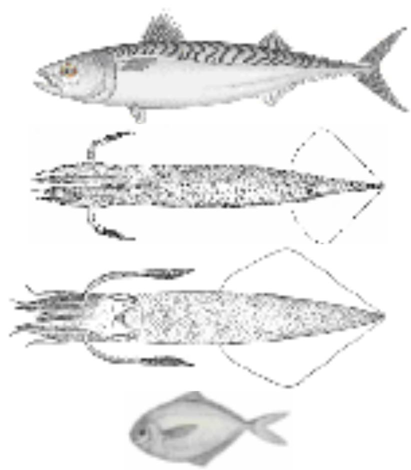
AMENDMENT 11 TO THE ATLANTIC MACKEREL, SQUID, AND BUTTERFISH (MSB) FISHERY MANAGEMENT PLAN (FMP)

Includes Final Environmental Impact Statement (FEIS)



-------------------May 2011 --------------------

Mid Atlantic Fishery Management Council
in cooperation with
the National Marine Fisheries Service (NOAA Fisheries)

1.0 EXECUTIVE SUMMARY

Amendment Purposes: The primary purposes of Amendment 11 to the Atlantic Mackerel, Squid, and Butterfish (MSB) Fishery Management Plan (FMP) are to:

> **A)** "**Cap Capacity**" - Establish a Cap on Capacity via Limited Access based on current and historical participation that does not impede optimal U.S. utilization of the fishery.
>
> **B)** "**Update EFH**" - Update MSB species' essential fish habitat (EFH) descriptions per National Marine Fisheries Service (NMFS) regulatory guidance on EFH designation review and updating.
>
> **C)** "**Evaluate Gear Impacts on *Loligo* Egg EFH**" - Evaluate fishing-related impacts on *Loligo* egg EFH and if necessary, minimize (to the extent practicable) any adverse effects on *Loligo* egg EFH caused by fishing.
>
> **D)** "**Establish Recreational Mackerel Allocation**" – While Annual Catch Limits (ACLs)/ Accountability Measures (AMs) have been moved to an Omnibus ACL/AM Amendment, that Omnibus will need a hard quota/allocation established for the recreational sector as part of ACLs/AMs. A recreational allocation had been part of the original ACL/AM provisions, and is remaining in Amendment 11.
>
> **E)** "**Avoid At-Sea Processing Problems**" - Avoid related potential problems, primarily negative fishing community impacts from disruption of supply of Atlantic mackerel to shoreside processors, but also possibly marine mammal interactions.

Throughout this document, each purpose will be referenced by the bolded phrases in quotes above. Four of the above five purposes are addressed by one or more related set of alternatives, summarized below and fully described and analyzed in this document (the analysis in this document suggests that no alternatives are necessary related to C, "Evaluate Gear Impacts on *Loligo* Egg EFH").

A) Alternatives Related to Capping Capacity

- **Alternative Set 1:** Alternatives to develop a tiered limited access system in the Atlantic mackerel fishery.
- **Alternative Set 2:** Alternatives to allocate quota to limited access Tiers based on historical landings.
- **Alternative Set 3:** Alternatives to specify trip limits for each Tier.
- **Alternative Set 4:** Alternatives to indicate Council intent on a variety of standard policy and administrative matters inherent in Northeast limited access systems.

B) Alternatives Related to Updating EFH

- **Alternative Set 5:** Alternatives to update the EFH definitions in the MSB FMP.

C) Alternatives Related to Evaluating Gear Impacts on *Loligo* Egg EFH

- There was minimal scientific information available on gear impacts to *Loligo* egg EFH. The available information suggested that gear impacts on *Loligo* egg EFH were minimal and/or temporary in nature so Amendment 11 does not contain alternatives regarding possible gear impacts to *Loligo* egg EFH.

D) Alternatives Related to Establishing Recreational Mackerel Allocation

- **Alternative Set 6:** Alternatives to establish a recreational allocation based on historical landings to prepare for development of ACLs/AMs.

E) Alternatives Related to Avoiding At-Sea Processing Problems

- **Alternative Set 7:** Alternatives to limit at-sea processing of Atlantic mackerel.

The Council was originally scheduled to take final action on Amendment 11 in April of 2010, but decided to revise certain alternatives after reviewing public comment. The revisions were deemed to require a Supplement to the Draft Environmental Impact Statement (SDEIS) and an additional comment period from August 27, 2010 to October 12, 2010. The Council considered comments on the SDEIS (comments included in Appendix 4) and took action to select final preferred alternatives at its October 2010 meeting in Cape May, NJ.

While the additional work to solicit stakeholder input and perfect the document was very important to facilitate the Council's decision making, this also meant that some time has passed since many of the original analyses. Most analyses in this document consider data through 2007. This was originally related to the timeframe when the DEIS was being developed and because the qualifying periods extended up to 2007. Some analyses have been updated to provide basic information on the operation of the mackerel fishery since 2007 but many of the various analyses and data summaries have not been updated for the following reasons: 1) The 2011 MSB annual specifications Environmental Assessment document (available at: http://www.mafmc.org/fmp/msb_files/msbSpecs.htm) provides updated biological and fishery performance data for all four species; 2) Stakeholders have been made aware during the development of Amendment 11 multiple times that 2007 would be the final year for landings to qualify for a permit; and 3) mackerel landings have been lower in the years since 2007 so overall the numbers of vessels potentially impacted and the degree to which they are impacted in terms of the most recent few years should not be substantially different than analysis through 2007. While there may be some individual vessels that have developed more recent substantial landings since 2007, data confidentiality issues preclude analysis that traces impacts on a unique vessel and when summarized such occurrences would not likely be discernable compared to the overall recent lower landings and effort, as described in the 2011 specificaitons Environmental Assessment.

Another important item to highlight is that there was a new mackerel assessment in 2010. While stock status and reference point information was not accepted in the assessment, most indicators pointed toward lower productivity and the resulting recommended catch levels would produce U.S. quotas consistent with the quotas originally considered in the DEIS (12,000 MT-56,000 MT) (TRAC 2010), also suggesting that a complete re-drafting of the FEIS is not warranted. The assessment is described in more detail below.

The timeline going forward is expected to be as follows:

Approximate Timeline

April 2011-	Council submits Final EIS (FEIS)
May 2011-	Notice Of Availability for FEIS publishes
June 2011-	Proposed Rule publishes
Aug 2011-	Final rule publishes
Oct 2011-	Final rule effective, 12-month mackerel limited access application period begins.

Wording conventions - All acronyms used in this document should be listed in **Section 2.0, List of Acronyms**. Several critical acronyms and/or abbreviations are noted below.

The Magnuson-Stevens Fishery Conservation and Management Act is the primary law governing marine fisheries management in United States federal waters. The Act was first enacted in 1976 and amended in 1996 (via the Sustainable Fisheries Act - "SFA") and in 2007 (via the Magnuson-Stevens Fishery Conservation and Management Reauthorization Act of 2006 - "MSRA"). In this document, the abbreviation "MSA" refers to the Magnuson-Stevens Fishery Conservation and Management Act as currently amended. Also, hereafter "mackerel" refers to "Atlantic mackerel," "Am11" refers to "Amendment 11 to the Atlantic Mackerel, Squid, and Butterfish Fishery Management Plan" and "the Council" refers to "the Mid-Atlantic Fishery Management Council."

The remaining sections of the Executive Summary:

- -Introduce the purposes of Am11 and the strategies to achieve the purposes (1.1-1.5)
- -Summarize the alternatives (1.6)
- -Describe the effects of the alternatives (alone and in combination) as related to the purposes of this Amendment (1.7)
- -Describe the initial areas of controversy (1.8)
- -List actions considered but rejected (1.9)
- -Discuss the regulatory basis for Amendment 11 to the MSB FMP (1.10)

1.1 PURPOSE A: Cap Capacity

Purpose A of Am11 is to Cap Capacity in the mackerel fishery by instituting limited access for the mackerel fishery in a way that does not impede optimal U.S. utilization of the stock. Additional vessels could not enter the directed mackerel fishery and existing vessels would be limited from expanding beyond a certain degree. Given that some recent (2004 and 2006) landings were at the upper range of long term yield predictions from the last assessment (all about 56,000 MT), and that the estimates of current physical capacity (200,000 MT+) are high when compared to 56,000 MT, the Council has decided that now is an appropriate time to consider limited access in the mackerel fishery because waiting will likely only mean additional entry, a higher capacity to deal with in the future, and a higher likelihood of a race to fish in the future, along with all the socioeconomic and conservation problems that accompany racing to fish, as detailed later in this document. Since mackerel is already managed with a hard quota most benefits are likely to be socioeconomic (higher profits for those who qualify) but the potential conservation benefits of avoiding a race to fish are widely recognized. The Council is aware a race to fish may develop even with limited access and that a Limited Access Privilege Program (LAPP, aka catch shares) may be needed in the future to be sure no race to fish occurs, but the Council has deemed that limited access is a good starting point. At its June 2010 meeting the Council passed a motion concurring with its Squid, Mackerel, and Butterfish (SMB) Committee and the SMB Advisory Panel that the fleet size/capacities resulting from the current alternatives are the desired range of fleet sizes/capacities. The underlying rationale behind the current range of alternatives is that while a relatively large fleet might lead to occasional early closures during periods of high mackerel abundance, it was better to have more vessels able to search and fish for mackerel in the majority of years when mackerel availability was not near its peak. These issues were also discussed at a May 2010 joint committee and advisory panel meeting to address how best to incorporate historical participation, the summary of which is included in Appendix 3.

Because landings from recent years have only totaled 20%-50% of the available quota, the Council is concerned that reducing the current size of the fleet may prevent the fishery from harvesting optimum yield. The Council believes that the proposed limited access plans would allow for the harvesting of optimum yield while minimizing additional capitalization of the fleet. Through the proposed measures, the Council seeks to balance the potential overcapitalization issues with the concept that the mackerel fishery needs a highly dynamic fleet because mackerel availability is highly dynamic spatially and temporally.

Thus to cap capacity in the mackerel fishery while not impeding optimal U.S. utilization of the mackerel resource, the Council considered in <u>Alternative Sets 1-4</u> components of a limited access system for the mackerel fishery, which are generally designed to prohibit additional entrants and restrict current and a range of historical participants to their current and/or historical levels of mackerel fishing. To do this, the limited access alternatives proposed by the Council would establish various levels of participation within the limited access fleet based on landings histories. This is the intent behind the placing of vessels into different "Tiers" with different limits placed upon vessels in different Tiers. As part of discouraging speculative entry while a limited access program is being developed and implemented, and consistent in principle with earlier FR notices since 2002 discouraging speculative entry, the Council has included a permit requirement that all qualifiers for limited access would have to have held an active mackerel permit on March 21, 2007, which is the date of a Council committee meeting when motions regarding this permit requirement were made.

1.2 PURPOSE B: Update EFH

EFH stands for essential fish habitat. From NMFS' Office of Habitat Conservation EFH website (http://www.nmfs.noaa.gov/habitat/habitatprotection/efh/index.htm): "Productive commercial and recreational fisheries are inextricably linked to healthy marine habitats; protecting them will help support fishing communities now and for generations to come."

Purpose B of Am11 is to update the textual descriptions and geographical identifications of EFH for all life stages of mackerel, *Loligo* squid, *Illex* squid, and butterfish. *Loligo* egg EFH was established in 2008 but none of the other species/lifestages have been updated since 1998. Updates are important so that decisions are made based on the best available information. Section 600.815(a)(9) of the Final Rule to revise the regulations implementing the EFH provisions of the MSA states that Councils should conduct such reviews as recommended by the Secretary, but at least once every five years. Thus the Council considered in <u>Alternative Set 5</u> EFH designations that vary in terms of average prevalence/density thresholds used to identify EFH. If only the highest density areas are chosen a smaller, but perhaps more critical, total area results. If areas with lower densities are included, the result is a larger total designated EFH area for each species/lifestage.

Accordingly, Am11 reviews and revises the EFH text descriptions (for all MSB species) and maps (for all but *Loligo* eggs) based up-dated bottom trawl survey data and other available information on habitat requirements (e.g., revised EFH source documents) for the following:

Loligo : eggs (just text), pre-recruits, recruits
Illex : pre-recruits, recruits
Mackerel : eggs, larvae, juveniles and adults
Butterfish : eggs, larvae, juveniles and adults

The Final Rule to revise the regulations implementing the EFH provisions of the MSA also requires: 1) identification of non-fishing related activities that may adversely affect EFH, 2) habitat conservation and enhancement recommendations (other than measures to minimize the impacts of fishing on *Loligo* egg EFH), 3) revisions to the description of MSB prey species and their habitats, and 4) a list of habitat-related research and information needs. This information is contained in Section 6 of this document

1.3 PURPOSE C: Evaluate Gear Impacts on *Loligo* Egg EFH

Purpose C of Am11 is to evaluate the impacts of fishing on *Loligo* egg EFH and if the adverse effects are more than minimal and not temporary in nature, to minimize the adverse effects to the extent practicable (the MSA states that an FMP shall "minimize to the extent practicable adverse effects on such habitat caused by fishing"). The MSA defines EFH as "those waters and substrate necessary to fish for spawning, breeding, feeding or growth to maturity." The MSA states that "Any fishery management plan…shall…describe and identify essential fish habitat for the fishery…, minimize to the extent practicable adverse effects on such habitat caused by fishing, and identify other actions to encourage the conservation and enhancement of such habitat."

While Amendment 9 to the MSB FMP considered analysis of the effects of MSB fishery activity on EFH for federally-managed species within the geographic scope of the management unit, *Loligo* egg EFH had not yet been designated and was, therefore, not included in that analysis. Therefore, Am11 evaluates potential adverse effects of fishing on *Loligo* egg EFH (including effects of MSB fisheries and other federally and state-managed fisheries on *Loligo* egg EFH). To the extent such an analysis determined that there are adverse impacts from federally-managed fishing activities on *Loligo* egg EFH that are more than minimal and not temporary in nature, Am11 would also have had to include 1) a range of alternatives for minimizing those impacts, 2) an analysis of the potential impacts of each alternative on managed resources, non-target species, the physical environment, protected species, and socioeconomic impacts, and 3) an analysis of the practicability of implementing each alternative.

There was minimal scientific information available on gear impacts to *Loligo* egg EFH. The available information suggested that gear impacts on *Loligo* egg EFH were minimal and/or temporary in nature so Amendment 11 does not contain alternatives regarding possible gear impacts to *Loligo* egg EFH.

1.4 PURPOSE D: Establish Recreational Mackerel Allocation

The 2007 MSA amendments mandated (Sec 303(a)(15)) that Councils:

> establish a mechanism for specifying annual catch limits in the plan (including a multiyear plan), implementing regulations, or annual specifications, at a level such that overfishing does not occur in the fishery, including measures to ensure accountability.

The language in MSA requires that the MSB FMP have Annual Catch Limits/Accountability Measures (ACLs/AMs) in place for mackerel and butterfish by 2011. Mackerel has a recreational component so management will need to include recreational ACL/AMs. There is no recreational allocation currently, just a soft assumption for purposes of setting specification levels. However, ACLs/AMs will create a de facto allocation because each sector (recreational/commercial) will have to be limited to a clearly defined portion of the quota. Thus instituting ACLs/AMs requires addressing the allocation issue in cases where allocations have not already been made, such as mackerel.

Am 11 was originally going to consider ACLs/AMs in full for the MSB FMP, including the issue of the recreational/commercial allocation. However, to facilitate a holistic approach to developing ACLs/AMs, the Council is now developing an Omnibus ACL/AM Amendment to address ACLs/AMs for all species in one action. Because the Council believed the mackerel allocation issue could best be evaluated within a species-specific FMP, the Council decided to leave the recreational allocation issue in AM 11, in essence to prepare the way for ACLs/AMs in the Omnibus ACL/AM Amendment. This way the Council can focus on ACL/AM issues such as technical implementation and risk policy rather than the allocation issue in the Omnibus Amendment. Thus the Council considered in Alternative Set 6 alternatives to establish a recreational allocation based on historical landings to prepare for development of ACLs/AMs in an Omnibus Amendment.

1.5 PURPOSE E: Avoid At-Sea Processing Problems

The fifth purpose of Am11 (E) is to avoid potential problems associated with at-sea processing of mackerel via at-sea transfers. While this type of processing is not occurring currently in the fishery, it is currently authorized in the plan and requires issuance of a dealer permit and compliance with dealer reporting requirements. It was an activity formerly conducted in the fishery by foreign processing vessels.

Specifically, concerns were raised in public comments that significant amounts of at-sea processing of mackerel could lead to negative fishing community impacts from disruption of supply of Atlantic mackerel to shoreside processors. Industry reports that shoreside processors have made significant investments in recent years and if vessels switched to at-sea processors the return from those investments could be compromised.

A critical component of the Council's motivation is that at-sea processors have limited ties to fishing communities compared to shore-side processors. The Council is concerned that if significant at-sea processing developed, there could be disruptions of supply of mackerel to shore-side processors, and subsequent impacts to the fishing communities where the processors are located. While the economic contribution of mackerel processing to the overall economy is likely a very small percentage, given the current economic difficulties in general and the hardships faced by the fishing industry in particular, the Council feels that consideration of ways to avoid such impacts are important nonetheless.

The Council has chosen no action as the preferred Alternative (Set 7) related to this purpose because the information available during drafting of this document suggested that the only reason for prohibiting at-sea processing was to make an economic allocation between the shoreside processors and potential at-sea processors, which is not allowed under the MSA.

1.6 SUMMARY OF THE ALTERNATIVES AND THEIR IMPACTS

Amendment 11 considers 7 Alternative Sets. Alternative Sets 1-4 combine to form a limited access system consisting of Tiered limited access and an open access component. The qualifying criteria for the limited access component are a valid Federal Fisheries Permit for mackerel as of March 21, 2007 and a certain level of mackerel landings during a specified time period. There are also considerations for a higher level of access by Herring Limited Access vessels that would not otherwise qualify because of the interlinkages between the mackerel and herring fisheries but ultimately the Council concluded that these vessels could likely operate under the open access category.

The March 21, 2007 mackerel permit requirement serves to consider current participation while avoiding speculative entry, consistent in principle with earlier FR notices since 2002 discouraging speculative entry. The use of historical landings to determine access provides a fair and equitable process and considers historical participation. The level of landings needed, the time periods involved and a number of other limited access components are presented in alternative sets 1-4.

Alternative Set 5 of this Amendment proposes several scenarios to update the EFH designations for species in the MSB FMP, as required by EFH regulations. Alternative Set 6 of this Amendment proposes several scenarios to allocate the mackerel quota between the recreational and commercial sectors to prepare for the ACL/AM Omnibus Amendment. Alternative Set 7 of the Amendment proposes several scenarios to implement a cap on at-sea processing via transfers to address a variety of Council concerns about potential at-sea processing. Each alternative is summarized individually next.

1.6.1 Alternative Set 1 (for Purpose A: Cap Capacity): Alternatives to develop a tiered limited access system in the Atlantic mackerel fishery (1A-1I).

Statement of Problem/Need for Action:

The mackerel fishery is currently an open access fishery with apparent excess capacity, and this could lead to a race to fish in the future (even though the fishery currently does not catch the quota). Racing to fish has been widely demonstrated to have negative socio-economic and negative biological consequences (USCOP 2004). The Council would like to institute limited access before a significant race to fish develops.

Background:

The last mackerel assessment available when the DEIS was created provided stock status information on mackerel in 2004. In 2004, fishing mortality appeared low and the stock appeared quite large, over 3 ½ times greater than the MSY stock size. Related to the apparent high stock size, Allowable Biological Catch (ABC) had been above 150,000 MT in recent years. ABC was calculated to be the catch corresponding to 75% of Fmsy applied to the current stock size, to account for scientific uncertainty. As recruitment returned to more average levels, it was expected that the mackerel stock would fall. The smaller biomass would support sustainable yields that are smaller than recent quotas, probably in the range of 12,000 MT-56,000 MT available to the US fishery under the current specifications process (and some of this quota would have to be allocated to the recreational fishery). While stock status and reference point information was not accepted in the recent 2010 assessment, most indicators pointed toward lower productivity and the assessment's recommended catch levels could produce U.S. quotas consistent with the quotas originally considered in the DEIS (12,000 MT-56,000 MT) (TRAC 2010). In this sense expectations about long-term quotas have not changed due to the 2010 assessement. Due to the TRAC assessment findings, the 2011 ABC was reduced to 47,395 mt.

While quotas were over 100,000 MT from 2003-2010, 2003-2007 catches averaged 43,000 MT (and were about half that average in 2008 and 2009 and about half again in 2010). It is not entirely clear why catches have not approached the quotas. Possibly a mix of factors is involved including market forces which affect fishing incentives (e.g. costs of inputs like fuel and prices fishermen can get for mackerel) and environmental forces which affect mackerel recruitment and abundance and/or availability in given locations

There were 2622 vessels that had federal mackerel permits at some point in 2007. The current fleet of vessels that have landed over 100 pounds of mackerel in a single year has an estimated physical capacity to harvest over 200,000 MT of mackerel annually, and the entrance of even one new vessel can substantially increase fleet capacity. This is demonstrated by examining landings by vessel for 2004 and 2006, the best years for the domestic mackerel fishery. The top 5 vessels landed an average of 5,008 MT per year each in these years. Given the assumed falling quotas, high number of mackerel permits, and the fact that single new vessels can substantially add to fleet capacity, the Council has voted to implement limited access, and stratify access based on fishing history and consideration of other fleet characteristics. Given the mackerel fleet has not been catching the quota, the Council is approaching limited access from a "corralling" point of view versus a drastic reduction in fleet size. By stratifying vessels based on historical performance into Tiers, vessels would qualify for various levels of access as described in this document. At least initially and likely for as long as quotas support the approach, vessels would generally be able to fish for mackerel in the same way they have been fishing (since 1997) but would be constrained from substantially increasing effort beyond their documented participation levels though 2007.

1C and 1D (the Preferred alternative) were modified in the SDEIS compared to the initial DEIS. The Council decided to lower the Tier 3 threshold to either a permit on March 21, 2007 or a 1,000 pound threshold (best year) in order to provide additional consideration to historical and smaller vessels who might not otherwise qualify for a Tier. The Council would initially place a relatively high trip limit (100,000 pounds - See Alternative 3F) on Tier 3 compared to what had been considered in the initial DEIS but proposes to have a cap on Tier 3, up to 7%. Thus Tier 3 vessels could have the opportunity for occasional sizable landings but the Tier as a whole would be capped to a relatively low level of the entire quota as related to recent performance (the cap is described in more detail in Section 5). It is not expected that Tier 3 vessels would be focusing on mackerel (they would likely have qualified for a higher permit if they had been focusing on mackerel). Rather, Tier 3 is designed to provide some access to mackerel should a localized abundance occur where mackerel are not frequently targeted. These modifications do not change the capacity analyses in this document because the capacity analyses only examine Tier 1 and Tier 2 (since Tier 3 is capped at a relatively low level it still should not significantly affect capacity concerns – the small quota derived from the 7% cap should still discourage significant additional capitalization by Tier 3 permit holders, at least for the purposes of catching mackerel).

For the final preferred alternative (1D), the Council included a 1,000 pound threshold (best year) for Tier 3. This low threshold was designed to accommodate historical participants who may have had larger landings in the past and relatively low levels of landings (less than the 25,000 or 10,000 considered in other alternatives) during the qualification period (3/1/1994-2005). The SDEIS included a sub-alternative where only a permit on 3/21/2007 would have been required for Tier 3 but this resulted in over 2,000 vessels qualifying and given the 7% cap on Tier 3 it did not appear reasonable to have so many vessels in a Tier with such a relatively small amount of quota available. The 7% cap for Tier 3 under the preferred cap was chosen based on the highest observed annual percentage of landings accounted for by Tier 3 from 1994-2007 (see section 5).

Summary of Proposed Management Actions and Rationale

The proposed limited access systems would limit access to the directed mackerel fishery to vessels with permits on March 21, 2007. Vessels would be grouped into Tiers based on historical landings, and different Tiers would have different levels of access. Due to the fleet's many and diverse vessels, stratifying access based on historical landings is necessary to effectively cap capacity. The alternatives utilize different qualifying periods and have varying thresholds. This results in different vessel groupings for those vessels that qualify for various levels of access. The Council also considered qualifying all vessels with Atlantic Herring Limited Access Permits for a Tier 3 permit (see 1H/1I) if they did not qualify for a higher Tier based on their landings history because of the connections between the mackerel and herring fisheries (the same vessels sometimes target mackerel or herring on the same trip). Since the open access trip limit would initially be 20,000 pounds, the Council ultimately decided that a 20,000 pound trip limit should accommodate herring vessels that otherwise do not qualify for a higher Tier, i.e. the Council did not choose to grant Tier 3 permits to Herring Vessels that did not qualify for a Tier 3 or higher permit based on landings.

Alternatives: **1A:** No action (no limited access system)

1B: Implement a 3-tiered limited access system. Vessels would be grouped based on the highest tier (Tier 1 highest) qualified for based on the following thresholds:

Tier 1: At least 1,000,000 pounds landed in any one year 1997-2007

Tier 2: At least 100,000 pounds landed in any one year 1988-2007
Tier 3: At least 25,000 pounds landed in any one year 1988-2007
Open Access: All other vessels.

1C: Implement a 3-tiered limited access system. Vessels would be grouped based on the highest tier (Tier 1 highest) qualified for based on the following thresholds:
Tier 1: At least 1,000,000 pounds landed in any one year 1997-2007
Tier 2: At least 100,000 pounds landed in any one year 1997-2007
Tier 3: Possessed mackerel permit on March 21, 2007 along with a sub-option of requiring 1,000 pounds in best year 1997-2007.
Tier 3 would be capped for a maximum catch up to 7% of the commercial quota, set annually during the specifications process (no other allocations).
Open Access: All other vessels.

1D (PREFERRED): Implement a 3-tiered limited access system. Vessels would be grouped based on the highest tier (Tier 1 highest) qualified for based on the following thresholds:
Tier 1: At least 400,000 pounds landed in any one year 1997-2005
Tier 2: At least 100,000 pounds landed in any one year 3/1/1994-2005
Tier 3: At least 1,000 pounds in any one year 3/1/1994-2005. Tier 3 would be capped for a maximum catch up to 7% of the commercial quota, set annually during the specifications process (no other allocations).
Open Access: All other vessels.

Note: As stated above and consistent with the DEIS and SDEIS, possession of a mackerel permit on **March 21, 2007** is also a permit requirement for Tiers 1, 2, and 3.

1E: Implement a 3-tiered limited access system. Vessels would be grouped based on the highest tier (Tier 1 highest) qualified for based on the following thresholds:
Tier 1: At least 400,000 pounds landed in any one year 1997-2005
Tier 2: At least 100,000 pounds landed in any one year 1997-2005
Tier 3: At least 25,000 pounds landed in any one year 1997-2007
Open Access: All other vessels.

1F: Implement a 3-tiered limited access system. Vessels would be grouped based on the highest tier (Tier 1 highest) qualified for based on the following thresholds:
Tier 1: At least 1,000,000 pounds landed in any one year 1997-2007
Tier 2: At least 100,000 pounds landed in any one year 1988-2007
Tier 3: At least 10,000 pounds landed in any one year 1988-2007
Open Access: All other vessels.

1G: Implement a 1-tiered limited access system. Vessels would be grouped based on the highest tier (Tier 1 highest) qualified for based on the following thresholds:
Tier 1: At least 1,000,000 pounds landed in any one year 1997-2007

Open Access: All other vessels would have trip limits as described for Tier 2 with Alternative 1B in Alternative Set 3. Quota would be allocated to the two categories based on historical landings 1997-2007 or double that or triple that for the open access category.

1H: Include in the Tier 3 qualification criteria that any vessel with a Herring Limited access "A" or "B" permit would also qualify.

1I: Include in the Tier 3 qualification criteria that any vessel with a Herring Limited access "A", "B", or "C" permit would also qualify.

1J: Implement a 3-tiered limited access system. Vessels would be grouped based on the highest tier (Tier 1 highest) qualified for based on the following thresholds:

Tier 1: At least 1,000,000 pounds landed in any one year 1997-2007
Tier 2: At least 100,000 pounds landed in any one year 3/1/1994-2007
Tier 3: At least 25,000 pounds landed in any one year 3/1/1994-2007
Open Access: All other vessels.

Summarizing by Tier helps clarify the range inherent in the alternatives. All Tiers have the March 21, 2007 permit requirement.

Tier 1: Start dates of 1997; end dates of 2005 or 2007.
Qualifying landings (best year in time series) of 1,000,000 or 400,000 pounds.

Tier 2: Start dates between 1988 and 1997; end dates of 2005 or 2007.
Qualifying landings (best year in time series) of 100,000 pounds.

Tier 3: Start dates between 1988 and 1997; end date of 2005 or 2007.
Qualifying landings (best year in time series) of zero to 25,000 pounds.
Could allow additional herring limited access vessels to qualify.

Each Tier scenario results in a different group of vessels being predicted to qualify for the proposed limited access Tiers. The numbers of vessels in each case are described in the Tier Summary Table below (Table 1) and the resulting capacity estimate is included next to each Alternative (1B, 1C, etc.) More detailed characteristics for these vessel groups can be found in Sections 5 and 7. For the Tier Summary Table below, "Tier" is the access category, "Years" are the years used for qualification, "Threshold" is the poundage required in a vessel's best year to qualify for a given Tier, and "Vessels" is the number of Vessels that are predicted to qualify. The estimates for Vessels in each Tier are based on analysis of unpublished NMFS dealer weighout data. To the extent that vessels may no longer exist or to the extent that some vessels' landings during the qualifying period are not in the dealer weighout database, the final tally of vessels in any given Tier could be lower or higher. The reader is reminded that these are predicted qualifiers, based on the current dealer weighout database. There are errors in this database which means once individuals start applying and possibly challenging the existing records, the numbers are likely to change to some degree.

Table 1. Tier Summary (Open Access Capacity is 202,111 MT)

Tier	Years	Threshold	Vessels
1B - Capacity: 131,157 MT			
Tier 1	1997-2007	1,000,000	26
Tier 2	1988-2007	100,000	64
Tier 3	1988-2007	25,000	56
Open Access	Na	na	Na
1C - Capacity: 121,031 MT			
Tier 1	1997-2007	1,000,000	26
Tier 2	1997-2007	100,000	36
Tier 3	1997-2007	1,000	309
Open Access	Na	na	Na
1D (preferred) - Capacity: 107,578 MT			
Tier 1	1997-2005	**400,000**	29
Tier 2	1994-2005	100,000	45
Tier 3	1994-2005	1,000	329
Open Access	Na	na	Na
1E - Capacity: 103,754 MT			
Tier 1	1997-2005	**400,000**	29
Tier 2	1997-2005	100,000	25
Tier 3	1997-2007	25,000	50
Open Access	Na	na	Na
1F - Capacity: 131,157 MT			
Tier 1	1997-2007	1,000,000	26
Tier 2	1988-2007	100,000	64
Tier 3	1988-2007	10,000	121
Open Access	Na	na	na
1G - Capacity: 202,111 MT			
Tier 1	1997-2007	1,000,000	26
Open Access	Na	na	Na
1J - Capacity: 124,840 MT			
Tier 1	1997-2007	1,000,000	26
Tier 2	1994-2007	100,000	55
Tier 3	1994-2007	25,000	49
Open Access	Na	na	Na

The Council considered additional accommodation of participants with Herring limited access permits. Providing Tier 3 limited access permits to Herring limited access vessels not including incidental "C" (1H) permits would have likely added about 20 vessels to Tier 3. Providing Tier 3 limited access permits to herring limited access permits including incidental "C" permits (1I) would have likely added 45-50 vessels to Tier 3 beyond the numbers in Table 1. The Council determined that the 20,000 pound trip limit for open access should be sufficient to cover most situations for Herring Vessels that have not reported sufficient landings to otherwise qualify for a higher Tier, as detailed in this document.

Rationale for Tiers and Thresholds

The Council proposes the Tiered access system described in this document to cap capacity while at the same time avoiding regulatory discarding and minimizing adverse economic impacts. There are many different kinds of vessels participating in the mackerel fishery. Having just two categories of vessels, directed and incidental could lead to either high discarding or significant adverse economic impacts if the incidental category had a low trip limit, or a low level of overall access control if the incidental category had a high trip limit. For example, under 1G, there are just two categories. Currently the proposed trip limits for the incidental category would allow significant expansion of effort by vessels that in the other Tier scenarios are much more limited. If a lower trip limit was used, then vessels would be impacted to the degree that the trip limits (Alternative Set 3) did not match their recent fishing behavior.

Having too many (6-7) categories is not feasible administratively. Thus the three Tier system (plus open access) seeks to group like vessels together, and the restrictions on each Tier discussed later are designed to keep vessels from one Tier from expanding effort to levels characteristic of the next Tier, i.e. limit them to their recent and/or historical participation. In summary, based on analysis of likely vessel assignments to Tiers and public comment, the current set of Tiers uses the fewest possible number of Tiers to group vessels into categories such that the vessels in each Tier are similar enough to be managed together in an effective fashion. The thresholds for each Tier came out of public comment and review of data about the characteristics of vessels (including dependence on mackerel) that would qualify for each Tier, with the goal being to make sure the vessels in each Tier were similar enough to effectively be managed as a group. The differences between vessels in each Tier are described in Section 7.5.1, for example in Tables 82-84. While anything short of an ITQ is going to mean that different kinds of vessels have to be jointly managed, the Council judged that the current Tier thresholds result in vessel groups that, especially in terms of their mackerel landings, are common enough to be jointly managed.

Rationale for Qualifying Periods

The year ranges are designed to account for current and historical participation. Using data from before 1997 and especially before 3/1/1994 (start of mandatory reporting for most NE limited access permits - referenced simply as "1994" throughout this document) means that there would be difficulty verifying landings and there could be equity issues since some people may have not kept landings records. However the Council considered earlier data to properly consider historical participation. In public comments received during development of Amendment 11, fishermen stated that by not going back to 1988 could leave a number of vessels in more southern regions out of limited access related to the shifting availability of mackerel. To account for the historical participation by vessels given the shifting availability of mackerel, the Council would like to use as long a time period as possible to cover different scenarios of availability. To address these concerns the Council has included some qualification dates that extend back to 1988 for the lower Tiers. The Council originally wanted to include qualification dates going back to 1983 for all the Tiers, but NMFS has strongly recommended against this because of difficulty in validating landings and concerns about fabricated landings for data before 3/1/1994. The Council has modified several alternatives (1C, 1D, 3F) to create a Tier 3 that while capped, would provide a wider range of vessels (including vessels with larger historical landings as long as they maintained permits as of March 21, 2007 and/or had 1000 pounds in at least one year over the qualification period) additional access to the mackerel fishery. The modified Tier 3 in the preferred alternative 1D accomplishes this by using a lower Tier 3 threshold (1,000 pounds) than was originally considered (25,000 pounds).

Summary of Biological Impact Analysis

In terms of initial capacities (see 7.5.1), 1E<1D (the Preferred alternative) <1C<1J<1B= 1F<1G=1A. 1G may not significantly limit capitalization because all open access vessels would have relatively high trip limits (see Alt 3G). Analysis shows that the Tiered limited access systems result in a reduction of physical/technical capacity from the status quo by 0%-49%. It should also be noted that a significant amount of the reduction could be a reduction of latent (versus active) capacity. While the estimates of capacity for the alternatives (**131,157 MT-103,754 MT)** are higher than the estimated long term U.S. yield (12,000 MT - 56,000 MT under the current regulations, and 34,000 MT - 56,000 MT if the available long-term target yield was split evenly between the U.S. and Canada - see 6.1.1.2), the two numbers should not be directly compared because the capacity estimate is only a physical/technical capacity calculation (versus a bio-economic model which ***would*** allow modeling of how much fish any given fleet, with its associated physical/technical capacity estimate, would be likely to produce in a given year - such a model is not available). In fact optimal capacity may be much higher than a given year's quota (Terry et al 2008 - NMFS Tech Memo). However, since capacity would be relatively high compared to long term yields, it is possible a race to fish could develop despite institution of limited access.

Given this alternative is part of the proposed limited access system and that mackerel is already managed with a hard quota with in-season closures, initial biological impacts would likely be minimal compared to the status quo (in recent years the quota has been significantly under-harvested), but possibly positive in the long run if a future race to fish is mitigated. Alternatives with lower initial capacities would probably have a lower probability of a race to fish in the future with concordant biological benefits (see Section 4.0) to the managed species, non-target species, and protected resources, but such benefits are impossible to quantify. The modified alternatives 1C and 1D (the Preferred alternative) could create a race to fish within Tier 3 given the accompanying cap and trip limits, but effects should be minimal given they will be capped at a small percentage of the total quota. Similarly, 1C and 1D (the Preferred alternative) could still minimize additional capitalization since Tier 3 will be capped a relatively low level, but possibly not as much as would happen with lower trip limits.

Spatial/Temporal effort changes due to imposition of limited access are not expected (related to mackerel's limited availability), so significant impacts to protected resources and/or non-target species are not expected, especially since quotas are expected to fall which could limit effort. There are not significant habitat concerns because most of the mackerel catch is made with mid-water trawl gear.

Summary of Economic Impact Analysis

For all of the alternatives in this Alternative Set, initial impacts would likely be minimal compared to the status quo because in recent years the quota has been significantly under-harvested and most active vessels will be able to maintain their current/historical participation. Use of a 2005 control date will impact a relatively small number of vessels that would have otherwise qualified for a higher Tier with landings from 2006 or 2007. More recent entrants would be similarly impacted but the currently proposed control dates have been noticed and/or discussed in multiple formats since 2005 (e.g. FR notices, public Council meetings, Council website, etc.). Overall impacts would be expected to be positive (i.e. higher profits) in the long run if a race to fish is mitigated, and scenarios with lower initial capacities would be expected to produce more benefits in terms of avoiding a race to fish.

Vessels which qualify will likely benefit from their inclusion in the limited access system. Vessels which do not qualify and would have otherwise fished for mackerel in the future would forgo future revenues, but limited access is generally recognized to provide higher overall benefits than open access fisheries, especially in the long run (and especially if the long run involves a smaller quota). Conversely, if mackerel quotas are relatively high and the final fleet is a relatively lower capacity fleet, the possibility also exists that the resulting fleet has difficulty actually catching the quota; recent years have demonstrated that the fleet has not been catching the quota.

The modifications made to alternatives 1C and 1D (the Preferred alternative) are designed to minimize any potential future impact on smaller vessels or vessels with larger historical landings but insufficient recent landings to otherwise qualify for a limited access Tier under the original alternatives. Via lower qualification thresholds, the modifications qualify more vessels for Tier 3 (compared to the original DEIS) and the proposed trip limits for Tier 3 tied to the preferred alternative 1D would provide at least occasional substantial landings for Tier 3 vessels (though if the overall quota is low, Tier 3 could reach its 7% cap quickly). While a vessel with substantial historical landings that gave up its permit or had extremely low landings in more recent periods might still not qualify for Tier 3, the Council determined that the modifications constituted full consideration and reasonable accommodation for historical participation.

1.6.2 <u>Alternative Set 2</u> (for Purpose A: Cap Capacity): Alternatives to allocate quota to limited access Tiers based on historical landings.

Statement of Problem/Need for Action: To make limited access meaningful, the access to the mackerel fishery that each Tier (and open access) would be granted must be specified.

Background:

The Council considered options that preserve Tier 2's access to some amount of quota to recognize their historical participation, which takes the form of allocations specific to Tier 2. Allocations are grounded in the dealer data years 1997-2007 given the higher quality of this data, and the range of allocations stems from the Council considering current and historical participation. The Council has received comments that Tier 2 historically caught double to triple recent landings as a percentage, which is also supported by the earlier, but less reliable and less complete dealer data. Including earlier time periods results in Tier 2 catching higher proportions of the total landings (as high as 11% depending on the Tier Structure and Years selected) but that data is less complete and less reliable. However, to the extent that all Tiers would have been less likely to report, the higher landings in earlier periods would generally be indicative of historically different landing proportions, and this is the rationale for the alternatives that consider allocating more to Tier 2 than their 1997-2007 landings would otherwise suggest.

The lack of an allocation for Tier 2 under the modified alternatives 1C and 1D (preferred) is related to a concern raised during public comments that an allocation to Tier 2 based on recent landings combined with a potential natural evolution of the fishery toward smaller vessels given likely future smaller quotas might constrain Tier 2 too much. Thus the preferred alternative is 2A, i.e. no action for allocation, though 1D (Preferred) does utilize a cap on Tier 3 as discussed elsewhere in this document.

Summary of Proposed Management Actions and Rationale

The proposed mackerel limited access system is designed to cap capacity, preserve documented current and historical access, and avoid regulatory bycatch. Therefore, as part of the mackerel limited access system, vessels in each Tier could be regulated by trip limits and/or quotas. Alternative Set 2 describes the quota provisions considered, however recall the Council adopted "No Action" for this alternative set. The calculation would be based on analysis of where vessels are predicted to end up based on current dealer data, and those vessel's documented landings. If vessels successfully appeal their Tier assignment the allocation would not automatically change - it would need to be changed by a future action (framework or amendment) if the Council wanted to make an adjustment. Allocations would generally be monitored with the current monitoring that is in place (see reporting options in 4G (Preferred) for some exceptions). Based on public comment after the DEIS was first published, the Council modified alternatives 1C and 1D (Preferred) such that the only allocation-type measure would be to limit Tier 3 to a cap. See Sections 1.6.1 and 1.6.3 for additional details. Since Alternative 1D is preferred and 1D specifies no allocations other than a cap on Tier 3, 2A is by default preferred.

Alternatives: **2A (PREFERRED):** No action (no allocation of quota to the Tiers)

2B: Allocate to Tier 2 the percentage of the total landings Tier 2 landed from 1997-2007. The remaining quota is used by Tier 1, Tier 3, and the open access category jointly (and would be the percentage that they landed 1997-2007). Directed fishing within a given allocation/Tier would close when 90% of the allocation is projected to be harvested (pre/post closure trip limits are discussed in the next alternative set). If Alternative 1G is selected, the same principle would be used to allocate the commercial quota between Tier 1 and open access.

2C: Allocate to Tier 2 double the percentage of the total landings Tier 2 landed from 1997-2007. The remaining quota is used by Tier 1, Tier 3, and the open access category jointly. Directed fishing within a given allocation/Tier would close when 90% of the allocation is projected to be harvested (pre/post closure trip limits are discussed in the next alternative set). On April 1, if less than half of Tier 2's total allocation has been used, then half of Tier 2's remaining directed fishery allocation that was unused as of March 15 reverts to the Tier 1/Tier3/Open Access quota. For example, if by March 15 Tier 2 had used 40% of its quota, and Tier 2 closes at 90%, then 25% of Tier 2's quota reverts to Tier 1/. (90%-40% = 50%; 50% divided by 2 equals 25%). If Alternative 1G is selected, the same principle would be used to allocate the commercial quota between Tier 1 and open access.

2D: Allocate to Tier 2 triple the percentage of the total landings Tier 2 landed from 1997-2007. The remaining quota is used by Tier 1, Tier 3, and the open access category jointly. Directed fishing within a given allocation/Tier would close when 90% of the allocation is projected to be harvested (pre/post closure trip limits are discussed in the next alternative set). On April 1, if less than half of Tier 2's total allocation has been used, then half of Tier 2's remaining directed fishery allocation that was unused as of March 15 reverts to the Tier 1/Tier3/Open Access quota. For example, if by March 15 Tier 2 had used 40% of its quota, and Tier 2 closes at 90%, then 25% of Tier 2's quota reverts to Tier 1/. (90%-40% = 50%; 50% divided by 2 equals 25%). If Alternative 1G is selected, the same principle would be used to allocate the commercial quota between Tier 1 and open access.

Quota Assignment Rationale

The Council originally considered managing each Tier with its own quota, but the current alternatives were developed as a result of considering the implementation difficulty of managing multiple quotas and managing the very small quotas that Tier 3 and/or open access would receive. If Tiers are going to be binned for the purposes of quota management, the Council deemed that it makes sense to combine the lower tiers with the 85%+ that Tier 1 would have. The rationale follows: Because they will be managed by relatively small trip limits, Tier 3 and Open Access may take a small but varying (likely a relatively narrow range) percentage of the quota. If they take 1% versus 3% of a quota in the range of 88%-97% (Tier 1) it would matter significantly less than if they take 1% versus 3% of a quota in the range of 3%-12%. In other words, taking a small but variable portion of a large quota will have less impact to the quota category overall than taking a small but variable portion of a small quota. In addition, keeping Tier 2 separate fits with the rationale of keeping a certain amount of quota for them in consideration of their historical participation.

After receiving public comments on the DEIS, the Council decided to modify some of the allocation provisions to simplify the program, increase flexibility, and provide additional accommodations for historical vessels. With this rationale and under Alternatives 1C or 1D (Preferred), the Amendment would not allocate beyond placing a cap on Tier 3. Tier 3 would have a relatively high trip limit to accommodate occasional substantial landings but would close when it reaches its cap. The cap would be set annually, initially based on a review of Tier 3's performance over 1994-2007 for 1D (Preferred) and 1997-2007 for 1C in terms of Tier 3's proportion of commercial landings based on the maximum, minimum, median, and average. These values are described in more detail in Section 5. Tier 3's cap would be managed just like existing quotas - when 90% (adjustable during specifications) of the cap is reached a lower trip limit would be instituted. This system would maintain control on the numbers of primary directed vessels while also allowing a wider range of vessels to make landings subject to the overall Tier 3 cap and Tier 3 trip limit. Some additional reporting options for Tier 3 are considered via alternative 4G.

<u>Transfer Rationale (2C and 2D) (applies if 1B, 1E, 1F, or 1J are selected).</u>

Alternatives 2C and 2D provide more allocation to vessels in Tier 2 than they have caught 1997-2007 to take into account their historical participation. The transfer provision is to help avoid a situation where the total quota is overall underutilized but some Tiers are limited. While Tier 2 may have historically caught more than they have been catching recently, they might not catch such higher amounts in the future, which could leave a substantial amount of quota unused. The transfer provision is to help avoid a situation where the total quota is overall underutilized but some Tiers are limited - the Council would want to avoid a situation where Tier 1 was closed but Tier 2 was left significant quota unused. The transfer would occur in April based on projections made in March and while April is late in the Mackerel season, substantial landings do usually occur in April.

<u>Quota Monitoring</u>

No additional monitoring is proposed for most tiers under most alternatives. While the mackerel fishery has taken as high as 6% of its quota per week (versus a 10% closure threshold), when such high landings are being made they are generally made in a consistent fashion week to week, which should allow NERO to effectively project landings and close the fishery (or make transfers) appropriately with the current monitoring regime. There is no information to suggest that for mackerel, this would not hold in the case of monitoring one quota or two, or in times of high or low quota. There are some additional monitoring measures considered related to the modified 1C and 1D (Preferred) alternatives, as discussed in Alternative 4G.

Summary of Biological Impact Analysis

Given this alternative is part of the proposed limited access system and that mackerel is already managed with a hard quota with in-season closures, initial impacts would likely be minimal compared to the status quo (in recent years the quota has been significantly under-harvested), but possibly positive in the long run if a future race to fish is mitigated. This Alternative Set has more impact on allocation rather than biological impacts.

Summary of Economic Impact Analysis

For all of the alternatives in this Alternative Set, initial impacts would likely be minimal compared to the status quo because in recent years the quota has been significantly under-harvested and most active vessels will be able to maintain their current/historical participation. Overall impacts would be expected to be positive in the long run if a race to fish is mitigated (and especially if the long run involves a smaller quota).

2C and 2D shift quota from T1, T3, OA to T2 compared to landings over 1997-2007, but impacts from the status quo would again likely be minimal given the fishery has not been catching the quota, i.e. the transfer would not be constraining. Based on recent fishery performance, this holds as long as quotas are above 62,000 MT. Table 2 describes the percentages that would be allocated to Tier 2 depending on which limited access Tier structure scenario was chosen (Set 1) and depending on which allocation alternative was chosen (Set 2). Tier 1, Tier 3, and open access would share the rest of the quota (a de facto allocation - see Table 3). The rows for 1C and 1D (Preferred) contain "NAs" because the modified alternatives 1C and 1D specify no allocations - only a cap on Tier 3. Since the Council adopted 1D as preferred, 2A is by also preferred.

Table 2. Tier 2 Allocations

Tier Structure Alternatives (Set 1)	Tier 2 Allocation Alternatives (Set 2): 2B	2C	2D
1B	3.6%	7.2%	10.8%
1C	NA	NA	NA
1D	NA	NA	NA
1E	3.8%	7.7%	11.5%
1F	3.6%	7.2%	10.8%
1J	3.5%	7.0%	10.5%

With 1G, open access would be allocated 8.8% (2B), 17.6% (2C), or 26.5% (2D) of the quota and Tier 1 would be allocated the rest (91.2%, 82.4%, 73.5%), following the same principle of keying off proportions caught by the lower category group of vessels 1997-2007 or double or triple that amount.

Table 3. Tier 1/3/OA Allocations

Tier Structure Alternatives (Set 1)	Tier 1/3/OA Allocation Alternatives (Set 2): 2B	2C	2D
1B	96.4%	92.8%	89.2%
1C	NA	NA	NA
1D	NA	NA	NA
1E	96.2%	92.3%	88.5%
1F	96.4%	92.8%	89.2%
1J	96.5%	93.0%	89.5%

The modifications made to alternatives 1C and 1D (Preferred) are designed to minimize any potential future impact on vessels with larger historical landings but insufficient recent landings to qualify for a limited access Tier under the original alternatives considered in the DEIS. The modifications qualify more vessels for Tier 3 and the proposed trips limits for Tier 3 (see alternative 3F) tied to alternatives 1C and 1D would provide at least occasional substantial landings (though if the overall quota is low, Tier 3 could reach its cap quickly). The modifications also remove the explicit allocations between the Tiers. This could mean that Tier 2, which had its own quota previously, could take more than would have been allocated or could have access to less mackerel if the other Tiers catch the quota rapidly.

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1.6.3 <u>Alternative Set 3</u> (for Purpose A: Cap Capacity): Alternatives to specify trip limits for each Tier.

Statement of Problem/Need for Action: To make limited access meaningful, the access to the mackerel fishery that each Tier (and open access) would be granted must be specified. In this sense, the trip limit alternatives operationalize the limited access system and this is how they relate, albeit indirectly, to Purpose A, Capping Capacity.

Background:

Taken as a whole, the trip limit alternatives provide consideration of current and historical fishing participation because they generally assign trip limits based on the actual trips that vessels made from 1997-2007. The proposed trip limits are purposefully set relatively high within the range of observed trips but still low compared to how the primary directed fishery operates because the intent is to avoid the incentive for lower Tier vessels to capitalize for purposes of mackerel fishing while avoiding regulatory discarding. The alternatives are thus based on an analysis of trips in the dealer weighout database and generally identify trip limits that would not affect 95%, 98%, or 99% of trips in the dealer weighout database by vessels in each Tier over 1997-2007. 3F, the preferred alternative, was modified from the "3F" alternative considered in the DEIS to provide additional consideration for historical participants that could qualify for Tier 3 under the modified 1C and 1D (Preferred) alternatives. The modification also provides for Tier 2 and open access trip limits that are based both in analysis of those Tiers' behaviors as well as input from the SMB Advisory Panel and public comment.

Summary of Proposed Management Actions and Rationale

The proposed mackerel limited access system is designed to Cap Capacity while generally preserving documented current and historical access and also avoiding regulatory bycatch by providing sufficient flexibility to vessels to operate in a range characteristic of vessels in their Tier. Therefore, as part of the mackerel limited access system, vessels in each Tier could be subjected to the trips limits as described below. The alternatives are generally based on analysis of historical trips and where vessels are predicted to end up based on current dealer data (If vessels successfully appeal their Tier assignment the trip limits would not automatically change - it would need to be changed by a future action such as annual specifications). 3F was modified in consideration of facilitating additional consideration of historical vessels as described in Section 1.6.1 and related to modifications made to Alternatives 1C and 1D (Preferred). 3F's proposed trip limits were derived from both analysis about what levels of landings would cover the majority of existing trips (see table 4), as well as advisory panel and public input to the Council about what trip limits would discourage capacity increases, avoid regulatory discarding, and accommodate historical participation to the extent practicable. The SDEIS had a range of 1,000 to 20,000 pounds for open access trip limits and the Council slightly modified 3F for the final preferred alternative such that the open access trip limit would be 20,000 pounds initially, modifiable via annual specifications.

Alternatives: **3A**: no action (no trip limits for the Tiers)

3B: Trip limits set annually though the annual specifications process. No Tier 1 directed fishery trip limit. Initially set directed fishery trip limits for Tier 2, Tier 3, and the open access category at the levels which would have not have affected **<u>99%</u>** of trips in dealer weighout database by vessels in each category <u>1997-2007</u>. Initially set directed fishery closure trip limits (i.e. incidental limits for when 90% of a quota is reached) as: Tiers 1 and 2: 20,000[1] pounds; Tier 3 and open access: The directed trip limit or 20,000 pounds, whichever is less (i.e. if they are less than 20,000 pounds directed, there is no need for them to ever change).

3C: Trip limits set annually though the annual specifications process. No Tier 1 directed fishery trip limit. Initially set directed fishery trip limits for Tier 2, Tier 3, and the open access category at the levels which would have not have affected **<u>98%</u>** of trips in dealer weighout database by vessels in each category <u>1997-2007.</u> Initially set directed fishery closure trip limits (i.e. incidental limits for when 90% of a quota is reached) as: Tiers 1 and 2: 20,000 pounds; Tier 3 and open access: The directed trip limit or 20,000 pounds, whichever is less (i.e. if they are less than 20,000 pounds directed there is no need for them to ever change).

3D: Trip limits set annually though the annual specifications process. No Tier 1 directed fishery trip limit. Initially set directed fishery trip limits for Tier 2, Tier 3, and the open access category at the levels which would have not have affected **<u>95%</u>** of trips in dealer weighout database by vessels in each category <u>1997-2007</u>. Initially set directed fishery closure trip limits (i.e. incidental limits for when 90% of a quota is reached) as: Tiers 1 and 2: 20,000 pounds; Tier 3 and open access: The directed trip limit or 20,000 pounds, whichever is less (i.e. if they are less than 20,000 pounds directed there is no need for them to ever change).

3E: Exempt Tier 2 from a directed trip limit (Tier 2 would just be governed by a quota) at least initially - Tier 2 Trip limits could be instituted via Specs at a later date.

3F (PREFERRED): All trip limits are adjustable via specifications. No Tier 1 directed fishery trip limit. Initially set the Tier 2 trip limit to be 135,000 pounds, adjustable during specifications. Initially set the Tier 3 trip limit to be 100,000 pounds, adjustable during specifications. Initially set the open access trip limit to be 20,000 pounds, adjustable up to 20,000 pounds during specifications. Initially set directed fishery closure trip limits as: Tiers 1, 2, and 3: 20,000 pounds; open access stays at same level during a closure.

3G: Trip limits set annually though the annual specifications process. If Alternative 1G is selected: No trip limit for Tier 1. For Open Access, trip limit range would be what would have been calculated for Tier 2 with Alternatives 3B-3D for Tier 2 under Alternative 1B.

[1] A 20,000 pound trip limit was shown to involve a low probability of an overage occurring at a 90% closure threshold, even with open access, in the 2008 Specification EA due to the extremely small percentage of landing represented by landings under 20,000 pounds.

Trip Limit Summary by Tier

The alternatives propose a range of trip limits. For example, 3B would set trip limits for Tier 2, Tier 3, and open access at levels that would not have impacted 99% of the trips taken by the vessels predicted to end up in each category (as recorded in the dealer weighout database from 1997-2007). The Trip limit ranges for the following Tiers are:

Tier 2................. 39,000 - 553,000 pounds per trip. Also considers no trip limit for Tier 2
Tier 3................. 4,000 - 100,000 pounds per trip.
Open Access....... 1,000 - 20,000 pounds per trip.

Trip Limit Design Rationale

Consistent with the Council's general intent with limited access, the trip limits are designed to restrict vessels to a range of landings that are characteristic of trips by vessels within a Tier. The proposed trip limits are set to affect a small proportion of trips by vessels predicted to be in each Tier so that regulatory discarding is avoided while vessels are constrained from significantly increasing their landings compared to historical levels, i.e. they are prevented from entering the main directed fishery and thus have low incentive to capitalize for purposes of fishing for mackerel (which is a high volume fishery by nature). The trips limits would be set annually after reviewing the best available scientific information on the state of the mackerel stock and on the performance of the fishery.

Related to the Council's modifications of alternatives 1C and 1D (Preferred) after receiving public comment and input from the SMB Advisory Panel, 3F has been modified to better accommodate historical fishing practices in connection with allowing more vessels into Tier 3 per the modified alternatives 1C and 1D. 3F's 135,000 pound trip limit for Tier 2 was originally identified in the DEIS as a trip limit that would not have affected 99% of the trips by vessels predicted to qualify for Tier 2 under Alternative 1C. Subsequent input by the SMB AP and public comment identified 135,000 pounds as an appropriate initial trip limit for Tier 2 for either 1C or 1D (Preferred) and 100,000 pounds as an appropriate initial trip limit for Tier 3.

Results of Trip Limit Alternatives Depend on which Alternative Set 1 alternative is selected.

Table 4 displays what this Alternative Set produces for a range of trip limits. For example, if the Council implemented Alternative 1B (horizontal) for the general Tier structure and implemented trip limit alternative 3B (vertical), the resulting trip limits would be 121,000 for Tier 2, 11,000 for Tier 3, and 4,000 for the open access category (all calculations were rounded up to nearest 1000). In Table 4, the selection of the general Tier structure affects which vessels are in which Tiers, which in turn affects the collection of trips by the vessels in any given Tier, which means there are many possible combinations. The maximum and minimum for each Tier are underlined. Since 1C and 1D (Preferred) were modified by the Council to include the new 3F trips limits, the limits in 3F would apply and the table includes NAs for 1C and 1D (Preferred). 3E also includes NAs for Tier 2 since 3E would exempt Tier 2 from trip limits, at least initially.

Table 4. Trip Limit Alternatives

Tier Alts. (Set 1)	Trip Limit Alternatives (Set 3)				
Tier 2	**3B (covers 99% of trips)**	**3C (covers 98% of trips)**	**3D (95% of trips)**	**3E**	**3F**
1B	121,000	100,000	61,000	NA	135,000
1C	NA	NA	NA	NA	135,000
1D	NA	NA	NA	NA	135,000
1E	553,000	178,000	75,000	NA	135,000
1F	121,000	100,000	61,000	NA	135,000
1J	121,000	101,000	62,000	NA	135,000
Tier 3					
1B	11,000	7,000	4,000	See 3B-3D	100,000
1C	NA	NA	NA	See 3B-3D	100,000
1D	NA	NA	NA	See 3B-3D	100,000
1E	33,000	18,000	7,000	See 3B-3D	100,000
1F	9,000	6,000	3,000	See 3B-3D	100,000
1J	13,000	8,000	5,000	See 3B-3D	100,000
OA					
1B	4,000	2,000	1,000	See 3B-3D	20,000
1C	NA	NA	NA	See 3B-3D	20,000
1D	NA	NA	NA	See 3B-3D	20,000
1E	4,000	3,000	2,000	See 3B-3D	20,000
1F	3,000	2,000	1,000	See 3B-3D	20,000
1G/3G	121,000	100,000	61,000	na	20,000
1J	4,000	2,000	1,000	See 3B-3D	20,000

Summary of Biological Impact Analysis

Impacts should be minimal given the Alternatives are designed to impact a low number of trips and the overall catch is controlled with a hard quota. To the extent that low trip limits provide disincentive to increase capacity, may be some unquantifiable benefits to lower trip limits on the lower Tiers related to avoiding racing to fish. 3E, 3F, and 3G, by providing relevant Tiers with relatively high trip limits may not be as effective as other alternatives in providing such disincentives. In general, this alternative should be thought of as part of the limited access system thus there are biological benefits as described for Alternative Set 1. Without some trip limit on the majority of vessels, limited access would be meaningless. With there being 2,622 federal mackerel permits (2007), and at most 90 are predicted to get a Tier 1 or Tier 2 qualification, the trip limits would be the primary control of eliminating over 95% of federally permitted vessels from the main directed fishery. While the higher Tier 3 trip limits proposed under 3F might seem to provide a loophole on control of the fishery, since Tier 3 would be capped at a relatively low total quota (7% or less), most vessels are still eliminated from the main directed fishery (once the cap is reached Tier 3 would revert to a relatively low landings level) and thus should still overall serve the goal of capping capacity in the mackerel fishery.

Summary of Economic Impact Analysis

Impacts should be minimal given the Alternatives are designed to impact a minimal number of trips and because vessels in Tier 2, Tier 3, and open access, on average, get 2% or less of their annual revenues from Atlantic mackerel (2003-2007). To the extent that low trip limits provide disincentive to increase capacity, may be some unquantifiable benefits to lower trip limits on the lower Tiers related to avoiding racing to fish. In general, this alternative should be thought of as part of the limited access system thus there are economic benefits as described for Alternative Set 1.

The modifications made to alternatives 1C and 1D (Preferred), in conjunction with modifications made to 3F, were designed to minimize any potential future impact on vessels with larger historical landings but insufficient recent landings to qualify for a limited access Tier under the original alternatives. The modifications qualify more vessels for Tier 3 and the proposed trips limits for Tier 3 under 3F (as tied to alternatives 1C and 1D) would provide at least occasional substantial landings though if the overall quota is low, Tier 3 could reach its cap quickly.

Given landings from 2008-2010 were lower than landings from 2003-2007, these trip limits would be expected to cause even less impacts relative to the most recent operation of the fishery compared to 2003-2007.

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1.6.4 Alternative Set 4 (for Purpose A: Cap Capacity): Alternatives to indicate Council intent on a variety of standard policy and administrative matters inherent in Northeast limited access systems.

Statement of Problem/Need for Action: A limited access system requires a variety of administrative rules to be effective and the Council needs to indicate its intent regarding such rules.

Background:

There are a variety of standard provisions that NMFS NERO has developed for the limited access programs that it administers. These measures generally maintain consistency with other FMPs and simplify things from an administrative perspective. Am11 must contain an alternative or alternatives that indicate if it is the Council's intent that the mackerel limited access system will adhere to such requirements. Am11 proposes to maintain most standard provisions but does consider departing from some, primarily in the form of additional upgrade restrictions (hold capacity, baseline calculation) and in how retained fishing histories are treated. The divergences may add some administrative complexity to the initial qualifying process but probably would not add significant administrative complexity in the long term compared to the overall complexity inherent in developing and administering any limited access program. The administrative rules are loosely based on the Atlantic Herring limited access permitting process but have been updated based on the nature of the mackerel fishery as well as experiences related to implementation of limited access in Atlantic Herring and Scallops.

Summary of Proposed Management Actions and Rationale

More than one alternative could be chosen. Am11 proposes to maintain most standard provisions but does consider departing from some, primarily in the form of an additional upgrade restriction and in how fishing histories are treated. It is anticipated that if the Council selects an action alternative for Alternative Set 1 that it would select 4B and may select 4C, 4D, 4E, and/or 4F (possibly one or all).

Alternatives: **4A:** No action. No administrative procedures would be specified. This would make NMFS implementation of a proposed limited access system very difficult because there would be no indication of Council intent on a wide variety of operational measures.

4B (PREFERRED): The following general provisions would apply to the mackerel limited access system (4B1 has been slightly modified from the SDEIS to indicate that dealer records would be relied upon for landings documentation):

4B1. Application

Consistent with other limited access programs established by the Councils, initial eligibility for a mackerel limited access permit must be established during the first year after the implementation of Amendment 11. In other words, mackerel limited access permits may not be applied for more than twelve months following the effective date of the final regulations. Individuals who wish to receive a permit under the limited access system would have to take affirmative action in the form of submitting an application. Notice of application procedures will be published in: the federal register; via a letter to permit holders; on the Council web-site; and via a Council press release. Federal dealer records would be the records necessary for tier qualification/ landings verification. If an applicant believes that federal dealer records are incorrect or missing, then applicants could use other sources of information (e.g. joint venture receipts) to demonstrate that there is incorrect or missing data in the federal dealer records via the appeals process described below.

****NOTE: The DEIS considered how to deal with splitting histories in alternatives "4B2" and "4D." The Council chose 4D, which allows permit splitting under certain circumstances – see below.**

4B3. Confirmation of Permit History (CPH)

(The following are also the current NMFS CPH requirements for limited access programs.)

A person who does not currently own a fishing vessel, but who has owned a qualifying vessel that has sunk, been destroyed or transferred to another person, may apply for and receive a CPH during the application period for the mackerel limited access program, if the fishing and permit history of such vessel has been retained lawfully by the applicant. The attributes of the vessel that is the basis of the CPH would be used to establish the vessel baseline, unless the applicant has a vessel under contract prior to the submission of the mackerel limited access application.

To be eligible to obtain a CPH, the applicant must show that the qualifying vessel meets the eligibility requirements for the limited access permit (permit issuance and landings criteria). If the vessel sank, was destroyed, or was transferred before March 21, 2007, the permit issuance criteria may be satisfied if the vessel was issued a valid Federal mackerel permit at any time between March 21, 2006, and March 21, 2007. Issuance of a valid CPH preserves the eligibility of an applicant to apply for issuance of a limited access mackerel permit to a replacement vessel, consistent with the CPH baseline, at a subsequent time.

A CPH must be applied for in order for the applicant to preserve the fishing access and limited access eligibility of the qualifying vessel. An application for a CPH must be received by the Regional Administrator no later than 30 days prior to the end of the first full permit year in which a vessel permit cannot be issued.

Failure to do so is considered abandonment of the permit. A CPH will remain valid until the fishing and permit history preserved by the CPH is used to qualify a replacement vessel for a limited access permit. Any decision regarding the issuance of a CPH for a qualifying vessel that has applied for or been issued previously a limited access permit is a final agency action (though subject to judicial review). Information requirements for the CPH application are the same as those for a limited access permit (with the exception of valid USCG Documentation or State Registration, which would be required for an active vessel). Vessel permit applicants who have been issued a CPH and who wish to obtain a vessel permit for a replacement vessel based upon the previous vessel history may do so pursuant the relevant upgrade restrictions.

4B4. Permit Appeals

An appeals procedure will be developed similar to that established for previous limited access programs. An applicant may appeal in writing to the Regional Administrator within 30 days of the denial. Any such appeal must be based on the grounds that the information used by the Regional Administrator was based on incorrect data, must be in writing, and must state the grounds for the appeal.

Appeal review. The Regional Administrator will appoint a designee who will make an initial decision on the appeal and provide an explanation in writing of the decision. The appellant may request a review of the initial appeal decision by so requesting in writing within 30 days of the notice of the initial appeal decision. If the appellant does not request a review of the initial appeal decision within 30 days, the initial appeal decision is the final administrative action of the Department of Commerce. Review of the appeal decision will be conducted by a hearing officer appointed by the Regional Administrator. The hearing officer shall make findings and a recommendation to the Regional Administrator, which shall be advisory only. Upon receiving the findings and the recommendation, the Regional Administrator will issue a final decision on the appeal and provide an explanation in writing of the decision. The Regional Administrator's decision is the final administrative action of the Department of Commerce.

A vessel denied a limited access mackerel permit may fish for mackerel, provided that the denial has been appealed, the appeal is pending, and the vessel has on board a letter from the Regional Administrator authorizing the vessel to fish under a limited access category. The Regional Administrator will issue such a letter for the pending period of any appeal. Any such interim decision is the final administrative action of the Department of Commerce on allowable fishing activity, pending a final decision on the appeal. The letter of authorization must be carried on board the vessel. If the appeal is finally denied, the Regional Administrator shall send a notice of final denial to the vessel owner; and the authorizing letter becomes invalid 5 days after receipt of the notice of denial.

4B5. Establishing Vessel Baselines

A vessel's baseline refers to those specifications (Length Overall, Gross Registered Tons, Net Tons, and Horsepower) from which any future vessel size change is measured and is based on the specifications of the vessel that was initially issued a limited access permit as of the date that the vessel applied for such a permit.

Corrections to permit baseline specifications are allowed only in conjunction with a vessel replacement or vessel upgrade; however, NERO will review a baseline correction request and advise the applicant of the result prior to a replacement or upgrade. This service is provided to allow permit holders to make business decisions based upon an accurate understanding of the permit's baseline specifications and upgrade limits, and would be evaluated based on the two criteria below.

Criterion 1: Demonstration of an Error

In order to correct the baseline specifications currently on file for a vessel, the applicant must explain why the baseline specifications are incorrect. If the applicant fails to demonstrate that NERO made an error in establishing the baseline specifications for the permit, the request will be denied. There are a number of legitimate reasons NERO may have made a mistake in establishing a baseline. Legitimate reasons include, but are not limited to, transcription errors, use of incorrect vessel permit renewal pre-print data, or the use of registered length from a Coast Guard Document rather than a vessel's LOA.

Criterion 2: Documentation of Correct Specifications

In order to correct the baseline specifications currently on file for a permit, the applicant must provide documents verifying the baseline specifications of the qualifying vessel at the time the limited access permit was first issued. If the applicant fails to provide documentation demonstrating the baseline specifications of the qualifying vessel as of the date the limited access permit was first issued, the request will be denied. In order to adequately demonstrate the correct vessel baseline specifications, the applicant must submit documentation that was created by a disinterested third party at, or before, the time of issuance of the initial limited access permit. Examples of acceptable documentation include, but are not limited to, surveys, builder's plans, or receipts from mechanics. All documents from a marine surveyor, shipyard, or mechanic must be printed on company letterhead and dated. These documents also must refer to the baseline vessel. This can be done by stating the vessel's name, permit number, state registration number, hull number, and/or Coast Guard Documentation Number (a.k.a. official number). Examples of unacceptable documentation include signed affidavits from a mechanic or a surveyor created after the time the first limited access permit was issued.

4B6. Vessel Upgrades

A vessel may be upgraded, whether through refitting or replacement, and be eligible to retain or renew a limited access permit, only if the upgrade complies with the following:

(1) The vessel's horsepower may be increased only once, whether through refitting or replacement. Such an increase may not exceed 20 percent of the horsepower of the vessel's baseline specifications, as applicable.

(2) The vessel's length, GRT, and NT may be increased only once, whether through refitting or replacement. Any increase in any of these three specifications of vessel size may not exceed 10 percent of the vessel's baseline specifications, as applicable. If any of these three specifications is increased, any increase in the other two must be performed at the same time. This type of upgrade may be done separately from an engine horsepower upgrade.

(3) If amendment 11 includes a requirement for hold capacity measurements for Tier 1 and Tier 2 vessels (Alt 4C which is preferred), any increase in hold size for these vessels may be increased only once and may not exceed 10 percent of the vessel's baseline specification.

4B7. Vessel Restrictions

Currently, the mackerel FMP includes restrictions on maximum length, size, and horsepower for vessels engaged in the mackerel fishery (165 feet, 750 GRT, and 3,000 HP). These restrictions will remain effective with the implementation of Amendment 11.

4B8. Vessel Replacements

The term vessel replacement, in general, refers to replacing an existing limited access vessel with another vessel. The consistency amendment established a restriction that requires that the same entity must own both the limited access vessel (or fishing history) that is being replaced, and the replacement vessel. In order to maintain consistency with the other regional limited access programs, this provision will be adopted for the mackerel limited access program.

4B9. Voluntary Relinquishment of Eligibility

The consistency amendment (NMFS) included a provision to provide a mechanism for a vessel owner to voluntarily exit a limited access fishery. In some circumstances, it could allow vessel owners to choose between different permits with different restrictions without being bound by the more restrictive requirement (e.g., lobster permit holders may choose to relinquish their other northeast region limited access permits to avoid being subject to the reporting requirements associated with those other permits). If a vessel's limited access permit history for the mackerel fishery is voluntarily relinquished to the Regional Administrator, no limited access permit for that fishery may be reissued or renewed based on that vessel's history or to any other vessel relying on that vessel's history.

4B10. Permit Splitting after limited access

The limited access programs in the Northeast region have all required limited access permits issued to a vessel to stay together with the vessel as a "package." They may not be split apart and distributed among other vessels by making a vessel replacement because that would increase overall fleet capacity. Therefore, all limited access permits must be treated as a "package" for the purposes of vessel replacement or for the purposes of limited access permit retention when a vessel is sold or transferred. The mackerel limited access program will adopt this restriction subsequent to implementation of Amendment 11. The permit-splitting provision states that a limited access permit not be issued to a vessel or its replacement or remain valid, if the vessel's permit or fishing history has been used to qualify another vessel for another Federal fishery.

4B11. Permit Renewals

A vessel owner must maintain the limited access permit status for an eligible vessel by renewing the permits on an annual basis or applying for issuance of a CPH. A CPH is issued to a person who does not currently own a fishing vessel, but who has legally retained the fishing and permit history of the vessel for the purpose of transferring it to a replacement vessel at a future date. Annual renewal is considered important in establishing participants who have an active interest in maintaining their ability to participate in a limited access fishery, and conversely allowing permits to lapse and be cancelled for those who do not. If a vessel's limited access permit history is cancelled through failure to renew or otherwise, no limited access permit for that fishery may be reissued or renewed based on that vessel's history or to any other vessel relying on that vessel's history. All limited access permits would be issued on an annual basis by the last day of the permit year for which the permit is required, unless a CPH has been issued (see below). Application for such permits must be received no later than 30 days before the last day of the fishing year.

4C (PREFERRED): Fish Hold Measurements

The Council modified 4C slightly from the SDEIS to indicate that vessels that are sealed by the Maine State Sealer of Weights and Measures will also be deemed to meet 4C's requirements. This modification was in response to input from SMB committee members from the New England Fishery Management Council that many vessels engaged in the Atlantic Herring fishery undergo a sealing and volume measurement from the State of Maine that would accurately document their volume.

Require a maximum volumetric maximum fish hold measurement for Tier 1 and Tier 2 vessels. To enter the mackerel limited access fishery, these vessels would be required to obtain a fish hold measurement from an individual credentialed as a Certified Marine Surveyor with a fishing specialty by the National Association of

Marine Surveyors (NAMS) or from an individual credentialed as an Accredited Marine Surveyor with a fishing specialty by the Society of Accredited Marine Surveyors (SAMS). In terms of hold changes, vessels that are upgraded or replacement vessels would have to be resurveyed by a surveyor (accredited as above) unless the replacement vessel already had an appropriate certification and the documentation would have to be submitted to NMFS. Vessels that are sealed by the Maine State Sealer of Weights and Measures will also be deemed to meet this requirement.

4D (PREFERRED): History retention/Permit Splitting Exception

4D has been clarified (via a motion at the October 2010 Council meeting) that the permit requirement (mackerel permit on 3/21/2007) and landings threshold requirements would still apply to any vessel applying for a limited access permit under 4D. Subject to the restrictions in the immediately following paragraph, vessel owners who sold vessels with limited access permits and retained mackerel history in a purchase and sale agreement to qualify a different vessel for the mackerel limited access program would be allowed to do so. This would in effect supersede 4B2 if chosen. If the buyer established new history after the sale then they could also qualify based on the new history. If 4D is not selected, history retentions of this kind could not be used for qualifying and only the new history on the vessel could be used for qualifying the original vessel, unless the new owner can get a release on the retained history, through a contractual agreement between the involved parties (in effect re-joining the history). Note that existing limited access permits would not be split. Also, after initial issuance mackerel permits would be treated like other limited access permits and could not be split (all limited access permits, including limited access mackerel permits would have to be transferred as a package when a vessel is replaced or sold).

Allow scenario described immediately above to be used for qualifying if both vessels involved met the 10-10-20 rule and if the transfer took place before April 3, 2009. To take advantage of this provision, baselines would have to be provided for both vessels. If both vessels' baselines are not available then an applicant could not take advantage of this provision. These restrictions are necessary to avoid history from small vessels from being used to qualify large vessels and to avoid speculative trading of quota histories immediately prior to limited access implementation, either of which could negate the primary purpose of Am11, i.e. to cap capacity. If both vessels did not meet the 10-10-20 rule (or baseline specifications could not be documented), the retained history could not be used for qualification purposes by the individual retaining the history, but could be sold of otherwise re-transferred to the original vessel's new owner (in effect re-joining the history) for purposes of qualifying the vessel that actually made the landings. 4B10 would still apply once the limited access system is operational.

Except as provided in the exception above, consistent with previous limited access programs, no more than one vessel can qualify, at any one time, for a limited access permit or CPH based on that or another vessel's fishing and permit history, unless more than one owner has independently established fishing and permit history on the vessel during the qualification period and had either retained the fishing and permit history, as specified above, or owns the vessel at the time of initial application under Amendment 11. If more than one vessel owner claimed eligibility for a limited access permit or CPH, based on a vessel's single fishing and permit history, the NMFS Northeast Regional Administrator will determine who is entitled to qualify for the permit or CPH.

Note: In the DEIS, alternative 4B2 considered not allowing the permit splitting proposed in alternative 4D. 4B2 has been removed from the final 4B alternative because its inclusion caused confusion about the Council's final action since the rest of 4B was adopted as preferred, but both approaches were fully considered.

4E: Permit baseline established by the vessel that created the fishing history and impacts on qualifying vessels based on permit splitting/usage of retained history.

If 4E is selected then in effect 4E replaces 4B5 with the following language: A vessel's baseline refers to those specifications (Length Overall, Gross Registered Tons, Net Tons, and Horsepower) from which any future vessel size change is measured and is based on the specifications of the vessel that created the history for the vessel that was initially issued a limited access permit. Applying vessels would have to provide vessel specification documentation for the applying vessel and vessel specification documentation of the vessel that created the history from the period when the history was generated. This may be difficult for some applicants and would mean that if both vessels' baselines cannot be established, then only the history created on the applying vessel could count for qualification criteria. This means the retained history would not be able to be used for qualification purposes in such a case.

The easiest and most consistent way to establish a baseline for new limited access permits is to use the specifications from the vessel that is first issued the permit. Using the vessel with the landings history to create the baseline is problematic for a number of reasons:

- There could be more than one vessel that's history is involved in establishing whether a vessel qualifies for a limited access mackerel permit. If there was a transfer of limited access permits during the qualification period, the history of the open access mackerel permit would move to the new vessel in the replacement (this is how it was handled with limited access general category scallops) and two vessels would be eligible to be the baseline vessel

- Using the history qualifying vessel's baseline could also result in incompatible baselines on the vessel to which the permit is issued. For example, the vessel issued the permit will most likely already have a suite of permits associated with it. The new baseline, resulting from specifications that could be vastly different than the vessel issued the mackerel permit, could either restrict the baseline for the entire suite of permits on the new vessel or could be so much larger than the other permits that it wouldn't matter anyway (since when a vessel has multiple baselines, MNFS applies the most restrictive to the suite of permits to future replacements).

Using the vessel that is first issued the limited access permit would be consistent with the way most other limited access baselines are established and would greatly decrease the administrative burden on NOAA's National Marine Fisheries Service staff.

4F (PREFERRED): Multiple Vessels with One Owner

If an individual owns more than one vessel, but only one of those vessels has the landings history required in order to be eligible, that individual can replace the vessel that is determined to be eligible with one of his/her other vessels, but may only use the eligibility on one vessel and the replacement vessel would have to be within the 10-10-20 rule compared to the original vessel. Baseline specifications would have to be documented for each vessel.

4G: Additional Monitoring of Tier 3 Vessels

Because the Tier 3 proposed in alternatives 1C and 1D (Preferred) may contain many vessels with a relatively small cap and a relatively high trip limit, several Sub-Options for additional Tier 3 reporting were considered:

> **4G1**: This measure would require Tier 3 vessels to notify NMFS prior to the start of each trip via either VMS or IVR. Vessel representatives would need to call-in less than 1 hour prior to leaving port to begin a trip, and call in when the vessel returns to port to end the trip. The vessel would also be required to call in to notify NMFS if a previously declared trip is cancelled.
>
> **4G2 (PREFERRED)**: This measure would require Tier 3 vessels to submit VTRs on a weekly basis (versus the current monthly requirement). This measure could facilitate timely cross-checking between VTRs and weekly dealer reports. For the 2010 fishing year, there were 2,152 vessels that possessed open access Atlantic mackerel permits. Of those vessels, 1,992 vessels also possess NE Multispecies permits. Thus, because all vessels that possess NE multispecies permits are required to submit

weekly VTR reports, over 90% of existing Atlantic mackerel permit holders are already subject to this requirement. If vessels have to report more frequently in the same format for some other permit then the weekly VTR reporting requirement would not apply (this slight modification was made at the October 2010 Council meeting).

4G3: This measure would require Tier 3 vessels to submit landing reports via IVR on a weekly basis. This measure could facilitate timely cross-checking between IVRs and weekly dealer reports.

Summary of Biological Impact Analysis

Given mackerel is already managed under a hard quota with in-season closures, and given this alternative is largely administrative in nature, impacts would likely be minimal compared to the status quo. If 4D is selected, there could be more vessels qualifying than anticipated, with a subsequent increased chance of developing a race to fish in the future, but because history retention agreements between vessel owners are unknown, the impacts cannot be quantified. Alternative Set 4 measures that serve to constrain upgrading (4B, 4C, 4E) may have indirect biological benefits by reducing capacity and potential future racing to fish and therefore effort. 4G is designed to minimize the chance of an overage in Tier 3, but given the small part of the quota that Tier 3 will have access to, and given that the directed fishery will close based on the total quota, even if Tier 3 had an overage the directed fishery would absorb that overage.

Summary of Economic Impact Analysis

Given mackerel is already managed under a hard quota with in-season closures, and given this alternative is largely administrative in nature, impacts related to fishing activity would likely be minimal compared to the status quo. The hold documentation requirement in 4C could cost $1000-$6000 depending on size of vessel and type of survey performed though such surveys may be currently performed under vessel insurance agreements. If 4D is selected, there could be more vessels qualifying than anticipated, with a subsequent increased chance of developing a race to fish in the future (i.e. lower overall profits), but because history retention agreements between vessel owners are unknown, the impacts cannot be quantified. If 4E is selected, some individuals who bought permits and history from smaller vessels with the intent of qualifying a significantly larger vessel would be unable to do so, but the prevalence of such intentions is impossible to quantify. 4G, by minimizing the chance that Tier 3 exceeded its quota, would minimize a de facto in-season transfer from the other Tiers to Tier 3 (the other Tiers will close based on the total catch, including Tier 3), but such an overage is likely to be minimal in the context of the overall mackerel quota. To the extent that most vessels already have to make weekly VTR submissions and to the extent that IVR notifications would involve minimal cost (4G2), such measures would be likely to have minimal impact. Requiring VMS would involve higher costs for vessels however, approximately $2,000 in start-up costs and $25-$100 in monthly costs.

