AMENDMENT #2

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

October 1988

TABLE OF CONTENTS

Page

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 on July 17, 1986. Regulations implementing the Multispecies FMP were promulgated by the Department of Commerce (NOAA) on August 20, 1986 and became effective on September 15, 1986. Amendment #1 to the Multispecies FMP, which was implemented on October 1, 1987, responded to deficiencies that were identified by the Regional Director in his conditional approval of the plan. This amendment, Amendment #2, is being proposed for implementation as part of the Council's commitment to continuing management that is described in Part 8 of the original FMP document.

II. PURPOSE AND NEED FOR ACTION

With implementation of Amendment #1 to the Northeast Multispecies FMP in October, 1987, the Council embarked upon a process of continuing fishery management. The FMP, as amended, constitutes a process by which management measures are initially designed and implemented to bring about the achievement of long-term goals, and those measures are continually reviewed, evaluated and refined as necessary to assure that changing circumstances are accounted for. The continuing management process is responsive to changes in the structure and operation of the fishery, new scientific information on the resource, and the capability of governmental agencies to administer and enforce management regulations.

An important element in the continuing management process is program monitoring. The Council monitors the Multispecies FMP from the perspectives of implementational effectiveness (e.g., to what extent are the regulations being enforced, complied with, and administratively supported?) and technical competence (e.g., are the measures technically sufficient to achieve their intended purpose?). The Council solicits the input of fishermen, processors, scientists, enforcement officials and administrators to assist it in reviewing, evaluating and refining the FMP, as necessary. An important source of input in the Council's monitoring process is the Technical

Monitoring Group (TMG), which was established by the FMP to assure independent scientific and technical plan review. The Council received the TMG's first formal evaluation of the Multispecies FMP in June, 1988. Although most of the proposals contained in this amendment were under consideration by the Council prior to June, the proposals are supported by the findings of the TMG report.

This amendment contains proposed actions that are expected to improve the effectiveness of several of the existing FMP measures in relation to two major factors: 1) the promotion of regulatory compliance, and 2) the long-term achievement of management objectives. This amendment also adopts a management measure that had previously been implemented in February 1988 as an emergency action. The measures proposed in this amendment are not intended to impose substantially greater restrictions nor achieve greater conservation benefits than those explained in the initial FMP. In most cases, the proposed measures are intended to alleviate implementation problems that prevent the FMP's measures from performing at their full conservation potential. The specific rationale for each of the proposals is discussed in Section III below.

In developing Amendment #2, the Council undertook a course of action that is responsive to the information obtained through the continuing management process, including the substantial input of the public obtained at a series of six regional public hearings. The proposed measures detailed in Part III(b) of this document reflect actions that the Council believes are necessary and appropriate for the achievement of the Council's objectives for managing the multispecies fishery. It remains possible that other measures may be required in the future to support the management program; and again, 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" to the proposals in this amendment is to maintain the regulatory status quo. This alternative is not realistically available to the Council because the existing regulatory regime requires modifications in order that the objectives of the FMP can reasonably be met. The Council continues to assert 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, and that the FMP, with the proposed changes, properly supported and administered, will generate benefits well in excess of costs.

The most significant problem addressed in this amendment is that of non-compliance. Although the Council believes that its fundamental management strategy remains sound, it has become evident that the intent of some of the management measures is being compromised by specifications that are too easily circumvented. Six of the nine proposed measures are explicitly designed to enhance compliance with the basic measures of the plan. The other three proposed measures are intended to enhance the technical ability of some of the management measures to achieve their purpose. The "no action alternative" constitutes a failure to respond to the need for

change in the management program and, in effect, serves only to undermine the long-term viability of the Northeast Multispecies management program.

B. Proposed Measures (preferred alternative)

The measures proposed and analyzed below are responsive to two issues: 1) increasing compliance with management measures, and 2) improving the technical capability of the measures contained in the FMP to contribute to the achievement of management objectives. In the discussion that follows, the proposed measures are separated in relation to the issue each addresses.

ISSUE #1: REGULATORY COMPLIANCE

Proposal 1: Increase the minimum size of yellowtail flounder from 12 inches to 13 inches and American plaice from 12 inches to 14 inches.

Rationale: Analysis of the overall fishery resource suggests that the current regulated mesh size in the Regulated Mesh Area (RMA) is not being satisfactorily complied with. Assessment data indicate that the average mesh size being used to catch regulated species from the Georges Bank and Gulf of Maine stocks may be as much as one inch less than 5-1/2 inches, the currently regulated size. Some of this discrepancy is undoubtedly due to the fact that some regulated species are taken in the Exempted Fishery Program or in areas where mesh is either not regulated (So. New England) or regulated at a smaller size (Canadian zone). Notwithstanding these exceptions, information from fishermen, port agents and enforcement agents indicates that fishermen may use smaller than 5-1/2 inch mesh while operating in the Regulated Mesh Area because the required mesh simply does not retain a satisfactory level of legal-size fish.

Two illustrations of this discrepancy are 12 inch yellowtail, of which only 45% are retained with 5-1/2 inch mesh, and 12 inch Am. plaice, which is retained at the 35% level. These levels of retention contrast significantly with 55%, 60% and 85% for 19 inch haddock, 19 inch pollock and 14 inch witch flounder, respectively. Thus, the need to retain a higher percentage of 12 inch yellowtail or plaice, for example, promotes the use of smaller mesh or mesh liners. The proposed increases noted above will produce retention levels near 60%, which are consistent with other regulated species. It is argued that higher, more consistent levels of retention will promote compliance by reducing the incentive to use small mesh to capture more legal size fish. For fishermen who are not already fishing in compliance, the proposal will encourage the use of larger effective mesh, which, in turn, will reduce discard mortality and promote effective management. For fishermen who are already using regulated mesh, the proposal will reduce catch in the short term, but long-term benefits will accrue through improved industry-wide compliance with mesh regulations and the extent to which culled flatfish survive when returned to the sea.

Biological considerations: The proposal will help meet the Council's long-term objective of achieving spawning potential targets for these and all other regulated species by reducing discards of small and immature fish through added encouragement to comply with mesh regulations in the Regulated Mesh Area. In consideration of the retention characteristics of 5-1/2" mesh (see table, next page), the new minimum sizes more closely correspond to fishermens' expectations with

regard to retention of marketable sized fish. With better compliance, the long-term average yield per recruit will be increased, not only through the expected increase in age at first capture but also through possible increased efficiency in retention of large fish.

Economic considerations, Yellowtail flounder: In the short term, fishermen must forego their landings of yellowtail which are less than 13" in length (estimated to be worth $3.86 million in 1989). However, the negative impact of this foregone catch will be lessened by the fact that many of these fish will be available for capture at a larger size (equivalent to a $46.62 million increase in net present value). Also, 13" yellowtail flounder are more desirable to processors and therefore more valuable than 12" yellowtail. In Southern New England, where the amount of smaller than 13" yellowtail is the greatest, fishermen generally use codends with 4 to 4-1/2" mesh. If they increase this mesh size to better correspond to the new minimum size, they will be able to recover their lost catch after about 6 months, the time it

Table 1: Percent Mature and Percent Retained at Size*

SPECIES	SIZE	PERCENT MATURE	PERCENT RETAINED (5-1/2 inch mesh)
yellowtail	12 inches	65%	45%
(So. N.E.)	**13 inches**	**80%**	**62%**
yellowtail	12 inches	60%	45%
(Georges Bk)	**13 inches**	**65%**	**62%**
Am. plaice	12 inches	30%	35%
	14 inches	**60%**	**65%**
haddock	19 inches	80%	55%
pollock	19 inches	63%	60%
witch flounder	14 inches	unk	85%
winter flounder	11 inches	60%	25%
cod	19 inches	45%	40%
redfish	9 inches	**	0%

* Percentages may not be exact; values are calculated from data obtained from maturity studies and mesh trials conducted on commercial vessels.

** Redfish are understood to reach full maturity at 8-9 years and 8.5-9"

note: proposed size increases are highlighted

---

takes yellowtail to grow from 12 to 13". If they do not increase their mesh size, then a portion of fish between 12 and 13" will still escape capture and grow to 13". A smaller portion of these fish will survive capture and discarding until they reach the 13" minimum size.

