FINAL

AMENDMENT #11 to the NORTHEAST MULTISPECIES FISHERY MANAGEMENT PLAN

AMENDMENT #9 to the ATLANTIC SEA SCALLOP FISHERY MANAGEMENT PLAN

AMENDMENT #1 to the MONKFISH FISHERY MANAGEMENT PLAN

AMENDMENT #1 to the ATLANTIC SALMON FISHERY MANAGEMENT PLAN

COMPONENTS of the PROPOSED ATLANTIC HERRING FISHERY MANAGEMENT PLAN

FOR

ESSENTIAL FISH HABITAT

incorporating the

ENVIRONMENTAL ASSESSMENT

VOLUME I

Prepared by

New England Fishery Management Council

in consultation with

National Marine Fisheries Service

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1.0 EXECUTIVE SUMMARY

1.1 INTRODUCTION

The 1996 amendments to the Magnuson-Stevens Fishery Conservation and Management Act, known as the Sustainable Fisheries Act (SFA), emphasized the importance of habitat protection to healthy fisheries and strengthened the ability of the National Marine Fisheries Service (NMFS) and the Councils to protect and conserve the habitat of marine, estuarine, and anadromous finfish, mollusks, and crustaceans. This habitat is termed "essential fish habitat" (EFH) and is broadly defined to include "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity."

To improve fish habitat protection, the SFA requires or authorizes that the Councils, NMFS, and other federal agencies take new actions. The SFA required the Council, after receiving recommendations from NMFS, to amend its fishery management plans by October 1998 to:

- describe and identify the essential habitat for the species managed by the Council
- minimize to the extent practicable adverse effects on EFH caused by fishing
- identify other actions to encourage the conservation and enhancement of EFH

The purpose of the amendment is to identify and describe the EFH for Atlantic herring, sea scallops, Atlantic salmon, and fifteen species of groundfish managed by the Council to better protect, conserve, and enhance this habitat. This amendment also will identify the major threats to essential fish habitat from both fishing and non-fishing related activities and identify conservation and enhancement measures. In support of the Council's habitat policy, the management objectives for the EFH amendment will be:

1. To the maximum extent possible, to identify and describe all essential fish habitat for those species of finfish and mollusks managed by the Council;
2. To identify all major threats (fishing and non-fishing related) to the essential fish habitat of those species managed by the Council; and,
3. To identify existing and potential mechanisms to protect, conserve and enhance the essential fish habitat of those species managed by the Council, to the extent practicable.

This amendment package amends all existing Council FMPs, including the Monkfish FMP, the Sea Scallop FMP, the Northeast Multispecies FMP, and the Atlantic Salmon FMP. This amendment package also includes components of the proposed Atlantic Herring FMP to address the required EFH elements. The EFH information related to Atlantic herring and contained herein will be incorporated by reference into the Atlantic Herring FMP. The Council had the option to submit separate EFH amendments to each of its FMPs, or to incorporate the EFH components into the FMP amendments addressing the other SFA requirements. The Council considered these options and determined that a single, omnibus EFH amendment was the most efficient and appropriate mechanism. This option eliminates unnecessary duplication (for instance, including the Non-Fishing

Related Threats assessment in multiple FMP amendments), and allowed the Council to take a more "ecosystem-based" approach in the development of the amendment. In the future, any FMP amendments or new FMPs will include EFH provisions directly within the parent documents. It is important to remember is that this is but the first step in the process, and the Council will review and modify, as necessary, the EFH designations, as well as the other provisions of the EFH amendment.

The EFH amendment focuses on three major, distinct geographic regions – the Gulf of Maine, Georges Bank, and the portions of the continental shelf south of New England. The topographic and oceanographic features of each region are distinct and support diverse biological communities. The diverse habitat conditions, oceanographic processes, and biological composition in New England waters form some of the most productive fishing grounds in the world.

