinion of the affected public was that compliance with 6 inch mesh could not be achieved until such time as it was demonstrated that 5-1/2 inch mesh could be effectively enforced.

The Council again raised the possibility of immediate implementation of a 6 inch or larger mesh in the regulated mesh area at the public hearings on this amendment. The public comment again supported the Council's position and it is for these analytical and pragmatic reasons that the Council continues to support delayed implementation of 6 inch mesh as its preferred alternative.

Measure #2: Another specific suggestion made by the Regional Director to remedy what he perceived to be an enforcement limitation associated with the exempted fisheries program was that "trip limits on by-catch of regulated groundfish species in the EFP (should be) imposed."

The issue of trip-by-trip by-catch reporting was considered by the Council in the development of the Multispecies FMP. Trip-by-trip accountability was rejected in favor of a 30 day reporting period for three reasons: First, fishermen operating legitimately with small-mesh bottom trawl gear cannot meet the standard on a trip basis. The uncertainties associated with the vertical and geographic distribution of all species makes it essential that an extended period be provided to fishermen to balance out their trip catches. Trip-by-trip reporting will lead to widespread discarding and financial uncertainty. Second, the current reporting system is essentially enforced administratively. The program deemphasizes the role of the enforcement agent as the principal entity responsible for the effective implementation of the program. Enforcement agents become involved only where the is suspicion of non-reporting or inaccurate reporting. Third, the current reporting program assures that all program participants are held accountable; small-mesh fishery data is routinely supplied and compliance is promoted.

It must be emphasized that the Council wishes to see the exempted fishery program work and provide real opportunity for fishermen to fish economically for species other than the traditional regulated species. The Council believes that trip-by-trip accountability, given the number of participants (150-200) and the limited number of enforcement personnel, will lead to program failure and will ultimately impose large costs on the industry in terms of forgone catch of small-mesh species and the further decline of the regulated species. The Council remains committed to the Exempted Fishery Program as it is currently structured and suggests that every effort be made, in cooperation with state and other federal entities, to establish an audit system of corroborating data to assist in the monitoring/enforcement of the EFP. The public comment received in conjunction with the public hearings on this amendment supported the Council's position.

D. Economic and Regulatory Impact Analysis of Proposed Measures

The economic impact analysis in the first subsection is used to demonstrate the effects of the nine proposals, which can be quantified in the Multispecies bioeconomic simulation model, and shows the results in terms of present values of five management options (which combine the proposals). In the second subsection, the rationale behind each of the nine proposals is discussed in terms of benefits, costs, and benefit-cost conclusions. Finally, the RIR/RFA is presented, showing the first year implementation costs expected with the five management options.

Economic Impact Analysis

Management Options for Analysis: The biological impact analysis estimates expected changes in landings for seven of the eight regulated species, resulting from various mesh and minimum fish sizes (Tables 7A1-10, FMP). These expected landings include the initial losses and subsequent gains in the landed weight from restricting the catch to larger size fish, but do not include the expected increases from enhanced recruitment and the accompanying gain in stock biomass. Thus, landings were simulated with various percentage increases during years 6 through 10. The percentage which reflected predicted landings with historical average recruitment levels (see Figure 7A4(b) in Supplemental RIR, April 1986) was selected to represent the expected recruitment benefits attributable to all proposed options. This procedure resulted in MSY levels of landings for cod and flounders other than yellowtail, but less than MSY levels for yellowtail, pollock, haddock, and redfish (pollock and redfish landings were not simulated with any recruitment increase).

The biological analysis from the FMP, based on the effects of minimum fish/mesh sizes, is not changed in any way by the nine proposals. The economic analysis from the FMP has been

changed relative to each of the nine proposals as follows:

1. Winter Whiting EFP: The potential loss of whiting landings is less than 0.1 percent. Although the vulnerability of regulated species to small mesh gear has been reduced, these species were protected by minimum fish size requirements. No adjustment is made in this economic analysis.

2. EFP Qualifying Species: The eight species selected constitute the historic small mesh fisheries in the Gulf of Maine. No adjustment is made in this economic analysis.

3. Regulated Mesh Area Boundary: Yellowtail landings now included in the RMA, regardless of selection the proposed option or option a, b, or c, are about 10% of the total, and the economic analysis has been adjusted to reflect this shift (which is the only change quantitatively assessed). Potential losses of whiting and squid landings are less than 1 percent, and the analysis has not been adjusted.

4. Scallop Dredges Excluded from SNE Closed Area: Scallop landings from this area amount to only 1.2% of total sea scallop landings. By-catch of yellowtail and other species from this area by dredges was unavailable from the NEFC, but in 1985 it was less than 1% yellowtail and less than 2% fluke in the scallop fishery overall. No adjustment is made in this economic analysis.

5. Minimum Mesh in the Net: No adjustment is made in this economic analysis.

6. One Mesh on Deck in RMA: No adjustment is made in this economic analysis.

7. Initially Modify and Subsequently Shift Haddock Spawning Area I SE: Landings SE of the closed area and estimated landings in the NW section of the closed area were unavailable from the NEFC. Therefore, it is assumed that landings from the newly closed area and the newly open area during February-May are equivalent, and the analysis has not been adjusted.

8. Hook and Line Gear in SNE Closed Area: No adjustment is made in this economic analysis.

9. Eliminate EFP for Herring and Mackerel: Landings by otter trawl in the exempted fishery area during December-May have averaged 112,000 pounds of mackerel and 248,000 pounds of herring. Most likely these landings have been by-catch in other fisheries, and mid-water trawling is still allowed. No adjustment is made in this economic analysis.

Management options analyzed are as follows (see following text for detail):

Table 3: Stock Catches Converted into Options for Analysis

Option	Spawning Closure	Gulf of Maine	Georges Bank	Southern New England	Minimum Size
OPTION 1	FEB-MAY	5-1/2	5-1/2 - 6	Closure	19-19-12

(base)					19-14-12-11
OPTION 2	FEB-MAY	5-1/2	6	Closure	19-19-12 19-14-12-11
OPTION 3	FEB-MAY (moved SE)	5-1/2	5-1/2 - 6 So. extension	Closure(incl. dredges)	19-19-12 19-14-12-11
OPTION 4	FEB-MAY (moved SE)	5-1/2	6 So. extension	Closure(incl. dredges)	19-19-12 19-14-12-11
OPTION 5	MAR-MAY	historic	historic	historic	17-17-11

Option 1, the baseline from which all the other options are measured, is simply the continuation of current Multispecies regulations (no action), although this is not a feasible option as described in Section II. The minimum sizes shown in the last column are for cod, haddock, yellowtail, pollock, witch flounder, American plaice, and winter flounder respectively, and will all be implemented on September 19, 1987 or prior to implementation of this amendment. Notice that the minimum sizes are consistent with Georges Bank mesh sizes. The mesh sizes associated with each option help to mitigate losses from discarding of undersized fish. Option 5 represents a return to pre-Multispecies FMP regulations (no management, for comparative purposes only), including states' minimum fish sizes, a March-May haddock spawning closure, and no effective mesh size, but is also not a feasible alternative.