Of the 1987 landings, an estimated 25% of the yellowtail (by weight) from the Southern New England yellowtail stock, 11% from the Cape Cod stock, 9% from the Georges Bank stock and 20% from the Grand Banks were fish between 12 and 13". Estimated 1987 landings of smaller than 13" yellowtail for fishermen by state of landings were 620,000 lbs. for Maine, 1,257,000 lbs. for Massachusetts, 302,000 lbs. for Rhode Island, 176,000 lbs. for New York and 8,000 lbs. for the other Atlantic states. The total was 2.834 million lbs. or 14% of total yellowtail landings. New York fishermen, who catch yellowtail primarily off of Long Island with 4 to 4-1/2" codend mesh, shared the largest percentage of yellowtail landings between 12 and 13" - about 42%. For Rhode Island fishermen, who primarily fish the eastern part of the Southern New England stock with 4-1/2" mesh, 18% of their yellowtail landings was also in this size range. For Massachusetts fishermen, who fish primarily in regulated mesh areas, this number was 11.7% and for Maine ports, which have a few boats that fish on the Grand Banks where mesh size is not regulated, this percentage was 19.4.

Economic considerations, American plaice: Like yellowtail between 12 and 13", the amount of American plaice being landed between the current minimum size of 12" and the proposed 14" minimum is taken to represent the largest possible amount of landings that fishermen might have to give up because of the proposed increase in minimum size. Overall, only 2% of the American plaice landings fell into the 12 - 14" size range: 2% of the landings from the Gulf of Maine; 3% of the landings from Georges Bank and 2% of the landings from the Grand Banks. No individual port can be expected to have a disproportionally large share of its revenues affected by this measure.

Implementation considerations, Yellowtail flounder: This measure is not expected to increase enforcement and administrative costs, principally because a minimum size already exists for this species.

Implementation considerations, American plaice: This measure will not increase administrative and enforcement costs because there is already a minimum size for American plaice.

Proposal 2: Postpone indefinitely the scheduled increase in regulated mesh (to 6 inches) in the Georges Bank portion of the Regulated Mesh Area, but effective January 1, 1990, require that vessels operating in the Regulated Mesh Area (which are not otherwise exempt) use nets that are constructed with mesh no smaller than the regulated size throughout.

Rationale: This proposal has two parts. First, the Council is aware that non-compliance with

mesh regulations remains a significant problem for effective implementation of the Multispecies management program. As noted previously, non-compliance stems from several factors, two of which are size retention and the level of enforcement/enforceability. Although some of the Georges Bank regulated species (particularly cod and yellowtail flounder) would benefit from a fishery that used 6 inch mesh, the current level of non-compliance argues against such an action until the Council can be assured that mesh regulations can be fairly and effectively enforced. A decision to increase mesh without having first established broad-based compliance would only place an additional burden upon those fishermen who already voluntarily comply, and would, in the Council's judgment, lead to industry-wide disregard for mesh regulation.

Second, the Council is aware that certain practices within the harvesting sector thwart the effective use of mesh as a management tool. These practices include "choking-off" the cod end so that the small-mesh extension piece (the twine tube between the belly of the net and the cod end) is effectively used to select and retain fish. The proposal to require nets operated in the RMA to be constructed of mesh no smaller than the regulated size directly addresses the problem of "choking-off" by negating the retention benefit of trying to retain fish with parts of the net other than the cod end. This proposal is supported by the findings of the Technical Monitoring Group.

Biological considerations: To the extent that the proposed measure mitigates non-compliance with the mesh regulations or makes it more difficult to subvert the intent of those regulations through "choking-off", then the biological benefits associated with use of the regulated mesh may be more fully realized. The reader is referred to the discussion under Proposal 1.

Economic considerations: Postponing the scheduled increase in regulated mesh on Georges Bank will have no economic impact, because the projected long-term economic benefits remain unchanged. However, a decision to go to 6" mesh at this time would only undermine long-term benefits because fishermen might respond by using smaller mesh than that which currently exists. Requiring all mesh in the net to be no smaller than the 5-1/2" regulated mesh size can improve the efficiency of trawl gear while providing greater protection to small fish. Several fishermen have reported that increasing the size of the mesh in the body of the net reduces drag, enables them to use a larger twine size and a larger net, and still reduces fuel costs. These changes should make nets more efficient at catching large fish while enabling small fish to escape.

Implementation considerations: This measure is also expected to impose minimal costs on the fishing industry because, if approved, it will be implemented approximately one year after the approval date. At public hearings, net dealers indicated that they need 6 to 9 months to order new twine from manufacturers. Because this measure affects net bodies, which generally last longer than codends, it is expected to force at least some fishermen to buy new netting before using up their old twine. However, many fishermen and dealers will be able to use existing supplies of smaller mesh netting in either the exempted fisheries or in unregulated mesh areas in fisheries for whiting, scup and flounder.

Proposal 3: Modify the regulatory language at 50 CFR 651.20(f) that defines nets "not available for immediate use" to include only 1) nets that are stored below deck, 2) nets that are stowed and lashed down on deck, and 3) nets that are secured in a manner that significantly limits the chances of small mesh being used in the RMA, as approved by the NMFS Regional

Director.

Rationale: Currently, the definition of nets "not available for immediate use" includes (a) nets that are on net reels and are covered or secured, and (b) nets that are on vessels which have their towing wires detached from their fishing gear, in addition to (c) nets stored below deck and (d) nets stowed and lashed down on deck. This definition was developed to provide flexibility for vessels that either had to fish in two separate areas with differing mesh regulations on the same trip, or had to traverse the Regulated Mesh Area on the way to or from fishing grounds where regulated mesh is not required. Because it contains points (a) and (b) noted above, the current definition does not and cannot provide reasonable assurance to an enforcement officer that a small-mesh net found aboard a vessel in the Regulated Mesh Area was not used in that area. The two remaining options (c & d) provide the necessary flexibility for fishermen while promoting compliance and maintaining reasonable enforceability. Other methods that assure that small-mesh nets are secured in a manner which significantly limits their chances of being used in the RMA may be subsequently approved by the Regional Director. Therefore, the definition is proposed to be modified accordingly.

Biological considerations: The biological effect of this proposal is similar to that of proposal #2. That is, to the extent that the redefinition of nets "not available for immediate use" facilitates enforcement and positively effects compliance, the biological benefits associated with mesh regulation will be realized.

Economic considerations: Vessels which now carry small mesh gear on a second net reel and fish in a large mesh fishery may not continue to do so. The cost of not being able to carry a small mesh net on a net reel is minimal because the small mesh is not permitted to be used in a large mesh fishery. Vessels may still carry these nets below deck or stowed properly on deck, and thus, can still take advantage of fishing opportunities outside of the RMA.

Implementation considerations: This measure will make it easier for enforcement officials to enforce mesh regulations by preventing quick access to small mesh nets stored on reels. Administrative costs should not increase over the administrative costs of the existing "available for immediate use" regulation.

Proposal 4: Adopt regulatory language to facilitate non-reissuance of an Exempted Fishery Program permit when the participant has not complied with the reporting requirements.

Rationale: The Council has been advised by NOAA General Counsel that currently it is not possible to deny reissuance of a permit to participate in the Exempted Fishery Program (EFP), where a participant has failed to comply with report submission requirements, unless a Notice of Violation and Assessment (NOVA) has been issued. The Council's position is that a participant should not be allowed to continue in an exempted fishery if he does not submit the required trip records on time. The regulatory language that accompanies this proposal makes provision for suspension of current participation or denial of entry, or both, if the applicant fails to report as required under the EFP, but does provide for reinstatement if the applicant submits missing reports within a specified period of time.

Biological considerations: Although there are no a priori biological benefits to the proposed measure, if those vessels with a history of noncompliance with the EFP reporting requirements also comprise those vessels which may target regulated species using small mesh gear, then denial of those vessels to the EFP may result in net reductions in juvenile mortality among the regulated species. Such vessels would have to restrict their fishing operations to state waters (and follow state mesh regulations) in order to continue small-mesh fishing without an EFP permit.

Economic considerations: This measure will have no adverse economic impacts on participants who comply with the rules of the exempted fisheries program.

Implementation considerations: This measure will not significantly change the system of processing exempted fisheries reports and issuing permits. However, administrative costs would be unchanged and enforcement improved because net measurement would be simplified.

Proposal 5: Establish a trip by-catch limit of 25% regulated species for vessels operating in the Exempted Fishery Program.