1.2 DESCRIPTION AND IDENTIFICATION OF ESSENTIAL FISH HABITAT

The regulatory text of the Interim Final Rule (*Federal Register* Vol. 62 No. 244, December 19, 1997) directs the Council to describe EFH in text and with tables that provide information on the biological requirements for each life history stage of the species. The text descriptions of essential fish habitat set the environmental parameters within which the map designations are considered. The tables summarize all available information on environmental and habitat variables that control or limit distribution, abundance, reproduction, growth, survival, and productivity of the managed species. The regulatory text of the Interim Final Rule also directs the Council to present the general distribution and geographic limits of EFH for each life history stage in the form of maps. The EFH maps are a means to visually present the EFH described in the amendment. The map designations of essential fish habitat identify the geographic extent within which certain types of habitat are considered EFH. EFH must be designated according to the folowing level of information available on the species distribution, abundance, and habitat-productivity relationships:

- Level 1: Presence/absence data are available for portions of the species' range.
- Level 2: Habitat-related densities are available.
- Level 3: Growth, reproduction, and survival rates within habitats are available.
- Level 4: Production rates by habitat are available.

There are several sources of distribution and abundance data used to develop the EFH designations. The NMFS bottom trawl survey (1963 - 1997) and the NMFS Marine Resources Monitoring, Assessment and Prediction (MARMAP) ichthyoplankton survey (1977 - 1987) provide the best available information on the distribution and relative abundance of Council-managed species in offshore waters. The bottom trawl survey is used for juveniles and adults, and the MARMAP survey is used for eggs and larvae. The Council used other sources of information on inshore areas, including the Massachusetts inshore trawl survey (1978 - 1997), information from Long Island Sound (1990 - 1996), and NOAA’s Estuarine Living Marine Resources (ELMR) program.

According to the language of the Interim Final Rule, EFH that is judged to be particularly important to the long-term productivity of populations of one or more managed species, or to be particularly vulnerable to degradation, should be identified as "habitat areas of particular concern" (HAPC) to help provide additional focus for conservation efforts. Following a review of the scientific literature for information on areas deserving special attention or species with particular habitat associations, the Council has designated an area on Georges Bank as an HAPC for juvenile Atlantic cod. Considering the unique habitat associations and requirements of Atlantic salmon, the Council has designated the habitat of eleven rivers in Maine as HAPCs for Atlantic salmon. The Council may consider designating additional habitat areas of particular concern in the future. Additional designations may be based on existing or developing knowledge of species-habitat associations, the unique characteristics of a particular habitat type, the threats to sensitive habitats, or the importance of an area to multiple species.

For each species currently managed by the Council this amendment includes a one-page text description of the essential fish habitat for each life history stage, a table identifying those bays and estuaries included in the EFH designation (based on information provided in NOAA's ELMR reports), and a series of maps representing the Council's EFH designations for each life history stage. The EFH maps reflect all information included in the Council's designations, including the ELMR bays and estuaries, other inshore data, the historic range of the species, areas identified by the fishing industry, and those ten minute squares filled in to "smooth" the designations. The captions accompanying maps for the EFH designations describe the information reflected in those designations and provide the Council's rationale for selecting the preferred alternatives.

1.3 FISHING-RELATED IMPACTS AND MANAGEMENT MEASURES

The Council is required to identify and assess fishing activities that may adversely affect EFH. The effects of fishing, such as the direct effects of gear on seafloor habitats (e.g., direct removal of epifauna, smoothed bedforms) and the indirect effects of fishing (e.g., producing shifts in the benthic community because of initial removals of fauna), and other habitat related fishing activities that can be controlled by the Council are considered in this assessment. NMFS recommends that the assessment include, if known: a description of the mechanisms or processes of fishing gear causing adverse effects on habitat; the particular portion of EFH that is affected; a description of known or potential habitat functions disturbed or disrupted by these effects and the extent of such disturbance or disruption; options the Council will consider to minimize adverse effects from fishing practices; and mitigation measures to conserve and enhance EFH adversely affected by fishing activities, if appropriate.