Mesh sizes proposed for the Gulf of Maine are 5-1/2 inches for all options other than Option 5. Also, all four options retain the closed area in part of the Southern New England sector. The Georges Bank sector minimum mesh size drives the system with two basic options: a blanket 6 inch mesh size (Options 2 and 4), or a 5-1/2 inch minimum during the first two years of implementation followed by a 6 inch minimum thereafter (Options 1 and 3). The options for 6" immediately represent measures considered but rejected for public hearings (see Section III.C above). Proposals 3, 4, and 7 are included as part of Options 3 and 4. Exempted fisheries are associated with each mesh size option and are also reflected in the quantitative analysis of Options 1 through 4. However, the percentages used for adjustment of exempted species remain unchanged from proposals 1, 2 and 9 as described above.

Results of Analysis: A bio-economic analysis is used to assess the impacts of five management options on the commercial finfishing sector. Options 1 and 2 represent the original FMP, whereas Options 3 and 4 represent the nine proposals of Amendment #1. Option 5 is a no-management alternative. A socio-cultural impact analysis follows immediately from this bio-economic analysis.

As described above, the economic impact analysis consists of five options for minimum fish/mesh size, exempted fisheries, and spawning area closures in the Gulf of Maine and Southern New England (Table 3). The nine proposals serve to expand the Regulated Mesh Area (increase the effectiveness of minimum fish/mesh sizes), tighten exempted fishery conditions, move a spawning area closure (to be more effective), and limit gear allowed in the Exempted Fishery Area and the SNE Closed Area. Option 1 is used as the baseline because it represents the no action alternative. All other options are presented as changes from this baseline. The analysis includes all of the regulated species, all of the relevant exempted species except dogfish and squid, as well as white hake, windowpane flounder, summer flounder, and cusk. The difference between

Options 2 through 4 and the baseline for each regulated species results from the estimated annual minimum fish/mesh size effects (from the biological analysis of the FMP). For each exempted species, the 1983 landing level is held constant over the ten-year period adjusted for the lost landings in the non-exempted large-mesh area (a constant percentage each year). Exempted species landings are not adjusted for Option 5. For the other species, witch flounder (a regulated species), red hake (an exempted species), white hake, summer flounder, windowpane flounder, and cusk, the 1983 landing level is an unadjusted constant over the ten-year period. The selection of a constant level of landings for the exempted and other species is intuitively appealing in that the projected landings of the regulated species over the ten-year period assume constant average recruitment and fishing mortality at the 1983-1984 levels. Witch flounder landings are not included in the biological analysis because adequate assessment information is not available. However, species such as witch flounder, red hake, and the other species are included in the economic impact analysis because they are a part of a system of price equations used in the analysis.

A groundfish demand model is used to derive prices and revenues associated with the expected landings for each option during the ten-year period 1987-1996. The methodology used to estimate the demand model is described in Wang (1984). The price equations (or inverse demand) generally depend on species landings, landings of the other species in the system, imports of all species in the system, consumer income, general price movements, lagged species price, and seasonal factors. Imports of each species or group are held at 1983 levels, similar to some landings as described above. Both consumer income and the general price index are projected using ARIMA time-series models. Lagged price is the predicted price from the previous period.

To illustrate the benefits of improved recruitment, the landings streams above were incremented by 10% during years 6 through 10. This percentage reflected historical average recruitment levels, and resulted in MSY levels of landings for cod and flounders other than yellowtail. The cost/benefit analysis, based on these simulations, includes the expected benefits from both yield-per-recruit and recruitment increases, where costs are the forgone revenues in the initial years.

Table 4 presents the discounted cash flows with 10% recruitment for the regulated species (except pollock and redfish), the subtotal of the regulated species, the subtotal of the exempted species, and the overall total. Revenue streams are discounted with a rate of 10%; Option 1 is reported in thousand dollars, whereas Options 2 through 5 are differences (in $1000) from this baseline. Again the most obvious result is that greater net benefits are expected with the southward extension of the Regulated Mesh Area (Options 3 and 4). Overall the most effective option is Option 4, a 6 inch mesh, $1 million better than Option 3, a delayed 6 inch mesh. However, immediate implementation of the 6 inch mesh costs $3 million more than the delay in the first year alone (see Determination of Major Rule below). Preferred Option 3 is $2.5 million better than the base case ($1.8 billion) over the ten year period because of the increase in yield-per-recruit protection of yellowtail, regardless of the level of improvement in recruitment (a 1% increase in recruitment yields $2.6 million over a base of $1.7 billion). Removing Multispecies regulations (Option 5) is by far the worst alternative (-$127.8 million), and even with only 1% increase in recruitment is it equivalent with preferred Option 3.

Socio-Cultural Impact Analysis: Total Employment Effects: The most striking and quantifiable impacts of the five management options are on employment, and in this section the changes in regional employment will be analyzed (other likely social cultural impacts are noted in the FMP). A coefficient which computes employment based on ex-vessel revenues was derived through

input-output analysis. In this analysis we examine the direct, indirect and induced employment effects measured in total man-years.

All management options except Option 5 initially reduce employment (see RIR table below). The magnitude of this reduction varies from a low of 19 jobs lost with Option 3 to a high of 207 jobs lost with Option 4 (total effect). Twenty-seven percent, or 5 jobs with Option 3 and 56 jobs with Option 4, would be in the harvesting sector (direct effect). Initial losses range from 0.2-1.8% of the labor force. In each case, after the first year there is a net gain over jobs lost the previous year (although still a loss from the baseline values until year three). In particular, Option 3 shows a gain of 6 (2 fishermen) in year two after the initial loss. Employment is fully recovered by year four for Options 2-4, and remains positive for the rest of the ten year period relative to the baseline. Option 5, while demonstrating much higher employment initially (1139 more jobs in the first year), results in a net loss of jobs by year six and substantial losses thereafter (-3142 in year ten).

Rationale for Adoption - An Analysis of Costs and Benefits

This section describes the nine individual measures in terms of their costs, benefits, and benefit-cost conclusion. The economic benefits and costs are explained where they have been analyzed with the bioeconomic model above, otherwise they are described using 1985 statistics. The only quantitative data available on enforcement costs are daily airplane and cutter costs from the Coast Guard concerning expansion of protected spawning areas. These along with administrative or monitoring costs are not expected to change except as noted (see Section III.B).

1. Winter Whiting EFP:
Benefits: Additional protection for redfish, haddock, gray sole; smaller area to enforce.
Costs: Lost whiting landings valued at $40,145; revenues from regulated species already accounted for in minimum fish/mesh size simulations.
Benefit-Cost Conclusion: Value of regulated species protected $1,880 thousand, compared to cost in whiting revenues above. A portion of these regulated species will be landed with large mesh gear, and those which are not will be landed at higher yields in the future (not discarded). Administrative and enforcement costs are unchanged.

Reserved for Table 4

2. EFP Qualifying Species:
Benefits: Prevents potential landings/discards of small regulated species as by-catch of uneconomic targets (trash), because the seven species selected constitute the historic small mesh fisheries in the Gulf of Maine.
Costs: Loss of some legal by-catch of regulated species (unquantified), to the degree of the by-catch of other non-regulated species (wolffish, cusk, etc.).
Benefit-Cost Conclusion: Gain from protection of regulated species and integrity of EFP most likely outweighs loss of legal sized by-catch, because minimizes the discard of sub-legal sized by-catch. Administrative and enforcement costs are unchanged.