Rationale: The proposal establishes a two-tier by-catch limit on the vessels operating in the EFP. In addition to the existing requirement that participating vessels meet a 10% by-catch limit of regulated species over the 7 to 30-day reporting period, vessels would not be allowed to land, on any single trip, regulated species in excess of 25% of the landings of the species for which the exemption is issued. Trip by-catch calculations would be as follows:

a) December-January whiting: regulated species weight cannot exceed 25% of the combined weight of whiting and shrimp on each trip;

b) December-May shrimp: regulated species weight cannot exceed 25% of the weight of shrimp on each trip;

c) June-November mixed: regulated species weight cannot exceed 25% of the combined weight of dogfish, herring, mackerel, red hake, whiting, squid and ocean pout on each trip.

Currently, the Exempted Fishery Program is enforced administratively. Individual participating vessels submit reports of their landings on a trip-by-trip basis over a 7 to 30-day reporting period. The landings data are used by NMFS to determine whether the 10% by-catch allowance has been complied with by each participating vessel. Under this system, participants can balance heavy by-catch trips with light by-catch trips in order to meet the 10% standard over several trips. Whereas the Council understands that reasonable variation in the by-catch of regulated species on a whiting or shrimp trip must be accounted for, landings data demonstrate that some vessels have used the program to directly fish on regulated species with small-mesh gear. The latter fishing behavior is not consistent with the Council's attempt to reduce juvenile mortality of regulated species nor is it consistent with achieving the Council's management objectives. Therefore, the Council's proposal is designed to assure that the Exempted Fishery remains a directed fishery on small-mesh species with minimum impact on regulated species.

Biological considerations: The 25% trip limit would reduce the amount of regulated species that

are caught (and/or discarded) with small-mesh nets by encouraging a more directed fishery on the small-mesh target species. A more directed fishery for exempted species will reduce discards of juveniles of regulated species, and thus promote the achievement of the FMP's objectives.

Economic considerations: Landings data for the period before the exempted fishery program was implemented indicate that a 25% trip limit would not significantly affect how fishermen operate on legitimate directed fishing trips for whiting. On about 67% of the 2,227 fishing trips in the period June through November catching 50 to 90% whiting in the Gulf of Maine in the period 1979 through 1983, the catch of regulated species was less than 21% of the total catch. The mean value of the landings of regulated species on these trips was 10.5% of total landings. The mean values of individual regulated species on these trips were: cod 3.1%, haddock 0.1%, flounder species 6.9%, pollock 0.2%, and redfish 0.02%.

Data from the directed shrimp fishery before the Exempted Fishery Program was implemented (i.e., 1984/1985) indicate that regulated species averaged only 16.6% of the total catch on a shrimp trip (defined as a trip conducted with a shrimp trawl). The trip by-catch average of regulated species ranged from a low of 12.8% in February and March to a high of 31.4% in April. Because the 30-day 10% by-catch standard applies to the entire shrimp season, the Council believes that the proposed 25% trip by-catch measure will have little negative effect during the "clean" months of January - March and will promote compliance with the EFP regulations by encouraging a more directed, less "dirty" fishery in December, April and May.

Implementation Considerations This measure will make it easier for NMFS to prevent gross violations of the exempted fishery regulations in two ways. First, NMFS will no longer have to wait on the lengthy NOVA process before acting on non-reporting participants. Second, the inability of enforcement agents to immediately cite a vessel for a violation in the face of evidence that it made a directed trip on regulated species with a small mesh net, undercuts enforcement morale and wastes enforcement resources. This proposal would make it possible for enforcement agents to make immediate checks on vessels under the 25% by-catch measure. This will help stop gross violations of the exempted fisheries regulations without time delays or analyzing catch reports, yet still leave the catch report monitoring system intact.

Proposal 6: Do not allow trawl vessels to enter Area II during the period of seasonal closure.

Rationale: Vessels were alleged to have frequently violated closed Area II during the recent period of closure. Even if a Coast Guard vessel had been continually on station in Area II, a violation could only have been determined if a vessel had been caught with its gear in the water. In order to promote compliance with the Area II closure and facilitate enforcement, the Council proposes to not allow trawlers in the area during the period of closure. This proposal is strongly supported by the Coast Guard.

Biological considerations: To the extent that the proposed action facilitates effective implementation of the spawning area closure, the Council's objectives for haddock and other regulated species occurring in Area II during the closure period will be more readily achieved.

Economic considerations: This measure is expected to have no economic impact other than

to curtail activities of vessels attempting to violate the closed area regulations. There is no compelling reason for trawl vessels to transit this area during the time of closure except to fish illegally in Canadian waters. U.S. trawlers fishing on the Grand Banks do not have to transit this area but could pass to the northeast of it.

Implementation considerations: This measure will not increase administrative or enforcement costs. Instead, it makes it easier for the Coast Guard to identify vessels violating the closed area regulations.

ISSUE #2: TECHNICAL COMPETENCE OF MEASURES

Proposal 7: Establish a minimum fish size for redfish at 9 inches.

Rationale: The proposed 9 inch minimum size would achieve three objectives: First, it corresponds with the bottom of the selection range of 5-1/2 inch mesh and is not expected to require any significant discarding of redfish that may be retained in large mesh fishing operations. Second, the minimum size greatly discourages any directed small mesh fishing. Third, the proposed minimum size is consistent with the usual range of sizes of imported redfish from Canada.

Biological considerations: Available information indicates that redfish become fully mature on reaching 8.5-9 inches (8-9 years old) and that the lower end of the retention curve for 5-1/2" mesh is near a fish length of 9 inches. The maturity information, therefore, supports the establishment of a minimum fish size of 9 inches; the selection curve for 5-1/2" mesh indicates that virtually the entire catch may be legally marketable (although it is well known that small redfish may easily be entangled in the mesh because of their numerous spines).

Economic considerations: The measure helps prevent a valuable foodfish from being caught and sold as a less valuable baitfish product before it has had a chance either to reach a marketable foodfish size or to reproduce. In addition, the proposed minimum size for redfish is expected to have no effect on the supply of whole redfish imported from Canada because a negligible amount is of a size smaller than 9 inches.

Implementation considerations: This measure will increase administrative and enforcement costs by such a small amount that it is impossible to estimate. There are already minimum size regulations for other commercially valuable finfish and, therefore, this measure can be enforced in the course of enforcing other minimum size regulations. The Council does not expect that a special enforcement effort needs to be undertaken for the redfish minimum size.

Proposal 8: All regulated minimum fish sizes shall apply to both commercial and recreational fishermen.

Rationale: Currently, only the minimum fish sizes for cod and haddock apply to recreational fishermen. Because minimum fish and mesh sizes are established in consideration of the total mortality generated by all fishermen, the Council believes that the inherent conservation benefit

of the minimum size measure can only be achieved if the same minimum fish sizes apply to all fishermen.

Biological considerations: To the extent that recreational catches represent significant proportions of total removals of the regulated species, then reduced mortality on small fish may be expected to help meet the objective of achieving target spawning potentials. It should be noted, however, that a certain amount of mortality on small fish (due to air embolism) may be unavoidable with recreational fishing at deep water locations, although this measure might tend to discourage recreational effort on concentrations of undersized fish.

Economic considerations: This measure will primarily affect the recreational catch of cod, pollock and haddock in the EEZ. Although there may be shore-based recreational fisheries for the other regulated species (yellowtail, winter flounder, witch flounder, American plaice or redfish), there are little or no recreational landings of these species in the EEZ. Shore based recreational fishermen are not subject to these regulations, but they are subject to the minimum size regulations of the coastal states in which they fish. Under the provisions of the current FMP, the recreational minimum size for cod and haddock would increase to 19" by October 1989. This measure simply moves up the date for those changes.

The measure is expected to have a slight negative short-term impact on the recreational fishing industry because recreational fishermen may not keep cod and haddock between 17 and 19 inches in the next fishing season and pollock less than 19 inches. According to data collected during the 1987 recreational intercept survey, 7% by weight and 19% by number of the EEZ recreational catch of cod that was greater than the current minimum size of 17" was also between 17" and 19". Unfortunately, there are not enough data to calculate corresponding percentages for recreationally caught pollock and haddock. The potential loss suggested by the cod percentages is possibly outweighed by the fact that one of the main attractions of marine recreational fishing is the opportunity to catch large fish. This proposed measure will ensure that more fish of these species survive to a larger size.