1.6.5 Alternative Set 5 (for Purpose B: Update EFH): Alternatives to update the EFH designations in the MSB FMP.

Statement of Problem/Need for Action: The MSB FMP is overdue for a review and updating of its EFH identifications (maps) and descriptions. See the EFH Final Rule available at: http://www.nmfs.noaa.gov/habitat/habitatprotection/efh/index.htm.

Background:

The EFH Final Rule states that "a complete review of all EFH information should be conducted as recommended by the Secretary, but at least once every 5 years." The EFH information for MSB fisheries has generally not been updated since the original analysis and designations were done for Amendment 8. Amendment 8 was finished in 1998, so it has been approximately 10 years since a complete review. That said, the EFH for *Loligo* eggs was just established in Amendment 9 (2008). While no new information is available for *Loligo* egg EFH, reviews of existing literature suggested that some minor edits to the text description of *Loligo* egg EHF might be warranted. Accordingly, Am11 reviews and revises the EFH text descriptions (for all MSB species) and maps (for all but *Loligo* eggs) based updated trawl survey data and other available information on habitat requirements (e.g., revised EFH source documents, primary literature) for the following:

Loligo : eggs (just text), pre-recruits, recruits
Illex : eggs, pre-recruits, recruits
Mackerel : eggs, larvae, juveniles and adults
Butterfish : eggs, larvae, juveniles and adults

The EFH Final Rule also requires: 1) identification of non-fishing related activities that may adversely affect EFH, 2) habitat conservation and enhancement recommendations (other than measures to minimize the impacts of fishing on *Loligo* egg EFH), 3) revisions to the description of MSB prey species and their habitats, and 4) a list of habitat-related research and information needs. This information will be contained in the Habitat section of this document.

Summary of Proposed Management Actions and Rationale

Per implementing regulations for MSA's EFH provisions, the following alternatives use updated data and methodologies to identify EFH for each MSB species and lifestage as described below. Alternatives 5B-5E describe various options for mapping EFH within the management area based on research bottom trawl surveys and information contained in the scientific literature. The end-result differences between Alternatives 5B-5E are the areas used to map EFH based on cumulative geometric mean catches in NEFSC bottom trawl surveys.

Alternatives: **5A**: no action (no updates/revisions made to EFH descriptions/identifications). The current text descriptions are provided below in Section 5, as are the current map designations .

5B: designate as EFH the area associated with **75%** of the cumulative geometric mean catches for each MSB species/life stage except use **90%** for overfished species (currently butterfish), based on Northeast Fishery Science Center (NEFSC) trawl and Marine Resources Monitoring Assessment and Prediction Program (MARMAP) data, also including: inshore areas where state research bottom trawl surveys indicate ≥ 10% frequency of occurrence; Estuarine Living Marine Resources (ELMR) areas where the species/life stage is listed as "common" or "abundant"; and catch data from other research surveys and/or the scientific literature for areas not sampled during NEFSC and state surveys. The revised textual descriptions of EFH, as described in Section 5.5.4, together with the revised EFH maps, comprise the EFH designation for each of the managed species/life stages.

5C (PREFERRED) : designate as EFH the area associated with **90%** of the cumulative geometric mean catches for each MSB species/lifestage except use **95%** for unknown or overfished species (currently butterfish, mackerel, *Illex*), based on Northeast Fishery Science Center (NEFSC) trawl and MARMAP data, also including: inshore areas where state research bottom trawl surveys indicate ≥ 10% frequency of occurrence; Estuarine Living Marine Resources (ELMR) areas where the species/life stage is listed as "common" or "abundant"; and catch data from other research surveys and/or the scientific literature for areas not sampled during NEFSC and state surveys. The revised textual descriptions of EFH, as described in Section 5.5.4, together with the revised EFH maps, comprise the EFH designation for each of the managed species/life stages.

5D: designate as EFH the area associated with **95%** of the cumulative geometric mean catches for each MSB species/lifestage except use **100%** for overfished species (currently butterfish), based on Northeast Fishery Science Center (NEFSC) trawl and MARMAP data, also including: inshore areas where state research bottom trawl surveys indicate ≥ 10% frequency of occurrence; Estuarine Living Marine Resources (ELMR) areas where the species/life stage is listed as "common" or "abundant"; and catch data from other research surveys and/or the scientific literature for areas not sampled during NEFSC and state surveys. The revised textual descriptions of EFH, as described in Section 5.5.4, together with the revised EFH maps, comprise the EFH designation for each of the managed species/life stages.

5E: designate as EFH the area associated with **100%** of the cumulative geometric mean catch for each MSB species/lifestage based on Northeast Fishery Science Center (NEFSC) trawl and MARMAP data, also including: inshore areas where state research bottom trawl surveys indicate ≥ 10% frequency of occurrence; Estuarine Living Marine Resources (ELMR) areas where the species/life stage is listed as “common” or “abundant”; and catch data from other research surveys and/or the scientific literature for areas not sampled during NEFSC and state surveys. The revised textual descriptions of EFH, as described in Section 5.5.4, together with the revised EFH maps, comprise the EFH designation for each of the managed species/life stages.

The full textual descriptions and maps describing the various alternatives may be found in section 5.5. The ELMR maps contained in Section 5.5, which comprise part of the EFH designation, are not reproduced here in the executive summary. However the final maps showing the EFH designations based on the thresholds proposed in the preferred alternative 5C and the MARMAP, NEFSC, and state trawl data are reproduced below. The MARMAP data is used for eggs and larvae while trawl data is used for juvenile and adult lifestages.

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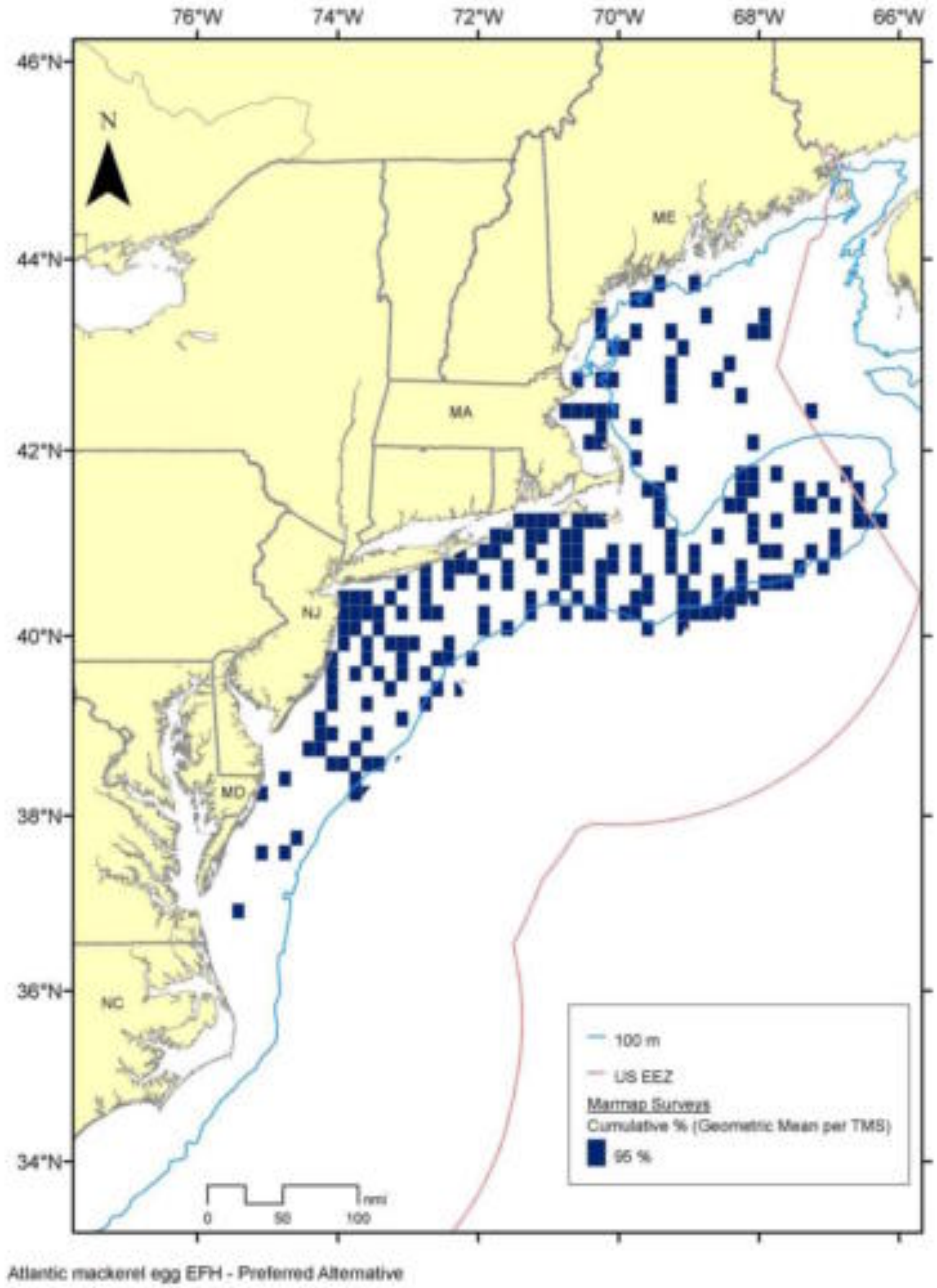

Figure ES1. Final EFH geographical designations (excluding ELMR areas) for mackerel eggs.

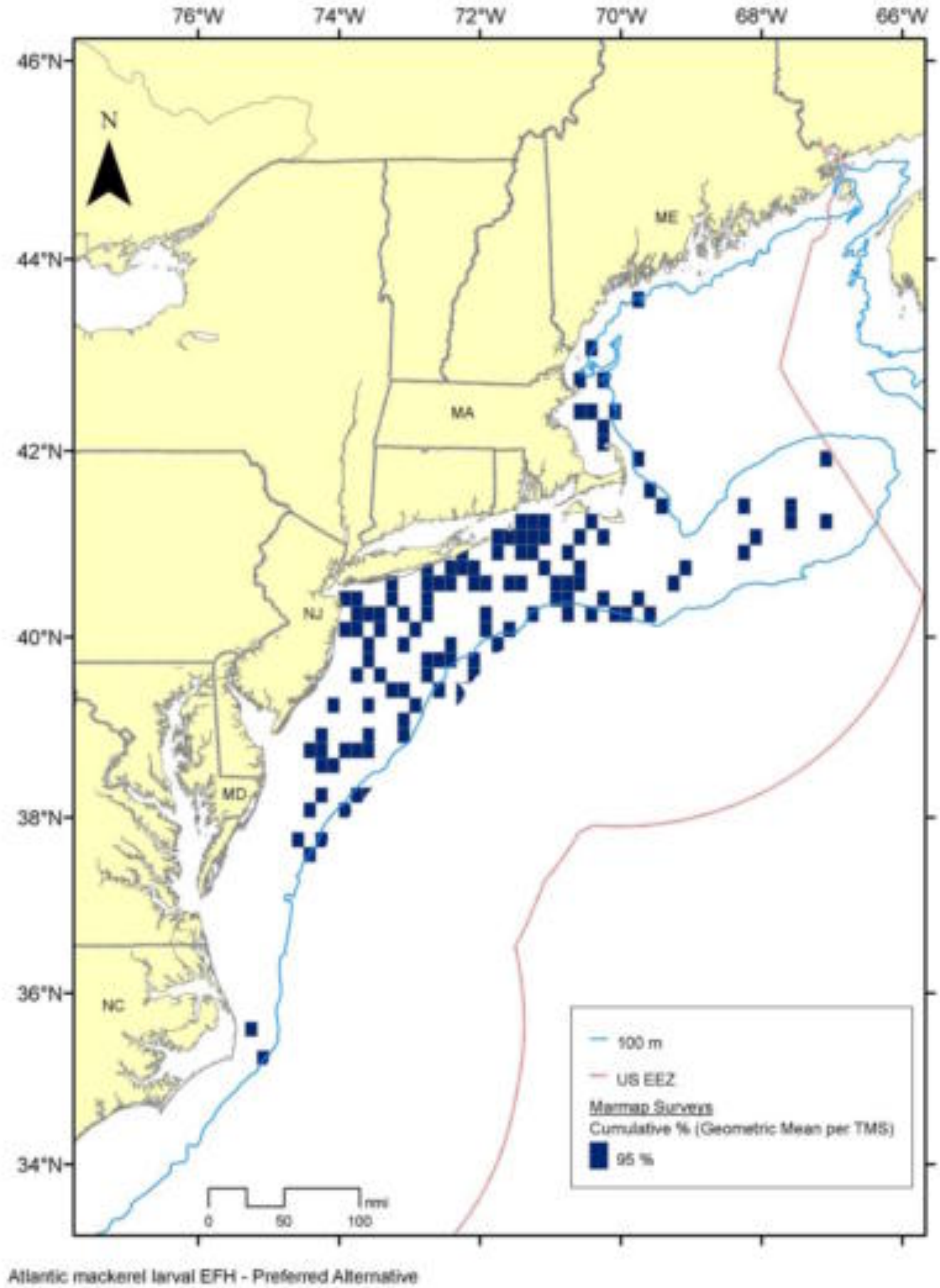

Figure ES2. Final EFH geographical designations (excluding ELMR areas) for mackerel larvae.

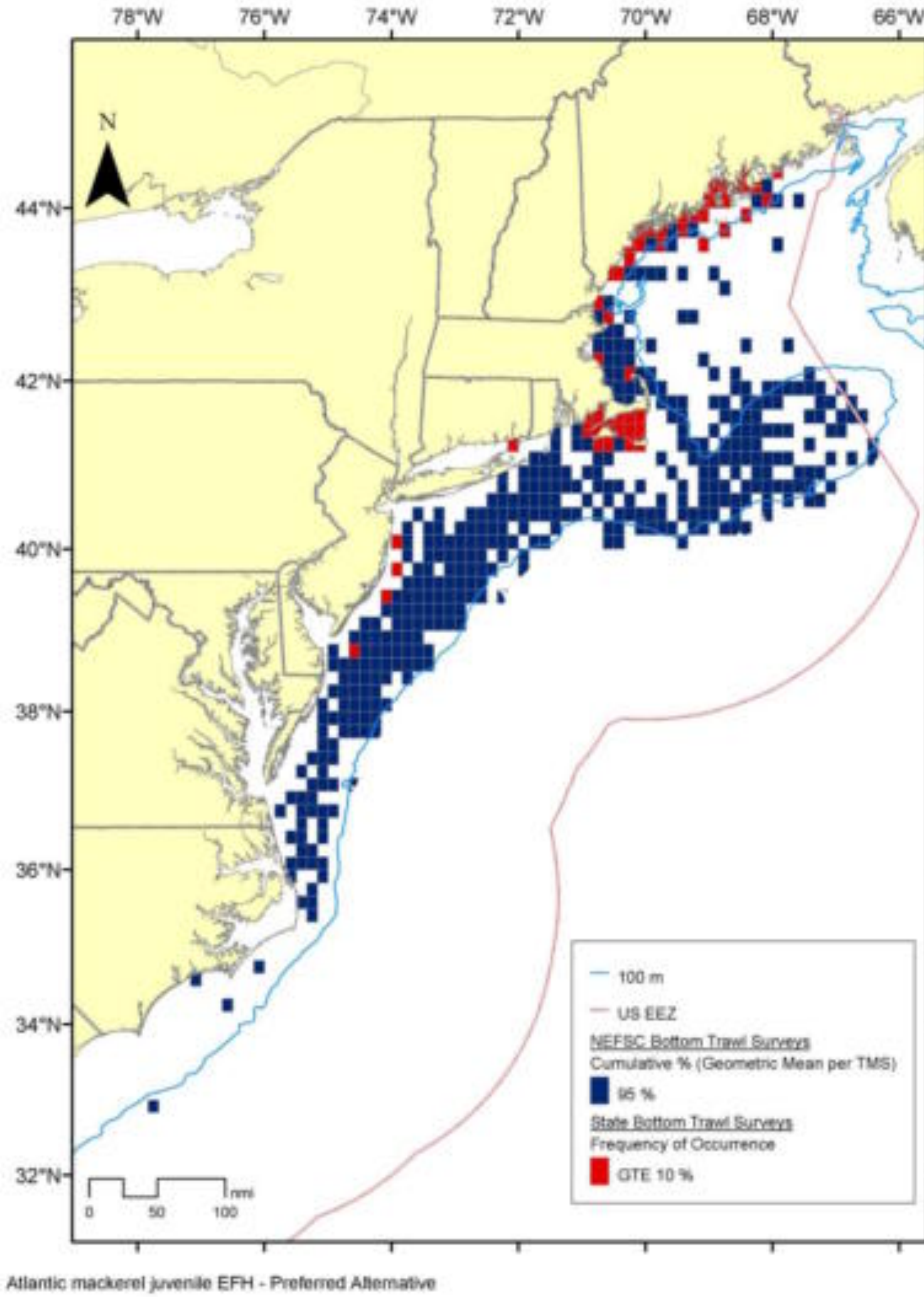

Figure ES3. Final EFH geographical designations (excluding ELMR areas) for mackerel juveniles.

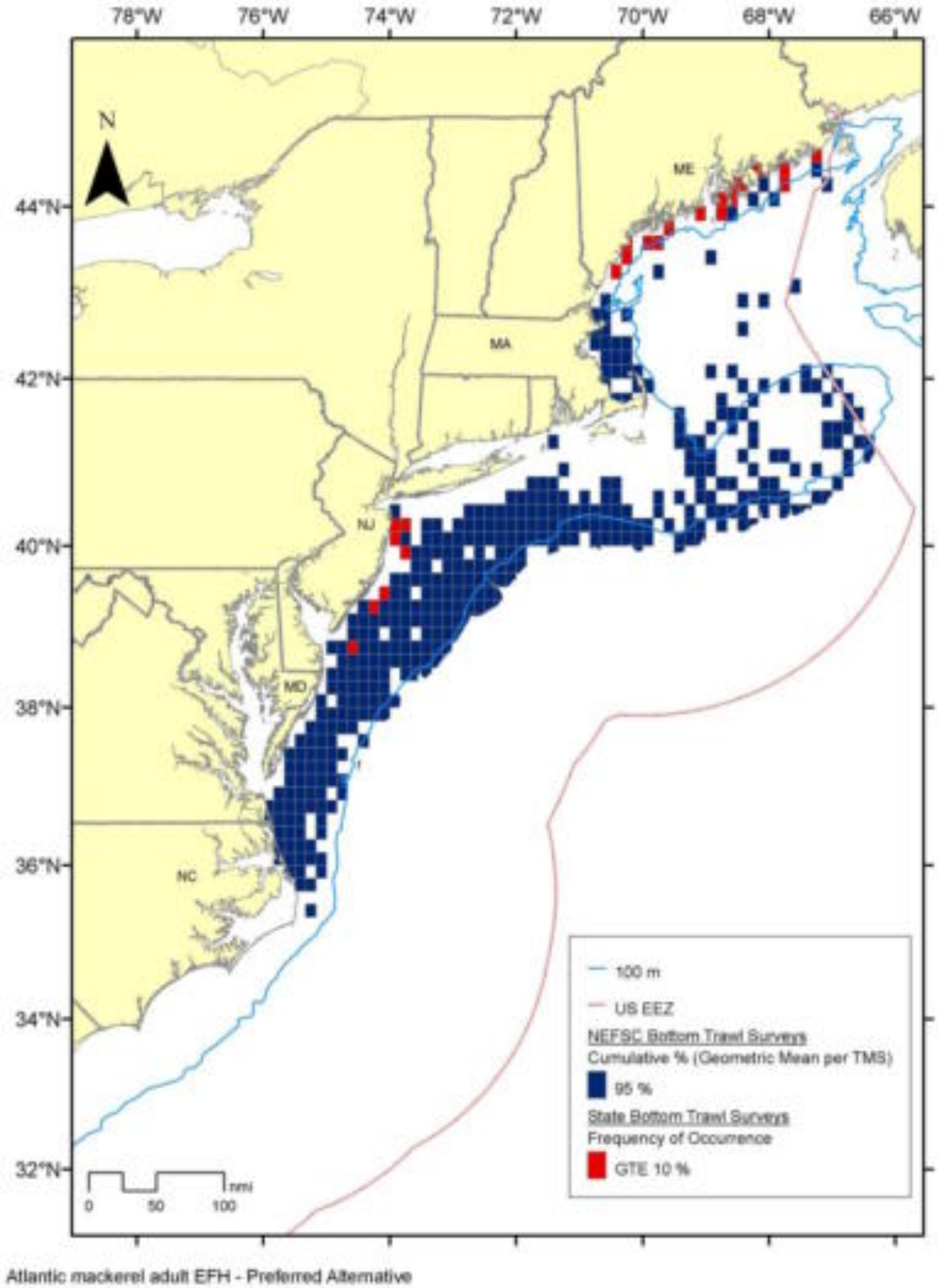

Figure ES4. Final EFH geographical designations (excluding ELMR areas) for mackerel adults.

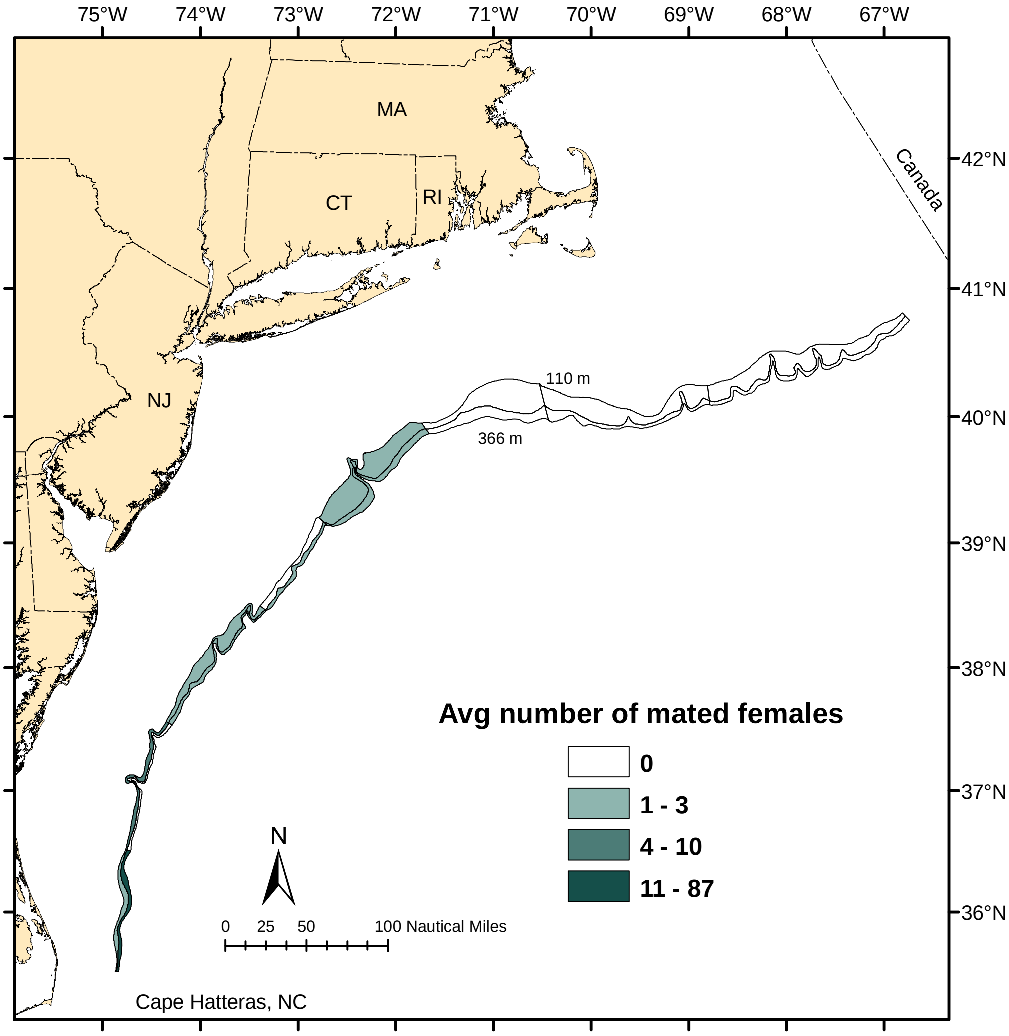

Figure ES5a. Final EFH geographical designations for *Illex* eggs..

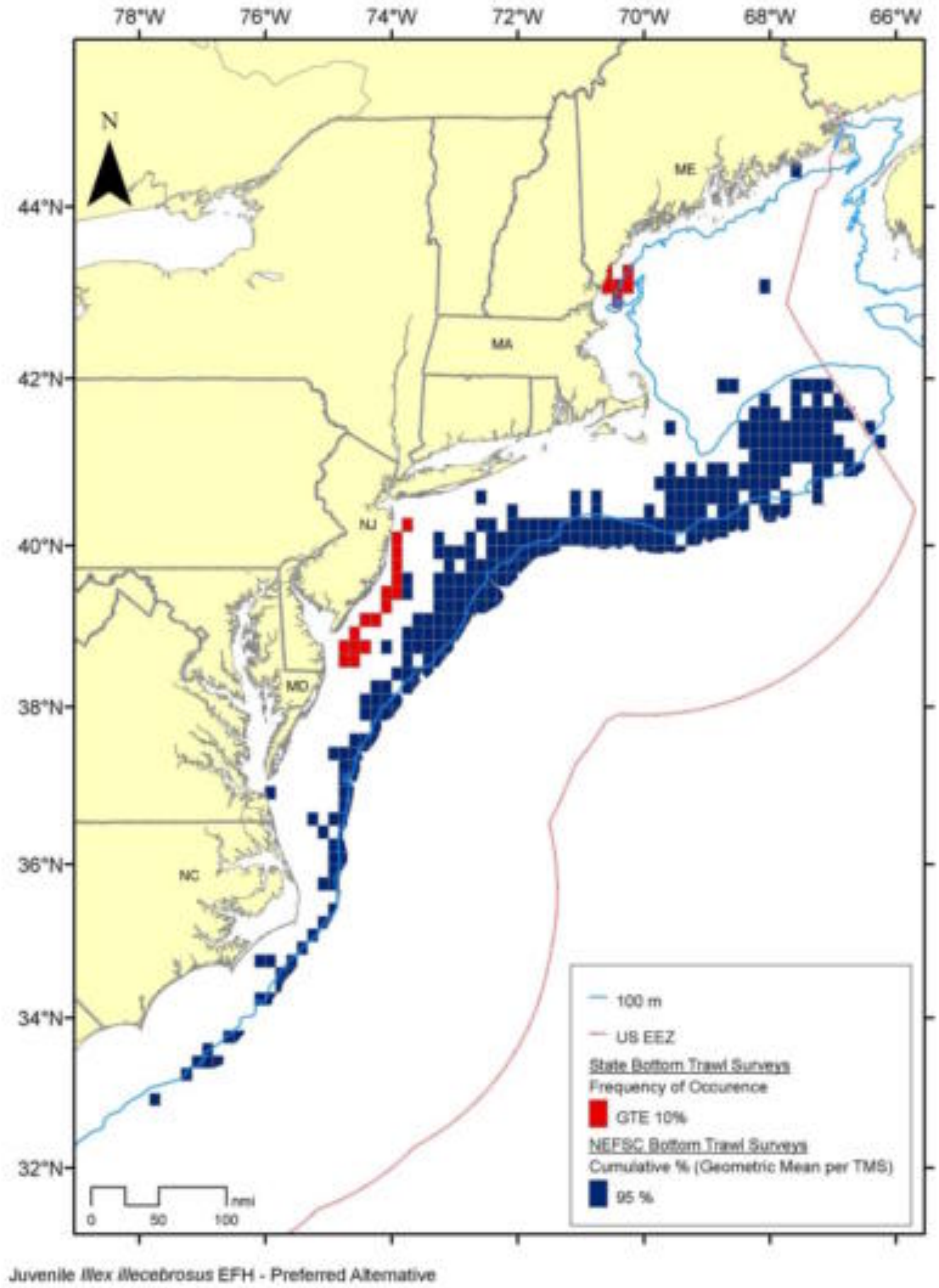

Figure ES5b. Final EFH geographical designations for *Illex* pre-recruits.

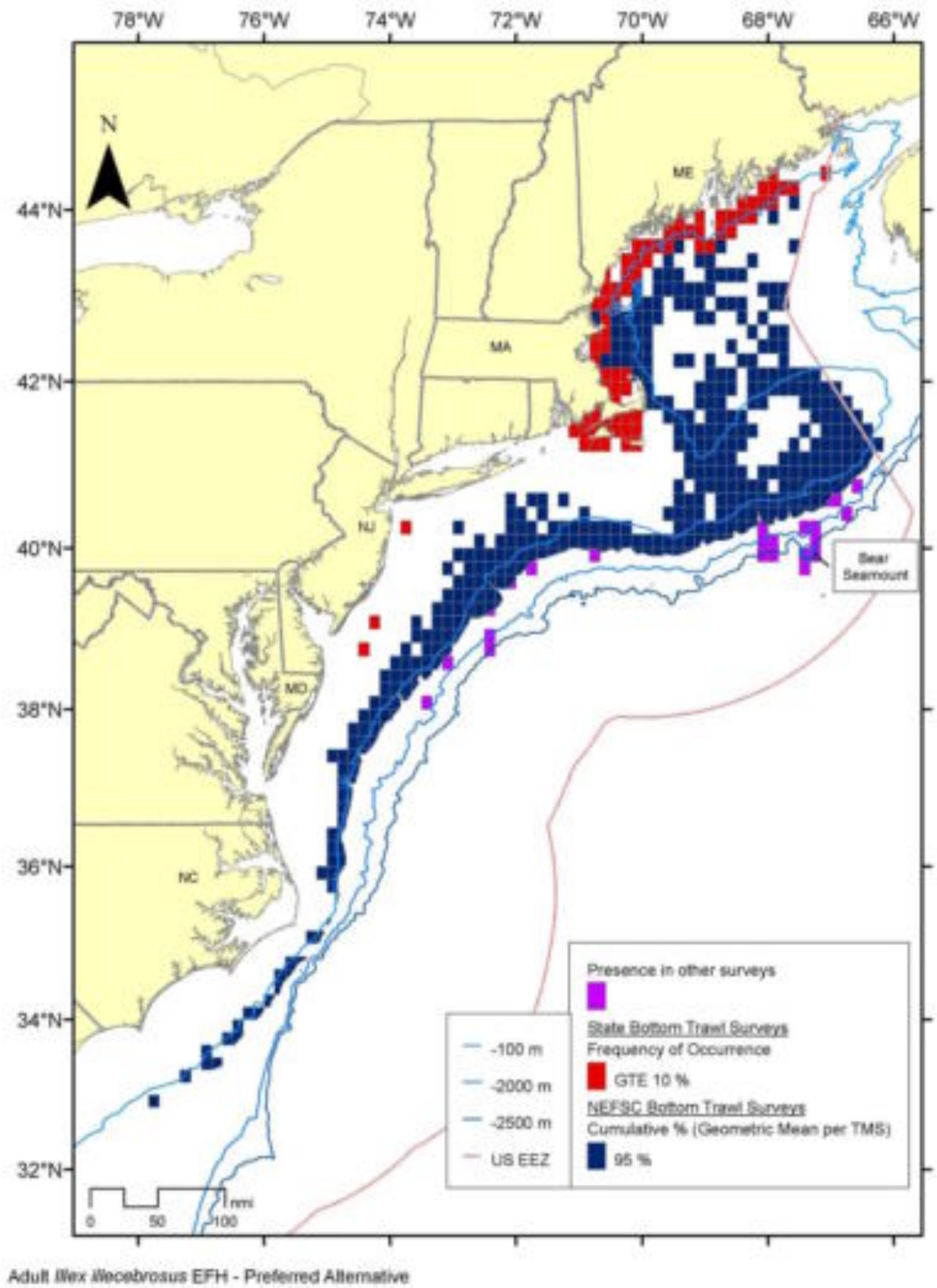

Figure ES6. Final EFH geographical designations for *Illex* Recruits.

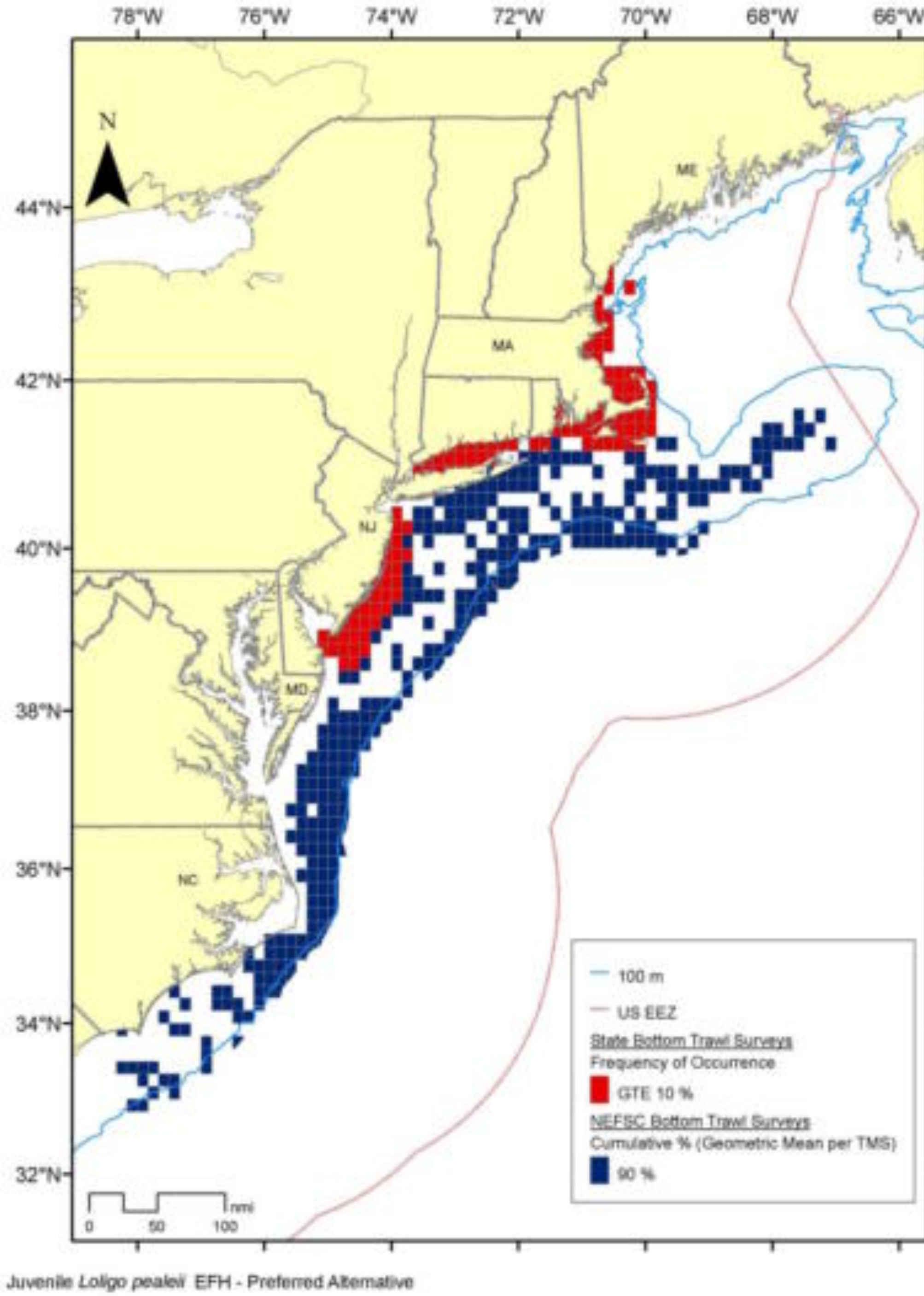

Figure ES7. Final EFH geographical designations for *Loligo* Pre-Recruits.

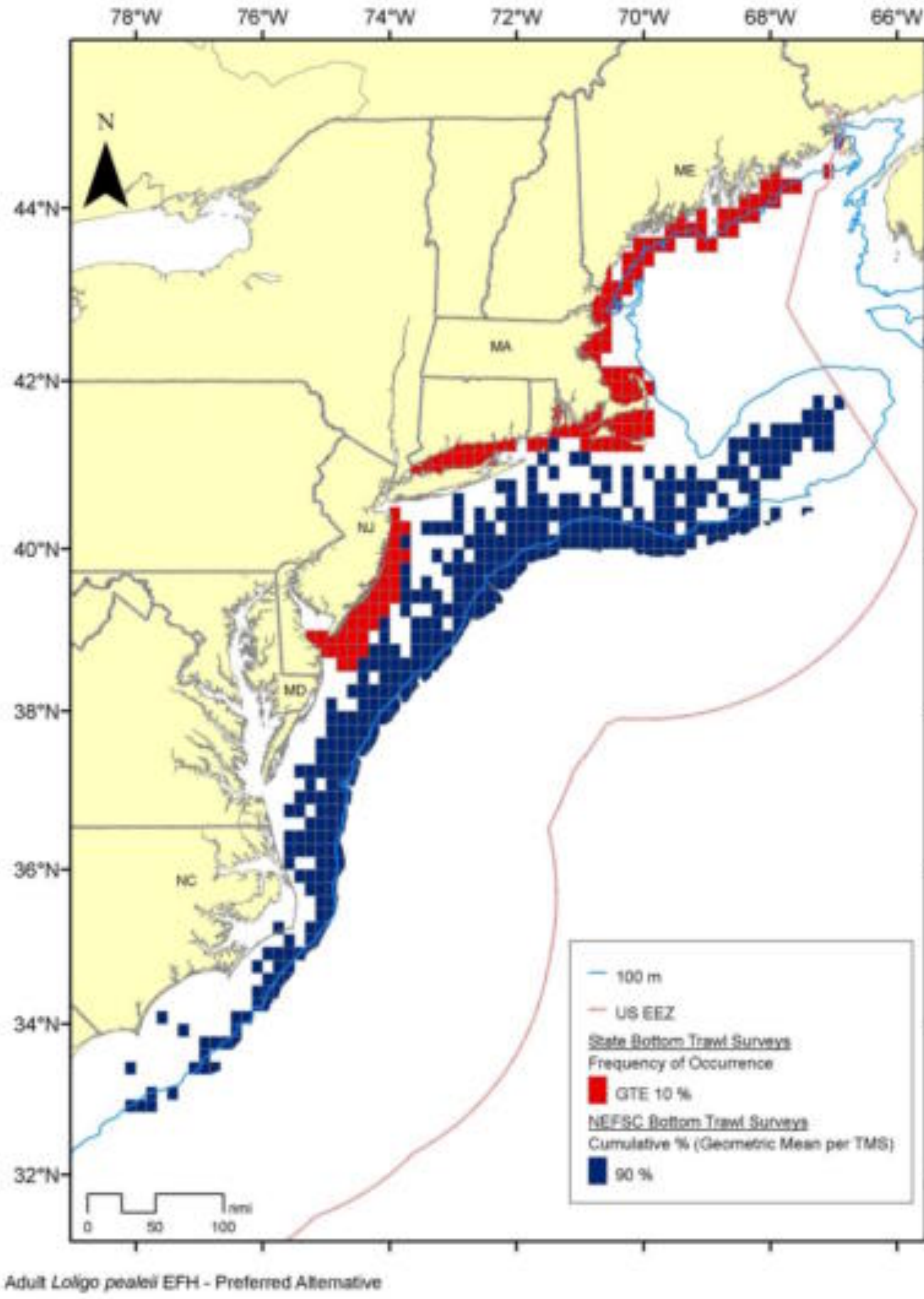

Figure ES8. Final EFH geographical designations for *Loligo* Recruits.

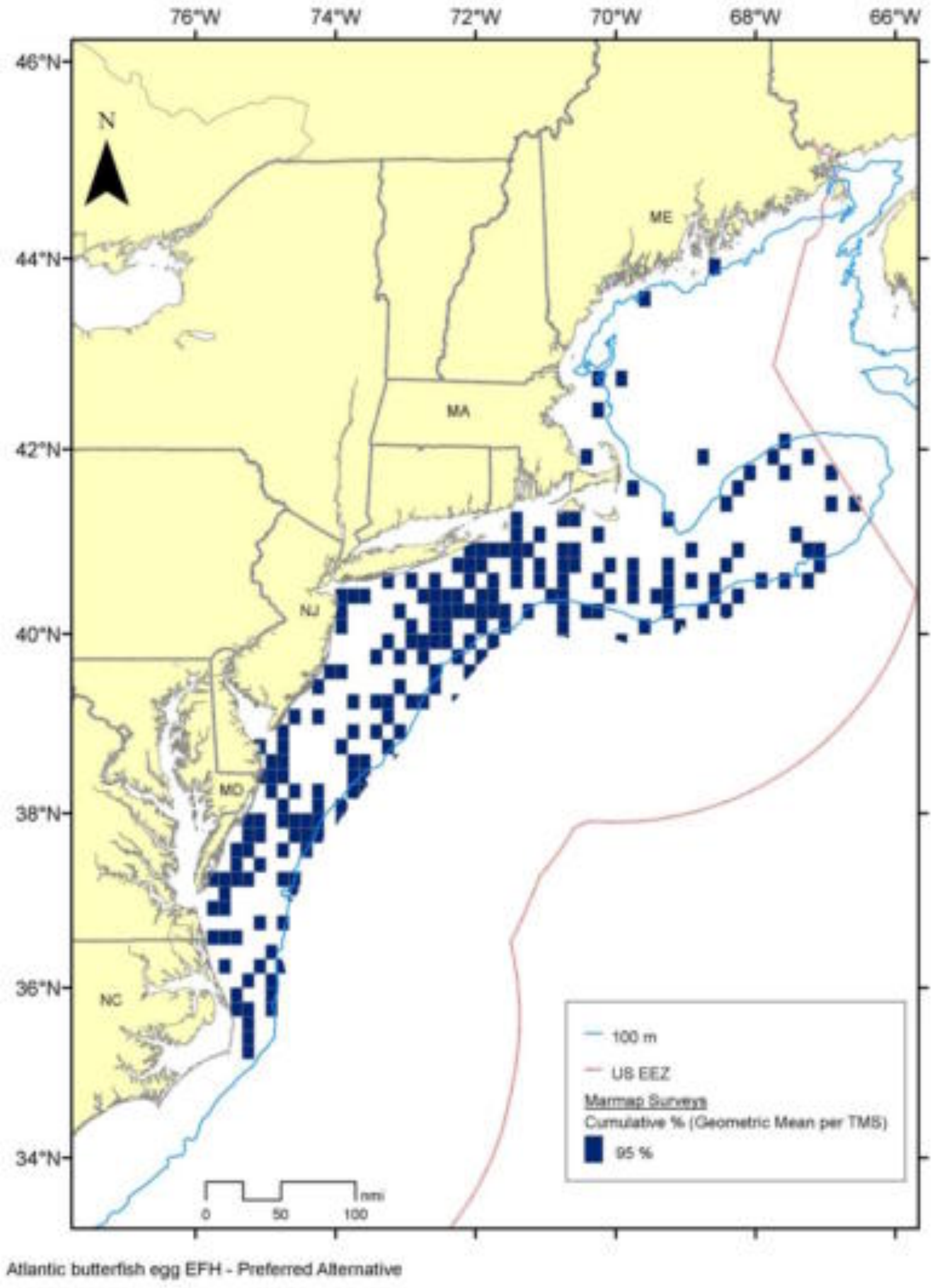

Figure ES9. Final EFH geographical designations (excluding ELMR areas) for butterfish eggs.

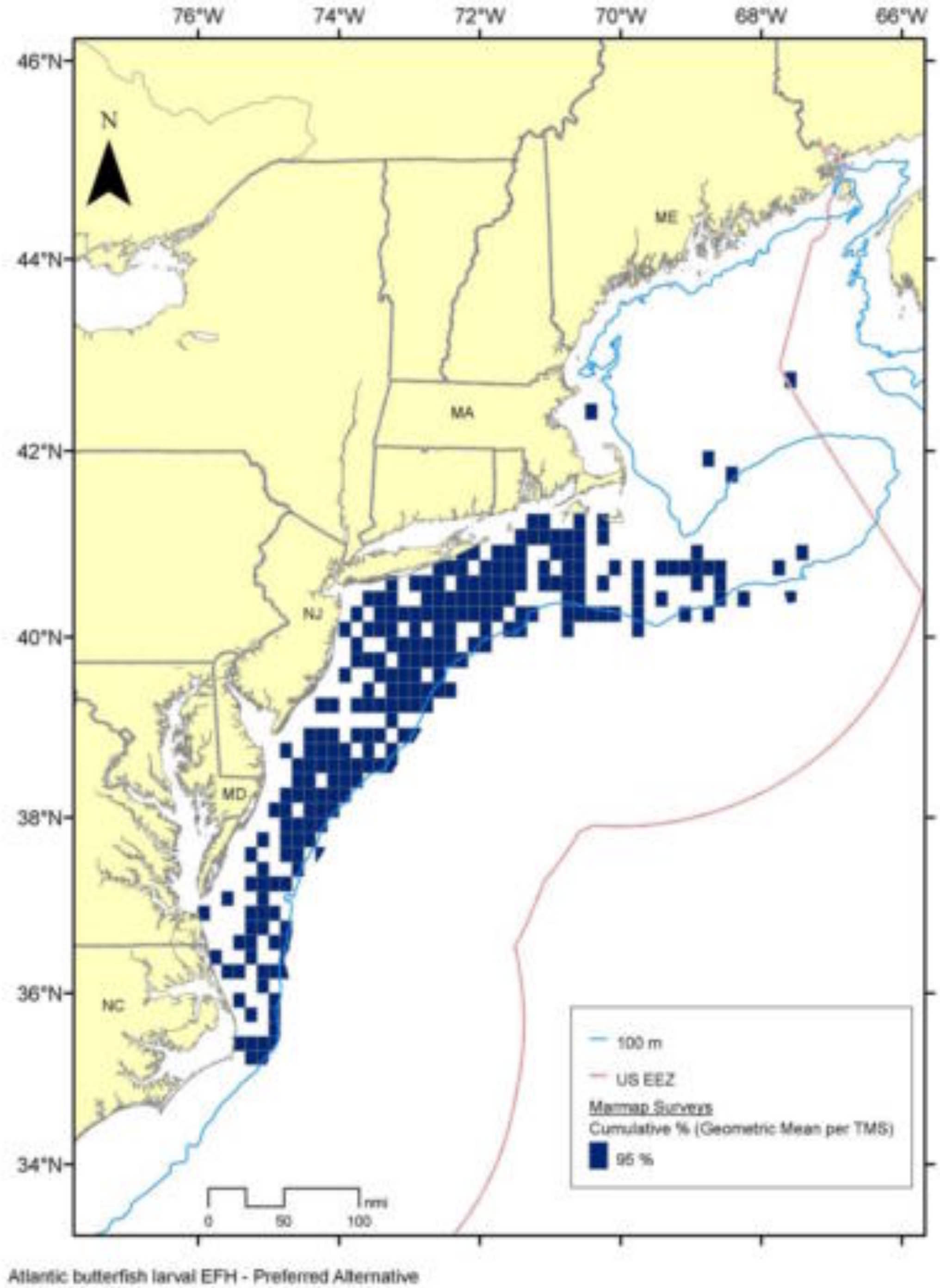

Figure ES10. Final EFH geographical designations (excluding ELMR areas) for butterfish larvae.

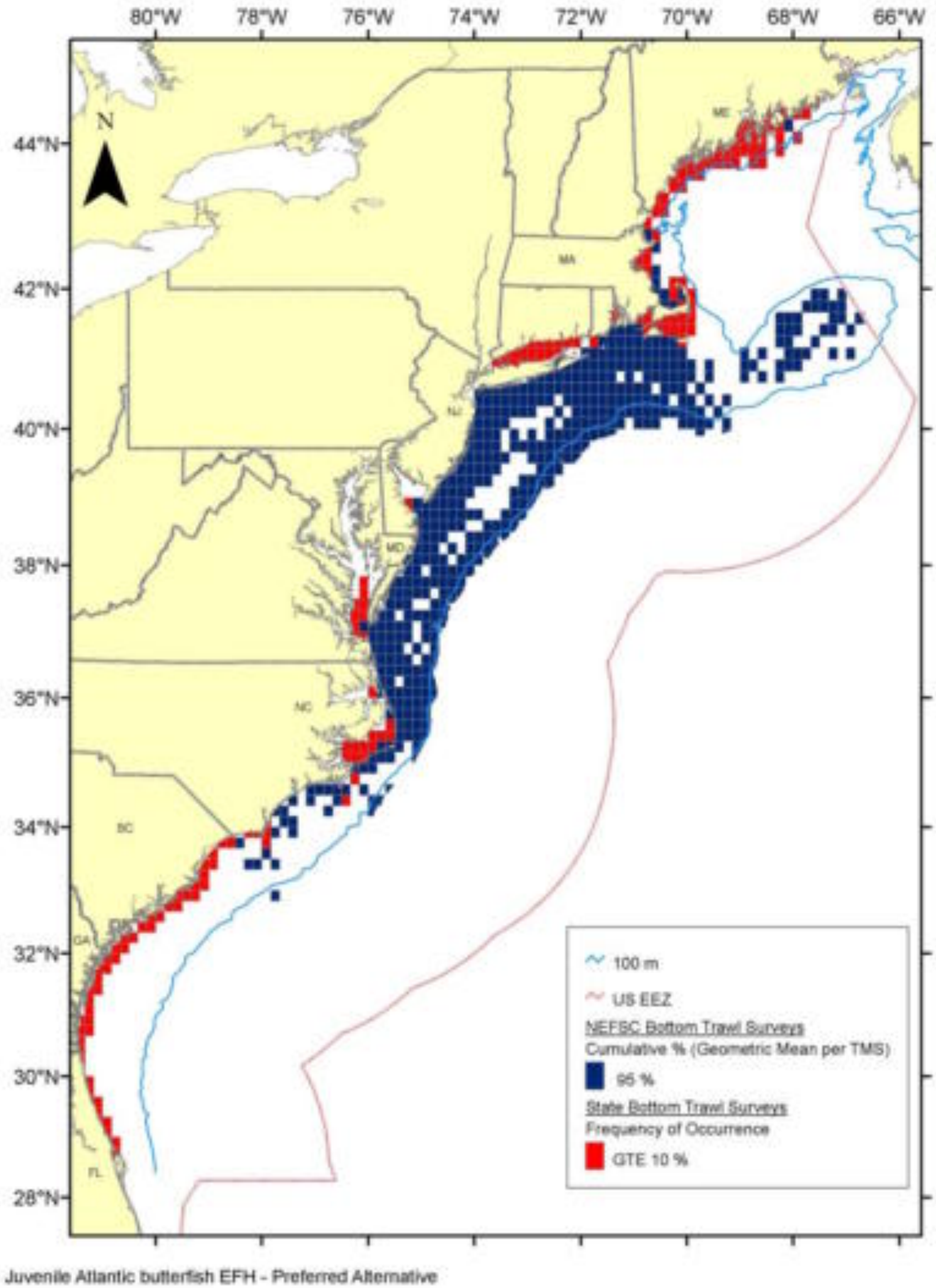

Figure ES11. Final EFH geographical designations (excluding ELMR areas) for butterfish juveniles.

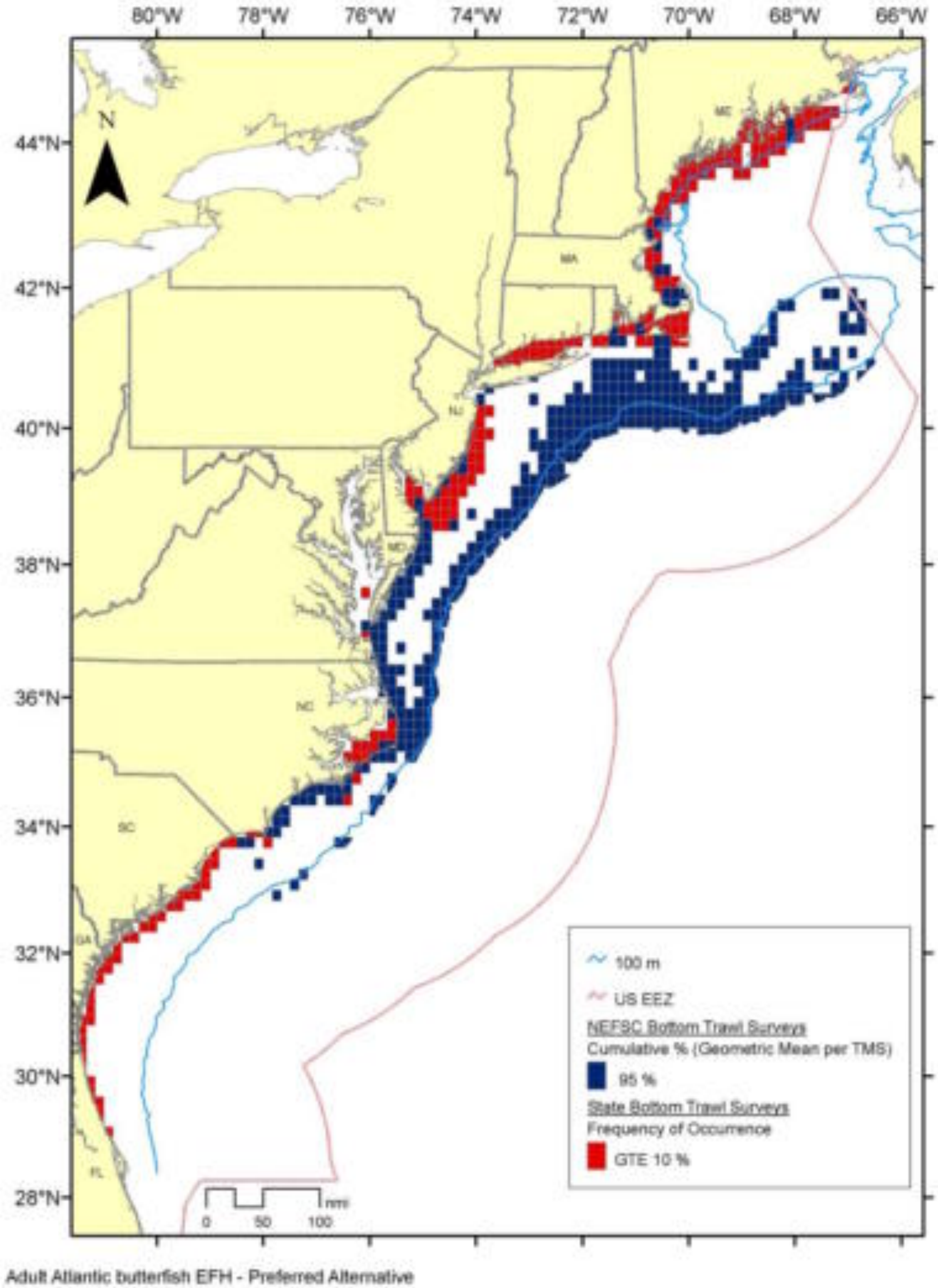

Figure ES12. Final EFH geographical designations (excluding ELMR areas) for butterfish adults.

Data Timelines

ELMR utilized data from 1985-1994. MARMAP utilized data from 1977 to 1987. The NEFSC trawl analysis utilizes data from 1976 to 2007.

Summary of Biological Impact Analysis

Impacts could be positive in the future if updated EFH descriptions are used to more effectively protect habitat (from gear impacts or non-fishery impacts). Larger areas could lead to more potential future benefits. Impacts are likely minimal however related to fishing gear because of the pelagic nature of MSB species - it is not anticipated that fishing restrictions would be placed on fisheries related to MSB habitat designations. It is difficult to predict what potential future non-fishery related impacts would be mitigated given updated EFH designations. Presumably larger areas would lead to additional consultations and mitigations when NMFS consults on Federal permitting and activities, i.e. more benefits for EFH and MSB species, and in terms of area, 5E>5D>5C>5B>5A.

Summary of Economic Impact Analysis

The designations would not result in any immediate economic impact. There could be negative impacts in the future if updated descriptions result in gear/area closures (unlikely given pelagic nature of these species) or prevent non-fishing development, but impacts should be positive in the long run if overall ecosystem health and productivity is increased.

The full textual descriptions and maps describing the various alternatives may be found in section 5.5.

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1.6.6 Alternative Set 6 (for Purpose D: Establish Recreational Mackerel Allocation): Alternatives to establish a recreational allocation based on historical landings to prepare for development of ACLs/AMs.

Statement of Problem/Need for Action: An allocation to the recreational fishery is needed in order to build recreational mackerel ACLs/AMs into the framework of the forthcoming Omnibus ACL/AM Amendment. While there is a soft assumption about potential recreational harvest that is considered during the specifications process, there technically is not currently a recreational allocation. Under the current regime, technically both the commercial and recreational sectors fish on the same quota and in the unlikely event that the recreational fishery caught the full amount of quota in its soft allocation, the total fishery could be over its quota before the commercial fishery even closed and went to incidental trip limits. Increased accountability will be needed with ACLs/AMs and designating a specific recreational allocation will facilitate development of ACLs/AMs within the framework of the Omnibus Amendment.

Background:

The MSA was reauthorized in 2007 and one new requirement is to establish annual catch limits (ACLs) and accountability measures (AMs) in order to end and/or prevent overfishing in all FMPs. Section 302 (h)(6) states: "(Each Council shall) develop annual catch limits for each of its managed fisheries that may not exceed the fishing level recommendations of its Scientific and Statistical Committee or the peer review process established." Section 303 (a)(15) states: "(Any FMP shall) establish a mechanism for specifying annual catch limits in the plan (including a multiyear plan), implementing regulations, or annual specifications, at a level such that overfishing does not occur in the fishery, including measures to ensure accountability."

The MSB FMP is required to be in compliance with these new regulations by 2011 because no MSB fisheries are subject to overfishing at this time. The MSB fisheries are already generally managed with hard quotas so the Council has already laid the foundation for complying with the ACL and AM requirements of the MSRA. The Council originally intended to use Am11 to update the MSB FMP so as to be in compliance with the ACL/AM provisions if the MSA but has since decided to deal with the ACL/AM issue in a holistic manner though an Omnibus ACL/AM Amendment. As part of the original ACL/AM considerations in Am11 a specific allocation to the recreational sector was considered because ACLs/AMs would have to be judged against a hard number. While ACLs/AMs in general have been moved to an Omnibus Amendment, the Omnibus Amendment will need a recreational allocation upon which to build in ACLs/AMs. Neither ACLs nor AMs are proposed in AM11, but the alternatives consider a recreational allocation based on historical landings to facilitate ACLs/AMs within the framework developed by the Omnibus ACL/AM Amendment.

Summary of Proposed Management Actions and Rationale

Alternative Set 6 includes measures to allocate a percentage of the ABC to the recreational fishery based on <u>the proportion of landings accounted for by the recreational sector 1997-2007</u>. Since the allocation is a percentage, the amount available in any given year would fluctuate with the ABC. The alternatives consider allocating to the recreational sector either their proportion of harvest over 1997-2007 (4.1%), "1.5 times" 1997-2007 harvest (6.2%), or "2 times" 1997-2007 harvest (8.2%). This creates a "reasonable range of alternatives" given recent landings (low), current quotas (high), and given the current assumption about recreational landings is 15,000 mt. The multiplications (in effect providing a higher quota) also take into account the fact that recreational estimates have not included January or February activity and the fact that mackerel recreational estimates are more uncertain than other species like summer flounder or bluefish.

Alternatives: **<u>6A</u>:** no action (no changes made). It will be assumed that the recreational fishery could catch 15,000 MT. This assumption will continue to not be a hard quota.

<u>6B</u>: designate an allocation for the recreational mackerel fishery that would form the basis of ACL/AM measures in the future. The recreational fishery would be allocated the percentage of the ABC that corresponds to the proportion of total U.S. landings that was accounted for by the recreational fishery from 1997-2007 from MRFSS database. Percentage would be: **4.1**%, which translates into an allocation of 6,396 MT under the 2010 ABC (4.1% of 156,000 = 6,396), and an allocation of 1,943 MT under the Council's recommended 2011 mackerel ABC (47,395MT).

<u>6C (PREFERRED)</u>: designate an allocation for the recreational mackerel fishery that would form the basis of ACL/AM measures in the future. The recreational fishery would be allocated the percentage of the ABC that corresponds to the proportion of total U.S. landings that was accounted for by the recreational fishery from 1997-2007 from MRFSS database times 1.5. Percentage would be: **6.2%**, which translates into an allocation of 9,672 MT under the current ABC (6.2% of 156,000 = 9,672), and an allocation of 2,938 MT under the Council's recommended 2011 mackerel ABC (47,395MT)

<u>6D</u>: designate an allocation for the recreational mackerel fishery that would form the basis of ACL/AM measures in the future. The recreational fishery would be allocated the percentage of the ABC that corresponds to the proportion of total U.S. landings that was accounted for by the recreational fishery from 1997-2007 from MRFSS database times 2. Percentage would be: **8.2%**, which translates into an allocation of 12,792 MT under the current ABC (8.2% of 156,000 = 12,792), and an allocation of 3,886 MT under the Council's recommended 2011 mackerel ABC (47,395MT).

Summary of Biological Impact Analysis

Impacts are likely minimal compared to the status quo since the quota is significantly under-harvested so no likely landings and/or effort changes would be predicted under the status quo. Positive impacts are expected in the long run if the catch needs to be constrained in the future and the allocation facilitates establishment of ACLs/AMs via the Omnibus ACL/AM Amendment. ACLs/AMs will provide increased accountability and avoidance of harvest overages would have positive impacts on the mackerel stock.

Summary of Economic Impact Analysis

Since the recreational quota will likely be set at or above recent catch levels (see table 38), there is no expected impact to recreational anglers. If quotas fall to the low end of possible long term yields (12,000MT), and the recreational fishery was allocated 6.2%, the resulting quota of 744 MT might require management measures to limit harvest, however if quotas dropped that much the Council might add restrictions even without a firm allocation so it unclear that this would be an impact related to the allocation or just to the general quota decrease. Positive impacts are expected in the long run if the catch needs to be constrained in the future and the allocation facilitates establishment of ACLs/AMs in the upcoming Omnibus ACL/AM Amendment. ACLs/AMs will provide increased accountability and avoidance of harvest overages would have positive long term impacts by maintaining the sustainability of the mackerel resource.

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1.6.7 <u>Alternative Set 7</u> (for Purpose E: Avoid At-Sea Processing Problems): Alternatives to limit at-sea processing of Atlantic mackerel.

Statement of Problem/Need for Action: Public comment expressed concern to the Council about potential adverse effects related to establishment of large-scale at-sea processing via transfers to mother ship-type processors (though this is not currently occurring). Given the lack of recent experience with at-sea processing via transfers at sea in the mackerel fishery, industry has been concerned about possible disruption of shoreside processor business activities if large scale at-sea processing by mother ship-type vessels commenced.

Background:

Public comment has expressed concern to the Council about potential adverse effects related to establishment of large-scale at-sea processing. Specifically, concerns have been raised in public comments that significant amounts of at-sea processing of mackerel could possibly create potential problems, primarily negative fishing community impacts from disruption of supply of Atlantic mackerel to shoreside processors. Subsequent literature review suggested that marine mammal impacts may be a potential concern, but the data was very limited on this topic and deemed insufficient as a basis for decision making.

Summary of Proposed Management Actions and Rationale

The Council considered alternatives to limit at-sea processing of Atlantic mackerel. The alternative range had its genesis in existing measures in the Atlantic herring fishery but is really just designed to consider a wide range of alternatives. Herring has a 20,000 MT cap on at-sea processing, which is approximately 14% of the overall herring optimum yield. 14% of the recent mackerel IOY of 115,000 would be 16,000 MT and forms the basis for a range of caps related to Purpose E. The amount of the cap would be evaluated and set during each specification process within the range described in this document after an evaluation of the best available scientific information on performance of the fishery and any relevant biological information. Since it appeared that this issue was one of economic allocation between shoreside and at-sea processors the Council selected 7A as preferred since the MSA does not allow economic allocation to be the sole justification for an action.

Alternatives:

7A (PREFERRED): no action, (no limitations on at-sea mackerel processing)

7B: cap at-sea processing (via transfers) initially at 7% of IOY (would be 8,000 MT based on the 2010 IOY of 115,000 mt, or 3,300 mt based on the 2011 IOY of 46,779 mt)

7C: cap at-sea processing (via transfers) initially at 14% of IOY (would be 16,000 MT based on the 2010 IOY of 115,000 mt, or 6,600 mt based on the 2011 IOY of 46,779 mt)

7D: cap at-sea processing (via transfers) initially at 21% of IOY (would be 24,000 MT based on the 2010 IOY of 115,000 mt, or 9,800 mt based on the 2011 IOY of 46,779 mt)

7E: cap at-sea processing (via transfers) initially at 50% of IOY (would be 57,500 MT based on the 2010 IOY of 115,000 mt, or 23,400 mt based on the 2011 IOY of 46,779 mt)
7F: cap at-sea processing (via transfers) initially at 75% of IOY (would be 86,250 MT based on the 2010 IOY of 115,000 mt, or 35,100 mt based on the 2011 IOY of 46,779 mt)

Summary of Proposed Management Actions and Rationale

Given the issues described above related to possible large-scale at-sea processing, the Council considered taking a precautionary approach in Alternative Set 7 by capping at-sea processing via transfers in the mackerel fishery with alternatives in the range of 8,000 MT, 16,000 MT, 24,000 MT, 57,500 MT, and 86,250 MT. The Herring at-sea processing cap was chosen as an anchor point for the range of alternatives because of the large-volume nature of both fisheries and because in both cases the at-sea processing cap would be precautionary in the face of limited data. From the current Herring Cap percentage of 14% of OY a reasonable range of percentages were developed.

Placing caps on at-sea processing would be a precautionary approach to avoid possible negative fishing community impacts and potential marine mammal impacts given concerns raised in public comments and given the very limited available information. Capping at-sea processing would allow for review of smaller-scale at-sea processing before at-sea processing became a widespread processing method. The Council considered in Alternative Set 7 capping at-sea processing via transfers in the mackerel fishery with alternatives in the range of 8,000 MT, 16,000 MT, 24,000 MT, 57,500 MT, and 86,250 MT. The caps would keep at-sea processing to a relatively low level should it commence, and the impacts could then be evaluated and the cap adjusted as appropriate. The cap would be evaluated and set during each specification process within the range described in this document after an evaluation of the best available scientific information on performance of the fishery and any relevant biological information.

Because the sole justifiable rationale behind this alternative appeared to be economic allocation, which is prohibited under MSA, the Council chose the no action as the preferred alternative.

Note: Comments on this alternative from the U.S. EPA noted that processing operations may be subject to regulations related to EPA's authority under the Ocean Dumping Act and/or Clean Water Act, and that interested parties should consult EPA regarding any applicable regulations.

Summary of Biological Impact Analysis

No immediate impacts would be expected from status quo since there is currently no at-sea processing. Theoretically there could be future benefits if proposed precautionary approach avoided potential marine mammal interactions, but the data on this topic is very limited and highly uncertain.

Summary of Economic Impact Analysis

No immediate impacts would be expected from status quo since there is no at-sea processing currently. There could be potential future benefits if proposed precautionary approach leads to community stability but potential future lost revenues to vessels and at-sea processors if at-sea processing cap limits future at-sea processing that would have occurred otherwise. The net outcome is not possible to predict and it may be largely a transfer from one processing sector to another.

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1.7 Summary of Impacts

1.7.A - Cap Capacity

Alternative Sets 1-4 involve the limited access program to cap capacity, i.e. prohibit new entrants and restrict a range of current and historical participants to their historical practices. From this point of view, Alternatives 1B-1F would generally equally accomplish this task while 1A would not. However, these alternatives would result in differing fleet capacities. While characterized by high uncertainty, the available capacity analysis suggests that in terms of resulting fleet capacity, 1E<1D<1C<1J<1B=1F<1G (i.e. 1E would result in the lowest capacity fleet). Given the proposed scenario under 1G would have a high trip limit for open access, it may not effectively constrain capacity. While 1C and 1D (Preferred) have a relatively high number of vessels in Tier 3, the relatively low cap on Tier 3 landings should discourage Tier 3 vessels from adding capacity for the purpose of directed mackerel fishing. The rationale behind 1C's and 1D's Tier 3 is that mackerel may be available occasionally in a wide distribution of areas and Tier 3 permits would be able to access these occasional availability situations even though they are not part of the directed fishery.

Alternative Set 2 alternatives (allocation) would not significantly affect capacity compared to the status quo except in the sense that it is part of the overall limited access system.

Regarding Alternative Set 3, to the extent that lower trip limits encourage incidental vessels to remain as incidental vessels (not additionally capitalized for the purposes of mackerel fishing), lower trip limits could be considered as also contributing to capping capacity, thus in terms of resulting fleet capacity, 3D<3C<3B<3F<3G<3A (i.e. 3D would encourage the lowest capacity fleet). 3E would only apply to Tier 2 vessels that had already qualified for a relatively high Tier (which would be capped by a quota) and thus probably not likely to impact capacity significantly, but without a trip limit there could be some incentive to increase capitalization on Tier 2 vessels though the extent is unquantifiable.

To the extent that Alternative Set 4 alternatives allow more vessels to qualify (4D) overall, capacity, while capped, could be higher than otherwise. To the extent that Alternative Set 4 alternatives restrict upgrading (4B, 4C, 4E), capacity would be more firmly capped than otherwise.

Preferred Alternatives

Related to capping capacity, the preferred alternatives include 1D, 2A, 3F, 4B, 4C, 4D, 4F, and 4G2. 1D would create a mackerel permitting system with 3 tiers of limited access and an open access group. Qualifications would be based on landings history and possession of a mackerel permit on March 21, 2007. 1D would result in a primary directed fleet (Tier 1 and Tier 2) that has a relatively low capacity compared to the range of alternatives considered. Tier 3 would have a relatively large number of vessels but would have a relatively low cap on landings (up to 7% of the quota). No allocations would be made per selection of 2A. 3F would specify initial trip limits for Tier 2 (135,000 pounds), Tier 3 (100,000 pounds), and open access (20,000 pounds). All trips limits would be set at 20,000 pounds once 90% of the quota was reached. All trips limits would be adjustable via the specifications process. 4B, 4C, 4D, and 4F specify operational details primarily related to qualification procedures and vessel upgrade restrictions. 4G2 would require weekly VTR reporting by Tier 3 permit holders to facilitate quota monitoring of the relatively large number of vessels that would qualify for Tier 3 under the preferred alternative 1D. The

Taken together, the preferred alternatives are designed to create a system that creates minimal impact on current and historical participants while still capping capacity. Since the fishery is already managed with hard quotas biological impacts are likely to be minimal. However, to the extent that any potential future race to fish is reduced there may be future biological and socio-economic benefits as discussed in detail in this document.

1.7.B - Update EFH

All Alternative Set 5 alternatives would equally update EFH in terms of using the best available scientific information. Each alternative would however result in different sized geographical areas being designated, with 5B<5C<5D<5E (5B would designate the least amount of area). All would generally designate more EFH than the status quo because of methodological changes and the density thresholds selected compared to the current designations. Given the semi-pelagic nature of MSB FMP species it is unlikely that the proposed EFH designations would lead to significant management measures related to protecting MSB FMP species EFH from fishing activities, but NMFS consults with a variety of other agencies on federal activities that could impact designated EFH (e.g. offshore energy permitting that could affect water quality). Thus designations that are larger in geographic scope could lead to more benefits for MSB FMP species. The preferred alternative, 5C, would designate an area that is intermediate in geographic extent compared to the range of alternatives considered, but substantially larger than the status quo.

1.7.C - Evaluate Gear Impacts on *Loligo* Egg EFH

Not applicable - analysis demonstrated that no alternatives relative to this purpose were necessary. There was minimal scientific information available on gear impacts to *Loligo* egg EFH. The available information suggested that gear impacts on *Loligo* egg EFH were minimal and/or temporary in nature so Amendment 11 does not contain alternatives regarding possible gear impacts to *Loligo* egg EFH.

1.7.D - Establish Recreational Mackerel Allocation

All alternatives would effectively establish such an allocation for the purposes of establishing ACLs/AMs in the context of the Omnibus ACL/AM Amendment. In terms of the amounts of quota allocated, 6B<6C<6D, but all are more than recent and/or historical estimates of recreational mackerel landings given the current quota. Since this would be percentage based, if the overall quota is smaller the recreational allocation could get smaller along with the commercial quota, but in this sense the percentage based allocation serves as an effective allocation regardless of overall quota. The preferred alternative, 6C, would allocate an intermediate amount of quota to each sector compared to the range of alternatives considered. Under 6C, most of the quota would be allocated to the commercial sector since the commercial sector has accounted for most landings over the time period considered (1997-2007). This alternative is not expected to have any immediate biological or socio-economic impacts, though having clearly defined quotas for both sectors could help avoid overfishing in the future. If the total quota available decreases substantially, having an allocation for the recreational sector could facilitate calculation of season and/or bag limits but any reductions in recreational access compared to the status quo would be more related to the overall lower quota rather than the actual allocation.

1.7.E - Avoid At-Sea Processing Problems

There is uncertainty about whether significant at-sea processing would actually cause net losses or net benefits to the overall welfare of the nation. To the extent that at-sea processing caused problems as described above, greater restrictions on at-sea processing would provide greater benefits (see 7.4.7 and 7.5.7), i.e. 7A<7F<7E<7D<7C<7B (7B, being the most restrictive, would result in the most benefits). To the extent that at-sea processing caused benefits (see 7.5.7), greater restrictions on at-sea processing would result in costs, i.e. in terms of benefits 7A>7F>7E>7D>7C>7B (7A, being the least restrictive, would result in the most benefits). The interplay between social, fishery, and marine mammal effects is difficult to conclusively rank but each is described in Section 7. The Council chose the no-action, 7A as preferred for this alternative set because economic allocation appeared to be the sole purpose, which is prohibited by the Magnuson Stevens Act.

1.8 Summary Tables

Overview of Measures Table: Table 5 provides a concise general summary of the measures and their anticipated effects.

Impacts of the Alternatives Table: Table 6 is provided below to list all of the management alternatives and qualitatively summarize the anticipated impacts of each of the management alternatives compared to the status quo.

Cumulative Effects Table: A cumulative effects assessment (CEA) was conducted for this draft document. The information from that assessment is provided in Section 8.0. Table 7 contains a qualitative summary of the cumulative effects from that assessment.

Table 5. Overview of Measures

Table 4. Overview of Measures				
	Effectiveness in Capping Capacity in the Mackerel Fleet	Effectiveness in Updating EFH Designations	Effectiveness in Creating Specific Recreational Allocation	Effectiveness in Avoiding At-Sea Processing Issues
Alternative Set 1 (Limited Access Qualifying Scenarios)	MEDIUM-HIGH: Fleet will be well defined and increases in capacity will be limited, but without a LAPP, capacity is elastic in the long run. Smaller initial fleets will have less initial capacity.	NA	NA	NA
Alternative Set 2 (Allocations for Limited Access)	NA (but operationalizes Limited Access Program)	NA	NA	NA
Alternative Set 3 (Trip Limits for Limited Access)	MEDIUM: Trip limits on lower tiers designed to encourage incidenatal/small scale operators to remain incidental/small scale	NA	NA	NA
Alternative Set 4 (Administrative Provisions for Limited Access)	MEDIUM: Upgrade restriction provisions minimize additional capital from being built into existing vessels	NA	NA	NA
Alternative Set 5 (Update EFH)	NA	HIGH: Proposed alternatives use the best available scientific information.	NA	NA
Alternative Set 6 (Establish Recreational Mackerel Allocation)	NA	NA	HIGH: Any alternative from this set would accomplish this.	NA
Alternative Set 7 (Avoid At-Sea Processing Problems)	NA	NA	NA	UNCERTAIN: Could solve some problems but create others.

Table 5. Overview of Measures (continued)				
	Implementation Difficulty	Enforcement Difficulty	Monitoring Needs	Economic Effects
Alternative Set 1 (Limited Access Qualifying Scenarios)	HARD: Significant effort needed to qualify applicants and confirm histories. Earlier qualification dates will be harder to validate.	MEDIUM: Use of multiple tiers means different vessels will have different requirements/ restrictions	EASY to MEDIUM: No additional monitoring anticipated, but vessel data will have to be sorted by Tier.	POSITIVE: Limited access has long term positive impacts compared to open access.
Alternative Set 2 (Allocations for Limited Access)	EASY: Primarily an accounting issue, faclitates operation of limited access.	MEDIUM: Use of multiple tiers means different vessels will have different requirements/ restrictions	EASY to MEDIUM: No additional monitoring anticipated, but vessel data will have to be sorted by Tier.	POSITIVE: Limited access has long term positive impacts compared to open access. No short term impacts given recent fishery operation
Alternative Set 3 (Trip Limits for Limited Access)	EASY: Trip Limits Widely Used in NE Region	MEDIUM: Use of multiple tiers means different vessels will have different trip limits. At sea enforcement always challenging.	EASY: No additional monitoring anticipated	POSITIVE: Limited access has long term positive impacts compared to open access. No short term impacts given recent fishery operation
Alternative Set 4 (Administrative Provisions for Limited Access)	HARD: But these measures are designed to make limited access implementation easier than if they did not exist	EASY: Minimal additional enforcement anticipated	EASY: No additional monitoring anticipated	POSITIVE: Limited access has long term positive impacts compared to open access. Depending on treatment of history transfers, some individuals could be negatively impacted but impossible to quantify.
Alternative Set 5 (Update EFH)	EASY: Mapping already completed	EASY: No additional enforcement anticipated	EASY: No additional monitoring anticipated	POSITIVE: Possible benefits if used to protect habitat from non-fishing activities. Unlikely impact on fishing activities due to managed species biology.
Alternative Set 6 (Establish Recreational Mackerel Allocation)	EASY: Primarily an accounting issue.	EASY: No additional enforcement anticipated	EASY: No additional monitoring anticipated	LOW: Proposed quotas above historical catches.
Alternative Set 7 (Avoid At-Sea Processing Problems)	MEDIUM: NERO would have to track quota by processor and notify dealers and vessels when cap was reached.	MEDIUM: Processors would be large and likely easy to track but any measure that involves at-sea enforcement can be difficult to enforce.	MEDIUM: NERO would have to track quota by processor and notify dealers and vessels when cap was reached.	UNCERTAIN: Could help communities with significant processing, could hurt vessels that would have otherwise utilized an at-sea processor

Table 6. Alternatives in Amendment 11 and expected impacts on "valued ecosystem components" (VECs)

Preferred Alternatives are bolded and underlined

		VECs				
		Managed resource	Non-target species	Habitat including EFH	Protected Resources	Human Communities
Purpose	Measure	↓	↓	↓	↓	↓
-A- Cap Capacity Basic Limited Access Tier Scenarios	1A: No Action = Status Quo	Minimal - already hard quota	Low positive - lower future quotas could lower effort but could get a race to fish.	Likely neutral - mostly mid-water trawling	Low positive - lower future quotas could lower effort but could get a race to fish.	Negative - revenue losses from falling quotas could be execerbated by race to fish.
	1B: Go back to 1988 for lower Tiers	Low Positive - See 1E/1D/1C, but higher initial capacity than 1C	Low Positive - See 1E/1D/1C, but higher initial capacity than 1C	Likely neutral - Quota has more of an impact and mostly mid-water trawling	Low Positive - See 1E/1D/1C, but higher initial capacity than 1C	Positive - See 1E/1D/1C, but higher initial capacity than 1C
	1C: Go back to 1997 for lower tiers.	Low Positive - See 1E/1D, but higher initial capacity than 1D	Low Positive - See 1E/1D, but higher initial capacity than 1D	Likely neutral - Quota has more of an impact and mostly mid-water trawling	Low Positive - See 1E/1D, but higher initial capacity than 1D	Positive - See 1E/1D, but higher initial capacity than 1D
	<u>1D: Go back to 1994 for lower Tiers and stop at 2005 for Tiers 1 and 2.</u>	Low Positive - See 1E, but higher initial capacity than 1E	Low Positive - See 1E, but higher initial capacity than 1E	Likely neutral - Quota has more of an impact and mostly mid-water trawling	Low Positive - See 1E, but higher initial capacity than 1E	Positive - See 1E, but higher initial capacity than 1E
	1E: Go back to 1997 for lower Tiers and stop at 2005 for Tiers 1 and 2.	Low Positive - Limited access lowers probability of a race to fish compared to status quo	Low Positive - Limited access lowers probability of a race to fish compared to status quo	Likely neutral - Quota has more of an impact and mostly mid-water trawling	Low Positive - Limited access lowers probability of a race to fish compared to status quo	Positive - Limited access lowers probability of a race to fish compared to status quo, can lead to higher profits
	1F: Go back to 1988 for lower Tiers, 10,000 pound qualifying landing for Tier 3.	Low Positive - See 1E/1D/1C, but higher initial capacity than 1C	Low Positive - See 1E/1D/1C, but higher initial capacity than 1C	Likely neutral - Quota has more of an impact and mostly mid-water trawling	Low Positive - See 1E/1D/1C, but higher initial capacity than 1C	Positive - See 1E/1D/1C, but higher initial capacity than 1C
	1G: Use 2 category system with 1,000,000 pound qualification threshold.	Minimal - May not effectively limit additional capitalization, but hard quota remains	Minimal - May not effectively limit additional capitalization, but hard quota remains	Likely neutral - Quota has more of an impact and mostly mid-water trawling	Minimal - May not effectively limit additional capitalization, but hard quota remains	Negative - revenue losses from falling quotas could be execerbated by race to fish.
	1H: Grant Tier 3 access to vessels with "A" or "B,C" Herring permits.	Would be added to 1B-1G with likely minimal additional impact	Would be added to 1B-1G with likely minimal additional impact	Likely neutral - Quota has more of an impact and mostly mid-water trawling	Would be added to 1B-1G with likely minimal additional impact	Low Positive above and beyond limited access benefits - Could avoid potential regulatory discarding.
	1I: Grant Tier 3 access to vessels with "A" or "B,C" or "C" Herring permits.	Would be added to 1B-1G with likely minimal additional impact	Would be added to 1B-1G with likely minimal additional impact	Likely neutral - Quota has more of an impact and mostly mid-water trawling	Would be added to 1B-1G with likely minimal additional impact	Low Positive above and beyond limited access benefits - Could avoid potential regulatory discarding.
	1J: Go back to 3/1/1994 for lower Tiers	Low Positive - See 1E/1D/1C, but higher initial capacity than 1C	Low Positive - See 1E/1D/1C, but higher initial capacity than 1C	Likely neutral - Quota has more of an impact and mostly mid-water trawling	Low Positive - See 1E/1D/1C, but higher initial capacity than 1C	Positive - See 1E/1D/1C, but higher initial capacity than 1C
	Unless noted, alternatives use 1997-2007 for Tier 1 and 1,000,000 pound qualifier for Tier 1 except for 400,000 pounds for 1D/1E; 100,000 pound qualifier to Tier 2; and 25,000 pound qualifier for Tier 3 (except for 1F (10,000) and 1C/1D (1,000)).					