3. Regulated Mesh Area Boundary:
Benefits: Yellowtail landings within RMA, regardless of selection of the preferred option or option a, b, or c, are about 10% of the total, and the economic analysis indicates that present value increases by $3.7 million for yellowtail, $2.5 million overall.
Costs: First year costs of $0.3 million are factored into present value above, employment loss of 20 man-years (-0.2%). Whiting and squid losses at $37.3 and $14.2 thousand respectively.

Benefit-Cost Conclusion: Present value of $3.7 million. Administrative costs are unchanged, enforcement is improved.

4. Scallop Dredges Excluded from SNE Closed Area:
Benefits: Reduced fishing mortality on yellowtail.
Costs: Costs if entire area is closed to scallop dredging is $1.3 million. However, unlike fish, scallops do not move much and most of these landings may be made following the end of the closure when the yellowtail have dispersed.
Benefit-Cost Conclusion: Economic costs probably much less than $1.3 million. Administrative costs are reduced, enforcement is improved because aerial surveillance is simplified.

5. Minimum Mesh in the Net:
Benefits: Increased escapement of regulated species throughout the net.
Costs: The Council may require minimum mesh throughout the net following evaluation of the 80 mesh specification. Nets may cost as much as $10,000, and most vessels carry at least two nets. There are approximately 1000 vessels in the fishery. However, nets must be replaced after a few months or up to two years. The phase in period proposed, about one year, will allow most fishermen to make the changeover during this normal replacement period and result in no extra cost.
Benefit-Cost Conclusion: A good proportion of the estimated $180 million present value in the original FMP may depend on effective escapement (because of discard mortality). Thus, a fairly costless method, by adjusting the phase-in period, of assuring optimum escapement is obviously desirable. Administrative costs are unchanged, enforcement is improved because net measurement is simplified.

6. One Mesh on Deck in RMA:
Benefits: Promote compliance with mesh regulations.
Costs: Vessels passing through the Regulated Mesh Area and using a small mesh must tie up the net and remove the cod-end.
Benefit-Cost Conclusion: The inconvenience to fishermen of tying up small mesh nets while traversing the RMA is preferred to not allowing any small mesh nets onboard vessels within the area. Administrative costs are unchanged, enforcement is enhanced.

7. Initially Modify and Subsequently Shift Haddock Spawning Area SE:
Benefits: Closure protects more spawning haddock.
Costs: Landings SE of the closed area and estimated landings in the NW section of the closed area were unavailable from the NEFC. Therefore, it is assumed that landings from the newly closed area and the newly open area during February-May are equivalent, and there is no change in landings.
Benefit-Cost Conclusion: Improved haddock spawning protection with no loss in landings. Administrative and enforcement costs are unchanged.

8. Hook and Line Gear in SNE Closed Area:
Benefits: Allows continuation of traditional, recreational fishery.
Costs: None.
Benefit-Cost Conclusion: Administrative and enforcement costs are reduced, as these charter/party boats are easily identified and need not be boarded.

9. Eliminate EFP for Herring and Mackerel:

Benefits: Additional protection of regulated species.
Costs: Landings by otter trawl in the exempted fishery area during December-May have averaged $16,000 worth of mackerel and $24,000 worth of herring. Most likely these landings have been by-catch in other fisheries and therefore would not be lost, and small-mesh mid-water trawling is now allowed outside of the EFP.
Benefit-Cost Conclusion: Reduce the small-mesh catch of regulated species, by constraining the opportunity to fish with bottom-tending gear for species that are not efficiently taken with such gear (herring) or species that cannot be efficiently targeted with such gear (mackerel). Administrative costs are reduced and enforcement costs are unchanged.

Determination of "Major Rule" under E.O. 12291, or "Significant" Impacts under the Regulatory Flexibility Act

This section provides the information necessary for the Secretary of Commerce to address the requirements of Executive Order 12291 and the Regulatory Flexibility Act. The purpose and need for management (statement of the problem) is described in §II. The alternative management measures and enforcement costs of the proposed regulatory action are described in §§III.A and B. The economic and social impact analysis of these alternatives is in this section (§III.D) and is summarized below. Other elements of the Regulatory Impact Review and the Regulatory Flexibility Act are included below.

Regulatory Impact Review: The economic impact analysis above shows that all of the proposed options (except the return to no management, Option 5) result in positive discounted cash flows over the ten year period compared to a continuation of the current program, ranging from $1 to $3.5 million increases in the present value of ex-vessel revenues. All vessels will initially suffer a loss in productive efficiency, with or without the 10% recruitment increase which begins in year six. However, once a higher level of landings is achieved, after five years from yield per recruit effects alone, all vessels now in the fishery will be able to operate more productively, consumers will benefit from higher sustained catches, and participants up the production chain will enjoy increased product flow. These results are due primarily to the extension of the southern boundary of the Regulated Mesh Area to include another 10% of the SNE yellowtail stock, which greatly reduces discarding. The annual cost for this long-term improvement is the greatest during the first year (an upper limit of 0.2% for preferred Option 3; almost 2% for the 6" immediately options) for all three levels of users, declining each succeeding year until the benefits accrue during the third year.

Costs are measured in terms of foregone revenues, assuming that operational costs remain unchanged. That is the foregone revenues are the worst case, assuming that no one redirects their fishing effort. Such an increase in fishing effort would certainly increase operational costs but would also increase revenues more (otherwise it wouldn't be done).

Based upon the economic impact analysis above, which presented long-term impacts on ten-year present values, this section concentrates on the first year changes in ex-vessel revenues. In addition, the one year impacts on the whiting and squid fisheries (losses of $37.3 and $14.2 thousand respectively, because of the southern boundary extension of the RMA) may be added to the impacts for Options 3-4. The first year losses (lower landings and revenues, higher prices) constitute the worst one-year losses for every option relative to the baseline (except for Option 5, where initial gains are more than eliminated after year five; present value -$130 million). The expected revenues, and derived total employment impacts, for 1987 are shown below:

Change in Total Revenues and Employment, 1987

	$MILLION	$CHANGE	PERCENT	MAN-YEARS
Baseline	189.8	0.0	0.0	0
Option 2	186.8	-2.9	-1.6	-185
Option 3 *	189.4	-0.3	-0.2	-19
Option 4	186.4	-3.3	-1.8	-207
Option 5	208.1	18.3	9.7	1139

*Council preferred option.

All options are presented as differences from the baseline (Option 1), a continuation of the Multispecies FMP management measures. Options 3 and 4 include the southern boundary extension of the Regulated Mesh Area. The 6" immediately options (2 and 4) show greater negative impacts relative to the preferred Option 3 (6" delay). All of the mesh size options show greater negative impacts as compared with no management (Option 5), however, first year changes are included in the present values shown in the economic analysis (where no management was the worst option by some $130 million). [Option 4 is $1 million greater than Option 3, and $2.5 million greater than Option 2, in terms of present value.] The conclusion then is that the preferred option is Option 3 when looking at the first year costs, and Option 4 when considering the overall impacts for the ten year period, both of which achieve the biological benefits of spawning potential, yield per recruit, and protection from stock collapse.