Implementation considerations: This measure will not significantly increase administrative and enforcement costs because there are already recreational minimum sizes for cod and haddock. The incremental cost of enforcing a minimum size for recreationally caught pollock is insignificant. In addition, the absence of negative comments from recreational anglers at the majority of public hearings suggests that this measure will be readily complied with.

Proposal 9: Extend mesh regulations established for the Regulated Mesh Area into the Nantucket Shoals area to protect juvenile cod in the winter fishery, December 1 through March 31.

Rationale: The Council proposes to seasonally extend RMA mesh regulations into the Nantucket Shoals area in order to protect seasonal concentrations of juvenile cod that have been documented by fishermen, the Mass. Division of Marine Fisheries and the Northeast Fisheries Center. The minimum mesh size requirement for trawl gear and gillnets would apply to the area contiguous with the existing Regulated Mesh Area and bounded by 69° 40' W. Long. on the east, LORAN C bearing 9960-X-25175 on the west, LORAN C bearing 9960-Y-43650 on the south,

and LORAN C bearing 9960-Y-43850 or the territorial sea on the north (see figure on next page). The area and time period correspond to the location and timing of the juvenile cod discard problem that has been documented over the past two years, and that was the subject of Secretarial emergency action in 1988. Although the regulated mesh requirement could be in effect over the period December 1 through March 31 of each year, the Council's intent is that the measure be applied to correspond as closely as possible with the occurrence of juvenile cod in the area. Therefore, the Regional Director is authorized to suspend the RMA extension to Nantucket Shoals prior to March 31 if he determines that juvenile cod are not suficiently abundant in the area to warrant large mesh protection. The Council intends that this measure be reviewed after March 31, 1990 for the purpose of determinimg whether it should be continued, modified or terminated. Any changes in the measure, including termination, is expected to be accomplished through regulatory amendment in accordance with §7B1(5) of the FMP.

Biological considerations: Juvenile cod seasonally migrate between Nantucket Shoals and the Great South Channel, and are subject to capture and discard in the small-mesh Nantucket Shoals fishery that occurs during the winter months. The proposed measure will decrease mortality on juvenile cod of the currently stressed Georges Bank stock, leading to an enhanced reproductive base for the stock (given continuation of past levels of fishing mortality on adults) and will increase the fishable biomass (same caveat). These effects will benefit both fishermen and the success of the current management program.

Economic considerations:

The short-term economic impacts of the proposed action and its alternative are calculated with respect to their implications for foregone catch and revenue to fishermen. In particular, 1986 commercial fishery interview data (NMFS) by species from the affected area over the months of December-March were expanded (based upon the ratio of 3-digit weighout to 3-digit interviewed landings data for each species) to provide an estimate of landings and revenue impacts of the proposed measure and its alternative. Impact estimates for the proposed action were calculated by assuming that only the interviewed vessels that did not report using 5-1/2 inch mesh would suffer catch and revenue losses. reserved for Nantucket shoals figure

Total, annual impacts are summarized below.

MEASURE	FOREGONE CATCH	FOREGONE REVENUE
Proposed mesh extension	0.17 million pounds	0.13 million dollars
Alternative closed area	2.02 million pounds	1.76 million dollars

Individual species impacts by percent and actual foregone landings, relative to no action in the specified area/period, are shown below:

SPECIES	PROPOSED	ALTERNATIVE

	percent	pounds	percent	pounds
BUTTERFISH	-86%	1,050	-100%	1,230
COD	-6%	83,000	-100%	1,480,000
WINTER FL	-23%	41,000	-100%	180,000
SUMMER FL	-4%	550	-100%	13,500
WINDOWPANE	-12%	27,700	-100%	241,500
YELLOWTAIL	-18%	13,300	-100%	75,500
POLLOCK	-.4%	100	-100%	28,300
WHITING	-100%	4,400	-100%	4,400

Extrapolating from the 1986 data, the relative impacts on large-mesh species fishermen and small-mesh species fishermen operating in the affected area in the winter of 1988 may be inferred. The data suggests that the proposed action would result in cod and flounder fishermen suffering an aggregate loss of just over 9% (weighted average) of the landings that they would otherwise have derived from the area in the 4-month period (a loss of 165 thousand pounds of fish in 1986). Of course, the alternative closed area would result in a 100% loss (1.8 million pounds in 1986). Even if a far larger percentage of cod and flounder fishermen actually use small mesh, which would exacerbate the discard problem, foregone landings and revenues in 1988 will not likely be significantly greater than 9% because of the constraint on landings that is imposed by the prevailing minimum sizes of cod, yellowtail, and winter flounder (and that will be further constrained by the proposed yellowtail flounder size increase).

Butterfish and whiting fishermen, who also operate in the affected area during December through March, will suffer similar losses under either the proposed or the alternative action, i.e., 86%-100%. It is important to note, however, that very little butterfish or whiting were landed from the area/period in 1986 (less than 6,000 pounds total). As a consequence, the impact of the proposed action on butterfish or whiting fishermen is considered minimal (note also that less than 500 pounds of mackerel, 150 pounds of scup and 900 pounds of red hake were taken from the area/period in 1986).

The key consideration respecting the economic implications of the proposed action is that the discarding of undersized, illegal, juvenile fish will be significantly mitigated, with fishermen suffering negligible short-term cost and benefitting from the catch of larger fish in a later time period.

Implementation considerations: The proposed measure has implications for administrative and

enforcement costs. First, the Regional Director will have to acquire information on the catch composition and discard of cod in the winter fishery on a timely basis. It is contemplated that sea sampling will have to be conducted on either a weekly or a biweekly basis using commercial vessels in the fishery. It is expected that the cost of sea sampling will be minimal due to fact that vessels are likely to volunteer to take samplers aboard, and existing NMFS, State or contract personnel will be used. Although at-sea enforcement will be required to monitor compliance, it is expected that the additional cost to NMFS and the Coast Guard will be negligible. It is important to appreciate that this measure is broadly supported by the industry in Southern New England and, therefore, the measure is likely to benefit from substantial voluntary compliance.

C. Measures Considered but Rejected

Measure #1: Increase the minimum size of winter flounder to 12 inches and the minimum size of cod to 20 inches.

Rationale and basis for rejection: Consistent with its decision to adopt minimum size increases for yellowtail flounder and American plaice (see rationale for proposal #1), the Council considered similar increases in the minimum size of winter flounder and cod. The minimum sizes considered by the Council would increase the rate of retention with 5-1/2 inch mesh to approximately 60%, which corresponds with haddock and pollock retention at their existing minimum sizes. More specifically, the current minimum sizes of winter flounder and cod correspond with 25% retention and 40% retention, respectively, and the proposed sizes would have increased retention to 45% and 60%, respectively.

The Council considered the proposed winter flounder increase carefully and solicited comment from the public. Information presented to the Council about the biological characteristics of winter flounder populations along the coast of Southern New England; the size distribution and migratory patterns of winter flounder in So. New England; and the potential economic impact on fishermen landing south of Massachusetts, where the minimum size is already 12 inches, raised questions about whether the benefits of such an action would outweigh the costs. The Council determined that more information and analysis would be necessary before the proposal could be further considered.

The Council solicited information and comment on its proposal to increase the minimum size of cod. Based upon comments received from the industry on the negative impact of such a measure on the supply of Canadian fish to regional processors and the impact on US harvesters, the Council determined that there did not exist sufficient information to judge whether benefits would exceed costs and decided not to proceed with the proposal at this time.

Measure #2: Establish a seasonal closure of the winter fishery in the Nantucket Shoals area to protect seasonal concentrations of juvenile cod.

Rationale and basis for rejection: As an alternative to proposal #9, the seasonal extension of regulated mesh into the Nantucket Shoals winter fishery, the Council considered the possibility of simply closing the area completely. Based upon the economic considerations discussed under proposal #9, and the comments of the Council's advisors, the Council determined that it would

not be justifiable, from a cost/benefit perspective, to proceed with such a proposal.

Measure #3: Require vessels operating in or transiting the RMA to have on board no mesh smaller than the regulated minimum mesh size.

Rationale and basis for rejection: As an alternative to Proposal #3, the Council discussed at public hearing a possible measure that would have restricted vessels operating in the RMA to have no mesh on board smaller than the regulated minimum size. Comments received from the industry made it clear that vessels operating out of ports from Portland, ME to Montauk, LI, NY frequently fish in multiple areas on a single trip, including regulated and non-regulated mesh areas. The Council concluded that requiring vessels in the RMA to only have regulated mesh on board would 1) limit their fishing options and revenues, 2) increase operating costs, and 3) possibly increase safety concerns for vessels having to skirt the perimeter of the RMA. Proposal #3, which modifies the definition of "available for immediate use", is intended to increase the enforceability of mesh regulations without imposing an additional, unnecessary regulatory burden on fishermen.