Table 6. Alternatives in Amendment 11 and expected impacts on "valued ecosystem components" (VECs). (continued)

		VECs				
		Managed resource	Non-target species	Habitat including EFH	Protected Resources	Human Communities
Purpose	Management Measure	↓	↓	↓	↓	↓
-A- Cap Capacity Limited Access Allocations	**2A: No Action = Status Quo**	Minimal - already hard quota	Low positive - lower future quotas could lower effort but could get a race to fish.	Likely neutral - Quota has more of an impact and mostly mid-water trawling	Low positive - lower future quotas could lower effort but could get a race to fish.	Likely Neutral
	2B: Allocate to Tier 2 (OA under 1G) their proportion of landings 1997-2007. Other tiers allocated remainder.	Likely Neutral, but part of limited access system, which is low positive.	Likely Neutral, but part of limited access system, which is low positive.	Likely neutral - Quota has more of an impact and mostly mid-water trawling	Likely Neutral, but part of limited access system, which is low positive.	Likely Neutral, but part of limited access system, which is positive. Preserves access for Tier 2.
	2C: Allocate double result from 2B but allow for reversion back to other Tiers' quota	Likely Neutral, but part of limited access system, which is low positive.	Likely Neutral, but part of limited access system, which is low positive.	Likely neutral - Quota has more of an impact and mostly mid-water trawling	Likely Neutral, but part of limited access system, which is low positive.	Likely Neutral, but part of limited access system, which is positive. Gives Tier 2 more quota than they caught 1997-2007 compared to other Tiers.
	2D: Allocate triple result from 2B but allow for reversion back to other Tiers' quota	Likely Neutral, but part of limited access system, which is low positive.	Likely Neutral, but part of limited access system, which is low positive.	Likely neutral - Quota has more of an impact and mostly mid-water trawling	Likely Neutral, but part of limited access system, which is low positive.	Likely Neutral, but part of limited access system, which is positive. Gives Tier 2 more quota than they caught 1997-2007 compared to other Tiers.

Table 6. Alternatives in Amendment 11 and expected impacts on "valued ecosystem components" (VECs). (continued)

		VECs				
		Managed resource	Non-target species	Habitat including EFH	Protected Resources	Human Communities
Purpose	Measure	↓	↓	↓	↓	↓
-A- Cap Capacity Limited Access Trip Limits No trip limits proposed for Tier 1 while directed fishery is open	3A: No Action = Status Quo	Minimal - already hard quota	Low positive - lower future quotas could lower effort but could get a race to fish.	Likely neutral - mostly mid-water trawling	Low positive - lower future quotas could lower effort but could get a race to fish.	Negative - revenue losses from falling quotas execerbated by race to fish.
	3B: Trips limits set to only affect 1% of trips. (relatively high trip limit)	Low Positive (more than 3F) - trip limits used to discourage additional capitalization in lower Tiers, lowering chance of race to fish	Low Positive (more than 3F) - trip limits used to discourage additional capitalization in lower Tiers, lowering chance of race to fish	Likely neutral - Quota has more of an impact and mostly mid-water trawling	Low Positive (more than 3F) - trip limits used to discourage additional capitalization in lower Tiers, lowering chance of race to fish	Low Positive- trip limits used to discourage additional capitalization in lower Tiers, lowering chance of race to fish. Minimal lost revenue due to trip limits (but more than 3F)
	3C: Trips limits set to only affect 2% of trips.	Low Positive (more than 3B) - trip limits used to discourage additional capitalization in lower Tiers, lowering chance of race to fish	Low Positive (more than 3B) - trip limits used to discourage additional capitalization in lower Tiers, lowering chance of race to fish	Likely neutral - Quota has more of an impact and mostly mid-water trawling	Low Positive (more than 3B) - trip limits used to discourage additional capitalization in lower Tiers, lowering chance of race to fish	Low Positive- trip limits used to discourage additional capitalization in lower Tiers, lowering chance of race to fish. Minimal lost revenue due to trip limits (but more than 3B)
	3D: Trips limits set to only affect 5% of trips. (relatively low trip limit)	Low Positive (more than 3C) - trip limits used to discourage additional capitalization in lower Tiers, lowering chance of race to fish	Low Positive (more than 3C) - trip limits used to discourage additional capitalization in lower Tiers, lowering chance of race to fish	Likely neutral - Quota has more of an impact and mostly mid-water trawling	Low Positive (more than 3C) - trip limits used to discourage additional capitalization in lower Tiers, lowering chance of race to fish	Low Positive- trip limits used to discourage additional capitalization in lower Tiers, lowering chance of race to fish. Minimal lost revenue due to trip limits (but more than 3C)
	3E: Exempt Tier 2 from trip limits.	May lead to additional capitalization in Tier 2 (and race to fish)	Overall low positive - may lead to additional capitalization in Tier 2 (and race to fish)	Likely neutral - Quota has more of an impact and mostly mid-water trawling	May lead to additional capitalization in Tier 2 (and race to fish)	May lead to additional capitalization in Tier 2 (and race to fish)
	3F: Initially use trips limits of 135,000 lb for Tier 2, 100,000 for Tier 3, and 20,000 for open access	Low Positive - used to discourage additional capitalization in lower Tiers, lowering chance of race to fish	Low Positive - used to discourage additional capitalization in lower Tiers, lowering chance of race to fish	Likely neutral - Quota has more of an impact and mostly mid-water trawling	Low Positive - used to discourage additional capitalization in lower Tiers, lowering chance of race to fish	Low Positive- trip limits used to discourage additional capitalization in lower Tiers, lowering chance of race to fish. Minimal lost revenue due to trip limits
	3G: If 1G, open access uses Tier 2 trips limits calculated with Alternatives 3B-3D under Alt 1B.	Minimal but may lead to additional capitalization in Open Access category (and race to fish)	May lead to additional capitalization in Open Access category (and race to fish)	Likely neutral - Quota has more of an impact and mostly mid-water trawling	May lead to additional capitalization in Open Access category (and race to fish)	May lead to additional capitalization in Open Access category (and race to fish)

Table 6. Alternatives in Amendment 11 and expected impacts on "valued ecosystem components" (VECs). (continued)

		VECs				
		Managed resource	Non-target species	Habitat including EFH	Protected Resources	Human Communities
Purpose	Management Measure	↓	↓	↓	↓	↓
-A- Cap Capacity Limited Access Admin Provisions	4A: No Action = Status Quo	Minimal - already hard quota	Low positive - lower future quotas could lower effort but could get a race to fish.	Likely neutral - mostly mid-water trawling	Low positive - lower future quotas could lower effort but could get a race to fish.	Negative - revenue losses from falling quotas could be execerbated by race to fish.
	4B: Generally use standard Northeast Limited Access Administrative Provisions	Low Positive - Limits additional capitalization though upgrade restrictions and facilitates limited access.	Low Positive - Limits additional capitalization though upgrade restrictions and facilitates limited access.	Likely neutral - Quota has more of an impact and mostly mid-water trawling	Low Positive - Limits additional capitalization though upgrade restrictions and facilitates limited access.	Positive related to implementation of limited access
	4C: Require volumetric hold measurement by Tier 1 and Tier 2 vessels.	Low Positive - Limits additional capitalization	Low Positive - Limits additional capitalization	Likely neutral - Quota has more of an impact and mostly mid-water trawling	Low Positive - Limits additional capitalization	Positive - Limits additional capitalization. Possible survey costs of $1,000-6,000
	4D: Allow a type of history transfers	Low positive - involves limited access but could end with higher number of qualifiers, possibility of race to fish	Low positive - involves limited access but could end with higher number of qualifiers, higher possibility of race to fish	Likely neutral - Quota has more of an impact and mostly mid-water trawling	Low positive - involves limited access but could end with higher number of qualifiers, possibility of race to fish	Low positive - involves limited access but could end with higher number of qualifiers, possibility of race to fish. Individuals with quota records could be adversely impacted without such a provision
	4E: Require baseline to be the specifications of the vessel that created the history.	Low positive since would be part of limited access system. Further limits additional capitalization	Low positive since would be part of limited access system. Further limits additional capitalization	Likely neutral - Quota has more of an impact and mostly mid-water trawling	Low positive since would be part of limited access system. Further limits additional capitalization	Generally low positive since would be part of limited access system and further limits additional capitalization but could cause problems for qualifying for some individuals
	4F: Facilitate transfer scenarios where one person owns multiple vessels.	Low positive since would be part of limited access system.	Low positive since would be part of limited access system.	Likely neutral - Quota has more of an impact and mostly mid-water trawling	Low positive since would be part of limited access system.	Positive - part of limited access and allows owner to operate efficiently
	4G: Additional Monitoring	Likely minimal given no history of overages	Likely minimal given no history of overages	Likely minimal given no history of overages	Likely minimal given no history of overages	Negative to neutral - low conservation gains and varying monitoring costs

Table 6. Alternatives in Amendment 11 and expected impacts on "valued ecosystem components" (VECs). (continued)

		VECs				
		Managed resource	Non-target species	Habitat including EFH	Protected Resources	Human Communities
Purpose	Management Measure	↓	↓	↓	↓	↓
-B- Update EFH	5A: No Action = Status Quo	Low Positive - Exisiting designations would still be used to protect habitat/stock	Likely Neutral	Low Positive - Exisiting designations would still be used to protect habitat	Likely Neutral	Uncertain: Depends on how designations are used to effect economic activity and what stock/ecosystem benefits result
	5B: Smallest EFH designation among action alternatives (but larger than 5A)	Positive (least; smallest area for action alternatives) to the extent used to protect stock	Likely Neutral	Positive (least except for no action; smallest area for action alternatives)	Likely Neutral	Uncertain: Depends on how designations are used to effect economic activity and what stock/ecosystem benefits result
	5C: Second smallest EFH designation among action alternatives	Positive to the extent used to protect stock	Likely Neutral	Positive	Likely Neutral	Uncertain: Depends on how designations are used to effect economic activity and what stock/ecosystem benefits result
	5D: Second Largest EFH designation among action alternatives	Positive to the extent used to protect stock	Likely Neutral	Positive	Likely Neutral	Uncertain: Depends on how designations are used to effect economic activity and what stock/ecosystem benefits result
	5E: Largest EFH designation among action alternatives	Positive (most; largest area) to the extent used to protect stock.	Likely Neutral	Positive (most; largest area)	Likely Neutral	Uncertain: Depends on how designations are used to effect economic activity and what stock/ecosystem benefits result

Table 6. Alternatives in Amendment 11 and expected impacts on "valued ecosystem components" (VECs). (continued)

		VECs				
		Managed resource	Non-target species	Habitat including EFH	Protected Resources	Human Communities
Purpose	Management Measure	↓	↓	↓	↓	↓
-D- Establish Recreational Mackerel Allocation	6A: No Action = Status Quo	Likely minimal since recreational sector has been catcing small part of overall catch. Theoretically could lead to quota overages.	Likely Neutral	Likely Neutral	Likely Neutral	Likely minimal since recreational sector has been catcing small part of overall catch. Theoretically could lead to quota overages, theoretically compromise stock
	6B: Allocate 4.1% of ABC to recreational fishery.	Low long term positive - will facilitate ACLs/AMs which will protect stock, but small part of quota.	Likely Neutral	Likely Neutral	Likely Neutral	Low long term positive - will facilitate ACLs/AMs which will protect stock, but small part of quota.
	6C: Allocate 6.2% of ABC to recreational fishery.	Low long term positive - will facilitate ACLs/AMs which will protect stock, but small part of quota.	Likely Neutral	Likely Neutral	Likely Neutral	Low long term positive - will facilitate ACLs/AMs which will protect stock, but small part of quota.
	6D: Allocate 8.2% of ABC to recreational fishery.	Low long term positive - will facilitate ACLs/AMs which will protect stock, but small part of quota.	Likely Neutral	Likely Neutral	Likely Neutral	Low long term positive - will facilitate ACLs/AMs which will protect stock, but small part of quota.

Table 6. Alternatives in Amendment 11 and expected impacts on "valued ecosystem components" (VECs). (continued)

		VECs				
		Managed resource	Non-target species	Habitat including EFH	Protected Resources	Human Communities
Purpose	Management Measure	↓	↓	↓	↓	↓
-E- Avoid at-sea Processing Problems	**7A: No Action = Status Quo**	Likely Neutral	Likely Neutral	Likely Neutral	Likely Neutral	Overall uncertain - may be more transfers than net effects.
	7B: At sea processing via transfers capped at 7% of IOY	Likely Neutral	Likely Neutral	Likely Neutral	Possibly Low Positive (Highly Uncertain)	Overall uncertain - may be more transfers than net effects.
	7C: At sea processing via transfers capped at 14% of IOY	Likely Neutral	Likely Neutral	Likely Neutral	Possibly Low Positive (Highly Uncertain)	Overall uncertain - may be more transfers than net effects.
	7D: At sea processing via transfers capped at 21% of IOY	Likely Neutral	Likely Neutral	Likely Neutral	Possibly Low Positive (Highly Uncertain)	Overall uncertain - may be more transfers than net effects.
	7E: At sea processing via transfers capped at 50% of IOY	Likely Neutral	Likely Neutral	Likely Neutral	Possibly Low Positive (Highly Uncertain)	Overall uncertain - may be more transfers than net effects.
	7F: At sea processing via transfers capped at 75% of IOY	Likely Neutral	Likely Neutral	Likely Neutral	Likely Neutral - Unlikely to be constraining	Overall uncertain - may be more transfers than net effects.

For Tables 6 and 7, please refer to the following underlined impact definitions:

Managed Species, Non-Target Species, Protected Species:
Positive: actions that increase stock/population size
Negative: actions that decrease stock/population size

Habitat:
Positive: actions that improve the quality or reduce disturbance of habitat
Negative: actions that degrade the quality or increase disturbance of habitat

Human Communities:
Positive: actions that increase revenue and well-being of fishermen and/or associated businesses
Negative: actions that decrease revenue and well-being of fishermen and/or associated businesses

Impact Qualifiers:
Low (as in *low* positive or *low* negative): to a lesser degree
High (as in *high* positive or *high* negative) to a greater degree
Possibly/Potentially: a relatively higher degree of uncertainty is associated with the impact
Minimal: To a very small degree

A summary comparison of the relative incremental effect contributions to the cumulative effect for each set alternatives and affected resource, or valued ecosystem component (VEC), is displayed in Table 7. The cumulative effect baseline consists of the combined effect of the numerous “other” past, present and reasonably foreseeable future fishing and non-fishing actions that have been or would be taken by NMFS and other entities that have effects on the VECs. These are described in first row with significant text in Table 7. Also, note the relative impact contribution of each alternative listed for each VEC in the remaining portion of Table 7. The overall cumulative effects analysis consists of evaluating the resultant effects of the actions taken under this Amendment combined with the baseline. The impact of each alternative considered may have neutral, positive or negative impacts to each VEC. The bases for this analysis are described in more detail in Section 8.

The proposed alternatives would either increase or decrease fishing mortality of the managed resource VEC, and, in turn, have positive or negative effects, respectively, on population size or have no effect.. If the actions taken under this amendment have a net result of decreasing mortality on managed resources, then the sum cumulative effect on the managed resources will be positive. Decreased effort would also tend to reduce fishing mortality on non-target species and protected resources, and reduce disturbance of bottom habitat and thus have positive effects on these VECs. On the other hand reducing the ability of harvesters to acquire catch generally corresponds with reduced revenue at least in the short term, which translates to negative effects to human communities.

In general, it is expected that the overall long-term cumulative effects would be positive for the managed species and most VECs, as most of the alternatives have neutral or positive incremental effects added to a generally positive baseline (Table 7). The negative effects are generally shorter term, and, in most cases, would be positive over the long term. Those alternatives with neutral or no effect have no resulting cumulative effects. Thus, assuming that the generally positive baseline conditions for the long term would be achieved, it is anticipated that the alternatives in this Amendment would result in positive long term effects on the managed species and other VECs. The regulatory atmosphere within which Federal fishery management operates requires that management actions be taken in a manner that will optimize the conditions of resources, habitat, and human communities. Consistent with NEPA, the MSA requires that management actions be taken only after consideration of impacts to the biological, physical, economic, and social dimensions of the human environment.

Regardless of the uncertainty as to which actions will be implemented through this amendment, it is expected that the overall long term impacts should be positive for all aspects of the human environment. This is because, barring some unexpected natural or human-induced catastrophe, the regulatory mandates under which Federal fishery management operates require that management actions be taken in a manner that will optimize the long term condition of managed resources, non-target species, habitat, protected resources, and human communities. Consistent with NEPA, the MSA requires that management actions be taken only after consideration of impacts to the biological, physical, economic, and social dimensions of the human environment. This document functions to identify the likely outcomes of various management alternatives. Any alternative that would compromise resource sustainability would be in contradiction to the mandates of the MSA and would not be implemented. Additional scrutiny of the management alternatives during the public hearing process helped to further characterize the potential costs and benefits associated with the various alternatives.

The following symbols apply to table 7.

0	= No Cumulative Impact
+	= Positive Cumulative Impact
> +	= High Positive
< +	= Low positive
--	= Negative Cumulative Impact
> --	= High Negative
< --	= low negative
L	= *Loligo* only;
B	= Butterfish only
I	= *Illex* only
M	= Mackerel only (either for the stock or related to fishing effort for mackerel)
A	= All other Managed Species

Table 7. Summary Comparison of Cumulative Effects for Am11 alternatives.

	VECs				
	Managed resource	Non-target species	Habitat including EFH	Protected Resources	Human Communities
Baseline Effects without Amendment 11 (includes effects of past, present and reasonably foreseeable future actions)	Positive for Loligo stock since it appears to be managed sustainably. Unknown for other stocks given stock assessemnt uncertainty. Positive in long term for all MSB species as sustainable stock sizes for all MSB species are anticipated.	Negative in short term - Relatively high bycatch rates and effects of Amendment 10 are uncertain. Positive in long term from reduced bycatch and improved bycatch accounting	Positive - reduced habitat disturbance by fishing gear and non-fishing actions	Negative or low negative in short term until Trawl Take Reduction Research Plan is fully implemented Positive in the long run from reduced effort, Trawl TRP, Sea Turtle Strategy; improved habitat quality	Short-term is mixed. Some stocks have been rebuilt or maintined leading to higher revenues but uncertainty raises possibility of unnecessary restrictions. Long-term positive as sustainable resources should support viable communities and economies

Table 7. Summary Comparison of Cumulative Effects for Am11 alternatives (continued)

		VECs				
		Managed resource	Non-target species	Habitat including EFH	Protected Resources	Human Communities
Purpose	Management Measure	Relative <u>Incremental Effect Contribution</u> of Amendment 11 Alternatives to Overall Cumulative Effect of Baseline				
-A- Cap Capacity Basic Limited Access Tier Scenarios	1A: No Action = Status Quo	0	0	0	0	0
	1B: Go back to 1988 for lower Tiers	<+M; 0A	<+M; 0A	0	<+M; 0A	+
	1C: Go back to 1997 for lower tiers.	<+M; 0A	<+M; 0A	0	<+M; 0A	+
	1D: Go back to 1994 for lower Tiers and stop at 2005 for Tiers 1 and 2.	<+M; 0A	<+M; 0A	0	<+M; 0A	+
	1E: Go back to 1997 for lower Tiers and stop at 2005 for Tiers 1 and 2.	<+M; 0A	<+M; 0A	0	<+M; 0A	+
	1F: Go back to 1988 for lower Tiers, 10,000 pound qualifying landing for Tier 3.	<+M; 0A	<+M; 0A	0	<+M; 0A	+
	1G: Use 2 category system with 1,000,000 pound qualification threshold.	0	0	0	0	0
	1H: Grant Tier 3 access to vessels with "A" or "B,C" Herring permits.	0	0	0	0	<+
	1I: Grant Tier 3 access to vessels with "A" or "B,C" or "C" Herring permits.	0	0	0	0	<+
	1J: Go back to 3/1/1994 for lower Tiers	<+M; 0A	<+M; 0A	0	<+M; 0A	+
	Unless otherwise noted, all alternatives use 1997-2007 for Tier 1. All Tiers use 1,000,000 pound qualifier for Tier 1 except for 400,000 pounds for 1D and 1E; 100,000 pound qualifier to Tier 2; and 25,000 pound qualifier for Tier 3 (except for 1F (10,000 for Tier 3) and 1C/1D (1,000 for Tier 3)					

Table 7. Summary Comparison of Cumulative Effects for Am11 alternatives (continued)

		VECs				
		Managed resource	Non-target species	Habitat including EFH	Protected Resources	Human Communities
Purpose	Management Measure	Relative Incremental Effect Contribution of Amendment 11 Alternatives to Overall Cumulative Effect of Baseline				
-A- Cap Capacity Limited Access Allocations	2A: No Action = Status Quo	0	0	0	0	0
	2B: Allocate to Tier 2 their proportion of landings 1997-2007. Other tiers allocated remainder.	<+M; 0A	<+M; 0A	<+M; 0A	<+M; 0A	<+M; 0A
	2C: Allocate double result from 2B but allow for reversion back to other Tiers' quota	<+M; 0A	<+M; 0A	<+M; 0A	<+M; 0A	<+M; 0A
	2D: Allocate triple result from 2B but allow for reversion back to other Tiers' quota	<+M; 0A	<+M; 0A	<+M; 0A	<+M; 0A	<+M; 0A

These are all low positive related to mackerel because of the association to limited access in general.

Table 7. Summary Comparison of Cumulative Effects for Am11 alternatives (continued)

		VECs				
		Managed resource	Non-target species	Habitat including EFH	Protected Resources	Human Communities
Purpose	Management Measure	Relative Incremental Effect Contribution of Amendment 11 Alternatives to Overall Cumulative Effect of Baseline				
-A- Cap Capacity Limited Access Trip Limits No trip limits proposed for Tier 1 while directed fishery is open	3A: No Action = Status Quo	0	0	0	0	0
	3B: Trips limits set to only affect 1% of trips.	<+M; 0A	<+M; 0A	0	<+M; 0A	<+M; 0A
	3C: Trips limits set to only affect 2% of trips.	<+M; 0A	<+M; 0A	0	<+M; 0A	<+M; 0A
	3D: Trips limits set to only affect 5% of trips.	<+M; 0A	<+M; 0A	0	<+M; 0A	<+M; 0A
	3E: Exempt Tier 2 from trip limits.	0	<--	0	<--	Uncertain
	3F: Initially use trips limits of 135,000 pounds for Tier 2, 100,000 pounds for Tier 3 and 20,000 pounds for Open Access	<+M; 0A	<+M; 0A	0	<+M; 0A	<+M; 0A
	3G: If 1G selected, open access uses Tier 2 trips limits calculated for Tier 2 with Alternatives 3B-3D under Alternative 1B.	0	0	0	0	0

Table 7. Summary Comparison of Cumulative Effects for Am11 alternatives (continued)

		VECs				
		Managed resource	Non-target species	Habitat including EFH	Protected Resources	Human Communities
Purpose	Management Measure	Relative Incremental Effect Contribution of Amendment 10 Alternatives to Overall Cumulative Effect of Baseline				
#1 Limited Access Admin Provisions	4A: No Action = Status Quo	0	0	0	0	0
	4B: Generally use standard Northeast Limited Access Administrative Provisions	+M; 0A	<+	<+	<+	+
	4C: Require volumetric hold measurement by Tier 1 and Tier 2 vessels.	+M; 0A	<+	<+	<+	+
	4D: Allow a type of history transfers	< --M, 0A	<--	<--	<--	<-- to <+
	4E: Require baselines to be that of the vessel that created history	< +M, 0A	<+	0	<+	<-- to <+
	4F: Facilitate transfer scenarios where one person owns multiple vessels.	< --M, 0A	<--	<--	<--	<-- to <+
	4G: Increased Monitoring (Tier 3)	minimal	minimal	minimal	minimal	minimal to --

Table 7. Summary Comparison of Cumulative Effects for Am11 alternatives (continued)

		VECs				
		Managed resource	Non-target species	Habitat including EFH	Protected Resources	Human Communities
Purpose	Management Measure	Relative Incremental Effect Contribution of Amendment 11 Alternatives to Overall Cumulative Effect of Baseline				
-B- Update EFH	5A: No Action = Status Quo	0	0	0	0	0
	5B: Smallest EFH designation among action alternatives	+	0	+	0	+ to < --
	5C: Second smallest EFH designation among action alternatives	+	0	+	0	+ to < --
	5D: Second Largest EFH designation among action alternatives	+	0	+	0	+ to < --
	5E: Largest EFH designation among action alternatives	+	0	+	0	+ to < --

		VECs				
		Managed resource	Non-target species	Habitat including EFH	Protected Resources	Human Communities
Purpose	Management Measure	Relative Incremental Effect Contribution of Amendment 11 Alternatives to Overall Cumulative Effect of Baseline				
-D- Establish Recreational Allocation	6A: No Action = Status Quo	0	0	0	0	0
	6B: Allocate 4.1% of ABC to recreational fishery.	<+M; 0A	0	0	0	<+M; 0A
	6C: Allocate 6.2% of ABC to recreational fishery.	<+M; 0A	0	0	0	<+M; 0A
	6D: Allocate 8.2% of ABC to recreational fishery.	<+M; 0A	0	0	0	<+M; 0A

Table 7. Summary Comparison of Cumulative Effects for Am11 alternatives (continued)

		VECs				
		Managed resource	Non-target species	Habitat including EFH	Protected Resources	Human Communities
Purpose	Management Measure	Relative Incremental Effect Contribution of Amendment 11 Alternatives to Overall Cumulative Effect of Baseline				
-E - Avoid at-sea Processing Problems	7A: No Action = Status Quo	0	0	0	0	0
	7B: At sea processing via transfers capped at 7% of IOY	0	0	0	0 to < + M	-- to + M
	7C: At sea processing via transfers capped at 14% of IOY	0	0	0	0 to < + M	-- to + M
	7D: At sea processing via transfers capped at 21% of IOY	0	0	0	0 to < + M	-- to + M
	7E: At sea processing via transfers capped at 50% of IOY	0	0	0	0 to < + M	-- to + M
	7F: At sea processing via transfers capped at 75% of IOY	0	0	0	0	0

1.9 Initial Areas of Controversy

The date ranges used to qualify participants have been controversial from industry’s perspective because the dates affect the numbers of qualifiers and may have some regional impacts because of how mackerel abundance has varied over time. Earlier date ranges (before 1997 and especially before 1994) are problematic because the earlier data is less reliable and more difficult to verify. The Council has attempted to balance data issues with pre 1997 data with ensuring sufficient consideration of historical participation by means of the current range of considered dates. The Council has also added alternatives that lower the Tier 3 threshold and increase the Tier 3 trip limit in order to further accommodate historical participants.

Some individuals have also questioned why the Council is pursuing limited access given the quota is not being harvested. Given quotas are currently predicted to decline (see 6.1.1.2), the Council is pursuing limited access at this time in a proactive manner to minimize additional capitalization in the mackerel fishery.

1.10 Considered but Rejected Management Actions

Implementing LAPPs for the mackerel fishery in Am11.

The Council considered implementing a LAPP for the mackerel fishery in Am11 but chose not to pursue a LAPP at this time partly because one interpretation of the MSA is that institution of a limited access system must precede institution of a LAPP.

Using qualifying periods starting in 1983 in Am11.

The Council considered using qualifying periods starting in 1983 in Am11 but chose not to pursue usage of 1983 because of concerns about data verification and data availability and because the Council decided that going back to 1988 as an earliest date best considered current and historical participation.

Using qualifying Periods ending in 2002 in Am11.

The Council considered using qualifying periods ending in 2002 in Am11 but chose not to pursue usage of 2002 as a control date because the Council decided that the 2002 control date would not sufficiently consider current participation.

Implementing permit stacking in Am11.

The Council considered implementing permit stacking in Am11 but chose not to pursue permit stacking in Am 11 because of concerns about the operational details of a permit stacking system and because the Council decided that it was more appropriate to first establish the basic mackerel limited access system and then consider adding complexity at a later date.

Adding additional "Stocks in the Fishery" in Am11.

The concept of adding "Stocks in the Fishery" was brought up in public comment to the Council but such actions were not described in existing "Notices of Intent" and therefore were out of the scope of Am11 and the Council decided that a supplemental notice of intent was not warranted because A) doing so would further delay Am11 and B) the stocks of concern (river herrings and shads) are being addressed in Am14 which is already underway.

Implementing ACLs/AMs in Am11.

The Council considered implementing ACLs/AMs in Am11 but chose to deal with ACLs/AMs in an Omnibus amendment so that ACLs/AMs could be dealt with in a comprehensive and holistic manner across all MAFMC-managed species. The issue of creating a hard recreational allocation, which is necessary for developing ACLs/AMs, has been left in Amendment 11 since is seemed more appropriate for the species FMP to deal with the allocation rather than the Omnibus, even though the ACLs/AMs will generally be implemented through the Omnibus.

1.11 Regulatory Basis for the Amendment

Amendment 11 was developed in accordance with the MSA and the National Environmental Policy Act (NEPA), the former being the primary domestic legislation governing fisheries management in the U.S. Exclusive Economic Zone (EEZ). In 1996 Congress passed the Sustainable Fisheries Act (MSA), which amended and reauthorized the MSA and included a new emphasis on precautionary fisheries management. New provisions mandated by the MSA require managers to end overfishing and rebuild overfished stocks within specified time frames, minimize bycatch and bycatch mortality to the extent practicable, describe and identify essential fish habitat (EFH), and specify annual catch limits that do not exceed the fishing level recommendations on the Council's SSC, as well an accountability measures to ensure that catch limits are not exceeded. This legislation was recently reauthorized through passage of the Magnuson-Stevens Fishery Conservation and Management Reauthorization Act of 2006. This document presents and evaluates management alternatives and measures to achieve specific goals and objectives for the Atlantic mackerel, squid and butterfish fisheries (Section 4.0). This document was prepared by the Council in consultation with the National Marine Fisheries Service (NMFS, NOAA Fisheries).

Although this amendment has been prepared primarily in response to the requirements of the MSA and NEPA, it also addresses the requirements of the Marine Mammal Protection Act (MMPA) and the Endangered Species Act (ESA). When preparing an FMP or FMP amendment, the Council also must comply with the requirements of the Regulatory Flexibility Act (RFA), the Administrative Procedure Act (APA), the Paperwork Reduction Act (PRA), the Coastal Zone Management Act (CZMA), the Information Quality Act (IQA), and Executive Orders 13132 (Federalism), 12898 (Environmental Justice), 12866 (Regulatory Planning), and 13158 (Marine Protected Areas). These other applicable laws and Executive Orders help ensure that in developing an FMP/amendment, the Council considers the full range of alternatives and their expected impacts on the marine environment, living marine resources, and the affected human environment. This integrated document contains all required elements of the FMP amendment, including those required by NEPA, and information to ensure consistency with other applicable laws and executive orders.

2.0 LIST OF ACRONYMS

AA	Assistant Administrator
ABC	Allowable Biological Catch
ACFCMA	Atlantic Coastal Fisheries Cooperative Management Act
ACL	Annual Catch Limit
ACT	Annual Catch Target
AFS	American Fisheries Society
AM	Accountability Measure
APA	Administrative Procedures Act
AR	auto-regressive
ASMFC	Atlantic States Marine Fisheries Commission or Commission
ATGTRP	Atlantic Trawl Gear Take Reduction Plan
ATGTRT	Atlantic Trawl Gear Take Reduction Team
B	Biomass
BMSY	Biomass Associated with Maximum Sustainable Yield
BRP	Biological reference points
CAFSAC	Canadian Atlantic Fisheries Scientific Advisory Committee
CD	Confidential data
CDP	Census Designated Place
CEA	Cumulative Effects Assessment
CEQ	Council on Environmental Quality
CETAP	Cetacean and Turtle Assessment Program
CFR	Code of Federal Regulations
CI	Confidential Information
CPR	Cardiopulmonary Resuscitation
CPUE	Catch Per Unit Effort
CV	coefficient of variation
CZMA	Coastal Zone Management Act
DAH	Domestic Annual Harvest
DAP	Domestic Annual Processing
DMF	Department of Maine Fisheries
DOC	Department of Commerce
DOL	Department of Labor
DPS	Distinct Population Segment
DEIS	Draft Environmental Impact Statement
DSEIS	Draft Supplementary Environmental Impact Statement
DWF	Department of Wildlife and Fisheries
EA	Environmental Assessment
EAP	Emergency Action Plan
EEZ	Exclusive Economic Zone
EFH	Essential Fish Habitat
EIS	Environmental Impact Statement
ELMR	Estuarine Living Marine Resources

EO	Executive Order
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act of 1973
F	Fishing Mortality Rate
FAO	U.N. Food and Agriculture Organization
FDEP	Florida Department of Environmental Protection
FLSA	Fair Labor Standards Act
FMAT	Fishery Management Action Team
FMAX	Threshold Fishing Mortality Rate
FMP	Fishery Management Plan
FMSY	Fishing Mortality Associated with MSY
FR	Federal Register
FEIS	Final Environmental Impact Statement
FSEIS	Final Supplementary Environmental Impact Statement
FTARGET	Target Fishing Mortality Rate
FWS	U.S. Fish and Wildlife Service
GAMS	general additive models
GB	George's Bank
GC	General Counsel or General Category (Scallop)
GOM	Gulf of Maine
GRA	Gear Restricted Area
GTE	Greater than or equal to
HAPC	Habitat Area of Particular Concern
HPTRP	Harbor Porpoise Take Reduction Plan
IAEA	International Atomic Energy Agency
ICES	International Council for the Exploration of the Sea
ICNAF	International Convention of the Northwest Atlantic Fisheries
IMPLAN	IMpact Analysis for PLANning
IRFA	Initial Regulatory Flexibility Analysis
IOY	Initial Optimum Yield
IQA	Information Quality Act
IRFA	Initial Regulatory Flexibility Analysis
ITQ	Individual Transferrable Quota
IUCN	International Union for Conservation of Nature
JV	Joint Venture
LNG	Liquefied Natural Gas
LOF	List of Fisheries
LTPC	Long-term Potential Catch
LWTRP	Large Whale Take Reduction Plan
M	Natural Mortality Rate
MAFMC	Mid-Atlantic Fishery Management Council
MMPA	Marine Mammal Protection Act
MRFSS	Marine Recreational Fisheries Statistical Survey
MSA	Magnuson-Stevens Fishery Conservation and Management Act
MSB	Mackerel, Squid, and Butterfish

MSY	Maximum Sustainable Yield
MT (or mt)	metric tons
NAFO	Northwest Atlantic Fisheries Organization
NAO	National Oceanic and Atmospheric Administration Order
NASUS	National Academy of Sciences of the United States
NE	New England
NEFMC	New England Fishery Management Council
NEFOP	Northeast Fishery Observer Program
NEFSC	Northeast Fisheries Science Center
NEPA	National Environmental Policy Act
NIOZ	Royal Netherlands Institute for Sea Research
NK	Not classified
NLDC	New London Development Corporation
NMFS	National Marine Fisheries Service (NOAA Fisheries)
NOAA	National Oceanic and Atmospheric Administration
NOI	Notice of Intent
NOS	National Ocean Service
NSF	National Science Foundation
OBSCON	Observer Contract
OSP	optimum sustainable population
OTA	Office of Technology Assessment
OY	Optimal Yield
PBR	Potential Biological Removal
PRA	Paperwork Reduction Act
PREE	Preliminary Regulatory Economic Evaluation
RFA	Regulatory Flexibility Act
RFF	reasonably foreseeable future
RFFA	Reasonably Foreseeable Future Actions
RIR	Regulatory Impact Review
ROV	Remotely Operated Vehicle
RSA	Research Set-Aside
RV	Research Vessel
SA	South Atlantic
SAFE	Stock Assessment and Fishery Evaluation
SAFIS	Standard Atlantic Fisheries Information System
SAFMC	South Atlantic Fishery Management Council
SAR	Stock Assessment Report
SARC	Stock Assessment Review Committee
SAV	Submerged Aquatic Vegetation
SAW	Stock Assessment Workshop
SBA	Small Business Administration
SBRM	Standardized Bycatch Reporting Methodology
SD	Standard Deviation
SEFSC	Southeast Fisheries Science Center
SDEIS	Supplement to the Draft Environmental Impact Statement

SF	Sustainable Fisheries
SMB	Squid, Mackerel, and Butterfish (used when referring to Committee)
SP	Species
SSB	Spawning Stock Biomass
SSC	Scientific and Statistical Committee
STACRES	Standing Committee on Research and Statistics
STAT	Statistical
TAL	Total Allowable Landings
TALFF	Total allowable level of foreign fishing
TEWG	Turtle Expert Working Group
TL	Total Length
TNMS	Ten Minute Squares
TRP	Take Reduction Plan
TRT	Take Reduction Team
URI	University of Rhode Island
US	United States
USA	United States of America
USCG	United States Coast Guard
USDC	U.S. Department of Commerce
USDI	U.S. Department of the Interior
USGS	Untied Stated Geological Survey
USSR	Union of Soviet Socialist Republics
VEC	Valued Ecosystem Component
VMS	Vessel Monitoring System
VPA	Virtual Population Analysis
VTR	Vessel Trip Report
WNA	Western North Atlantic
WP	Working Paper
WWF	World Wildlife Federation
ZMRG	Zero Mortality Rate Goal

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4.0 INTRODUCTION AND BACKGROUND

Based on the Council's evaluation of all information contained in this document and public comment, the Council has recommended management measures to the Secretary of Commerce/NOAA Fisheries as described in this document.

To fully describe the Council's intent, especially regarding Purpose A Cap Capacity, a certain amount of background information on the mackerel fishery is required. While this background information is generally contained in other sections of the document (as referenced accordingly), it is summarized in this section to provide the reader with a clearer picture of the Council's intent. Once the background is described, more specific information on the Council's purpose will be discussed in Section 4.1.

Current Determination and Monitoring of Annual Quotas

The way annual quotas are calculated might have to be adjusted based on some of the allocation scenarios considered - see below "Determination of Annual Quotas under Limited Access" in section 5.2.4. Currently the process is as follows: Based on technical recommendations (from a technical Monitoring Committee and/or the SSC), an ABC is calculated. The regulations specify that the U.S. mackerel ABC = T - C. T is the yield associated with a fishing mortality rate (Ftarg) that is equal to the target F (i.e. 75% of Fmsy); C is the estimated catch of mackerel in Canadian waters for the upcoming fishing year. The annual specifications also specify the mackerel Initial Optimum Yield (IOY), a level that can be fully harvested by the domestic fleet, thereby precluding a foreign fishery, while allowing the U.S. mackerel industry to expand. The Council has heard from the industry that the availability of mackerel to the fishery, not the industry’s ability to harvest mackerel, has curtailed catch in recent years. If mackerel are available to the fishery, the Council and NMFS believe that it is reasonable to assume that the commercial fishery will be able to harvest and process 100,000 mt of mackerel (DAP). For the most recent fishing year (2011), no Ftarget was available and the Council’s SSC recommended a total ABC of 80,000 mt. 32,605 mt was deducted for expected Canadian catch leaving a U.S. ABC of 47,395 mt. Since the U.S. ABC was less than 100,000 mt no reduction from ABC to IOY was required to preclude a foreign fishery.

Monitoring of the mackerel quota is accomplished by tracking dealer records that must be submitted weekly by federally permitted dealers, who handle more than 95% of mackerel landings. Some state dealer information can arrive in a monthly fashion or even later. The fishery is closed when 90% of the mackerel quota is projected to be reached by NMFS NERO Fishery Statistics Office.

Current Status of the Mackerel Stock

A 2004 assessment concluded that fishing mortality was low and the stock was quite large, over 3 ½ times greater than the MSY stock size, likely related to recent good recruitment events. As recruitment returned to more average levels, it was expected that the mackerel stock would fall. The likely smaller biomass would support sustainable yields that are smaller than recent quotas, probably in the range of 12,000 MT-56,000 MT available to the US fishery under the current specifications process (and some of this quota would have to be allocated to the recreational fishery).

The Atlantic mackerel stock was most recently assessed via a Transboundary Resource Assessment Committee in 2010 (TRAC 2010), which analyzed data though 2008 (www.mar.dfo-mpo.gc.ca/science/trac/tsr.html). A number of different models and model formulations were evaluated. Given the uncertainty in the assessment results, the TRAC agreed that short term projections and characterization of stock status relative to estimated reference points would not be an appropriate basis for management advice at this time. Given current indications of reduced productivity and lack of older fish in the survey and catch, the TRAC recommended that annual total catches not exceed the average total landings over the most recent three years of data available at that time (2006-2008; 80,000 mt) until new information suggests a different amount is more appropriate. Since Canadian catches must be accounted for, this level of total catch would still probably lead to U.S. catches in the 12,000 MT - 56,000 MT range described in the DEIS. In this sense the new assessment did not substantially alter the perception of future quotas other than to highlight indications of potential reduced productivity. These points are also described in Section 6.1.1.2.

Current Nature of the Mackerel Fishery and Recent Harvests

Mackerel is currently an open access fishery, which means that any US vessel can apply for and be issued a permit to fish for mackerel. The current management program relies on an annual commercial quota, and any vessel with the required permit can fish without limits on the amount of mackerel that can be landed per trip. The fishery is closed when 90% of the quota is harvested, and the fishery continues for the rest of the year with vessels authorized to land only up to a specified possession limit (currently 20,000 lb if the fishery closes before June 1 and 50,000 if the fishery closes on or after June 1). If the full quota is reached a complete moratorium on possession is instituted. The fishery has not been closed to date. There is a small recreational fishery that has no active management measures.

Mackerel are not available year-round for the directed fishery - the vast majority of mackerel that are landed are caught January through April. Mackerel are predominantly caught with midwater trawl gear (single and paired) but also with bottom otter trawl gear. The fishery occurs primarily in shelf waters east of the Delmarva Peninsula to south of Cape Cod, but catches occur throughout Mid-Atlantic and New England waters (see figures 49 and 50).

Recent landings by gear and total landings relative to initial quotas are summarized in Table 8. It is not entirely clear why catches have not approached the quotas. Possibly a mix of factors is involved including market forces which affect fishing incentives (e.g. costs of inputs like fuel and prices fishermen can get for mackerel) and environmental forces which affect mackerel recruitment and abundance and/or availability in given locations. Fishermen have reported to the Council that they have been unable to find mackerel in sufficient quantity and density to harvest the quota, which supports an availability issue.

Table 8 Mackerel Landings by Gear 2003-2010

YEAR	TRAWL OTTER BOTTOM FISH	TRAWL OTTER MID	TRAWL OTTER MID PAIRED	Other	Total	IOY	Percent of IOY Landed
2003	5,291	17,212	11,572	222	34,298	175,000	20%
2004	7,330	23,170	20,499	5,439	56,438	170,000	33%
2005	5,595	8,410	26,012	2,192	42,208	115,000	37%
2006	10,361	24,413	19,579	2,507	56,860	115,000	49%
2007	2,103	14,715	8,080	649	25,547	115,000	22%
2008	2,727	9,472	9,137	412	21,748	115,000	19%
2009	6,758	5,670	9,318	890	22,634	115,000	20%
2010	2,737	1,992	4,149	998	9,876	115,000	9%

The Fleet that Catches Mackerel

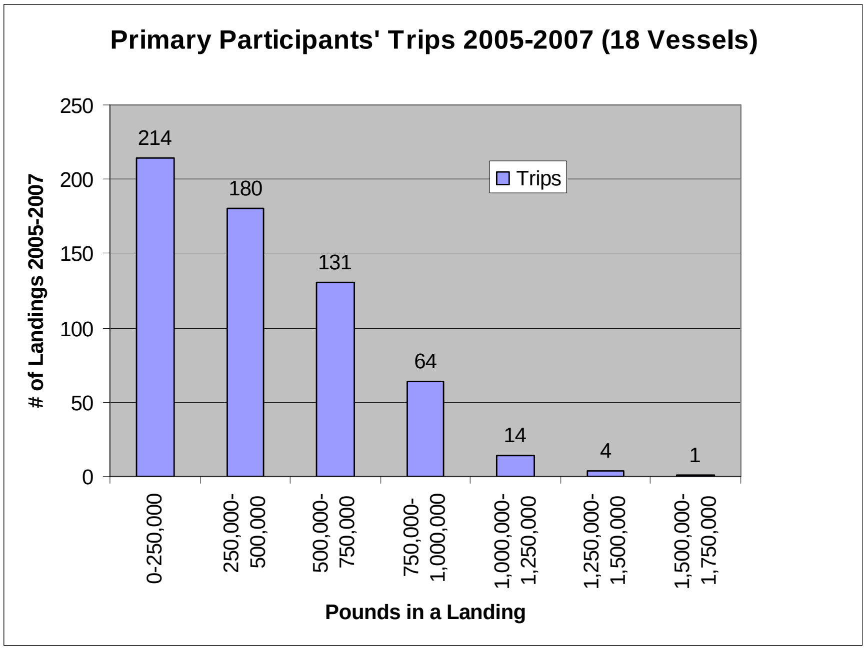
The current fleet of vessels that have landed over 100 pounds of mackerel in a single year has an estimated physical capacity to harvest over 200,000 MT of mackerel annually, and the entrance of even one new vessel can substantially increase fleet capacity. This is demonstrated by examining landings by vessel for 2004 and 2006, the best years for the domestic mackerel fishery. The top 5 vessels landed an average of 9% of the catch each, or 5,008 MT per year each in these years.

There were 2622 vessels that had federal mackerel permits at some point in 2007. Over 2005-2007 18 vessels ("primary participants") accounted for 90.7% of landings with average annual landings of 2,091 MT annually each (range of 4,342 MT - 568 MT). Another 81 vessels (secondary participants) had average annual landings over 1 MT (2204.6 pounds) average per year, accounting for 8.5% of landings with average annual landings of 43 MT annually each (range of 527 MT - 1 MT). Together these 99 vessels account for over 99% of landings. Clearly the fishery is dominated by a relatively small number of vessels. However, there are not clusters of vessels around given annual landings amounts but rather a smooth and steep decline in size of landings from one vessel to the next that then becomes a smooth and flat trailing off in size of annual landings.

Primary participants make larger trips than secondary participants. The types of trips for both primary and secondary participants consist of mostly relatively smaller trips (within each respective group) with fewer larger trips. The secondary participants' trips highlights the diversity of trips found within this group - from less than 100 pounds (907 trips) to more than

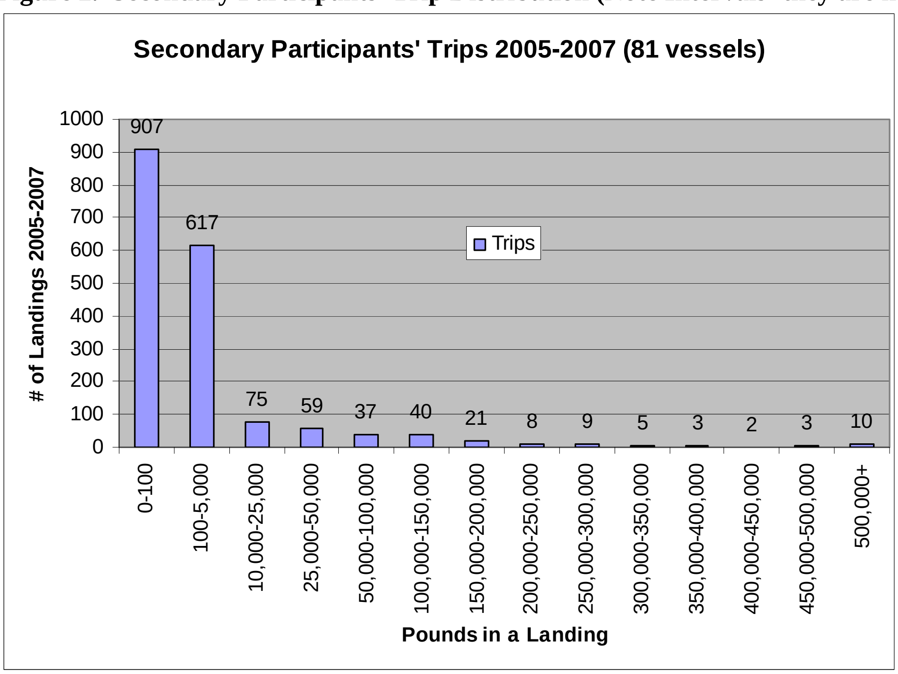
500,000 pounds (10 trips) (see Figures 1 and 2). These patterns have not changed dramatically in more recent years as can be reviewed in recent specifications documents: http://www.mafmc.org/fmp/msb.htm.

Figure 1. Primary Participants' Trip Distribution



(Unpublished dealer weighout data)

Figure 2. Secondary Participants' Trip Distribution (Note Intervals- they are not equal ranges)



(Unpublished dealer weighout data)

The primary participants are generally larger vessels, averaging 112 feet, about 1700 horsepower with a crew of 7. Catches are either frozen on board or kept in refrigerated seawater and processed on shore. The secondary participants are generally medium size vessels, averaging 72 feet, about 650 horsepower with a crew of 4. Catches are likely handled in a variety of ways as there is greater diversity of vessels among the smaller participants.

While when discussing impacts of limited access later in this document discussion revolves around the vessels in each Tier rather than trying to discuss impacts by other delineations such as primary and secondary participants, it is worth noting that except for one vessel that would qualify for the second highest level of access in scenarios where a 2005 control date is used, all of the primary vessels qualify for the highest level of access, so they would not be significantly impacted other than long run indirect benefits from belonging to a limited access fishery where they have the highest level of access (these benefits are discussed shortly below). This discussion jumps ahead a bit but it might be helpful for the reader to know that when later in the document the impacts of limited access are discussed, the "primary participants" discussed here just for purposes of characterizing the fleet do generally qualify for the highest levels of access, as would likely be expected.

Almost all mackerel from these vessels are landed at five ports that land over $50,000 worth of mackerel each: Cape May, NJ, New Bedford, MA, Gloucester, MA, North Kingstown, RI, Fall River, MA, and Point Judith, RI. In Fall River about 20% of ex-vessel revenues came from mackerel 2005-2007 and the others derived 5% or less from mackerel (see Table 9). Port details may be found in Section 6.5.

Table 9. Key Ports 2005-2007

Ranking by Value of Mackerel Landings	PORT	STATE	Mackerel landings average value	Total landings average value	Percent of Port's Ex-Vessel revenues from mackerel
1	CAPE MAY	NJ	$ 2,753,921	$ 50,267,083	5%
2	NEW BEDFORD	MA	$ 2,482,075	$ 276,679,024	1%
3	GLOUCESTER	MA	$ 2,371,630	$ 46,714,997	5%
4	NORTH KINGSTOWN	RI	CI	CI	>1%
5	FALL RIVER	MA	$ 1,363,999	$ 6,379,153	21%
6	POINT JUDITH	RI	$ 138,492	$ 40,593,871	<1%

Source: Unpublished NMFS Dealer Data

The General Problems with Open Access Fisheries

Open access fisheries tend to have two basic problems. One, they overfish stocks and two, they have low profits because too many vessels end up chasing too few fish. From the U.S. Commission on Ocean Policy:

> …the race for fish pushes fishermen to invest more and more capital to buy bigger, faster boats and new gear, and hire additional labor. These investments are perceived as essential to stay alive in the race for fewer and fewer fish, not necessarily to make the business more efficient. The inevitable result is economic decline, with more vessels pursuing a shrinking resource. If managers respond by further lowering the total allowable catch, costs rise even more while average revenues drop. (USCOP 2004)

The first basic problem is not so much of an issue for mackerel because it is managed with a hard quota with in-season closures and buffers. Quotas are set based on the yield produced from applying only .75Fmsy to the current stock size to account for uncertainty. In addition, relatively low trip limits are instituted once 90% of the quota is reached and once 100% of the quota is reached the fishery is closed entirely. With a species like mackerel, where discards are generally not a big problem, the hard quotas as instituted can solve the biological side of the problem as long as scientists and managers avoid the temptation to allow the fishery to catch more than good science would recommend.

However, the second basic problem is even more difficult than the first. Even if the stock is maintained, profits are lost as fishermen, racing to catch the quota before their peers, use more and more capital and/or effort to catch an amount of fish that could actually be caught with less capital and/or less effort. As costs to harvest a given quantity of fish rise, all else being equal, profits must fall. For example, if you spend 100 dollars to catch 200 dollars' worth of fish you have lower profit than if you operated more efficiently and only spent 50 dollars to catch 200 dollars' worth of fish. A positive feedback loop of even more effort, capitalization, and lower profits ensues. In some fisheries, the capacity expands to the point where an annual quota can be caught in just a few days (http://www.fakr.noaa.gov/npfmc/sci_papers/ifqpaper.htm). This has not been a problem for the U.S. mackerel fleet yet as they have never caught the quota. As described above however, quotas are expected to fall in the future, which could lead to a race to catch the quota in the future.

General Solutions to Open Access Problems

License limitations, i.e. limited access programs, are usually the first step to limiting capacity. Once implemented, only a certain group(s) of vessels have access to the fishery. However, since effort and fishing power within any given fleet are flexible (especially in the long run), limited access often is not sufficient to avoid a race to fish. Limited Access Privilege Programs (LAPPs), where individual entities or cooperating groups of entities are granted permission to exclusively harvest a fixed portion of a quota eliminate racing against other vessels and allow vessels to focus on harvesting fish in an optimal manner.

Benefits Related to Ending Open Access

Ending open access with implementation of limited access will minimize additional entry of vessels into the mackerel fleet. Preventing additional vessels from entering the mackerel fleet will reduce the chance of a race to fish. Ending open access, as is the case in the mackerel fishery, provides benefits to the degree than a race to fish is reduced. There has not been a race to fish for mackerel, thus there would be no immediate benefits associated with instituting limited access. However, as described above, quotas are expected to fall in the future because of the biological nature of the mackerel stock, and a race to fish could develop.

To the extent that institution of limited access minimized such future racing to fish, future benefits could accrue. Given the mackerel fishery is well controlled biologically by a hard quota and mandatory vessel and dealer reporting, one would expect that race to fish problems would be largely socio-economic in nature, and thus benefits avoiding the race to fish would also be largely socio-economic in nature. Those benefits stem from the fishermen not worrying about catching fish before everyone else and just concentrating on harvesting fish as efficiently as possible and include better safety (no need to go out in bad weather) and higher profits. Higher profits can result because fishermen concentrate on reducing costs and maximizing the value of their catch (careful processing) rather than speed of harvest. If costs go down and value goes up, profits will go up.

This profit-maximizing behavior can also lead to conservation gains for non-target species, habitat, and protected resources. These gains can come about in a variety of ways, all tied to the same incentive to maximize profits in the absence of a race to fish. First and in general, since fishermen are focusing on reducing costs to catch a given quantity of fish, they will want to reduce effort if possible. If effort falls, impacts to non-target species, habitat, and protected resources would also fall because given the short mackerel season and general inclusiveness of the limited access system proposed, one would not expect significant spatial-temporal changes in effort distribution related to the proposed actions. Second, since fishermen are trying to maximize profits, they have incentive to avoid bycatch (to avoid spending time sorting catch), and avoid protected species (avoid possibly regulations related to interactions). These incentives do exist during a race to fish, but can be overwhelmed by other incentives during the race to fish (catch as many fish as possible as quickly as possible before others' landings shuts a fishery down).

As mentioned above, limited access often is insufficient to end a race to fish. Even with a defined universe of vessels, racing to fish between the qualifiers can still lead to sub-optimal harvesting strategies. In such cases, instituting LAPPs can effectively end the race to fish because each harvester is guaranteed access to a portion of the quota and when they catch their portion they are done. The Council considered but rejected instituting LAPPs in Amendment 11. The Council decided limited access was a good first step and that if a race to fish develops in the future within the limited access mackerel fishery then the Council could reconsider LAPPs at that point. There are also legal questions about whether a limited access program must precede a LAPP in time or if a LAPP could be instituted simultaneously with a limited access system. Thus institution of limited access also provides the benefit of facilitating transition to a LAPP in the future.

4.1 PROBLEMS/NEEDS FOR ACTION AND CORRESPONDING PURPOSES

Table 10 summarizes the Problems/Needs for Action and corresponding purposes. The "Problem/Need for Action" describes 'Why is the Council taking a given action?' For each Problem/Need for Action there is a "Corresponding Purpose," which is how the Council proposes to address the Problem/Need for Action. Additional details on the purposes are provided after the table. The alternatives described in this document provide a reasonable range of specific tools to implement the purpose, i.e. solve the problem.

Table 10. Summary of the problems/needs for actions and purposes.

SUMMARY OF THE PURPOSE AND NEED FOR THE ACTION		
	PROBLEM/NEED FOR ACTION	CORRESPONDING PURPOSE
Purpose A	Mackerel is currently an open access fishery and entrance of relatively few vessels can dramatically increase capacity.	" **Cap Capacity** " - Establish a Cap on Capacity via Limited Access Based on current and historical participation that does not impede optimal U.S. utilization of the fishery.
Purpose B	MSB EFH has not been updated in 10 years but NMFS regulatory guidance states that EFH needs to be updated at least every 5 years.	**"Update EFH"** - Update MSB species' essential fish habitat (EFH) descriptions per National Marine Fisheries Service (NMFS) regulatory guidance on EFH designation review and updating.
Purpose C	MSA requires that adverse impacts from fishing on *Loligo* Egg EFH need to be evaluated and minimized to the extent practicable if found to be more than minimal and not temporary in nature.	**"Evaluate Gear Impacts on *Loligo* Egg EFH"** - Evaluate fishing-related impacts on *Loligo* egg EFH and if necessary, minimize (to the extent practicable) any adverse effects on *Loligo* egg EFH caused by fishing.
Purpose D	MSA requires that FMPs need to have ACLs/AMs by 2011 for MSB species. Will need a recreational allocation upon which to build in ACLs/AMs in forthcoming Omnibus ACL/AM Amendment.	**"Establish Recreational Mackerel Allocation"** – While ACL/AM provisions have mostly been moved to an Omnibus ACL/AM Amendment, that Omnibus will need a hard quota/allocation established for the recreational sector as part of ACLs/AMs. A recreational allocation had been part of the original ACL/AM provisions, and is remaining in Amendment 11.
Purpose E	The Council has received comments that the potential problems associated with large at-sea processing vessels needs to be considered.	**"Avoid At-Sea Processing Problems"** - Avoid related problems, primarily negative fishing community impacts from disruption of supply of Atlantic mackerel to shoreside processors, but also including marine mammal interactions.

4.1.A Purpose A - " **Cap Capacity** " - Establish a Cap on Capacity via Limited Access Based on current and historical participation that does not impede optimal U.S. utilization of the fishery.

Limited Access in the Mackerel Fishery

Given the background information about quotas, vessels, and racing to fish the Council's singular and simple purpose should be clear: the purpose is to Cap Capacity by instituting limited access so that additional vessels cannot enter the fishery and existing vessels are limited from expanding beyond a certain degree in a way that does not impede optimal U.S. utilization of the fishery. The limited access scenarios would technically reduce physical capacity in the range of 0-49% (to 202,000 MT-104,000 MT annually) but a lot of the reduction is related to latent capacity (boats that have some landings so they are counted in the open access/status quo capacity but have not really been focused on mackerel and might not in the future).

Recall the current estimate of long term yield available to the U.S. fishery is 12,000 MT-56,000 MT. A direct comparison between the long term yield and capacity estimates is problematic because the capacity estimate is a maximum theoretical production scenario and optimal capacity as measured in this document may be very high when compared to the long term quota (see Section 7.5.1 for details). However, given that some recent (2004 and 2006) landings were near the upper range of long term yield predictions (about 56,000 MT) and that the estimates of physical capacity are high when compared to the long term yield predictions, the Council has decided that now is an appropriate time to consider limited access in the mackerel fishery and the rationale is simple: waiting will likely only mean additional entry, a higher capacity to deal with in the future, and a higher likelihood of a race to fish in the future, along with all the problems that accompany racing to fish as described earlier in this section. The Council is aware a race to fish may develop even with limited access and that a LAPP may be needed in the future to be sure no race to fish occurs but has deemed that limited access is a good starting point. At its June 2010 meeting the Council passed a motion concurring with its Squid, Mackerel, and Butterfish (SMB) Committee and the SMB Advisory Panel that the fleet size/capacities resulting from the current alternatives are the desired range of fleet sizes/capacities. The underlying rationale behind the current range of alternatives is that while a relatively large fleet might lead to occasional early closures during periods of high mackerel abundance, it was better to have more vessels able to search and fish for mackerel in the majority of years when mackerel availability was not near its peak. These issues were also discussed at a May 2010 joint committee and advisory panel meeting to address how best to incorporate historical participation, the summary of which is included in Appendix 3.

The proposed limited access program would limit the issuance of mackerel permits in the future to vessels that meet specific eligibility criteria. Various alternatives are proposed to define these eligibility criteria, and the Council intends to confer eligibility on both current and a range of historical participants. The first purpose of Am11 (A) includes language about not impeding optimal U.S. utilization of the mackerel resource. The concern about not impeding optimal utilization of the mackerel resource relates to the fact that in recent years only 20%-50% of the quota has been landed. While it is not clear why the fleet is not harvesting the quota, the Council does not deem it prudent to make drastic cuts in the fleet at this time because the Council believes that doing so might interfere with the fleet's ability to harvest optimum yield.

The Council essentially seeks to balance the potential overcapitalization issues with the concept that the mackerel fishery is highly dynamic, and since availability is limited in time (the fishery is generally prosecuted January-April and space (catch locations can shift - see VTR Figures 60 and 61 in section 6), it may in fact take a relatively large fleet to actually catch the full U.S. quota, at least in certain years. Thus many of the Council's proposed limited access alternatives were developed to respond to the concern that the limited access program should not impede optimal utilization of the mackerel resource. As described above, this concern is based partly on the fact that in recent years, the quota has not been fully harvested (See Table 34 for a comparison of quotas and landings). This pelagic stock is highly mobile, with extensive northerly (spring) and southerly (autumn) migrations to and from spawning and summer feeding grounds (described in more detail in Section 6). Thus the Council has proposed limited access alternatives that reflect concern expressed by members that too small a fleet might not be able to fully harvest the quota, given the fact that the fishery is compressed in time, and the fleet must locate concentrations of fish within that compressed time. These two somewhat conflicting drivers (low harvests compared to quota; falling quotas in future) combined to influence the decision making process regarding alternatives.

Thus to cap capacity in the mackerel fishery while not impeding optimal U.S. utilization of the mackerel resource, the Council considered in Alternative Sets 1-4 components of a limited access system for the mackerel fishery, which are generally designed to prohibit additional entrants and restrict current and a range of historical participants to their current and/or historical levels of mackerel fishing. To restrict current and a range of historical participants to their current and/or historical levels of mackerel fishing, the limited access alternatives proposed by the Council would establish various levels of participation within the limited access fleet. This is the intent behind the placing of vessels into different Tiers and the limits placed upon vessels in each Tier. As part of discouraging speculative entry while a limited access program is being developed and implemented, and consistent in principle with earlier FR notices since 2002 discouraging speculative entry, the Council has included a requirement that all qualifiers for limited access would have to have held an active mackerel permit on March 21, 2007.

4.1.B Purpose B - "Update EFH" - Update MSB species' essential fish habitat (EFH) descriptions per National Marine Fisheries Service (NMFS) regulatory guidance on EFH designation review and updating.

EFH stands for essential fish habitat. From NMFS' Office of Habitat Conservation EFH website (http://www.nmfs.noaa.gov/habitat/habitatprotection/efh/index.htm):

> Marine fish depend on healthy habitats to survive and reproduce. Throughout their lives fish use many types of habitats including seagrass, salt marsh, coral reefs, kelp forests, and rocky intertidal areas among others. Various activities on land and in the water constantly threaten to alter, damage, or destroy these habitats. NOAA Fisheries, regional Fishery Management Councils, and Federal

> and state agencies work together to address these threats by identifying Essential Fish Habitat (EFH) for each federally managed fish species and developing conservation measures to protect and enhance these habitats. Productive commercial and recreational fisheries are inextricably linked to healthy marine habitats; protecting them will help support fishing communities now and for generations to come.

The second purpose of Am11 (B) is to update the textual descriptions and geographical identifications of EFH for all life stages of mackerel, *Loligo*, *Illex*, and butterfish. *Loligo* egg EFH was established in 2008 but none of the other species/lifestages have been updated since 1998. Updates are important so that decisions are made based on the best available information. Section 600.815(a)(9) of the Final Rule to revise the regulations implementing the EFH provisions of the MSA states that Councils should conduct such reviews as recommended by the Secretary, but at least once every five years. Thus the Council considered in <u>Alternative Set 5</u> EFH designations that vary in terms of average prevalence/density thresholds used to identify EFH. If only the highest density areas are chosen a smaller, but perhaps more critical, total area results. If areas with lower densities are included, the result is a larger total designated EFH area for each species/lifestage.

The Final Rule to revise the regulations implementing the EFH provisions of the MSA also requires: 1) identification of non-fishing related activities that may adversely affect EFH, 2) habitat conservation and enhancement recommendations (other than measures to minimize the impacts of fishing on *Loligo* egg EFH), 3) revisions to the description of MSB prey species and their habitats, and 4) a list of habitat-related research and information needs. This information is contained in Section 6 of this document.

The final rule for EFH guidance states that "a complete review of all EFH information should be conducted as recommended by the Secretary, but at least once every 5 years." The EFH information for MSB fisheries has generally not been updated since the original analysis and designations were done for Amendment 8. Amendment 8 was finished in 1998, so it has been approximately 10 years since a complete review. That said, the EFH for *Loligo* eggs was just established in Amendment 9 (2008). While no new information is available for *Loligo* egg EFH, reviews of existing literature suggested that some minor edits to the text description of *Loligo* egg EHF are warranted. Accordingly, Am11 reviews and revises the EFH text descriptions (for all MSB species) and maps (for all but *Loligo* eggs) based up-dated bottom trawl survey data and other available information on habitat requirements (e.g., revised EFH source documents) for the following:

Loligo : eggs (just text), pre-recruits, recruits
Illex : pre-recruits, recruits
Mackerel : eggs, larvae, juveniles and adults
Butterfish : eggs, larvae, juveniles and adults

To comply with NEPA requirements, there are several designation alternatives for each life stage of each species (including a no action alternative) and an analysis of the potential impacts of each alternative on each VEC (see below).

4.1.C Purpose C - "Evaluate Gear Impacts on *Loligo* Egg EFH" - Evaluate fishing-related impacts on *Loligo* egg EFH and if necessary, minimize (to the extent practicable) any adverse effects on *Loligo* egg EFH caused by fishing.

The third purpose of Am11 (C) is to evaluate the impacts of fishing on *Loligo* egg EFH and if the adverse effects are more than minimal and not temporary in nature, to minimize the adverse effects to the extent practicable (the MSA states that an FMP shall "minimize to the extent practicable adverse effects on such habitat caused by fishing").

The MSA defines EFH as "those waters and substrate necessary to fish for spawning, breeding, feeding or growth to maturity." The MSA states that "Any fishery management plan…shall…describe and identify essential fish habitat for the fishery…, minimize to the extent practicable adverse effects on such habitat caused by fishing, and identify other actions to encourage the conservation and enhancement of such habitat." While Amendment 9 to the MSB FMP considered analysis of the effects of MSB fishery activity on EFH for federally-managed species within the geographic scope of the management unit, *Loligo* egg EFH had not yet been designated and was, therefore, not included in that analysis. Therefore, Am11 evaluates potential adverse effects of fishing on *Loligo* egg EFH (including effects of MSB fisheries and other federally and state-managed fisheries on *Loligo* egg EFH). To the extent such an analysis determined that there are adverse impacts from federally-managed fishing activities on *Loligo* egg EFH that are more than minimal and not temporary in nature, Am11 would also have had to include 1) a range of alternatives for minimizing those impacts, 2) an analysis of the potential impacts of each alternative on managed resources, non-target species, the physical environment, protected species, and socioeconomic impacts, and 3) an analysis of the practicability of implementing each alternative.

There was minimal scientific information available on gear impacts to *Loligo* egg EFH. The available information suggested that gear impacts on *Loligo* egg EFH were minimal and/or temporary in nature so Amendment 11 does not contain alternatives regarding possible gear impacts to *Loligo* egg EFH.

4.1.D Purpose D - "Establish Recreational Mackerel Allocation"

Establishment of Current Assumption About Recreational Mackerel Landings

There is currently no real allocation between the recreational and commercial mackerel sectors. There is an assumption that the recreational fleet will catch 15,000 MT for the purposes of setting annual specifications. The specifications use an assumption that 15,000 MT of mackerel will be caught for setting DAH and IOY, but this is largely meaningless operationally because under the current specifications the commercial fleet's quota is the combined assumed catch of the commercial and recreational fleets (and because the recreational fleet only occasionally even catches as much as 1/10 of 15,000 MT). The 15,000 MT assumption was codified in 1996 with Amendment 5 but the number can be traced back to 1992 when specifications set the estimated mackerel catch at approximately 1% of SSB which was then 1,500,000 MT so the estimated recreational catch was 15,000 MT. Why exactly 15,000 MT was chosen in Amendment 5 is not clearly documented.

Recreational Statistics

Catches by the marine recreational fishery are a significant portion of the total landings of many marine species. Passage of the Magnuson Fishery Conservation and Management Act (MFCMA, 16 USC 1801) in 1976 mandated collection of data for both commercial and recreational marine fisheries. Following several years of testing, a standard method of data collection and statistical estimation was initiated in 1981. Catch, effort, and participation estimates for marine recreational fisheries have been produced since 1981. Data for the estimates come from a variety of on-site and telephone surveys.

Estimates for mackerel are relatively imprecise compared to other species due to relatively low effort in the recreational mackerel fishery. Estimates are also generated relatively slowly compared to the weekly estimates of commercial landings - there is no mechanism to track the recreational harvest in real time and make in-season responses to the recreational fishery. For example, 2009 estimates will be available in spring 2010 and thus usable for setting 2011 specifications. In addition, the entire system of recreational data collection and the accuracy of resulting estimates have come under heavy criticism from both academia and the recreational fishing community and the system is currently being overhauled (i.e. the Marine Recreational Information Program - "MRIP" - see countmyfish.noaa.gov for details). Improved survey methodologies will be implemented over time.

Need for a Recreational Allocation

The 2007 MSA amendments mandated (Sec 303(a)(15)) that Councils:

> establish a mechanism for specifying annual catch limits in the plan (including a multiyear plan), implementing regulations, or annual specifications, at a level such that overfishing does not occur in the fishery, including measures to ensure accountability.

The language in MSA requires that the MSB FMP have Annual Catch Limits/Accountability Measures (ACLs/AMs) in place for mackerel and butterfish by 2011. Mackerel has a recreational component so management will need to include recreational ACL/AMs. There is no recreational allocation currently, just a soft assumption for purposes of setting specification levels. However, ACLs/AMs will create a de facto allocation because each sector (recreational/commercial) will have to be limited to a clearly defined portion of the quota. Thus instituting ACLs/AMs requires addressing the allocation issue in cases where allocations have not already been made, such as mackerel.

Am 11 was originally going to consider ACLs/AMs in full for the MSB FMP, including the issue of the recreational/commercial allocation. However, to facilitate a holistic approach to developing ACLs/AMs, the Council is now developing an Omnibus ACL/AM Amendment to address ACLs/AMs for all species in one action. Because the Council believed the mackerel allocation issue could best be evaluated within a species-specific FMP, the Council decided to leave the recreational allocation issue in AM 11, in essence to prepare the way for ACLs/AMs in the Omnibus ACL/AM Amendment. This way the Council can focus on ACL/AM issues such as technical implementation and risk policy rather than the allocation issue in the Omnibus Amendment. Thus the Council considered in Alternative Set 6 alternatives to establish a recreational allocation based on historical landings to prepare for development of ACLs/AMs in an Omnibus Amendment.

4.1.E Purpose E - "Avoid At-Sea Processing Problems" - Avoid related potential problems, primarily negative fishing community impacts from disruption of supply of Atlantic mackerel to shoreside processors, but also including marine mammal interactions.

The fifth purpose of Am11 (E) is to avoid potential problems associated with at-sea processing in the mackerel fishery. At sea processing as the cap would apply would involve transfers of cod-ends from catcher vessels to a mothership-type vessel that processes (sorting, packaging, and freezing) catch made by other vessels. While this type of processing is not occurring currently in the fishery, it is currently authorized in the plan and requires issuance of a dealer permit and compliance with dealer reporting requirements. It was an activity formerly conducted in the fishery by foreign processing vessels.

Specifically, concerns were raised in public comments that significant amounts of at-sea processing of mackerel could lead to negative fishing community impacts from disruption of supply of Atlantic mackerel to shoreside processors. Industry reports that shoreside processors have made significant investments in recent years and if vessels switched to at-sea processors the return from those investments could be compromised. This would most affect processors that are not vertically integrated (don't own vessels) and cannot guarantee their own supply. Corporate structures (each vessel is often its own legal entity) preclude analysis of the extent of this issue beyond that it has been reported to the Council at Council meetings.

Subsequent staff research at the direction of the Council also raised other possible issues including higher likelihoods of racing to fish (encouraging faster harvest), closure effectiveness problems (monitoring of at-sea processing is more difficult than monitoring land-based processors), and marine mammal interactions. While analysis did not support the racing to fish/closure effectiveness concerns, there was some very limited evidence that common dolphin interactions could be a concern (see 7.4.7), but the data cannot support a strong conclusion. In a precautionary approach generally similar to the approach taken in the Atlantic Herring fishery[2], the Council considered in Alternative Set 7 capping at-sea processing in the mackerel fishery.

[2] The Atlantic herring FMP explained in its original 2000 FMP that the intent to limit at-sea processing was to be cautious given a lack of experience with large domestic at-sea processors to protect the interests of those communities that are dependent on the herring fishery. The 2007-2009 Atlantic herring specifications Environmental Assessment indicates that the at-sea processing cap has not been utilized.

As discussed in sections 5 and 7, to the extent that at-sea processing caused problems, limiting at-sea processing would limit the potential problems engendered by at-sea processing.

A critical component of the Council's motivation is that at-sea processors have limited ties to fishing communities compared to shore-side processors. The Council is concerned that if significant at-sea processing developed, there could be disruptions of supply of mackerel to shore-side processors, and subsequent impacts to the fishing communities where the processors are located. While the economic contribution of mackerel processing to the overall economy is likely a very small percentage, given the current economic difficulties in general and the hardships faced by the fishing industry in particular, the Council feels that consideration of ways to avoid such impacts are important nonetheless.

Thus to the extent that a shift to at-sea processing could cause problems, specifically adverse economic impacts for shoreside dealers and maybe increased marine mammal impacts, limiting development of an at-sea processing sector in the mackerel fishery would preclude these problems.

Because the sole justifiable rationale behind this alternative appeared to be economic allocation, which is prohibited under MSA, the Council chose the no action as the preferred alternative.

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4.2 HISTORY OF FMP DEVELOPMENT

Management of the Atlantic mackerel, *Loligo* and *Illex* squid, and butterfish fisheries began through the implementation of three separate FMPs (one each for mackerel, squid, and butterfish) in 1978. Subsequent amendments and frameworks that affected management of these fisheries are summarized below (Table 11)

Table 11. History of FMP Development

Date	Document	Management Action
1978, 1979	Original FMPs (3)	• Established management of Atlantic mackerel, squid, and butterfish fisheries
1983	Merged FMP	• Consolidated management of Atlantic mackerel, squid, and butterfish fisheries under a single FMP
1984	Amendment 1	• Implemented squid OY adjustment mechanism • Revise Atlantic mackerel mortality rate
1986	Amendment 2	• Equated fishing year with calendar year • Revised squid bycatch TALFF allowances • Implemented framework adjustment process • Converted expiration of fishing permits from indefinite to annual
1991	Amendment 3	• Established overfishing definitions for all four species
1991	Amendment 4	• Limited the activity of directed foreign fishing and joint venture transfers to foreign vessels • Allowed for specification of OY for Atlantic mackerel for up to three years
1996	Amendment 5	• Adjusted *Loligo* MSY • Eliminated directed foreign fisheries for *Loligo*, *Illex*, and butterfish • Instituted a dealer and vessel reporting system • Instituted an operator permitting system • Implemented a limited access system for *Loligo*, *Illex* and butterfish • Expanded the management unit to include all Atlantic mackerel, *Loligo*, *Illex*, and butterfish under U.S. jurisdiction.
1997	Amendment 6	• Revised the overfishing definitions for *Loligo*, *Illex*, and butterfish • Established seasonal management of the *Illex* fishery
1997	Amendment 7	• Established consistency among FMPs in the NE region RE: vessel permitting, replacement and upgrades

Table 11 continued…

Date	Document	Management Action
1998	Amendment 8	• Brought the FMP into compliance with new and revised National Standards and other required provisions of the Sustainable Fisheries Act • Added a framework adjustment procedure
2009	Amendment 9	• Allowed multi-year specifications for all species managed under the FMP • Maintained the moratorium on entry into *Illex* fishery • Revised the biological reference points for *Loligo* • Designated EFH for *Loligo pealeii* eggs • Reduced gear impacts to EFH
2010	Amendment 10	• Would reduce general bycatch to the extent practicable • Would rebuild butterfish stock
2001	Framework 1	• Created a quota set-aside for scientific research
2002	Framework 2	• Extended the moratorium on entry to the *Illex* fishery for an additional year • Established previous year specifications apply if new specifications are not published prior to the start of the fishing year (excluding TALFF) • Allowed for the specification of management measures for *Loligo* for a period of up to three years
2003	Framework 3	• Extended the moratorium on entry to the *Illex* fishery
2004	Framework 4	• Extended the moratorium on entry to *Illex* fishery for an additional five years

4.3 FMP General Management Objectives/Goals

The objectives, as described in the FMP as currently amended, are listed below. The purposes of Amendment 11 described above (4.1) primarily serve FMP General Management Objectives/Goals 3, 4, and 6.

1. Enhance the probability of successful (i.e., the historical average) recruitment to the fisheries.
2. Promote the growth of the U.S. commercial fishery, including the fishery for export.
3. Provide the greatest degree of freedom and flexibility to all harvesters of these resources consistent with the attainment of the other objectives of this FMP.
4. Provide marine recreational fishing opportunities, recognizing the contribution of recreational fishing to the national economy.
5. Increase understanding of the conditions of the stocks and fisheries.
6. Minimize harvesting conflicts among U.S. commercial, U.S. recreational, and foreign fishermen.

4.4 Management Unit/Scope

The management unit is all northwest Atlantic mackerel (*Scomber scombrus*), *Loligo pealeii*, *Illex illecebrosus*, and butterfish (*Peprilus triacanthus*) under U.S. jurisdiction.

5.0 MANAGEMENT MEASURES AND ALTERNATIVES

This section describes the alternatives being considered. In summary: Alternative Sets 1-4 of this Amendment propose to establish a limited access system consisting of a limited access and an open access component. The level of landings needed, the time periods involved and a number of other limited access components are presented in alternative sets 1-4. While Alternative Set 1 would determine the general Tier structure, Alternative Sets 2-4 also describe important components of the proposed limited access system and all these Alternative Sets to some extent necessarily must be considered together to fully conceptualize how the proposed management regime would operate. Alternative Set 5 of this Amendment proposes several designation scenarios to update the EFH designations for species in the MSB FMP, as required by EFH regulations. Alternative Set 6 of this Amendment proposes several scenarios to allocate the mackerel quota between the recreational and commercial sectors to prepare for the ACL/AM Omnibus Amendment. Alternative Set 7 of the Amendment proposes several scenarios to implement a cap on at-sea processing via transfers to address a variety of Council concerns about potential at-sea processing. Details for each alternative are provided next.

5.1 <u>Alternative Set 1</u>: Alternatives to develop a tiered limited access system in the Atlantic mackerel fishery.

<u>5.1.1 Statement of Problem/Need for Action</u>

The mackerel fishery is currently an open access fishery, and this could lead to a race to fish in the future (even though the fishery currently does not catch the quota). In the long term, under current specifications processes, current projections of sustainable harvest available to the U.S. fishery are predicted to be much lower than recent harvests (in the range of 12,000 MT-56,000 MT - see 6.1.1.2). Given the commercial fishery alone has harvested the high end of this range (56,000 + MT in 2004 and 2006 - see 6.1.1.3) and given capacity estimates suggest current capability to harvest even higher amounts (over 200,000 MT - see 7.5.1) the Council is looking to avoid substantial additional capacity increases in the mackerel fishery so as to reduce potential racing to fish.

Racing to fish has been widely demonstrated to have negative socio-economic and negative biological consequences (reviewed in 4.1.A). Institution of limited access will help minimize potential future racing to fish by reducing additional capitalization of the mackerel fleet, thereby reducing the potential for negative socio-economic and negative biological consequences of racing to fish. Institution of limited access can also facilitate transition to LAPPs in the future which can further avoid racing to fish.

The Council also does not want to reduce capacity to such an extent that the potential to harvest OY is reduced, and the range of alternatives takes this into account. In addition, there is a wide variety of vessels that may participate in the mackerel fishery at varying levels in different temporal and spatial scales, so a basic "qualifying," "not-qualifying" approach to limited access may be insufficient (fleet characteristics are outlined above in 4.1.A and detailed in 6.1.1.3, 6.5.2.1, and 7.5.1.), and the tiered approach considered in the range of alternatives takes this into account.

5.1.2 General Rationale

The proposed alternatives serve the features of the problem statement above. Limiting entry addresses the open access issues. Implementation of a limited access system will cap capacity in the mackerel fishery and reduce the potential for a race to fish to develop in the future and/or the severity of a race to fish should one occur. Capacity is reduced but not to an extent that should interfere with harvesting OY. Stratifying access by tiers addresses the issue of the heterogeneity of the fleet, simultaneously preserving access while limiting the expansion of effort by vessels once in a tier. In essence vessels are kept to the range of historical participation levels characteristic of vessels in the Tier. The Tier levels were chosen so that vessels would be similar enough to each other within a Tier to be efficiently managed together and keeping those groups of vessels within their historical participation levels. Establishment of a limited access system could also facilitate development of limited access privilege programs (LAPPs) in the future. Additional rationale on specific aspects of the alternatives is provided in 5.1.4.