Employment impacts follow directly from ex-vessel revenues and include impacts on finfish fishermen, processing employees, lumpers, etc., and even include the induced employment impacts resulting from changes in consumption patterns (see §7A5, Socio-Cultural Impact Analysis of the FMP). Percent changes in expected employment and total ex-vessel revenues are identical, because employment is calculated as a function of revenues. Models for final consumption demand (retail price) are unavailable, but estimating a simple markup relationship, the changes in consumer costs are expected to be about the same across options as for ex-vessel prices and revenues, albeit at slightly lower percentages. The ex-vessel price model used in this analysis contains consumer income, imports, and the consumer price index as explanatory variables, which are generally associated with retail demand. Analysis of profits in the industry is also not available because models which determine costs as a function of changes in landings (the primary impact of this program) are not available. Models which incorporate costs as a percentage of gross revenue will not show percent changes different from those for revenue.

There currently are no sizeable exports of the regulated fish species, and the level of change in landings for any option is not expected to impact greatly the import market (see §7B7, Assessment and Specification of DAH, DAP, JVP, and TALFF, in the FMP). Changes in landings, prices, and revenues from the proposed management program are not expected to have different effects on vessels of different sizes, but having the same type of gear, per se. Nevertheless, yellowtail trawlers traditionally fishing south of the current RMA boundary (most likely from New Bedford), and scallop dredges currently operating in the SNE closed area, will obviously be the most severely impacted. Individual vessels may indeed be differentially impacted, but our knowledge is insufficient to assess those impacts. The overall program is designed to affect all users equally, is

not expected to hamper anyone's competitive position, and is expected to promote investment and innovation in more selective gear types.

Compliance costs and reporting burdens are unchanged and identical for all user groups. The cost of new, larger size nets is not an additional burden on the industry, because a number of nets are purchased throughout a year of normal operation. Likewise, operating and maintenance costs should remain relatively unchanged. Reporting forms for the exempted fisheries remain the same. Administrative and enforcement costs should be very similar to those for the FMP or reduced.

In summary, the RIR/IRFA includes the expected impacts due to southern extension of the Regulated Mesh Area. If the -$50 thousand change in the whiting/squid fishery is included in Option 3, that option results in an initial cost of -$365 thousand (foregone revenue), and is $2.6 to $3 million less costly than Options 2 and 4 respectively in 1987. In terms of present value, Option 4 is $1 million greater than Option 3, but this represents only one tenth of one percent of the total present value of $1.8 billion (Table 4).

Initial Regulatory Flexibility Analysis: The New England multispecies fishing industry directly affected by this management program is composed of all small entities operating in primarily New England waters (small portions operate in Mid-Atlantic waters south of Long Island). The number of units operating, provided by the Northeast Fisheries Center, is given below.

	OTTER TRAWLERS	GILLNETTERS	LINE TRAWLERS
1982	1012	170	49
1983	997	129	33
1984	1023	126	32
1985	974	125	36

The regulatory impact analysis above provides the industry-wide impacts (assuming related processing and consumer impacts) expected with the four options, as well as the preferred option. All of the vessels and processors involved in the New England multispecies fishery are considered to be small businesses, that is, none is dominant in the Atlantic demersal finfish industry. The annual costs of compliance for the first year are shown in the table above, and the overall benefits in terms of discounted cash flows are presented in Table 4 for the industry. Given the approximately 1000 vessels operating in 1985, the average impact in terms of foregone revenue with the preferred option is $300 per vessel out of average gross revenues of $200,000 per vessel (or 1-1/2 full-time vessel equivalents).

Vessel class species dependence is not likely as pronounced as the spatial dependence indicated in §§3A1-3A2 of the FMP. Gear type species dependence is pronounced; gillnets land basically four groundfish species (pollock, white hake, cod, and haddock) and would not be affected by the southern boundary extension of the RMA, compared to otter trawls which are used to land all of the species in the management unit. The approach taken by the Council to assure that any groups within the industry, such as gear types and/or vessel class, are not unduly impacted is through its advisors and the public hearing process. During this process public comment is used to refine the management program so that differential impacts are avoided to the greatest possible extent. As expected, the Council learned that a handful of fishermen from New Bedford (out of approximately 100) have operated almost strictly on localized yellowtail grounds where the southern boundary of the RMA is to be extended. These fishermen, while not absorbing the

entire $300,000 loss alone, will be affected much more than the average, and will be required to change fishing practices substantially or redirect their effort into other areas.

E. Consistency with the National Standards

The Regional Director relied principally upon National Standard #1 to support his decision to conditionally approve the Northeast Multispecies Fishery Management Plan. As a consequence, Amendment #1 is required to provide sufficient augmentation to the management program to establish consistency with the National Standards.

National Standard 1: Conservation and Management measures shall prevent overfishing while achieving, on a continuing basis, the optimum yield from each fishery.

Two issues have been raised with respect to the ability of the multispecies management program to achieve optimum yield and prevent overfishing. By way of background, the Council understands from the published NOAA guidelines that NMFS defines overfishing as that level of exploitation that jeopardizes the ability of a stock(s) to recover to a level at which it can produce maximum biological yield or economic value on a long-term basis under prevailing biological and economic conditions. In addition, the Council acknowledges that in a multispecies fishery context, it may not be possible or desirable to achieve the same degrees of optimality for all individual species (stocks), and thus interprets the achievement of optimal yield in terms of the benefits to be derived from the whole fishery.

The first issue is whether or not the plan will achieve its own objectives, which are defined in terms of the achievement of certain levels of spawning potential (referred to as %MSP). Based upon the spawning potential concept, as discussed in Part 5 of the FMP and elsewhere, the Council's selection of long-term target values of 20% MSP will eventually achieve maximum long-term biological yield, based upon the scientific information available. Thus, the management program attempts to accomplish much more than simply the prevention of recruitment failure for regulated stocks; it is consistent with National Standard 1 because it maintains the ability of a stock to recover to an optimum level.

Due to the nature of the model that underlies the spawning potential analysis (an equilibrium yield model), the achievement of %MSP objectives is best evaluated over several years, and the control variables in the analysis (fishing mortality and age-at-entry) are not intended to be fine-tuned on an annual basis. Nevertheless, concern has been expressed that the measures specified for the overall fishery do not appear to be capable of achieving target %MSP levels for individual stocks. The Council acknowledges that the FMP will be less likely over time to achieve its objectives for cod and yellowtail than for pollock and redfish, given the constraints imposed by a multispecies fishery, but asserts that the FMP's objectives will be achieved for the overall resource, and certainly that the FMP will prevent overfishing (using the guideline definition) while achieving optimum yield on a continuing basis. Responsive mechanisms within the FMP that assure this outcome include the set of additional measures that may be employed to react to special circumstances (like the protection of strong recruiting year classes or the need to reduce fishing mortality on one or more stocks).