D. Economic and Regulatory Impact Analysis of Proposed Measures

In the first section, the economic impact analysis estimates the effects of the proposed measures which can be quantified in the Multispecies bioeconomic simulation model, and shows the results in terms of present values of two management options. The second section discusses benefits, costs, and benefit-cost conclusions for each of the proposed measures. In the third section, the RIR/RFA shows the first year implementation costs expected with the five management options.

Economic Impact Analysis

Management Options for Analysis: The biological model forecasts a stream of expected stock removals from the resource as a consequence of the proposed measures. The model incorporates current resource conditions, including recent estimates of recruitment and fishing mortality. The model assumes that fishing mortality will remain constant in future years (there is no basis for projecting either increased or decreased fishing mortality) and that recruitment will continue at recent levels. Projection of removals by stock reflect short-term declines due to the immediate effect of the management measures (principally relating to effective mesh control), and long-term increases as the resource is projected to recover over time. The biological model does not attempt to directly incorporate the positive recruitment effect that is expected to follow from the increased spawning biomass, because that effect is not quantifiable. For economic analytical purposes, however, the impact of improved recruitment relative to current levels must be accounted in calculating long-term expected benefits. Previous analysis assumed that improved recruitment could be reasonably accounted for by a 10% increase in age 1 fish compounded annually, beginning in the sixth year to allow for biological feedback from increasing spawning biomass. Although this assumption is simplistic, it is also believed to be realistic with specific reference to the recovery of the cod stock to MSY levels over 15 to 20 years (see Figure 7A4(b) of Supplemental RIR, April, 1986). The assumptions of the bio-economic analysis supporting this amendment are identical to those previously used to evaluate the relative merits of management alternatives. The assumption regarding recruitment is robust given that as little as a 1% increase in recruitment produces positive relative benefits (see pp. 10-13, Supplemental RIR, April, 1986).

The biological analysis from the FMP, based on the effects of minimum fish/mesh sizes, is changed in the following manner:

a) direct increases in the minimum fish sizes for yellowtail flounder and American plaice;
b) indirect changes on all the regulated species from the increase in the effective mesh size.

The economic analysis from the FMP has been changed relative to each of the nine proposals as follows:

1. Increased minimum fish sizes: The minimum fish size increases for two species, yellowtail and American plaice. Yellowtail increases from 12" to 13"; American plaice, 12" to 14". The biological analysis incorporates these increases with the increase in the effective mesh size, and this is reflected in the economic analysis.

2. Postpone 6" mesh; minimum mesh through net: Postponing the 6" minimum mesh size does not affect the baseline option, which includes delayed implementation of 6" mesh. No adjustment is made in the economic analysis as a consequence of this action. The additional requirement that vessels operating in the Regulated Mesh Area (RMA) use nets having no mesh smaller than the regulated mesh size throughout helps to increase the effective minimum mesh size to 5-1/2". Thus, the anticipated overall impacts of Proposal #2 are captured in the biological/economic analysis (see the discussion under Proposal #7 - Redfish Minimum Size).

3. Small-mesh nets in Regulated Mesh Area: Redefining "nets not available for immediate use" helps to increase the effective minimum mesh size to 5-1/2". This proposal is included in the biological/economic analysis (see the discussion under Proposal #7 - Redfish Minimum Size).

4. Non-reissuance of Exempted Fishery permits: Exempted fishery permits will not be reissued to participants not completing catch reports. This proposed measure improves the effectiveness the Exempted Fisheries Program so that it will work as the Council originally intended. It does not impose any costs on the fishing industry and the benefits are associated with the success of an ongoing program. It serves to increase the effective mesh size and therefore is included in the biological/economic analysis (see the discussion under Proposal #7 - Redfish Minimum Size).

5. Trip by-catch limit in Exempted Fishery Program: Restricting the catch of regulated species to 25% per trip of exempted fisheries species helps to increase the effective minimum mesh size to 5-1/2" by reducing the amount of regulated species subject to fishing with small mesh nets. This proposal is included in the biological/economic analysis (see the discussion under Proposal #7 - Redfish Minimum Size).

6. Exclude trawlers from closed Area II: Trawl vessels may not enter Area II during the haddock spawning closure. This proposal, along with the other proposals, helps to increase the effective minimum mesh size to 5-1/2". No adjustment is made in this economic analysis.

7. Establish minimum redfish size: Redfish would have a minimum size (9") for the first time.

This minimum size is not included in the biological analysis because it is not expected to have any significant effect on total removals (landings plus discards) over the range of effective mesh sizes in the RMA. However, the redfish minimum size, along with the other proposals, helps to increase the effective mesh size from 4-1/2" to 5-1/2" in the biological analysis by eliminating the bait fishery for small redfish. Because redfish landings affect the prices of all the regulated species, this proposal is reflected in the economic analysis.

8. Equivalent minimum fish sizes: All regulated minimum fish sizes apply to both commercial and recreational fishermen. Recreational catch has remained at about 10 million pounds of cod, for instance, while commercial landings have declined recently from around 100 million to 60 million pounds. Although a reduction in recreational landings is expected, the marginal value of the foregone landings, represented by recreational fishermen's willingness to pay for them, has yet to be empirically measured. No adjustment is made in this economic analysis.

9. Seasonal extension of regulated mesh to Nantucket Shoals: The seasonal extension of regulated mesh to Nantucket Shoals to protect juvenile cod during the winter fishery helps to increase the effective mesh size. This proposal is part of the biological/economic analysis (see the discussion under Proposal #7 - Redfish Minimum Size).

Management options analyzed are as follows:

Stock Catches Converted into Options for Analysis

Option	Spawning Closure	Gulf of Maine	Georges Bank	Southern New England	Minimum** Size
OPTION 1 (baseline)	FEB-MAY	4-1/2"*	4-1/2"* - 6"	Closure	12", 12"
OPTION 2 (proposed)	FEB-MAY	5-1/2"*	5-1/2"* - 6"	Closure	13", 14"

* These mesh values refer to assumed current effective mesh (4-1/2") and proposed effective mesh (5-1/2") in use.
** Minimum fish sizes for yellowtail, American plaice respectively

Option 1, the baseline, 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 reflect the proposed changes from the current regulations. The minimum sizes under Option 2 are more consistent with Georges Bank mesh sizes. The mesh sizes associated with each option help to mitigate losses from discarding of undersized fish. The primary difference between the two options is the increase in the effective mesh size with Option 2, which is the expected cumulative result of the proposals in this Amendment.

Despite the current regulated minimum mesh size of 5-1/2" within the Regulated Mesh Area, the current average effective mesh size in the RMA is estimated to be as small as 4-1/2" and is included to represent the "worst case" for current conditions in Option 1 (baseline). The upper limit of benefits calculated under Option 2 assumes that the effective mesh size is 5-1/2". However, because of the existence of the Exempted Fisheries Program, even with 100% compliance with a regulated minimum mesh size of 5-1/2", the actual effective mesh would be slightly less than 5-1/2". In addition to the Exempted Fisheries Program, the Southern New England closed area and the extension of regulated mesh to Nantucket Shoals are included in the quantitative analysis of Options 1 and 2.

Results of Analysis: A bio-economic analysis is used to estimate the impacts of two management options on the commercial finfishing sector. Option 1 represents the original FMP as amended, whereas Option 2 represents the nine proposals of Amendment #2. Socio-cultural impacts are also discussed.

As described above, the economic impact analysis consists of two options for minimum fish/mesh size, exempted fisheries, and spawning area closures. The nine proposals serve to expand the Regulated Mesh Area seasonally, increase minimum fish/mesh sizes, improve exempted fishery regulations and spawning area closures, and limit gear allowed in the Regulated Mesh Area. Option 1 is the baseline because it represents the no action alternative and Option 2 represents the proposed changes from this baseline. The analysis includes all of the regulated species, all of the important exempted species, except dogfish and squid because of the lack of data, as well as white hake, windowpane flounder, summer flounder, and cusk. The difference between Option 2 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 average 1984-86 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). For the other species - redfish, red hake, white hake, summer flounder, windowpane flounder, and cusk - the average 1984-86 landings 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 consistent with the assumption of constant average recruitment and fishing mortality at the current levels in the projected landings of the regulated species over the ten-year period. The biological analysis assumed levels of recruitment and fishing mortality given in NEFC Lab. Ref. Doc. No. 87-08.