There is very little information on impacts to habitat associated with several gear types used in the New England region, principally gillnets, longlines, haul seines, hand lines, mid-water trawls, purse seines, and stop seines. Gear types designed to work in mid-water do not impact the seafloor but may effect mid-water aggregations of gelatinous zooplankton which has been demonstrated to serve as habitat for some species. Other gear types which fish in a static fashion on the seafloor such as traps, gillnets and longlines are thought to minimally impact the seabed. However, the cumulative effects

of static gear remain unknown. It is important to remember, however, that the impacts of fishing gear depend not only on the type of gear used, but also the frequency and intensity of use, the type of bottom and the composition of the benthic community. Taking these considerations into account, the bottom-tending mobile gears (otter trawls, scallop dredges, beam trawls, and hydraulic clam dredges) are most likely to be associated with adverse impacts to habitat.

Based on a review of the National Marine Fisheries Service commercial fisheries landings data for the species managed by the New England Fishery Management Council, forty-three categories of fishing gear were identified as having been associated with landings during the fifteen-year period between 1982 and 1996. The three gear types that accounted for the top percentages of landings for each species were the otter trawl, scallop dredge, and purse seine. The otter trawl accounted for the majority of catch for all species except sea scallops and Atlantic herring.

Marine debris is on the increase in our region's waters, both inshore and offshore, as well as on our beaches. According to the Center for Marine Conservation, most debris in the Gulf of Maine comes from shore-based, non-fishing sources, although commercial fishing contributes about half of the debris found offshore. The principal debris for which the commercial fishing industry is responsible is lost fishing gear. Most studies on lost gear focus on the impacts to marine life rather than direct habitat impacts. Observations made during these studies appear to indicate that lost gear does not have a direct adverse impact on essential fish habitat.

Aquaculture may provide a substantial source of fresh finfish, shellfish, and seaweed to consumers, but it is potentially constrained by a variety of environmental issues associated with culture practices. Aquaculture production is rapidly expanding around the world, and the United States is beginning to follow the trend. There is particular interest in developing aquaculture in New England to supplement the historic capture fishery. The intensity and magnitude of threats to habitat differ between the types of aquaculture systems and the organisms cultivated. The development of aquaculture presents the following general threats; (1) discharge may contaminate water quality and benthos; (2) feed additives or exotic and reared species may alter natural ecosystems; and (3) habitat and biological association may be removed or changed with the construction of facilities. The potential threats may not be as severe as expected by scientists, media, and the general public. Some cases actually demonstrate that aquaculture development may promote healthier and more productive habitat conditions and positively influence marine resources. Management measures to directly regulate aquaculture facilities in federal and state waters are developing under the authority of several federal and state agencies. Research will assist the development of effective management strategies to stimulate the progress of the culture fishery.

Fish processing is an important component of fishing operations and economies of many New England fishing communities. Processing includes, but is not limited to, cleaning, cooking, canning, smoking, salting, drying, or freezing. Fish processing plants can be permanent, land-based or mobile, water-based operations. Commercial fisheries and

aquaculture facilities require processing operations to produce high-quality, marketable seafood. There are several environmental considerations associated with all types of fish processing plants. Treatment of fish processing effluent to reduce environmental impacts has become a matter of interest to many countries and fisheries.

The Council is required to prevent, mitigate, or minimize any adverse effect from fishing, to the extent practicable, if there is evidence that a fishing practice is having an identifiable adverse effect on EFH. Identifiable impacts are those supported by observable, negative effects on EFH quality or quantity. There are many issues and limitations associated with assessing adverse impacts to habitat from fishing activity, as well as many types of fishing gear and other fishing-related activities that may impact essential fish habitat. The Council also must give special consideration to gear types that will or could affect habitat areas of particular concern. Management measures currently in place protect and conserve essential fish habitat to varying degrees. Certain measures, such as the long-term closures of Closed Areas I and II and the Nantucket Lightship closure directly protect large areas encompassing many types of habitat, including the newly designated HAPC for juvenile Atlantic cod. Other measures, such as the days-at-sea program, indirectly protect and conserve essential fish habitat by controlling fishing effort. Any reduction of fishing effort will reduce the frequency and intensity with which fishing gear is used.