From a more technical perspective, it is worthwhile to note that the %MSP analyses were based, in part, upon empirical data on how fishing mortality affects all age groups in a particular stock. Furthermore, the selection of the %MSP target value for haddock was based, in part, upon empirical data on the relationship between parental stock levels and subsequent recruitment at age

two. The FMP focuses on reducing juvenile mortality, the latter being wasteful of both yield per recruit and spawning potential. By adopting measures that directly limit the mortality imposed upon age 0-2 fish (e.g., strict limits on small-mesh fishing and minimum sizes on 7 of 8 regulated species), the management program reduces the risk that %MSP target levels will not be met and the risk that the %MSP target values themselves are not sufficiently conservative. [This is accomplished in the first case by shifting the %MSP isopleths upward for any combination of fishing mortality and nominal age at entry (calculated using the Paulik and Gale method), and in the second case by shifting the array of spawner-recruit (age 2) observations upward to result in possible redefinition of the "average recruitment" line (i.e., <20%).]

The second issue that has been raised in reference to National Standard 1 is whether mesh regulations will work as expected; whether the exempted fishery program will truly minimize (to the extent practicable) the small-mesh mortality on juvenile regulated species; and whether fishing mortality won't just keep going up. First, it is important to point out that considerable judgment is needed to answer any of these questions, and it is the Council's informed judgment that given the proper administrative and monitoring/ enforcement support, mesh measures will be effective, the exempted fishery program will strike the proper balance between conserving the regulated species and providing economic opportunities to fish for non-regulated species, and any possible fishing mortality increases will not undermine the achievement of the FMP's objectives.

Of the nine measures proposed in this amendment, seven of them are designed to respond directly to the Regional Director's concern about whether the management program will function as expected. By and large, the Council considers these seven measures to be refinements to the initial management program, and they will either improve the plan's ability to achieve its objectives or promote industry compliance. Proposed measures 1 and 2 are designed to further limit the opportunity for vessels to fish for regulated species while in the exempted fishery program. Proposed measure 9, which eliminates the exempted fishery for herring and mackerel, also has this effect. Proposed measures 3 and 4 are designed to increase large mesh coverage for yellowtail flounder (in support of the minimum fish size), and proposed measure 3 also has some benefit for cod. On the other hand, proposed measures 5 and 6 are designed to promote compliance with the mesh measures by making it more difficult for fishermen to thwart the regulations and by making it easier for enforcement officials to detect a violation.

It is important to note that the management program is under constant review by the Council and the Technical Monitoring Group, and that the contingency measures already in the plan, make it possible for the Council to respond to changing circumstances that may not have been contemplated in the original specification of the management program. The Northeast Multispecies management program has benefitted from more input and industry support than has ever been mustered for any preceding groundfish management program. The Multispecies FMP represents the critical, dynamic balance between what is possible and what is desirable in the management of the fishery; it embodies a continuous, deliberate, informed, and cooperative process that constitutes optimum yield and leads inevitably toward the achievement of bio-economic and social optimality in the fishery. Any action that purposefully or inadvertently upsets the balance or disrupts the process runs the risk of creating a situation that results in the violation of National Standard 1. It is also true that failure to provide the administrative and enforcement support that the FMP requires will undermine the effectiveness of the management program and jeopardize the FMP's ability to achieve National Standard 1.

National Standard 2: Conservation and Management measures shall be based upon the best scientific information available.

In the development of Amendment 1 to the Northeast Multispecies FMP, the Council used the most complete and current scientific information available. The Council solicited and received input from the Technical Monitoring Group, and acted on that group's recommendations.

National Standard 3: To the extent practicable, an individual stock of fish shall be managed as a unit throughout its range, and interrelated stocks of fish shall be managed as a unit or in close coordination.

The proposed measures in this Amendment enhance the Council's efforts to manage all of the stocks within the multispecies fishery complex. This Amendment continues the Council's policy of establishing management measures for individual stocks as well as in specific recognition of their interrelationships within the fishery.

National Standard 4: Conservation and Management measures shall not discriminate between residents of different states.

Management measures proposed in this Amendment are applicable to all participants in the Northeast Multispecies fishery. All management proposals are designed to promote conservation and the achievement of the management objectives without discriminatory intent.

National Standard 5: Conservation and management measures shall, where practicable, promote efficiency in the utilization of fishery resources; except that no such measure shall have economic allocation as its sole purpose.

The measures proposed in this Amendment are designed to increase the overall ability of the management program to meet its objectives, and as such promote efficiency in the long-term utilization of the multispecies fishery resource.

National Standard 6: Conservation and management measures shall take into account and allow for variations among, and contingencies in, fisheries, fishery resources, and catches.

None of the management measures proposed in this Amendment detracts from the FMP's ability to be consistent with this National Standard.

National Standard 7: Conservation and management measures shall, where practicable, minimize costs and avoid unnecessary duplication.

The measures proposed in this Amendment serve to assure that the FMP contains the most cost-effective strategy for achieving the management measures.

Other Laws and Management Programs

The management measures proposed in this Amendment do not change in any way the relationship between the federal management program for the multispecies fishery resource and the other state and federal laws and statutes that affect all or a part of the multispecies resource complex. Nothing in this amendment will change the relationship that has been discussed in Sections 7C2 and 2B5 of the Northeast Multispecies FMP in relation to marine mammals and endangered species. Finally, The Council has determined that this amendment will be implemented in a manner consistent to the maximum extent practicable with the approved Coastal Zone Management Programs of the affected states.

F. Finding of No Significant Environmental Impact

In view of the analysis presented in this document, it is hereby determined that the proposed action in this amendment to the Northeast Multispecies Fishery Management Plan would not significantly affect the quality of the human environment with specific reference to the criteria contained in NDM 02-10 implementing the National Environmental Policy Act. Accordingly, the preparation of a supplemental Environmental Impact Statement for this proposed action is not necessary.

_____ _____

Assistant Administrator for Fisheries, NOAA Date

IV. AMENDATORY LANGUAGE

The Council proposes to amend the language contained in Section 7B1 of the Northeast Multispecies FMP as follows (references are to existing sections in the FMP and changes are noted in **boldface**). This document supplements the discussion and analysis of alternatives contained in Section 7A of the FMP. No other sections of the FMP are changed as a consequence of this amendment.

§7B1 Proposed Management Program (Preferred Alternative)

The management program consists of three parts: 1) operative measures to achieve the management objectives, 2) administrative measures to promote both monitoring/enforcement of the FMP and provide for continued industry access to the resources, and 3) procedures to provide an effective basis for continuing management. Any fisherman holding a federal multispecies fishery permit must operate in accordance with federal regulations implementing this FMP even when fishing in state waters. However, where more stringent measures than those proposed in this FMP exist to regulate state landings, the more stringent measures shall prevail.

Operative Measures

1. Minimum Fish Size:

		Year 1	Year 2+
Commercial: (total length)	cod, haddock, pollock	17 inches	19 inches
	witch flounder	14 inches	14 inches
	yellowtail, Am. plaice	12 inches	12 inches
	winter flounder	11 inches	11 inches

All sizes are effective upon implementation of the FMP and will be enforced on the basis of possession in or from the EEZ. In addition, no fish taken subject to this FMP that are smaller than the prevailing commercial size limit may be sold, and minimum sizes will apply to imported fish.