A groundfish demand model is used to derive prices and revenues associated with the expected landings for each option during the ten-year period 1989-1998. The methodology used to estimate the demand model is described in Wang (1984). The price (inverse demand) equations 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 1987 levels. 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 projected landings 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. The cost/benefit analysis, based on these simulations, includes the expected benefits from both yield-per-recruit and

recruitment increases. Costs are the foregone revenues in the initial years.

Table 2 presents the discounted cash flows with 10% recruitment for the regulated species, the subtotal of the regulated species, the subtotal of the exempted species, and the overall total. Revenue streams are discounted at a rate of 10%; Option 1 is reported in thousand dollars, whereas Option 2 is the difference (in $1000) from this baseline. Greater net benefits are expected with increases in fish/mesh sizes. Preferred Option 2 is $128 million better than the baseline case ($1.2 billion) over the ten year period because of the increase in yield-per-recruit benefit for all regulated species except redfish.

Socio-Cultural Impact Analysis: Total Employment Effects: The most striking impacts of the proposed measures are on employment. Other 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 the direct, indirect and induced employment effects are measured in total man-years.

TABLE 2

Comparison of Revenue Streams ($1000), 1989-1998,
Discounted at 10% and 10% Recruitment,
for Multispecies FMP Amendment #2

Species	Option 1 (Baseline)	Option 2 (Net Change from Baseline)	% Change
Cod	$213,891	27,276	l2.8
Haddock	55,874	9,695	17.4
Pollock	50,012	-2,749	-5.5
Yellowtail	115,633	42,622	36.9
Flounders	377,368	31,660	8.4
Redfish	27,707	-253	-0.9
Subtotal	840,484	108,250	12.9
Exempt	154,948	-4,750	-3.1
Total	$1,246,928	$128,990	10.3

* Measures proposed in this Amendment

Option 2 initially reduces employment (see RIR table below) by 760 jobs lost or 8% (total effect) because of the initial reduction in landings. Twenty-seven percent, or 205 jobs, would be lost in the harvesting sector (direct effect). After the first year there is a net gain over the jobs lost the previous year, although still a loss from the baseline values until year five. In particular, Option 2 shows a gain of 24 (7 fishermen) in year two after the initial loss. Employment is fully recovered by year six under Option 2, and remains positive for the rest of the ten year period relative to the baseline. In year 10, employment is almost 3000 man-years greater than the baseline.

An Analysis of Costs and Benefits

This section describes the costs, benefits, and benefit-cost conclusion of the nine individual measures. The economic benefits and costs are explained where they have been analyzed with the bioeconomic model above, otherwise they are described using 1987 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. Increased minimum fish sizes:
   Benefits: Increased yield-per-recruit for yellowtail and American plaice; Net present value over ten years is $42.6 million and $31.7 million respectively.
   Costs: Short-term loss in landings valued at $3.86 million for yellowtail and $2.37 million for plaice the first two years. These initial losses are included in the NPV above.
   Benefit-Cost Conclusion: The net present value of these regulated species is positive. Administrative and enforcement costs are unchanged.

2. Postpone 6" mesh; minimum mesh throughout the net:
   Benefits: Postponing the scheduled increase in regulated mesh on Georges Bank will have no economic impact. The 6" minimum size would have been very difficult to enforce, and would have lead to non-compliance at this time. Requiring all mesh in the net to be no smaller than the 5-1/2" regulated mesh size will probably improve the efficiency of trawl gear while providing greater protection to small fish. Several fishermen have reported that increasing the size of the mesh in the body of the net reduces drag, enables them to use a larger twine size and a larger net, and still reduces fuel costs. These changes should make nets more efficient at catching large fish while enabling small fish to escape. Minimum mesh throughout the net helps increase effective minimum mesh size.
   Costs: The phase-in period for the minimum mesh throughout the net requirement accommodates 6-9 months for net orders to clear, and time for fishermen to use up small mesh bodies, mitigating the cost. Nets may cost as much as $10,000, and most vessels carry at least two nets. There are approximately 1,000 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 many fishermen to make the changeover during this normal replacement period and result in little extra cost. Many fishermen and dealers will be able to use existing supplies of smaller mesh netting in either the exempted fisheries or in unregulated mesh areas in fisheries for whiting, scup and flounder.
   Benefit-Cost Conclusion: Six inch mesh regulations will not be enforceable until minimum sizes

are increased for some regulated species. Minimum mesh throughout the net helps to protect undersized regulated species through increasing the effective mesh size. A large proportion of the estimated $180 million present value in the original FMP may depend on effective escapement, because of discard mortality. Administrative costs would be unchanged and enforcement improved because net measurement would be simplified.

3. Small-mesh nets in Regulated Mesh Area:
   Benefits: Promotes compliance with mesh regulations. Helps increase effective minimum mesh size. This measure will make it easier for enforcement officials to enforce mesh regulations by preventing quick access to small mesh nets stored on reels.
   Costs: The cost of not being able to carry a small mesh net on a net reel is minimal because the small mesh is not permitted to be used in a large mesh fishery. Vessels may still carry these nets on reels when either travelling to or from regulated mesh areas or when fishing in unregulated mesh areas. Vessels passing through the Regulated Mesh Area and carrying a small mesh must spend time securing the net so that it is not available for immediate use.
   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 improved, however, these impacts will not be able to be completely estimated until the Regional Director determines whether any other ways of securing small mesh nets will be permitted.

4. Non-reissuance of Exempted Fishery permits for reporting violations:
   Benefits: Improves the effectiveness of the Exempted Fisheries Program.
   Costs: None. This measure will have no adverse economic impacts on participants who comply with the rules of the exempted fisheries program.
   Benefit-Cost Conclusion: Administrative costs will be reduced because this measure will lessen the number of Notices of Violation which NMFS must issue for reporting violations. Enforcement will be improved.

5. Trip by-catch limit in Exempted Fishery Program:
   Benefits: Helps increase effective minimum mesh size. Reduces enforcement costs.
   Costs: A loss of flexibility by participants in the Exempted Fisheries Program, however, legitimate small mesh fishing should not entail a bycatch of regulated species greater than 10% over the reporting period and 25% on a single trip.
   Benefit-Cost Conclusion: If the by-catch exceeds these limits then it is presumed that there was an excessive discard and mortality on undersized regulated species on the same trip. The damage of such a discard is expected to outweigh the costs imposed by this measure. Administrative costs are unchanged, enforcement is improved.

6. Exclude trawlers from closed Area II during closure:
   Benefits: Improves the effectiveness of the Area II closure.
   Costs: This measure will have no adverse economic impacts on participants who comply with the rules of the closed area. It should be noted that this is not an area which trawl vessels frequently transit, particularly during the closure period.
   Benefit-Cost Conclusion: Administrative costs are unchanged, enforcement is improved.

7. Establish minimum redfish size:
   Benefits: Prevents potential landings of small redfish as by-catch or bait and discourages bait fishery which also catches other undersized regulated species. Helps increase effective minimum mesh size.
   Costs: Loss of some legal bait catch of redfish which cannot be quantified
   Benefit-Cost Conclusion: Protects immature redfish and increase spawning potential and yield per recruit of redfish stock. Administrative costs are unchanged. Enforcement costs are negligible.

8. The same minimum fish sizes for both commercial & recreational fishermen:
   Benefits: Recreational catch was believed to be proportional to fish stock abundance. However, continued landings at 10 million pounds of cod during declining abundance contradicts this argument. Spawning potential benefits of the Multispecies program might not be achievable without some controls on both commercial and recreational catch.
   Costs: According to data collected during the 1987 recreational intercept survey, 7% by weight and 19% by numbers of the recreational catch of cod over 17" from the EEZ was between 17 and 19" (There are not enough data to calculate corresponding percentages for recreationally caught pollock and haddock).
   Benefit-Cost Conclusion: The potential loss represented by these percentages is possibly outweighed by the fact that one of the main attractions of marine recreational fishing is the opportunity to catch large fish. The proposed measure will ensure that more fish of these species survive to a larger size. Administrative and enforcement costs are unchanged.