From Open Access to Limited Access

Open-access creates the incentive to over-invest in harvesting capacity so the cost of landing fish is increased. Capping capacity via limited entry will help to address this inefficiency and should, from a net national benefit perspective, lead to a more optimal allocation of the nation's productive inputs, i.e. higher profits. Since from a biological perspective, mackerel fishing is already well controlled (with hard quotas, buffers, and in-season closures), these economic issues, especially if/when quotas are lower in the future, constitute the primary benefits of capping capacity by instituting limited access in the mackerel fishery. Reducing the race to fish can have other ancillary positive effects however, possibly including: reduced safety problems, reduced bycatch and habitat impacts, and less difficulty in monitoring and closing fisheries effectively (USCOP 2004). Essentially, as the race to fish is reduced and fishermen are not as worried about getting the fish quickly before the next person, fisherman can concentrate on catching fish as safely (less need to fish in bad weather) and as efficiently as possible, which can mean less overall effort, hence less impacts on bycatch species and habitat. Slowing the rate of catch also makes it easier to monitor and close fisheries appropriately, but there is no indication that there are currently problems with monitoring and/or closing the mackerel fishery if necessary.

The Council seeks to balance these potential overcapitalization issues with the concept that the mackerel fishery is highly dynamic, and if availability is limited in time and space (as has been seen recently), it may in fact take a relatively large fleet to actually catch the full U.S. quota, at least in certain years. To cap capacity in the mackerel fishery while not impeding optimal U.S. utilization of the mackerel resource, the Council considered in Alternative Sets 1-4 components of a limited access system for the mackerel fishery, which are designed to prohibit additional entrants and restrict current and a range of historical participants to their current and/or historical levels of mackerel fishing. As part of discouraging speculative entry while a limited access program is being developed and implemented, and consistent in principle with earlier FR notices since 2002 discouraging speculative entry, the Council has included a requirement that all qualifiers for limited access would have to have held an active mackerel permit on March 21, 2007.

The difficulty of balancing capacity issues with fishery characteristics was highlighted in the National Assessment of Excess Harvesting Capacity in Federally Managed Commercial Fisheries produced by NMFS (Terry et al 2008 p 9):

> "By themselves, the excess capacity and overcapacity estimates do not indicate whether capacity should be reduced, how much capacity should be reduced, how to reduce capacity, or the urgency for reducing it. These determinations generally will be more difficult for (1) multispecies fisheries, (2) rebuilding stocks, (3) stocks subject to sharp environmental and population fluctuations, (4) stocks with significant recreational catch, and (5) international stocks with significant foreign catch. With effective LAPPs in place, the need for such determinations will be substantially reduced, if not eliminated.
>
> The optimum level of harvesting capacity typically is not the level at which excess capacity, overcapacity, or both are equal to zero. Therefore, there can be excess capacity, overcapacity, and even overharvest, and, potentially, high rates for each, when harvesting capacity is at or near the optimum level. One reason is that, because it is not practical to change the size and physical characteristics of a fleet each time either the other determinants of actual catch and capacity change or the commercial quota changes, the optimum level of capacity may result in high rates of excess capacity some years and low rates other years. Similarly, the optimum level of capacity may result in high positive or negative rates of overcapacity some years and low rates other years; and depending on the effectiveness of catch monitoring and control programs, the same can be true for the overharvest rate."

Because of these issues, comparisons between the capacity estimates presented in this document and available quotas must be interpreted very carefully. It is incorrect to conclude that a situation where the technical capacity estimate analysis used in this document equals the quota is necessarily good or bad. It is rather an objective issue, and the conclusion would just be that if the stars are aligned properly (good prices, good weather, good availability, etc.) then the fishery has the physical ability to harvest a certain amount of fish.

5.1.3 Background

Operation of the Mackerel Fishery

The majority of mackerel are caught by trawlers with refrigerated seawater tanks and brought to processing plants back at shore, though significant quantities are also frozen and packaged at sea by trawlers with onboard packaging and freezing capabilities. In either case the fish are sorted from the rest of the catch, weighed, processed, boxed, and frozen for sale. The final frozen product is either whole round fish (predominantly), or headed and gutted fish. The final frozen product may be kept frozen for extended periods of time (up to about a year) before it is shipped to buyers (often internationally). There is a limited fresh product market and a bait fishery that catches mackerel along with herring. In general the fishery typically produces large volumes of fish in a short season in the winter and early spring. Almost all mackerel are caught on trips catching over 45,000 pounds. Fleet characteristics are summarized in 4.1A and detailed in 6.1.1.3 (as related to landings), 6.5.2.1 (as related to revenues), and 7.5.1. (characteristics of vessels qualifying for Tiers under different scenarios).

MSA Requirements for Limited Access

The MSA defines a limited access system to be: "a system that limits participation in a fishery to those satisfying certain eligibility criteria or requirements contained in a fishery management plan or associated regulation." The MSA also states that "Any fishery management plan which is prepared by any Council, or by the Secretary, with respect to any fishery, may…establish a limited access system for the fishery in order to achieve optimum yield if, in developing such system, the Council and the Secretary take into account—(A) present participation in the fishery; (B) historical fishing practices in, and dependence on, the fishery; (C) the economics of the fishery; (D) the capability of fishing vessels used in the fishery to engage in other fisheries; (E) the cultural and social framework relevant to the fishery and any affected fishing communities; (F) the fair and equitable distribution of access privileges in the fishery; and (G) any other relevant considerations." As described throughout this document, Am11 proposes a limited access system that takes account of these considerations (summarized in section 7.6).

History of Efforts to Institute Limited Access

While stock status and reference point information was not accepted in a recent 2010 assessment, most indicators pointed toward lower productivity and the recommended catch levels (80,000 mt total) could produce quotas consistent with the quotas originally considered in the DEIS once Canadian catch is accounted for (12,000 MT-56,000 MT) (TRAC 2010). This amount must be then split between the commercial and recreational sectors. Currently the recreational sector is allocated 15,000 MT but they have only caught 530 MT-1,633 MT over the last five years (2002-2006). Commercial harvests have varied from 25,448 MT-56,640 MT over the last five years (2003-2007). Both the National Capacity Report and Am11 Fishery Management Action Team (FMAT) analyses suggest that the existing mackerel fleet has the physical capacity to fully harvest the current estimates of long term domestic harvest. Also, the range of recent harvests

(25,448 MT-56,640 MT) spans the range of estimated total (commercial plus recreational) long term domestic yield.

There have been a number of efforts to consider limited access in the mackerel fishery since at least 1992. On June 10, 1992 the Squid, Mackerel, and Butterfish (SMB) Committee held a meeting in Essington, PA to "discuss possible establishment of a control date for the MSB FMP." A control date of August 13, 1992 was established and published in the Federal Register that indicated "commercial vessels…entering the Atlantic mackerel…fisheries…after August 13, 1992 will not be assured of future access to or an allocation of the Atlantic mackerel…resource." In this action, and all the control date-related actions described next, the Council reserved the right to change the control date or make access decisions based on other criteria. The Council primarily sought to discourage "speculative" entry into the fishery. In other words, the Council did not commit to develop any particular management regime or commit to using any specific criteria for determining entry into a limited access mackerel fishery.

The Squid, Mackerel, and Butterfish (SMB) Committee held another meeting on January 7, 1993 to discuss mackerel limited access. Amendment 5 scoping meetings, including one later on that same day, included discussion of avoiding overcapitalization as issues which should be included in Amendment 5, including limited access in the mackerel fishery. However, during the process of developing Amendment 5, data presented to the Council in July 1994 indicated that mackerel catch and fishing effort decreased in 1993 and 1994 while stock size remained fairly constant and high. Due to these facts, the Council believed that the mackerel fishery did not require a limited-entry management system then or in the near future. NMFS announced the rescission of the August 13, 1992, control date on September 27, 1994.

In Amendment 5 to the FMP, the Council did include a provision that would have required the Secretary of Commerce to publish a control date for the mackerel fishery when commercial landings reached 50 percent of ABC. NMFS rejected this provision because it was not considered to be a management measure to be implemented by regulation but was viewed as a statement of Council intent.

At its May 1997 meeting, the Council requested that NMFS issue an advance notice of proposed rulemaking reestablishing a control date for mackerel. The Council stated that such action by NMFS would discourage new entries into the fishery based on economic speculation while the Council again considered a limited access system for the mackerel fishery. Discussion of reinstatement of a control date was prompted by news that a large factory trawler was undergoing conversion to enter this fishery and by analyses that suggested existing permitted vessels possessed excess capacity relative to the productivity of the resource (though many vessels with permits did not fish for, nor were necessarily likely to fish for mackerel). A new control date of September 12, 1997 was published in the Federal Register and the Council had intended to address the issue of mackerel limited access in Amendment 7.

However, subsequent amendments focused on other issues, including the need to address the requirements of the 1996 Sustainable Fisheries Act. In 2002, it was evident that the harvesting limits for 2003 would increase threefold, and the Council requested and NMFS published a new control date of July 5, 2002 in the Federal Register to discourage speculative entry into the mackerel fishery (and any resulting overcapitalization) while also taking into account the fact that it had been five years since the 1997 control date. In January 2005 the Council voted to include consideration of a limited access system for mackerel in Amendment 9, and scoping hearings for limited access took place in March of 2005. Consideration was pushed to Amendment 10, though a reaffirmation of the July 5, 2002 control date was published in the Federal Register on June 9, 2005. While that Federal Register notice reaffirmed the 2002 control date, it also stated that the data from 1983-2005 would be considered. In a sense this potentially created a de facto 2005 control date as well. Consideration of limited access was again pushed back to Am11, which is where we find ourselves now. As part of discouraging speculative entry while a limited access program is being developed and implemented, and consistent in principle with earlier FR notices since 2002 discouraging speculative entry, the Council has included a requirement that all qualifiers for limited access would have to have held an active mackerel permit on March 21, 2007.

In the Amendment 11 development process, the Council has generally attempted to craft a set of alternatives that prevent additional capitalization of the mackerel fishery by prohibiting entry of new vessels and by limiting current and historical participants to their historical mackerel fishing practices. The Council originally considered using qualification dates between 1983 and 2007. As a result of subsequent analysis, FMAT feedback, and public comment voicing concern about data quality, capacity, and consideration of historical participation, committee motions have set currently considered qualifying dates ranging from 1988 through 2007 to account for current and historical participation while taking into consideration that more recent dealer weighout landing records are more complete and accurate than older dealer weighout landing records, as discussed further below. The intent of the committee had not significantly changed, but the committee has altered alternatives over time to reflect feasibility issues raised by NMFS (e.g. by including alternatives that only go back to 1997 or 1994 and not including any that go back to 1983) and public comment (by including some alternatives that go back to 1988). Also, the Council at one point considered using landings only through 2006 except extending the qualification for vessels under contract/construction through 2007. Instead, the Council chose to use landings through 2007 through 2007 for all vessels with no extension provisions for vessels under contract/construction. NMFS has strongly indicated to the Council that alternatives with qualifying dates before 1994 present significant feasibility problems. To address this issue as well as to accommodate historical participation, the Council modified some alternatives (1C and 1D) to broaden the number of vessels that could qualify for Tier 3 while still using more recent data and to consider higher trip limits for Tier 3. Under the modified 1C and 1D alternatives, while Tier 3 would be capped (up to 7% of the commercial quota) the higher trip limits would facilitate at least occasional substantial landings by Tier 3 vessels should they encounter mackerel more than they have since 1994.

Additional Qualification of Herring Limited Access Vessels

The Council considered qualifying vessels with Atlantic Herring Limited Access Permits for a Tier 3 permit (see 1H and 1I) if they do not qualify for a higher Tier based on their landings history because of the connections between the mackerel and herring fisheries, as evidenced by the fact that some vessels participate in both fisheries (sometimes on the same trip). Based on the analysis below the Council concluded that the open access trip limit, proposed to be 20,000 pounds, should accommodate most fishing by Herring permitted vessels that would not otherwise qualify for a mackerel limited access permit.

Of the 128 NEFOP observed hauls in 2007 targeting either mackerel or herring or both, 12% of them targeted both. In the 2007 dealer data for the 995 trips landing greater than 20,000 pounds combined mackerel and/or herring, 13 % of those trips landed both. If vessels reported both mackerel and herring then they should get qualified for mackerel permits in an appropriate fashion. However, it has been brought to the Council's attention that sometimes, especially in bait fisheries, mackerel and herring are mixed and the mackerel may not have been reported separately.

To estimate approximately how much mackerel "left out" "A and B" herring vessels might be landing, staff analyzed observer and VTR data for the approximately 20 Herring Permit "A and B" vessels that would apparently not qualify for any mackerel permit. In the observer data for 2007 these vessels had 33 observed trips. On 5 (15%) of those trips mackerel were observed retained, with a hail weight of 2-39,000 pounds for an average of 9,400 pounds. In the VTR data for 2007, these vessels had 906 vessel trip reports. On 55 (6%) of those logs mackerel were reported kept, with a range of 1-184,000 pounds for an average of 30,000.

To estimate approximately how much mackerel "left out" "C" herring vessels might be landing, staff analyzed observer and VTR data for the approximately 34 Herring Permit "C" vessels that would apparently not qualify for any mackerel permit. In the observer data for 2007 these vessels had 32 observed trips but none that retained mackerel. In the VTR data for 2007, these vessels had 2388 vessel trip reports. On 60 (3%) of those logs mackerel were reported kept, with a range of 1-3,360 pounds for an average of 400 pounds.

Since the open access trip limit would initially be 20,000 pounds, the Council ultimately decided that a 20,000 pound trip limit should accommodate most activities by herring vessels that otherwise do not qualify for a higher Tier, i.e. the Council did not choose to grant Tier 3 permits to Herring Vessels that did not qualify for a Tier 3 or higher permit based on landings.

5.1.4 Management Alternatives

The following management alternatives place vessels into different categories (Tiers or open access) based on each vessel's best annual landing total over the course of the specified time period. A current mackerel permit as of March 21, 2007 is also required for reasons described above. The restrictions placed on each Tier are discussed in Alternative Sets 2-4. The details of application and documentation of landings histories are documented in Alternative Set 4.

There are two critical issues surrounding Alternative Set 1. First, the qualification criteria (years and thresholds) have impacts on individual vessels because the qualification criteria will determine which Tier vessels qualify for. The characteristics of the qualifying vessels are outlined below and further described in the impacts section 7.5. Second, the differing groupings of vessels generated by the qualification criteria affect the capacity of the resulting limited access fleet. As one would imagine, all else being equal, stricter qualifying criteria result in fewer vessels in any given Tier, which means a lower capacity for any given Tier. Capacity estimates of the resulting fleets are outlined below and further described in the impacts section.

The limited access alternatives proposed by the Council include a requirement that a vessel owner demonstrate that a vessel made landings of at least a specified amount during a given period of years. Dealer receipts are generally relied upon to do this but there would be an appeals process as described in Alternative Set 4. Vessels would be grouped into 3 Tiers or open access (4 categories) based on historical landings, and different Tiers would have different levels of access. Stratifying access based on historical landings is necessary to effectively cap capacity due to the high number of existing open access mackerel permits issued in any given year and due to fleet heterogeneity.

The Council also considered a simplified 2-category system that uses criteria for Tier 1 that are similar to some of the other Tier alternatives and places everyone else into an open access system that would have a quota along with a relatively high trip limit (1G). As with the other Alternative Set 1 alternatives, options for allocation and trips limits are described in Alternative sets 2 and 3. The purpose of this inclusion was to examine if an administratively simpler system could suffice versus the multiple Tiers proposed in other alternatives.

1C and 1D were modified in the SDEIS compared to the initial DEIS. The Council decided to lower the Tier 3 threshold and considered either just a permit on March 21, 2007 or a 1,000 pound threshold (best year) in order to provide additional consideration to historical vessels who might not otherwise qualify for a Tier. For the final preferred alternative (1D), the Council included a 1,000 pound threshold (best year) for Tier 3. This low threshold was designed to accommodate historical participants who may have had larger landings in the past and relatively low levels of landings (less than the 25,000 or 10,000 considered in other alternatives) during the qualification period (3/1/1994-2005). The SDEIS included a sub-alternative where only a permit on 3/21/2007 would have been required for Tier 3 but this resulted in over 2,000 vessels qualifying and given the 7% cap on Tier 3 it did not appear reasonable to have so many vessels in a Tier with such a relatively small amount of quota available. The 7% cap for Tier 3 under the preferred cap was chosen based on the highest observed annual percentage of landings accounted for by Tier 3 from 1994-2007 (see below).

1D is designed to minimize any potential future impact on vessels with larger historical landings but insufficient recent landings to otherwise qualify for a limited access Tier under the original alternatives. Via lower qualification thresholds, the modifications qualify more vessels for Tier 3 and the proposed trip limits for Tier 3 tied to alternative 1D would provide at least occasional substantial landings though if the overall quota is low, Tier 3 could reach its cap quickly. While a vessel with substantial historical landings that gave up its permit or had extremely low landings in more recent periods might still not qualify for Tier 3, the Council determined that the modifications constituted full consideration and reasonable accommodation for historical participation. The cap on Tier 3 will function similar to existing quotas, i.e. when 90% (adjustable through specifications) of the cap is reached a lower trip limit will be instituted.

The Council will initially place a relatively high trip limit (See Alternative 3F) on Tier 3 compared to what had been considered in the initial DEIS (100,000 pounds) but will have a cap on Tier 3, up to 7%. Thus Tier 3 vessels could have the opportunity for occasional sizable landings but the Tier as a whole would be capped to a relatively low level of the entire quota as related to recent performance. These modifications do not change the capacity analyses in this document because the capacity analyses only examine Tier 1 and Tier 2 (since Tier 3 is capped at a relatively low level it still should not significantly affect capacity concerns).

Alternatives: **1A:** No action (no limited access system). The fishery would remain an open access fishery with quotas set as described in 4.1.A "Current Determination of Annual Quotas." Vessels must get federal permits annually to harvest mackerel in federal waters. In 2007 there were 2,622 permitted vessels and 330 permitted vessels with at least one pound of mackerel landings.

1B: Implement a 3-tiered limited access system. Vessels would be grouped based on the highest tier (Tier 1 highest) qualified for based on the following thresholds:

Tier 1: At least 1,000,000 pounds landed in any one year 1997-2007
Tier 2: At least 100,000 pounds landed in any one year 1988-2007
Tier 3: At least 25,000 pounds landed in any one year 1988-2007
Open Access: All other vessels.

1C: Implement a 3-tiered limited access system. Vessels would be grouped based on the highest tier (Tier 1 highest) qualified for based on the following thresholds:

Tier 1: At least 1,000,000 pounds landed in any one year 1997-2007
Tier 2: At least 100,000 pounds landed in any one year 1997-2007
Tier 3: Possessed mackerel permit on March 21, 2007 along with a sub-option of requiring 1,000 pounds in best year 1997-2007.
Tier 3 would be capped for a maximum catch up to 7% of the commercial quota, set annually during the specifications process (no other allocations).
Open Access: All other vessels.

1D (PREFERRED): Implement a 3-tiered limited access system. Vessels would be grouped based on the highest tier (Tier 1 highest) qualified for based on the following thresholds:

Tier 1: At least 400,000 pounds landed in any one year 1997-2005
Tier 2: At least 100,000 pounds landed in any one year 3/1/1994-2005
Tier 3: At least 1,000 pounds in any one year 3/1/1994-2005. Tier 3 would be capped for a maximum catch up to 7% of the commercial quota, set annually during the specifications process (no other allocations).
Open Access: All other vessels.

Note: As stated above and consistent with the DEIS and SDEIS, possession of a mackerel permit on **March 21, 2007** is also a permit requirement for Tiers 1, 2, and 3.

1E: Implement a 3-tiered limited access system. Vessels would be grouped based on the highest tier (Tier 1 highest) qualified for based on the following thresholds:

Tier 1: At least 400,000 pounds landed in any one year 1997-2005
Tier 2: At least 100,000 pounds landed in any one year 1997-2005
Tier 3: At least 25,000 pounds landed in any one year 1997-2007
Open Access: All other vessels.

1F: Implement a 3-tiered limited access system. Vessels would be grouped based on the highest tier (Tier 1 highest) qualified for based on the following thresholds:

Tier 1: At least 1,000,000 pounds landed in any one year 1997-2007
Tier 2: At least 100,000 pounds landed in any one year 1988-2007
Tier 3: At least 10,000 pounds landed in any one year 1988-2007
Open Access: All other vessels.

1G: Implement a 1-tiered limited access system. Vessels would be grouped based on the highest tier (Tier 1 highest) qualified for based on the following thresholds:

Tier 1: At least 1,000,000 pounds landed in any one year 1997-2007
Open Access: All other vessels.

1H: Include in the Tier 3 qualification criteria that any vessel with a Herring Limited access "A" or "B" permit would also qualify.

1I: Include in the Tier 3 qualification criteria that any vessel with a Herring Limited access "A", "B", or "C" permit would also qualify.

1J: Implement a 3-tiered limited access system. Vessels would be grouped based on the highest tier (Tier 1 highest) qualified for based on the following thresholds:

Tier 1: At least 1,000,000 pounds landed in any one year 1997-2007
Tier 2: At least 100,000 pounds landed in any one year 3/1/1994-2007
Tier 3: At least 25,000 pounds landed in any one year 3/1/1994-2007
Open Access: All other vessels.

Each Tier scenario results in a different group of vessels predicted to qualify for limited access. The numbers of vessels in each case are described in the Tier Summary Table below (Table 12). For the Tier Summary Table below, "Tier" is the access category, "Years" are the years used for qualification, "Threshold" is the poundage required in a vessel's best year to qualify for a given Tier, and "Vessels" is the number of Vessels that are predicted to qualify. The reader is reminded that these are predicted qualifiers, based on the current dealer weighout database, and there are errors in this database which means once individuals actually start applying and possibly challenging the existing records, the numbers are likely to change somewhat.

Table 12. Tier Summary Table

Tier	Years	Threshold	Vessels
1B			
Tier 1	1997-2007	1,000,000	26
Tier 2	1988-2007	100,000	64
Tier 3	1988-2007	25,000	56
Open Access	na	na	Na
1C			
Tier 1	1997-2007	1,000,000	26
Tier 2	1997-2007	100,000	36
Tier 3	1997-2007	1,000	309
Open Access	na	na	Na
1D			
Tier 1	1997-2005	**400,000**	29
Tier 2	3/1/1994-2005	100,000	45
Tier 3	1994-2005	1,000	329
Open Access	na	na	Na
1E			
Tier 1	1997-2005	**400,000**	29
Tier 2	1997-2005	100,000	25
Tier 3	1997-2007	25,000	50
Open Access	na	na	Na
1F			
Tier 1	1997-2007	1,000,000	26
Tier 2	1988-2007	100,000	64
Tier 3	1988-2007	10,000	121
Open Access	na	na	na

1G			
Tier 1	1997-2007	1,000,000	26
Open Access	na	na	Na
1J			
Tier 1	1997-2007	1,000,000	26
Tier 2	3/1/1994-2007	100,000	55
Tier 3	3/1/1994-2007	25,000	49
Open Access	Na	na	Na

Capacity Estimates

To the extent that vessels may no longer exist or to the extent that some vessels landings during the qualifying period are not in the dealer weighout database, the final tally of vessels in any given Tier could be lower or higher. As the vessels in each Tier changes, so does the technical capacity of the Tier overall. Capacity estimates for Tier 1 and Tier 2 under each Alternative are presented in Table 13. Because Tier 3 and Open Access will be governed by trip limits and/or a cap that are low relative to the quota, and because there is less data for them, their capacities are not included. See Section 7.5.1 for additional capacity analysis details.

Table 13. Capacity by Tier

Tier	Vessels	Capacity (MT)
1A	1,695	**202,111**
1B		
Tier 1	26	105,626
Tier 2	64	25,531
Total		**131,157**
1C		
Tier 1	26	105,626
Tier 2	36	15,406
Total		**121,031**

1D		
Tier 1	29	91,991
Tier 2	45	15,587
Total		**107,578**
1E		
Tier 1	29	91,991
Tier 2	25	11,763
Total		103,754
1F		
Tier 1	26	105,626
Tier 2	64	25,531
Total		**131,157**
1G		
Tier 1	26	105,626
OA	1669	**96,485**
Total		**202,111**
1J		
Tier 1	26	105,626
Tier 2	55	19,215
Total		**124,840**

(Table 13 Continued)

Why Four Categories?

Related to the Problem Statement, the Council proposes the Tiered access system described in this document to cap capacity while at the same time avoiding regulatory discarding and minimizing adverse economic impacts. As discussed in 4.1.A there are different kinds of vessels participating in the mackerel fishery. Having just two categories of vessels, directed and incidental could lead to either high discarding or significant adverse economic impacts if the incidental category had a low trip limit, or a low level of overall access control if the incidental category had a high trip limit. For example, under 1G, there are just two categories to consider a simplified system. Currently the proposed trip limits for 1G's open access category would allow significant expansion of effort by vessels that in the other Tier scenarios, are much more limited (see Alt. Set 3 where trip limits for open access under 1G would be in the range of 61,000-121,000 to accommodate what would have been Tier 2 vessels, while in the 3-Tier scenarios most of the 1G open access vessels would be limited to trip limits in the range of 1,000 to 10,000). If a lower trip limit was used, then vessels would be impacted to the degree that the trip limits did not match their fishing behavior. Having too many (6-7) categories is not feasible administratively. Thus the three Tier system (plus open access for a total of four categories) seeks to group like vessels together, and the restrictions on each Tier discussed later are designed to keep vessels from one Tier from expanding effort to levels characteristic of the next Tier, generally limiting them to their recent and/or historical participation. In summary, based on analysis of likely vessel assignments to Tiers and public comment, the current set of Tiers uses the fewest possible number of Tiers to group vessels into categories such that the vessels in each Tier are similar enough to be managed together in an effective fashion. Based on the dealer weighout and permit data, vessel characteristic (mean length, Gross Tons, horsepower, and crew size) and landings information for the various proposed Tiers are provided below in tables 14 and 15 and demonstrate that there are substantially different vessels in each Tier and that they have different histories of accessing the mackerel fishery. For 1B, 1E, 1F, 1G, and 1J the open access category simply reflects those vessels with mackerel landings but not otherwise qualifying for a Tier. For the modified 1C and 1B, recall that while there were options for either having no landings requirement and just a permit, or for adding a 1,000 pound landings qualification (best year) requirement, the Council adopted a 1,000 pound landings requirement. See below in the section entitled "Qualification Criteria - Landings Thresholds" for additional details.

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Table 14. Avg Length, GTons, HP, crew size for vessels in each Tier under different Alternative Set 1 alternatives.

Tier	Vessels	mean Length	mean GTONS	mean VHP	mean CREW
1B					
Tier 1	26	110	211	1,664	7
Tier 2	64	78	145	783	6
Tier 3	56	65	92	504	5
Open Access	679	51	50	401	3
1C					
Tier 1	26	110	211	1,664	7
Tier 2	36	76	145	823	6
Tier 3 , 1000 lb	309	58	73	460	4
1D					
Tier 1	29	103	191	1,414	7
Tier 2	45	76	142	774	6
Tier 3 , 1000 lb	329	56	67	448	4
1E					
Tier 1	29	103	193	1,414	7
Tier 2	25	74	144	858	6
Tier 3	50	72	120	664	5
Open Access	603	51	51	406	3
1F					
Tier 1	26	110	211	1,664	7
Tier 2	64	78	145	783	6
Tier 3	121	62	82	500	4
Open Access	614	50	47	391	3
1G					
Tier 1	26	110	211	1,664	7
Open Access	799	54	61	439	4

Tier	Vessels	mean Length	mean GTONS	mean VHP	mean CREW
1J					
Tier 1	26	110	211	1664	7
Tier 2	55	77	143	767	6
Tier 3	49	65	96	508	4
Open Access	636	51	50	401	3

(table 14 continued)

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Table 15. Average annual landings ratios by Tier 1997-2007.

From 1997-2007 an average of 28,621 mt of mackerel were landed. This table describes how those landings were distributed (%) among vessels predicted to qualify for the various Tier scenarios. The open access category vessel category consists of the vessels that had landings but did not otherwise qualify for a permit.

Tier	Vessels	%
1B		
Tier 1	26	91.2%
Tier 2	64	3.6%
Tier 3	56	0.5%
Open Access	679	4.7%
1C		
Tier 1	26	91.2%
Tier 2	36	3.3%
Tier 3	309	0.6%
Open Access	603	4.8%
1D		
Tier 1	29	89.7%
Tier 2	46	4.0%
Tier 3	329	1.5%
Open Access	635	4.7%
1E		
Tier 1	29	89.7%
Tier 2	25	3.8%
Tier 3	50	1.6%
Open Access	603	4.8%
1F		
Tier 1	26	91.2%
Tier 2	64	3.6%
Tier 3	121	0.7%
Open Access	614	4.5%
1G		
Tier 1	26	91.2%
Open Access	799	8.8%
1J		
Tier 1	26	91.2%
Tier 2	55	3.5%
Tier 3	49	0.6%

Qualification Criteria - Landings Thresholds

The specific poundage thresholds evolved out of the scoping process and additional analysis and public comment that these amounts would effectively segment the fleet into groups of vessels that accessed the resource in substantially different ways, and would make sure the vessels in each Tier were similar enough in terms of their mackerel landings to be managed effectively as a group. While anything short of an ITQ is going to mean that different kinds of vessels have to be jointly managed to some degree, the Council judged that the current Tier thresholds result in vessel groups that, especially in terms of their mackerel landings, are common enough to be jointly managed. The average trip sizes and annual landings differences between the Tiers also demonstrates that the vessels in the different Tiers have participated the mackerel fishery at different levels. The Tiers allow the Council to design management measures to generally prevent vessels from greatly expanding beyond the range of historical practices. With the Tiers, management measures can be tailored to the characteristics of vessel in each Tier, rather than using a more blunt approach that does not as precisely consider the characteristics of the fleet.

Thus the three tier system is designed to group like vessels together in an administratively feasible manner (the restrictions on each Tier discussed later are designed to keep vessels from one Tier from expanding effort to levels characteristic of the next Tier, i.e. limiting them to their recent and/or historical participation). The reason that the 1,000,000 pound threshold drops to 400,000 for 1D (the preferred alternative) and 1E is that otherwise some existing (current participants) vessels that direct on mackerel would end up in Tier 2 and the Council decided that having those vessels in Tier 2 would result in a group of vessels in Tier 2 that would not be similar enough to manage together. The Council concluded that dropping the Tier 1 threshold to 400,000 does a better job of considering current participation if a 2005 control date is utilized. The reason that in 1F the Tier 3 threshold is 10,000 pounds is to consider how many smaller-scale vessels could qualify for Tier 3 under the different scenarios and concern about putting vessels whose qualifying landings would be between 10,000 pounds and 25,000 pounds into the open access category.

To describe the rationale from a slightly different perspective, the more Tiers one has, the more similar are the boats in any given Tier and the better any Tier-specific regulations would match the fishing history of the vessels in a Tier. The committee had at one time considered up to 6-7 categories but recent iterations were 3 limited access Tiers plus open access, which was seen as a compromise between getting Tiers that have similar boats in each Tier versus getting too complex administratively. In summary, based on analysis of likely vessel assignments to Tiers and public comment, the current set of Tiers uses the fewest possible number of Tiers to group vessels into categories such that the vessels in each Tier are similar enough to be managed together in an effective fashion. The thresholds for each Tier came out of public comment and review of data about the vessels that would qualify for each Tier, with the goal being to make sure the vessels in each Tier were similar enough to effectively be managed as a group.

The modifications made to alternatives 1C and 1D (the preferred alternative) are designed to minimize any potential future impact on vessels with larger historical landings but insufficient recent landings to otherwise qualify for a limited access Tier under the original alternatives. Via lower qualification thresholds, the modifications qualify more vessels for Tier 3 and the proposed trip limits for Tier 3 tied to alternatives 1C and 1D would provide at least occasional substantial landings though if the overall quota is low, Tier 3 could reach its cap quickly. While a vessel with substantial historical landings that gave up its permit or had extremely low landings in more recent periods might still not qualify for Tier 3, the Council determined that the modifications constituted full consideration and reasonable accommodation for historical participation. The modifications were the result of recommendations by the SMB Committee formulated during a joint meeting with the SMB AP, as well public comments on a revised DEIS. The results from the meeting are in Appendix 3 and comments on the supplemented DEIS are in Appendix 4. The revised DEIS included both a permit only option as well as the currently adopted 1,000 pound threshold. In the Council's judgment, having no landings requirement resulted in a mismatch between the number of vessels in Tier 3 and the available quota while the 1,000 pound requirement reconciled concerns with facilitating access to more historical vessels whose landings were higher in the past and the general goal of capping capacity.

Qualification Criteria - Years

The year ranges are designed to account for current and historical participation. Using data from before 1997 and especially before 1994 means that there would be difficulty verifying landings and there could be equity issues since some people may have not kept landings records. However the Council considered earlier data to properly consider historical participation. In public comments received during development of Amendment 11, fishermen stated that by not going back to 1988 could leave a number of vessels in more southern regions out of limited access related to the shifting availability of mackerel. To account for the historical participation by vessels given the shifting availability of mackerel[3], the Council would like to use as long a time period as possible to cover different scenarios of availability. Both the NEFSC spring survey and catch distribution from VTR data show mackerel distribution can change over time (see Figures 60 and 61 for VTR catch plots). To address these availability concerns the Council has included some qualification dates that extend back to 1988 for the lower Tiers. The Council originally wanted to include qualification dates going back to 1983 for all the Tiers, but NMFS has strongly recommended against this because of difficulty in validating landings and concerns about fabricated landings.

Using earlier data does raise some important issues. Until 3/1/1994, the collection of vessel level data from the fisheries in the Northeast was done through a voluntary system. NMFS had staff located in major ports who interviewed dealers and vessel owners, and compiled landings data. However, this data collection was not complete. As a result, the Councils proposed, and NMFS implemented, a mandatory data collection program in the 1990’s. The mandatory data collection began 3/1/1994, and established permit and associated mandatory trip reports for vessels that intended to fish for Northeast multispecies or sea scallops in Federal waters (3-200 nm from shore). It also established permit requirements and associated mandatory reports for fish dealers who purchased Northeast multispecies or scallops from vessels issued those federal permits. The

[3] It is difficult to quantify availability shifts of mackerel, but NEFSC trawl surveys definitely show that mackerel distribution can shift over time - see: http://www.nefsc.noaa.gov/sos/spsyn/pp/mackerel/animation/spring/.

federal permits required a dealer or vessel issued such a permit to report all fishing activity conducted, which would have included reporting any mackerel purchased or landed.

As a result of the Northeast multispecies and scallop mandatory reporting programs, mackerel vessels that dealt with dealers issued either of these permits would have had their landings reported to NMFS, provided the dealers complied with the reporting requirement. Mandatory reporting was expanded for other fisheries throughout the 1990's, and was implemented in mid-1996 for mackerel. As a result, the first year for which mandatory reporting is fully applicable to mackerel dealers and vessels is 1997.

The Council understands that the alternatives that propose eligibility periods prior to 1994 and/or 1997 may be incomplete and complicate the administration (especially initial implementation/ qualification) for NMFS. The Council included such alternatives in an attempt to balance data issues regarding earlier data with ensuring sufficient consideration of historical and regional participation in the suite of considered alternatives. While preservation of records could be an issue, the Council has been considering limited access in the mackerel fishery in public forums since 1992, which means most fishermen have likely been aware of the need to preserve mackerel records since 1992, which would be 4 years after the earliest qualifying date considered by the Council (1988).

The Council modified several alternatives from the DEIS (1C, 1D [preferred], 3F) to create a Tier 3 that while capped, would provide a wider range (including vessels with larger historical landings) of vessels additional access to the mackerel fishery. The modified Tier 3 accomplishes this not by using earlier data but by using lower thresholds.

Access to Other Fisheries

Consideration of vessels' ability to access other fisheries is one requirement in the MSA when instituting limited access. Almost all vessels with significant current and a range of historical landings history will qualify for mackerel limited access. This takes into account the need to consider other fisheries that vessels may or may not have access to because in effect very few if any vessels are being pushed out of the mackerel fishery (and possibly into other fisheries) since the goal is to cap capacity rather than significantly reduce capacity. In essence, one consideration that the Council made in letting most vessels with landings into the limited access mackerel fishery is precisely the fact that some vessels have access to other fisheries and others do not. Also, since the lower Tiers (Tier 2 and below) derived 2% or less of their revenues from mackerel over the last ten years, these vessels that would be limited do have access to other fisheries since they obtain the vast majority of their revenues from other fisheries.

Tier Summary

As described above, Alternative Sets 1-4 really combine to form the limited access system that would govern the mackerel fishery. Given this, the following part of 5.1.4 summarizes the fleet that would result from the Alternative Set 1 alternatives when combined with the Alternatives Set 2 and 3 alternatives. While in a way this gets out of order a bit, it is useful to get a clear picture of what the Alternative Set 1 alternatives really mean and really only introduces the later Alternative Sets.

There are 7 Alternative Set 1 alternatives that would establish permits that authorize various levels of participation in the fishery (referred to as Tiers); each has different landings amounts and period for eligibility. In addition, there are two alternatives that would confer eligibility to some or all limited access herring vessels. Each of the Tier Alternatives (1D is preferred) is then combined with alternatives that use various methods to allocate a fixed amount of quota to the various Tiers (set 2) as well as trip limits (Set 3) for the lower tiers. The summary converts the proportion of quota into MT under a range of quotas. There is also a capacity estimate for each alternatives (the same as presented in Table 13 above), and the capacity estimate is presented with the quota data. The reader is reminded of the caveats above regarding comparing quotas and technical capacity measurements.

Three quota scenarios are used in the summary and are explained immediately below. Yield estimates are those approved in the most recent mackerel stock assessment. Low: 11,000 MT - The lowest potential long term yield estimate (89,000 MT) with current regulations for splitting with Canada and an 8.2% allocation to the recreational sector. Medium: 52,500 MT - The highest potential long term yield estimate (148,000 MT) with current regulations for splitting with Canada and a 6.2% allocation to the recreational sector. High: 209,000 MT - The highest recent actual short term yield (273,000 MT) estimate with current regulations for splitting with Canada and a 4.1 % allocation to the recreational sector.

In Tables 16-22, Tier is the relevant limited access category, "ELIG YR" is the qualification period, "ELIG LB" is the poundage qualification threshold (best year over qualification period), "# VES" is the number of apparently qualifying vessels according to the dealer weighout data, and "POSSESS LIMIT ALTS lb" is the range of possession limits that the relevant category could be subject to according to Alternative Set 3, which deals with trip limits.

Table 16. Alternative Set 1 TIER ALT 1B

TIER	ELIG YR	ELIG LB	# VES	POSSESS LIMIT ALTS lb
1	1997-2007	1,000,000	26	None
2	1988-2007	100,000	64	61,000-none
3	1988-2007	25,000	56	4,000 - 40,000
Open Access	n/a	n/a	n/a	1,000-10,000

Alternatives to allocate quota to the tiers are derived from allocation to Tier 2 of 3.6% (Alt. 2B), 7.2% (Alt. 2C) and 10.8% (Alt. 2D) and the rest to an allocation for Tiers 1 and 3 and open access.

Low Annual quota 11,000mt	Alt. 2B	Alt. 2C	Alt. 2D
Tiers 1+3+open	10,604	10,208	9,812
Tier 2	396	792	1,188
Total	11,000	11,000	11,000

Medium Annual quota 52,500mt	Alt. 2B	Alt. 2C	Alt. 2D
Tiers 1+3+open	50,610	48,720	46,830
Tier 2	1,890	3,780	5,670
Total	52,500	52,500	52,500

High Annual quota 209,000mt	Alt. 2B	Alt. 2C	Alt. 2D
Tiers 1+3+open	201,476	193,952	186,428
Tier 2	7,524	15,048	22,572
Total	209,000	209,000	209,000

The capacity estimate for Tier 1 vessels in this alternative (105,626 mt) exceeds the potential quota allocation for Tier 1, Tier 3 and the open access fleet in all but the high annual quota scenario. The capacity estimate for Tier 2 of 25,531 mt exceeds all of the quota allocations above.

There is no capacity estimate made for the Tier 3 or the open access fleet because they will be under relatively low trip limits compared to the quota. The low trip limits essentially nullify their capacity in terms of mackerel fishing. However, for Alt. 1B, actual average annual landings by Tier 3 vessels 1998-2007 were 150MT (Table 15) and their landings would have likely been less had they had the trip limits proposed in this amendment.

This scenario serves the purpose of instituting limited access (Purpose A: establish a cap on capacity via limited access based on current and historical participation that does not impede optimal U.S. utilization of the fishery). All but 90 (26+64) of the 2,622 currently permitted mackerel vessels (2007) would be constrained by relatively low trips limits so almost all permitted vessels would be unlikely to capitalize for purposes of mackerel fishing, but the resulting fleet still has the capacity to fully harvest all but extremely high quotas. With a total capacity estimate of 131,157 MT, other than no action or 1G (which have the highest capacities), 1B is less restrictive in terms of capacity compared to 1C, 1D, 1J, and 1E and equal to 1F. This is because A) a 2005 control date is not used and B) Tier 2's qualification date goes back to 1988 (some other alternatives use a 2005 control date and do not go as far back for Tier 2's qualification date).

Table 17. Alternative Set 1 TIER ALT 1C

TIER	ELIG YR	ELIG LB	# VES	POSSESS LIMIT ALTS
1	1997-2007	1,000,000	26	None
2	1997-2007	100,000	36	135,000
3	1997-2007	1,000	309	100,000
Open Access				20,000

Under the modified Alternative 1C, no allocations would be made except for a cap on Tier 3 of up to 7%. This is more than Tier 3 has caught on average since 1994 (see table 22b). Tier 1 and Tier 2, the primary directed fishery, would fish on a quota that could range from a low of 11,000 mt, to a medium estimate of 52,500mt, to a high estimate of 209,000mt

The capacity estimate for Tier 1 and Tier 2 vessels under alternative 1C (121,031 mt) exceeds the potential quota in all but the high annual quota scenario.

There is no capacity estimate made for the Tier 3 or the open access fleet because they will be under a relatively low cap and/or low trip limits compared to the quota, which essentially nullifies their capacity in terms of mackerel fishing. With a 7% cap under the medium quota estimate of 52,500 mt, the Tier 3 cap would be 3,675 mt. If Tier 3 vessels landed at the proposed 100,000 pound trip limit, the cap could theoretically be reached in 81 trips.

This scenario serves the purpose of instituting limited access (Purpose A: establish a cap on capacity via limited access based on current and historical participation that does not impede optimal U.S. utilization of the fishery). All but 62 (26+36) of the 2,622 currently permitted mackerel vessels (2007) would be constrained by relatively low caps/trips limits so almost all permitted vessels would be unlikely to capitalize for purposes of mackerel fishing, but the resulting fleet still has the capacity to fully harvest all but extremely high quotas. With a total capacity estimate of 121,031 MT, other than no action or 1G (which have the highest capacities), 1C is intermediately restrictive in terms of capacity compared to 1B, 1D, 1E, 1J, and 1F (while a 2005 control date is not used, Tier 2's qualification date only goes back to 1997 which results in fewer Tier 2 vessels and a lower overall capacity then 1B).

Table 18. Alternative Set 1 TIER ALT 1D (PREFERRED)

TIER	ELIG YR	ELIG LB	# VES	POSSESS LIMIT ALTS
1	1997-2005	400,000	29	none
2	1994-2007	100,000	45	135,000
3	1994-2007	1,000	329	100,000
Open Access				20,000

Under the preferred Alternative 1D, no allocations would be made except for a cap on Tier 3 of up to 7%. This is more than Tier 3 has caught on average since 1994 (see table 22b). Tier 1 and Tier 2, the primary directed fishery, would fish on a quota that could range from a low of 11,000 mt, to a medium estimate of 52,500mt, to a high estimate of 209,000mt

The capacity estimate for Tier 1 and Tier 2 vessels under alternative 1D (107,578 mt) exceeds the potential quota in all but the high annual quota scenario.

There is no capacity estimate made for the Tier 3 or the open access fleet because they will be under a relatively low cap and/or low trip limits compared to the quota, which essentially nullifies their capacity in terms of mackerel fishing. With a 7% cap under the medium quota estimate of 52,500 mt, the Tier 3 cap would be 3,675 mt. If Tier 3 vessels landed at the proposed 100,000 pound trip limit, the cap could theoretically be reached in 81 trips.

This scenario serves the purpose of instituting limited access (Purpose A: establish a cap on capacity via limited access based on current and historical participation that does not impede optimal U.S. utilization of the fishery). All but 74 (29+45) of the 2,622 currently permitted mackerel vessels (2007) would be constrained by relatively low trip limits/caps so almost all permitted vessels would be unlikely to capitalize for purposes of mackerel fishing, but the resulting fleet still has the capacity to fully harvest all but extremely high quotas. With a total capacity estimate of 107,578 MT, other than no action or 1G (which have the highest capacities), 1D is intermediately restrictive in terms of capacity compared to 1B, 1C, 1E, 1J, and 1F. While a 2005 control date is used (excluding some recent entrants and thus lowering capacity), Tier 2's qualification date goes back to 1994 (1E only goes back to 1997 for Tier 2 which results in 1E having fewer Tier 2 vessels and a lower capacity).

Table 19. Alternative Set 1 – TIER ALT 1E.

TIER	ELIG YR	ELIG LB	# VES	POSSESS LIMIT ALTS
1	1997-2005	400,000	29	none
2	1997-2005	100,000	25	75,000-none
3	1997-2007	25,000	50	7,000-40,000
Open Access				2,000-10,000

Alternatives to allocate quota to the tiers are derived from allocations to Tier 2 of 3.8% (Alt. 2B), 7.7% (Alt. 2C) and 11.5% (Alt. 2D) and the rest to an allocation for Tiers 1 and 3 and open access.

Low Annual quota 11,000mt	Alt. 2B	Alt. 2C	Alt. 2D
Tiers 1+3+open	10,582	10,153	9,735
Tier 2	418	847	1,265
Total	11,000	11,000	11,000

Medium Annual quota 52,500mt	Alt. 2B	Alt. 2C	Alt. 2D
Tiers 1+3+open	50,505	48,458	46,463
Tier 2	1,995	4,043	6,038
Total	52,500	52,500	52,500

High Annual quota 209,000mt	Alt. 2B	Alt. 2C	Alt. 2D
Tiers 1+3+open	201,058	192,907	184,965
Tier 2	7,942	16,093	24,035
Total	209,000	209,000	209,000

The capacity estimate in for Tier 1 vessels in this alternative (91,991 mt) exceeds the potential quota allocation for Tier 1, Tier 3 and the open access fleet in all but the high annual quota scenario. The capacity estimate for Tier 2 of 11,763 mt exceeds most of the quota allocations above.

There is no capacity estimate made for the Tier 3 or the open access fleet because they will be under relatively low trip limits compared to the quota. The low trip limits essentially nullify their capacity in terms of mackerel fishing. However, for Alt. 1E, actual average annual landings by Tier 3 vessels 1998-2007 were 469MT (Table 15) and their landings would have likely been less had they had the trip limits proposed in this amendment.

This scenario serves the purpose of instituting limited access (Purpose A: establish a cap on capacity via limited access based on current and historical participation that does not impede optimal U.S. utilization of the fishery). All but 54 (29+25) of the 2,622 currently permitted mackerel vessels (2007) would be constrained by relatively low trips limits so almost all permitted vessels would be unlikely to capitalize for purposes of mackerel fishing, but the resulting fleet still has the capacity to fully harvest all but extremely high quotas. With a total capacity estimate of 103,754 MT, other than no action or 1G (which have the highest capacities), 1D is most restrictive in terms of capacity compared to 1B, 1C, 1D, 1J, and 1F. This is because A) a 2005 control date is used and B) Tier 2's qualifying date only goes back to 1997. Other alternatives do not use the 2005 control date and/or extend Tier 2 qualifying dates further back than 1997, which gives 1E the lowest capacity.

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Table 20. Alternative Set 1 TIER ALT 1F

TIER	ELIG YR	ELIG LB	# VES	POSSESS LIMIT ALTS lb
1	1997-2007	1,000,000	26	None
2	1988-2007	100,000	64	61,000-none
3	1988-2007	10,000	121	3,000-40,000
Open Access	n/a	n/a	n/a	1,000-10,000

Alternatives to allocate quota to the tiers are derived from allocations to Tier 2 of 3.6% (Alt. 2B), 7.2% (Alt. 2C) and 10.8% (Alt. 2D) and the rest to an allocation for Tiers 1 and 3 and open access.

Low Annual quota 11,000mt	Alt. 2B	Alt. 2C	Alt. 2D
Tiers 1+3+open	10,604	10,208	9,812
Tier 2	396	792	1,188
Total	11,000	11,000	11,000

Medium Annual quota 52,500mt	Alt. 2B	Alt. 2C	Alt. 2D
Tiers 1+3+open	50,610	48,720	46,830
Tier 2	1,890	3,780	5,670
Total	52,500	52,500	52,500

High Annual quota 209,000mt	Alt. 2B	Alt. 2C	Alt. 2D
Tiers 1+3+open	201,476	193,952	186,428
Tier 2	7,524	15,048	22,572
Total	209,000	209,000	209,000

The capacity estimate in Table 113 for Tier 1 vessels (105,626 mt) exceeds the potential quota allocation for Tier 1, Tier 3 and the open access fleet in all but the high annual quota scenario. The capacity estimate for Tier 2 of 25,531 mt exceeds all of the quota allocations above.

There is no capacity estimate made for the Tier 3 or the open access fleet because they will be under relatively low trip limits compared to the quota. The low trip limits essentially nullify their capacity in terms of mackerel fishing. However, for Alt. 1F, actual average annual landings by Tier 3 vessels 1998-2007 were 198MT (Table 15) and their landings would have likely been less had they had the trip limits proposed in this amendment.

This scenario serves the purpose of instituting limited access (Purpose A: establish a cap on capacity via limited access based on current and historical participation that does not impede optimal U.S. utilization of the fishery). All but 90 (26+64) of the 2,622 currently permitted mackerel vessels (2007) would be constrained by relatively low trips limits so almost all permitted vessels would be unlikely to capitalize for purposes of mackerel fishing, but the resulting fleet still has the capacity to fully harvest all but extremely high quotas. With a total capacity estimate of 131,157 MT, other than no action or 1G (which have the highest capacities), 1F is less restrictive in terms of capacity compared to 1C, 1D, 1J, and 1E and equal to 1B. This is because A) a 2005 control date is not used and B) Tier 2's qualification date goes back to 1988 (some other alternatives use a 2005 control date and do not go as far back for Tier 2's qualification date).

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Table 21. Alternative Set 1 TIER ALT 1G

TIER	ELIG YR	ELIG LB	# VES	POSSESS LIMIT ALTS
1	1997-2007	1,000,000	26	none
OA				61,000 – 121,000

Alternatives to allocate quota to the tiers are derived from allocations to the open access component of 8.8% (Alt. 2B), 17.6% (Alt. 2C) and 26.5% (Alt. 2D) and the rest to an allocation for Tier 1.

Low Annual quota 11,000mt	Alt. 2B	Alt. 2C	Alt. 2D
Open Access	968	1,936	2,915
Tier 1	10,032	9,064	8,085
Total	11,000	11,000	11,000

Medium Annual quota 52,500mt	Alt. 2B	Alt. 2C	Alt. 2D
Open Access	4,620	9,240	13,912
Tier 1	47,880	43,260	38,588
Total	52,500	52,500	52,500

High Annual quota 209,000mt	Alt. 2B	Alt. 2C	Alt. 2D
Open Access	18,392	36,784	55,385
Tier 1	190,608	172,216	153,615
Total	209,000	209,000	209,000

The capacity estimate in Table 113 for Tier 1 vessels (105,626 mt) exceeds the potential quota allocation for Tier 1 in all but the high annual quota scenario. The capacity estimate for the open access fleet of 96,485 mt exceeds the potential quota allocations for that sector also, but that is to be expected given it is an open access category.

Since the Open Access category has relatively high trip limits to accommodate the more significant participants in that category, 1G may not effectively cap capacity compared to the other Tier scenarios.

Table 21a. Alternative Set 1 TIER ALT 1J

TIER	ELIG YR	ELIG LB	# VES	POSSESS LIMIT ALTS lb
1	1997-2007	1,000,000	26	None
2	1994-2007	100,000	55	62,000-none
3	1994-2007	25,000	49	5,000 - 40,000
Open Access	n/a	n/a	n/a	1,000-10,000

Alternatives to allocate quota to the tiers are derived from allocation to Tier 2 of 3.5% (Alt. 2B), 7.0% (Alt. 2C) and 10.5% (Alt. 2D) and the rest to an allocation for Tiers 1 and 3 and open access.

	Alt. 2B	Alt. 2C	Alt. 2D
Low Annual quota 11,000mt	Alt. 2B	Alt. 2C	Alt. 2D
Tiers 1+3+open	10,615	10,230	9,845
Tier 2	385	770	1,155
Total	11,000	11,000	11,000
Medium Annual quota 52,500mt	Alt. 2B	Alt. 2C	Alt. 2D
Tiers 1+3+open	50,662	48,825	46,987
Tier 2	1,838	3,675	5,513
Total	52,500	52,500	52,500
High Annual quota 209,000mt	Alt. 2B	Alt. 2C	Alt. 2D
Tiers 1+3+open	201,685	194,370	187,055
Tier 2	7,315	14,630	21,945
Total	209,000	209,000	209,000

The capacity estimate for Tier 1 vessels in this alternative (105,626 mt) exceeds the potential quota allocation for Tier 1, Tier 3 and the open access fleet in all but the high annual quota scenario. The capacity estimate for Tier 2 of 19,215 mt exceeds all of the quota allocations above except under a high annual quota and high allocation scenario (2D).

There is no capacity estimate made for the Tier 3 or the open access fleet because they will be under relatively low trip limits compared to the quota. The low trip limits essentially nullify their capacity in terms of mackerel fishing. However, for Alt. 1J, actual average annual landings by Tier 3 vessels 1998-2007 were 150MT (Table 15) and their landings would have likely been less had they had the trip limits proposed in this amendment.

This scenario serves the purpose of instituting limited access (Purpose A: establish a cap on capacity via limited access based on current and historical participation that does not impede optimal U.S. utilization of the fishery). All but 81 (26+55) of the 2,622 currently permitted mackerel vessels (2007) would be constrained by relatively low trips limits so almost all permitted vessels would be unlikely to capitalize for purposes of mackerel fishing, but the resulting fleet still has the capacity to fully harvest all but extremely high quotas. With a total capacity estimate of 124,840 MT, other than no action or 1G (which have the highest capacities), 1J is less restrictive in terms of capacity compared to 1C, 1D, and 1E and more restrictive than 1B/1F. This is because A) a 2005 control date is not used and B) Tier 2's qualification date goes back to 1994 (some other alternatives use a 2005 control date and do not go as far back for Tier 2's qualification date).

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5.2 <u>Alternative Set 2</u>: Alternatives to allocate quota to limited access Tiers based on historical landings.

5.2.1 Statement of Problem/Need for Action

See 5.1.1 for the general need to institute limited access. Alternative Set 2 is simply part of operationalizing the limited access system described in Alternative Set 1. To make limited access meaningful, the access to the mackerel fishery that each Tier (and open access) would be granted must be specified. This is accomplished partly by trip limits for the lower Tiers (Alternative Set 3) and also by the allocation scenarios proposed here in Alternative Set 2. In this sense, the allocation alternatives facilitate the limited access system and this is how they relate, albeit indirectly, to Purpose A, Capping Capacity.

5.2.2 General Rationale

Quota allocation is a component of the proposed limited access system to keep overall catches within biological limits and vessels within their range of historical participation. If vessels are placed into groups but the groups have no limits (i.e. allocation and/or trip limits) then the system may not really accomplish anything. The medium-level participants (see 5.2.1) are generally the Tier 2 qualifiers, and that is why the quota allocations seem so focused on Tier 2's allocation.

5.2.3 Background

This alternative is part of the proposed limited access system. For background on the proposed limited access system, see Section 5.1.3. As designed by the Council, and discussed in Section 5.1, the tier groupings are designed to work with the proposed allocation and trip limit alternatives to administer a limited access system.

5.2.4 Management Alternatives

<u>General Approach</u>

The proposed mackerel limited access system is designed to cap capacity, preserve documented current and historical access, and avoid regulatory bycatch. Therefore, as part of the mackerel limited access system, vessels in each Tier could be regulated by trip limits and/or quotas. Alternative Set 2 describes the quota allocation provisions being considered.

Data used for Allocation

Allocations are grounded in the dealer data years 1997-2007 (2B) given the higher quality of this data, and the range of allocations stems from the Council considering current and historical participation (2B-2D). The Council has received comments that Tier 2 historically caught double to triple recent landings as a percentage, which is also supported by the earlier, but less reliable and less complete dealer data. Including earlier time periods (back to 1983) resulted in Tier 2 catching higher proportions of the total landings (as high as 11%) but that data is less complete and less reliable. However, to the extent that all Tiers would have been less likely to report, the higher landings in earlier periods would generally be indicative of a different landings proportion, and this is the rationale for the current range of alternatives that consider allocating more to Tier 2 than their 1997-2007 landings would otherwise suggest. Using 1997-2007 results in a range of 3.3% to 4.0% and triple that is 10.0% to 12.1%. Since 10.0% to 12.1% is close to the 11% that including earlier data resulted in, the Council felt that the current alternatives provided a reasonable range for consideration.

Proposed Tier Groupings for Allocations

Based on public comment after the DEIS was first published, the Council modified alternatives 1C and 1D (preferred) such that the only allocation would be to limit Tier 3 to a cap (see 1C and 1D for details). See Sections 1.6.1 and 1.6.3 for additional details. After receiving public comments on the DEIS, the Council decided to modify some of the allocation provisions to simplify the program and provide additional accommodations for smaller and historical vessels. With this rationale and under Alternatives 1C or 1D (1D is the preferred alternative), the Amendment would not allocate beyond placing a cap on Tier 3. Tier 3 would have a relatively high trip limit to accommodate occasional substantial landings but would close when it reaches its cap. The cap would be set annually, based on a review of Tier 3's performance initially over 1994-2007 in terms of Tier 3's proportion of commercial landings based on the maximum, minimum, median, and average. These values are described in more detail below. Tier 3's cap would be monitored just like existing quotas - when 90% (adjustable during specifications) of the cap is reached a lower trip limit would be instituted. This system would maintain control on the numbers of primary directed vessels while also allowing a wider range of vessels to make landings subject to the overall Tier 3 cap and Tier 3 trip limit.

The modifications also remove the explicit allocations between the Tiers. This could mean that Tier 2, which had its own quota previously, could take more than would have been allocated or could have access to less mackerel if the other Tiers catch the quota rapidly. The lack of an allocation for Tier 2 under the modified alternatives 1C and 1D is related to a concern that an allocation to Tier 2 based on recent landings combined with a potential natural evolution of the fishery toward smaller vessels given likely future smaller quotas might constrain Tier 2 too much.

If 1C or 1D are not selected, the proposed alternatives assign one quota to Tier 2 (3%-12%) and one quota to all the other Tiers (1, 3, and open access) (88%-97%) combined. The Council originally considered managing each Tier with its own quota, but the current binned Tier combinations were developed as a result of considering the implementation difficulty of managing multiple quotas. If Tiers are going to be binned for the purposes of quota management, the Council deemed that it makes sense to combine the lower tiers with the 85%+ that Tier 1 would have. The rationale follows: Because they will be managed by relatively small trip limits compared to the quota, Tier 3 and Open Access may take a varying range of relatively small percentages of the quota. If they take 1% versus 3% of a quota in the range of 88%-97% it would matter significantly less than if they take 1% versus 3% of a quota in the range of 3%-12%. In other words, taking a small but variable portion of a large quota will have less impact to the quota category than taking a small but variable portion of a small quota.

Also, since Tier 3 and Open Access will in combination only take a small part of the quota (and the Council can change trip limits annually to make sure this stays the case), it is unnecessary for them to have their own quota. If they are going to share a quota, an overall shared quota with Tier 1 would be much larger than an overall shared quota with Tier 2, and since any variation that did occur would overall impact a larger quota less, the decision was to group the lower Tiers with Tier 1. The quota sharing decision was made solely to try to make quota management by NMFS simpler (at NMFS request), and the grouping was made solely on the basis of the above rationale, i.e. the lower Tiers, despite any annual variation, are unlikely to significantly impact the operation of Tier 1 because their trip limits are small compared to the quota they would share with Tier 1. Also, in terms of poundage, Tier 3 and the open access vessels have taken relatively small amounts, in the range of 1495 MT/year to 1853 MT/year 1998-2007, and those categories would likely have caught less than they did if they had had trip limits as proposed in this Amendment because the trip limits, while affecting a small percentage of trips, do impact the biggest trips and those trips account for a substantial share of the landings in those categories (see Table 25 in Section 5.3.4).

Allocation Range Rationale

Several allocations are proposed to consider both recent and historical participants. 2B makes allocations based on landings by the Tier groupings and their landings based on the dealer data 1997-2007. Alternatives 2C and 2D provide more allocation to vessels in Tier 2 than they have caught 1997-2007 to take into account their historical participation. The Council recognizes that the large vessels could effectively shut out the smaller vessels and the allocation to Tier 2 is designed to avoid this situation. The quotas are focused on as percentages because the Council has wanted to preserve access to vessels in the proportion that landings have been made. In this way, if quotas fall then all participants would share the burden. However, the allocations are described in MT under a range of quotas at the end of section 5.1.4.

Additional Data Considerations

The allocation calculation is based on analysis of where vessels are predicted to end up based on current dealer data. In other words, first the dealer landings were analyzed to see which Tier vessels would end up in based on the dealer data and the Alternative Set 1 criteria. Then landings were analyzed by each vessel in each Tier to see what proportion of total landings was accounted for by each Tier.

It is known that there are errors in the dealer weighout database. If vessels believe mackerel landings data is in error and successfully appeal their Tier assignment the allocations to each Tier as described in this document would not automatically change - it would need to be changed by a future action if the Council wanted to revisit the allocations should conditions warrant (e.g. if many vessels make successful appeals and the allocation no longer makes sense given the vessels in each Tier, conditions in the fishery change dramatically (biological or economic), etc.). Such a change could be done via a framework or Amendment if and when concerns about the allocations arise.

Quota Transfer Provision (Applies if 1B, 1E, 1F, or 1J is chosen)

While Tier 2 may have historically caught more than they have been catching recently, they might not catch such higher amounts in the future and could leave a substantial amount of quota unused. The transfer provision is to help avoid a situation where the total quota is overall underutilized but some Tiers are limited - the Council wants to avoid a situation where Tier 1 was closed but Tier 2 left significant quota unused. Because Alternatives 2C and 2D allocate at least double the quota to Tier 2 compared to 2B, and because any transfer occurring under 2C and 2D would involve less than half of Tier 2's quota, Tier 2 would always end up with more quota under 2C or 2D, even if a portion of Tier 2's quota reverts to the other quota category. The transfer would occur in April based on projections made in March and while April is late in the Mackerel season, substantial landings do usually occur in April. Moreover, if Tier 1 was getting close or had reached its limit, one would expect that availability had been relatively high, meaning that the probability of mackerel being available in April would be relatively high, and thus while the transfer would be late in the season it could be meaningful.

Determination of Annual Quotas under Limited Access

While the basics of determining annual quotas would remain the same, some adjustments could be necessary given the proposed allocation between the recreational and commercial sectors. An overall ABC (Catch at F_{target} - assumed Canadian Catch) is first calculated. ABC is reduced by social and economic factors to generate an IOY. Recently total IOY has equaled DAP (what processors believe they could utilize) + a recreational allotment + any research quota (RSA) so as to preclude TALFF. There is no estimate of Ftarget so most recently Canadian catch has been being deducted from the ABC as set by the Council’s SSC. For example, for 2011 the total ABC was 80,000 mt. After deductions for Canada the U.S. ABC was 47,395 mt and there was no RSA.

If a formal percentage allocation of mackerel between the commercial and recreational fishery is codified under Am11, then the following procedure would be used: The commercial and recreational fisheries would be provided with their allocations of the ABC. RSA is then subtracted proportionally so both sectors contribute to the RSA. If the resulting commercial allocation (as adjusted for RSA) is greater than DAP (DAP), the commercial quota could be initially reduced to preclude TALFF, and the resulting initial commercial quota that precludes TALFF plus the recreational allocation (as adjusted for RSA) plus the RSA would equal IOY. The chart immediately below provides a numerical example.

A numerical example may be illustrative:
First one must establish an ABC, for example 47,395 mt which was the 2011 ABC. Then if one assumes a 6.2% split for the recreational harvest and 93.8% split for the commercial harvest the result is 2,938 mt for the recreational harvest and 44,457 mt for the commercial harvest. If a 1,000 mt RSA is deducted at the same percentages, the results are 2,876 mt for recreational and 43,519 mt for commercial. 2,876+43,519+1,000 equals the total ABC 47,395. The main point is that the RSA deduction is made according to the allocation. If the ABC was high enough, the initial commercial quota could be adjusted downward such that commercial harvest did not exceed DAP (so as to preclude TALFF).

If appropriate given IOY and the ABC, the current in-season adjustment process would remain in force. The commercial quota could then be further divided between the Tier categories as described in Alternative Set 2 as appropriate.

<u>Monitoring of Annual Quotas under Limited Access</u>

No additional monitoring is proposed outside of Tier 3 under alternatives 1C and 1D (preferred), discussion of which can be found in Alternative Set 4. While the mackerel fishery has taken as high as 6% of its quota per week (versus a 10% closure threshold), when such high landings are being made they are generally made in a consistent fashion week to week, which should allow NERO to effectively project landings and close the fishery (or make transfers in the case of non-preferred alternatives 2C and 2D) appropriately with the current monitoring regime. While monitoring smaller quotas (as are expected in the future) is generally more difficult than monitoring larger quotas with any given group of vessels, there is no information to suggest that for mackerel, this would not hold in the case of monitoring one quota or two, or in times of high or low quota, because of the relatively steady pace that mackerel landings are made when they are occurring at a relatively high rate. Also, all of the limited access scenarios would restrict access compared to the status quo, so all should make monitoring relatively easier than under the status quo management regime for any given quota (lower access means compared to the status quo landings will occur less quickly). Landings will have to be sorted by permit number to track quota by the proposed Tiers, but NMFS already collects this information when it collects dealer reports and NMFS already has the computer code to separate landings by permit.

Since Alternative 1D is preferred and 1D specifies no allocations other than a cap on Tier 3, 2A is by default preferred. If an action alternative other than 1C or 1D was selected then the Council could choose an action alternative from Alternative Set 2.

Alternatives: **2A (PREFERRED):** No action (no allocation of quota to the Tiers)

2B: Allocate to Tier 2 the percentage of the total landings Tier 2 landed from 1997-2007. The remaining quota is used by Tier 1, Tier 3, and the open access category jointly (and would be the percentage that they landed 1997-2007). The exact amounts depend on where vessels are predicted to end up in terms of Tiers (based on dealer data) and are described in Tables 21 and 22 but range from 3.3% to 4.0% for Tier 2. Directed fishing within a given allocation/Tier would close when 90% of the allocation is projected to be harvested (pre/post closure trip limits are discussed in the next alternative set). If Alternative 1G is selected, the same principle would be used to allocate the commercial quota between Tier 1 and open access.

2C: Allocate to Tier 2 double the percentage of the total landings Tier 2 landed from 1997-2007. The remaining quota is used by Tier 1, Tier 3, and the open access category jointly. The exact amounts depend on where vessels are predicted to end up in terms of Tiers (based on dealer data) and are described in Tables 21 and 22 but range from 6.7% to 8.1% for Tier 2. Directed fishing within a given allocation/Tier would close when 90% of the allocation is projected to be harvested (pre/post closure trip limits are discussed in the next alternative set). On April 1, if less than half of Tier 2's total allocation has been used, then half of Tier 2's remaining directed fishery allocation that was unused as of March 15 reverts to the Tier 1/Tier3/Open Access quota. For example, if by March 15 Tier 2 had used 40% of its quota, and Tier 2 closes at 90%, then 25% of Tier 2's quota reverts to Tier 1/. (90%-40% = 50%; 50% divided by 2 equals 25%). If Alternative 1G is selected, the same principle would be used to allocate the commercial quota between Tier 1 and open access.

2D: Allocate to Tier 2 triple the percentage of the total landings Tier 2 landed from 1997-2007. The remaining quota is used by Tier 1, Tier 3, and the open access category jointly. The exact amounts depend on where vessels are predicted to end up in terms of Tiers (based on dealer data) and are described in Tables 21 and 22 but range from 10.0% to 12.1% for Tier 2. Directed fishing within a given allocation/Tier would close when 90% of the allocation is projected to be harvested (pre/post closure trip limits are discussed in the next alternative set). On April 1, if less than half of Tier 2's total allocation has been used, then half of Tier 2's remaining directed fishery allocation that was unused as of March 15 reverts to the Tier 1/Tier3/Open Access quota. For example, if by March 15 Tier 2 had used 40% of its quota, and Tier 2 closes at 90%, then 25% of Tier 2's quota reverts to Tier 1/. (90%-40% = 50%; 50% divided by 2 equals 25%). If Alternative 1G is selected, the same principle would be used to allocate the commercial quota between Tier 1 and open access.

The following tables (21 & 22) describes the percentages that would be allocated to the Tiers depending on which limited access Tier structure scenario was chosen (Set 1) and depending on which allocation alternative was chosen (Set 2). Tier 1, Tier 3, and open access would share the rest of the quota (a de facto allocation). 2C and 2D shift quota from T1, T3, OA to T2 compared to landings over 1997-2007.

Alternative 1G would involve a fundamentally different quota allocation in the sense that instead of Tier 1, Tier 3, and open access being grouped together for quota purposes, what has generally been Tier 2, Tier 3, and open access are collapsed into one open access Tier with one quota. With 1G, open access would be allocated 8.8%, 17.6%, or 26.5% of the quota and Tier 1 would be allocated the rest (91.2%, 82.4%, 73.5%), following the same principle of keying off proportions caught by the lower category group of vessels 1997-2007 or double or triple that amount for the lower Tier. These percentages are higher than the other allocations because the percentages of catch accounted for by Tier 3 and Open Access are added to Tier 2.

Table 21. Quota Allocations. (Tier 2)

		Tier 2 Allocation Alternatives (Set 2)		
		2B	**2C**	**2D**
Tier Structure Alternatives (Set 1)	**1B**	3.6%	7.2%	10.8%
	1C	NA	NA	NA
	1D	NA	NA	NA
	1E	3.8%	7.7%	11.5%
	1F	3.6%	7.2%	10.8%
	1J	3.5%	7.0%	10.5%

Table 22. Tier 1/3/OA Allocations

		Tier 1/3/OA Allocation Alternatives (Set 2)		
		2B	**2C**	**2D**
Tier Structure Alternatives (Set 1)	**1B**	96.4%	92.8%	89.2%
	1C	NA	NA	NA
	1D	NA	NA	NA
	1E	96.2%	92.3%	88.5%
	1F	96.4%	92.8%	89.2%
	1J	96.5%	93.0%	89.5%

As described above, alternatives 1C and 1D were modified compared to the initial DEIS to provide for additional consideration for historical vessels that might not have gotten a Tier permit otherwise. Essentially the threshold for Tier 3 was lowered and the allocations were removed except for a cap on Tier 3 (hence the NA's in the 1C and 1D rows for Tables 21 and 22 above). The cap on Tier 3 is to be set in the annual specifications based on analysis of the maximum, minimum, median, and average values that Tier 3 accounted for over either 1997-2007 for 1C or 1994-2007 from 1D. Since there were options for a zero and a 1,000 pound Tier 3 qualification threshold, which result in different numbers of qualifying vessels, the ranges under each scenario are presented in Table 22b below. The reader will note that from 1994-1996 the percentages of landings accounted by Tier 3 are much lower for 1D than 1C. This occurs because in 1D qualification extends back to 1994, and vessels with higher landings that drive the higher 1994-1996 results in 1C result end up qualifying for a higher Tier under 1D.

Table 22b. Tier 3 Cap ranges (to be set during specifications).

1C				**1D**			
No qualification threshold		1,000 pound qualificaiton threshold		No qualification threshold		1,000 pound qualificaiton threshold	
Year	Tier 3's % of Total Landings	Year	Tier 3's % of Total Landings	Year	Tier 3's % of Total Landings	Year	Tier 3's % of Total Landings
1994	14.0%	1994	13.1%	1994	5.0%	1994	4.4%
1995	17.6%	1995	17.1%	1995	6.6%	1995	6.5%
1996	17.0%	1996	16.5%	1996	5.1%	1996	5.0%
1997	6.0%	1997	6.0%	1997	4.0%	1997	4.0%
1998	2.8%	1998	2.8%	1998	2.5%	1998	2.5%
1999	3.8%	1999	3.7%	1999	3.4%	1999	3.3%
2000	3.9%	2000	3.8%	2000	3.7%	2000	3.6%
2001	1.4%	2001	1.3%	2001	1.2%	2001	1.2%
2002	0.9%	2002	0.9%	2002	0.9%	2002	0.9%
2003	1.0%	2003	1.0%	2003	0.9%	2003	0.9%
2004	0.3%	2004	0.3%	2004	0.3%	2004	0.3%
2005	0.4%	2005	0.4%	2005	0.3%	2005	0.3%
2006	0.3%	2006	0.3%	2006	2.5%	2006	2.5%
2007	0.8%	2007	0.7%	2007	2.7%	2007	0.9%
Min	0.3%		0.3%	Min	0.3%		0.3%
Max	17.6%		17.1%	Max	6.6%		6.5%
Median	2.1%		2.0%	Median	2.6%		2.5%
Mean	2.7%		2.6%	Mean	2.0%		1.8%

5.3 <u>Alternative Set 3</u>: Alternatives to specify trip limits for each Tier.

5.3.1 Statement of Problem/Need for Action

See 5.1.1 for the general need to institute limited access. Alternative Set 3 is simply part of operationalizing the limited access system described in Alternative Set 1. To make limited access meaningful, the access to the mackerel fishery that each Tier (and open access) would be granted must be specified. In this sense, the trip limit alternatives operationalize the limited access system and this is how they relate, albeit indirectly, to Purpose A, Capping Capacity. If 1B, 1E, 1F, or 1J is chosen, the trip limits also ensure that a few vessels do not use up the entire quota for Tier 2 -the intent of the Council is that there should be access for all vessels in Tier 2. Without trip limits on Tier 2, a few large vessels could potentially catch all or most of the Tier 2 quota. This result would not be consistent with vessels' historical practices and would mean that all the other Tier 2 vessels would not have an opportunity to harvest at the mid-level range of participation that has characterized this Tier. Trip limits are also proposed for Tier 3 and the open access category so they do not produce excessive landings. Taken as a whole, the trip limit alternatives provide consideration of current and a range of historical fishing participation because they assign trip limits based on the actual trips that vessels made from 1997-2007.

5.3.2 General Rationale

Trip limits are a component of the proposed limited access system and restrict access by the lower Tiers. Consistent with the Council's general intent with limited access, the trip limits are designed to restrict vessels to a range of landings that are characteristic of trips by vessels within a Tier. The proposed trip limits are set to affect a small proportion of trips by vessels predicted to be in each Tier (based on the dealer dataset and the different qualifying criteria described in this document) so that regulatory discarding is avoided while vessels are constrained from significantly increasing their landings compared to historical levels - the primary purpose of the trip limits is to keep vessels in one Tier from significantly expanding effort to the point where they are more characteristic of vessels in the higher Tiers. The trip limits also work in conjunction with the proposed allocations so that one or a few vessels do not expand to the point where they disproportionately use up the quota/cap available or assumed will be harvested by other vessels in that Tier, thus considering current and historical fishing practices by all vessels.

<u>Trip Limit Calculations</u>

Compared to historical landings by vessels in any given Tier, the trip limits are set relatively high so that the effect is not to create regulatory discarding. Accordingly, and as described below, the range of alternatives are generally designed to impact 1%, 2%, or 5% of current and historical trips (1997-2007) by vessels predicted to end up in any given Tier. There is also an Alternative that would exempt Tier 2 from trip limits. 3F considers higher trip limits for Tier 3 and open access as part of the modifications to 1C and 1D to provide additional consideration of smaller and historical fishing participation by vessels that would qualify for Tier 3 under 1C and

1D. All trips limits would be set annually upon review of the best available scientific information. If overall quotas fall the trip limits could be likely to fall as well depending on fleet performance.

Like limited access in general, the trip limits serve economic and conservation purposes. By effectively removing almost all currently permitted vessels from the primary directed fishery (96%-98% - Compare numbers of Tier 1 and Tier 2 vessels 90-54 to totally currently (2007) permitted, 2,622), the trip limits on the lower Tiers (Tier 3 and open access) reduce the probability of a race to fish in the future by effectively removing the capacity of those vessels from the directed fishery. The specific economic and conservation benefits of limiting the race to fish are discussed in 4.1.A.

5.3.3 Background

This alternative is part of the proposed limited access system. For background on the proposed limited access system, see Section 5.1.3. As designed by the Council, and discussed in Section 5.1, the tier groupings are designed to work with the proposed allocation and trip limit alternatives to administer a limited access system.

5.3.4 Management Alternatives

The proposed mackerel limited access system is designed to Cap Capacity while generally preserving documented current and historical access and also avoiding regulatory bycatch. Therefore, as part of the mackerel limited access system, vessels in each Tier could be subjected to the trips limits as described below. The trip limit calculations are based on trips by vessels that are predicted to qualify for each Tier. The final qualifications for permits are likely to be somewhat different as vessels may appeal their initial qualifications. The trips limits would not automatically change however based on the final qualifications and a recalculation of how trips have been distributed among the vessels in each Tier. Trip limits could be changed via future annual specification actions however.

3F was modified in consideration of facilitating additional consideration of historical and smaller vessels as described in Section 1.6.1 and related to modifications made to Alternatives 1C and 1D. 3F's proposed trip limits were derived from both analysis about what levels of landings would cover the majority of existing trips (see table 23), as well as advisory panel and public input to the Council about what trip limits would discourage capacity increases, avoid regulatory discarding, and accommodate historical participation to the extent practicable. The SDEIS had a range of 1,000 to 20,000 pounds for open access trip limits and the Council slightly modified 3F for the final preferred alternative such that the open access trip limit would be 20,000 pounds initially, modifiable via annual specifications. The primary rationales for selecting 20,000 pounds were that 20,000 pounds is the current directed fishery closure trip limit and landings less than 20,000 pounds have constituted a minor fraction of total landings.

Alternatives: **3A**: no action (no trip limits for the Tiers). If Tier allocations were selected (see Alternative Set 2) then the quota would be specified as described and the vessels in each Tier would just be controlled by the proposed quotas. This wouldn't make much sense though since Tier 1, Tier 3, and open access share an allocation so there would be no differentiation between these groups. If 3A is selected and no quota allocation action alternatives were chosen, the whole limited access system would be meaningless because there would be no limits on any vessel.

3B: Trip limits set annually though the annual specifications process. No Tier 1 directed fishery trip limit. Initially set directed fishery trip limits for Tier 2, Tier 3, and the open access category at the levels which would have not have affected **99%** of trips in dealer weighout database by vessels in each category 1997-2007. Initially set directed fishery closure trip limits (i.e. incidental limits for when 90% of a quota is reached) as: Tiers 1 and 2: 20,000[4] pounds; Tier 3 and open access: The directed trip limit or 20,000 pounds, whichever is less (i.e. if they are less than 20,000 pounds directed, there is no need for them to ever change).

3C: Trip limits set annually though the annual specifications process. No Tier 1 directed fishery trip limit. Initially set directed fishery trip limits for Tier 2, Tier 3, and the open access category at the levels which would have not have affected **98%** of trips in dealer weighout database by vessels in each category 1997-2007. Initially set directed fishery closure trip limits (i.e. incidental limits for when 90% of a quota is reached) as: Tiers 1 and 2: 20,000 pounds; Tier 3 and open access: The directed trip limit or 20,000 pounds, whichever is less (i.e. if they are less than 20,000 pounds directed there is no need for them to ever change).

3D: Trip limits set annually though the annual specifications process. No Tier 1 directed fishery trip limit. Initially set directed fishery trip limits for Tier 2, Tier 3, and the open access category at the levels which would have not have affected **95%** of trips in dealer weighout database by vessels in each category 1997-2007. Initially set directed fishery closure trip limits (i.e. incidental limits for when 90% of a quota is reached) as: Tiers 1 and 2: 20,000 pounds; Tier 3 and open access: The directed trip limit or 20,000 pounds, whichever is less (i.e. if they are less than 20,000 pounds directed there is no need for them to ever change).

3E: Exempt Tier 2 from a directed trip limit (Tier 2 would just be governed by a quota) initially - Tier 2 Trip limits could be instituted via Specs at a later date. All other trip limits would be as described in 3B-3D.

3F (PREFERRED): All trip limits are adjustable via specifications. No Tier 1 directed fishery trip limit. Initially set the Tier 2 trip limit to be 135,000 pounds, adjustable during specifications. Initially set the Tier 3 trip limit to be 100,000 pounds, adjustable during specifications. Initially set the open access trip limit to

[4] A 20,000 pound trip limit was shown to involve a low probability of an overage occurring at a 90% closure threshold, even with open access, in the 2008 Specification EA due to the very small proportion (<1%) of landings that have resulted from trips under 20,000 pounds (http://www.nero.noaa.gov/nero/regs/frdoc/08/08smbspecsea.pdf).

be 20,000 pounds, adjustable up to 20,000 pounds during specifications. Initially set directed fishery closure trip limits as: Tiers 1, 2, and 3: 20,000 pounds; open access stays at same level during a closure.

3G: Trip limits set annually though the annual specifications process. If Alternative 1G is selected: No trip limit for Tier 1. For Open Access, trip limit range would be what would have been calculated for Tier 2 with Alternatives 3B-3D for Tier 2 under Alternative 1B.

The alternatives propose a range of trip limits. The resulting trip limit ranges for the following Tiers are:

Tier 2……………. 39,000 - 553,000 pounds per trip. Also considers no trip limit for Tier 2
Tier 3……………. 4,000 - 100,000 pounds per trip.
Open Access.…… 1,000 - 20,000 pounds per trip.