Recreational : cod, haddock: 15 inches (year 1); 17 inches (year 2 & 3)

(total length) 19 inches (year 4 +)

Recreational fishermen are not subject to minimum size in possession requirements for pollock, American plaice, or yellowtail, winter and witch flounders. Each recreational fisherman may have in his possession a total of two undersized fish (cod and/or haddock).

2. Minimum Mesh Size: **For mobile gear in regulated mesh areas, the Council requires the use of the minimum mesh size, specified below, for at least 75 continuous meshes forward of the terminus of the net. The Regional Director is authorized to permit the use of smaller mesh in the regulated portion of the net so long as it is attached to the net in a square configuration and he finds that it achieves the same level of selectivity relative to haddock retention as is achieved with the mesh as specified herein. The Council will review this mesh specification after one year of implementation and may modify the number of conforming meshes, initiate a regulatory amendment to require that the regulated minimum mesh apply throughout the net (to** be effective no earlier than October 1, 1989), or take other appropriate action. While operating in the Regulated Mesh Area, a vessel may not have immediately available for use a net with a mesh smaller than that specified below.

Gulf of Maine **In the area bounded on the north and west by the territorial sea, on the east by the limits of the EEZ, and on the south by Mass Bay and 42° 20'N (east of 70°00'W), the minimum mesh size for both mobile and fixed gear, except as provided under the Mid-Water Trawling Exception and the Exempted Fishery Program below, shall be as follows:**

- **Regulated minimum mesh for mobile gear . . . . . 5-1/2 inches**
- **Regulated minimum mesh in bottom-tending gillnets . . 5-1/2 inches**

Georges Bank In the area of the EEZ bounded on the north by 42°20'N; on the east by the U.S./Canada boundary; on the south by a line starting at the intersection of the U.S./Canada boundary and LORAN C line 5930-Y-30750 and following LORAN C 5930-Y-30750 southwesterly to its intersection with LORAN C 9960-Y-43500, then following LORAN C 9960-Y-43500 to its intersection with 68°00'W, south along 68°00'W line to its intersection with LORAN C 9960-Y-43450, then following LORAN C 9960-Y-43500 westerly to its intersection with 69°00'W, south along 69°00'W to its intersection with LORAN C 9960-Y-43400, then following LORAN C 9960-Y-43400 to its intersection with 69°40'W; and on the west by 69°40'W below 41°35'N, and either the territorial sea or 70°00'W (whichever is more easterly) above 41°35'N, except as provided under the Mid-Water Trawling Exception and the Exempted Fishery Program below, mesh in the regulated portion of the net and in bottom-tending gillnet gear shall be as follows:

- **In years 1 and 2 of FMP implementation, mesh is 5-1/2 inches**

- **Within the third year of FMP implementation, the minimum mesh shall increase to 6 inches subject to the Regional Director's determination, made in consultation with the New England Council, that the Canadian management program for Georges Bank stocks is substantially consistent with the conservation objectives of the FMP.**

Mid-Water Trawling Exception: a fishery for herring, mackerel and/or squid may be conducted in the regulated mesh area of Georges Bank throughout the year using mesh less than the regulated minimum subject to the stipulation that mid-water trawl gear be used and the by-catch for regulated species be held to 1% of the combined catch of herring, mackerel and squid on board.

A similar fishery for herring and mackerel may be conducted in the Gulf of Maine regulated mesh area, restricted to the period December through May, subject to a permit issued by the Regional Director and the provision that vessels fishing under this exception may not have on board landings of regulated species in excess of 1% of herring and mackerel .

Reserved for Figure 7B1

Other New England: In those parts of the New England Area not otherwise regulated for mesh, the minimum mesh in bottom-tending gillnets must be equivalent to that in the Georges Bank area during the months of November through February.

3. Exempted Fishery Regulations

- **Opportunities to fish with small mesh mobile gear in portions of the Gulf of Maine and Georges Bank regulated mesh areas are provided for in the exempted fishing area shown in Figure 7B1. Note that the whiting exempted fishery is constrained to operate in the portion of the illustrated area that is west of 69°00'W.**

- Exempted fisheries for commercially valuable species, which require the use of mesh smaller than the regulated mesh size, will be allowed as specified under Exempted Fishery Options below. Exempted fisheries must be applied for independently and may not be granted for more than one exemption at a time.

- Regulated species include cod, haddock, pollock, redfish, Am. plaice, and yellowtail, winter and witch flounders.

- Exempted fishery options:

Period	Exempt Species	Comment
June through November	**dogfish, herring, mackerel, red hake, silver hake, squid, ocean pout**	**Regulated species may not exceed 10% of the total landings of dogfish, herring, mackerel, red hake, silver hake, squid and ocean pout.**
December through January	whiting	Regulated species may not exceed 10% **of the amount of whiting and shrimp** landed over the reporting period; the fishery will be monitored by sea sampling.
December	shrimp	Regulated species may not exceed

through May (or as specified) (by ASMFC)	10% of the amount of shrimp landed during the reporting period.

- Reporting period - The reporting period for the exempted fisheries shall be 30 calendar days or until withdrawal of the vessel from the exempted fishery, whichever is the shorter period.

- Report form - existing federal reporting form submitted by each participating fisherman at the end of the reporting period. Individual trip records that are verified by the dealer(s) handling each trip or part thereof must be retained by participating fishermen to corroborate compliance data over the reporting period.

4. Area Closures

Spawning areas

Spawning areas, principally designed for haddock, will be seasonally closed to fishing with all mobile or fixed gear except with scallop dredge gear and hooks having a gape not less than 1.18 inches (30 mm.).

- **Spawning areas to be closed include areas I and II shown in Figure 7B2(a). It is recognized that only a small part of Area II is under U.S. control.**

- The closure period in Area I will be from February 1 through May 31, except that each area (or relevant portion thereof) may be opened after April 30, upon the authority of the NMFS Regional Director. The closure period in Area II will be determined in consideration of Canadian management regulations.

Other areas:

A portion of the New England/ Mid-Atlantic area west of 69°40', illustrated in Figure 7B2(b), is defined as an area to be seasonally closed to provide reduced mortality and enhanced spawning opportunity for yellowtail flounder. This closure is compatible with management efforts for yellowtail stocks in other resource areas.

The portion of this area east of 71°30'W longitude will close on March 1; whereas the portion west of 71°30'W will close on April 1. The total area will remain closed as far into May as the Council determines appropriate to achieve the objective of the FMP relating to Southern New England yellowtail flounder, at which time notice of reopening will be published in the Federal Register.

This area will be closed to all mobile gear fishing with the following exceptions: a) mid-water gear operating with a permit issued by the Regional Director and subject to the restriction of a zero by-catch of regulated species, b) surf clam/ ocean quahog dredges subject to the Regional Director's specification of by-catch reporting requirements, and c) all hook and line gear; however, possession of yellowtail by anyone fishing with hook and line gear in this area would be prohibited . The Council may specify by-catch limits to surf clam/ocean quahog operations in the closed area

after a careful review of by-catch information.

5. Additional Measures[1/]

Regulated Mesh Area

If fishing mortality for key species is determined to jeopardize achievement of the management objectives, or if a new year class of haddock is jeopardized by overfishing, then four options to further control fishing mortality will be considered for Council action using the regulatory amendment process (public hearings will be held):

- Make regulatory modifications promoting the effectiveness of existing measures.
- Establish other time/area restrictions on the fishery.
- Increase minimum fish size.
- Increase mesh size.