9. Seasonal extension of regulated mesh to Nantucket Shoals:
   Benefits: Helps increase effective minimum mesh size.
   Costs: Forgone revenues of $130,000 (based on 1986 data).
   Benefit-Cost Conclusion: Improved juvenile cod protection more important ($27.3 million net present value total from all proposals combined). Administrative costs will be minimal because fishing industry has strongly supported this measure as an emergency action in the past and has indicated that it would be willing to participate in the monitoring of juvenile cod in this area. This measure does increase enforcement costs, however if a high concentration of juvenile cod is in the area, the benefits of the measure are thought to far outweigh the additional enforcement costs.

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 & 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 the proposed option results in positive discounted cash flows over the ten year period compared to a continuation of the current program; a $128 million increase in the present value of ex-vessel

revenues. All vessels will initially suffer a loss in productive efficiency. However, once a higher level of landings is achieved in five years, all vessels now in the fishery will be able to operate more productively, consumers will benefit from higher sustained catches, and other sectors of the fishing industry will enjoy increased product flow. These results are due primarily to the increases in minimum fish/mesh sizes, which reduce discarding. The annual cost for this long-term improvement is the greatest during the first year, a $12.3 million or 8% loss for all three levels of users, declining each succeeding year until the benefits accrue during the fifth 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. The first year losses (lower landings and revenues, higher prices) constitute the worst case one-year losses for Option 2 relative to the baseline. The expected revenues, and derived total employment impacts, for 1989 are shown below:

Change in Total Revenues & Employment, 1989

	$MILLION	$CHANGE		PERCENT	MAN-YEARS
Baseline	153.6	0.0	0.0	0	
Option 2*	141.4	-12.3	-8.0	-760	

*Council preferred option.

Option 2 is presented as the difference from the baseline (Option 1), a continuation of the Multispecies FMP management measures, as amended. The conclusion then is that the preferred option is No Action when looking at the first year costs, and Option 2 when considering the overall impacts for the ten year period because it achieves the greater 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 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 using a simple mark-up relationship, the changes in consumer costs are expected to be about the same across options as for ex-vessel prices and revenues, but 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, trawlers catching yellowtail will obviously be the most severely impacted, overall loosing 14.7% of their yellowtail catch during the first year. For more detail on the impacts on different ports refer to the discussion of economic considerations. Individual vessel impacts cannot be estimated. 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.

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 & enforcement costs should be very similar to those for the FMP or reduced, with the exception of the seasonal Nantucket Shoals RMA.

In summary, the RIR/IRFA includes the expected impacts due increases in the minimum fish/mesh sizes. Option 2 results in an initial cost of -$12.3 million (foregone revenue) in 1989. In terms of present value, Option 2 is $128 million greater than Option 1 (Table 2).

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. A small number of vessels catch these species in Mid-Atlantic waters south of Long Island. The number of operating units is given below.

	OTTER TRAWLERS	GILLNETTERS	LINE TRAWLERS
1986	1011	93	33
1987	1052	130	46

The regulatory impact analysis above provides the industry-wide impacts (assuming related processing and consumer impacts) expected with the two options. All of the vessels and processors in the New England multispecies fishery are considered to be small businesses. The annual costs of compliance for the first year are presented in the costs/benefits analysis section on page 21. The overall benefits in terms of discounted cash flows are presented in Table 2 for the industry. Given the approximately 1000 vessels operating in 1987, the average impact in terms of foregone revenue with the preferred option is $12,000 per vessel out of average gross revenues of $312,000 per vessel.

Increased minimum fish size for yellowtail (12" to 13") affects states differently. In 1989, fishermen from Rhode Island and New York may lose 18% (302klb) to 42% (176klb) respectively, based upon an extrapolation of 1987 catch at length data. Massachusetts and Maine may lose 19% (620klb) and 12% (1,257klb) in 1989 on the same basis. There is no evidence of imports of yellowtail or Am. plaice from Canada, thus the proposed increase in either species should have no impact on processors, differential or otherwise.

The requirement that EFP trips land no more than 25% by-catch of regulated species would have minor differential impacts on vessel classes. Foe example, the overall mean percentage of regulated species was 10.48% (1979-1983), but it was 10.68% for vessel class 2 (1769 trips) and 9.71% for vessel class 3 (457 trips); The proposed 9" redfish size would, for all practical purposes, eliminate the bait fishery on this species. There were 41 redfish trips for bait in 1985, out of a total of 38,000 trips in new England; All charterboat/headboat fishermen, the segment of the recreational fishery that is directly affected by these proposals, should be impacted equally by new minimum sizes for pollock and flounders; the fishermen involved in establishing the Nantucket Shoals large mesh area should be equally impacted.

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 increases in flounder fish sizes, compared to otter trawls which land all of the species in the management unit. The approach taken by the Council to assure that any group within the industry, defined by gear types vessel size, is not unduly impacted is by consulting industry advisors and conducting public hearings. In this way, public comment is used to refine the management program so that differential impacts are avoided to the greatest possible extent.

E. Consistency with the National Standards

Amendment #2 to the Northeast Multispecies FMP represents a continuation of the Council's commitment to respond to changing conditions within the resource and the fishery in relation to the achievement of management objectives and the maintenance of 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 major issues are addressed by the measures proposed in this Amendment. They relate to the ability of the multispecies management program to achieve optimum yield and prevent overfishing. The first issue is that of non-compliance with the management regulations, most specifically those relating to fishing gear. Of the nine measures proposed in this amendment, six are designed to improve the level of compliance. In developing the proposals, the Council sought input from fishermen, processors, scientists, enforcement officials and administrators, and received substantial constructive comment at a series of public hearings. The Council expects that implementation of Amendment 2 will substantially promote compliance with the management program and enhance the achievement of the conservation and management objectives of the FMP. The second issue addressed by the Amendment is concerned with technical improvements

in the management program. Proposals 7, 8, and 9 are all designed to enhance the effectiveness of the management measures by making their specification responsive to changing circumstances in the fishery.

The measures proposed in this amendment are not intended to impose substantially greater restrictions nor achieve greater conservation benefits than those explained in the initial FMP. In most cases, the proposed measures are intended to alleviate implementation problems that prevent the FMP's measures from performing at their full conservation potential. The Council recognizes that additional management actions may be necessary to ensure that the FMP's objectives are achieved over time. Together with a continuing commitment to FMP monitoring and future FMP modifications as may be required, the management proposals in Amendment 2 serve to promote the achievement of the Council's management objectives, and in so doing, maintain consistency with National Standard #1.

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

In the development of Amendment 2 to the Northeast Multispecies FMP, the Council used the most complete and current scientific information available. In the midst of developing the proposed changes to the management program, the Council received vital input from the Technical Monitoring Group about the effectiveness of the Northeast Multispecies FMP with recommendations for improvements, and has acted in a manner which is consistent with 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. For example, the Council has proposed that all regulated minimum fish sizes shall apply equally to both commercial and recreational fishermen (Proposal 8). 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.

Part of the motivation of this amendment is to assure that the FMP will remain responsive to the variations among and contingencies in the multispecies fishery and the resources that support it. Two illustrations of this responsiveness are associated with the authority delegated to the Regional Director to approve methods for carrying small-mesh gear aboard vessels in the RMA and to administer the extension of regulated mesh into the Nantucket Shoals winter fishery. None of the management measures proposed in this Amendment detract from the ability of the FMP 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 objectives.

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. The Council has determined, in accordance with the requirements of §303(a)(6) of the Act, that none of the measures in this Amendment will pose a safety problem for fishermen. 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. Letters have been sent to the appropriate state coastal zone management agencies to confirm this determination.

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:

Commercial & Recreational: (total length)	**cod, haddock, pollock . . . . . 19 inches**
	witch flounder, Am. plaice . . . . . 14 inches
	yellowtail flounder . . . . . 13 inches
	winter flounder . . . . . 11 inches
	redfish . . . . . 9 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 fishermen are subject to the same minimum size in possession requirements as commercial fishermen.

2. Minimum Mesh Size: **Mobile gear vessels operating in the Regulated Mesh Area (described below), effective January 1, 1990, must use nets that are constructed with mesh no smaller than the regulated size specified below. Until that time, the regulated minimum mesh size is required 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.

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.

Regulated Mesh Area In the area generally described as the Gulf of Maine and Georges Bank and more specifically specified as that which is bounded on the north and west by the territorial sea, on the east by the limits of the EEZ, on the south by a line starting at the intersection of the EEZ 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:

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

Mid-Water Trawling Exception: a fishery for herring, mackerel and/or squid may be conducted in the Regulated Mesh Area south of 42°20'N Latitude throughout the year using mesh less than the regulated minimum size, 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 Regulated Mesh Area north of 42°20'N Latitude, 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.