The specific trip limits that would be associated with any combination of general Tier structure (Alternative Set 1) and trip limit alternatives are provided in Table 23 below. The data in the table are the poundage trip limits that result depending on which Alternative Set 1 Alternative is selected (1B-1G) and which trip limit alternative(s) get selected (3B-3F). The maximum and minimum for each Tier are underlined. Given the lower Tiers derive a minimal percentage of their revenues from mackerel (1% for Tier 2 and less than 1% for other Tiers) and given the trip limits affect a small percentage of trips by vessels in each Tier, the Trip limits shouldn't have too much more of an impact other than to prevent vessels from significantly increasing effort for mackerel beyond their historical levels of participation.

For Alternative 3G, there would be no trip limit for Tier 1. For Open Access (the only other category if 3G was chosen), trip limit would be what would have been calculated for Tier 2 with Alternatives 3B-3D for Tier 2 in conjunction with Alternative 1B (61,000, 100,000, or 121,000).

Since 1C and 1D were modified by the Council to include the new 3F trips limits, the limits in 3F apply and Table 23 includes NAs for 1C and 1D. 3E also includes NAs for Tier 2 since 3E would exempt Tier 2 from trip limits, at least initially.

<u>Tier 2 Exemption</u>

Alternative 3E exempts Tier 2 from trip limits and the Council included this Alternative initially at the recommendation of the Am 11 FMAT. The FMAT thought that having an option to not have trip limits on Tier 2 would be good since Tier 2 vessels do conduct some directed mackerel fishing and not having trip limits could facilitate cooperative behavior between Tier 2 vessels. Upon further reflection, the Council also thought that considering no trip limits for Tier 2 could be good because of the Alternatives in Alternative Set 2 that grant Tier 2 more than they have landed proportionately over the last 10 years. The only way that they might actually be able to catch the relatively higher quota would be if they didn't have trip limits. Trip limits will be set each year per the Alternatives and the Council could consider Trip Limits for Tier 2 in the future. One of the primary reasons for trip limits for Tier 2 is to ensure that a few Tier 2 vessels don't expand significantly and go through the whole quota and preclude the mid-level harvesting that has been typical of Tier 2 vessels over time. Not having trip limits would mean this would be more of a risk but it would be difficult to predict what would happen until the fishery was allowed to operate. In addition, if there is no trip limit, it could encourage further capitalization by a few Tier 2 vessels that could then be left with a lot of unusable capital if trip limits are instituted later to protect the other Tier 2 vessels. This is why the Council has tended toward instituting some trip limits for Tier 2 vessels, even if they are relatively high compared to historical landings.

Table 23. Trip Limits

Tier Alts. (Set 1)		Trip Limit Alternatives (Set 3)				
	Tier 2	**3B (covers 99% of trips)**	**3C (covers 98% of trips)**	**3D (95% of trips)**	**3E**	**3F**
	1B	121,000	100,000	61,000	NA	135,000
	1C	NA	NA	NA	NA	135,000
	1D	NA	NA	NA	NA	135,000
	1E	553,000	178,000	75,000	NA	135,000
	1F	121,000	100,000	61,000	NA	135,000
	1J	121,000	101,000	62,000	NA	135,000
	Tier 3					
	1B	11,000	7,000	4,000	See 3B-3D	100,000
	1C	NA	NA	NA	See 3B-3D	100,000
	1D	NA	NA	NA	See 3B-3D	100,000
	1E	33,000	18,000	7,000	See 3B-3D	100,000
	1F	9,000	6,000	3,000	See 3B-3D	100,000
	1J	13,000	8,000	5,000	See 3B-3D	100,000
	OA					
	1B	4,000	2,000	1,000	See 3B-3D	20,000
	1C	NA	NA	NA	See 3B-3D	20,000
	1D	NA	NA	NA	See 3B-3D	20,000
	1E	4,000	3,000	2,000	See 3B-3D	20,000
	1F	3,000	2,000	1,000	See 3B-3D	20,000
	1G/3G	121,000	100,000	61,000	na	20,000
	1J	4,000	2,000	1,000	See 3B-3D	20,000

Trip Limits Compared to Actual Trips

The actual averages for trips by vessels in each category are listed in Table 24 for the groups of vessels that would qualify for each Tier under each general qualification scenario for Alternative Set 1. As one would expect given the criteria for setting trip limits (not to affect most trips) the averages are substantially lower than the proposed trip limits. The is consistent with the Council's intents of: locking vessels into a range of harvests that are characteristic of other vessels within a given Tier; wanting to avoid regulatory discarding; and providing as much flexibility as possible to each group of vessels.

While on one hand a casual interpretation of the trip limits versus the characteristics of historical trips could lead one to the conclusion that the proposed trip limits could facilitate significant increases in effort within each Tier compared to historical participation, it is also important to recognize that the landings above the trip limits have accounted for a substantial component of the landings even if they do not account for a substantial number of the trips, and in this fashion can in fact be a substantial limitation.

Table 24 . Trip characteristics (mackerel) of vessels in each Tier over 1997-2007.

Tier	Vessels	Pounds on Avg Trip	Avg Number of Trips per Year
1B			
Tier 1	26	305,292	181
Tier 2	64	8,572	253
Tier 3	56	711	445
Open Access	679	201	1,116
1C			
Tier 1	26	306,565	182
Tier 2	36	13,506	156
Tier 3, 1000 pound	309	511	1,346
Tier 3, permit	2,414	418	1,677
1D			
Tier 1	29	273,210	201
Tier 2	46	11,369	215
Tier 3, 1000 pound	329	637	1,329
Tier 3, permit	2,402	599	1,584
1E			
Tier 1	29	271,784	199
Tier 2	25	18,839	123
Tier 3	50	2,662	372
Open Access	603	236	1,300
1F			
Tier 1	26	305,292	181
Tier 2	64	8,572	253
Tier 3	121	572	572
Open Access	614	147	830
1G			
Tier 1	26	305,292	181
Open Access	799	1,495	1,814

Table 25 describes the amounts of landings by each Tier on trips that would be affected by the proposed trip limits for 1B, 1E, and 1G. Alternative 1B is representative of 1B, 1C, 1J, and 1F. 1G is unique. The table has the same general organization as Table 23 but while Table 23 lists the trip limits, Table 25 lists the percent of landings in each Tier that would have been affected. While the large trips are uncharacteristic of the vessels in the Tier, because they are so much larger than the vast majority of trips they still make up a significant proportion of the Tier's landings. The reason why 1B and 1E are quite different in terms of the percentage of landings impacted is that 1E uses a control date of 2005 for Tiers 1 and 2, which has a ripple-like effect of pushing some larger vessels with recent landings down into lower Tiers. Among the preponderance of smaller landings in 1E (or 1D) there are also the large landings of the vessels affected by the use of the 2005 control date which while few in number, are substantial in weight[5].

Table 25. Percent of Landings in each Tier Impacted by Trip Limit (1997-2007)

Tier Alts. (Set 1)	Trip Limit Alternatives (Set 3)					
	Tier 2	**3B (covers 99% of trips)**	**3C (covers 98% of trips)**	**3D (covers 95% of trips)**	**3E**	**3F**
	1B	19%	32%	60%	Na	Na
	1E	39%	58%	75%	Na	Na
	1D	NA	NA	NA	NA	58%
	Tier 3					
	1B	24%	38%	55%	See 3B-3D	Na
	1E	61%	70%	81%	See 3B-3D	Na
	1D	NA	NA	NA	NA	28%
	OA					
	1B	29%	39%	57%	See 3B-3D	Na
	1E	25%	34%	44%	See 3B-3D	Na
	1D	NA	NA	NA	NA	86%
	1G/3G	15%	26%	48%	na	Na

It is important to note that Table 25 does not suggest that landings would be reduced by the given percentage. For example, on a trip landing 101,000 pounds, if there had been a 100,000 pound trip limit it would only have had to not catch or discard 1,000 pounds. Of course if there had been a trip limit the vessel may not have made the trip in the first place, so it is impossible to tell if or how much landings would have been reduced had there been a trip limit, and the same concept even applies to trips smaller than the trip limit - while they landed under 100,000 pounds they may have gone fishing because they thought they would catch more and may not have made

[5] This trip limit discussion also highlights an issue with using the 2005 control date (1D and 1E). By forcing larger current participants into the lower Tiers, one ends up with groups of vessels in the lower tiers, that in terms of current/most recent activities, may not be well matched.

the trip in the first place had there been a trip limit in place. This document is not suggesting this is a known impact, just that there are myriad responses by fishermen to regulations and it can be very hard to predict what all the consequences will be. For example, fishermen might make 2 trips where they had made one before to stay within the trip limit. The general point is that for the alternatives, while a small number of trips would be affected, those trips can represent substantial landings within the Tier (but since the lower Tiers take a small percentage of the quota it is a small portion of the overall quota).

For the preferred Tier Alternative (1D) and the preferred trip limit alternative (3F) several observations may be made. First, as noted in the SDEIS, with the 2005 qualification cutoff a few vessels that had large trips in 2006 and 2007 end up in Tier 2 (who otherwise would have qualified for Tier 1). Thus it appears that a large percent of Tier 2 landings could be impacted by a 135,000 pound trip limit, though these trips constitute a very small percentage of the kinds of trips generally taken by Tier 2 vessels. The same kind of effect happens with open access in that there are generally very low landings by the open access category however there are a few vessels that end up in OA that would have qualified for a higher Tier otherwise and with just a few landings swamp the generally small landings from a cumulative point of view.

Given the nature of the few relatively large landings by vessels in each Tier, the Council debated whether to base the trip limits on a percentage of trips or a percentage of landings. The Council settled on the concept of percentage of trips because the whole idea is to keep vessels in the lower Tiers in their historical range of landings. If trip limits were set to not affect 99% of landings within a Tier versus 99% of trips for instance, the trip limit would be set far beyond the amount characteristic of the vast majority of trips by vessels within a Tier and such a result would not match the intent of the Council.

Relation of Trip Limits to Tier Structure

The trip limits also illustrate the need for the current Tier structure. If one were to combine any two Tiers, in order to maintain access for the vessels in the higher Tier the vessels in what had been in the lower Tier would need to be granted the higher trip limits that had been proposed for the higher Tier. The segmentation into the current Tiers allows vessels to maintain a range of landings tailored to how they have been traditionally operating, effectively allocating access based on how vessels in each Tier have actually operated.

5.4 Alternative Set 4: Alternatives to indicate Council intent on a variety of standard policy and administrative matters inherent in Northeast limited access systems needed to maintain consistency with other FMPs and to simplify management.

5.4.1 Statement of Problem/Need for Action

See 5.1.1. In addition, a limited access system requires a variety of administrative rules to be effective and administratively feasible, and the Council needs to indicate its intent regarding such rules.

5.4.2 General Rationale

NMFS NERO has developed a suite of regulations which typically accompany Northeast limited access systems and Alternative Set 5 indicates the Council's intent regarding such provisions. These measures generally maintain consistency with other FMPs and simplify implementation. Am11 proposes to maintain most standard administrative provisions but does depart from some, primarily in the form of additional upgrade restrictions (hold capacity, baseline calculation) and in how fishing histories are treated. The divergences may add some administrative complexity to the original qualifying process but probably would not add significant administrative complexity in the long term compared to the overall complexity inherent in developing and administering any limited access program. The proposed additional restrictions (hold upgrade in 4B/4C) are designed to maintain the current fleet versus having additional capacity added to the fleet. 4D, which considers how to address retained histories, is designed allow utilization of retained histories for qualification purposes.

5.4.3 Background

This alternative is part of the proposed limited access system. For general background, see Section 5.1.3. The administrative rules are generally based on the Herring limited access permitting process but have been updated based on experiences related to implementation of limited access in Herring and Scallops. More than one alternative could be chosen, but it is anticipated that 4B would be chosen if an action alternative in Alternative Set 1 is chosen.

5.4.4 Management Alternatives

Alternatives: **4A:** No action. No administrative procedures would be specified. This would make NMFS implementation of a proposed limited access system very difficult because there would be no indication of Council intent on a wide variety of operational measures.

4B (PREFERRED): The following general provisions would apply to the mackerel limited access system (4B1 has been slightly modified from the SDEIS to indicate that dealer records would be relied upon for landings documentation):

4B1. Application

Consistent with other limited access programs established by the Councils, initial eligibility for a mackerel limited access permit must be established during the first year after the implementation of Amendment 11. In other words, mackerel limited access permits may not be applied for more than twelve months following the effective date of the final regulations. Individuals who wish to receive a permit under the limited access system would have to take affirmative action in the form of submitting an application. Notice of application procedures will be published in: the federal register; via a letter to permit holders; on the Council web-site; and via a Council press release. Federal dealer records would be the records necessary for tier qualification/ landings verification. If an applicant believes that federal dealer records are incorrect or missing, then applicants could use other sources of information (e.g. joint venture receipts) to demonstrate that there is incorrect or missing data in the federal dealer records via the appeals process described below.

****NOTE: The DEIS considered how to deal with splitting histories in alternatives "4B2" and "4D." The Council chose 4D, which allows permit splitting under certain circumstances – see below.**

4B3. Confirmation of Permit History (CPH)

(The following are also the current NMFS CPH requirements for limited access programs.)

A person who does not currently own a fishing vessel, but who has owned a qualifying vessel that has sunk, been destroyed or transferred to another person, may apply for and receive a CPH during the application period for the mackerel limited access program, if the fishing and permit history of such vessel has been retained lawfully by the applicant. The attributes of the vessel that is the basis of the CPH would be used to establish the vessel baseline, unless the applicant has a vessel under contract prior to the submission of the mackerel limited access application.

To be eligible to obtain a CPH, the applicant must show that the qualifying vessel meets the eligibility requirements for the limited access permit (permit issuance and landings criteria). If the vessel sank, was destroyed, or was transferred before March 21, 2007, the permit issuance criteria may be satisfied if the vessel was issued a valid Federal mackerel permit at any time between March 21, 2006, and March 21, 2007. Issuance of a valid CPH preserves the eligibility of an applicant to apply for issuance of a limited access mackerel permit to a replacement vessel, consistent with the CPH baseline, at a subsequent time.

A CPH must be applied for in order for the applicant to preserve the fishing access and limited access eligibility of the qualifying vessel. An application for a CPH must be received by the Regional Administrator no later than 30 days prior to the end of the first full permit year in which a vessel permit cannot be issued. Failure to do so is considered abandonment of the permit. A CPH will remain valid until the fishing and permit history preserved by the CPH is used to qualify a replacement vessel for a limited access permit. Any decision regarding the issuance of a CPH for a qualifying vessel that has applied for or been issued previously a limited access permit is a final agency action (though subject to judicial review). Information requirements for the CPH application are the same as those for a limited access permit (with the exception of valid USCG Documentation or State Registration, which would be required for an active vessel). Vessel permit applicants who have been issued a CPH and who wish to obtain a vessel permit for a replacement vessel based upon the previous vessel history may do so pursuant the relevant upgrade restrictions.

4B4. Permit Appeals

An appeals procedure will be developed similar to that established for previous limited access programs. An applicant may appeal in writing to the Regional Administrator within 30 days of the denial. Any such appeal must be based on the grounds that the information used by the Regional Administrator was based on incorrect data, must be in writing, and must state the grounds for the appeal.

Appeal review. The Regional Administrator will appoint a designee who will make an initial decision on the appeal and provide an explanation in writing of the decision. The appellant may request a review of the initial appeal decision by so requesting in writing within 30 days of the notice of the initial appeal decision. If the appellant does not request a review of the initial appeal decision within 30 days, the initial appeal decision is the final administrative action of the Department of Commerce. Review of the appeal decision will be conducted by a hearing officer appointed by the Regional Administrator. The hearing officer shall make findings and a recommendation to the Regional Administrator, which shall be advisory only. Upon receiving the findings and the recommendation, the Regional Administrator will issue a final decision on the appeal and provide an explanation in writing of the decision. The Regional Administrator's decision is the final administrative action of the Department of Commerce.

A vessel denied a limited access mackerel permit may fish for mackerel, provided that the denial has been appealed, the appeal is pending, and the vessel has on board a letter from the Regional Administrator authorizing the vessel to fish under a limited access category. The Regional Administrator will issue such a letter for the pending period of any appeal. Any such interim decision is the final administrative action of the Department of Commerce on allowable fishing activity, pending a final decision on the appeal. The letter of authorization must be carried on board the vessel. If the appeal is finally denied, the Regional Administrator shall send a notice of final denial to the vessel owner; and the authorizing letter becomes invalid 5 days after receipt of the notice of denial.

4B5. Establishing Vessel Baselines

A vessel's baseline refers to those specifications (Length Overall, Gross Registered Tons, Net Tons, and Horsepower) from which any future vessel size change is measured and is based on the specifications of the vessel that was initially issued a limited access permit as of the date that the vessel applied for such a permit.

Corrections to permit baseline specifications are allowed only in conjunction with a vessel replacement or vessel upgrade; however, NERO will review a baseline correction request and advise the applicant of the result prior to a replacement or upgrade. This service is provided to allow permit holders to make business decisions based upon an accurate understanding of the permit's baseline specifications and upgrade limits, and would be evaluated based on the two criteria below.

Criterion 1: Demonstration of an Error

In order to correct the baseline specifications currently on file for a vessel, the applicant must explain why the baseline specifications are incorrect. If the applicant fails to demonstrate that NERO made an error in establishing the baseline specifications for the permit, the request will be denied. There are a number of legitimate reasons NERO may have made a mistake in establishing a baseline. Legitimate reasons include, but are not limited to, transcription errors, use of incorrect vessel permit renewal pre-print data, or the use of registered length from a Coast Guard Document rather than a vessel's LOA.

Criterion 2: Documentation of Correct Specifications

In order to correct the baseline specifications currently on file for a permit, the applicant must provide documents verifying the baseline specifications of the qualifying vessel at the time the limited access permit was first issued. If the applicant fails to provide documentation demonstrating the baseline specifications of the qualifying vessel as of the date the limited access permit was first issued, the request will be denied. In order to adequately demonstrate the correct vessel baseline specifications, the applicant must submit documentation that was created by a disinterested third party at, or before, the time of issuance of the initial limited access permit. Examples of acceptable documentation include, but are not limited to, surveys, builder's plans, or receipts from mechanics. All documents from a marine surveyor, shipyard, or mechanic must be printed on company letterhead and dated. These documents also must refer to the baseline vessel. This can be done by stating the vessel's name, permit number, state registration number, hull number, and/or Coast Guard Documentation Number (a.k.a. official number). Examples of unacceptable documentation include signed affidavits from a mechanic or a surveyor created after the time the first limited access permit was issued.

4B6. Vessel Upgrades

A vessel may be upgraded, whether through refitting or replacement, and be eligible to retain or renew a limited access permit, only if the upgrade complies with the following:

(1) The vessel's horsepower may be increased only once, whether through refitting or replacement. Such an increase may not exceed 20 percent of the horsepower of the vessel's baseline specifications, as applicable.

(2) The vessel's length, GRT, and NT may be increased only once, whether through refitting or replacement. Any increase in any of these three specifications of vessel size may not exceed 10 percent of the vessel's baseline specifications, as applicable. If any of these three specifications is increased, any increase in the other two must be performed at the same time. This type of upgrade may be done separately from an engine horsepower upgrade.

(3) If amendment 11 includes a requirement for hold capacity measurements for Tier 1 and Tier 2 vessels (Alt 4C which is preferred), any increase in hold size for these vessels may be increased only once and may not exceed 10 percent of the vessel's baseline specification.

4B7. Vessel Restrictions

Currently, the mackerel FMP includes restrictions on maximum length, size, and horsepower for vessels engaged in the mackerel fishery (165 feet, 750 GRT, and 3,000 HP). These restrictions will remain effective with the implementation of Amendment 11.

4B8. Vessel Replacements

The term vessel replacement, in general, refers to replacing an existing limited access vessel with another vessel. The consistency amendment established a restriction that requires that the same entity must own both the limited access vessel (or fishing history) that is being replaced, and the replacement vessel. In order to maintain consistency with the other regional limited access programs, this provision will be adopted for the mackerel limited access program.

4B9. Voluntary Relinquishment of Eligibility

The consistency amendment (NMFS) included a provision to provide a mechanism for a vessel owner to voluntarily exit a limited access fishery. In some circumstances, it could allow vessel owners to choose between different permits with different restrictions without being bound by the more restrictive requirement (e.g., lobster permit holders may choose to relinquish their other northeast region limited access permits to avoid being subject to the reporting requirements associated with those other permits). If a vessel's limited access permit history for the mackerel fishery is voluntarily relinquished to the Regional Administrator, no limited access permit for that fishery may be reissued or renewed based on that vessel's history or to any other vessel relying on that vessel's history.

4B10. Permit Splitting after limited access

The limited access programs in the Northeast region have all required limited access permits issued to a vessel to stay together with the vessel as a "package." They may not be split apart and distributed among other vessels by making a vessel replacement because that would increase overall fleet capacity. Therefore, all limited access permits must be treated as a "package" for the purposes of vessel replacement or for the purposes of limited access permit retention when a vessel is sold or transferred. The mackerel limited access program will adopt this restriction subsequent to implementation of Amendment 11. The permit-splitting provision states that a limited access permit not be issued to a vessel or its replacement or remain valid, if the vessel's permit or fishing history has been used to qualify another vessel for another Federal fishery.

4B11. Permit Renewals

A vessel owner must maintain the limited access permit status for an eligible vessel by renewing the permits on an annual basis or applying for issuance of a CPH. A CPH is issued to a person who does not currently own a fishing vessel, but who has legally retained the fishing and permit history of the vessel for the purpose of transferring it to a replacement vessel at a future date. Annual renewal is considered important in establishing participants who have an active interest in maintaining their ability to participate in a limited access fishery, and conversely allowing permits to lapse and be cancelled for those who do not. If a vessel's limited access permit history is cancelled through failure to renew or otherwise, no limited access permit for that fishery may be reissued or renewed based on that vessel's history or to any other vessel relying on that vessel's history. All limited access permits would be issued on an annual basis by the last day of the permit year for which the permit is required, unless a CPH has been issued (see below). Application for such permits must be received no later than 30 days before the last day of the fishing year.

4C (PREFERRED): Fish Hold Measurements

The Council modified 4C slightly from the SDEIS to indicate that vessels that are sealed by the Maine State Sealer of Weights and Measures will also be deemed to meet 4C's requirements. This modification was in response to input from SMB committee members from the New England Fishery Management Council that many vessels engaged in the Atlantic Herring fishery undergo a sealing and volume measurement from the State of Maine that would accurately document their volume.

Require a maximum volumetric maximum fish hold measurement for Tier 1 and Tier 2 vessels. To enter the mackerel limited access fishery, these vessels would be required to obtain a fish hold measurement from an individual credentialed as a Certified Marine Surveyor with a fishing specialty by the National Association of Marine Surveyors (NAMS) or from an individual credentialed as an Accredited Marine Surveyor with a fishing specialty by the Society of Accredited Marine Surveyors (SAMS). In terms of hold changes, vessels that are upgraded or replacement vessels would have to be resurveyed by a surveyor (accredited as above) unless the replacement vessel already had an appropriate certification and the documentation would have to be submitted to NMFS. Vessels that are sealed by the Maine State Sealer of Weights and Measures will also be deemed to meet this requirement.

4D (PREFERRED): History retention/Permit Splitting Exception

4D has been clarified (via a motion at the October 2010 Council meeting) that the permit requirement (mackerel permit on 3/21/2007) and landings threshold requirements would still apply to any vessel applying for a limited access permit under 4D. Subject to the restrictions in the immediately following paragraph, vessel owners who sold vessels with limited access permits and retained mackerel history in a purchase and sale agreement to qualify a different vessel for the mackerel limited access program would be allowed to do so. This would in effect supersede 4B2 if chosen. If the buyer established new history after the sale then they could also qualify based on the new history. If 4D is not selected, history retentions of this kind could not be used for qualifying and only the new history on the vessel could be used for qualifying the original vessel, unless the new owner can get a release on the retained history, through a contractual agreement between the involved parties (in effect re-joining the history). Note that existing limited access permits would not be split. Also, after initial issuance mackerel permits would be treated like other limited access permits and could not be split (all limited access permits, including limited access mackerel permits would have to be transferred as a package when a vessel is replaced or sold).

Allow scenario described immediately above to be used for qualifying if both vessels involved met the 10-10-20 rule and if the transfer took place before April

3, 2009. To take advantage of this provision, baselines would have to be provided for both vessels. If both vessels' baselines are not available then an applicant could not take advantage of this provision. These restrictions are necessary to avoid history from small vessels from being used to qualify large vessels and to avoid speculative trading of quota histories immediately prior to limited access implementation, either of which could negate the primary purpose of Am11, i.e. to cap capacity. If both vessels did not meet the 10-10-20 rule (or baseline specifications could not be documented), the retained history could not be used for qualification purposes by the individual retaining the history, but could be sold or otherwise re-transferred to the original vessel's new owner (in effect re-joining the history) for purposes of qualifying the vessel that actually made the landings. 4B10 would still apply once the limited access system is operational.

Except as provided in the exception above, consistent with previous limited access programs, no more than one vessel can qualify, at any one time, for a limited access permit or CPH based on that or another vessel's fishing and permit history, unless more than one owner has independently established fishing and permit history on the vessel during the qualification period and had either retained the fishing and permit history, as specified above, or owns the vessel at the time of initial application under Amendment 11. If more than one vessel owner claimed eligibility for a limited access permit or CPH, based on a vessel's single fishing and permit history, the NMFS Northeast Regional Administrator will determine who is entitled to qualify for the permit or CPH.

Note: In the DEIS, alternative 4B2 considered not allowing the permit splitting proposed in alternative 4D. 4B2 has been removed from the final 4B alternative because its inclusion caused confusion about the Council’s final action since the rest of 4B was adopted as preferred, but both approaches were fully considered.

4E: Permit baseline established by the vessel that created the fishing history and impacts on qualifying vessels based on permit splitting/usage of retained history.

If 4E is selected then in effect 4E replaces 4B5 with the following language: A vessel’s baseline refers to those specifications (Length Overall, Gross Registered Tons, Net Tons, and Horsepower) from which any future vessel size change is measured and is based on the specifications of the vessel that created the history for the vessel that was initially issued a limited access permit. Applying vessels would have to provide vessel specification documentation for the applying vessel and vessel specification documentation of the vessel that created the history from the period when the history was generated. This may be difficult for some applicants and would mean that if both vessels' baselines cannot be established, then only the history created on the applying vessel could count for qualification criteria. This means the retained history would not be able to be used for qualification purposes in such a case.

The easiest and most consistent way to establish a baseline for new limited access permits is to use the specifications from the vessel that is first issued the permit. Using the vessel with the landings history to create the baseline is problematic for a number of reasons:

- There could be more than one vessel that's history is involved in establishing whether a vessel qualifies for a limited access mackerel permit. If there was a transfer of limited access permits during the qualification period, the history of the open access mackerel permit would move to the new vessel in the replacement (this is how it was handled with limited access general category scallops) and two vessels would be eligible to be the baseline vessel

- Using the history qualifying vessel's baseline could also result in incompatible baselines on the vessel to which the permit is issued. For example, the vessel issued the permit will most likely already have a suite of permits associated with it. The new baseline, resulting from specifications that could be vastly different than the vessel issued the mackerel permit, could either restrict the baseline for the entire suite of permits on the new vessel or could be so much larger than the other permits that it wouldn't matter anyway (since when a vessel has multiple baselines, MNFS applies the most restrictive to the suite of permits to future replacements).

Using the vessel that is first issued the limited access permit would be consistent with the way most other limited access baselines are established and would greatly decrease the administrative burden on NOAA's National Marine Fisheries Service staff.

4F (PREFERRED): Multiple Vessels with One Owner

If an individual owns more than one vessel, but only one of those vessels has the landings history required in order to be eligible, that individual can replace the vessel that is determined to be eligible with one of his/her other vessels, but may only use the eligibility on one vessel and the replacement vessel would have to be within the 10-10-20 rule compared to the original vessel. Baseline specifications would have to be documented for each vessel.

4G: Additional Monitoring of Tier 3 Vessels

Because the Tier 3 proposed in alternatives 1C and 1D (Preferred) may contain many vessels with a relatively small cap and a relatively high trip limit, several Sub-Options for additional Tier 3 reporting were considered:

> **4G1**: This measure would require Tier 3 vessels to notify NMFS prior to the start of each trip via either VMS or IVR. Vessel representatives would need to call-in less than 1 hour prior to leaving port to begin a trip, and call in when the vessel returns to port to end the trip. The vessel would also be required to call in to notify NMFS if a previously declared trip is cancelled.
>
> **4G2 (PREFERRED)**: This measure would require Tier 3 vessels to submit VTRs on a weekly basis (versus the current monthly requirement). This measure could facilitate timely cross-checking between VTRs and weekly dealer reports. For the 2010 fishing year, there were 2,152 vessels that possessed open access Atlantic mackerel permits. Of those vessels, 1,992 vessels also possess NE Multispecies permits. Thus, because all vessels that possess NE multispecies permits are required to submit weekly VTR reports, over 90% of existing Atlantic mackerel permit holders are already subject to this requirement. If vessels have to report more frequently in the same format for some other permit then the weekly VTR reporting requirement would not apply (this slight modification was made at the October 2010 Council meeting).
>
> **4G3**: This measure would require Tier 3 vessels to submit landing reports via IVR on a weekly basis. This measure could facilitate timely cross-checking between IVRs and weekly dealer reports.

5.5 <u>Alternative Set 5</u>: Alternatives to update the EFH designations (maps and text descriptions) in the MSB FMP.

<u>5.5.1 Statement of Problem/Need for Action</u>

The MSB FMP is overdue for a review and updating of its EFH designations. EFH designations are used by NMFS when consulting with other agencies on federal activities, and up-to-date designations lead to more effective consultation and therefore more effective protection of EFH. Given the pelagic habits of most MSB FMP species, fishing gear impacts are not as significant a concern. Readers can consult the EFH final rule for additional details: http://www.nmfs.noaa.gov/habitat/habitatprotection/efh/stat_reg_index.htm.

<u>5.5.2 General Rationale</u>

The alternatives to update EFH designations to meet NMFS implementing regulations for MSA's EFH provisions. The methodology was developed by the NEFSC in consultation with NERO Habitat and MAMFC staff and is based on the best available scientific information. See 5.5.3.1 below for details.

<u>5.5.3 Background</u>

Alternative Set 5 considers options to update the textual descriptions and geographical identifications of EFH for all life stages of mackerel, *Loligo*, *Illex*, and butterfish. *Loligo* egg EFH was established in 2008 but none of the other species/life stages have been updated since 1998 (Amendment 8). Section 600.815(a)(9) of the final rule to revise the regulations implementing the EFH provisions of the MSA (the “EFH Final Rule”) states that Councils should conduct such reviews as recommended by the Secretary, but at least once every five years. Thus, the Council considered in <u>Alternative Set 5</u> several alternatives for mapping the geographic extent of EFH for each of the four managed species and life stage (S/LS) . The differences between Alternatives 5B-5E are the areas used to map EFH based on cumulative geometric mean catches in NEFSC bottom trawl surveys. If only the areas with the highest relative abundance are selected, a smaller, but perhaps more critical, total area results. If areas that represent a wider range of relative abundance are selected, the result is a larger total designated EFH area for each species/lifestage.

Data sources and designation criteria used to create the status quo EFH maps for each species and life history stage are summarized in Table 26. The status quo EFH maps for egg and larval life stages (only available for Atlantic butterfish and Atlantic mackerel) consist of the area of ten-minute squares (TNMS) which comprise 75% of the cumulative mean catch (mean density per standardized volume of water sampled) based on monthly MARMAP egg and larval surveys. Status quo EFH maps for juvenile and adult life stages were based on the arithmetic mean densities (mean number per standardized tow) of the combined NEFSC spring and fall surveys, by TNMS of latitude, and consisted of the area of TNMS encompassing 75% of the cumulative mean catch. The status quo maps also include estuarine habitat based on ELMR data where the species/life stage was listed as “common” or “abundant”. With the exception of data from the Massachusetts Division of Marine Fisheries bottom trawl surveys, no state survey data were included in the status quo EFH designations because the state survey data were incomplete and were not received in a standardized format which could be modified in a timely manner to produce the EFH maps. Status quo EFH maps were generated by computing the arithmetic mean densities for each ten-minute square, then ranking the mean densities for those squares in descending order (from highest catch to lowest catch). Next, starting with the first TNMS, the percentage made up by each TNMS of the total mean catch rate (“the catch”) summed over all TNMS, was calculated as a cumulative percentage. Thus, the TNMS that represented 75% of the cumulative mean catch consists of the fewest TNMS that account for 75% of the total mean catch.

The EFH Final Rule also requires: 1) identification of non-fishing related activities that may adversely affect EFH, 2) habitat conservation and enhancement recommendations (other than measures to minimize the impacts of fishing on *Loligo* egg EFH), 3) revisions to the description of MSB prey species and their habitats, and 4) a list of habitat-related research and information needs. This information will be contained in the Habitat section of this document.

The EFH Final Rule states that "a complete review of all EFH information should be conducted as recommended by the Secretary, but at least once every 5 years." The EFH information for MSB fisheries has generally not been updated since the original analysis and designations were done for Amendment 8. Amendment 8 was finished in 1998, so it has been approximately 10 years since a complete review. That said, the EFH for *Loligo* eggs was just established in Amendment 9 (2008). While no new information is available for *Loligo* egg EFH, reviews of existing literature suggested that some minor edits to the text description of *Loligo* egg EHF might be warranted. Accordingly, Am11 reviews and revises the EFH text descriptions (for all MSB species) and maps (for all but *Loligo* eggs) based updated trawl survey data and other available information on habitat requirements (e.g., revised EFH source documents, primary literature) for the following:

Loligo	: eggs (just text), pre-recruits, recruits
Illex	: eggs, pre-recruits, recruits
Mackerel	: eggs, larvae, juveniles and adults
Butterfish	: eggs, larvae, juveniles and adults

As explained in the Final Rule, EFH maps and text descriptions can be based on different “levels” of information, from the simplest (level 1: presence/absence) to the most complex (level 4: production rates by habitat). Level 1 information produces low resolution maps that include larger areas than higher resolution maps that more explicitly identify essential habitat types. All the information available for MSB in this amendment was either level 1 or level 2 (habitat-related densities or relative abundance). When there is an option, EFH designations should make use of the highest level of information that is available (EFH Final Rule Section 600.815 a(1)(iii)(B)), but they can also be based on a combination of information types of variable “quality.” If there is level 2 survey data available for certain portions of the range of a species and life stage (e.g., the continental shelf) and level 1 data for other areas (e.g., areas within the range of the species and life stage that are not surveyed, but where it is known to inhabit benthic habitats down to a certain maximum depth), then both data “layers” should be included in the same map. Otherwise the map would not depict the total geographic extent of EFH.

5.5.3.1 Methods used to update EFH designations

5.5.3.1.1 Background

Citations for the original and updated EFH source documents for each of the four managed species are provided in Table 27. EFH maps were produced using ArcGIS 9.2 software (ESRI©). The maps show the geographical extents of EFH for each managed species and life stage with the exception of *Illex* eggs and *Illex* and *Loligo* paralarvae (reasons for exceptions are explained below). The text descriptions provide information on the physical characteristics of EFH (e.g., depth and temperature) that generally exist within the areas mapped as EFH. All status quo and updates considered (text and maps) are provided later in this Section.

Data Timelines

ELMR utilized data from 1985-1994. MARMAP utilized data from 1977 to 1987. The NEFSC trawl analysis utilizes data from 1976 to 2007.

5.5.3.1.2 Mapping methodology

5.5.3.1.2.1. Eggs and larvae

EFH maps of the eggs and larvae of Atlantic mackerel and Atlantic butterfish were produced using relative abundance data collected during the 1977-1987 NEFSC Marine Resources Monitoring and Assessment Program (MARMAP) surveys of the northeastern continental shelf (Sibunka and Silverman 1984, 1989). The spatial extent of the MARMAP data ranges from the Gulf of Maine to Cape Hatteras, North Carolina. The data were mapped by ten-minute square (TNMS) as cumulative percentages (75, 90, 95, and 100%) of the back-transformed mean densities (representing a pseudo-geometric mean), where the mean density per TNMS ($\bar{d}_j$) was computed as:

$$\bar{d}_j = \sum_{i=1}^{n_j} \frac{(\ln(d_i)+1)_j}{n_j}$$

where $(\ln(d_i)+1)_j$ is the log-transformed density plus 1 at station *i* for TNMS *j* and n_j is the number of stations sampled within each TNMS. Mean densities were not computed for TNMS where fewer than four tows were conducted during the time series.

There are no MARMAP data available that can be used to map the distribution of *Loligo pealeii* and *Illex illecebrosus* paralarvae and a literature search did not result in the identification of such data from any other source. The difficulties in distinguishing between *I. illecebrosus* paralarvae and other congeneric species (Roper and Lu 1978) further complicates accurate mapping of this life history stage. However, EFH for *Illex* eggs was mapped based on the use of mated females as a proxy for *Illex* eggs. Statolith-based age data indicate that *I. illecebrosus* spawns throughout most of the year (Hendrickson 2004; Dawe and Beck 1997). The species is a semelparous, terminal spawner whereby spawning and death occur within several days of mating (O'Dor *et al*. 1980). Therefore, the relative abundance of mated females was considered as a proxy for *Illex* egg EFH based on the distribution map and habitat characteristics presented in Hendrickson (2004). The source of the relative abundance data is an *Illex* survey conducted in May 2000 using a stratified random design and which occurred within a subset of strata sampled during the seasonal NEFSC bottom trawl surveys, but which utilized commercial fishing gear and a standardized towing protocol.

Qualitative frequency of occurrence data (i.e., common, abundant, very abundant) from the Estuarine Living Marine Resources Program (ELMR) were used to describe EFH within coastal estuaries and embayments for the four life history stages of mackerel and butterfish. There are no ELMR data for *Loligo* or *Illex*. The maps of these areas are the same as those presented in Amendment 8 (MAFMC 1998).

5.5.3.1.2.2. Juveniles and adults

The updated EFH maps of the juvenile and adult life history stages contain relative abundance data from spring and fall research bottom trawl surveys conducted by the NEFSC and percent frequency of occurrence data from state surveys conducted at various time periods in inshore, state waters. Size-specific, geo-referenced catch data from other research surveys and the scientific literature were also examined in order to update EFH in areas deeper than 366 m because such areas are not sampled during NEFSC surveys. Such data were only found for adult *Illex* catches and were added to the respective EFH map. A description of the NEFSC survey design and sampling methods is described in Reid *et al*. (1999). The sources and characteristics of the data used to update the EFH maps are summarized in Table 28 and a summary of the state surveys used to map EFH within state waters is presented in Table 29.

The same method used to generate EFH maps of Atlantic mackerel and butterfish eggs and larvae (described above in Section 5.5.4.1.2.1.) was used to map cumulative percent mean densities of juveniles and adults caught during NEFSC spring and fall research bottom trawl surveys. The NEFSC survey time series was extended to include data for 1998-2007 and the maps include inshore EFH based on state research bottom trawls surveys which occur during time periods and in inshore areas that are not covered by the NEFSC spring and fall surveys. Due to differences in survey methodologies and the lack of gear and vessel conversion factors between various state surveys and state and NEFSC surveys, the state data were mapped as percent frequency of occurrence whereby TNMS with ≥ 10% occurrence for a particular life history stage and species were considered as EFH and TNMS with < 10% occurrence were not. For TNMS where there is overlap in the sampling coverages of the NEFSC and state surveys, the

NEFSC survey data was given precedent because it is more quantitative. However, state survey data were given precedent over NEFSC survey data for EFH maps of *Illex* and *Loligo* juveniles and adults because, unlike the state surveys, NEFSC surveys do not occur during the months when these species are most abundant in nearshore waters.

The geographical extent of EFH for juveniles and adults of the two squid species are under-estimated in inshore, state waters ranging from Delaware Bay and further south either because length data are not collected for these species or they are not identified to species due to the difficulty of distinguishing between congener species in this region.

5.5.3.1.2.3 Map Visualizations

Catch data from all available research survey sources are displayed on a single EFH map for each species and life history stage in order to visualize EFH data from all data sources combined and to facilitate comparisons between cumulative percentage categories for NEFSC survey data. For each map, three separate color schemes were used to differentiate between the three different methods used to determine EFH. Within state waters, the data are displayed as percent frequency of occurrence whereby red TNMS represent EFH (≥ 10% frequency of occurrence) and orange squares (< 10% frequency of occurrence) do not. The four cumulative percentage categories (i.e., 75, 90, 95 and 100%) derived using NEFSC survey data (extending from state waters to 366 m) are displayed as four shades of blue ranging in decreasing order of cumulative relative abundance, from dark blue (representing the area of highest (75%) cumulative relative abundance) to light blue (indicating the 100% category representing all areas of EFH combined). The relative abundance categories are cumulative, so the 90% category consists of the combined set of TNMS for both 75% category and the 90% category. Likewise, the 95% category consists of the combined set of TNMS for the 75, 90 and 95% categories. The presence of a particular species and life history stage in waters deeper than 366 m (i.e., adult *Illex* EFH) is displayed as yellow circles outlined in black indicating the station locations where one or more individuals of the species/life history stage was caught.

5.5.3.1.3 Methods used to update EFH descriptions

Revised text descriptions were written based on available information relating to the physical habitat characteristics for each species and life stage. Changes to the status quo text descriptions were made after re-examining graphical data, summary tables, and text in the original EFH source documents and incorporating any new information that was included in revisions to the original documents (Table 27), or in other published scientific reports or journal articles. Collette and Klein-MacPhee’s Fishes of the Gulf of Maine (2002) was a valuable resource for Atlantic mackerel and Atlantic butterfish; two species for which updated EFH source documents do not exist. Information on primary prey types consumed by larvae, juveniles, and adults was added to the text descriptions and any relevant information relating to habitat features associated with spawning was added to the adult EFH descriptions.

Information on ranges of depth, temperature, and salinity where individual species and life stages (S/LS) were most commonly caught in egg and larval or bottom trawl surveys was evaluated for use in the text descriptions. Aggregated state trawl survey data and NEFSC egg and larval survey (MARMAP) data were available in graphical form in the EFH source documents and in graphical and tabular form in several inshore survey reports. Other relevant information used in the text descriptions was extracted from the EFH source documents and from Collete and Klein-MacPhee (2002).

"Preferred" depth, temperature, and salinity ranges were determined by visually analyzing the graphs of these survey variables that are contained in the existing EFH source documents . For any given S/LS, the percentage of the catch (in numbers), the percentage of positive tows, and the percentage of stations sampled within discrete intervals of bottom depth, temperature, and – in some cases – salinity, were used to generally describe the physical characteristics of EFH (Tables 30-33). This was done in a consistent, standardized way as illustrated in the example shown in Figure 3. In this example, the depth range is defined as the lower and upper end points of the depth intervals where percent catch exceeds percent stations (i.e., 30 to 80 meters), which is considered as the depth range within which this S/LS was most commonly caught in the survey area and during the survey time period that was analyzed. Datasets with low sample sizes ("noisy" data) were not used. This information conforms to the "Level 2" definition of relative abundance habitat information in the EFH Final Rule (Section 600.815(a)(1)(iii)) which is preferred over "Level 1" presence/absence EFH information for use in FMPs.

The juveniles and adults of all four managed species are semi-pelagic, schooling species that are diurnal, vertical migrators. *Loligo* recruits are also known to rest on the bottom during the daytime (Hanlon et al 1983). Therefore, some of the habitat information derived from the NEFSC and state bottom surveys, which sample the lower portion of the water column, may under-estimate EFH for these highly mobile, semi-pelagic species. For this reason, additional information available in the EFH source documents and in other sources was also included in the text descriptions when available.

The following sections describe in more detail how the text descriptions for each species were developed. The EFH designation alternatives (text and maps) are described in Section 5.5.4.

5.5.3.1.3.1 Atlantic mackerel

Text descriptions for eggs and larvae were based on ranges of average water column temperature data and bottom depths from egg and larval surveys on the continental shelf (surface to 15 m for eggs and surface to 200 m for larvae), see Table 30. The juvenile EFH description utilized depth data from trawl survey data on the shelf and a broadly-defined temperature range (5-20°C, see Colette 2002) that probably defines this feature of the pelagic environment more accurately than the bottom water temperatures derived from the trawl survey. Water column temperatures, especially in coastal waters where mackerel are abundant in the warmer months, can be expected to be well above 15°C. Temperatures associated with spawning (>7°C, peak between 9 and 14°C) and prey information were taken from Studholme et al. (1999).

5.5.3.1.3.2 Atlantic butterfish

Text descriptions for eggs and larvae were based on ranges of average water column (surface to 200 m) temperature data and bottom depths from egg and larval surveys on the continental shelf (Table 31). The juvenile and adult EFH descriptions utilized depth, bottom temperature, and salinity data from trawl surveys on the continental shelf from North Carolina to the Gulf of Maine and from inshore trawl surveys in Massachusetts, Hudson-Raritan Bay, Delaware Bay, and the lower Chesapeake Bay (VIMS survey). Information on spawning temperature and prey was taken from Cross *et al*. (1999).

5.5.3.1.3.3. Longfin inshore squid (*Loligo*)

EFH for eggs was designated in Amendment 9 to the Squid, Mackerel, and Butterfish FMP (MAFMC 2008). Although no new information is available, the text was modified slightly to more accurately describe substrates where eggs have been observed and to make the format more consistent with the new descriptions for the other life stages. *Loligo pealeii* paralarvae are planktonic and specimens ≤ 15 mm dorsal mantle length have been collected in coastal waters of the Mid-Atlantic Bight near the surface at salinities ranging between 31.5 and 34.0 ppt and surface water temperatures of 10°-25° C (Vecchione 1981). Paralarvae have also been collected further north in the Gulf of Maine and on Georges Bank, but little is known about the characteristics of their pelagic habitat or their distribution (Jacobson 2005). Since there was no information available for mapping their distribution, it was not possible to designate EFH for *Loligo* paralarvae. Text descriptions for pre-recruits were based on depth, bottom temperature, and salinity ranges derived from NEFSC bottom trawl surveys on the continental shelf north of Cape Hatteras, in Massachusetts coastal waters, and in Hudson-Raritan Bay (Table 32). Data for recruits was derived from the same surveys, as well as trawl surveys in Narragansett Bay, Delaware Bay, and the lower part of Chesapeake Bay. *Loligo* recruits are also known to rest on the bottom during the daytime (Hanlon et al 1983). Information relating to prey and spawning habitat was obtained from Jacobson (2005).

5.5.3.1.3.4. Northern shortfin squid (*Illex*)

EFH for eggs was described using information from Hendrickson and Holmes (2004) and Hendrickson (2004). *Illex illecebrosus* paralarvae have been collected on the outer continental shelf and in the Gulf Stream south of Cape Hatteras and as far north as the Grand Banks, but south of New Jersey there are three *Illex* species and paralarval species identification is problematic (Hendrickson and Holmes 2004). For this reason, and because there was no distributional data that could be mapped, EFH for *Illex* paralarvae was not designated. Text descriptions for pre-recruits and recruits were based on depth, bottom temperature, and salinity ranges derived from NEFSC bottom trawl surveys on the continental shelf, including the area between Cape Hatteras and northern South Carolina, and (recruits only) the fall Massachusetts inshore survey (Table 33). Recruits have been captured south of Cape Hatteras, NC at depths ranging from the surface to 1000 meters or more and at temperatures of -0.5 to 27.3°C (Hendrickson and Holmes 2004). Additional information included in the text descriptions for pre-recruits and recruits was obtained from Hendrickson and Holmes (2004), Roper and Lu (1979), and from 2001 NEFSC monkfish and Bear Seamount deep-water trawl surveys south of Georges Bank. Felley and Vecchione (1995) and Vecchione (2001) reported Illex resting behavior on the bottom.

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Table 26. Data sources used to produce status quo maps for the life history stages of Illex, Loligo, Atlantic mackerel, and Atlantic butterfish.

Species	Life History Stage	[1]Cumulative Percent "Catch"	NEFSC bottom trawl surveys	MARMAP egg and larval surveys	[2]ELMR 1985-1994	Other Data Sources
Atlantic mackerel	Eggs,Larvae	75%		1977-1987	(common+)	
	Juveniles (≤ 25 cm FL) Adults (≥ 26 cm FL)	75%	1963-1997		(common+)	
Atlantic butterfish	Eggs,Larvae	75%		1977-1987	(common+)	
	Juveniles (≤ 11 cm FL) Adults (≥ 12 cm FL)	75%	1963-1997		(common+)	
Loligo	Eggs	N/A				[3]Hatfield and Cadrin (2002)
	Pre-recruits (≤ 8 cm DML)	75%	1967-1997		No data	
	Recruits (≥ 9cm DML)	75%	1967-1997		No data	
Illex	Pre-recruits (≤ 10 cm DML)	75%	1967-1997		No data	
	Recruits (≥ 11cm DML)	75%	1967-1997		No data	

[1] EFH for Atlantic mackerel, butterfish and the two species of squid was designated as "the area which encompasses the top 75% of the catch"
[2] ELMR is an acronym for NOAA's Estuarine Living Marine Resources Program (see Jury et al. 1994 and Stone et al. 1994)
[3] Based on the locations of incidental catches of *Loligo pealeii* egg mops in the *Loligo pealeii* bottom trawl fishery

Table 27. Citations for the original and updated EFH source documents for Illex, Loligo, Atlantic mackerel and Atlantic butterfish.

Species	Original Document	Updated Document
Atlantic mackerel	Studholme *et al*. (1999)	None
Atlantic butterfish	Cross *et al*. (1999)	None
Loligo pealeii	Cargnelli *et al*. (1999a)	Jacobson (2005)
Illex illecebrosus	Cargnelli *et al*. (1999b)	Hendrickson and Holmes (2004)

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Table 28. Characteristics of data used to update EFH maps for the major life history stages of Illex, Loligo, Atlantic mackerel, and Atlantic butterfish.

Species	[1]Life History Stage	[2]MARMAP egg and larval surveys (number per 10 m^2) 1977-1987	[3]ELMR 1985-1994	Other Data Sources	NEFSC bottom trawl surveys (number per standardized tow)	State bottom trawl surveys (number per standardized tow)
Atlantic mackerel	E,L	No new data	No new data			
	J (≤ 25 cm FL) A (≥ 26 cm FL)		No new data		Spring and fall 1976-2007	Varies by state, updated through 2007
Atlantic butterfish	E,L	No new data	No new data			
	J (≤ 11 cm FL) A (≥ 12 cm FL)		No new data		Spring and fall 1976-2007	Varies by state, updated through 2007
Loligo pealeii	E	No data available	No data available			
	L	No data available	No data available			
	P (≤ 8 cm DML) R (≥ 9 cm DML)		No data		Spring and fall 1976-2007 [5] Adjusted for diel catchability effects	Varies by state, updated through 2007
Illex illecebrosus	E	No data available	No data available	[4]Hendrickson (2004)		
	L	No data available	No data available			
	P (≤ 10 cm DML) R (≥ 11 cm DML)		No data	NEFSC 2001 and 2004 monkfish and Bear Seamount surveys, and Lu and Roper (1979)	Fall 1976-2007 [6] Adjusted for vessel catchability effects	Varies by state, updated through 2007

[1] Life history stages include: E=eggs, L=larvae (or paralarvae for squid species) , J=juveniles, A=adults, P = pre-recruits, and R = recruits.
[2] MARMAP is an acronym for Marine Resources Monitoring and Assessment Program
[3] ELMR is an acronym for NOAA's Estuarine Living Marine Resources Program
[4] Based on the locations of mated females caught during an *Illex illecebrosus* bottom trawl survey in May 2000
[5] Refer to Brodziak and Hendrickson (1999) and Hatfield and Cadrin (2002).
[6] Refer to Hendrickson *et al*. (1996).

Table 29. Summary of state surveys used to determine extent of EFH for species in inshore, state waters.

State	Survey Location	Gear Type	Mesh Size	Survey Design	Headrope (ft)	Footrope (ft)	Tow Duration/Speed	Time of Year	Years Mapped
Connecticut	Long Island Sound	Bottom Trawl	4 inch with 2 inch cod end, no liner	Stratified random	30	46	30 min@ 3.5 kts	Spring (April–June), Summer (July–August), Fall (Sept–Oct), and November	1987–2007
Delaware (16ft Trawl)	Delaware Bay and Delaware River	Bottom Trawl	1.5 inch, 0.5 inch liner	Fixed	16	21	10 min @ minimum hp	April - October (monthly)	1980–2007
Delaware (30ft Trawl)	Delaware Bay	Bottom Trawl	2 inch	Fixed	30	40	20-30 min @ minimum hp	March - December (monthly)	1966-2007
Maine	ME/NH Coastal Waters	Bottom Trawl	2 inch with 1 inch cod end liner	Stratified random plus fixed stations	60	70	20 min @ 2.2-2.3kts	Spring & Fall	Fall 2000-Spring 2007
Massachusetts	Coastal	Bottom Trawl	1.25 inch mesh, 0.25 inch liner	Stratified random	39	51	20 min @2.5kn	Spring (May) Fall (Sept)	1978-2005
New Jersey	Delaware Bay	Bottom Trawl	1.5 inch with 0.5 inch liner	Fixed	16	N/A	20 min @ 2.1kts	Monthly, April - October	1991-2007
New Jersey	Coastal Waters	Bottom Trawl	4.7/3 inches, 0.25 inch bar mesh cod end liner	Stratified random	82	100	20 min	5 times a year	1988-2007
North Carolina	Pamlico Sound	Bottom Trawl (2)	0.9 inch bar mesh, 0.75 in cod end	Stratified random	30		20 min @ 2.5 kts	June and Sept (also March and Dec prior to 1991)	1973-2007
Rhode Island	Narragansett Bay	Bottom Trawl	1 inch cod end, 0.25 inch liner	Fixed	39	54	20 min @2.5kn	Monthly	1990-2007
Rhode Island	Coastal	Bottom Trawl	1 inch cod end, 0.25 inch liner	Fixed and stratified random	39	54	20 min @2.5kn	Spring and Fall	1983-2007
Virgina	Lower Chesapeake Bay and major tributaries	Bottom Trawl	1.5-inch, 0.25 inch liner in cod end	Fixed and stratified random	30		5 min @ 2.5kts	Monthly	1988-2007
SEAMAP	Cape Hatteras, NC to Cape Canaveral, FL	Shrimp Bottom Trawl	1.625 inch codend with 4 inch cover	Stratified random	86	89	20 min @ 2.5 kts	Spring (Apr-May) Summer (July) Fall (Oct)	1990-2007

Table 30. Level 2 habitat information for Atlantic mackerel derived from survey data

Life Stage	Depth (m)	Temperature (ºC)			Source
		Surface (0-15m)	Mid-water (0-200m)	Bottom	
Eggs	**1-100**	**6.5-12.5**			Studholme et al 1999, Fig. 3, 1978-1987 NEFSC MARMAP survey, April-June only
Larvae (<13 mm)	**21-100**		**5.5-11.5**		Studholme et al 1999, Fig. 4, 1978-1987 NEFSC MARMAP survey, May-July only
Juveniles (≤25 cm)	**11-110**			5.5-15.5	Studholme et al 1999, Fig. 5, 1963-1997 NEFSC trawl survey, all seasons
Adults (≥26 cm)	**1-170**			4.5-14.5	Studholme et al 1999, Fig. 8, 1963-1997 NEFSC trawl survey, all seasons

Note: Data in bold used in EFH text description

Table 31. Level 2 habitat information for Atlantic butterfish derived from survey data

Life Stage	Depth (m)	Temperature (ºC)		Salinity (ppt)	Source
		Mid-water (0-200m)	Bottom		
Eggs	**1-1500**	**6.5-21.5**			Cross et al 1999, Fig. 4, 1978-1987 NEFSC MARMAP survey, May-Aug only
Larvae	**41-350**	**8.5-21.5**			Cross et al 1999, Fig. 5, 1978-1987 NEFSC MARMAP survey, May-Sept only
Juveniles (≤11 cm)	1-**280**		**6.5**-21.5		Cross et al 1999, Fig. 6, 1963-1997 NEFSC trawl survey, all seasons
	min **10**		9.5-21.5		Cross et al. 1999, Fig. 7, 1978-1996 MA spring and fall trawl surveys
	min 30		13.5-26.5	18.5-31.5	Cross et al. 1999, Fig. 8, 1992-1997 Hudson-Raritan Bay trawl surveys, all months combined
	min 9		19-**27**	22-32	Geer 2002, Fig. 35, 1988-1999 VIMS trawl survey, all months
	min 13		12-22	25-33	Morse 2000, Tables 1,3,5, 1966-1997 Delaware Bay trawl survey, all months
Adults (≥12 cm)	**11-250**		**4.5**-23.5		Cross et al 1999, Fig. 6, 1963-1997 NEFSC trawl survey, all seasons
	min 10		9.5-19.5		Cross et al. 1999, Fig. 7, 1978-1996 MA spring and fall trawl surveys
	min 30		10.5-24.5	21.5-29.5	Cross et al. 1999, Fig. 8, 1992-1997 Hudson-Raritan Bay trawl surveys, all months combined
	min 11		18.5-**27.5**	21-31	Geer 2002, Fig. 36, 1988-1999 VIMS trawl survey, all months
	min 7		13-23	25-33	Morse 2000, Tables 2,4,6, 1966-1997 Delaware Bay trawl survey, all months

Note: Data in bold used in EFH text description

Table 32. Level 2 habitat information for longfin inshore squid derived from survey data

Life Stage	Depth (m)	Bottom Temperature (°C)	Salinity (ppt)	Source
Pre-recruits (≤8 cm)	11-**160**	**8.5**-22.5	31.5-**36.5**	Jacobson 2005, Fig. 13, 1968-2003 NEFSC trawl survey, spring and fall
	6-20	9.5-20.5		Jacobson 2005, Fig. 14, 1978-2003 MA trawl survey, spring and fall
	8-20	15.5-**24.5**	**28.5**-32.5	Jacobson 2005, Fig. 16, 1992-1997 Hudson-Raritan Bay trawl survey, all months combined
Recruits (≥9 cm)	31-**200**	**8.5**-19.5	33.5-**36.5**	Jacobson 2005, Fig. 17, 1968-2003 NEFSC trawl survey, spring and fall
	6-35	10.5-22.5		Jacobson 2005, Fig. 18, 1978-2003 MA trawl survey, spring and fall
	min 17	8.5-21.5		Jacobson 2005, Fig. 19, 1990-1996 Narragansett Bay (RI) trawl survey, all seasons
	min 9	10.5-23.5	28.5-33.5	Jacobson 2005, Fig. 20, 1992-1997 Hudson-Raritan Bay trawl survey, all months combined
	13-17	12-22	29-32	Morse 2000, Tables 2,4,6, 1966-1997 Delaware Bay trawl survey, all months
	8-18	10-**24**	**24**-32	Geer 2002, Fig. 85, 1988-1999 VIMS trawl survey, all months

Note: Data in bold used in EFH text description

Table 33. Level 2 habitat information for northern shortfin squid derived from survey data

Life Stage	Depth (m)	Bottom Temperature (°C)	Salinity (ppt)	Source
Eggs	**133-377**	**12.5-26**		Hendrickson (2004)
Pre-recruits (≤10 cm)	**41-400**	**9.5-16.5**		Hendrickson and Holmes 2004, Fig. 10, 1967-2003 NEFSC trawl survey, spring and fall
			34.5-36.5	Hendrickson and Holmes 2004, Fig. 10, 1991-2003 NEFSC trawl survey, spring and fall
Recruits (≥11 cm)	71-**400**	9.5-**14.5**		Hendrickson and Holmes 2004, Fig. 12, 1967-2003 NEFSC trawl survey, spring and fall
			34.5-36.5	Hendrickson and Holmes 2004, Fig. 12, 1991-2003 NEFSC trawl survey, spring and fall
	min **41**	**4.5**-11.5		Hendrickson and Holmes 2004, Fig. 13, 1978-2003 MA trawl survey, fall only

Note: Data in bold used in EFH text description

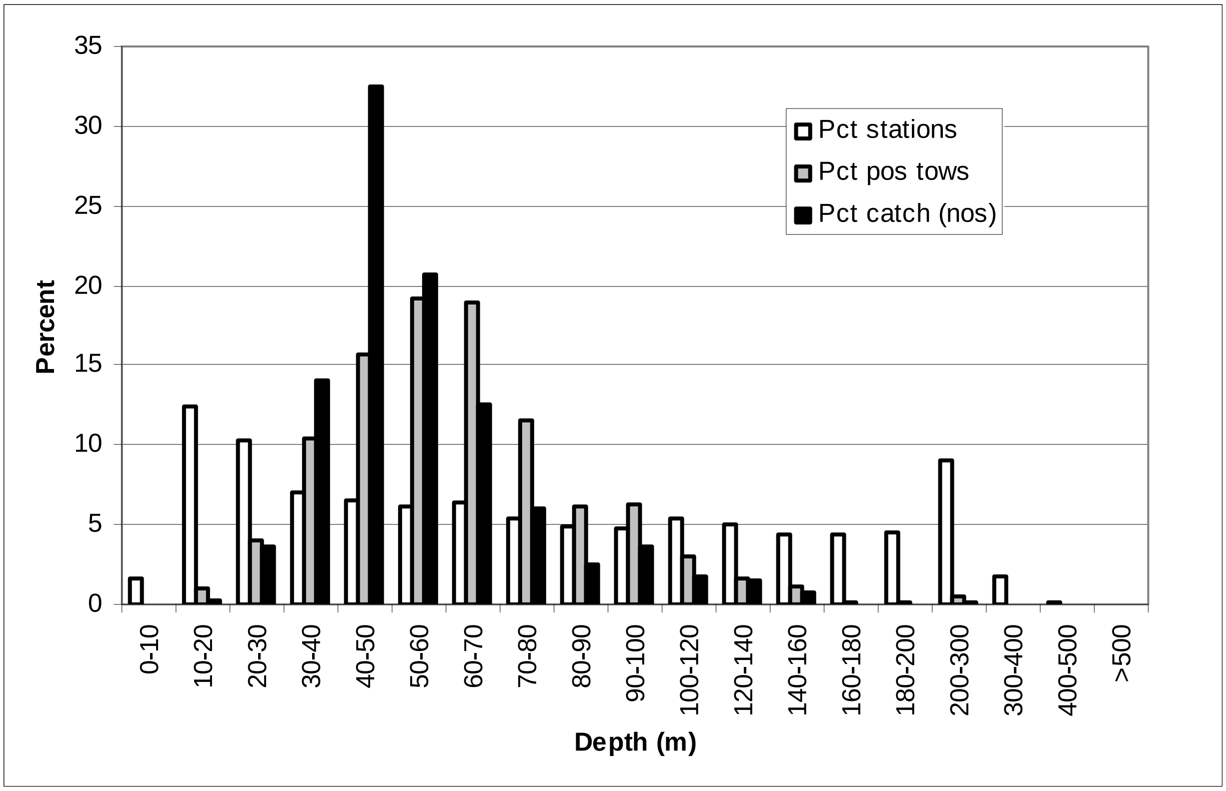

Figure 3. Example bar chart showing method used to define preferred depth, temperature, and salinity ranges from survey data

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5.5.4 Management Alternatives

Per implementing regulations for MSA's EFH provisions, the following alternatives use updated data and methodologies to identify EFH for each MSB species and life stage as described below. Alternatives 5B-5E describe various options for mapping EFH within the management area based on research bottom trawl surveys and distribution information contained in the scientific literature. The differences between Alternatives 5B-5E are the areas used to map EFH based on cumulative geometric mean catches in NEFSC bottom trawl surveys.

Alternatives: **5A**: no action (no updates/revisions made to EFH descriptions/identifications). The current text descriptions are provided below (pages) as are the current map designations (pages).

5B: designate as EFH the area associated with **75%** of the cumulative geometric mean catches for each MSB species/life stage except use **90%** for overfished species (currently butterfish), based on Northeast Fishery Science Center (NEFSC) trawl and Marine Resources Monitoring Assessment and Prediction Program (MARMAP) data, also including: inshore areas where state research bottom trawl surveys indicate ≥ 10% frequency of occurrence; Estuarine Living Marine Resources (ELMR) areas where the species/life stage is listed as "common" or "abundant"; and catch data from other research surveys and/or the scientific literature for areas not sampled during NEFSC and state surveys. The revised textual descriptions of EFH, as described in Section 5.5.4, together with the revised EFH maps, comprise the EFH designation for each of the managed species/life stages.

5C (PREFERRED) : designate as EFH the area associated with **90%** of the cumulative geometric mean catches for each MSB species/lifestage except use **95%** for unknown or overfished species (currently butterfish, mackerel, *Illex*), based on Northeast Fishery Science Center (NEFSC) trawl and MARMAP data, also including: inshore areas where state research bottom trawl surveys indicate ≥ 10% frequency of occurrence; Estuarine Living Marine Resources (ELMR) areas where the species/life stage is listed as "common" or "abundant"; and catch data from other research surveys and/or the scientific literature for areas not sampled during NEFSC and state surveys. The revised textual descriptions of EFH, as described in Section 5.5.4, together with the revised EFH maps, comprise the EFH designation for each of the managed species/life stages.

5D: designate as EFH the area associated with **95%** of the cumulative geometric mean catches for each MSB species/lifestage except use **100%** for overfished species (currently butterfish), based on Northeast Fishery Science Center (NEFSC) trawl and MARMAP data, also including: inshore areas where state research bottom trawl surveys indicate ≥ 10% frequency of occurrence; Estuarine Living Marine Resources (ELMR) areas where the species/life stage is listed as "common" or "abundant"; and catch data from other research surveys and/or the scientific literature for areas not sampled during NEFSC and state surveys. The revised textual descriptions of EFH, as described in Section 5.5.4, together with the revised EFH maps, comprise the EFH designation for each of the managed species/life stages.

5E: designate as EFH the area associated with **100%** of the cumulative geometric mean catch for each MSB species/lifestage based on Northeast Fishery Science Center (NEFSC) trawl and MARMAP data, also including: inshore areas where state research bottom trawl surveys indicate ≥ 10% frequency of occurrence; Estuarine Living Marine Resources (ELMR) areas where the species/life stage is listed as "common" or "abundant"; and catch data from other research surveys and/or the scientific literature for areas not sampled during NEFSC and state surveys. The revised textual descriptions of EFH, as described in Section 5.5.4, together with the revised EFH maps, comprise the EFH designation for each of the managed species/life stages.

NOTE: The status quo maps, generally from Amendment 8 are provided next. The original figure references (figure number and page number) have been retained (bottom) in case readers want to quickly cross reference Amendment 8.

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5B-5E Details:

Old (Status Quo) EFH Geographical Designations (Mostly From Amendment 8):
See Table 26 for data timelines for all except Loligo eggs (which is described below)

Figure 4. *Atlantic mackerel eggs. Status Quo Geographic EFH Definition.*

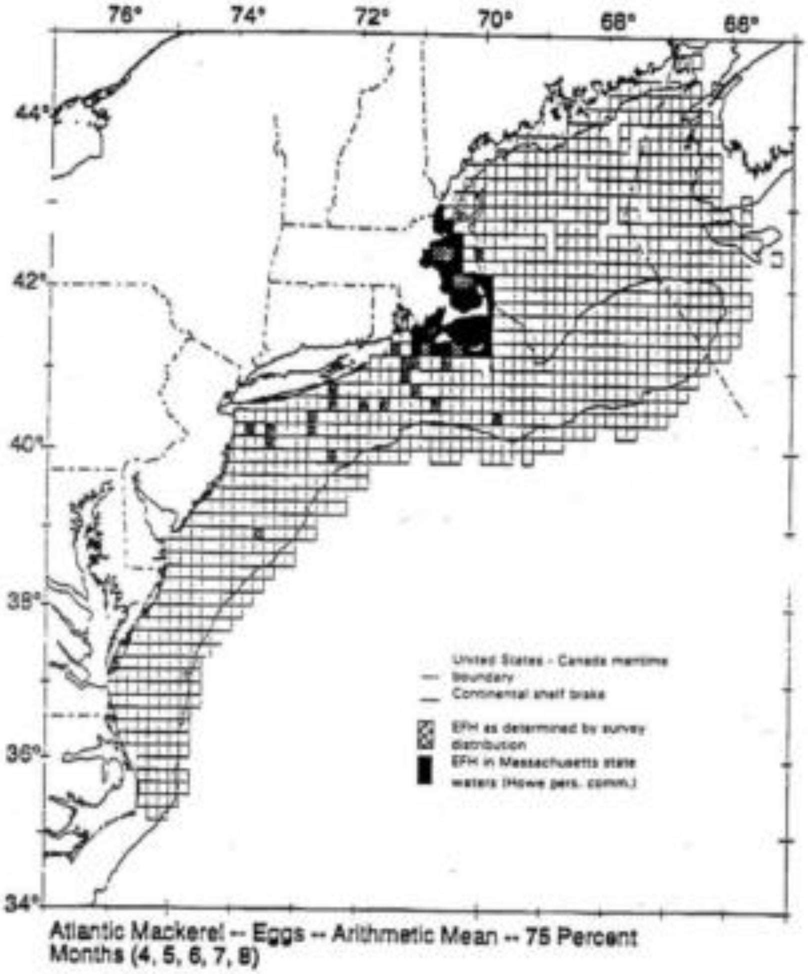

Figure 53a. EFH for Atlantic mackerel eggs, the area which encompasses the top 75% of the catch of Atlantic mackerel in the MARMAP and NEFSC trawl surveys.

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Figure 5. *Atlantic Mackerel Larvae Status Quo Geographic EFH Definition*

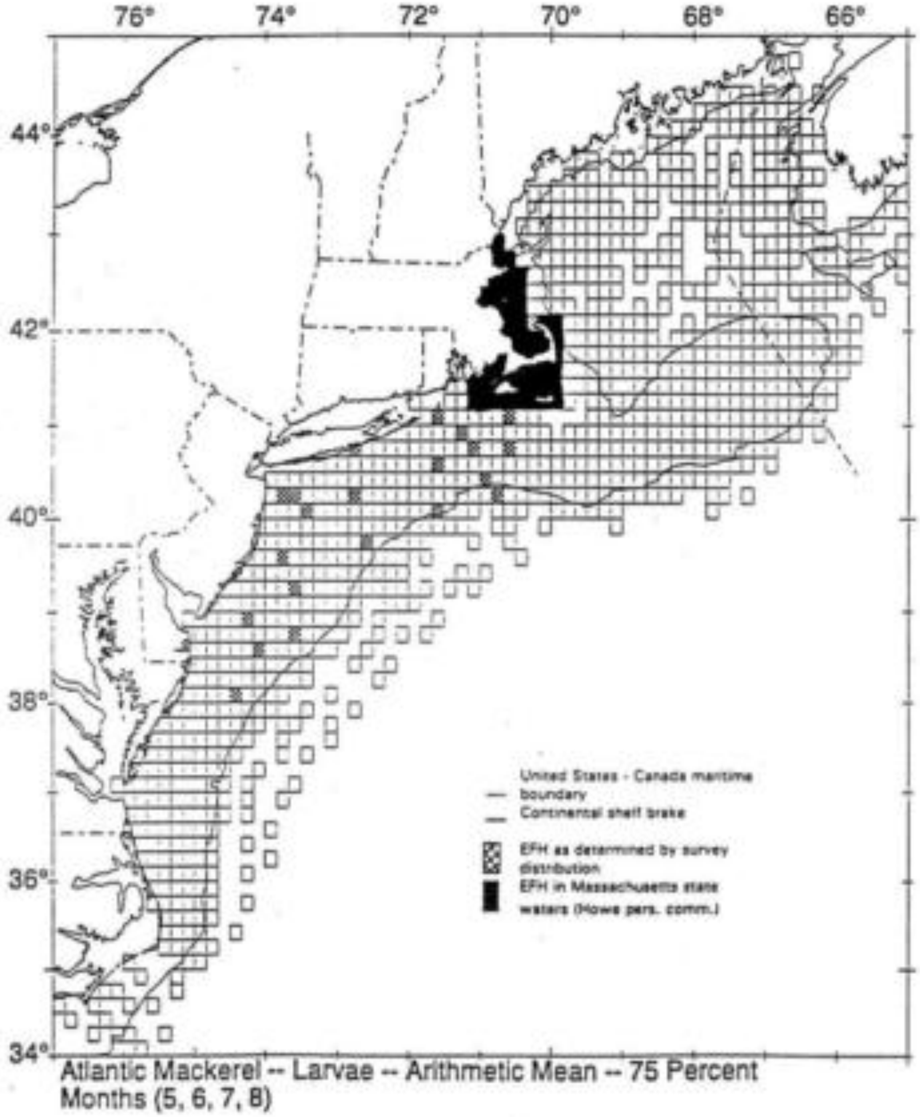

Figure 53b. EFH for Atlantic mackerel larvae, the area which encompasses the top 75% of the catch of Atlantic mackerel in the MARMAP and NEFSC trawl surveys.

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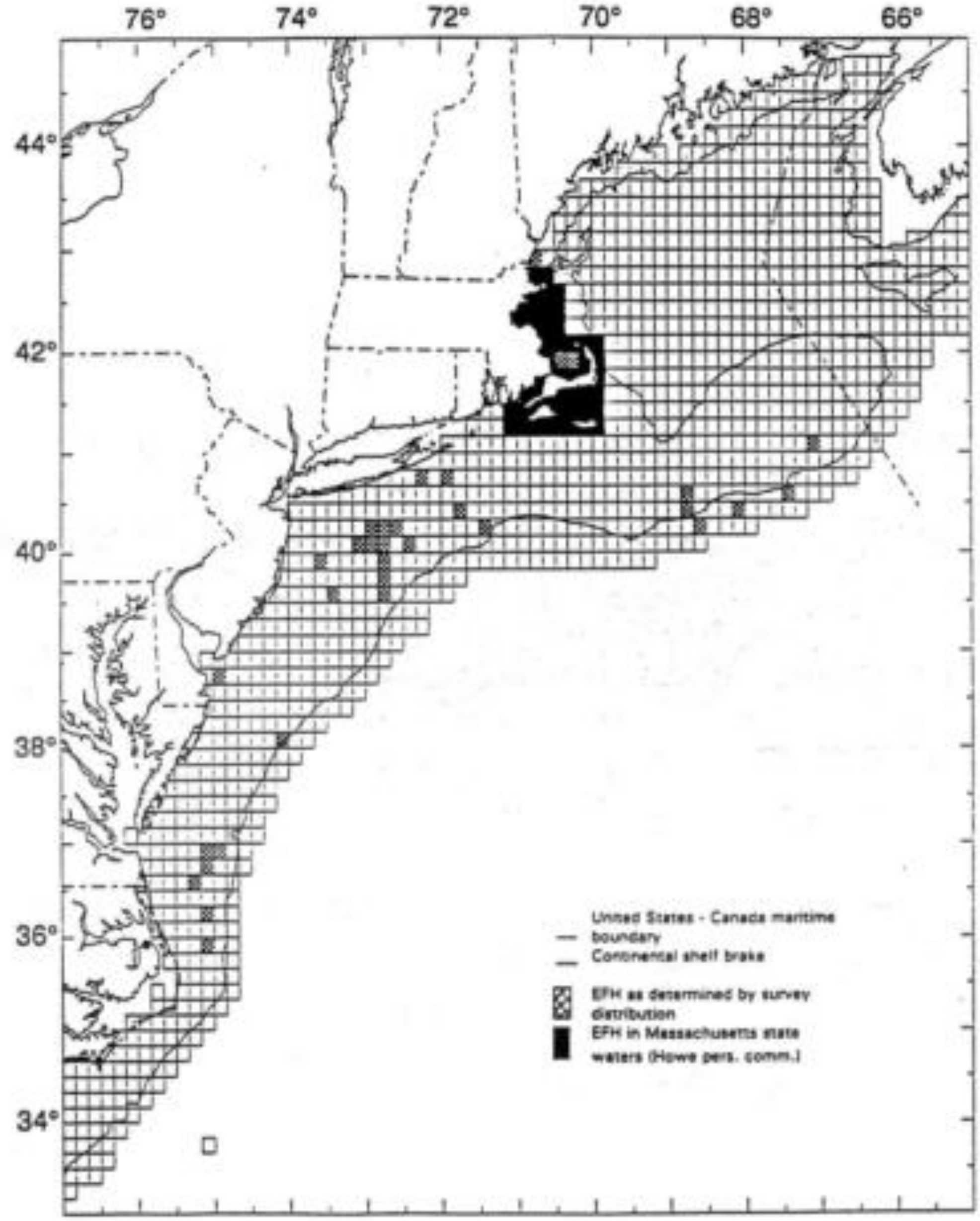
Figure 6. *Atlantic Mackerel Juveniles Status Quo Geographic EFH Definition.*



Atlantic Mackerel – Juveniles (Spring and Fall) – Arithmetic Mean – 75 Percent

Figure 53c. EFH for Atlantic mackerel juveniles, the area which encompasses the top 75% of the catch of Atlantic mackerel in the MARMAP and NEFSC trawl surveys.

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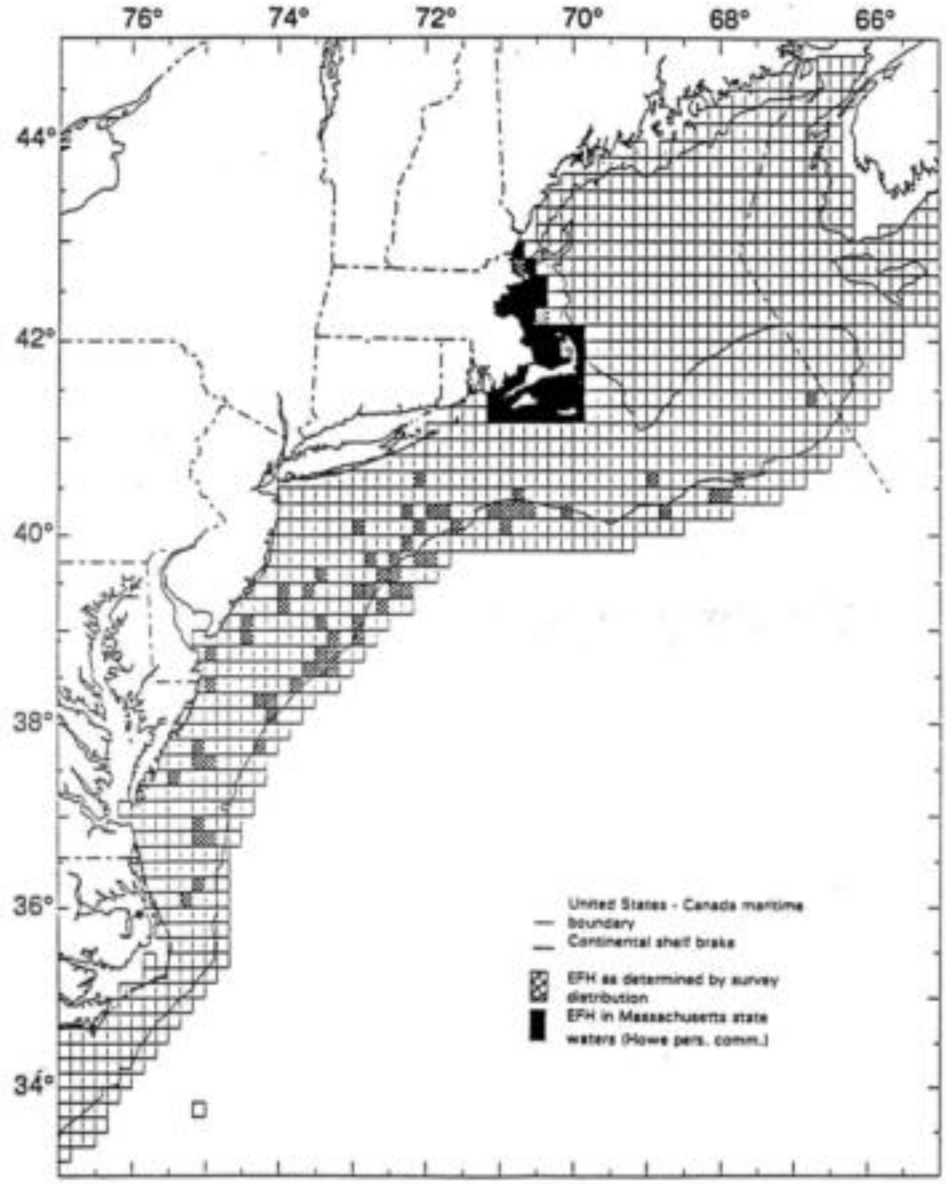
Figure 7. *Atlantic Mackerel Adults Status Quo Geographic EFH Definition*



Atlantic Mackerel – Adults (Spring and Fall) – Arithmetic Mean – 75 Percent

Figure 53d. EFH for Atlantic mackerel adults, the area which encompasses the top 75% of the catch of Atlantic mackerel in the MARMAP and NEFSC trawl surveys.