An understanding of the existing management measures that have the potential to either directly or indirectly protect EFH is important to the assessment of fishing-related threats to essential fish habitat (EFH). In order to determine which current management measures protect EFH, the Council performed an assessment of the habitat effects of all existing management measures. With the exception of the potential for impacts associated with effort displacement as a result of these measures, there are several existing management measures that directly protect EFH and others that indirectly protect EFH by reducing fishing effort. Immediately prior to the submission of this amendment to the Council's fishery management plans, the Council submitted separate amendments to each of its existing FMPs, as well as new FMPs addressing Atlantic sea herring and monkfish, to address the other provisions and requirements of the Sustainable Fisheries Act. The management measures adopted in these amendments and FMPs, in some cases, provide conservation benefits to the essential fish habitat designated in this amendment. In these cases, additional management measures implemented through this amendment would be redundant and unnecessary.

The existing framework adjustment procedures of the Northeast Multispecies, Sea Scallop, Atlantic Herring, Monkfish, and Atlantic Salmon fishery management plans will remain in effect with some modifications. The Council has developed framework adjustment language for inclusion in these FMPs so that habitat conservation management measures may be approved by the Council in a more timely manner than the plan amendment process. The Council also has developed framework adjustment language for inclusion in these FMPs so that the boundaries of the existing and all future essential fish habitat designations (including the designations of habitat areas of particular concern (HAPC)) may be modified in a more timely manner than the

traditional plan amendment process.

1.4 NON-FISHING RELATED THREATS AND IMPACTS

The northwest Atlantic, including the Gulf of Maine, Georges Bank, and portions of the continental shelf south of New England (e.g. Nantucket Shoals), supports a number of commercial, recreational, and non-target finfish and shellfish. The variety of habitats found in New England aquatic and marine environments provide important habitat conditions for the reproduction, development, growth, feeding, and sustainability of fishery resources. The biological, chemical, and physical requirements of specific aquatic and marine organisms throughout their life history demonstrate the evolutionary adaptation to particular habitats for successful, healthy, and sustainable populations. Marine and aquatic organisms depend on riverine, inshore, and offshore habitats within the New England region. Habitat alteration and disturbance occurs from natural processes and human activities. Human-induced threats can have direct and indirect effects on finfish and shellfish populations, and subsequent long-term impacts on marine and aquatic resources. The major threats to marine and aquatic habitats are a result of increasing human population and coastal development which is contributing to an increase of human-generated pollutants entering the environment. These pollutants are discharged from a variety of non-point and point sources. Environmental conditions of finfish and shellfish habitat are also disrupted by human activities and direct habitat alteration.

1.5 CONSERVATION AND ENHANCEMENT MEASURES

The regulatory text of the Interim Final Rule directs the Council to describe options to avoid, minimize, or compensate for the adverse effects of activities identified in the non-fishing threats section of this amendment. The Council has the discretion to provide comments on non-fishing activities authorized by federal and state agencies which impact the EFH of non-anadromous fish species. The conservation and enhancement options promoted by the Council include, as directed in the Interim Final Rule: the enhancement of rivers, streams, and coastal areas; improving water quality and quantity; watershed analysis and planning; and habitat creation. The amendment primarily addresses recommendations from the Council to other organizations and agencies. By developing and articulating the options suggested to avert or minimize non-fishing threats to EFH, the Council defines its position relative to these types of activities.