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 Regulated Mesh 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 over the reporting period, **and 25% of the total landings of these species on a single fishing trip.**
December through January	whiting	Regulated species may not exceed 10% of the amount of whiting and shrimp landed over the reporting period, **and 25% of the total landings of these species on a single fishing trip**; the fishery will be monitored by sea sampling.
December through May (or as specified) (by ASMFC)	shrimp	Regulated species may not exceed 10% of the amount of shrimp landed during the reporting period, **and 25% of the total landings of this species on a single fishing trip**;

- 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 - The 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. **A participant failing to meet the reporting requirements may either be suspended from participating in this program or denied entry to the program, or both.**

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.

- **Trawlers are not allowed to enter Area II during the period of closure.**

Other areas:

Southern New England Yellowtail Area

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.

Nantucket Shoals Seasonal Regulated Mesh Area

In order to protect seasonal concentrations of juvenile cod, the minimum mesh size required for the Regulated Mesh Area will apply from December 1 through March 31 for all trawl and gillnet vessels operating in the area contiguous to the existing

regulated mesh area and bounded by LORAN bearing 25175 on the west, LORAN bearing 43650 on the south, and LORAN bearing 43850 to the territorial sea on the north. The Regional Director, in consultation with the Council, may apply these mesh regulations during the period in a manner that best coincides with the occurrence of juvenile cod.

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.

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.

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:

- 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.

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
Carl D. Panall
Charles Follet
George Glas
Lawrence Grant
Alan Hill
Tommy Jordan
Ken Macara
Kevin McCarthy
Tom Morse
Lee Riley
Lucy Sloan
Leonard Stasiukiewicz
Tim Sullivan
Joseph Vinagre
Marshall Alexander
Joe Avila
Tom Brancaleone
Armando Estudante
Thomas Fulham
David Goethel
Jeff Gunn
Walter Hynes
Don King
Martin Manley
James McCauley
Benjamin Rathbun
Ted Rurak
Willis Spears
Barbara Stevenson
Alan Vangile
Howard Nickerson

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.

Groundfish Committee

James Warren
Barry Gibson
Philip Coates
Herbert Drake
Arthur Odlin
Robert Smith
Anthony Verga

Assisting the Committee

Council Staff

Guy Marchesseault, Ph.D.

Christopher Kellogg, M.S.
Howard Russell, M.S.
Louis Goodreau, M.S.
Douglas Marshall

Technical Monitoring Group

David Pierce, MA DMF, Chairman
Tim Smith, NMFS/NEFC
Peter Colosi, NMFS/NERO
Thomas Hoff, MAFMC Staff
John Mason, NY DEM
Guy Marchesseault, NEFMC Staff

VII. RESPONSE TO PUBLIC COMMENTS

Public hearings were held in Rockland and Portland, ME, Gloucester, and Buzzards Bay, MA, Galilee, RI and Riverhead, NY during the period July 18 through July 29, 1988. A summary of each public hearing is included in the Appendix A to this document. The major concerns that were expressed at the hearings and in the written comments, as well as the Council's response, are listed below:

1. Comment: There should be no increase in the minimum sizes for regulated species at this time.

Response: See the rationale for Proposal 1 in the description of the preferred alternative.

2. Comment: Southern New England yellowtail grow slower and mature earlier than yellowtail from the Georges Bank stock and therefore should have a smaller minimum size.

Response: 1) A substantial portion of this stock is exploited within the Regulated Mesh Area (RMA) and an increase in minimum size is needed to ensure that fishermen within this area comply with mesh regulations; 2) There is no definitive scientific evidence to confirm a difference in the growth parameters between the So. New England and Georges Bank stocks; the differences observed in the size distribution of yellowtail caught in these two areas probably reflects size specific seasonal distribution patterns; 3) A larger minimum size is expected to provide benefits to both geographic areas in terms of increased spawning potential and yield per recruit; 4) Minimum size regulations are greatly weakened unless they apply throughout the range of a particular species.

3. Comment: There should be a single minimum size for all flatfish species:

Response: Different flatfish have different retention characteristics. Keeping the same minimum size for all roundfish and flatfish prevents the Council from using mesh retention characteristics to promote compliance with mesh regulations. In addition to differences in retention characteristics, there are regional differences in the availability of these species. For example, should the minimum size of witch flounder (gray sole) be reduced from 14" to the 11" minimum size for blackback, or should the blackback minimum size be raised to 14"? Either choice would present major problems. Finally, fishermen have used different culls for different species for many years, particularly valuable foodfish species.

4. Comment: Enforcement of existing regulations should be improved before any new measures are put into place.

Response: Most of the proposed measures are aimed at improving compliance with or the enforceability of existing regulations.

5. Comment: There should not be a 9" minimum size for redfish because it will not prevent the selling of redfish for bait and it will cause a large amount of marketable redfish to be discarded.

Response: Practically no redfish under 9" are retained in a 5-1/2" mesh codend and no small mesh directed fishery for redfish is allowed under the Exempted Fishery Program. Redfish smaller than 9" are neither fully mature nor of the optimal size for food fish and should be harvested later, at a larger size. Removing small redfish from the foodfish market will reduce the incentive to catch them at a sub-optimal size, and the measure will make it illegal to use small redfish for bait.

6. Comment: Recreational fishermen should be allowed to land smaller fish because recreationally caught fish generate more economic value per fish and the recreational catch is too small to affect fish abundance ("All the passenger boats in New England don't catch as much as one trawler discards in a month"). Recreational fishermen on party boats catch an average of 1 to 3 fish per day. Under this proposal, many anglers would be required to throw back their only fish because it would not meet minimum size requirements.

Response: According to the most recent data, recreational catch of cod is about 10 million pounds per year, which is a significant contribution to total mortality. There has been no scientific or economic basis for establishing different recreational minimum sizes for any of the regulated species. The reason for the existing difference in haddock and cod is that the FMP phased-in recreational size increases for cod and haddock in order to mitigate negative

short-term economic impacts in the early years of plan implementation.

The opportunity to catch large fish is one of the major benefits of marine recreational fisheries. Maintaining a healthy fish stock will ultimately increase the abundance of larger fish for recreational fishermen. Recreational survey data indicate that 7% by weight and 19% by numbers of the recreational catch of cod over 17" from the EEZ was between 17 and 19". In the majority of public hearings, representatives of the party and charter boat industry did not comment negatively on this proposal.

7. Comment: Requiring fishermen in the Regulated Mesh Area to use 5-1/2" mesh throughout the net forces net dealers and fishermen to get rid of smaller mesh netting which they have already bought.

Response: This measure will not be implemented until January 1990, which should give dealers sufficient time to dispose of small mesh inventories and to order new twine. Small mesh which can no longer be used in Regulated Mesh Area can still be used either in unregulated mesh areas or in the exempted fisheries.

8. Comment: The proposal to require that all mesh on board measure at least 5-1/2" would create safety problems by requiring vessels to navigate around the RMA in order to reach small mesh grounds to the east and would prevent other vessels from legitimately splitting trips between large and small mesh areas.

Response: In response to the public comments, and in view of its concern for the potential impact of the proposed measures on vessel safety, the Council decided to modify its proposal as described in the discussion under Proposal 3.

9. Comment: A 25% trip by-catch limit on regulated species caught in the exempted fisheries program would not allow many fishermen, particularly day boats, the flexibility they need to participate in this program.

Response: There is alleged widespread abuse of exempted fisheries regulations and the current rules, which rely on accurate reporting, do not provide enforcement agents with sufficient tools to stop flagrant violations. Many reports have not even been filed.

10. Comment: Scallopers should also be excluded

from Closed Area II during the closure period because they might disrupt spawning behavior and they can catch a lot of flounder.

Response: The purpose of the closure is to prevent the harvest of spawning or pre-spawning aggregations of haddock. Spawning activity and subsequent larval development occur in the water column and there is no evidence to suggest that they are disrupted by scallop dredges.

11. Comment: Excluding trawlers from Closed Area II during the closure is not enforceable, violates freedom of navigation and vessels must be able to cross this area to get to other fishing grounds during the closure.

Response: See discussion in Amendment under III(b)(9).

APPENDIX A

SUMMARY OF PUBLIC HEARING COMMENTS