Non-regulated Mesh Area

If fishing mortality for key stocks not adequately protected by the regulated mesh area remains too high to achieve the plan objectives, then three additional options to further control fishing mortality will be considered for Council action using the regulatory amendment process (public hearings will be held):

- Close key grounds for limited periods of time until conditions change.
- Increase minimum fish size.
- Establish a minimum mesh size for all or part of the area during some or all of the year.

Other

Selective Shrimp Gear Incentives

Based on the recommendation of the Council, and after consultation with ASMFC, the Regional Director may prepare a regulatory amendment to the Northeast Multispecies FMP that implements either a requirement for the use of selective gear in the EEZ shrimp fishery or offers selective gear in the EEZ shrimp fishery as an alternative to participation in the Exempted Fishery Program.

The Council may, in addition, take action as warranted to ease or remove regulations, authorize experimental fishing, or modify regulations to accommodate advanced gear technology.

6. Administrative Measures

Gear Marking Requirements

Throughout the New England area, bottom-tending fixed gear must have the name of the owner or vessel, or the official number of that vessel permanently affixed to any buoys, gillnets or longlines. In addition:

1/ The decision to proceed with additional measures that will impose area or gear restrictions in the Mid-Atlantic area will require joint Council concurrence before a regulatory change process can be utilized.

- Bottom-tending gillnet or longline gear must be marked as follows: the westernmost end (meaning the half compass circle from magnetic south through west to and including north) of the gear must display a standard 12" tetrahedral corner radar reflector and a pennant positioned on a staff at least 6 feet above the buoy. The easternmost end (meaning the half compass circle from magnetic north through east to and including south) of the gear must display only the standard 12" radar reflector positioned in the same way.

- The maximum length of continuous gillnet sets shall not exceed 6,600 feet between end buoys.

- In the Gulf of Maine, sets of gillnet gear which are of an irregular pattern or which deviate more than 30° from the original course of the set shall be marked at the extremity of the deviation with an additional marker which must display a number of highly visible streamers and may either be attached or independent of the gear.

Data Reporting Requirements

This FMP establishes no new data reporting requirements other than those required under the exempted fishery regulations. Reports for the exempted fisheries are expected to use forms and procedures used in the Interim Groundfish FMP and already approved by OMB. The New England Council does require that NOAA/NMFS retain the identification number of vessels on data records acquired through the Three-Tier Data Collection System and maintained or archived as part of the commercial fisheries database in the Northeast Region, unless otherwise directed by a vessel owner to delete the identification code from records pertaining to his particular vessel.

Permit Requirement

Any vessel wishing to participate in the Northeast multispecies finfish fishery, regardless of species sought, must obtain an annual permit. This permit does not supplant the permitting requirements of any other FMP.

Experimental Fishing

The Council may request that the Regional Director issue a permit for vessels to operate in a manner contrary to the requirements of the FMP for the explicit purpose of either gathering information on or demonstrating the feasibility of some fishing activity that may provide an economic opportunity for the fishing industry and that may be conducted without detriment to the achievement of the FMP objective. Experimental fishing would be recommended by the Council based upon an evaluation of its justification and operational design. The experimental

fishing activity would be conducted under the close, operational supervision of the Regional Director, who could withdraw the permit in the event that the fishing activity was not meeting its objectives.

Reserved for Figure 7B2

V. LIST OF AGENCIES AND PERSON CONSULTED IN FORMULATING THE PROPOSED ACTION

A. Federal Agencies

U.S. Environmental Protection Agency (Regions I, II, III)
Department of State
U.S. Coast Guard
Department of Interior
    Fish and Wildlife Service
    Bureau of Indian Affairs
U.S. Army Corps of Engineers
Marine Mammal Commission
Mid-Atlantic Fishery Management Council
South Atlantic Fishery Management Council
Atlantic States Marine Fisheries Commission

B. State Agencies

Maine Department of Marine Resources
Maine State Planning Office
New Hampshire Dept. of Fish and Game
Massachusetts Division of Marine Fisheries
Massachusetts Office of Coastal Zone Management
Rhode Island Dept. of Environmental Management
Rhode Island Statewide Planning Program
Connecticut Dept. of Environmental Protection
New York Division of Marine and Coastal Resources
New Jersey Division of Fish, Game and Shellfisheries
Pennsylvania Fish Commission
Maryland Department of Natural Resources
Virginia Marine Resources Commission
Delaware Division of Fish and Wildlife
North Carolina Division of Commercial and Sport Fisheries

C. Individuals

Daniel Arnold
Tim Asbury
Genaro Balzaro
Jacob Dykstra
Charles Follet
George Glas
Lawrence Grant
Alan Hill
Marshall Alexander
Joe Avila
Tom Brancaleone
Armando Estudante
Thomas Fulham
David Goethel
Jeff Gunn
Walter Hynes

Tommy Jordan
Ken Macara
Kevin McCarthy
Tom Morse
Lee Riley
Lucy Sloan
Leonard Stasiukiewicz
Tim Sullivan
Joseph Vinagre
Howard Nickerson
Don King
Martin Manley
James McCauley
Benjamin Rathbun
Ted Rurak
Willis Spears
Barbara Stevenson
Alan Vangile
Arthur Odlin
Carl D. Panall

VI. LIST OF PREPARERS FOR ENVIRONMENTAL ASSESSMENT AND PLAN AMENDMENT

This Amendment to the Northeast Multispecies Fishery Management Plan (FMP) was prepared by a team of fishery managers and scientists with special expertise in the multispecies resource.

Atlantic Demersal Finfish Oversight Committee

Robert Jones
Anthony Verga
Philip Coates
Herbert Drake
Robert Smith
James Warren

Assisting the Committee

Guy Marchesseault, NEFMC Staff
Howard Russell, NEFMC Staff
Christopher Kellogg, NEFMC Staff
Louis Goodreau, NEFMC Staff
Douglas Marshall, NEFMC Staff

VII. RESPONSE TO PUBLIC COMMENTS

Hearings were held in Ellsworth and Portland, ME; Portsmouth, NH; Peabody, Hyannis and Fairhaven, MA; Galilee, RI and Riverhead, NY during the period April 13 through April 16, 1987. A summary of each public hearing is included in Appendix A to this document. The major concerns that were expressed at the hearings and in the written comments, as well as Council's response, are given below:

1. The proposed change in the southern boundary of the regulated mesh area will force fishermen to catch yellowtail flounder with illegal size mesh. Twelve inch yellowtail are appropriately caught with 5 inch mesh. If fishermen were allowed to catch yellowtail with 5 inch mesh, they would not have to use liners.

Response: Information received from the Northeast Fisheries Center indicates that there is a very high level of fishing mortality for the Southern New England stock of yellowtail flounder. This action will enhance the achievement of the management objective for Southern New

England and Georges Bank yellowtail flounder stocks by making significantly more yellowtail along the southern perimeter of Georges Bank subject to large-mesh fishing and reduce the potential vulnerability of cod, haddock and other flounders to small-mesh fishing on the southern perimeter of Georges Bank. The Council understands that 5-1/2 inch mesh retains less than 50% of the 12 inch yellowtail that enter the net; nevertheless, the Council must specify a minimum mesh that is compatible with other regulated species and is consistent with the achievement of the management objectives.