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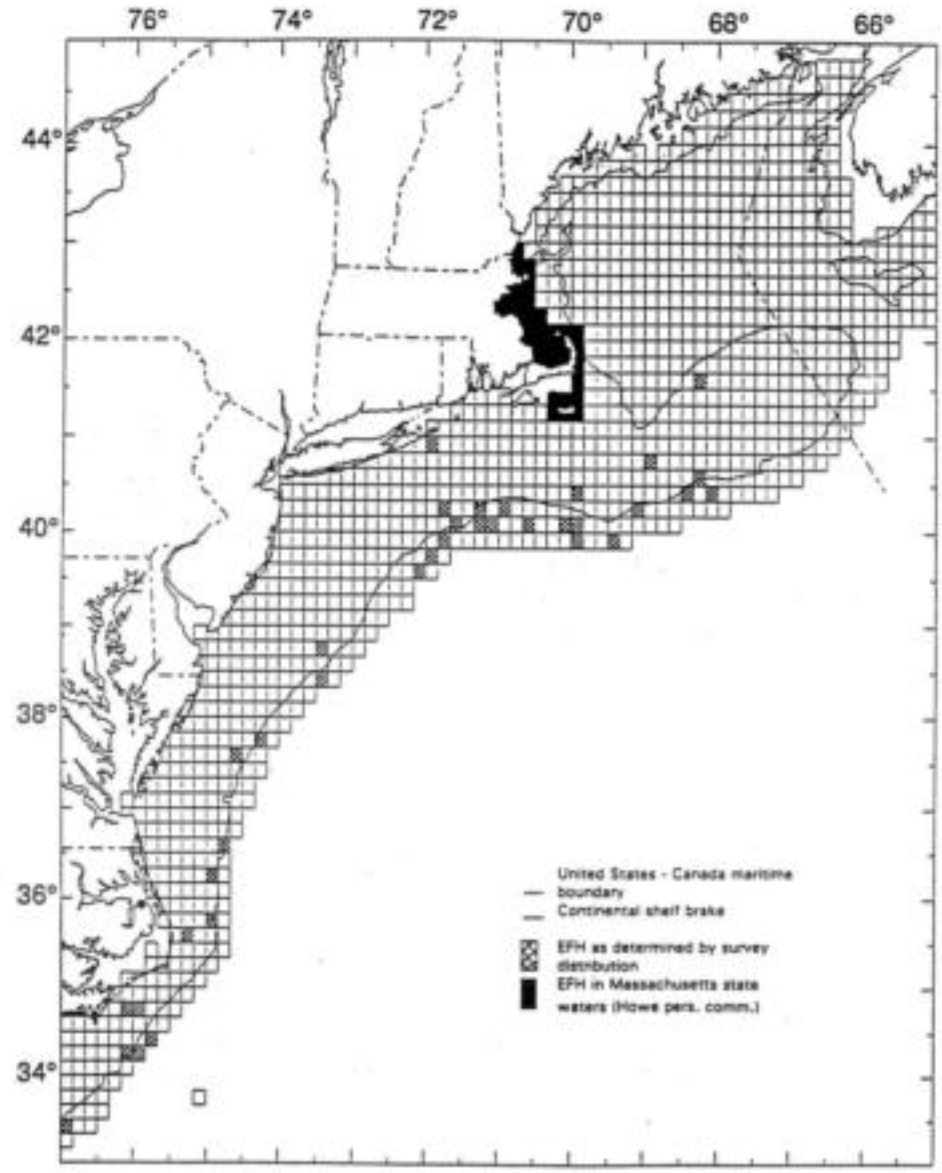
Figure 8. Illex *Pre-recruits Status Quo Geographic EFH Definition*



Short-finned Squid – Pre-recruits (Spring and Fall) – Arithmetic Mean – 75 Percent

Figure 55a. EFH for *Illex* pre-recruits, the area which encompasses the top 75% of the catch of *Illex* in the NEFSC trawl surveys.

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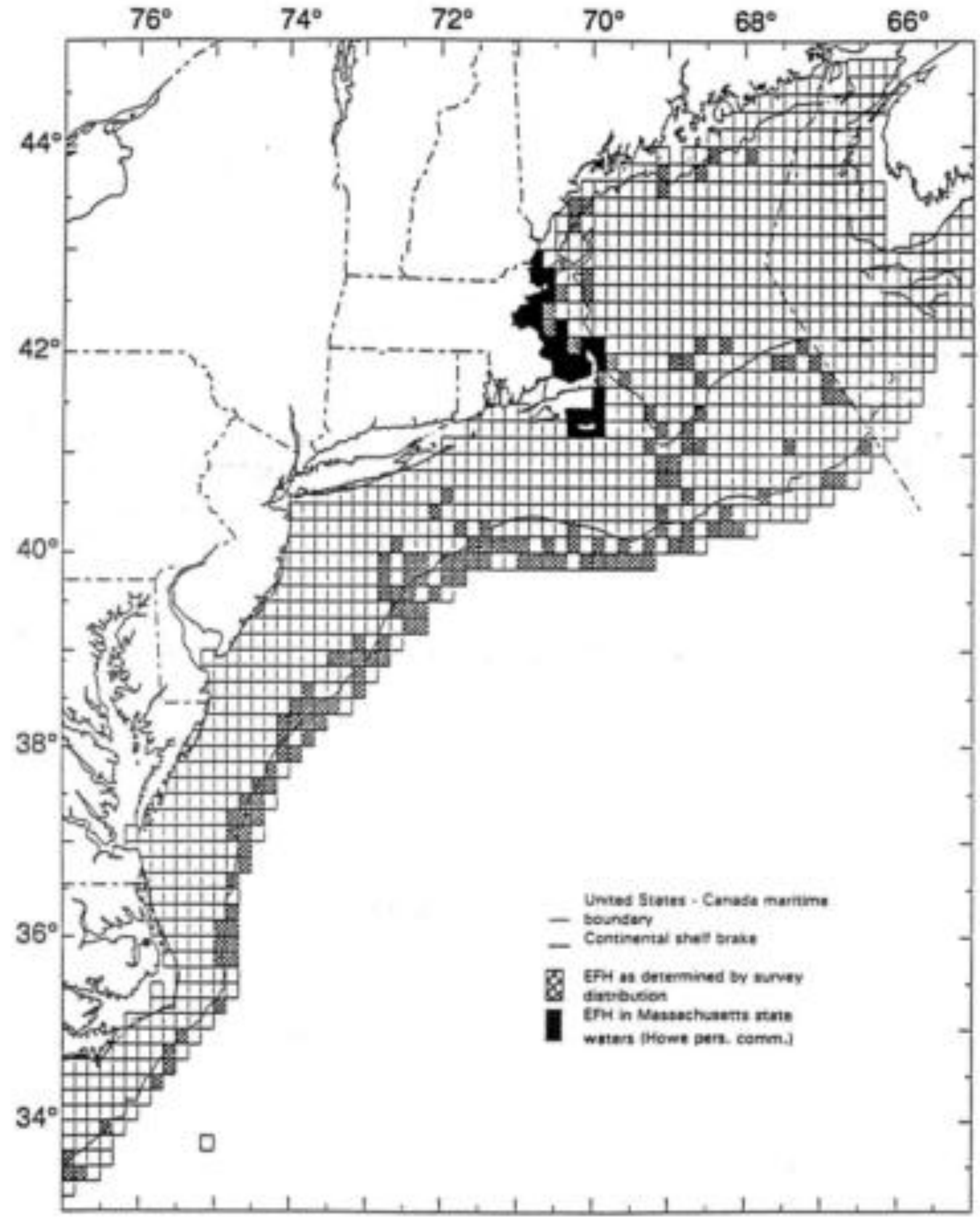
Figure 9. *Illex Recruits Status Quo Geographic EFH Definition*



Short-finned Squid -- Recruits (Spring and Fall) -- Arithmetic Mean -- 75 Percent

Figure 55b. EFH for *Illex* recruits, the area which encompasses the top 75% of the catch of *Illex* in the NEFSC trawl surveys.

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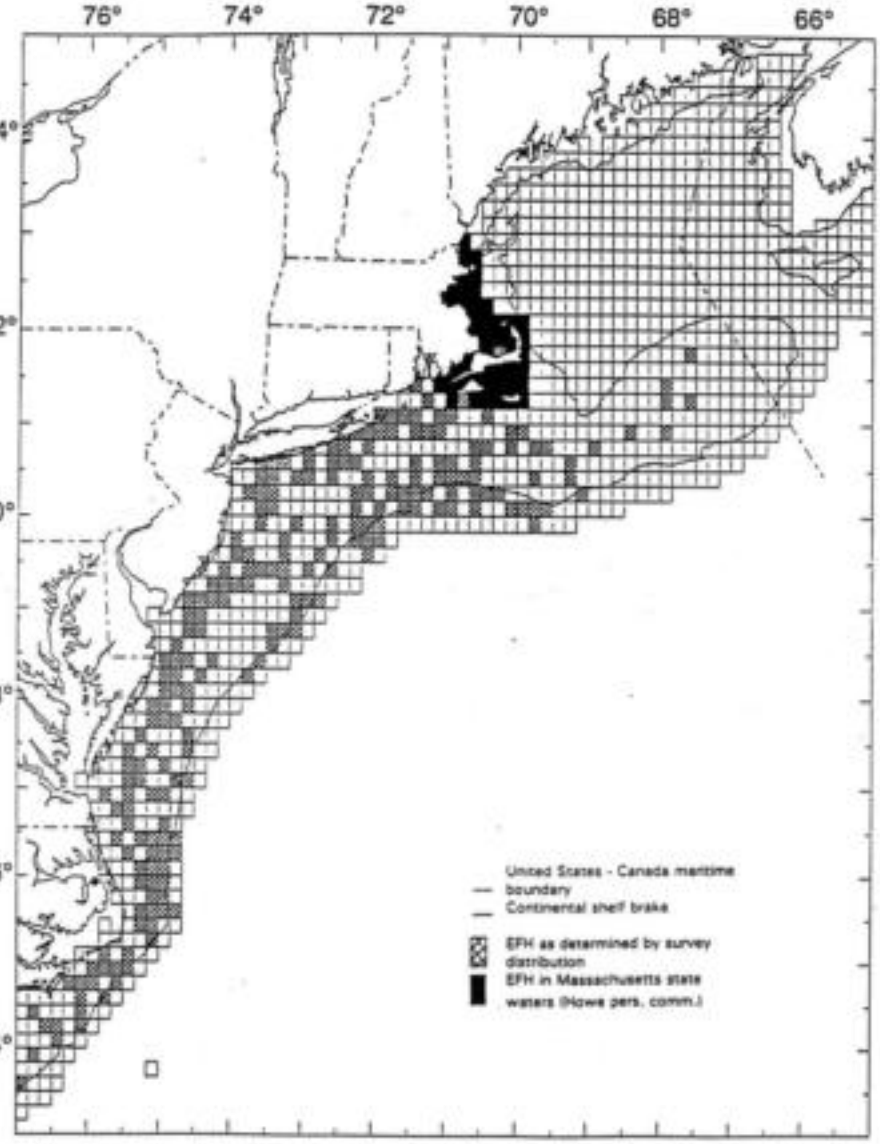
Figure 10. *Loligo Pre-recruits Status Quo Geographic EFH Definition*



Long-finned Squid – Pre-recruits (Spring and Fall) – Arithmetic Mean – 75 Percent

Figure 54a. EFH for *Loligo* pre-recruits, the area which encompasses the top 75% of the catch of *Loligo* in the NEFSC trawl surveys.

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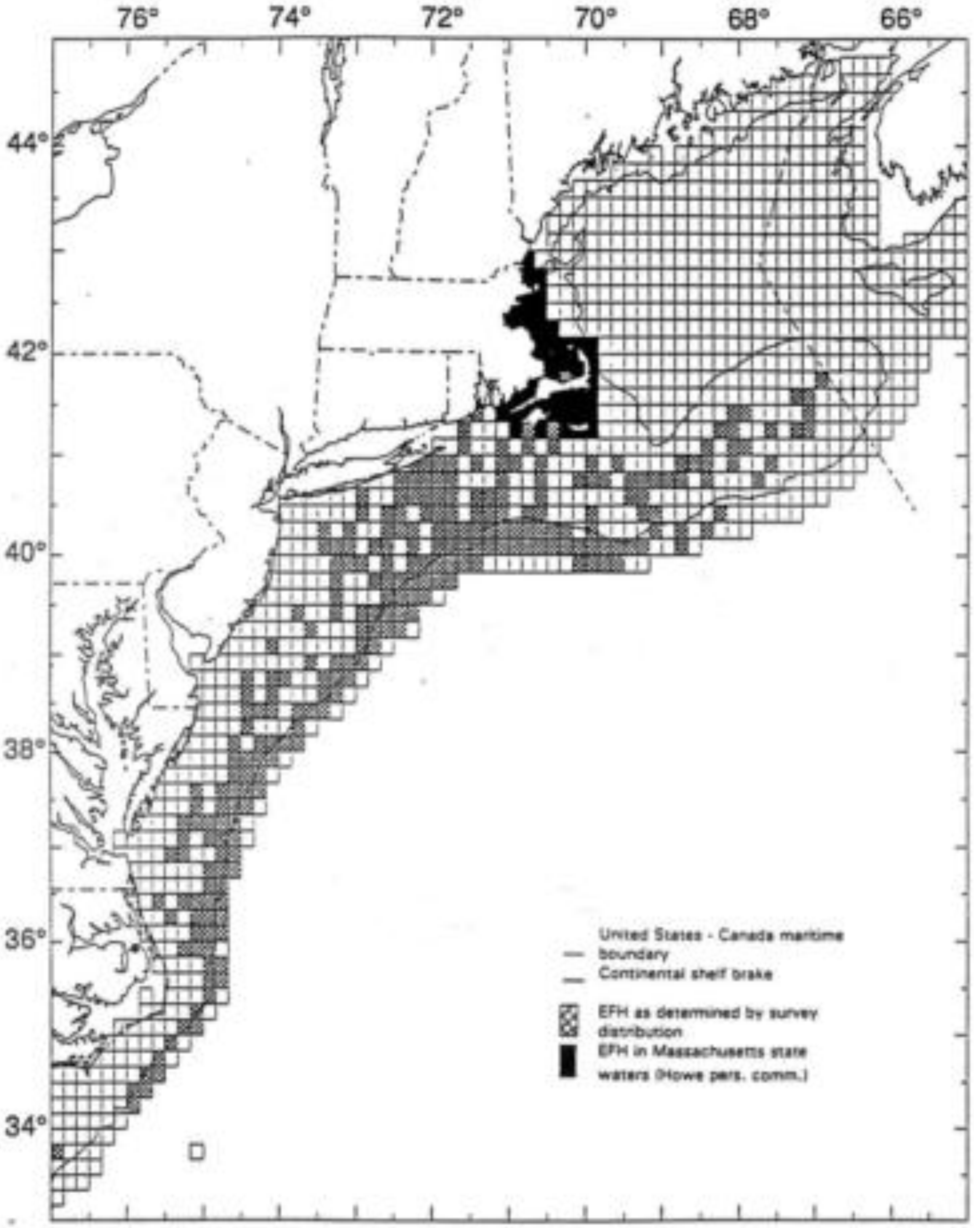
Figure 11. *Loligo Recruits Status Quo Geographic EFH Definition*



Long-finned Squid -- Recruits (Spring and Fall) -- Arithmetic Mean -- 75 Percent

Figure 54b. EFH for *Loligo* recruits, the area which encompasses the top 75% of the catch of *Loligo* in the NEFSC trawl surveys.

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Loligo Eggs: From Amendment 9.

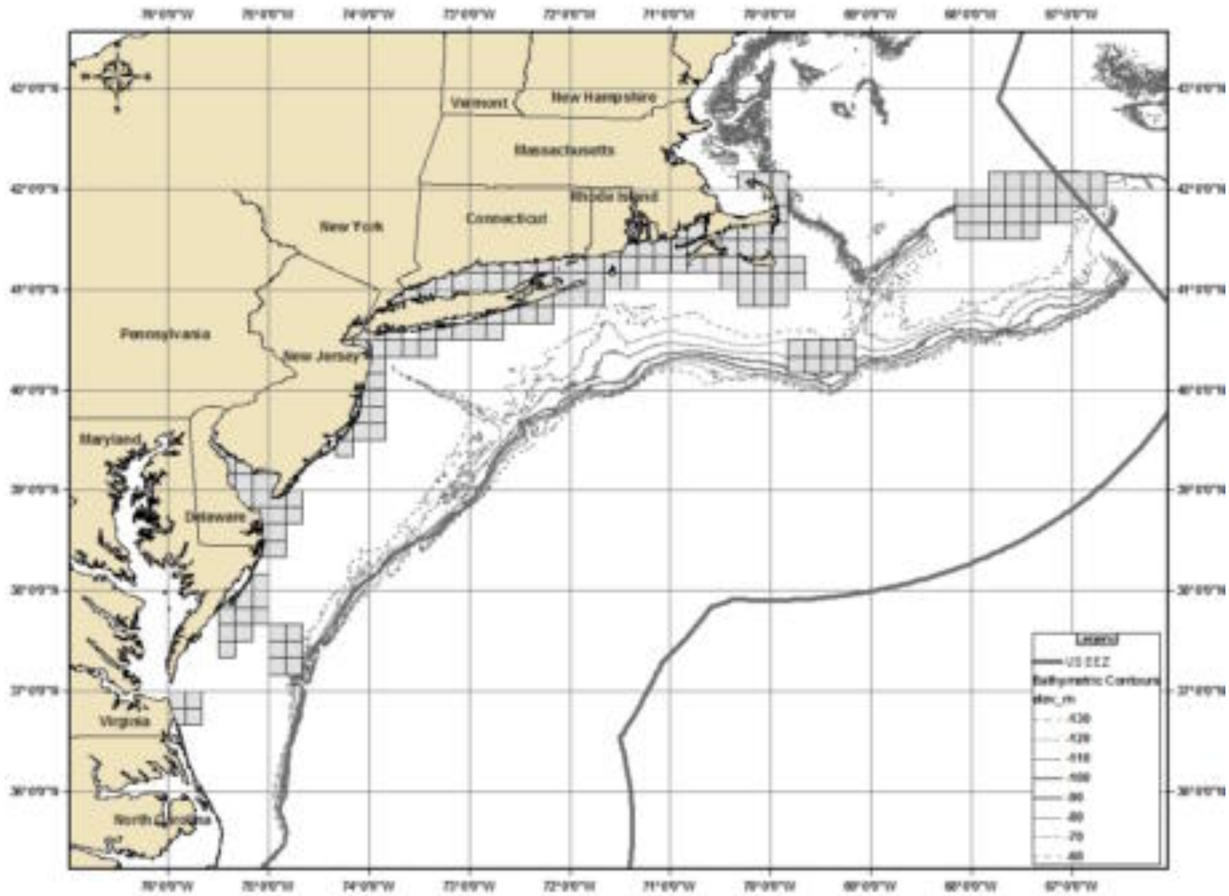

Figure 12. Loligo Egg EFH

Geographic extent of essential fish habitat (EFH) for *Loligo pealeii* eggs, shown as ten minute squares where incidental catches of eggs were reported in commercial squid trawls (Hatfiield and Cadrin 2002).

Figure 13. Butterfish eggs *Status Quo Geographic EFH Definition*

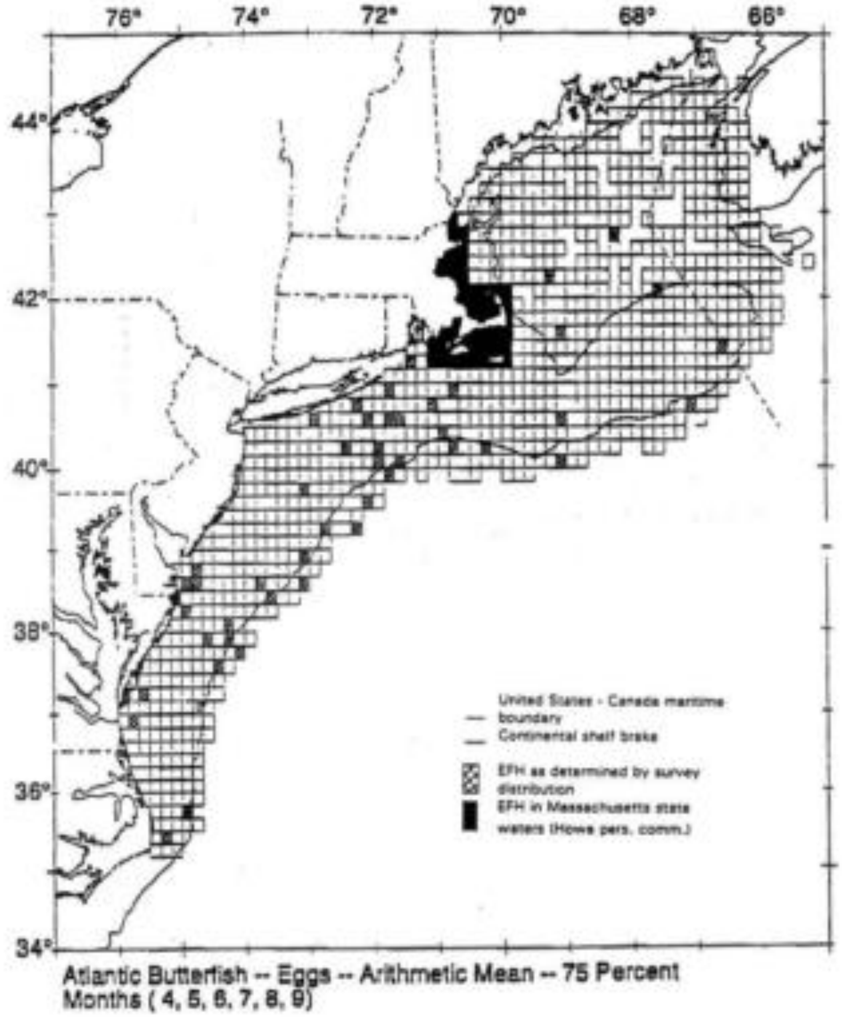

Figure 56a. EFH for butterfish eggs, the area which encompasses the top 75% of the catch of butterfish in the MARMAP and NEFSC trawl surveys.

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Figure 14. *Butterfish Larvae Status Quo Geographic EFH Definition*

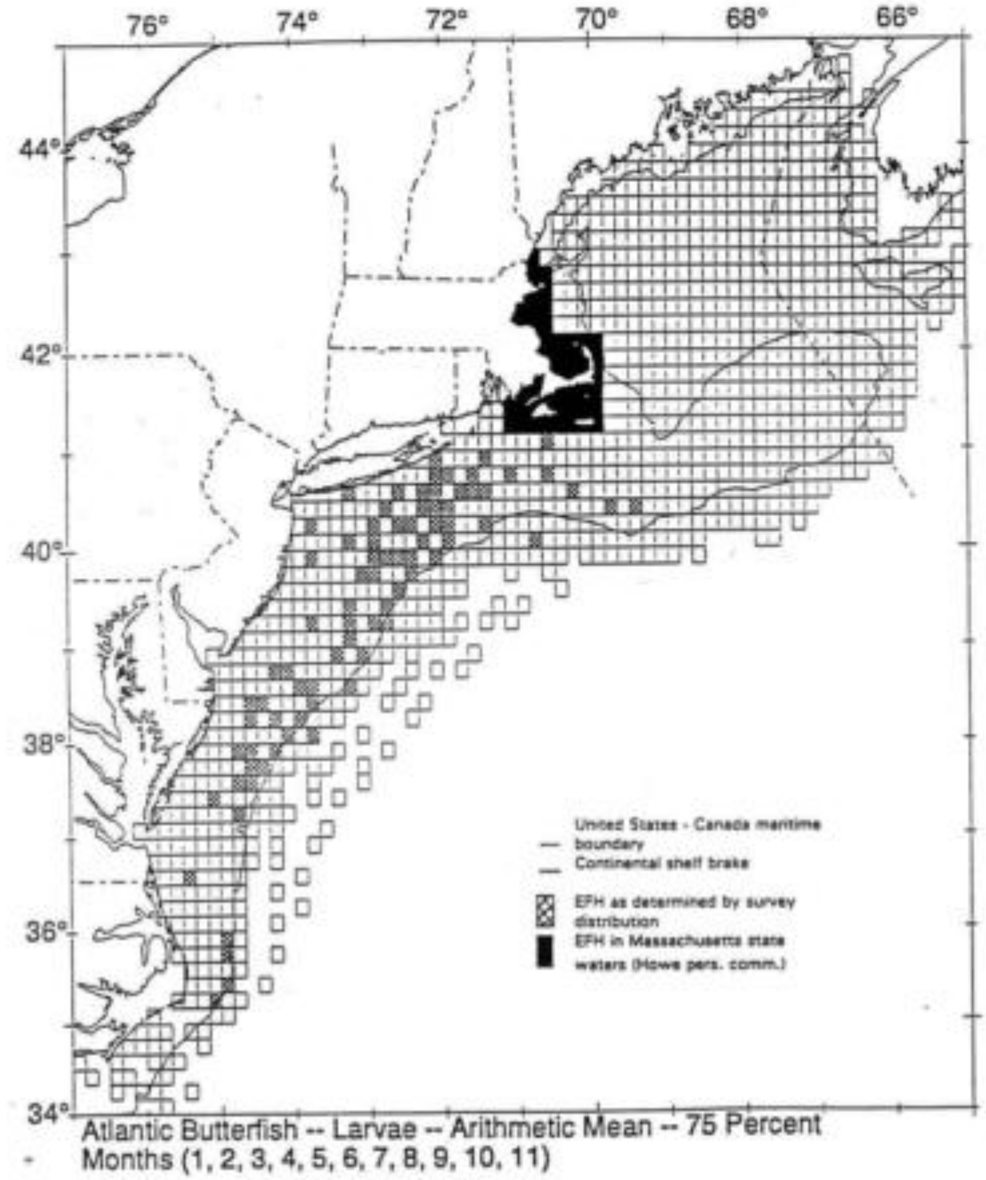

Figure 56b. EFH for butterfish larvae, the area which encompasses the top 75% of the catch of butterfish in the MARMAP and NEFSC trawl surveys.

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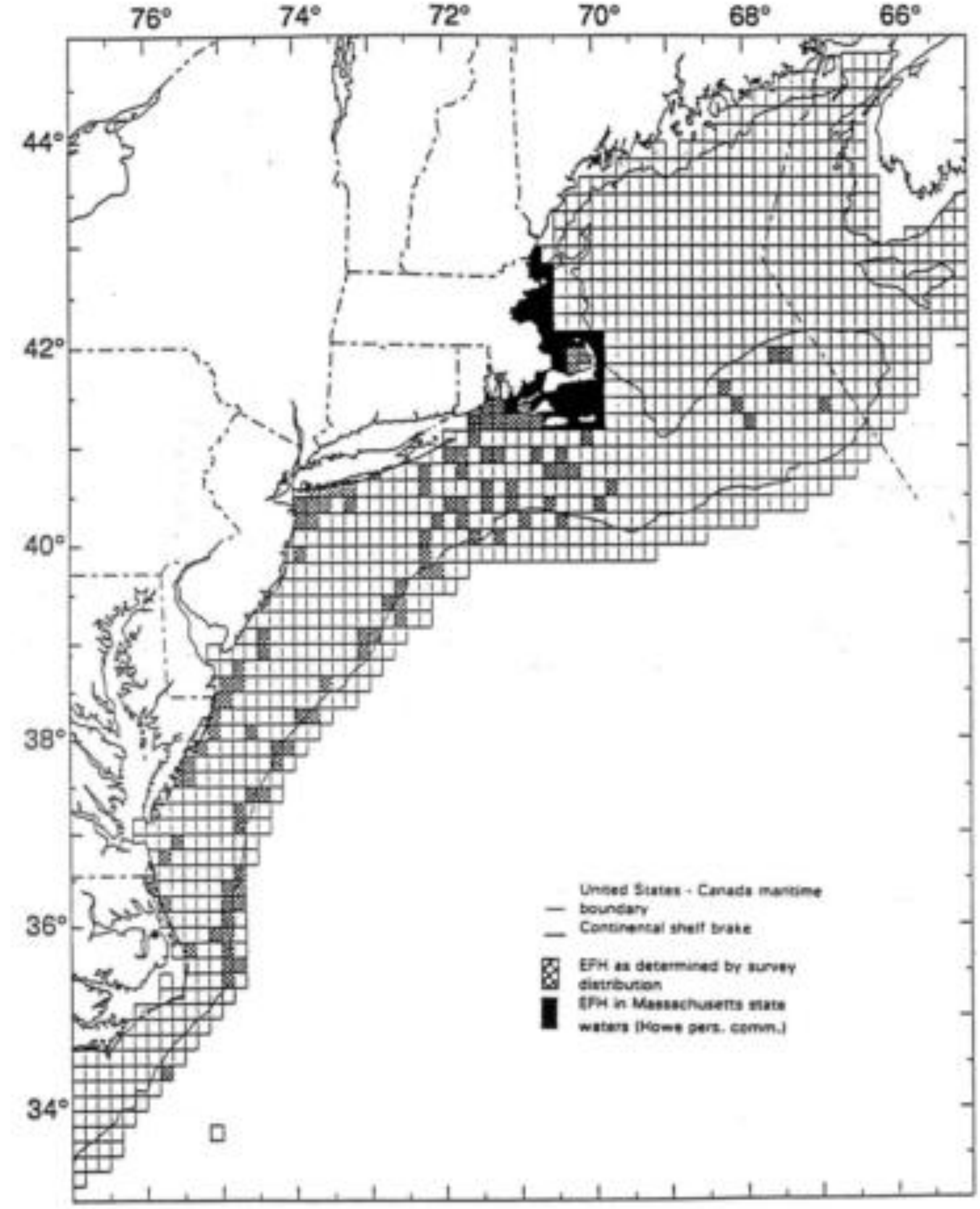
Figure 15. *Butterfish Juveniles Status Quo Geographic EFH Definition*



Atlantic Butterfish – Juveniles (Spring and Fall) – Arithmetic Mean – 75 Percent

Figure 56c. EFH for butterfish juveniles, the area which encompasses the top 75% of the catch of butterfish in the MARMAP and NEFSC trawl surveys.

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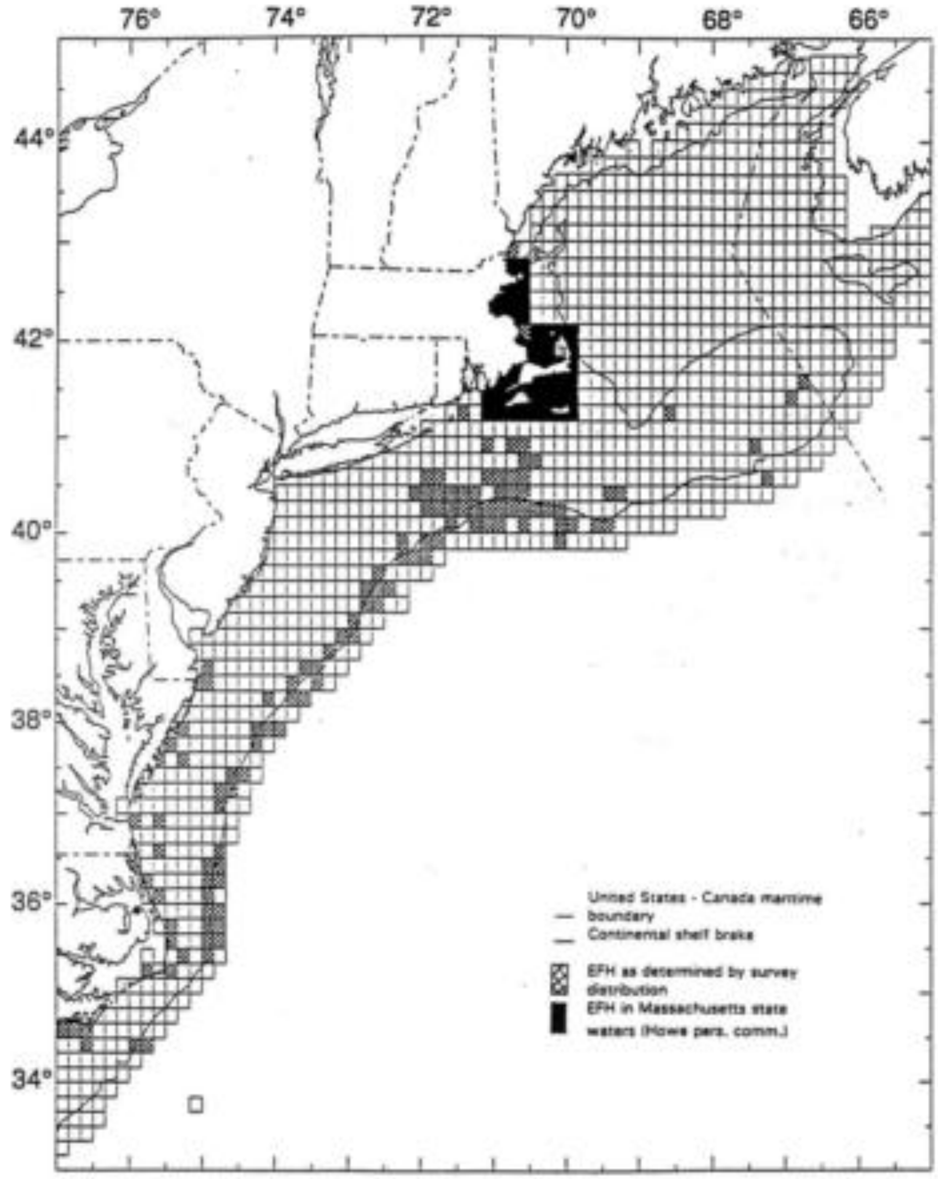
Figure 16. *Butterfish Adults Status Quo Geographic EFH Definition*



Atlantic Butterfish – Adults (Spring and Fall) -- Arithmetic Mean -- 75 Percent

Figure 56d. EFH for butterfish adults, the area which encompasses the top 75% of the catch of butterfish in the MARMAP and NEFSC trawl surveys.

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New EFH Geographical Designation Alternatives - The following maps describe the updates being considered. See Table 28 for data timelines for all except Loligo eggs (which is described below)

The map colors relate to EFH Alternatives 5B-5E. Note the percentages are cumulative. For example, designating based on the 100% threshold would result in an area shown by the lightest blue and all the darker blue shades.

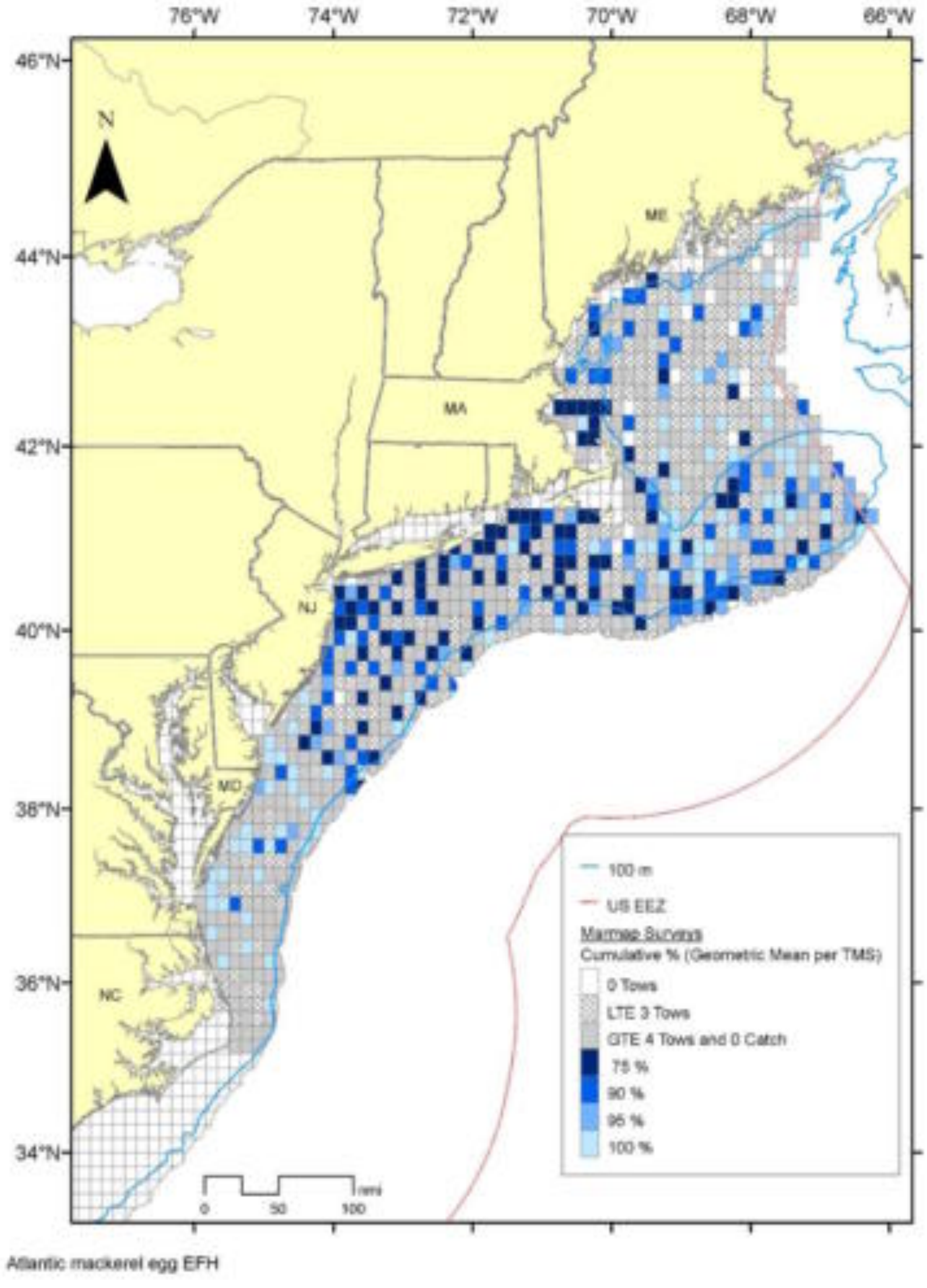


Figure 17. Atlantic mackerel Eggs EFH. MARMAP Data 1977-1987

The map colors relate to EFH Alternatives 5B-5E. Note the percentages are cumulative. For example, designating based on the 100% threshold would result in an area shown by the lightest blue and all the darker blue shades.

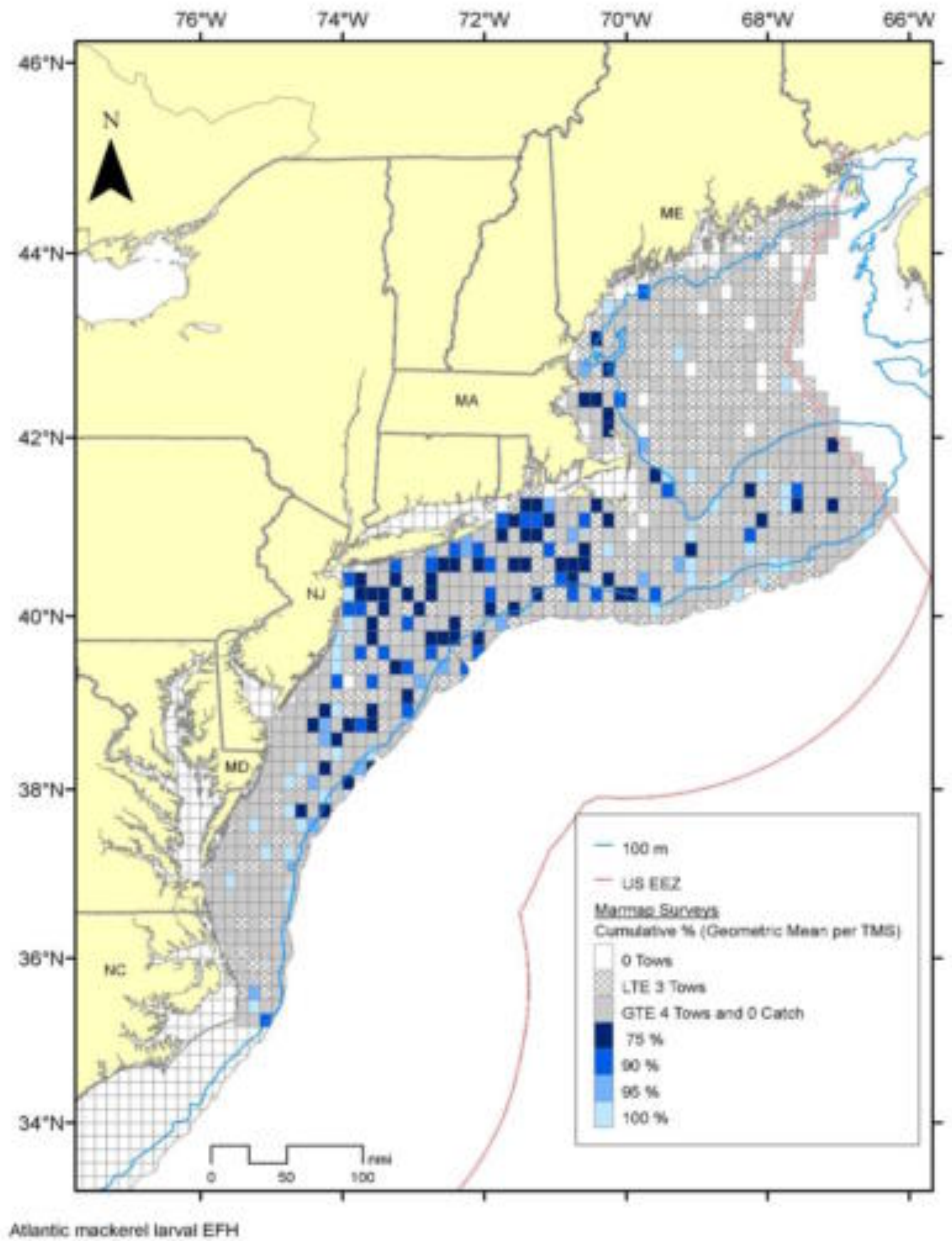


Figure 18. Atlantic mackerel Larvae EFH. MARMAP Data 1977-1987

The map colors relate to EFH Alternatives 5B-5E. Note the percentages are cumulative. For example, designating based on the 100% threshold would result in an area shown by the lightest blue and all the darker blue shades.

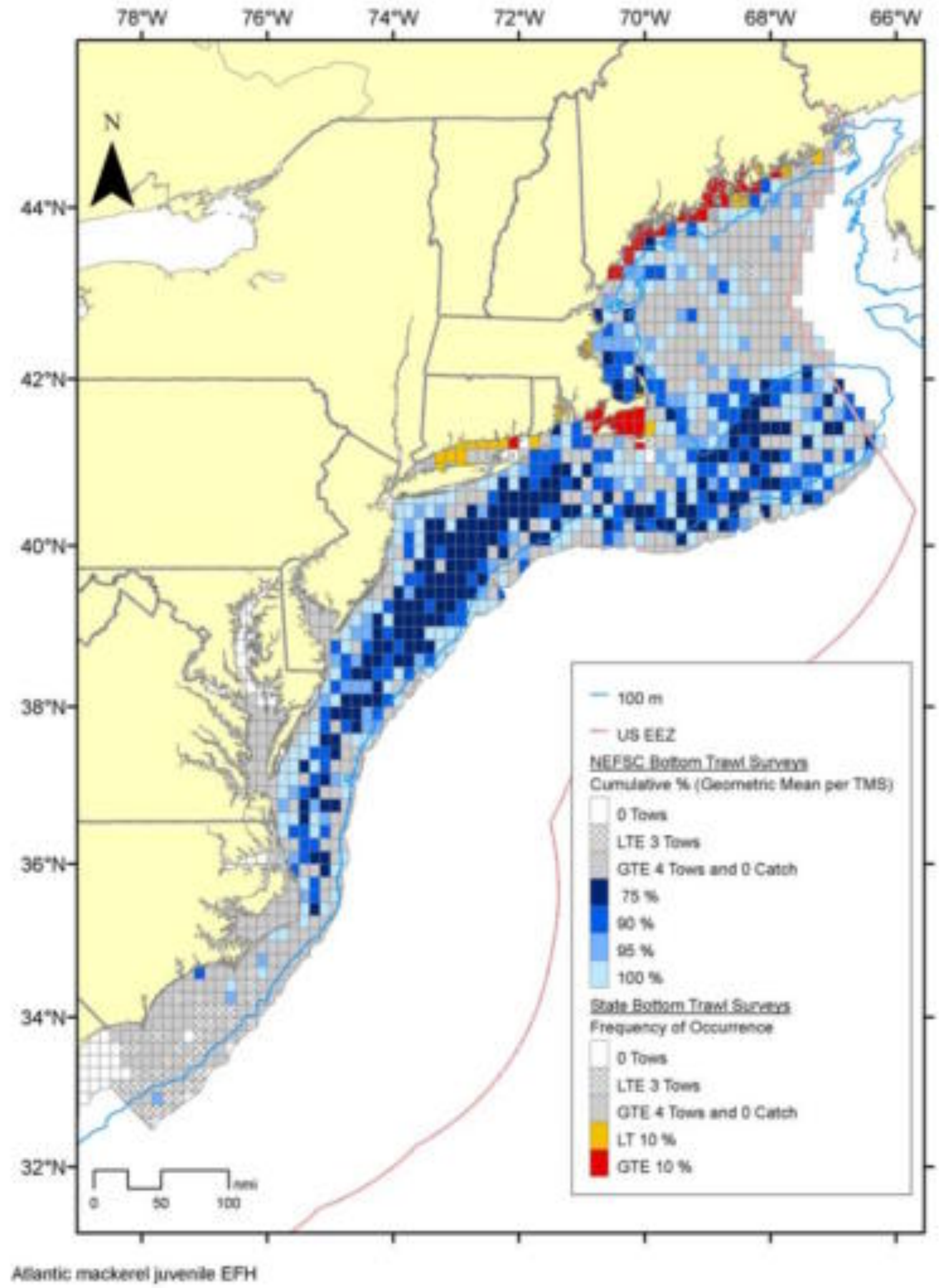


Figure 19. Atlantic mackerel Juveniles EFH. 1976-2007 NEFSC trawl survey data and assorted state data (Table 29).

The map colors relate to EFH Alternatives 5B-5E. Note the percentages are cumulative. For example, designating based on the 100% threshold would result in an area shown by the lightest blue and all the darker blue shades.

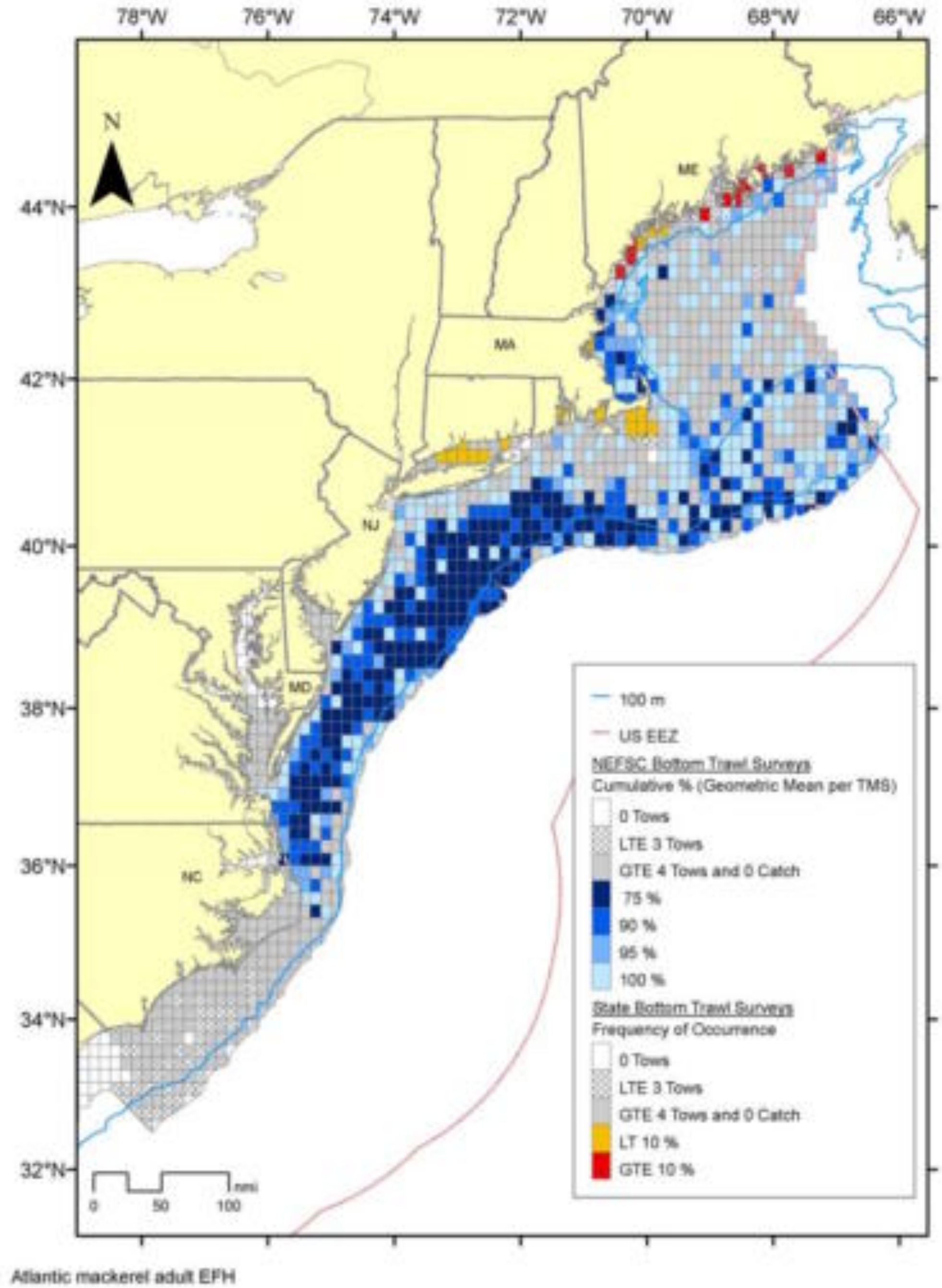


Figure 20. Atlantic mackerel Adults EFH. 1976-2007 NEFSC trawl survey data and assorted state data (Table 29).

Illex egg EFH based on the relative abundance of mated females caught, by NEFSC bottom trawl survey stratum, during an *Illex* bottom trawl survey (Hendrickson 2004). Designation would include areas with at least one mated female.

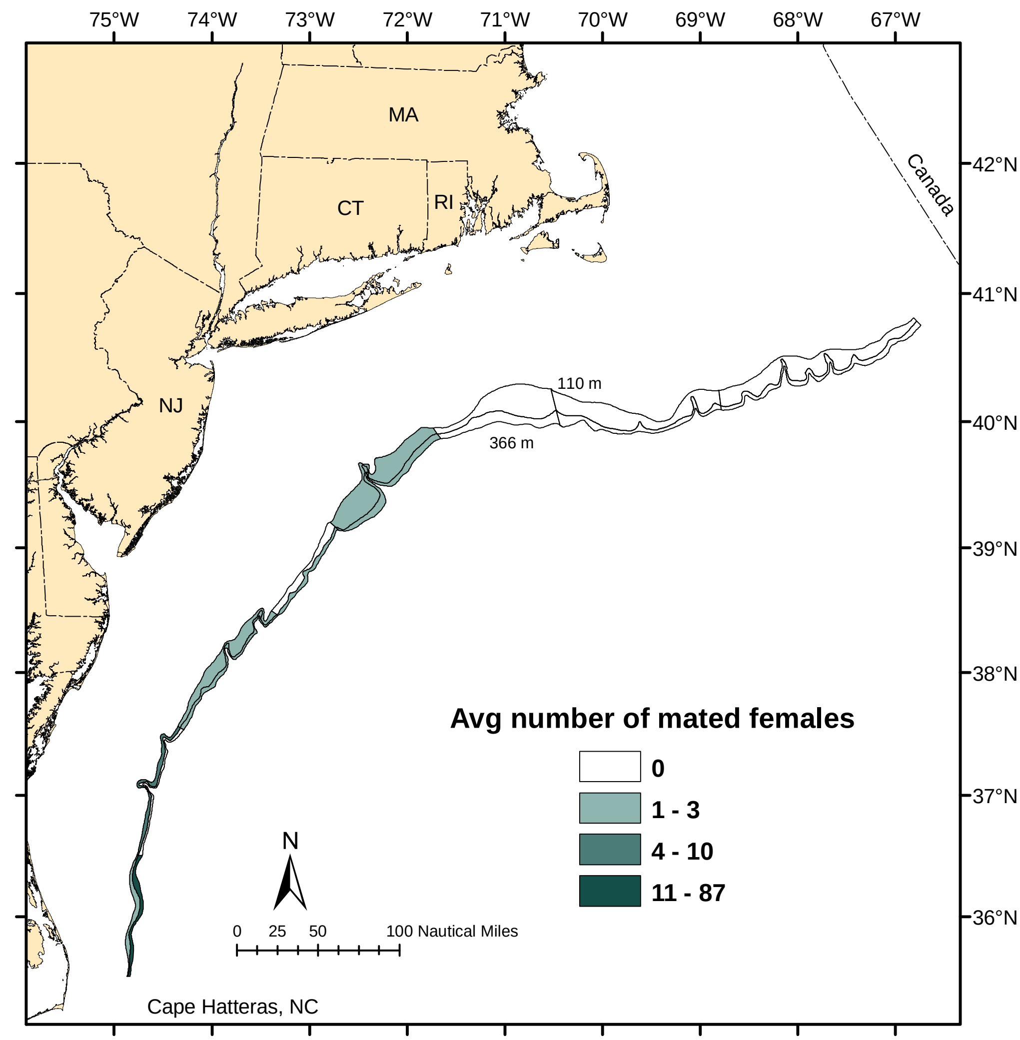


Figure 21. Illex Eggs EFH (Hendrickson 2004).

The map colors relate to EFH Alternatives 5B-5E. Note the percentages are cumulative. For example, designating based on the 100% threshold would result in an area shown by the lightest blue and all the darker blue shades.

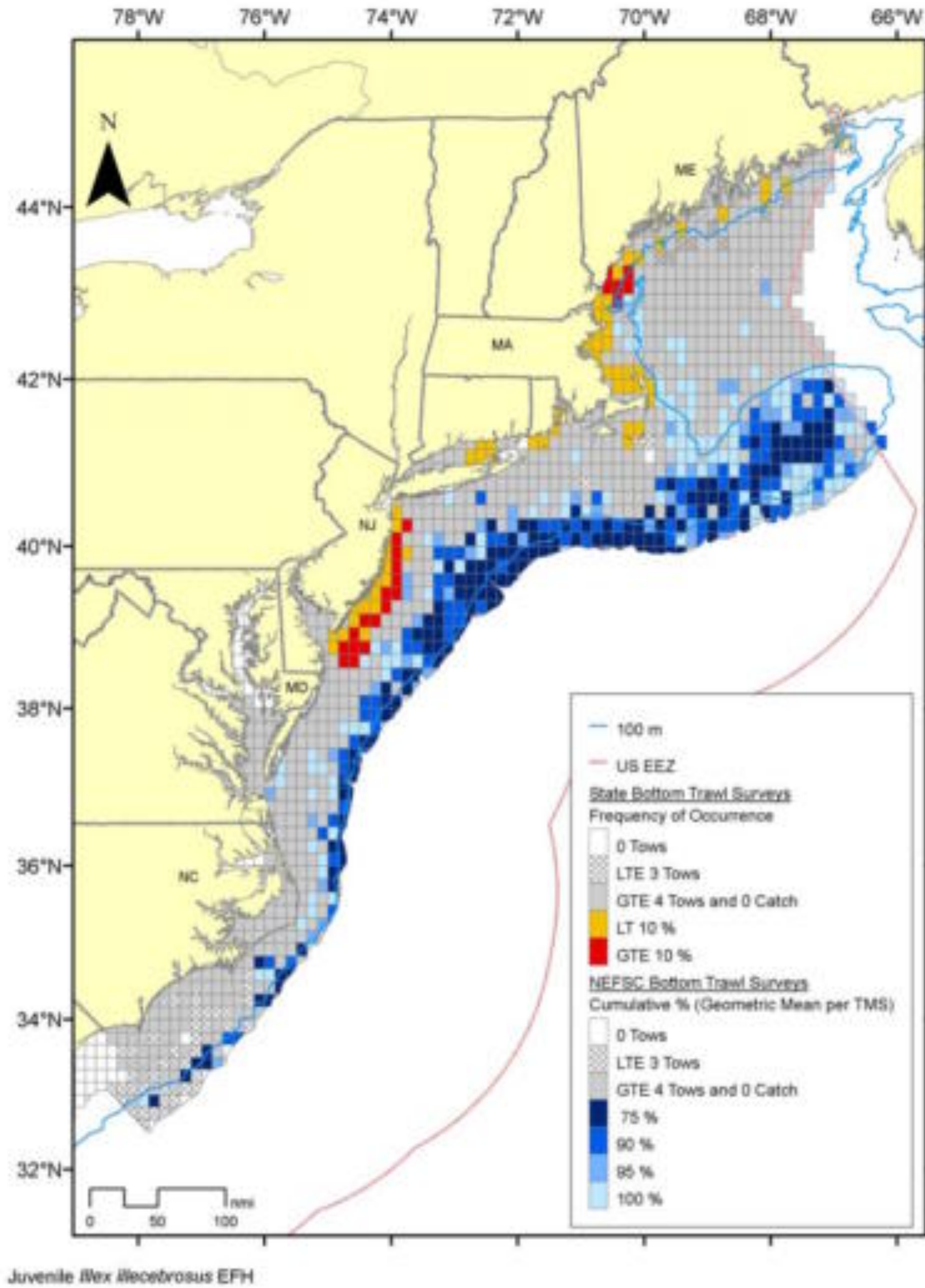


Figure 22. Illex Pre-recruits EFH. 1976-2007 NEFSC trawl survey data and assorted state data (Table 29).

The map colors relate to EFH Alternatives 5B-5E. Note the percentages are cumulative. For example, designating based on the 100% threshold would result in an area shown by the lightest blue and all the darker blue shades.

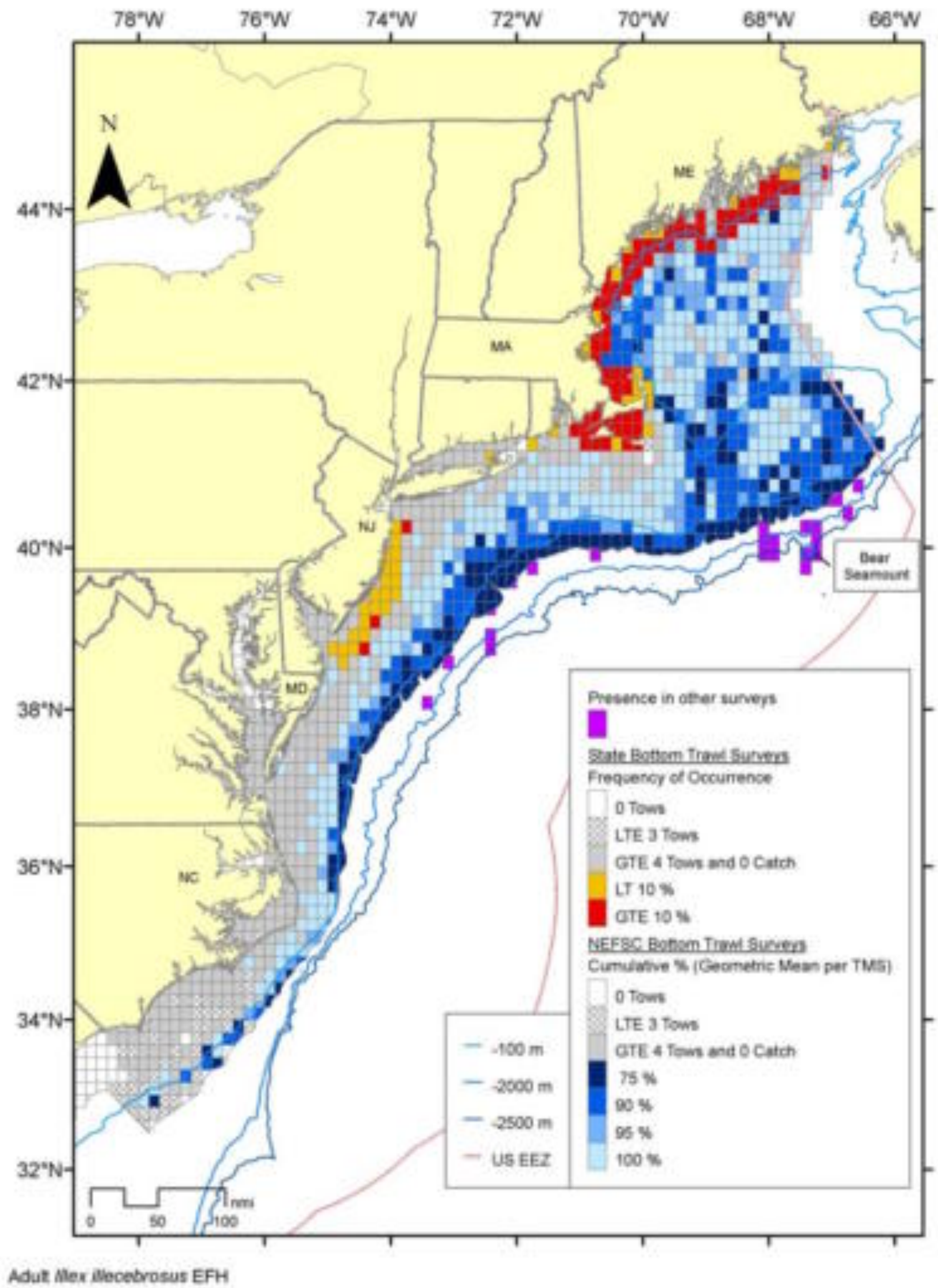


Figure 23. Illex Recruits EFH. 1976-2007 NEFSC trawl survey data and assorted state data (Table 29).

No changes proposed Original Provided below from Am9

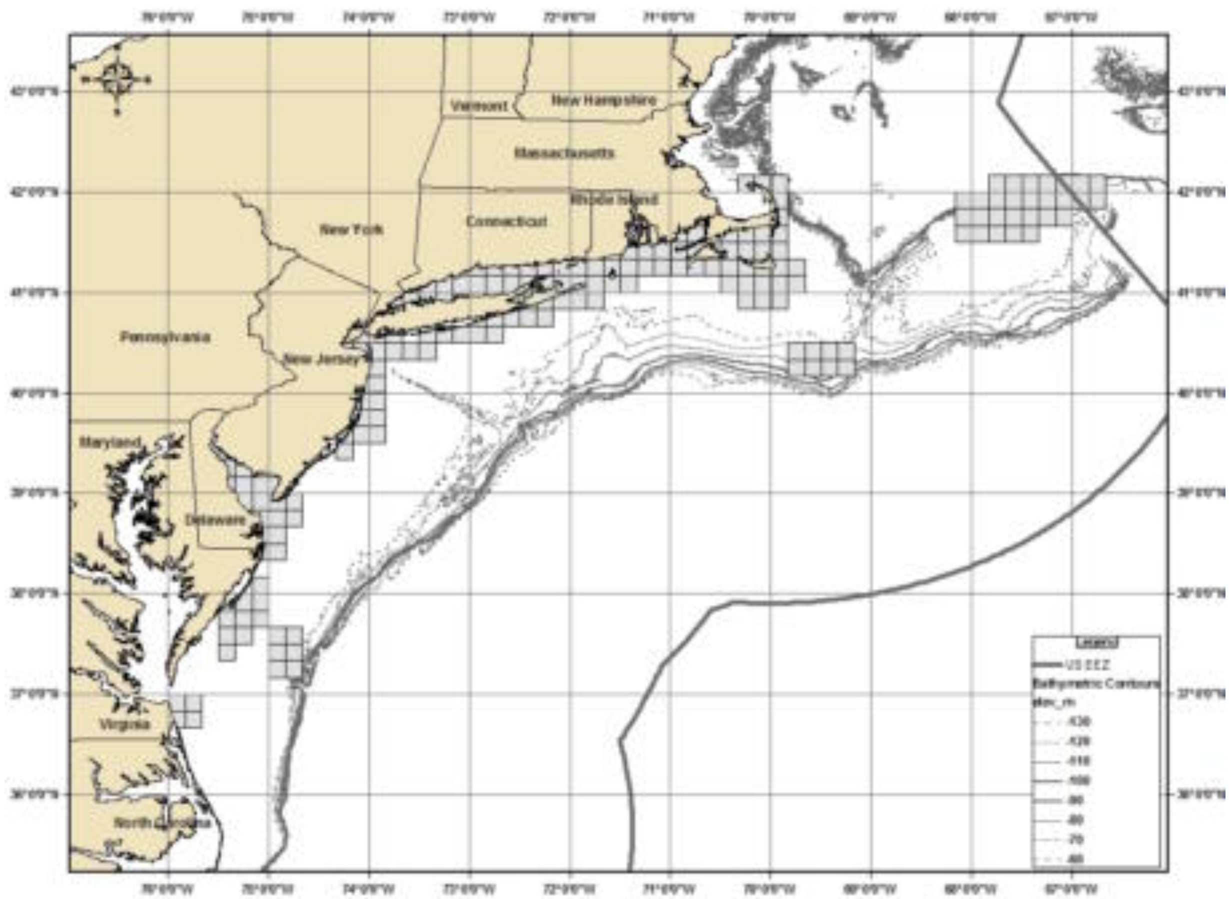


Figure 24. Loligo Egg EFH

The map colors relate to EFH Alternatives 5B-5E. Note the percentages are cumulative. For example, designating based on the 100% threshold would result in an area shown by the lightest blue and all the darker blue shades.

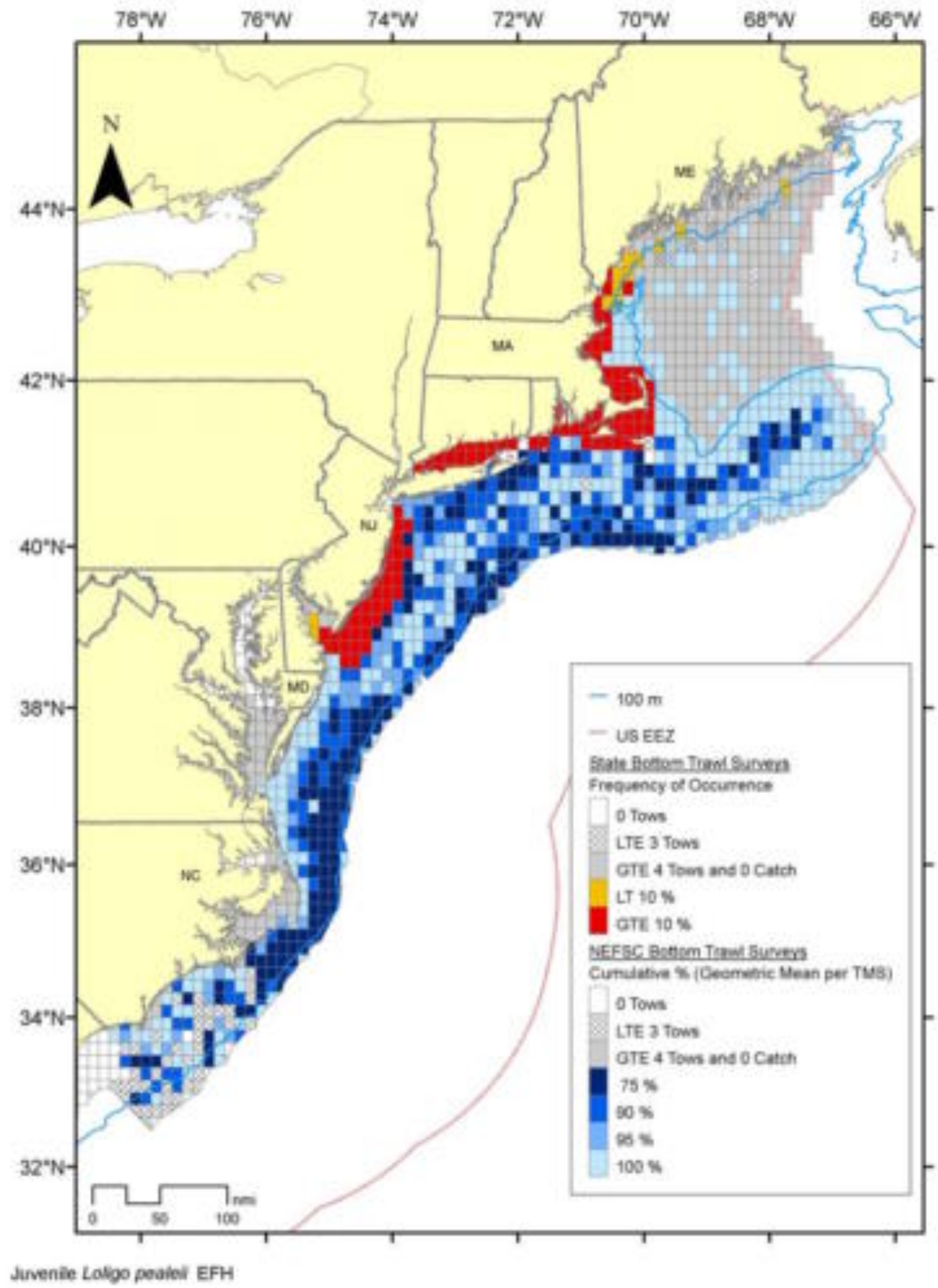


Figure 25. Loligo Pre-recruits EFH. 1976-2007 NEFSC trawl survey data and assorted state data (Table 29).

The map colors relate to EFH Alternatives 5B-5E. Note the percentages are cumulative. For example, designating based on the 100% threshold would result in an area shown by the lightest blue and all the darker blue shades.

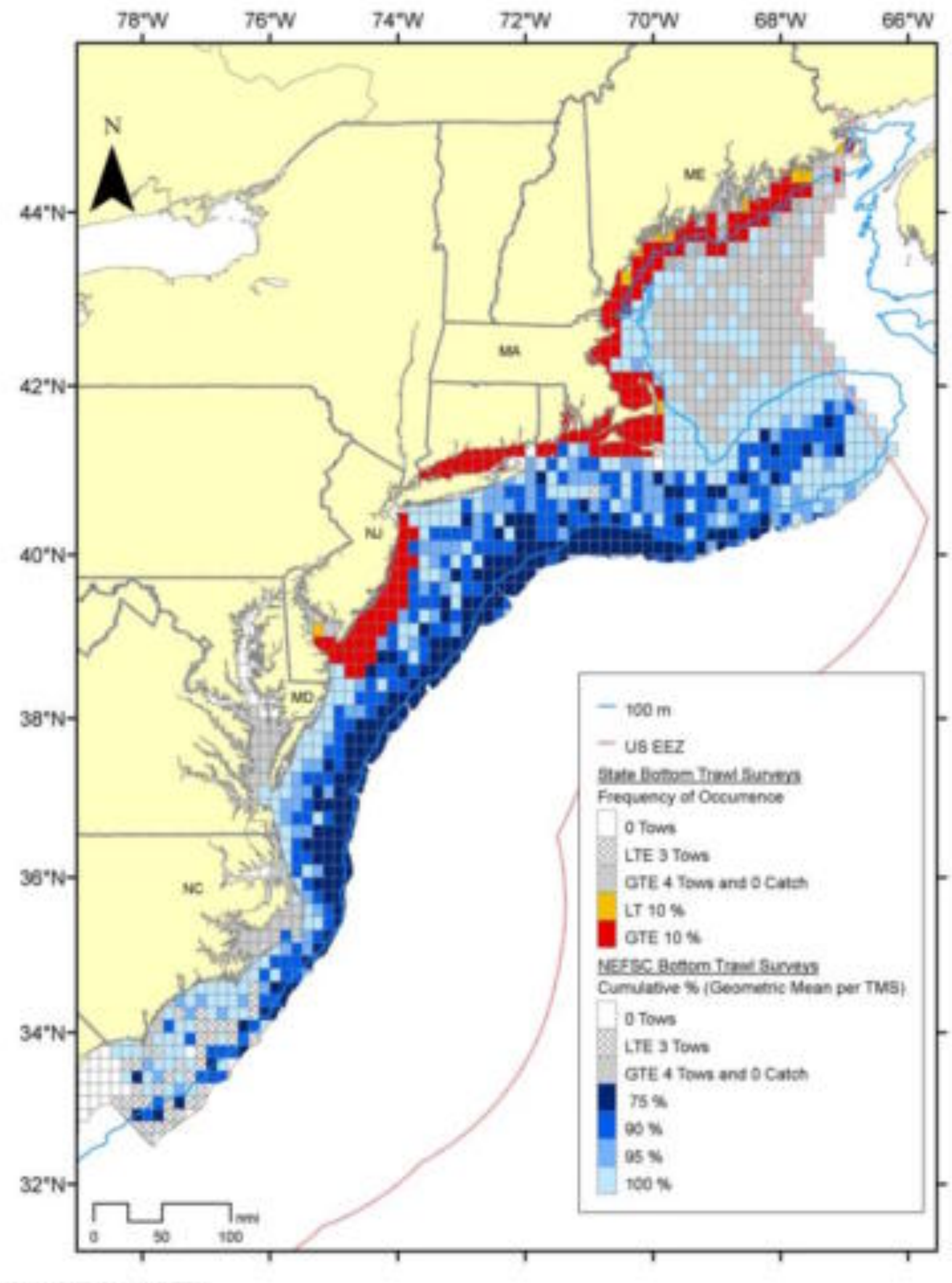


Figure 26. Loligo Recruits. EFH. 1976-2007 NEFSC trawl survey data and assorted state data (Table 29).

The map colors relate to EFH Alternatives 5B-5E. Note the percentages are cumulative. For example, designating based on the 100% threshold would result in an area shown by the lightest blue and all the darker blue shades.

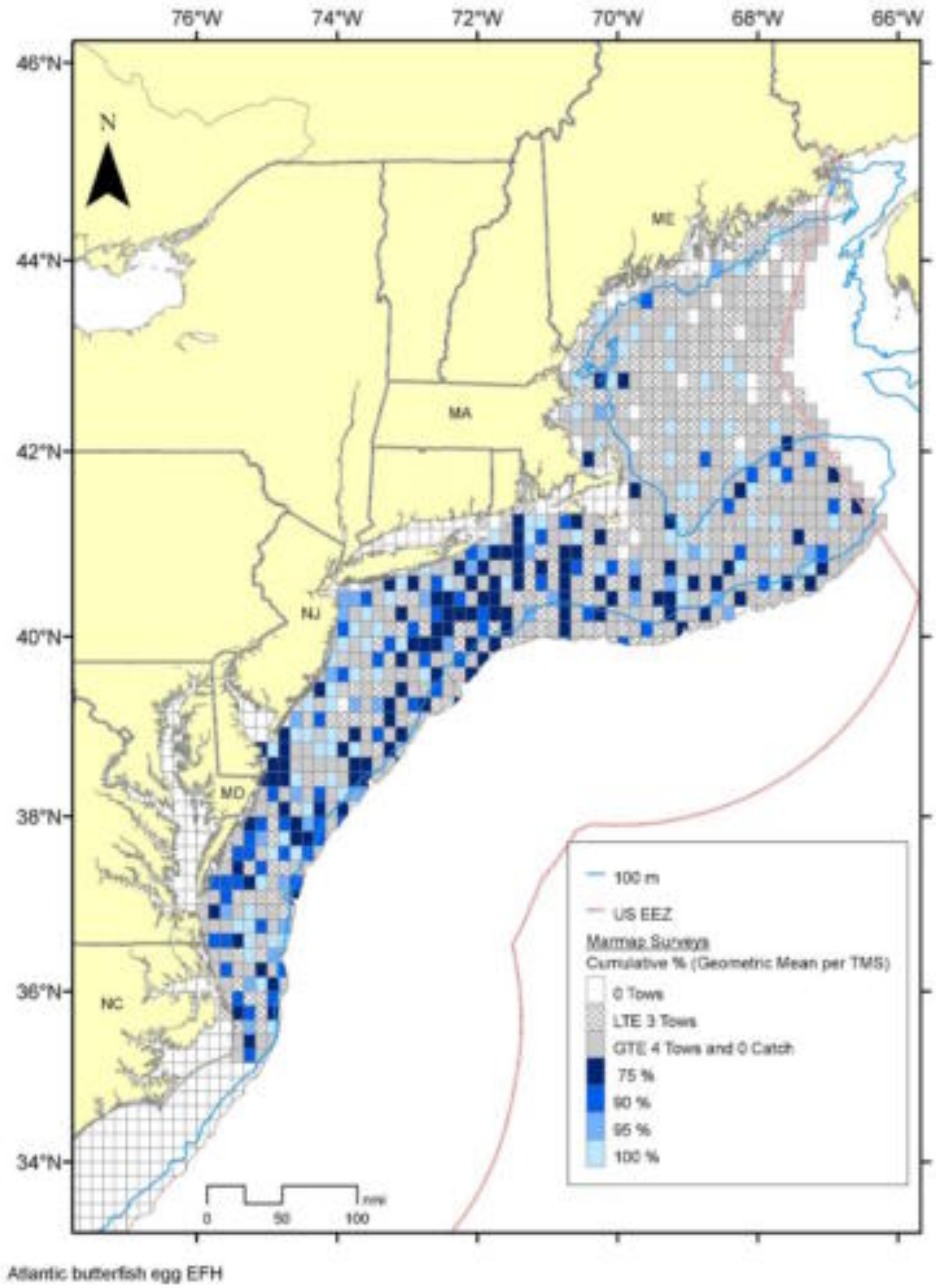


Figure 27. Butterfish Eggs EFH. MARMAP Data 1977-1987

The map colors relate to EFH Alternatives 5B-5E. Note the percentages are cumulative. For example, designating based on the 100% threshold would result in an area shown by the lightest blue and all the darker blue shades.

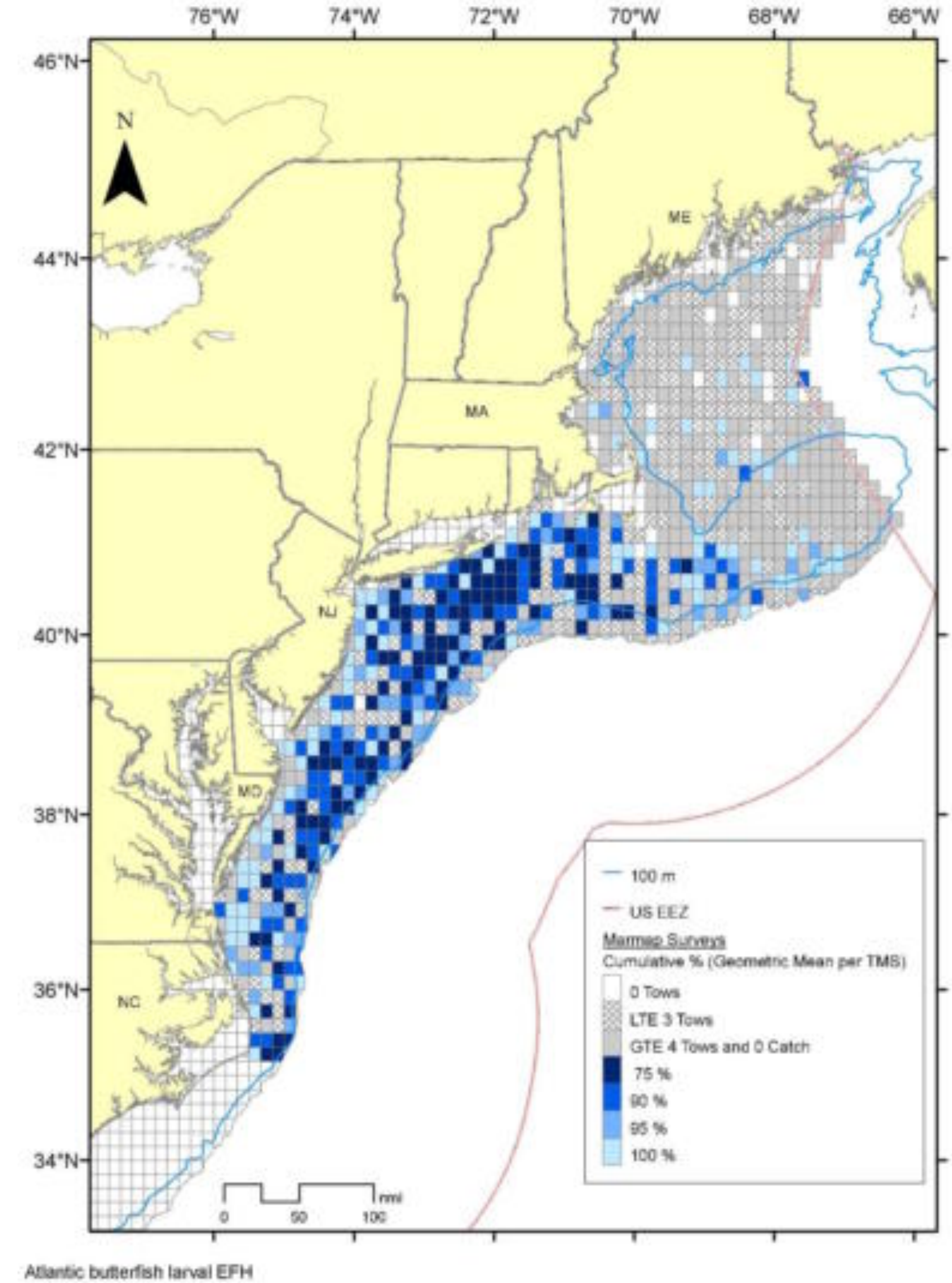


Figure 28. Butterfish Larvae EFH. MARMAP Data 1977-1987

The map colors relate to EFH Alternatives 5B-5E. Note the percentages are cumulative. For example, designating based on the 100% threshold would result in an area shown by the lightest blue and all the darker blue shades.

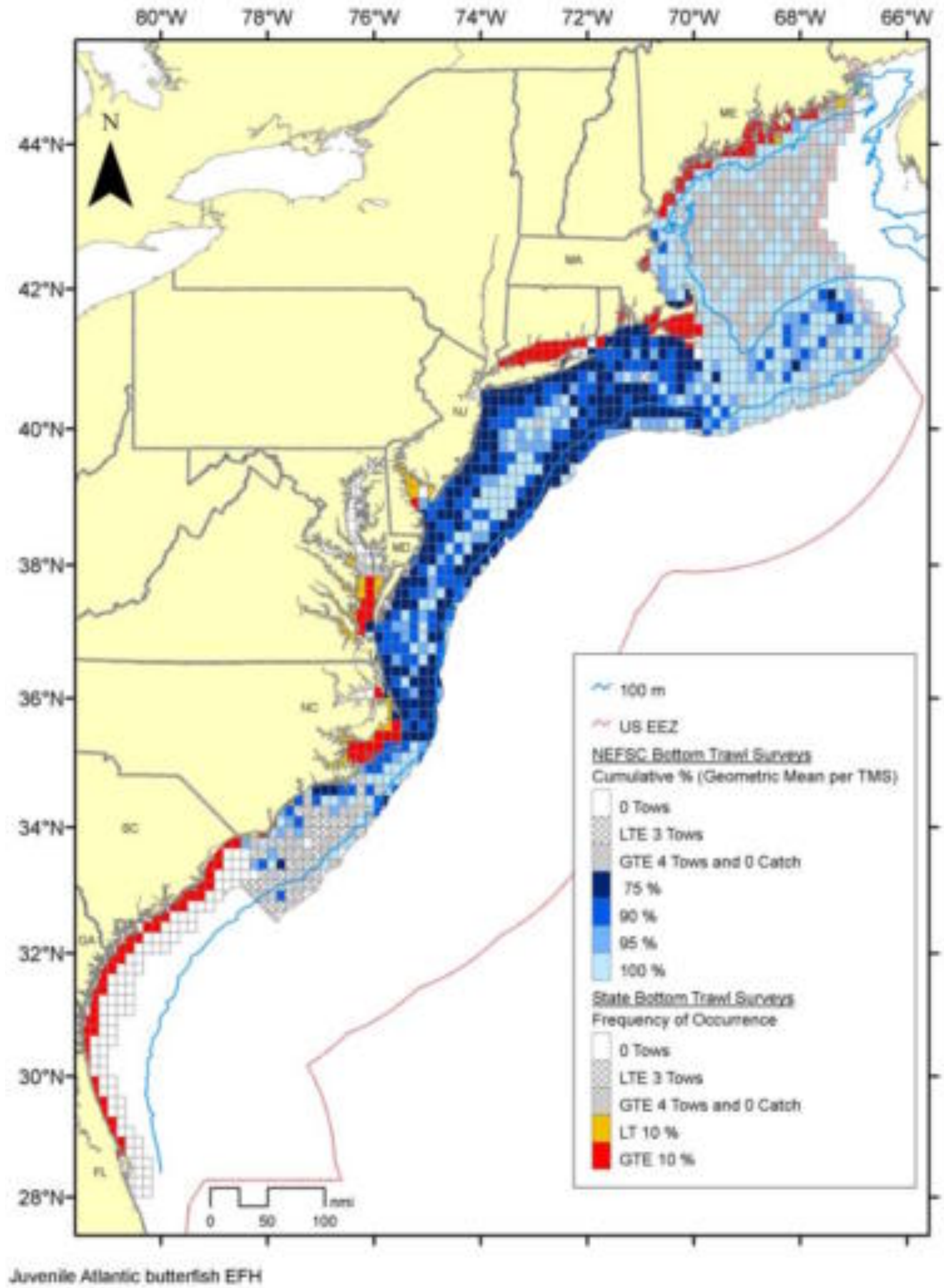


Figure 29. Butterfish *Juveniles*. EFH**. 1976-2007 NEFSC trawl survey data and assorted state data (Table 29).**

The map colors relate to EFH Alternatives 5B-5E. Note the percentages are cumulative. For example, designating based on the 100% threshold would result in an area shown by the lightest blue and all the darker blue shades.