Conservation and enhancement measures to protect fishery resources from fishing activities will include current fishery tactics and emerging fisheries that are not regulated and may present environmental considerations in the future. The Council has developed a list of recommendations to federal, state, and local agencies and non-governmental organizations to consider implementing into existing or developing conservation and enhancement programs. The Council will provide recommendations to address non-fishing threats to the appropriate action agencies and recommend the agencies incorporate EFH into all existing habitat-related programs when the EFH designations occur within their jurisdiction. Management approaches to mitigate adverse impacts from fishing and non-fishing activities that address the previous recommendations from

the Council to other regulatory, collaborative, and non-governmental agencies may include proactive conservation and enhancement measures to protect EFH. The Council will work closely with a variety of management authorities and non-profit organizations to incorporate EFH designations into existing initiatives and future management decisions, promote EFH awareness, develop measures to conserve and enhance EFH, and enforce existing conservation and enhancement measures.

1.6 RESEARCH AND INFORMATION NEEDS

The regulatory text of the Interim Final Rule directs the Council to include in the EFH amendment recommendations, preferably in priority order, for research efforts that the Council and NMFS view as necessary for carrying out their EFH management mandate. The need for additional research is to make available sufficient information to support a higher level of description and identification of EFH. Additional research may also be necessary to identify and evaluate actual and potential adverse effects on EFH including, but not limited to, direct physical alteration, impaired habitat quality / functions, cumulative impacts from fishing, or indirect adverse effects such as sea level rise, global warming and climate shifts, and non-equipment related fishery impacts. The need for additional research on the effects of fishing equipment on EFH is also included. The research needed to quantify and mitigate adverse effects on EFH identified in this amendment and determined to be an impediment to maintaining a sustainable fishery and the contribution of the managed species to a healthy ecosystem is identified. The research recommendations include expanded life history information that will result in the comprehensive identification of the habitat requirements of the species or species assemblages, including all life history stages, as well as habitat-related information that defines the interrelationship between the species, the environment and the food web. The identified research needs also include information on adverse impacts from both non-fishing and fishing activities. Fishing activities include both recreational and commercial fishing equipment or practices.

1.7 EFH STRATEGIC PLAN

Recognizing that the Council's Essential Fish Habitat Amendment is just the first step in the management of EFH, and that the Council has more to do to fulfill the intentions and mandates of the Sustainable Fisheries Act, the Council has developed a Strategic Plan. The EFH Strategic Plan explains how the Council will fulfill the regulatory requirement to review and revise the EFH components of its fishery management plans within five years, and also provides a context and structure within which the Council will work. The Strategic Plan addresses the processes and actions of the Council for a five year timeframe following implementation of the EFH Amendment. The Strategic Plan also describes how the Council intends to disseminate the information that results from the EFH process to the federal and state agencies with a direct or indirect role in the conservation and management of EFH, or whose actions or activities have the potential to adversely affect EFH. The Strategic Plan describes how the Council will implement the Magnuson-Stevens Act provision that authorizes the Council to comment to federal and state agencies on actions that may adversely impact the habitat, including EFH, of fishery resources under its authority, and requires the Council to comment on actions that would

substantially impact the habitat, including EFH, of anadromous fishery resources under its authority. The Strategic Plan consists of a goal statement for the Council's habitat program, a set of objectives for the Council's habitat program, and a description of the processes that the Council intends to implement to achieve the stated objectives.

1.8 ATLANTIC SALMON FMP PROVISIONS

In August, 1997 the Council voted to amend all NEFMC fishery management plans (FMPs) to include a framework adjustment process that would facilitate the timely approval of aquaculture projects that would otherwise require a full plan amendment. Since the concept of approving aquaculture projects through frameworks is a new addition to the list of “frameworkable” measures already listed in several Council FMPs, the public must be given an opportunity to comment on this proposal. For the sake of efficiency, consideration of an aquaculture framework adjustment process has been added to the FMP amendments now being developed to bring all NEFMC plans into compliance with the Sustainable Fisheries Act. This section also discusses an overfishing definition in the Fishery Management Plan for Atlantic Salmon.