2. The Council's proposal to make the regulated minimum mesh size for mobile gear apply throughout the whole net would force net dealers and fishermen to get rid of large amounts of small mesh netting, which they already have in inventory or which is already incorporated into their nets.

Response: In direct response to public comment, the Council decided to regulate mesh in mobile gear nets by requiring compliance for at least 75 continuous meshes forward of the terminus of the net. In addition to facilitating enforcement, this revised proposal will allow fishermen to use small mesh netting in the parts of the net which generally do not affect selectivity or retain fish.

3. The proposal for a one mesh on deck regulation was not practical because: a) some vessel insurance policies prohibit the storage of nets below deck due to the potential fire hazard; b) nets must be stowed where they can be reached by net handling equipment and most vessels do not have enough space, other than on the deck, to store nets where they can be reached by this equipment; and c) a net which is properly stowed or lashed down is not immediately available for use.

Response: The Council has reworded the one mesh on deck language to allow several configurations of net storage that are compatible with vessel operations and that result in small mesh being unavailable for immediate use.

4. Closed Area I, the inshore haddock closed spawning area, should be moved to the southeast and the length of the closure should be shortened.

Response: The Council has proposed opening up the northwest corner of Area I, based upon evidence that spawning haddock are not found there, and will propose to change the location of Area I, by means of a regulatory amendment, at such time that information is available to judge the regulatory impacts of such an action.

5. The proposed allowance of 1-1/4" gape hooks in the Southern New England closed area would not entirely meet the needs of recreational fishermen. A recreational hook and line fishery for mackerel within the western half of the closed area during May uses a significantly smaller hook size than is proposed.

Response: The Council has modified the FMP to allow fishing in the Southern New England closed area with all types of hook gear, but to prohibit the possession of yellowtail flounder by those using hook gear in this area. The Council notes that yellowtail flounder are not susceptible to being taken on hook gear.

6. Scalloping should be permitted in the Southern New England closed area because scallop dredges do not catch a large amount of yellowtail flounder and the absence of mobile gear in this

area would allow lobstermen to saturate the area with lobster traps and therefore create severe conflicts with draggermen when the area is reopened.

Response: Scallop dredge gear is able to retain yellowtail flounder and the ban on scallop dredging is needed in order to preserve the effectiveness of the closure vis a vis the reduction of yellowtail mortality. The measure will also reduce enforcement and administrative costs. The Coast Guard has indicated that it is difficult to distinguish scallop vessels from draggers on a quick overflight. Because lobster pots, like many other kinds of fishing gear, do not catch yellowtail flounder, the Council has no basis for prohibiting them from this area.

7. A bottom trawl fishery for herring should be allowed with a legitimate by-catch of regulated species. Also, encouraging the use of small-mesh mid-water gear could cause great harm to juvenile regulated species.

Response: There are several traditional methods for catching adult herring in the Gulf of Maine other than with bottom-tending gear and with less of a by-catch of regulated species. Bottom-trawling for herring is non-traditional in the Gulf and susceptible to by-catches of regulated species. Mid-water and seine gear can be fished with very little by-catch of regulated species. Careful monitoring of this fishery will prevent the use of mid-water gear to illegally catch regulated species.

8. It was suggested that the incentive of allowing fishermen to retain more than a 10% by-catch of regulated species was not sufficient to get them to experiment with selective gear. A better incentive might be to allow fishermen whose gear meets the standards for juvenile escapement to fish for shrimp one month before the normal start of the shrimp exempted fishery.

Response: The Atlantic States Marine Fisheries Commission, and not the Council, has the authority to change the length of the shrimp season. Nevertheless, the demonstration of an acceptable method of selective fishing for shrimp may influence the management decisions of the ASMFC.

9. The existing 5-1/2 inch mesh size produces an unacceptable retention of undersize fish. A 25 inch minimum size for cod and a 20.4 inch minimum size for haddock are needed to achieve the spawning potential levels recommended in the Council's plan.

Response: The Multispecies FMP already contains a scheduled increase in the minimum size of cod, pollock and haddock to 19 inches in the fall of 1987. Further increases in the minimum size at this time were deemed to have adverse economic impacts on the fishery. In addition, an increase in minimum size, without a concomitant increase in mesh size or the introduction of more selective mesh (square mesh), would only lead to increased discarding of retained undersize fish. The issue is complex and must be approached carefully. As the Council monitors the performance of the plan, it might propose changes in the minimum size of regulated species.

10. Spawning closures and mesh regulations do not make sense because a large number of juvenile fish migrate to Canadian waters and are caught in smaller mesh gear there.

Response: The Council recognizes that any measures that attempt to improve the condition of the multispecies stocks on Georges Bank will have this potential drawback. Nevertheless, the Council expects to cooperate in the exchange of information relative to the scientific basis for management so that U.S. and Canadian conservation approaches may be reconciled, and the Council expects that Canada will implement a program of management that is both compatible with the U.S. management program and tuned to the needs of the Georges Bank stocks. In the meantime, the Council believes the the benefits of the multispecies management measures outweigh the loss of fish to Canadian vessels.

11. There should be trip limits by vessel size class.

Response: The Council does not believe that trip limits are necessary at this time for the management of the multispecies fishery, and continues to be concerned that trip limits may not be effectively implemented due to problems in specification and the constraints imposed by limited enforcement resources.

12. The 5-1/2 inch mesh size has not protected juvenile fish because it has has never been adequately enforced.

Response: The Council is trying to achieve better mesh enforcement by working cooperatively with NMFS and the Coast Guard. The Council has taken action in this amendment to make the FMP's mesh measures more readily enforceable.

13. Representatives of the party and charter industry have suggested that gillnetters should be required to tend their gear and that there should be a minimum distance between gillnet sets.

Response: Requiring gillnetters to tend their gear would force many of them to substantially reduce the amount of gear they fish and their catch of fish; therefore, it is likely that a number of gillnetters would be forced out of business by such a measure. Recently, the Council has proposed a different approach, which more directly addresses the conflict between gillnetters and recreational fishermen but which does not have as great a negative impact on gillnetters as would a gear tending regulation. This initiative is being dealt with outside of this amendment. The Council believes that requiring a minimum distance between gillnet sets would be too difficult and expensive to enforce.

14. Limited entry might be a more effective way of managing the fisheries than mesh size regulations.

Response: The Council has considered limited entry as a management approach and has taken the position that such a management approach is not appropriate in managing the multispecies fishery at this time. Further, Given the low acceptance of limited entry management schemes by fishermen, the heterogeneous nature of this fishery, the number of states which participate in it and the difficulty NMFS has in enforcing existing fishing regulations, the Council believes that this type of management would be extraordinarily difficult to implement and enforce.

16. The holding of public hearings on management measures for the multispecies fishery by both NMFS and the Council is a waste of the taxpayer's money.

Response: The Council must meet a deadline set by NMFS for amending the Multispecies FMP and has no control over NMFS's development of a Secretarial FMP.