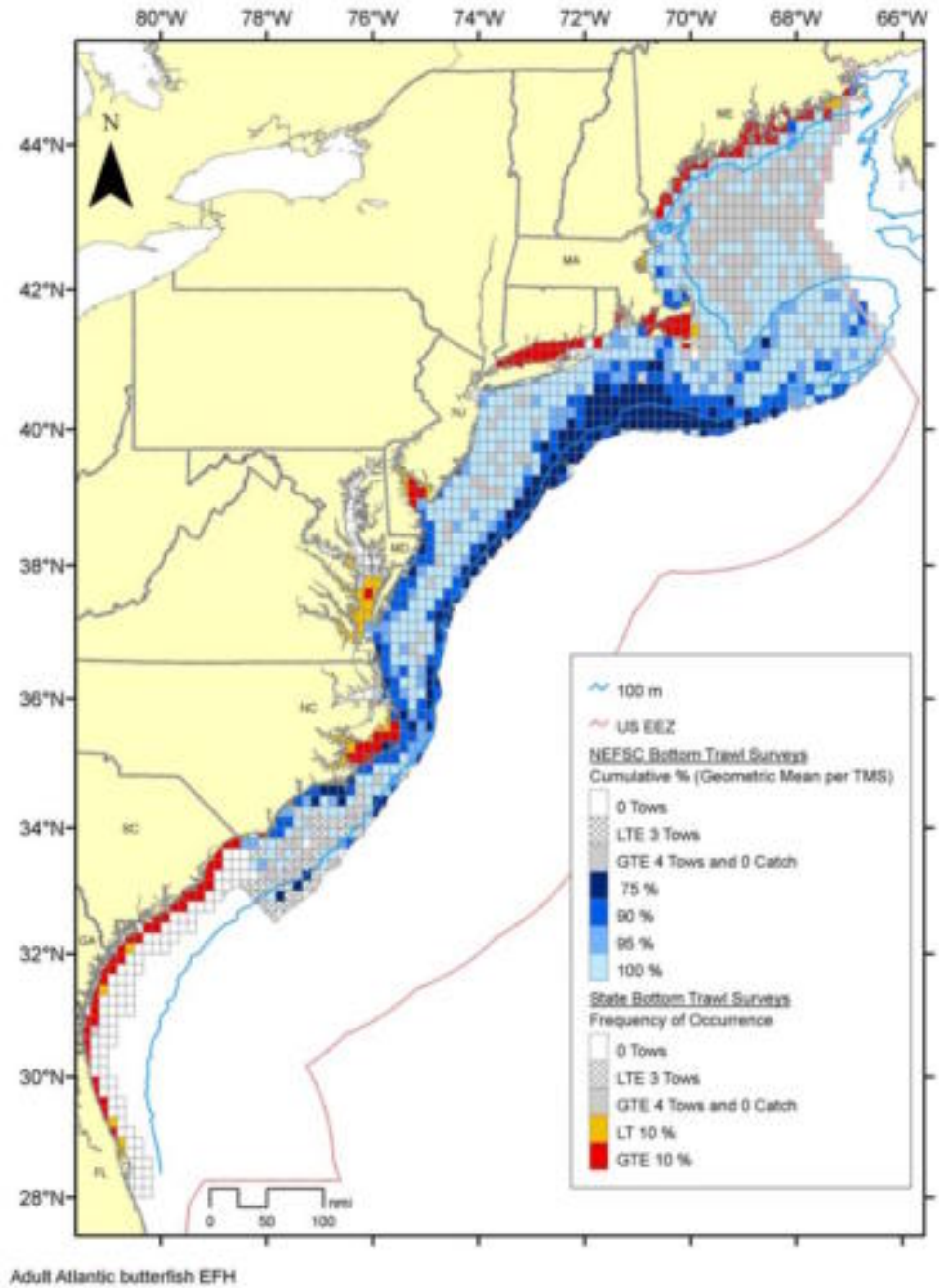


Figure 30. Adult Butterfish EFH. 1976-2007 NEFSC trawl survey data and assorted state data (Table 29).

No changes are proposed to the designations formerly made with ELMR data (at least "common") since these data have not been updated. The original maps are provided below for reference (1985-1994 data). Thus these are essentially status quo <u>and</u> action alternatives. Tables from Amendment 8 listing the coastal bays and estuaries in the ELMR maps below are included in Appendix 2.

Figure 31. Butterfish eggs. ELMR data (1985-1994). Bays and estuaries with at least "common" designation.

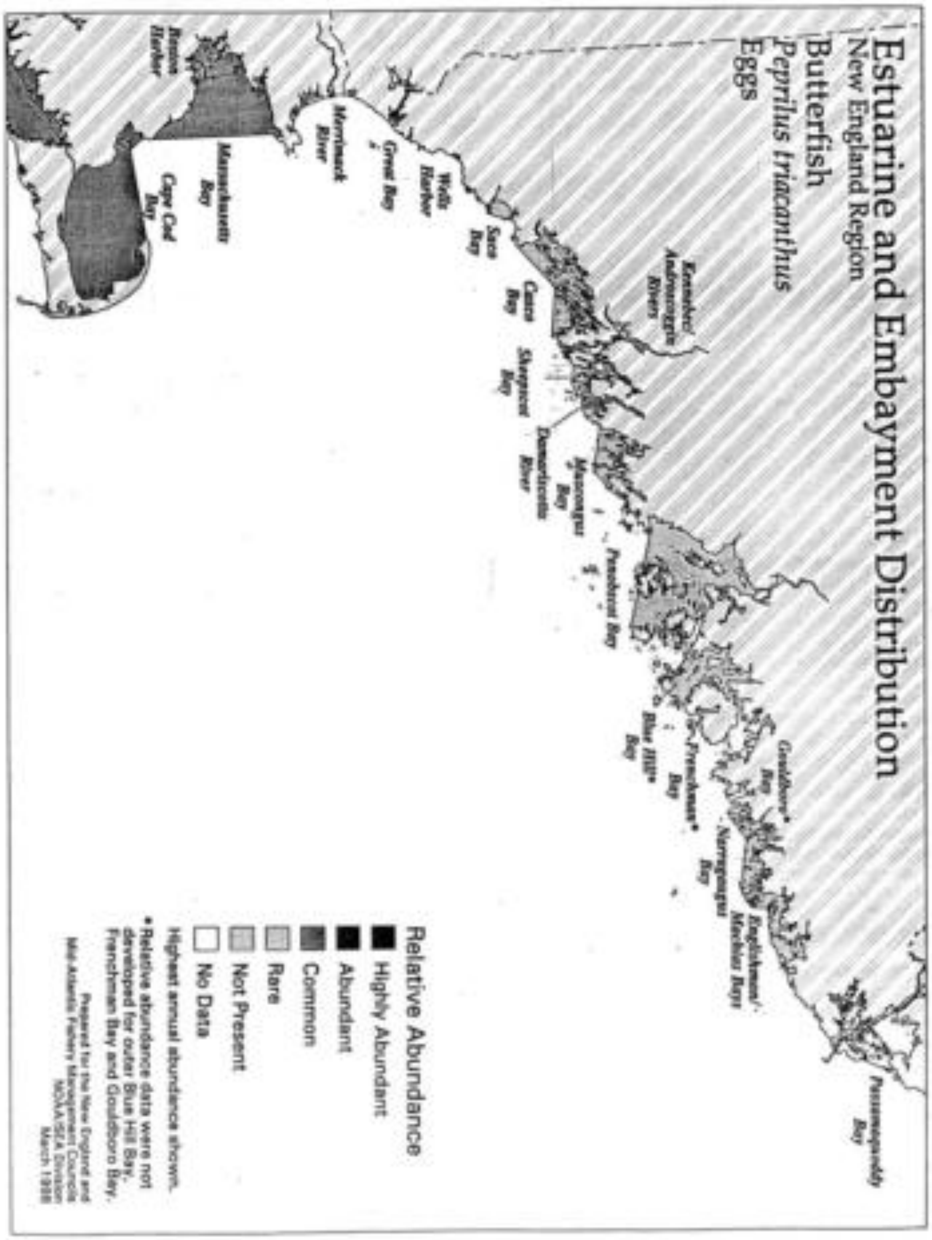


Figure 32.. Butterfish eggs. ELMR data (1985-1994). Bays and estuaries with at least "common" designation.

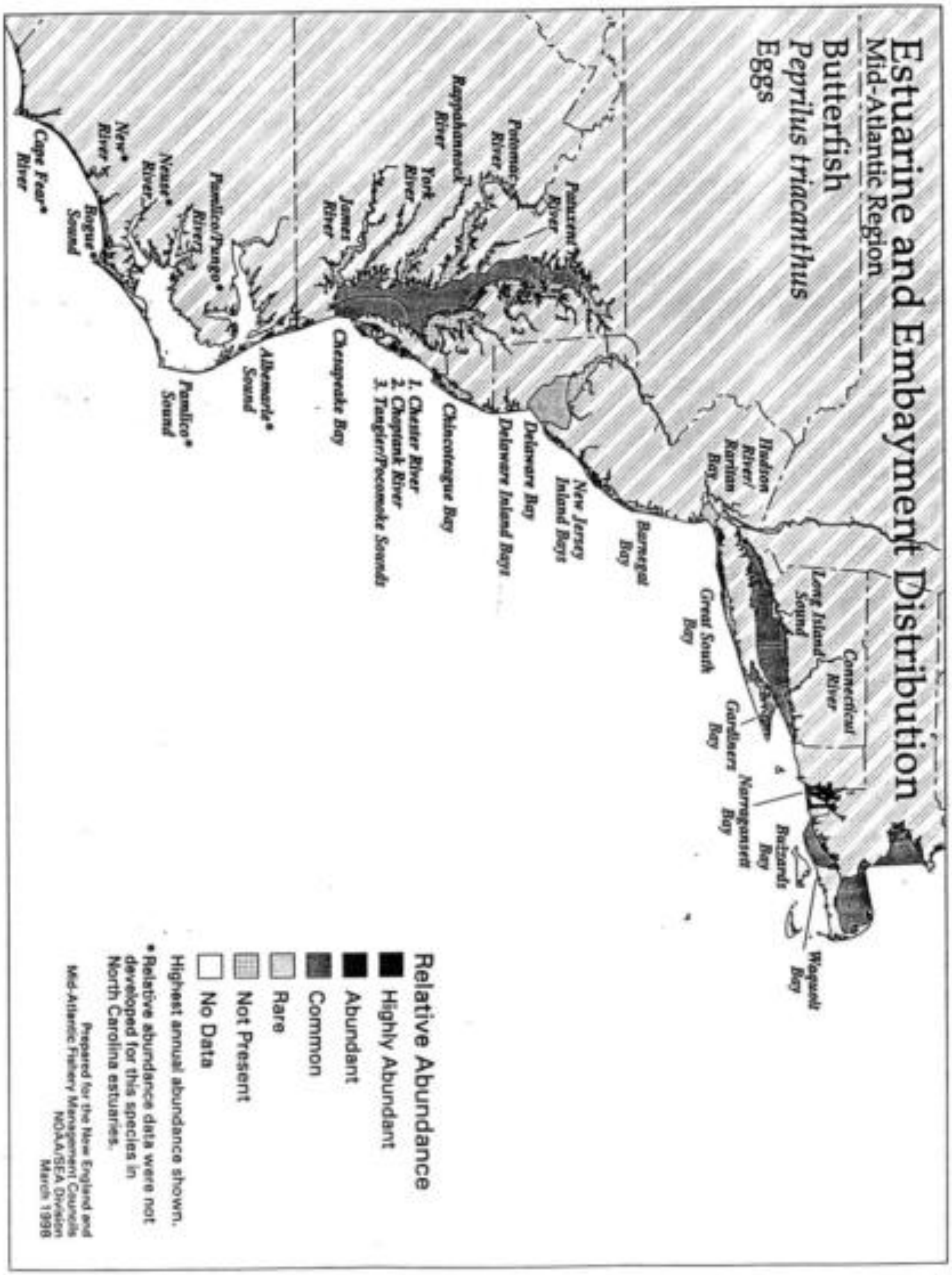


Figure 33. Butterfish larvae. ELMR data (1985-1994). Bays and estuaries with at least "common" designation.

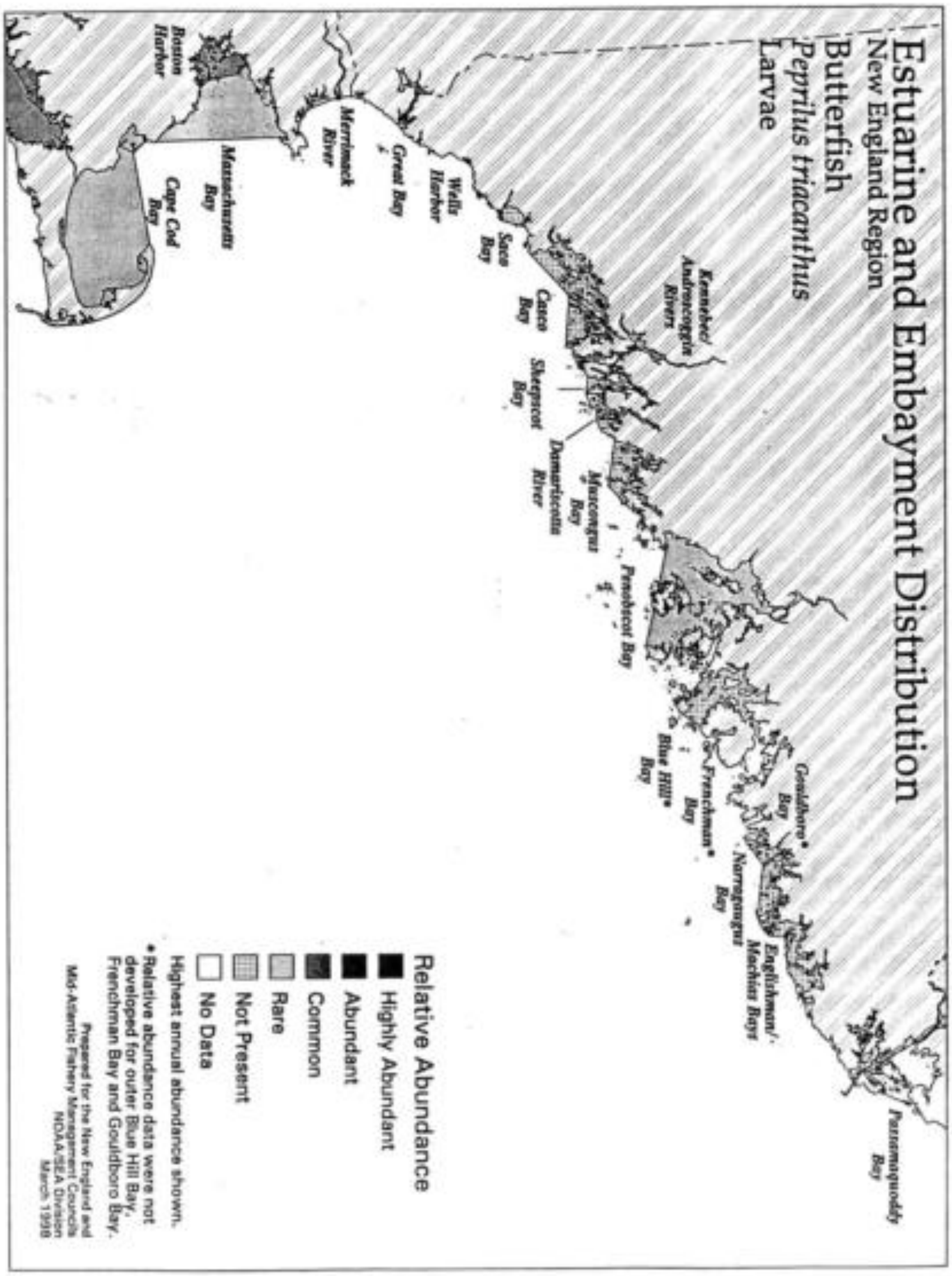


Figure 34 Butterfish larvae. ELMR data (1985-1994). Bays and estuaries with at least "common" designation.

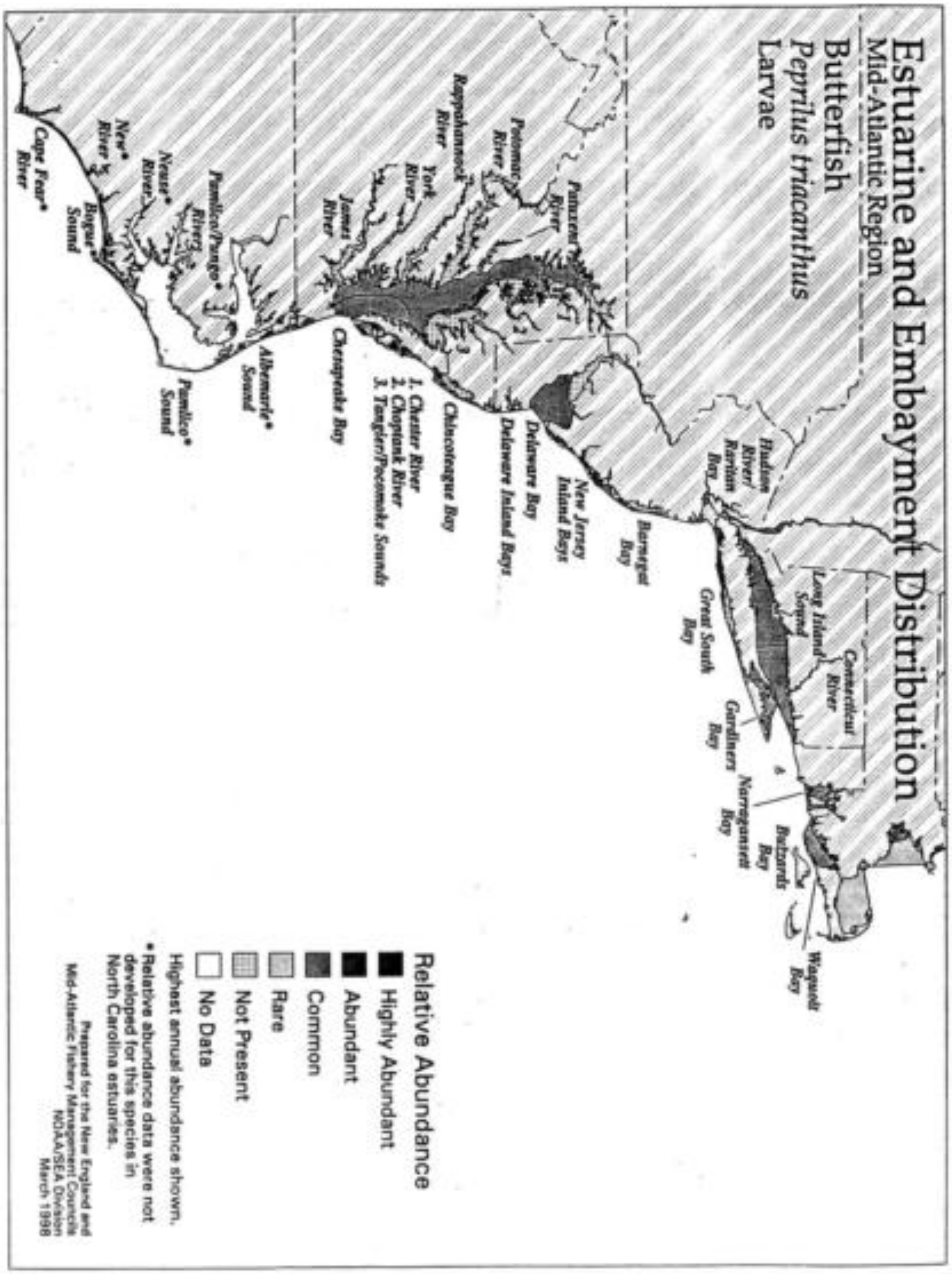


Figure 35. Butterfish juveniles. ELMR data (1985-1994). Bays and estuaries with at least "common" designation.

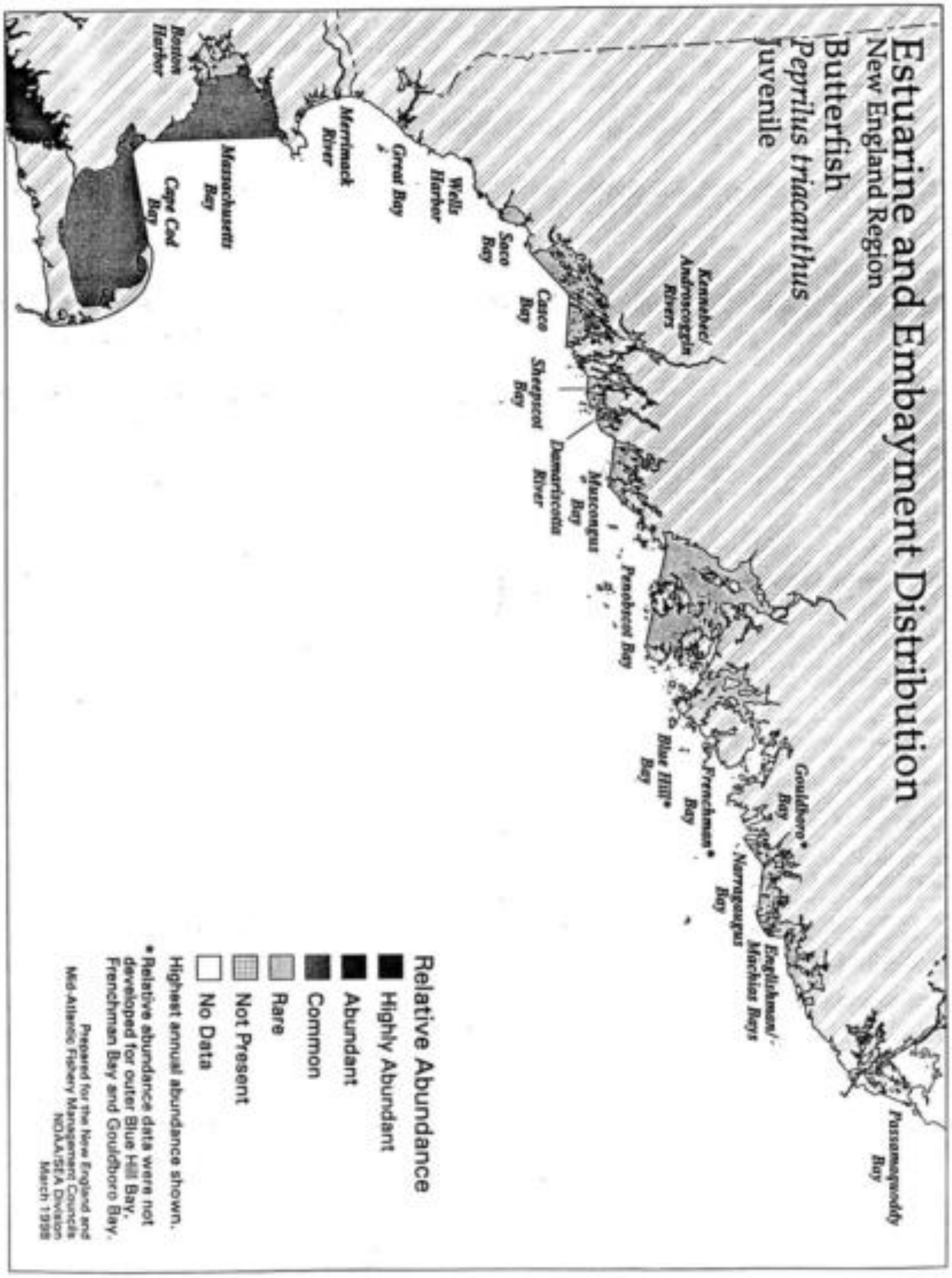


Figure 36. Butterfish juveniles. ELMR data (1985-1994). Bays and estuaries with at least "common" designation.

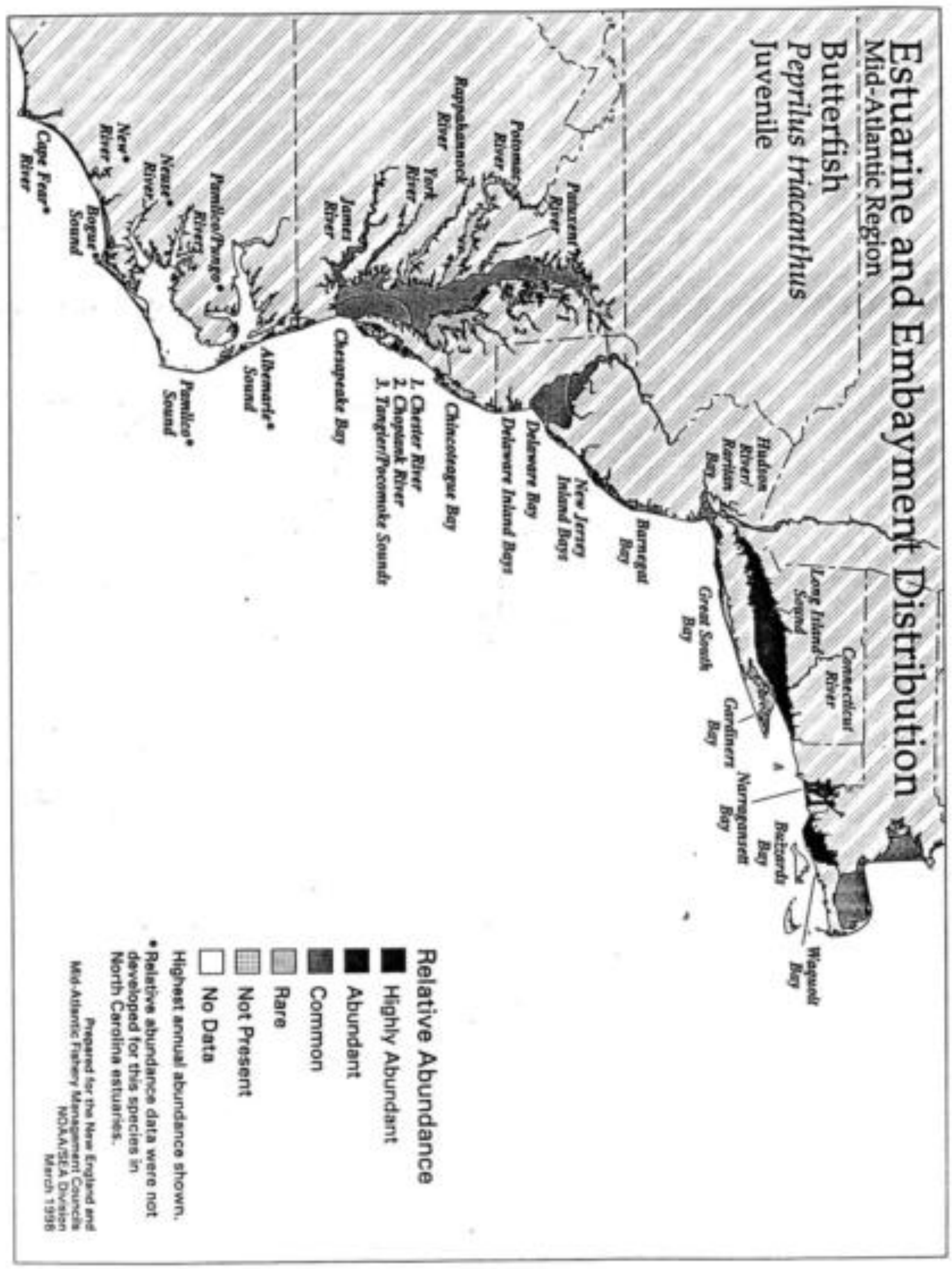


Figure 37. Butterfish adults. ELMR data (1985-1994). Bays and estuaries with at least "common" designation.

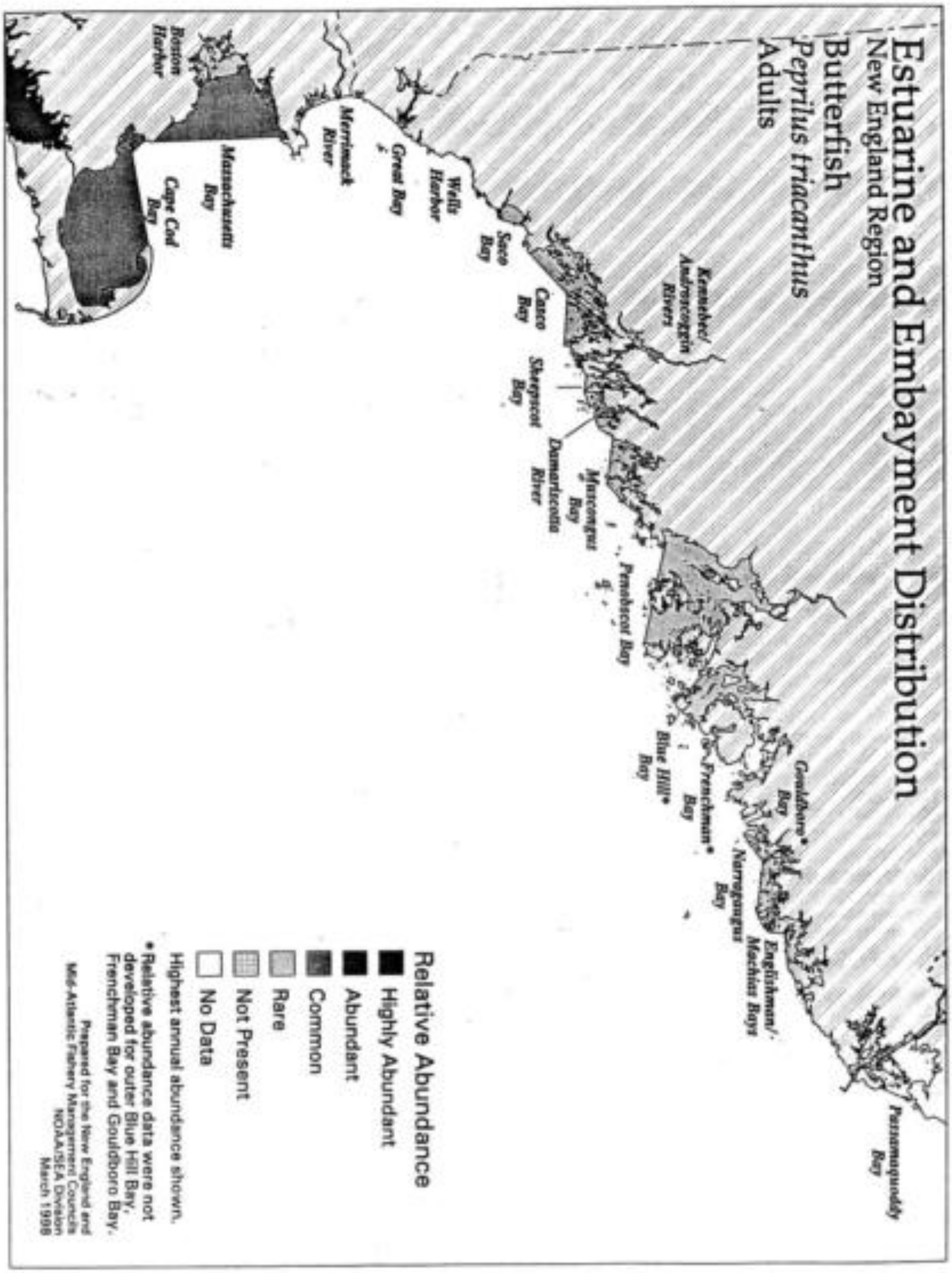


Figure 38. Butterfish adults. ELMR data (1985-1994). Bays and estuaries with at least "common" designation.

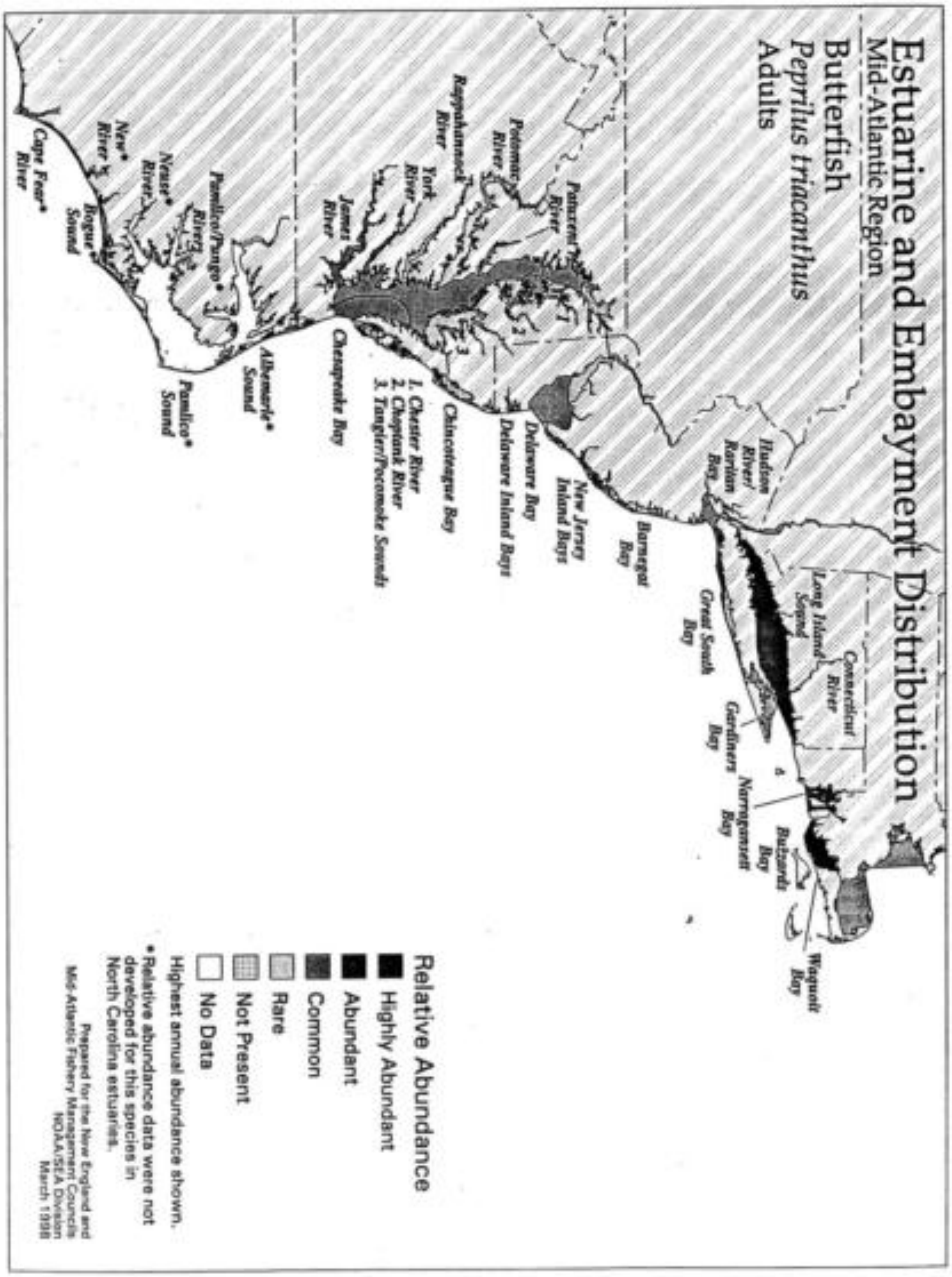


Figure 39. Mackerel eggs. ELMR data (1985-1994). Bays and estuaries with at least "common" designation.

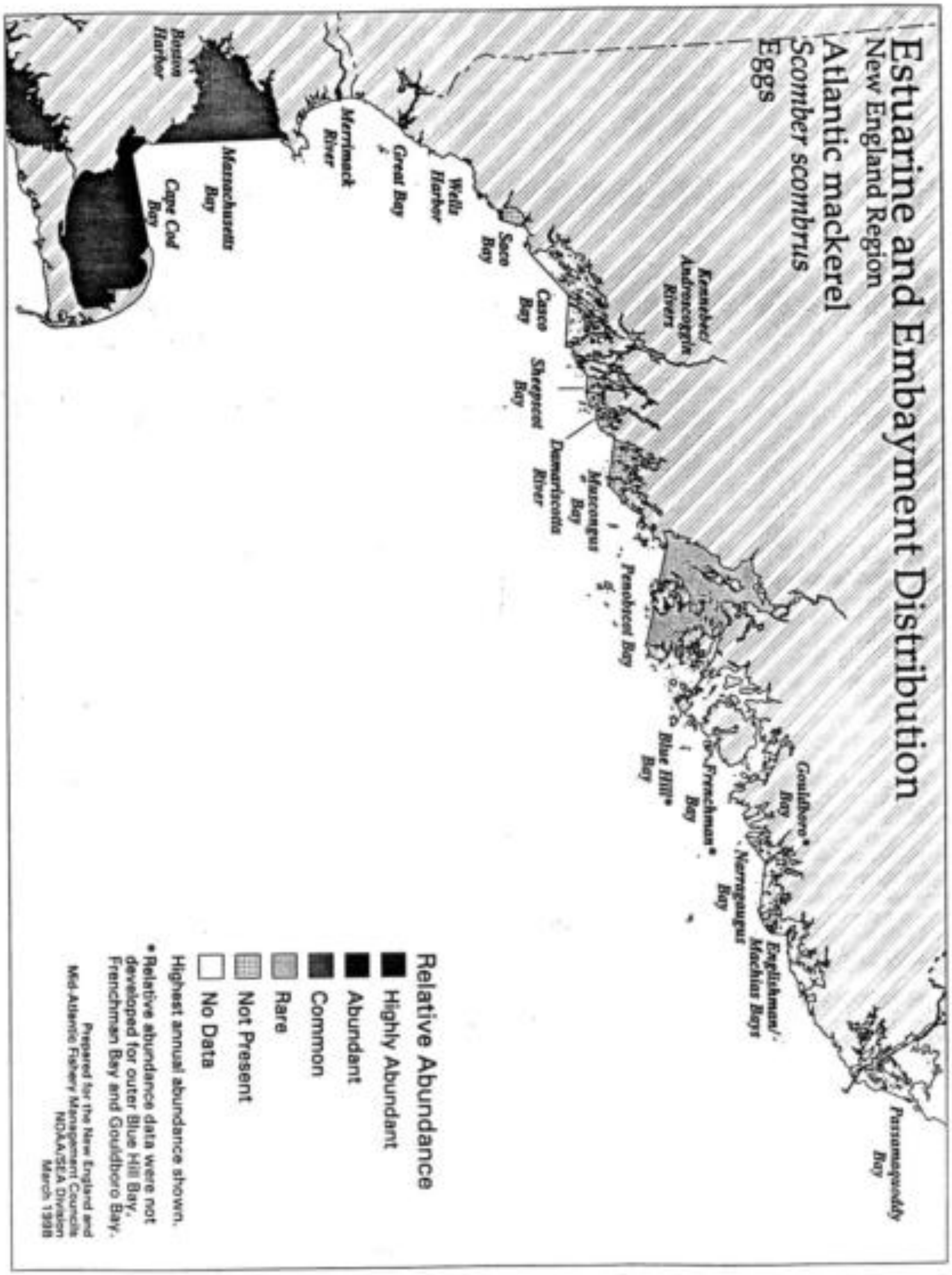


Figure 40. Mackerel eggs. ELMR data (1985-1994). Bays and estuaries with at least "common" designation.

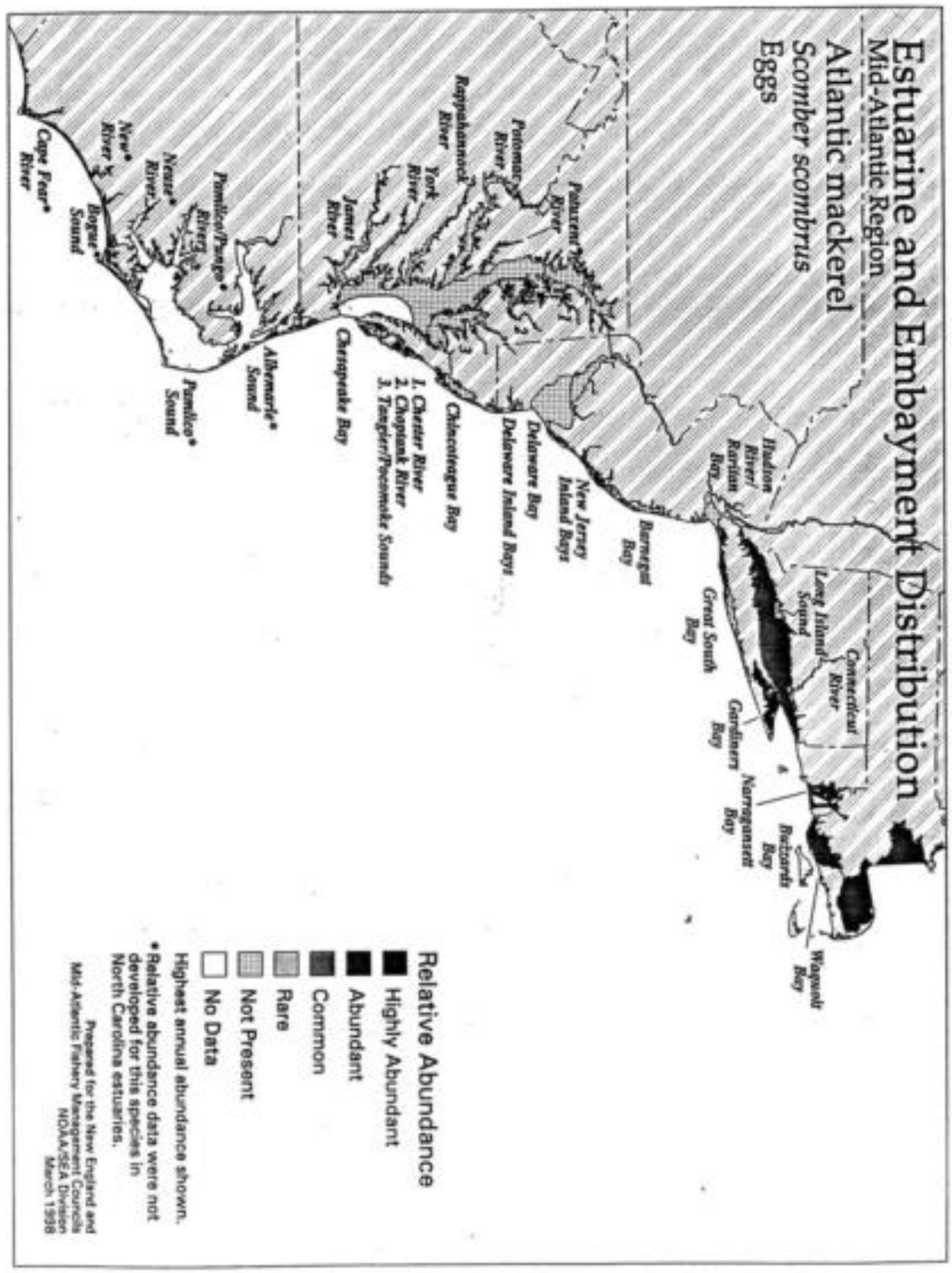


Figure 41. Mackerel larvae. ELMR data (1985-1994). Bays and estuaries with at least "common" designation.

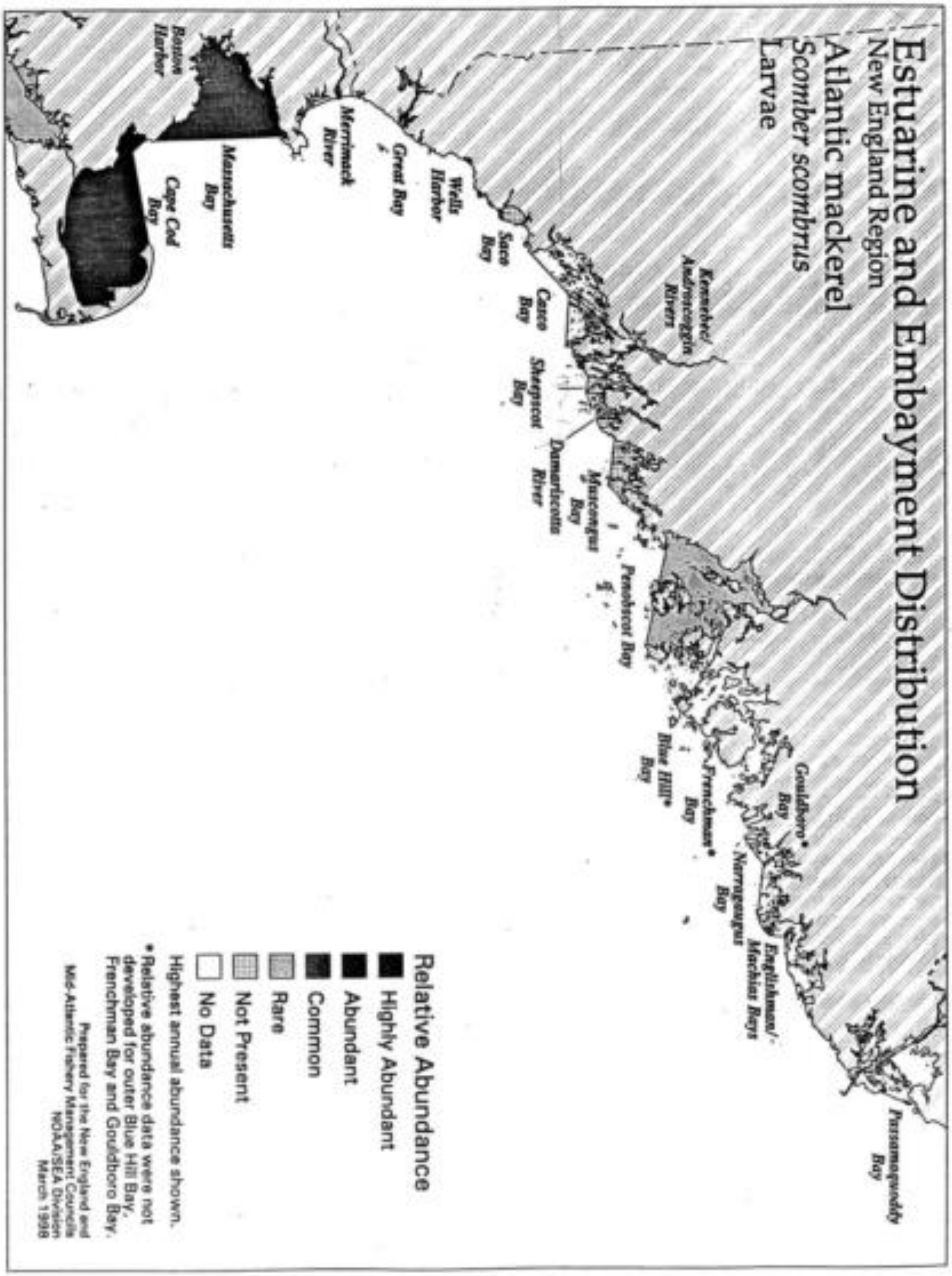


Figure 42. Mackerel larvae. ELMR data (1985-1994). Bays and estuaries with at least "common" designation.

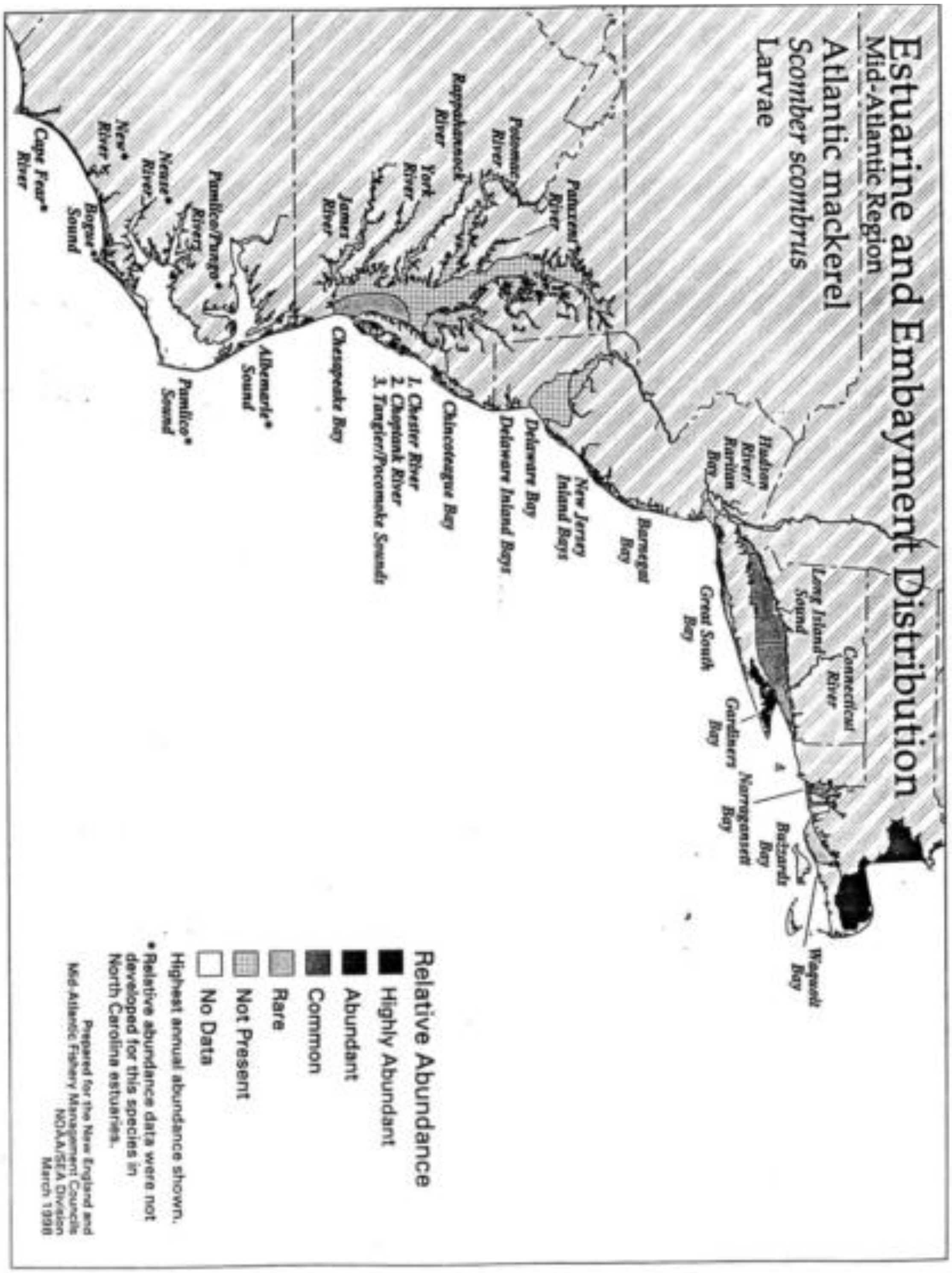


Figure 43. Mackerel juveniles. ELMR data (1985-1994). Bays and estuaries with at least "common" designation.

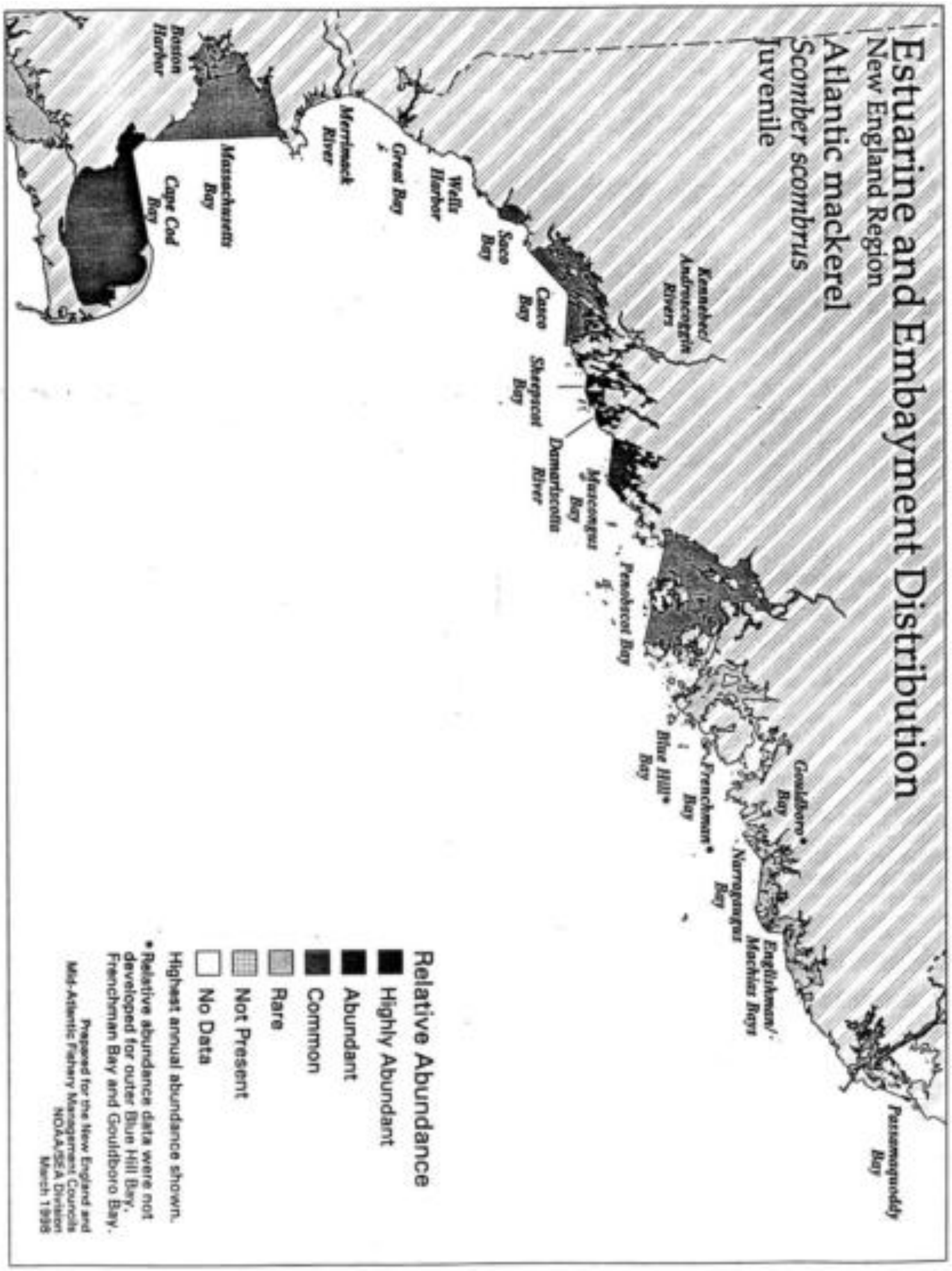


Figure 44. Mackerel juveniles. ELMR data (1985-1994). Bays and estuaries with at least "common" designation.

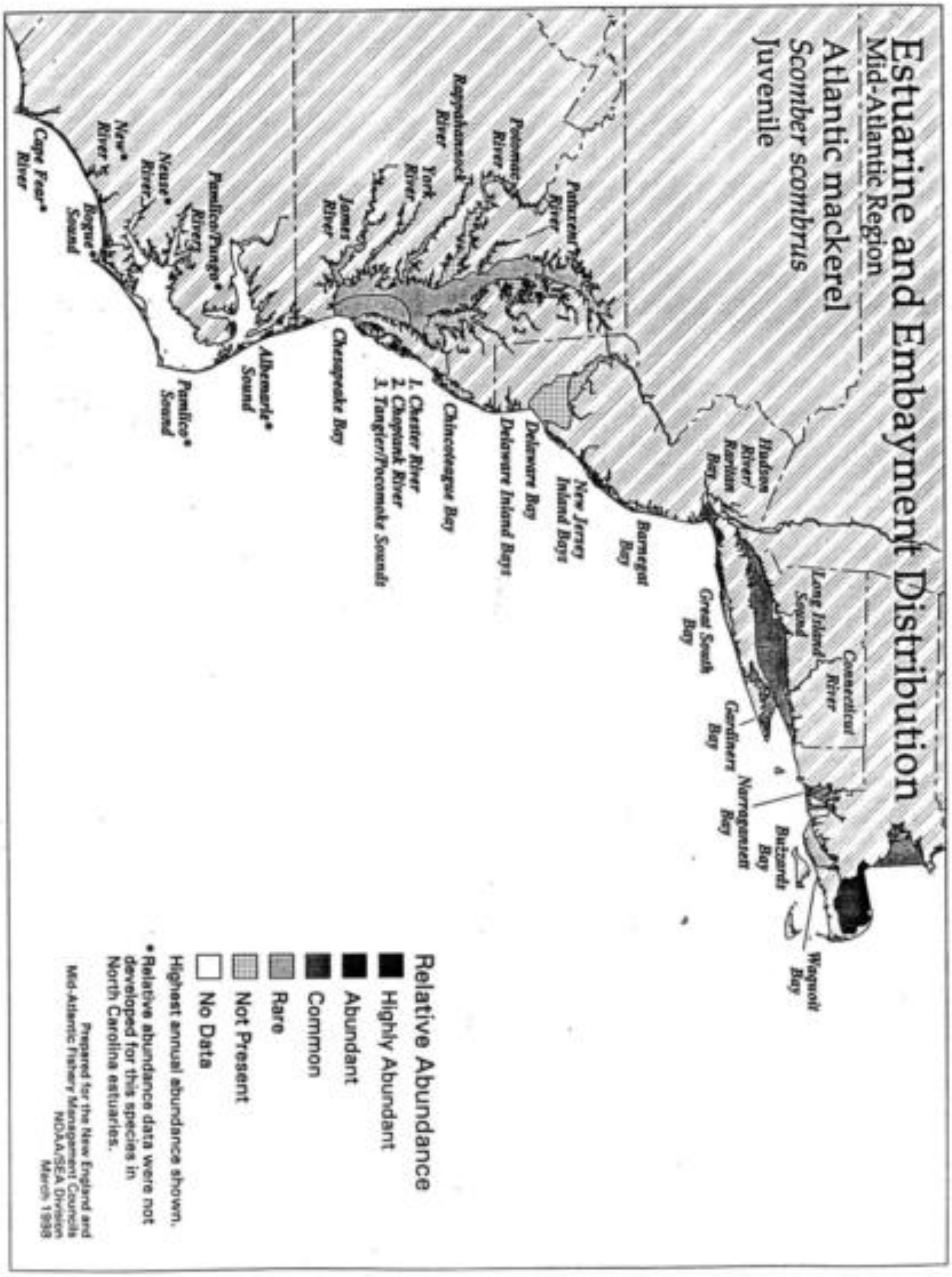


Figure 45. Mackerel adults. ELMR data (1985-1994). Bays and estuaries with at least "common" designation.

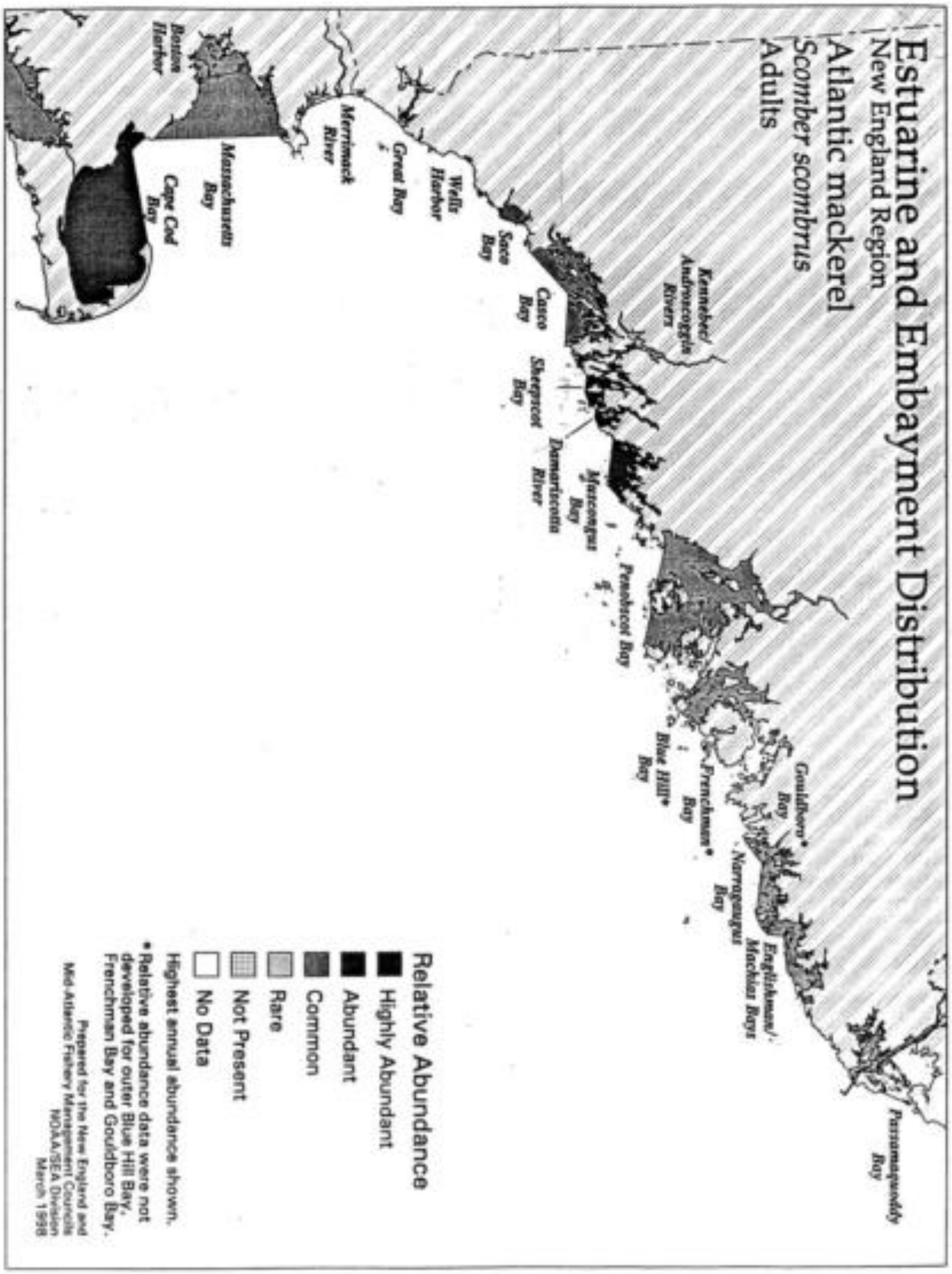
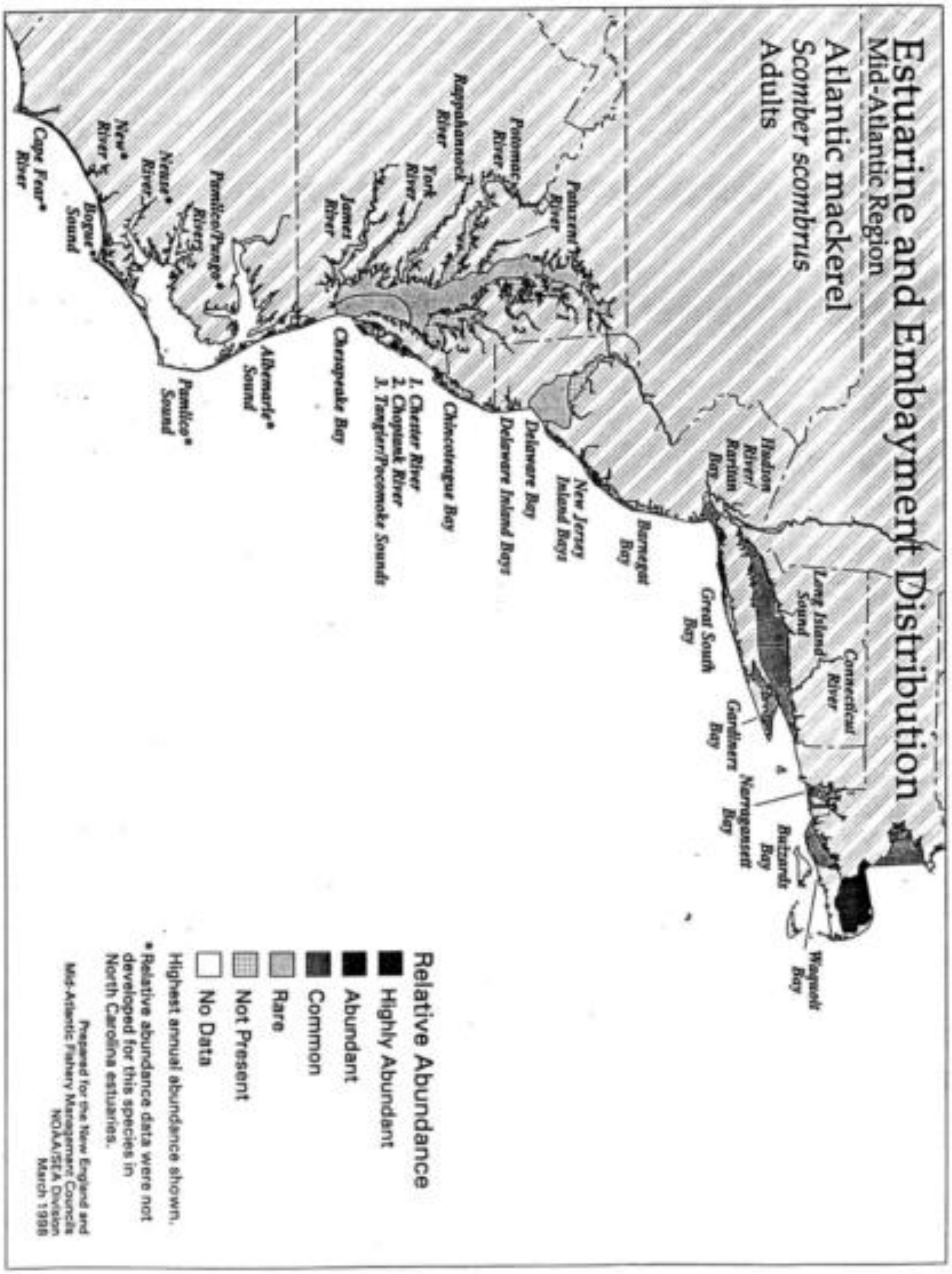


Figure 46. Mackerel adults. ELMR data (1985-1994). Bays and estuaries with at least "common" designation.



Old (Status Quo) EFH Textual Descriptions

Atlantic mackerel

Eggs: Offshore, EFH is the pelagic waters found over the Continental Shelf (from the coast out to the limits of the EEZ), from Maine through Cape Hatteras, North Carolina in areas that comprise the highest 75% of the catch where Atlantic mackerel eggs were collected in MARMAP ichthyoplankton surveys. Inshore, EFH is the “mixing” and/or “seawater” portions of all the estuaries where Atlantic mackerel eggs are “common,” “abundant,” or “highly abundant” on the Atlantic coast, from Passamaquoddy Bay, Maine to James River, Virginia. Generally, Atlantic mackerel eggs are collected from shore to 50 ft and temperatures between 41^{o} F and 73^{o} F.

Larvae: Offshore, EFH is the pelagic waters found over the Continental Shelf (from the coast out to the limits of the EEZ), from the Gulf of Maine through Cape Hatteras, North Carolina that comprise the highest 75% of the catch where Atlantic mackerel larvae were collected in the MARMAP ichthyoplankton survey. Inshore, EFH is also the “mixing” and/or “seawater” portions of all the estuaries where Atlantic mackerel larvae are “common,” “abundant,” or “highly abundant” on the Atlantic coast, from Passamaquoddy Bay, Maine to James River, Virginia. Generally, Atlantic mackerel larvae are collected in depths between 33 ft and 425 ft and temperatures between 43^{o} F and 72^{o} F.

Juveniles: Offshore, EFH is the pelagic water found over the Continental Shelf (from the coast out to the limits of the EEZ), from the Gulf of Maine through Cape Hatteras, North Carolina in areas that comprise the highest 75% of the catch where juvenile Atlantic mackerel were collected in the NEFSC trawl surveys. Inshore, EFH is the “mixing” and/or “seawater” portions of all the estuaries where juvenile Atlantic mackerel are “common,” “abundant,” or “highly abundant” on the Atlantic coast, from Passamaquoddy Bay, Maine to James River, Virginia. Generally, juvenile Atlantic mackerel are collected from shore to 1050 ft and temperatures between 39^{o} F and 72^{o} F.

Adults: Offshore, EFH is the pelagic waters found over the Continental Shelf (from the coast out to the limits of the EEZ), from the Gulf of Maine through Cape Hatteras, North Carolina, in areas that comprise the highest 75% of the catch where adult Atlantic mackerel were collected in the NEFSC trawl surveys. Inshore, EFH is the “mixing” and/or “seawater” portions of all the estuaries where adult Atlantic mackerel are “common,” “abundant,” or “highly abundant” on the Atlantic coast, from Passamaquoddy Bay, Maine to James River, Virginia. Generally, adult Atlantic mackerel are collected from shore to 1250 ft and temperatures between 39^{o} F and 61^{o} F.

Illex

Pre-recruits: EFH is the pelagic waters found over the Continental Shelf (from the coast out to the limits of the EEZ), from the Gulf of Maine through Cape Hatteras, North Carolina in areas that comprise the highest 75% of the catch where pre-recruit *Illex* were collected in the NEFSC trawl surveys. Generally, pre-recruit *Illex* are collected from shore to 600 ft and temperatures between 36^{o} F and 73^{o} F.

Recruits: EFH is the pelagic waters found over the Continental Shelf (from the coast out to the limits of the EEZ), from the Gulf of Maine through Cape Hatteras, North Carolina in areas that comprise the highest 75% of the catch where recruited *Illex* were collected in the NEFSC trawl surveys. Generally, recruited *Illex* are collected from shore to 600 ft and temperatures between 39^{o} F and 66^{o} F.

Pre-recruits and recruits are stock assessment terms which relate to whether or not an individual is selected by the directed bottom trawl fishery and correspond roughly to the life history stages of juveniles and adults, respectively. *Illex* pre-recruits are less than or equal to 10 cm and recruits are greater than 10 cm.

Loligo

Eggs: EFH for *Loligo* eggs occurs in coastal and offshore bottom habitats from Georges Bank southward to Cape Hatteras, as depicted in Figure 24. *Loligo* egg masses are found attached to rocks and boulders on sand or mud bottom, as well as attached to aquatic vegetation. Generally, the following conditions exist where *Loligo* egg EFH is found: bottom water temperatures between 10°C and 23°C, salinities of 30 to 32 ppt, and depths less than 50 meters.

Note: The areas indicated in Figure 24 are further described in Hatfield and Cadrin (2002).

Pre-recruits: EFH is the pelagic waters found over the Continental Shelf (from the coast out to the limits of the EEZ), from the Gulf of Maine through Cape Hatteras, North Carolina in areas that comprise the highest 75% of the catch where pre-recruit *Loligo* were collected in the NEFSC trawl surveys. Generally, pre-recruit *Loligo* are collected from shore to 700 ft and temperatures between 4^{o} F and 27^{o} F.

Recruits: EFH is the pelagic waters found over the Continental Shelf (from the coast out to the limits of the EEZ), from the Gulf of Maine through Cape Hatteras, North Carolina in areas that comprise the highest 75% of the catch where recruited *Loligo* were collected in the NEFSC trawl surveys. Generally, recruited *Loligo* are collected from shore to 1000 ft and temperatures between 39^{o} F and 81^{o} F.

Pre-recruits and recruits are stock assessment terms which relate to whether or not an individual is selected by the directed bottom trawl fishery and correspond roughly to the life history stages juveniles and adults, respectively. *Loligo* pre-recruits are less than or equal to 8 cm and recruits are greater than 8 cm.

Butterfish

Eggs: Offshore, EFH is the pelagic waters found over the Continental Shelf (from the coast out to the limits of the EEZ), from the Gulf of Maine through Cape Hatteras, North Carolina in areas that comprise the highest 75% of the catch where butterfish eggs were collected in MARMAP ichthyoplankton surveys. Inshore, EFH is the “mixing” and/or “seawater” portions of all the estuaries where butterfish eggs are “common,” “abundant,” or “highly abundant” on the Atlantic coast, from Passamaquoddy Bay, Maine to James River, Virginia. Generally, butterfish eggs are collected from shore to 6000 ft and temperatures between 52^{o} F and 63^{o} F.

Larvae: Offshore, EFH is the pelagic waters found over the Continental Shelf (from the coast out to the limits of the EEZ), from the Gulf of Maine through Cape Hatteras, North Carolina areas that comprise the highest 75% of the catch where butterfish larvae were collected in the NEFSC trawl surveys. Inshore, EFH is the “mixing” and/or “seawater” portions of all the estuaries where butterfish larvae are “common,” “abundant,” or “highly abundant” on the Atlantic coast, from Passamaquoddy Bay, Maine to James River, Virginia. Generally, butterfish larvae are collected in depths between 33 ft and 6000 ft and temperatures between 48^{o} F and 66^{o} F.

Juveniles: Offshore, EFH is the pelagic waters found over the Continental Shelf (from the coast out to the limits of the EEZ), from the Gulf of Maine through Cape Hatteras, North Carolina in areas that comprise the highest 75% of the catch where juvenile butterfish were collected in the NEFSC trawl surveys. Inshore, EFH is the “mixing” and/or “seawater” portions of all the estuaries where juvenile butterfish are “common,” “abundant,” or “highly abundant” on the Atlantic coast, from Passamaquoddy Bay, Maine to James River, Virginia. Generally, juvenile butterfish are collected in depths between 33 ft and 1200 ft and temperatures between 37^{o} F and 82^{o} F.

Adults: Offshore, EFH is the pelagic waters found over the Continental Shelf (from the coast out to the limits of the EEZ), from the Gulf of Maine through Cape Hatteras, North Carolina in areas that comprise the highest 75% of the catch where adult butterfish were collected in the NEFSC trawl surveys. Inshore, EFH is the “mixing” and/or “seawater” portions of all the estuaries where adult butterfish are “common,” “abundant,” or “highly abundant” on the Atlantic coast, from Passamaquoddy Bay, Maine to James River, Virginia. Generally, adult butterfish are collected in depths between 33 ft and 1200 ft and temperatures between 37^{o} F and 82^{o} F.

New EFH Textual Descriptions

No changes are being proposed regarding the ELMR data so for all lifestages of butterfish and mackerel, the EFH designated in Amendment 8 using the ELMR data still applies (areas where species/lifestage was "common," "abundant," or "highly abundant" on the Atlantic coast, from Passamaquoddy Bay, Maine to James River, Virginia.

Atlantic mackerel (*Scomber scombrus*)

Eggs: EFH is pelagic habitats in inshore estuaries and embayments from Great Bay, New Hampshire to the south shore of Long Island, New York, inshore and offshore waters of the Gulf of Maine, and on the continental shelf from Georges Bank to Cape Hatteras, North Carolina (mostly north of 38°N), as depicted in Figure 17. EFH for Atlantic mackerel eggs is generally found over bottom depths of 100 meters or less with average water temperatures of 6.5-12.5°C in the upper 15 meters of the water column.

Larvae: EFH is pelagic habitats in inshore estuaries and embayments from Great Bay, New Hampshire to the south shore of Long Island, New York, inshore waters of the Gulf of Maine, and on the continental shelf from Georges Bank to Cape Hatteras, North Carolina (mostly north of 38°N), as depicted in Figure 18. EFH for Atlantic mackerel larvae is generally found over bottom depths between 21 and 100 meters with average water temperatures of 5.5-11.5°C in the upper 200 meters of the water column.

Juveniles: EFH is pelagic habitats in inshore estuaries and embayments from Passamaquoddy Bay and Penobscot Bay, Maine to the Hudson River, in the Gulf of Maine, and on the continental shelf from Georges Bank to Cape Hatteras, North Carolina, as depicted in Figure 19. EFH for juvenile Atlantic mackerel is generally found over bottom depths between 10 and 110 meters and in water temperatures of 5 to 20°C. Juvenile Atlantic mackerel feed primarily on small crustaceans, larval fish, and other pelagic organisms.

Adults: EFH is pelagic habitats in inshore estuaries and embayments from Passamaquoddy Bay, Maine to the Hudson River, and on the continental shelf from Georges Bank to Cape Hatteras, North Carolina, as depicted in Figure 20. EFH for adult Atlantic mackerel is generally found over bottom depths less than 170 meters and in water temperatures of 5 to 20°C. Spawning occurs at temperatures above 7°C, with a peak between 9 and 14°C. Adult Atlantic mackerel are opportunistic predators feeding primarily on a wider range and larger individuals of pelagic crustaceans than juveniles, but also on fish and squid.

Northern shortfin squid (*Illex illecebrosus*)

Eggs: EFH is pelagic habitats along the outer continental shelf and slope within the latitudinal range of 40°N to 35°50 N, where bottom depths are 113-377 meters and water temperatures are between 12.5 and 26°C, as depicted in Figure 21. The gelatinous egg balloons (0.5 – 1 meter in diameter) are presumed to be found in the midwater zone above the thermocline because laboratory studies indicate they are neutrally buoyant.

Pre-recruits: EFH is pelagic habitats along the outer continental shelf and slope as far south as South Carolina, on Georges Bank, and on the inner continental shelf off New Jersey and southern Maine and New Hampshire, as depicted in Figure 22. EFH for pre-recruit Northern shortfin squid is generally found over bottom depths between 41 and 400 meters where bottom temperatures are 9.5-16.5°C and salinities are 34.5-36.5 ppt. They also inhabit pelagic habitats in the Gulf Stream where water temperatures are above 16°C and migrate onto the shelf as they grow. Pre-recruits make daily vertical migrations, moving up in the water column at night and down in the daytime. They feed primarily on euphausiids at night near the surface.

Recruits: EFH is pelagic habitats on the continental shelf and slope from Georges Bank to South Carolina, and in inshore and offshore waters of the Gulf of Maine, as depicted in Figure 23. EFH for recruit Northern shortfin squid is generally found on the shelf over bottom depths between 41 and 400 meters where bottom temperatures are 4.5-14.5°C and salinities are 34.5-36.5 ppt. They have also been caught in bottom trawls as deep as 2,500 m in waters beyond the edge of the shelf and on Bear Seamount. Recruits make daily vertical migrations, moving up in the water column at night and down in the daytime. They feed primarily on fish and euphausiids and are also cannibalistic (larger females consume smaller males).

Longfin inshore squid (*Loligo pealeii*)

Eggs: EFH for *Loligo* eggs occurs in inshore and offshore bottom habitats from Georges Bank southward to Cape Hatteras, as depicted in Figure 12. EFH for *Loligo* eggs is generally found where bottom water temperatures are between 10°C and 23°C, salinities are between 30 and 32 ppt and depth is less than 50 meters. Loligo eggs have also been collected in bottom trawls in deeper water at various places on the continental shelf (Figure 24). Like most loliginids, L. pealeii egg masses or “mops” are demersal and anchored to the substrates on which they are laid, which include a variety of hard bottom types (e.g., shells, lobster pots, piers, fish traps, boulders, and rocks), submerged aquatic vegetation (e.g., Fucus sp.), sand, and mud.

Pre-recruits: EFH is pelagic habitats in inshore and offshore continental shelf waters from Georges Bank to South Carolina, in the southwestern Gulf of Maine, and in embayments such as Narragansett Bay, Long Island Sound, and Raritan Bay, as depicted in Figure 25. EFH for recruit longfin inshore squid is generally found over bottom depths between 6 and 160 meters where bottom water temperatures are 8.5-24.5°C and salinities are 28.5-36.5 ppt. Pre-recruits migrate offshore in the fall where they overwinter in deeper waters along the edge of the shelf. They make daily vertical migrations, moving up in the water column at night and down in the daytime. Small immature individuals feed on planktonic organisms while larger individuals feed on crustaceans and small fish.

Recruits: EFH is pelagic habitats in inshore and offshore continental shelf waters from Georges Bank to South Carolina, in inshore waters of the Gulf of Maine, and in embayments such as Narragansett Bay, Long Island Sound, Raritan Bay, and Delaware Bay, as depicted in Figure 26. EFH for recruit longfin inshore squid is generally found over bottom depths between 6 and 200 meters where bottom water temperatures are 8.5-14°C and salinities are 24-36.5 ppt. Recruits inhabit the continental shelf and upper continental slope to depths of 400 meters. They migrate offshore in the fall and overwinter in warmer waters along the edge of the shelf. Like the pre-recruits, they make daily vertical migrations. Individuals larger than 12 cm feed on fish and those larger than 16 cm feed on fish and squid. Females deposit eggs in gelatinous capsules which are attached in clusters to rocks, boulders, and aquatic vegetation and on sand or mud bottom, generally in depths less than 50 meters.

Atlantic butterfish (*Peprilus triacanthus*)

Eggs: EFH is pelagic habitats in inshore estuaries and embayments from Massachusetts Bay to the south shore of Long Island, New York, in Chesapeake Bay, and on the continental shelf and slope, primarily from Georges Bank to Cape Hatteras, North Carolina, as depicted in Figure 27. EFH for Atlantic butterfish eggs is generally found over bottom depths of 1,500 meters or less where average temperatures in the upper 200 meters of the water column are 6.5-21.5°C.

Larvae: EFH is pelagic habitats in inshore estuaries and embayments in Boston harbor, from the south shore of Cape Cod to the Hudson River, and in Delaware and Chesapeake bays, and on the continental shelf from the Great South Channel (western Georges Bank) to Cape Hatteras, North Carolina, as depicted in Figure 28. EFH for Atlantic butterfish larvae is generally found over bottom depths between 41 and 350 meters where average temperatures in the upper 200 meters of the water column are 8.5-21.5°C.

Juveniles: EFH is pelagic habitats in inshore estuaries and embayments from Massachusetts Bay to Pamlico Sound, North Carolina, in inshore waters of the Gulf of Maine and the South Atlantic Bight, and on the inner and outer continental shelf from southern New England to South Carolina, as depicted in Figure 29. EFH for juvenile Atlantic butterfish is generally found over bottom depths between 10 and 280 meters where bottom water temperatures are between 6.5 and 27°C and salinities are above 5 ppt. Juvenile butterfish feed mainly on planktonic prey.

Adults: EFH is pelagic habitats in inshore estuaries and embayments from Massachusetts Bay to Pamlico Sound, North Carolina, inshore waters of the Gulf of Maine and the South Atlantic Bight, on Georges Bank, on the inner continental shelf south of Delaware Bay, and on the outer continental shelf from southern New England to South Carolina, as depicted in Figure 30. EFH for adult Atlantic butterfish is generally found over bottom depths between 10 and 250 meters where bottom water temperatures are between 4.5 and 27.5°C and salinities are above 5 ppt. Spawning probably does not occur at temperatures below 15°C. Adult butterfish feed mainly on planktonic prey, including squids and fishes.

5.6 Alternative Set 6: Alternatives to establish a recreational allocation based on historical landings to prepare for development of ACLs/AMs.

5.6.1 Statement of Problem/Need for Action

MSA requires that FMPs need to have ACLs/AMs by 2011 for MSB species. An allocation to the recreational fishery is needed in order to build in ACLs/AMs in forthcoming Omnibus ACL/AM Amendment. While there is a soft assumption about potential recreational harvest that is considered during the specifications process, there technically is not currently a recreational allocation. Under the current regime, technically both the commercial and recreational sectors fish on the same quota and in the unlikely event that the recreational fishery caught the full amount of quota in its soft allocation, the total fishery could be over its quota before the commercial fishery even went to incidental trip limits. Increased accountability will be needed with ACLs/AMs and designating a specific recreational allocation will facilitate development of ACLs/AMs in the Omnibus Amendment (in other words, how would you create ACLs/AMs if the fishery wasn't even tied to a meaningful quota).

5.6.2 General Rationale

Alternative Set 6 would establish a recreational allocation from a range of allocations derived from historical landings and considering the uncertainty of the MRFSS data. ACLs/AMs are not being fully implemented in Amendment 11 but addressing the recreational/commercial quota issue is a step that needs to occur as part of the ACL/AM process because as addressed above, currently technically both the recreational and commercial sectors fish on the same quota.

5.6.3 Background

MSA Compliance

The MSA was reauthorized in 2007 and one new requirement is to establish annual catch limits (ACLs) and accountability measures (AMs) in order to end and/or prevent overfishing in all FMPs. Section 302 (h)(6) states: (Each Council shall) develop annual catch limits for each of its managed fisheries that may not exceed the fishing level recommendations of its Scientific and Statistical Committee or the peer review process established. Section 303 (a)(15) states: (Any FMP shall) establish a mechanism for specifying annual catch limits in the plan (including a multiyear plan), implementing regulations, or annual specifications, at a level such that overfishing does not occur in the fishery, including measures to ensure accountability. The squid species are exempted because they have a lifespan of one year or less and overfishing is not occurring. The Proposed Rule for the revised National Standard guidelines was published by NMFS on June 9, 2008, and the comment period on the Proposed Rule extended through September 22, 2008. Following a review of public comments, NMFS published a Final Rule with guidelines the implementation of ACLs and AMs on January 16, 2009.

The MSB FMP is required to be in compliance with these new regulations by 2011 because no MSB fisheries are subject to overfishing at this time. The MSB fisheries are already generally managed with hard quotas so the Council has already laid the foundation for complying with the ACL and AM requirements of the MSRA. The Council originally intended to use Am11 to update the MSB FMP so as to be in compliance with the ACL/AM provisions if the MSA but has since decided to deal with the ACL/AM issue in a holistic manner though an Omnibus ACL/AM. As part of the original ACL/AM considerations in Am11 a specific allocation to the recreational sector was considered because ACLs/AMs would have to be judged against a hard number. While ACLs/AMs in general have been moved to an Omnibus Amendment, the Omnibus Amendment will need a recreational allocation upon which to build in ACLs/AMs. Neither ACLs nor AMs are proposed in AM11, but the alternatives consider a recreational allocation based on historical landings to facilitate ACLs/AMs in an Omnibus Amendment.

Recreational Statistics: MRFSS Background

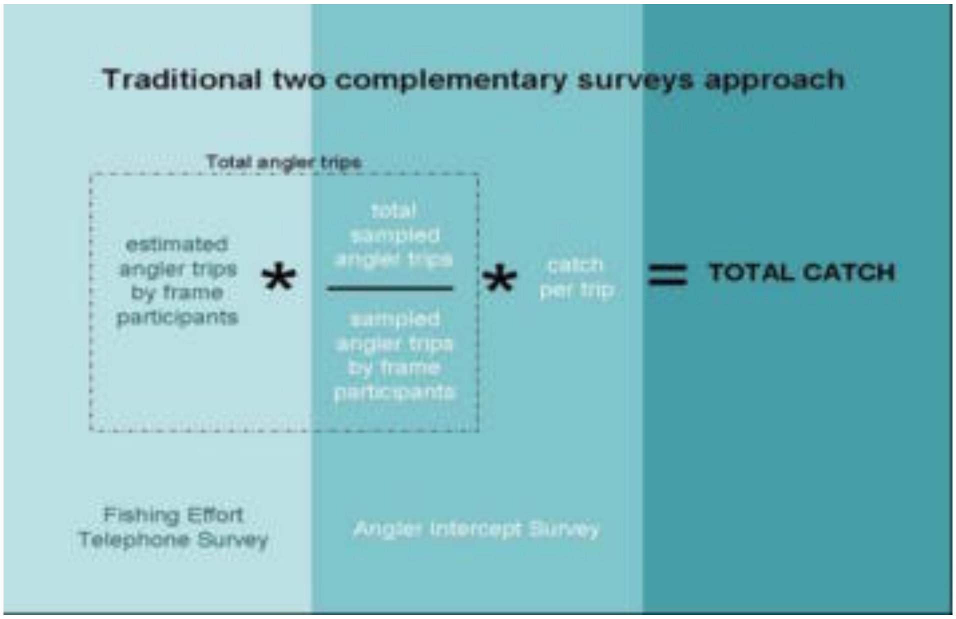
Catches by the marine recreational fishery are a significant portion of the total landings of many marine species. Passage of the Magnuson Fishery Conservation and Management Act (MFCMA, 16 USC 1801) in 1976 mandated collection of data for both commercial and recreational marine fisheries. Following several years of testing, a standard method of data collection and statistical estimation was initiated in 1981 and the program is known as the Marine Recreational Fisheries Statistics Survey (MRFSS). Catch, effort, and participation estimates for marine recreational fisheries have been produced since 1981. For the Northeast and Mid-Atlantic, NMFS manages the recreational data collection system in collaboration with the States, but other regions of the country (e.g. Pacific Coast) have exercised more State/regional control of the survey. Data for the estimates come from a variety of on-site and telephone surveys. Data are generally not collected in January and February, months when it is possible that recreational fishing for mackerel may occur.

The following section on methodology comes from NMFS overview web site on MRFSS, http://www.st.nmfs.noaa.gov/st1/recreational/overview/overview.html:

METHODOLOGY

The basic design for collecting recreational fishing statistics consists of a complemented surveys approach that includes telephone surveys of fishing effort and an access-site intercept survey of angler catch. This basic design is shown in Figure 47.

Figure 47. Traditional complementary surveys approach (fishing modes are independently estimated).



The Coastal Household Telephone Survey (CHTS)

The CHTS collects fishing effort data from shore and private boat anglers. Because the majority of shore and private boat fishing trips are taken by individuals who live in coastal areas, the CHTS is limited to households located in coastal counties. Correction factors derived from the intercept survey are used to account for trips taken by non-coastal resident and out-of-state anglers, as well as anglers who live in households without telephones. Data collection occurs during a two-week period at the end of each two-month sample period (or “wave”). In 2006 the survey was conducted for the entire year (January through December or waves 1-6) on the Pacific coast, the Gulf of Mexico coast, the Atlantic coast of Florida, Hawaii, and Puerto Rico. The survey was conducted for ten months (March through December or waves 2-6) on the Atlantic coast north of Florida, except for Maine and New Hampshire, where it was conducted for six months (May through October or waves 3-5). This regional annual schedule has been maintained since the survey inception in 1979 although not all states, or commonwealths, have been surveyed in all years (see Geographic Coverage section). The CHTS is currently being conducted in the Pacific coast sub-regions (CA, OR, WA) concurrently with Pacific States Marine Fisheries Commission-coordinated state surveys to evaluate alternative angler effort methodologies. The CHTS specifically excludes Texas and Alaska, who conduct their own recreational fishing surveys.

The CHTS utilizes a computer-assisted, random digit dialing (RDD) approach to contact full-time residential households. Contacted households are screened to determine if any household members participated in marine recreational fishing during the previous 2 months, and each active angler is asked to recall the number of saltwater fishing trips that were taken during the wave, as well as provide details about each trip. Institutional housing, businesses, wireless phones, and pay phones are excluded from the survey. Within each state, sample is allocated among coastal counties in proportion to household populations. For each coastal county, data from the CHTS are used to estimate the average number of trips per household, which is then expanded by the county household population to estimate total trips. County estimates are summed and then expanded by intercept survey adjustment factors to produce state-level effort estimates. All estimates are computed by fishing mode, then all mode-level estimates are aggregated to obtain the total statewide estimates.

For-Hire Telephone Survey (FHS)

The FHS was developed to resolve undercoverage of Charter and Party boat angler effort by the CHTS. The CHTS does not capture the majority of for-hire angling effort in most states because most anglers who take trips on Charter and Head (or Party) boats do not live in coastal counties. A series of pilot studies to obtain fishing effort information directly from Charter boat operators was conducted in North Carolina and Maine, then throughout the Gulf of Mexico sampling region (Louisiana - West Florida). After several years of testing, the FHS was implemented as the ‘official’ methodology for obtaining Gulf of Mexico Charter boat effort in January, 2000. This FHS design was then pilot tested against a logbook program and the CHTS in South Carolina in 2000 and included Head boats as well as Charter boats. The FHS was implemented for all Atlantic Coast states from Maine through Georgia in January 2005. It overlaps other charter and headboat monitoring programs, including the Northeast (Maine-Virginia) Vessel Trip Reporting Program (VTR), the Southeast Regional Headboat Survey (SERHS), various state logbook programs, and the ongoing CHTS.

The sampling unit for the FHS is not the household but the individual for-hire vessel. The sample frame is constructed from a comprehensive directory of for-hire boats for all states, from Maine through Georgia. The vessel directory consists of a vessel identifier (vessel name or registration number), the name, address and telephone number of an identified vessel representative (captain or owner), as well as a variety of accessory information, such as eligibility, activity, and cooperation status. Sampling is stratified by vessel type (head boat and charter boat), state, and week, within each two-month sampling wave. Currently, vessels are sampled at a rate of 10% within each stratum, with a minimum sample size of 3 vessels. Data collection is conducted on a weekly basis during all weeks within each wave. The weekly dialing is completed during the week following the specified sample week of fishing. Respondents are asked to report vessel fishing activity for the prior week, and then asked to profile each for-hire fishing trip. Information obtained for each trip includes area fished, number of anglers who fished, hours of actual fishing activity, method of fishing, and target species, if any. Advance notice of selection is mailed to each selected vessel representative and alternative reporting modes are provided for the Atlantic Coast respondents, including an interactive website, a fax number and a phone contact for respondent-initiated interviewing. Effort estimates are produced from the average number of angler-trips per vessel-type per week and the number of vessels per vessel-type in the sampling frame. Adjustment factors for active for-hire fishing boats that are not in the sample frame (new to fleet, no contact information known, etc.) are produced from field intercept survey questions and applied to the raw effort estimate.

Access-Point Angler Intercept Survey

The access-point angler intercept survey is conducted at public marine fishing access points (boat ramps, piers, beaches, jetties, bridges, marinas, etc.) to collect individual catch data, including species identification, total number of each species, and length and weight measurements of individual fishes, as well as some angler-specific information about the fishing trip and the angler's fishing behavior. The interviews are conducted in person by trained field staff, and the sites and dates are selected by a proportional random selection process such that those sites that have the most activity within a sample month will be selected for interview collection most often. The sampling schedule is independently determined by fishing mode (shore fishers, charter boat fishers, or private or rental boat fishers) and target sample sizes are based on statistical power and available funds. From these angler-interviews a catch per trip estimate (cpue) can be made for each type of fish encountered, either observed or reported. These cpue estimates are combined with the effort estimates by sampling stratum to produce the catch and harvest estimates. Questions are also asked that provide the information to adjust for non-coastal residents' effort, fishing activity by anglers living in households without traditional landline telephone service, and charter boat anglers fishing from boats that are not in the FHS sample frame for the wave.

MRFSS Results for Mackerel

As detailed in Section 6.1.1.3, MRFSS estimates that over the last 10 years the recreational landings of mackerel have ranged from approximately 500 MT to 1600 MT. Compared to commercial landings, the recreational catch 1997-2007 has been small, 4.1 percent of the combined catch.

Estimates for mackerel are relatively imprecise compared to other species (e.g. fluke or bluefish) due to relatively low effort in the recreational mackerel fishery. Estimates are also generated relatively slowly - there are no mechanisms to track the recreational harvest in real time or make in-season responses to the recreational fishery. For example, 2009 estimates will be available in spring 2010 and thus usable for setting 2011 specifications. In addition, the entire system of recreational data collection and the accuracy of resulting estimates have come under heavy criticism from both academia and the recreational fishing community and the system is currently being overhauled (i.e. the Marine Recreational Information Program - "MRIP" - see countmyfish.noaa.gov for details). Improved survey methodologies will be implemented over time.

5.6.4 Management Alternatives

Alternative Set 6 includes measures to allocate a percentage of the ABC to the recreational fishery based on the proportion of landings accounted for by the recreational sector 1997-2007. Since the allocation is a percentage, the amount available in any given year would fluctuate with the ABC. The alternatives consider allocating to the recreational sector either their proportion of harvest over 1997-2007 (4.1%), "1.5 times" 1997-2007 harvest (1.5*4.1 = 6.2%), or "2 times" 1997-2007 harvest (2*4.1 = 8.2%). This creates a "reasonable range of alternatives" given recent landings (low), current quotas (high), and given the current assumption about recreational landings is 15,000 mt. The multiplications (in effect providing a higher quota) also take into account the fact that recreational estimates have not included January or February activity and the fact that mackerel recreational estimates are more uncertain than other species like summer flounder or bluefish. In terms of monitoring the recreational quota, no changes to the status quo are contemplated, other than ongoing improvements to recreational data collection through MRIP. Also maintaining the status quo, the recreational fishery does not have any accountability measures to prevent and/or address harvest overages, but given recent performance of the fishery and the range of allocations considered, no overages would be expected. The Council could however take independent action (via annual specifications, a framework, or amendment as appropriate) to address any disconnect between the recreational allocation and future harvests. In addition, the ACL/AM Omnibus Amendment will designate accountability measures for the recreational sector (which the reader will recall is the primary driver for setting up a specific recreational allocation in Am11).

Alternatives: **6A:** no action (no changes made). It will be assumed that the recreational fishery could catch 15,000 MT. This assumption will continue to not be a hard quota.

6B: designate an allocation for the recreational mackerel fishery that would form the basis of ACL/AM measures in the future. The recreational fishery would be allocated the percentage of the ABC that corresponds to the proportion of total U.S. landings that was accounted for by the recreational fishery from 1997-2007 from MRFSS database. Percentage would be: **4.1**%, which translates into an allocation of 6,396 MT under the 2010 ABC (4.1% of 156,000 = 6,396), and an allocation of 1,943 MT under the Council's recommended 2011 mackerel ABC (47,395MT).

6C (PREFERRED): designate an allocation for the recreational mackerel fishery that would form the basis of ACL/AM measures in the future. The recreational fishery would be allocated the percentage of the ABC that corresponds to the proportion of total U.S. landings that was accounted for by the recreational fishery from 1997-2007 from MRFSS database times 1.5. Percentage would be: **6.2%**, which translates into an allocation of 9,672 MT under the current ABC (6.2% of 156,000 = 9,672), and an allocation of 2,938 MT under the Council's recommended 2011 mackerel ABC (47,395MT)

6D: designate an allocation for the recreational mackerel fishery that would form the basis of ACL/AM measures in the future. The recreational fishery would be allocated the percentage of the ABC that corresponds to the proportion of total U.S. landings that was accounted for by the recreational fishery from 1997-2007 from MRFSS database times 2. Percentage would be: **8.2%**, which translates into an allocation of 12,792 MT under the current ABC (8.2% of 156,000 = 12,792), and an allocation of 3,886 MT under the Council's recommended 2011 mackerel ABC (47,395MT).

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5.7 **Alternative Set 7:** Alternatives to limit at-sea processing of Atlantic mackerel.

5.7.1 Statement of Problem/Need for Action

Public comment has expressed concern to the Council about potential adverse effects related to establishment of large-scale at-sea processing via transfers to mother ship-type processors (though this is not currently occurring). Specifically, concerns have been raised in public comments that significant amounts of at-sea processing of mackerel could possibly create potential problems, primarily negative fishing community impacts from disruption of supply of Atlantic mackerel to shoreside processors. Subsequent analysis also revealed that marine mammal impacts may be a concern, but the data is very limited on this topic (see discussion in 7.4.7).

5.7.2 General Rationale

Placing caps on at-sea processing via at-sea transfers would be a precautionary approach to avoid possible negative fishing community impacts and potential marine mammal impacts given concerns raised in public comments and given the very limited available information. Capping at-sea processing would allow for review of smaller-scale at-sea processing before at-sea processing became a widespread processing method.

Given the various potential issues related to possible large-scale at-sea processing, the Council is taking a precautionary approach. The Council considered in Alternative Set 7 capping at-sea processing via transfers in the mackerel fishery with alternatives in the range of 8,000 MT, 16,000 MT, 24,000 MT, 57,500 MT, and 86,250 MT. The caps would keep at-sea processing to a relatively low level should it commence, and the impacts could then be evaluated and the cap adjusted as appropriate. The amount of the cap would be evaluated and set during each specification process within the range described in this document after an evaluation of the best available scientific information on performance of the fishery and any relevant biological information.

Because the sole rationale behind this alternative appeared to be economic allocation, which is prohibited under MSA, the Council chose the no action as the preferred alternative.

5.7.3 Background

Potential Impacts

There has not been at-sea processing of mackerel by mother ship-type processors since the foreign fishery ended in the early 1990's. Thus there is minimal current information on the possible impacts of at-sea processing in the mackerel fishery. However, as discussed in Section 6.5.2.1, there are six dealers that spend more than 25% of their fish purchases on mackerel, demonstrating that for some dealers, mackerel is an important component of their business operation. Losing that supply of mackerel to an at-sea processor could negatively affect their business operations. And while no communities are entirely dependent on mackerel processing, all economic activity is important given the currently poor general state of the economy. Conversely, if at-sea processing opens up mackerel fishing opportunities then communities could be assisted if their vessels are able to expand prosecution of the mackerel fishery. Also, at-sea processors could spend money or hire from fishing communities. In general, as discussed in more detail in Section 7.5.7, the possibilities for transfers of economic activity from one entity to another or from one community to another exist but the net national effect is uncertain.

There are some data that suggest previous joint venture fishing for mackerel (which involved transfers at sea to at-sea processors) may have had higher marine mammal interactions, but the data is minimal and highly uncertain. Generally, marine mammals are known to be attracted to trawling activity, and suffer negative impacts if harmed by gear but could theoretically gain benefits from food being concentrated or disoriented (Fertl and Leatherwood 1997). The net effect is uncertain.

The Council acknowledges that the available information on what would happen if at-sea processing developed to a significant degree is tenuous. The fact that such little information is available however is precisely why the Council thinks a precautionary approach is warranted.

Note: Comments on this alternative from the U.S. EPA noted that processing operations may be subject to regulations related to EPA's authority under the Ocean Dumping Act and/or Clean Water Act, and that interested parties should consult EPA regarding any applicable regulations.

Genesis of Alternatives

The alternative range had its genesis in existing measures in the Atlantic herring fishery but is really just designed to consider a wide range of alternatives. The Council is not proposing the mackerel at-sea processing cap just because Herring has one, but is using the Herring cap as a rough example given the situations are similar in that the Council is looking to implement a Cap in a cautious approach that does not result in a substantial shift in processing opportunities that have negative economic and/or biological consequences, in effect attempting to strike a balance between a stable working environment ashore through the flow of product and a reasonable opportunity for fishermen to sell their catch at-sea. Herring has a 20,000 MT cap on at-sea processing, which is approximately 14% of the overall herring optimum yield. 14% of the recent mackerel IOY of 115,000 would be 16,000 MT and formed an alternative and then the Council developed a set of alternatives so as to consider a "reasonable range" of alternatives related to the processor issue.

5.7.4 Management Alternatives

The Council considered in Alternative Set 7 capping at-sea processing via transfers in the mackerel fishery with alternatives in the range of 8,000 MT, 16,000 MT, 24,000 MT, 57,500 MT, and 86,250 MT. The caps would keep at-sea processing to a relatively low level should it commence, and the impacts could then be evaluated. The amount of the cap would be evaluated and set during each specification process within the range described in this document after an evaluation of the best available scientific information on performance of the fishery and any relevant biological information.

Alternatives:

7A (PREFERRED): no action, (no limitations on at-sea mackerel processing)

7B: cap at-sea processing (via transfers) initially at 7% of IOY (would be 8,000 MT based on the 2010 IOY of 115,000 mt, or 3,300 mt based on the 2011 IOY of 46,779 mt)

7C: cap at-sea processing (via transfers) initially at 14% of IOY (would be 16,000 MT based on the 2010 IOY of 115,000 mt, or 6,600 mt based on the 2011 IOY of 46,779 mt)

7D: cap at-sea processing (via transfers) initially at 21% of IOY (would be 24,000 MT based on the 2010 IOY of 115,000 mt, or 9,800 mt based on the 2011 IOY of 46,779 mt)

7E: cap at-sea processing (via transfers) initially at 50% of IOY (would be 57,500 MT based on the 2010 IOY of 115,000 mt, or 23,400 mt based on the 2011 IOY of 46,779 mt)

7F: cap at-sea processing (via transfers) initially at 75% of IOY (would be 86,250 MT based on the 2010 IOY of 115,000 mt, or 35,100 mt based on the 2011 IOY of 46,779 mt)

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6.0 Description of the Affected Environment

This section serves to identify and describe the *valued ecosystem components* (VECs; Beanlands and Duinker 1984) that are likely to be directly or indirectly affected by the actions proposed in this document. These VECs comprise the affected environment within which the proposed actions will take place. Following the guidance provided by the Council on Environmental Quality (CEQ 1997), the VECs are identified and described here as a means of establishing a baseline for the impact analysis that will be presented in the subsequent document section (Section 7.0 Analysis of Impacts). The significance of the various impacts of the proposed actions on the VECs will ultimately be determined from a cumulative effects perspective, that is, in the context of other past, present, and reasonably foreseeable future actions and their additive impacts on these VECs.

<u>Identification of the Selected Valued Ecosystem Components</u>

As indicated in CEQ (1997), one of the fundamental principles of cumulative effects analysis, is that "… the list of environmental effects must focus on those that are truly meaningful." As such, the range of VECs is described in this section is limited to those for which a reasonable likelihood of meaningful impacts is expected. These VECs are listed below.

1. Managed Resources
   - Atlantic mackerel stock
   - *Illex* stock
   - *Loligo* stock
   - Atlantic butterfish stock
2. Non-target species
3. Habitat including EFH for the managed resources and non-target species
4. Endangered and other protected resources
5. Human Communities

The species listed under the managed resources VEC comprise all of the species managed under the Atlantic mackerel, Squid, and Butterfish FMP. Changes to the FMP, such as those proposed in this amendment have the potential to directly or indirectly affect the condition of one or more of these stocks. These impacts would come about when management actions either reduce or expand the directed harvest or bycatch of these species.

Similarly, management actions that would change the distribution and/or magnitude of fishing effort for the managed resources could indirectly affect the *non-target species* VEC (species incidentally captured as a result of fishing activities for the managed resources), the *habitat* VEC (especially types vulnerable to activities related to directed fishing for the managed resources), and the *protected resources* VEC (especially those species with a history of encounters with the managed fisheries).

The *human communities* VEC could be affected directly or indirectly through a variety of complex economic and social relationships associated with the either the managed species or any of the other VECs.

Temporal Scope of the Selected VECs

The Atlantic mackerel, squid and butterfish fisheries have a long history, which was dominated by distant water fleets (DWFs) prior to the implementation of the individual FMPs in 1978 and 1979. There is substantial uncertainty in estimates of foreign landings and historical domestic landings of *Loligo and Illex*. Landings of these two species are more accurate beginning in 1987 due to better reporting of landings by species and prohibitions on foreign fishing (Cadrin and Hatfield 1999; NEFSC 2003). Similar uncertainties are likely to apply to the pre-1987 landings of butterfish and mackerel. There was no observer coverage of foreign fleets before 1978, and observer coverage was low in the early 1980s (Cadrin and Hatfield 1999).

While the effects of the historical fisheries are considered, the temporal scope of past and present actions for *managed resources*, *non-target species*, *habitat and human communities* is primarily focused on actions that have occurred after FMP implementation. An assessment using this timeframe demonstrates changes to the resources and human community that have resulted through management under the Council process and through U.S. prosecution of the fisheries rather than foreign fleets. Further, landings and discard data collected prior to implementation of the FMP is often insufficient for the purposes of detailed analysis.

For *endangered and other protected species*, the scope of past and present actions is on a species-by-species basis (Section 6.2) and is largely focused on the 1980s and 1990s through the present, when NMFS began generating stock assessments for marine mammals and turtles that inhabit waters of the U.S. EEZ.

The temporal scope of future actions for all five VECs, which includes the measures proposed by this amendment, extends five years into the future. This period was chosen because the dynamic nature of resource management and lack of information on projects that may occur in the future makes it difficult to predict impacts beyond this timeframe with any certainty.

Geographic Scope of the Selected VECs

The overall geographic scope for the *managed resources*, *non-target species*, *habitat*, and *endangered and protected species* can be considered as the total range of these VECs in the Western Atlantic Ocean. The Atlantic mackerel and *Illex* resources are subject to exploitation by foreign fisheries in areas beyond U.S. jurisdictional waters and historically, within U.S. waters. Reference to foreign fishery activities is made in relation to North Atlantic Fisheries Organization (NAFO) Subareas, which are indicated in Figure 48. The management unit identified in the FMP (Section 4.4) covers a subset of the overall geographic scope, and is defined as all northwest Atlantic mackerel, *Loligo, Illex*, and butterfish under U.S. jurisdiction. The analyses of impacts presented in this amendment focuses primarily on actions related to the harvest of the managed resources. Therefore, a more limited geographic area is used to define the core geographic scope within which the majority of harvest effort for the managed resources occurs. Figures 49 and 50 illustrate the extent of these various geographic areas and the areas where the managed species were harvested during the period 1997-2006.

Because the potential exists for far-reaching sociological or economic impacts on U.S. citizens who may not be directly involved in fishing for the managed resources, the overall geographic scope for *human communities* is defined as all U.S. human communities. Limitations on the availability of information needed to measure sociological and economic impacts at such a broad level necessitate the delineation of core boundaries for the human communities. These are defined as those U.S. fishing communities directly involved in the harvest of the managed resources. These communities were found to occur in coastal states from Maine to North Carolina. Communities heavily involved in the managed fisheries are identified in the port and community description (Section 6.5) and are indicated in. The directionality and magnitude of impacts on human communities directly involved in MSB fisheries will be a function of their level of involvement and dependence on these fisheries.

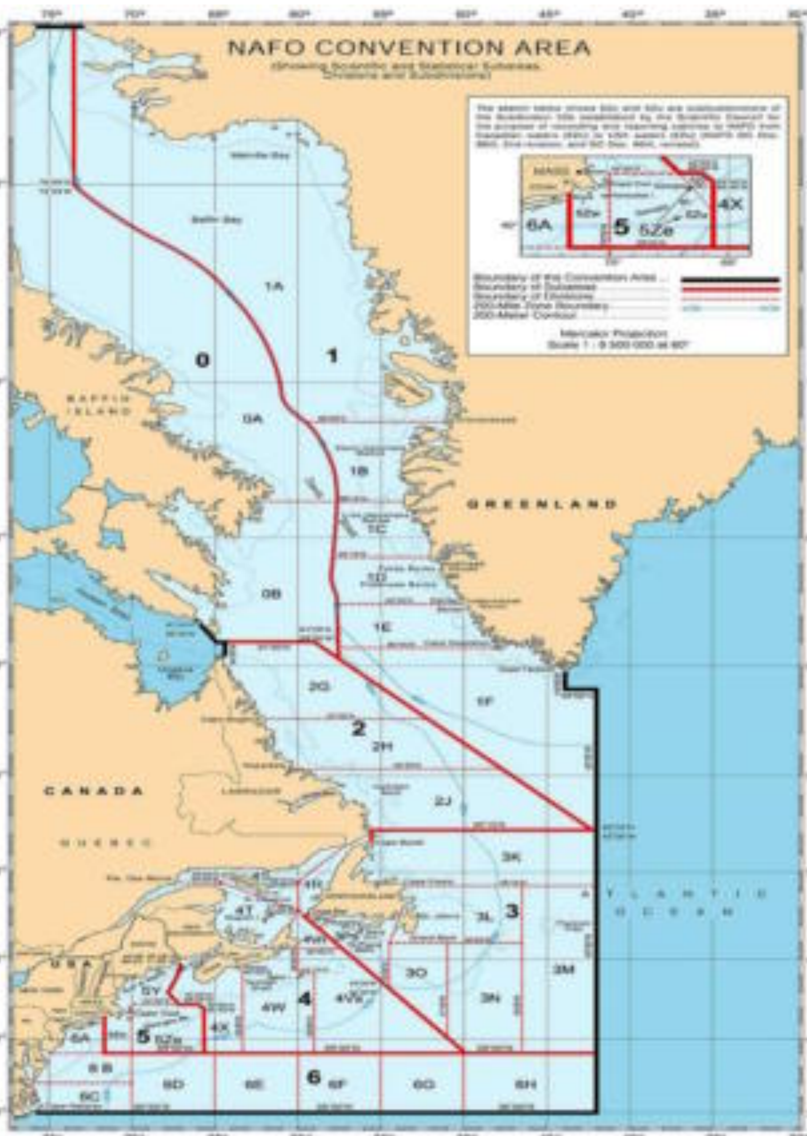

Figure 48. Nafo Areas

Physical Environment

Climate, physiographic, and hydrographic differences separate the Atlantic ocean from Maine to Florida into two distinct areas, the New England-Middle Atlantic Area and the South Atlantic Area, with the natural division occurring at Cape Hatteras (though the division is probably better thought of as a mixing zone rather than as a definitive boundary). The MSB fisheries are prosecuted in the New England-Middle Atlantic Area. Near shore, the New England-Middle Atlantic area is influenced by many large coastal rivers and estuarine areas including Chesapeake Bay, the largest estuary in the United States; Narragansett Bay; Long Island Sound; the Hudson River; Delaware Bay; and the nearly continuous band of estuaries behind the barrier beaches from southern Long Island to Virginia. The southern edge of the region includes the estuarine complex of Currituck, Albemarle, and Pamlico Sounds, a 2500 square mile system of large interconnecting sounds behind the Outer Banks of North Carolina (Freeman and Walford 1974 a-d, 1976 a and b). In the New England-Middle Atlantic area, the continental shelf (characterized by water less than 650 ft in depth) extends seaward approximately 120 miles off Cape Cod (i.e. Georges Back), narrows gradually to 70 miles off New Jersey, and is 20 miles wide at Cape Hatteras. Surface circulation is generally southwesterly on the continental shelf during all seasons of the year, although this may be interrupted by coastal indrafting and some reversal of flow at the northern and southern extremities of the area. Water temperatures range from less than 33 ^{o}F in the New York Bight in February to over 80 ^{o}F off Cape Hatteras in August.

Within the New England-Middle Atlantic Area, the principal area within which the MSB fisheries are prosecuted is the Northeast Shelf Ecosystem which includes the area from the Gulf of Maine south to Cape Hatteras, extending from the coast seaward to the edge of the continental shelf, including the slope sea offshore to the Gulf Stream (Figure 49). A number of distinct subsystems comprise the region, including the Gulf of Maine, Georges Bank, and the Mid-Atlantic Bight. The Gulf of Maine is an enclosed coastal sea, characterized by relatively cold waters and deep basins, with a patchwork of various sediment types. Georges Bank is a relatively shallow coastal plateau that slopes gently from north to south and has steep submarine canyons on its eastern and southeastern edge. It is characterized by highly productive, well-mixed waters and fast-moving currents. The Mid-Atlantic Bight is comprised of the sandy, relatively flat, gently sloping continental shelf from southern New England to Cape Hatteras, NC. Figures 49 and 50 show areas of high-density MSB VTR landings. The darkest shades have the densest VTR landings. These Figures were calculated with 1997-2006 VTR data, one year earlier than most of this document uses, but it is not expected that adding another year of data would significantly impact the designation of the core geographic scope of management (also, updated catch distribution maps for each species are provided in Section 6.1 and these do not suggest that a change in the core geographic area is warranted). Figure 50 provides a zoomed in view of Figure 49 detailing the Core Geographic scope of the Atlantic mackerel, squid and butterfish fisheries. More detail on the potentially impacted physical environment is provided in section 6.3.

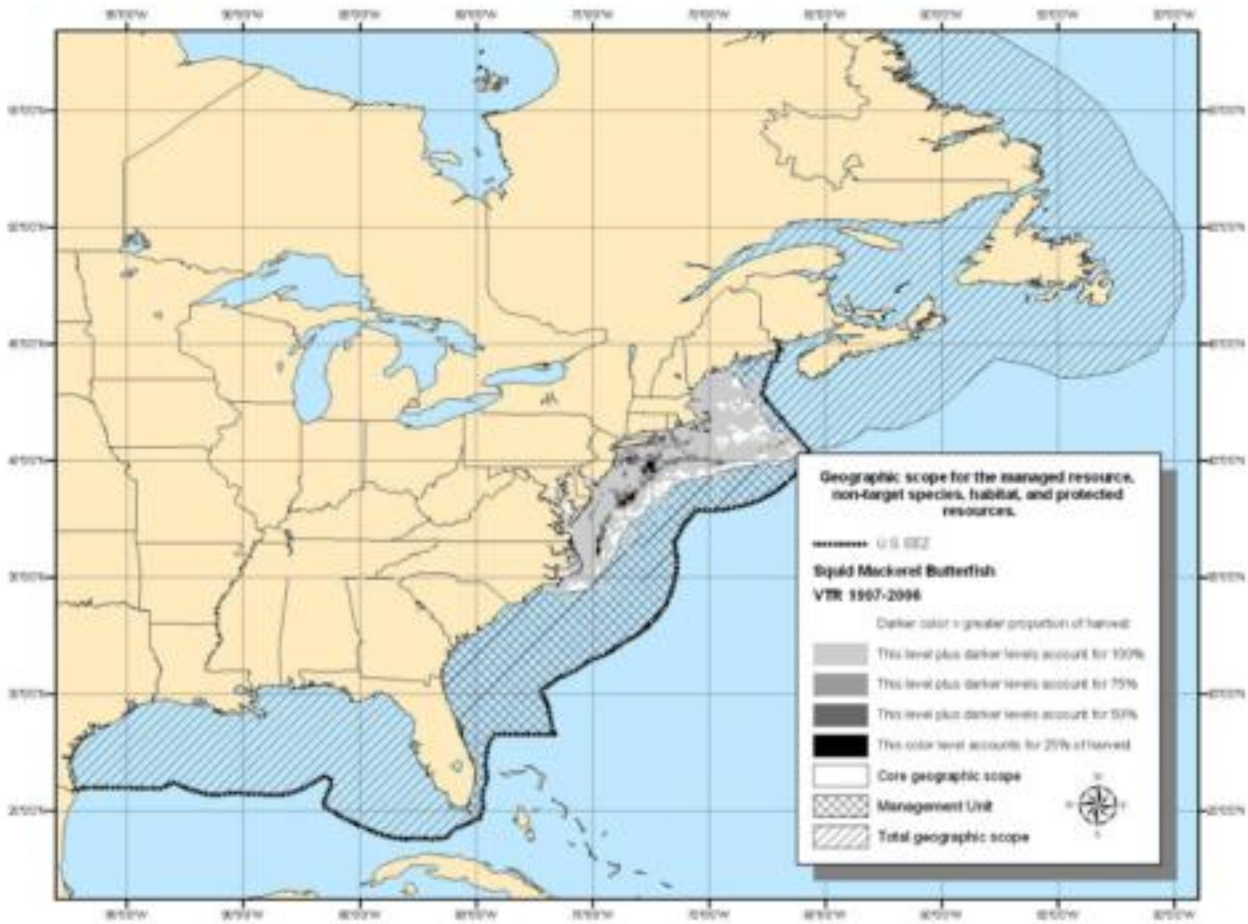

Figure 49. Geographic scope of the Atlantic mackerel, squid and butterfish fisheries.

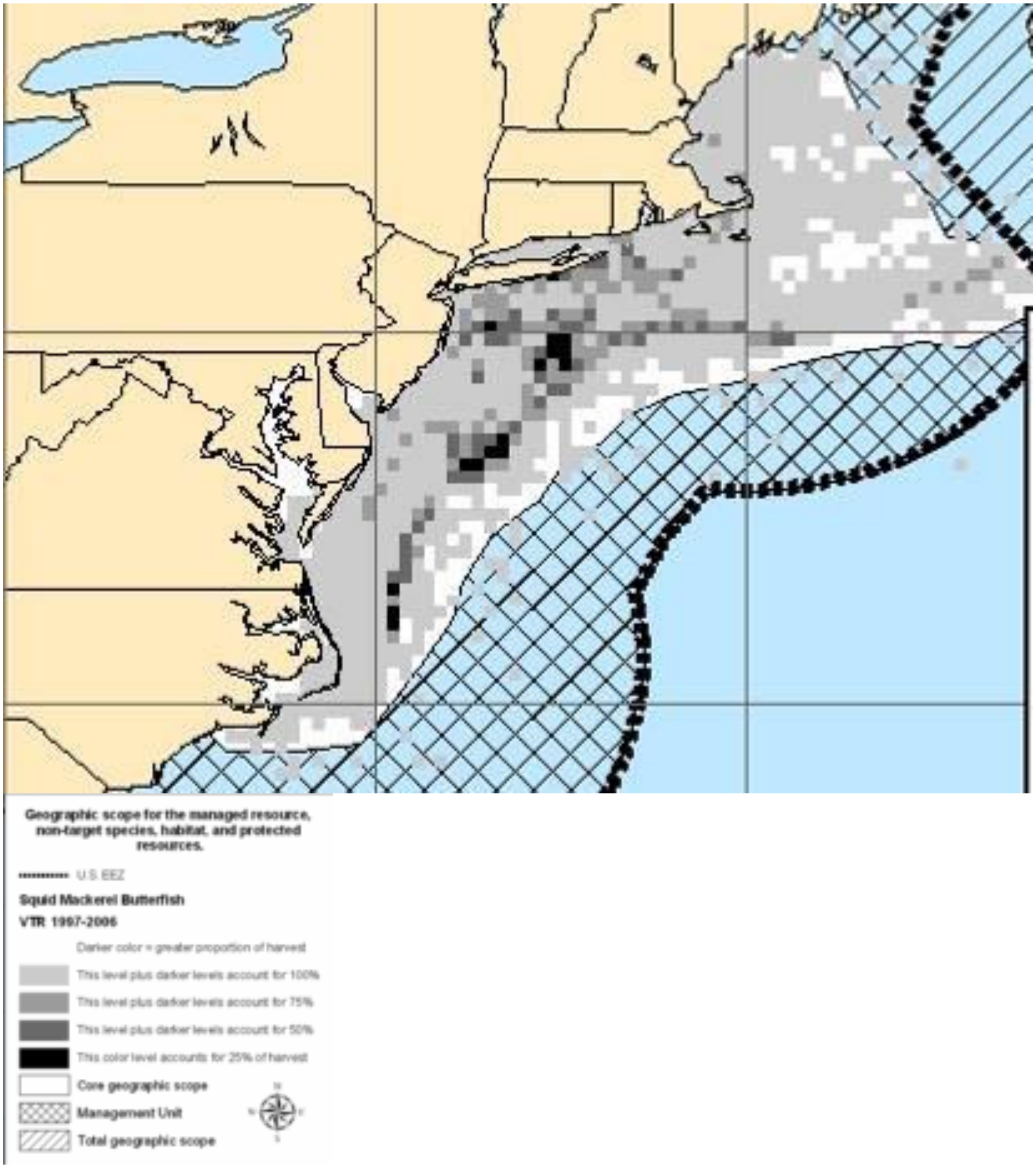

Figure 50. Detail of Core Geographic scope of the MSB fisheries.

6.1 Description of the Managed Resources

In the description of the managed resources VEC presented here, the focus is on stock status and those fishery activities that *directly* affect stock status. These include the harvest of a given species, as well as discarding. The life histories and ecological relationships of Atlantic mackerel, *Illex*, *Loligo,* and butterfish are addressed in detail in Appendices 5-8, respectively. Additionally, specific life stage habitat requirements are presented in Section 6.3 (Description of Habitat, Including Essential Fish Habitat Analysis). Fishery activities and non-fishing activities that may affect habitat quality are considered to indirectly affect the managed resources. These are also considered in Section 6.3.

The MSA's National Standard 1 Guidelines establish specific stock status determination criteria for measuring the condition of a managed fishery resource. In the description of the managed resources VEC presented here, the conditions of the stocks, past, present or future, are described in comparison to the stock status determination criteria.

Specification of status determination criteria (MSA National Standard 1):

Each FMP must specify, to the extent possible, objective and measurable status determination criteria for each stock or stock complex covered by that FMP and provide an analysis of how the status determination criteria were chosen and how they relate to reproductive potential. Status determination criteria must be expressed in a way that enables the Council and the Secretary to monitor the stock or stock complex and determine annually whether overfishing is occurring and whether the stock or stock complex is overfished. In all cases, status determination criteria must specify both of the following:

1) a maximum fishing mortality threshold or reasonable proxy thereof, and

2) a minimum stock size threshold or reasonable proxy thereof.

Two categories of mortality (natural mortality: M, and fishing mortality: F) contribute to total mortality (Z), the overall rate at which fish are removed from a given population (M + F = Z). Influences on natural mortality include disease, predation [all four species in this plan serve as important prey species for a wide variety of fish, marine mammals, and seabirds - see the annual specifications EA (http://www.nero.noaa.gov/nero/regs/com.html) and/or each species' EFH source document (http://www.nefsc.noaa.gov/nefsc/habitat/efh/) for details], senescence and any other non-human components of the ecosystem. Many of the ecological relationships for the managed resources have been identified, however, because of the complexity of these relationships, M is generally not directly estimated on an annual basis, and in most stock assessments the analyses focus on fishing mortality and its relationship with stock size. This approach is consistent with providing information necessary to determine the status of a stock with regard to MSA criteria (1) and (2) above. When stock assessment information indicates that fishing mortality has exceeded threshold levels, overfishing is said to be occurring. When stock assessment information indicates that stock size has fallen below the established threshold, then the stock is considered to be overfished. In either case, the MSA requires that management measures be put in place to mitigate these conditions.

At the time of development of this document, and as detailed below, the status of the four species is as described below:

- Atlantic mackerel: Not overfished; overfishing not occurring.
- Illex: Status unknown re: overfished/overfishing.
- Loligo: Unlikely overfished; unlikely that overfishing is occurring.
- Butterfish: Overfished; overfishing not occurring.

6.1.1 Atlantic mackerel

6.1.1.1 Mackerel Biology

Atlantic mackerel is a pelagic, schooling species distributed between Labrador (Parsons 1970) and North Carolina (Anderson 1976a). A southern group begins its spring migration from waters off North Carolina and Virginia in March- April, and moves northward, reaching New Jersey and Long Island usually by April-May, where spawning occurs. These fish may spend the summer as far north as the Maine coast before moving southward and returning to deep offshore water near Block Island after October (Hoy and Clark 1967). The northern group arrives off southern New England in late May, and moves north to Nova Scotia and the Gulf of St. Lawrence where spawning occurs usually by July (Hoy and Clark 1967, Bigelow and Schroeder 1953). This group begins its southerly autumn migration in November and December and disappears into deep water off Cape Cod. Thus both groups make extensive northerly (spring) and southerly (autumn) migrations to and from spawning and summer feeding grounds. Both groups overwinter between Sable Island (off Nova Scotia) and Cape Hatteras in water generally warmer than 45 F (USDC 1984a).

Biochemical studies (Mackay 1967) have not established that genetic differences exist between the two groups and precise estimates of the relative contributions of the two groups cannot be made (ICNAF 1975). Since 1975 all Atlantic mackerel in the northwest Atlantic have been assessed as a unit stock (Anderson 1982) and are considered one stock for fishery management purposes.

Mackerel spawning occurs during spring and summer and progresses from south to north. The southern group spawns from mid-April to June in the Mid-Atlantic Bight and the Gulf of Maine and the northern group spawns in the southern Gulf of St. Lawrence from the end of May to mid-August (Morse 1978). Most spawn in the shoreward half of continental shelf waters, although some spawning extends to the shelf edge and beyond. Spawning occurs in surface water temperatures of 45-57 ^{o}F, with a peak around 50-54 ^{o}F (Grosslein and Azarovitz 1982).

Fecundity estimates ranged from 285,000 to 1.98 million eggs for southern contingent mackerel between 12-17" FL. Analysis of egg diameter frequencies indicated that mackerel spawn between 5 and 7 batches of eggs per year. The eggs are 0.04-0.05" in diameter, have one 0.1" oil globule, and generally float in the surface water layer above the thermocline or in the upper 30-

50'. Incubation depends primarily on temperature; it takes 7.5 days at 52 ^{o}F, 5.5 days at 55 ^{o}F, and 4 days at 61^{o}F (Grosslein and Azarovitz 1982).

Mackerel are 0.1" long at hatching, grow to about 2" in two months, and reach a length of 8" in December, near the end of their first year of growth (Anderson and Paciorkowski 1978). During their second year of growth they reach about 10" in December, and by the end of their fifth year they grow to an average length of 13" FL. Fish that are 10-13 years old reach a length of 15-16" (Grosslein and Azarovitz 1982). MacKay (1973) and Dery and Anderson (1983) have found an inverse relationship between growth and year class size. All Atlantic mackerel are sexually mature by age 3, while about 50% of the age 2 fish are mature. Average size at maturity is about 10.5-11" FL (Grosslein and Azarovitz 1982). The maximum age observed is 17 years (Pentilla and Anderson 1976).

Mackerel Prey (from EFH Source Document: http://www.nefsc.noaa.gov/nefsc/habitat/efh/)

Atlantic mackerel are opportunistic feeders that can ingest prey either by individual selection of organisms or by passive filter feeding (Pepin *et al*. 1988). Filter feeding occurs when small plankton are abundant and mackerel swim through patches with mouth slightly agape, filtering food through their gill rakers (MacKay 1979). According to MacKay (1979), particulate feeding is the principal feeding mode in the spring and fall, while filter feeding predominates in the summer in the Gulf of St. Lawrence. Moores *et al*. (1975) maintain that the diet of fish from Newfoundland suggests that particulate feeding occurs there throughout the season.

Larvae feed primarily on zooplankton (Collette, in prep.). First-feeding larvae (3.5 mm) collected from Long Island Sound were found to be phytophagous while slightly larger individuals (> 4.4 mm) fed on copepod nauplii (Peterson and Ausubel 1984; Ware and Lambert 1985). Fish > 5 mm fed on copepodites of *Acartia* and *Temora* while diets of fish > 6 mm contained adult copepods (Peterson and Ausubel 1984). Larvae > 6.4 mm were also cannibalistic, feeding on 3.5-4.5 mm conspecifics (Peterson and Ausubel 1984; Fortier and Villeneuve 1996). Consumption rates of larvae average between 25 and 75% body weight per day and they probably feed continuously. Larvae feed selectively, primarily on the basis of prey visibility (Peterson and Ausubel 1984). Fortier and Villeneuve (1996), studying larval mackerel from the Scotian Shelf, found that with increasing larval length, the diet shifted from copepod nauplii to copepod and fish larvae; the fish larvae included yellowtail flounder, silver hake, redfish and a large proportion of conspecifics. Predation was stage-specific; only the newly hatched larvae of a given species were ingested. However, piscivory was limited at densities of fish larvae < 0.1/m3 and declined with increasing density of nauplii and with increasing number of alternative copepod prey ingested.

Juveniles eat mostly small crustaceans such as copepods, amphipods, mysid shrimp and decapod larvae (Collette, in prep.). They also feed on small pelagic mollusks (*Spiratella* and *Clione*) when available (Collette, in prep.). Adults feed on the same food as juveniles but diets also include a wider assortment of organisms and larger prey items. For example, euphausiid, pandalid and crangonid shrimp are common prey; chaetognaths, larvaceans, pelagic polychaetes and larvae of many marine species have been identified in mackerel stomachs (Collette,in prep.). Bigelow and Schroeder (1953) found many Gulf of Maine mackerel feeding on *Calanus* as well as other copepods. Larger prey such as squids (*Loligo*) and fishes (silver and other hakes, sand lance, herring, and sculpins) are not uncommon, especially for large mackerel (Bowman *et al*. 1984). Under laboratory conditions, mackerel also fed on *Aglantha digitale*, a small transparent medusa common in temperate and boreal waters (Runge *et al*. 1987). The 1973 -1990 NEFSC bottom trawl survey data on food habits for two size classes of mackerel (11-30 cm; 30-50 cm) for 1973-1980 and 1981-1990 reflects this diversity.

While there is variability between the two size classes and between the two survey periods, copepods, euphausiids and various crustaceans could be considered relative staples in the diet. Immature mackerel begin feeding in the spring; older fish feed until gonadal development begins, stop feeding until spent and then resume prey consumption (Berrien 1982; Collette, in prep.). Under experimental conditions in which larval fish (3-10 mm in length) were presented as part of natural zooplankton assemblages, prey preference by mackerel was positively size selective and predation rates were not influenced by larval fish density (Pepin *et al*. 1987). Subsequent studies indicated that mackerel may achieve a higher rate of energy intake by switching to larger prey and increasing search rate as prey size and total abundance increase (Pepin *et al*. 1988). Filter feeding activity also increased with increasing prey density and Pepin *et al*. (1988) suggest that feeding rates under natural conditions of prey abundance (0.1 g wet weight/m3) indicate that mackerel would not be satiated if foraging were restricted only to daylight.

Thus not surprisingly given mackerel's pelagic nature, the majority of mackerel prey are pelagic and their EFH would generally be the water column where mackerel are also found. Available EFH information for prey species may be found at the EFH web site noted above (includes some but not all prey mentioned).

<u>Mackerel as Prey</u>

Predation mortality is probably the largest component of natural mortality on this stock (Overholtz *et al.* 1991b). Atlantic mackerel are an important prey species and are known to be preyed upon by many pelagic and demersal fish species, as well as by marine mammals and seabirds (Smith and Gaskin 1974; Payne and Selzer 1983; Overholtz and Waring 1991; Montevecchi and Myers 1995; Scott and Tibbo 1968; Maurer and Bowman 1975; Stillwell and Kohler 1982, 1985; Bowman and Michaels 1984). See http://www.nefsc.noaa.gov/nefsc/habitat/efh/ for details. Mackerel's role as prey is considered in the specification of natural mortality in each stock assessment based on the best available scientific information.

6.1.1.2 Status of the Mackerel Stock

A 2004 assessment concluded that fishing mortality was low and the stock was quite large, over 3 ½ times greater than the MSY stock size, likely related to recent good recruitment events. As recruitment returned to more average levels, it was expected that the mackerel stock would fall. The likely smaller biomass would support sustainable yields that are smaller than recent quotas, probably in the range of 12,000 MT-56,000 MT available to the US fishery under the current specifications process (and some of this quota would have to be allocated to the recreational fishery).

The Atlantic mackerel stock was most recently assessed via a Transboundary Resource Assessment Committee in 2010 (TRAC 2010), which analyzed data though 2008 (www.mar.dfo-mpo.gc.ca/science/trac/tsr.html). A number of different models and model formulations were evaluated. Given the uncertainty in the assessment results, the TRAC agreed that short term projections and characterization of stock status relative to estimated reference points would not be an appropriate basis for management advice at this time. Given current indications of reduced productivity and lack of older fish in the survey and catch, the TRAC recommended that annual total catches not exceed the average total landings over the most recent three years of data available at that time (2006-2008; 80,000 mt) until new information suggests a different amount is more appropriate. Since Canadian catches must be accounted for, this level of total catch would still probably lead to U.S. catches in the 12,000 MT - 56,000 MT range described in the DEIS. In this sense the new assessment did not substantially alter the perception of future quotas other than to highlight indications of potential reduced productivity. SSB outputs from the final TRAC model are included below but again were considered useful only for the purposes of indicating likely trends. Current NEFSC Spring Survey indices for Atlantic Mackerel are included below in Figure 52. Figure 53 provides the current average weight of mackerel caught in the NEFSC trawl survey.

Figure 51. Mackerel biomass - 2010 Mackerel TRAC SSB final model output.

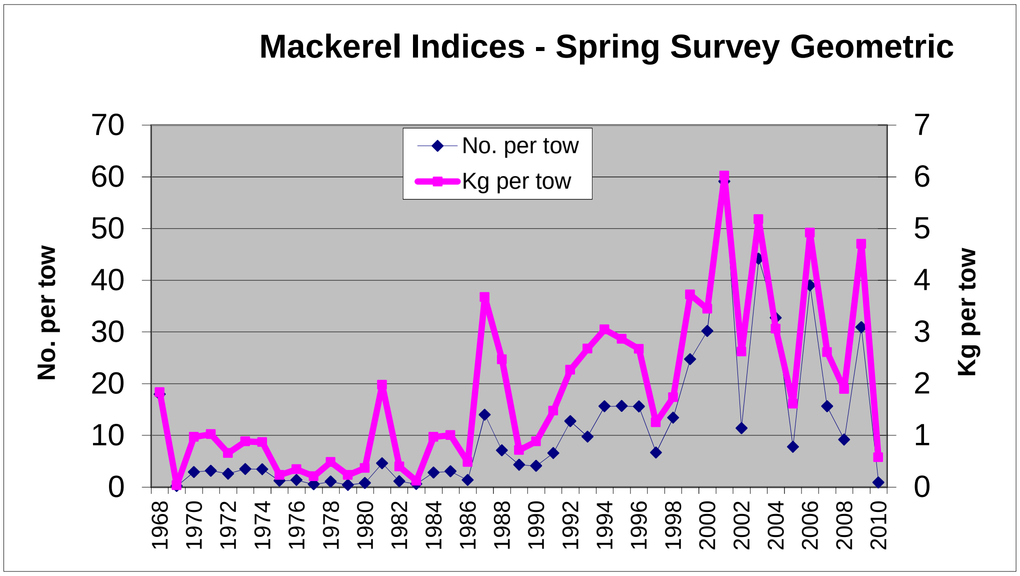

Figure 52. Spring Survey Atlantic Mackerel Indices (Geometric Mean).
Source: Unpublished NEFSC trawl survey data

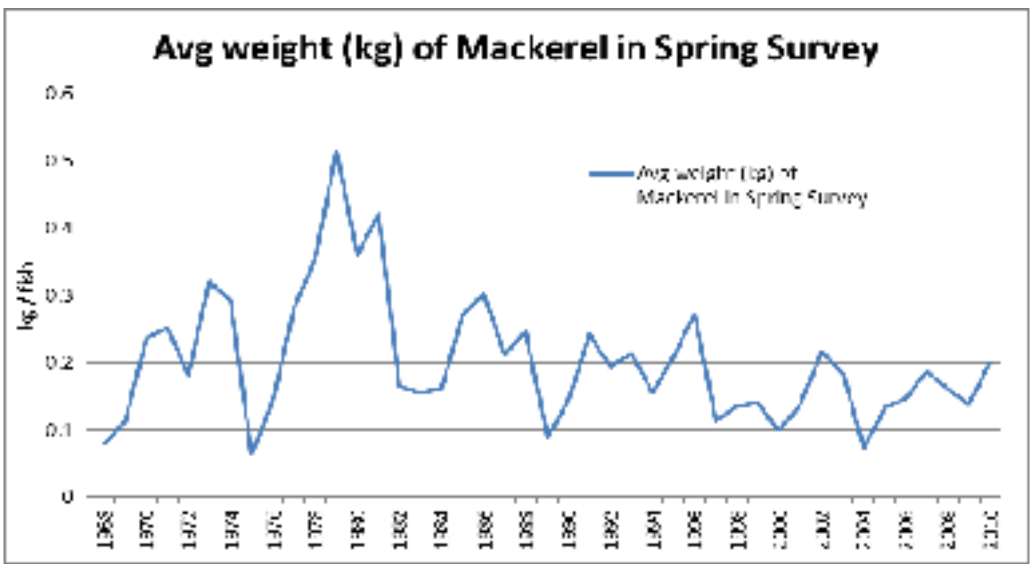

Figure 53. Average mackerel weight in survey
Source: Unpublished NEFSC trawl survey data

6.1.1.3 The Mackerel Fishery

Note: Data before and after 1997 may not be directly comparable because mandatory reporting for mackerel was not fully instituted until 1997 so years before 1997 likely do not represent the full picture of mackerel landings. Where practicable and informative data summaries in this section have been updated with more recent data than the DEIS/SDEIS.

World Production and Prices

According to the FAO, world landings of Atlantic mackerel dramatically increased in the 1960s, peaked at 1,092,759 mt in 1975, and have been between 550,000 mt and 850,000 mt since 1977. (http://www.fao.org/fishery/statistics/). Prices for exported U.S. mackerel, likely a reasonable indication of prices on the world market, averaged $1,223 per mt in 2009 (*Personal communication from the National Marine Fisheries Service, Fisheries Statistics Division*).

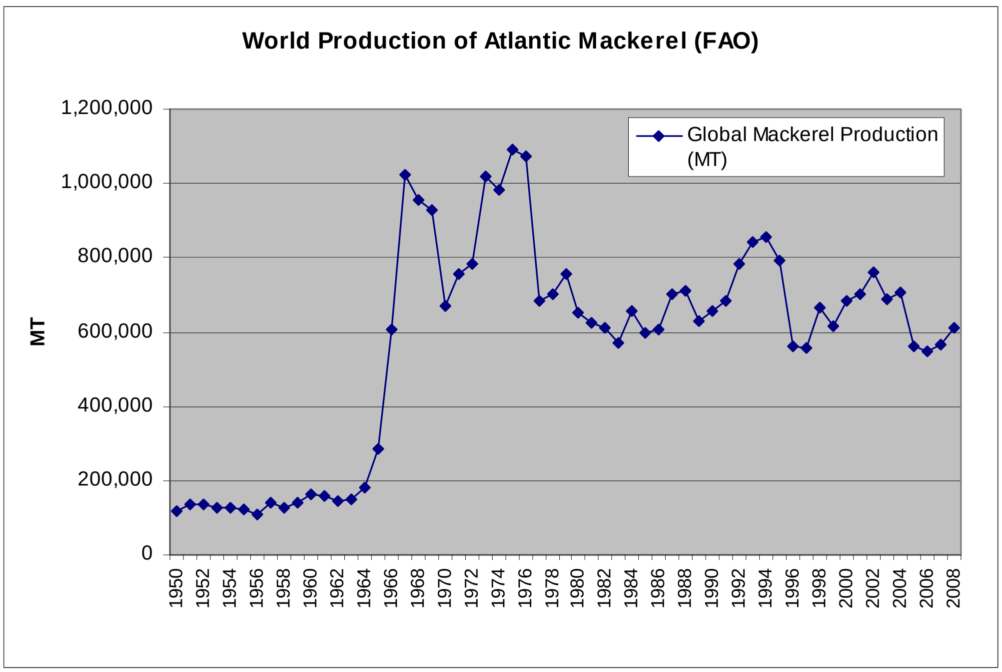

Figure 54. World production of Atlantic mackerel, 1950-2008 based on FAO (2009).

Future Supplies of Mackerel

The potential for future mackerel production depends largely on the future production of the European mackerel stock. European mackerel stock production appears to have fallen off in 2006 and 2007, resulting in increased demand for mackerel imports (Chetrick 2006: http://www.fas.usda.gov/info/fasworldwide/2006/10-2006/EUMackerel.pdf). It appears that demand for US mackerel will likely continue to remain high even if US production increases to a level approaching MSY since US production appears to be supplanting European production in the world marketplace.

US Production and Exports of Mackerel

The lack of mackerel in the North Sea area during the 1990's and the potential for future mackerel TAC reductions provided opportunities for US producers to place additional exports of mackerel in the international market. Higher mackerel prices in the international market also provided incentive for the US Atlantic mackerel industry to sell large volumes of this product (Ross 1996). In 2009, US exports of all mackerel products (fresh, frozen, and prepared/preserved) totaled 17,150 mt, valued at $19.3 million (down from 55,858 mt/$58.2 million in 2006). The leading markets for US exports of mackerel in 2009 (greater than 1,000 mt) were Egypt (5,032 mt), Bulgaria (2,253 mt), Canada (1,529 mt), and Georgia (1,060 mt) (*Personal communication from the National Marine Fisheries Service, Fisheries Statistics Division: http://www.st.nmfs.noaa.gov/st1/trade/cumulative_data/TradeDataProduct.html*).

Historical Commercial Fishery

The modern northwest Atlantic mackerel fishery began with the arrival of the European distant-water fleets (DWF) in the early 1960's. Total international commercial landings (NAFO Subareas 2-6,) peaked at 437,000 mt in 1973 and then declined sharply to 77,000 by 1977 (Overholtz 1989). The MSFCMA established control of the portion of the mackerel fishery occurring in US waters (NAFO Subareas 5-6) under the auspices of the Council. Reported foreign landings in US waters declined from an unregulated level of 385,000 mt in 1972 to less than 400 mt from 1978-1980 under the MSFCMA (the foreign mackerel fishery was restricted by NOAA Foreign Fishing regulations to certain areas or "windows." Under the MSB FMP foreign mackerel catches were permitted to increase gradually to 15,000 mt in 1984 and then to a peak of almost 43,000 mt in 1988 before being phased out again (Figure 55).

US commercial landings of mackerel increased steadily from roughly 3000 mt in the early 1980s to greater than 31,000 mt by 1990. US mackerel landings declined to relatively low levels 1992-2000 before increasing in the early 2000's. The most recent years have seen a substantial reduction in landings from the domestic peaks of 2004 and 2006. Preliminary 2011 data suggests 2011 landings will be extremely low.

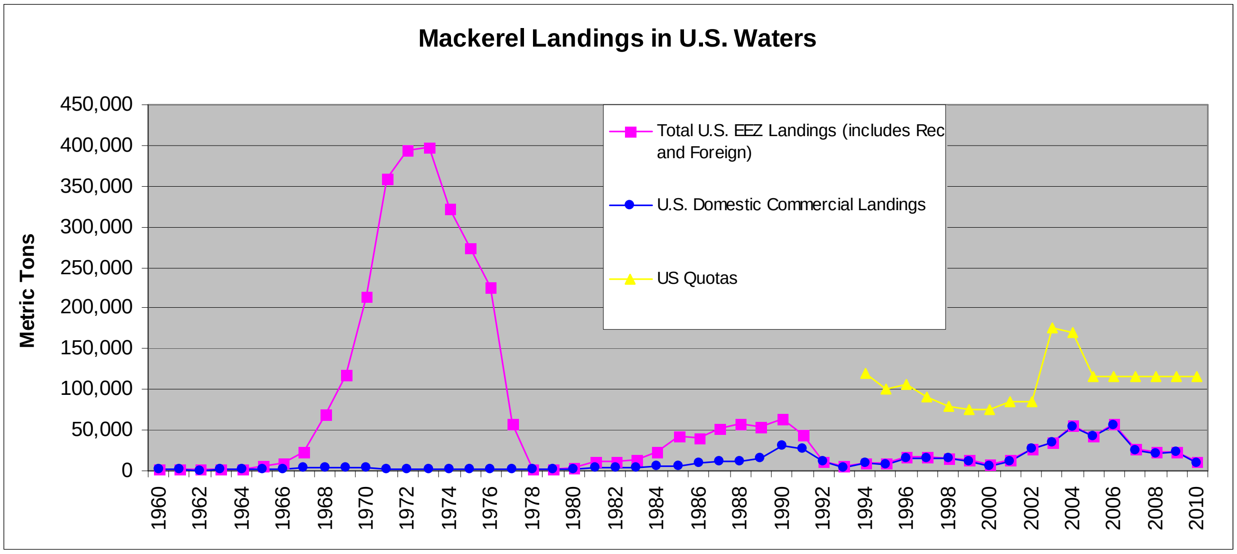

Figure 55. Atlantic mackerel landings within 200 miles of U.S. Coast, 1960-2010 (2010 Preliminary)
Source: Unpublished NMFS dealer data

Access to the Commercial Fishery

There are two types of Federal commercial fishing permits that apply to the harvest of Mackerel: An open-access permit and a Party/Charter permit. This amendment will change this situation, as described in the description of the alternatives. Mackerel landings for 2000-2009 as recorded in the NMFS dealer weighout database by permit category are described in Table 34. The no permit/unknown contains vessels from state reports or instances where a dealer did not collect a permit number. The table also shows the quota for each year.

Table 34. Landings by Permit Category

Year	Atlantic Mackerel Permit		Party/Charter		No Permit/ Unknown		Total	
	mt	%	mt	%	mt	%	mt	Quota
2000	5,333	94%	10	0%	306	5%	5,649	75,000
2001	12,063	98%	0	0%	277	2%	12,340	85,000
2002	25,887	98%	0	0%	643	2%	26,530	85,000
2003	33,969	99%	0	0%	329	1%	34,298	175,000
2004	56,099	99%	0	0%	339	1%	56,438	170,000
2005	41,604	99%	0	0%	604	1%	42,209	115,000
2006	56,706	100%	0	0%	155	0%	56,860	115,000
2007	24,898	97%	0	0%	649	3%	25,547	115,000
2008	21,322	98%	0	0%	427	2%	21,748	115,000
2009	22,494	99%	0	0%	141	1%	22,635	115,000

Source: Unpublished NMFS dealer and permit data

Fishery Operation

The majority of mackerel are generally either frozen and packaged at sea by trawlers with packaging and freezing capabilities or they are caught by trawlers with refrigerated seawater tanks and brought to processing plants back at shore. In either case the fish are sorted from the rest of the catch, weighed, boxed, and frozen for sale. There is a limited fresh product market and a bait fishery that catches mackerel along with herring, and which may not sort out mackerel from other bait species. The fishery typically produces large volumes of fish in a short season in the winter and early spring (see Figure 56 below). Almost all mackerel are caught on trips catching over 45,000 pounds, and the numbers of these trips over the last ten years are displayed below in Figure 57. These patterns have not changed dramatically in more recent years as can be reviewed in recent specifications documents: http://www.mafmc.org/fmp/msb.htm.

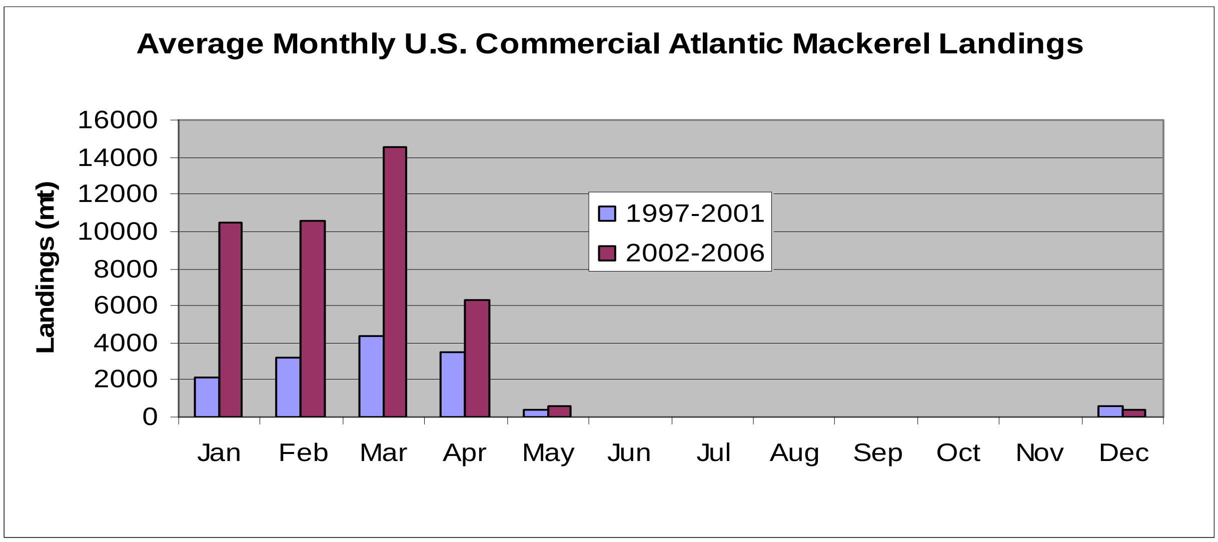

Figure 56. Avg Monthly Mackerel Landings
Source: Unpublished NMFS dealer data

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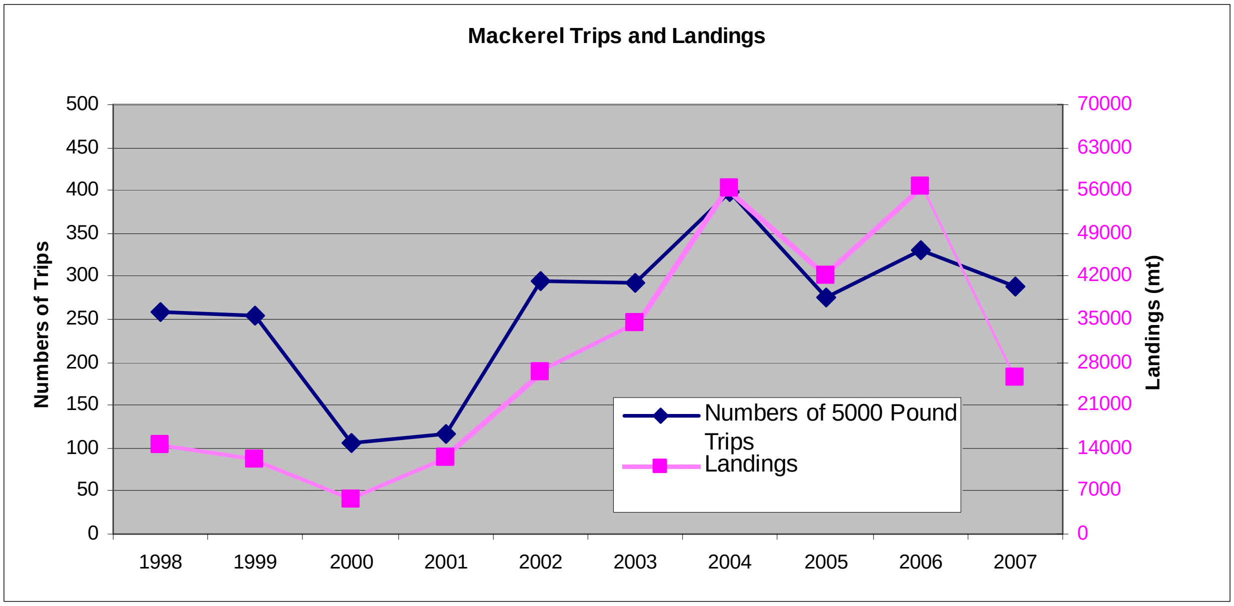


Figure 57. Mackerel Trips and Landings
Source: Unpublished NMFS dealer data

Amendment 9 contained extensive narrative based on interviews with MSB fishermen in order to give some perspective on the lives and day to day operations involved in making a living from the harvest of the managed resources. Information in the following two paragraphs was compiled from interviews carried out in June, 2005 with MAFMC advisors: James Ruhle, Lars Axelson, and Geir Monsen. A more formal description of the Ports and Communities and Economic Environment is provided in subsequent sections (6.5.1 and 6.5.2, respectively).

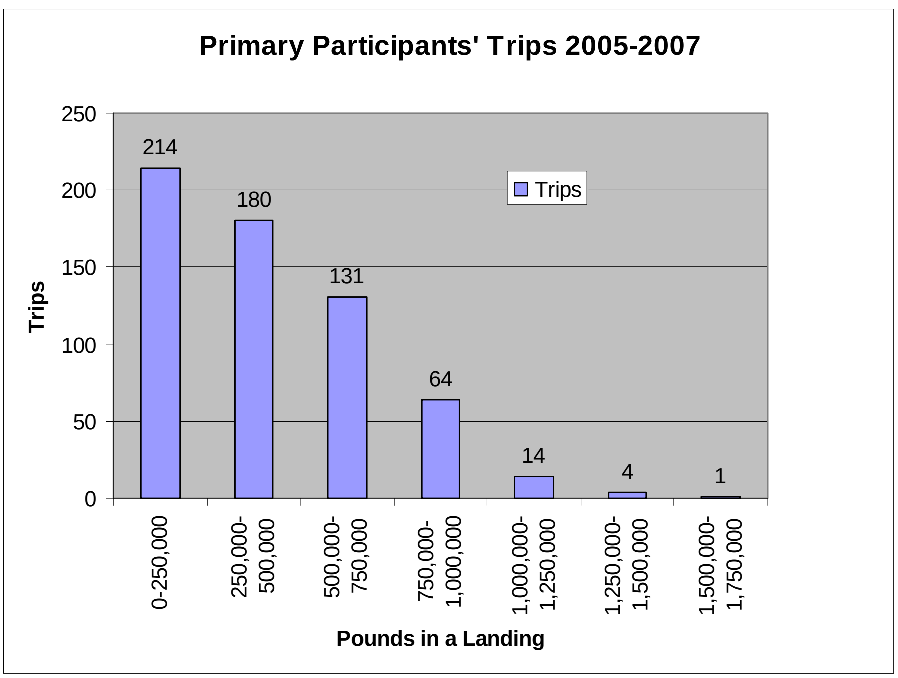
The extensive otter trawl fishery for *Loligo, Illex,* Atlantic mackerel, and butterfish ranges from Massachusetts to Maryland. Due to the diversity in fishing vessels and strategies for prosecuting the fisheries it is difficult to describe a "typical" squid, mackerel, or butterfish fishing experience. However, vessels generally fall into one of two size classes: 30-45 feet or 50-160 feet. The smaller vessels account for approximately 10-15% of the otter trawl vessels targeting squid, mackerel, and butterfish. These vessels are known as "day boats" and fish inshore waters from early May through July. Typically a day boat carries a crew of one to three fishermen and the boat returns to the dock each night.

Larger vessels ranging from 50 to 160 feet carry three to four fishermen on average, however, vessels that freeze and process fish at sea may carry up to 10-12 crewmen. These larger vessels run from 1-18 day trips depending upon the vessel's capability to store catch and meet quota. Vessels that do not freeze and process at sea are known as "wet boats"; these vessels either ice their catch or store it in refrigerated sea water for up to seven days. Vessels that freeze at sea have the ability to make longer trips averaging 12-14 days and extending as long as 18 days at sea.

Examination of the available dealer weighout, permit, and vessel trip reporting (VTR) generally supports the narrative information. Mackerel are predominantly caught with midwater trawl gear (single and paired) and also with bottom otter trawl gear (Table 35). The fishery occurs primarily in shelf waters east of the Delmarva Peninsula to South of Cape Cod, but catches occur throughout Mid-Atlantic and New England waters (VTR - see figures 60 and 61). Over 2005-2007 18 vessels ("primary participants") accounted for 90.7% of landings with average annual landings of 2,091 MT annually each (range of 4,342 MT - 568 MT). Another 81 vessels (secondary participants) had average annual landings over 1 MT (2204.6 pounds) average per year, accounting for 8.5% of landings with average annual landings of 43 MT annually each (range of 527 MT - 1 MT). Together these 99 vessels account for over 99% of landings. Clearly the fishery is dominated by a relatively small number of vessels. However, there are not clusters of vessels around given annual landings amounts but rather a smooth and steep decline in size of landings that then becomes a smooth and flat trailing off in size of annual landings. The patterns of trips follow a similar pattern, and are summarized in the figures below for both groups.

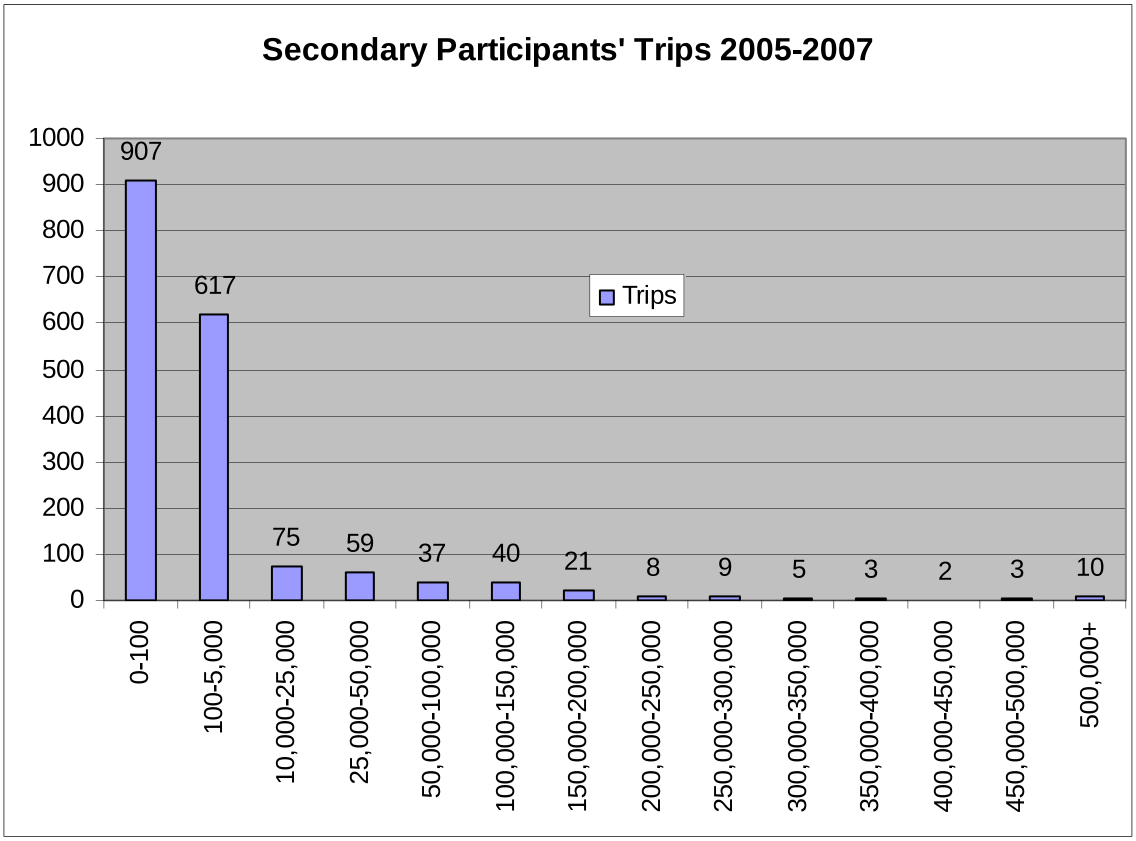
The primary participants are generally larger vessels, averaging 112 feet, about 1700 horsepower with a crew of 7. Catches are either frozen on board or kept in refrigerated seawater and processed on shore. The secondary participants are generally medium size vessels, averaging 72 feet, about 650 horsepower with a crew of 4. Catches are likely handled in a variety of ways as there is greater diversity of vessels among the smaller participants.

Figure 58. Primary Participants' Trip Distribution



Source: Unpublished NMFS dealer data

Figure 59. Secondary Participants' Trip Distribution (Note Intervals Carefully)



Source: Unpublished NMFS dealer data

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Gear Type Detail

Mackerel are taken with a variety of gears but mostly bottom otter trawl, single midwater trawls, and paired midwater trawls. Landings by gear type as recorded in the NMFS dealer weighout database 1982-2007 are described below in Table 35. The table also shows recent quotas and the percent of IOY landed (IOY can be increased midyear to a limit of the U.S. ABC - as a percentage of the U.S. ABC landings would be even smaller). These patterns have not changed dramatically in more recent years as can be reviewed in recent specifications documents: http://www.mafmc.org/fmp/msb.htm.

Table 35. Mackerel Landings by Gear

Year	Bottom Otter Trawl	Single Midwater Trawl	Paired Midwater Trawl	Other	Total	IOY	Percent of IOY Landed
1982	1,908	.	19	744	2,671		
1983	890	.	410	1,342	2,642		
1984	1,235	118	396	1,045	2,795		
1985	1,481	.	249	905	2,635		
1986	3,436	.	2	514	3,951		
1987	3,690	.	0	649	4,339		
1988	5,770	.	0	562	6,332		
1989	7,655	.	0	589	8,245		
1990	8,847	.	0	1,031	9,878		
1991	15,514	564	223	285	16,585		
1992	11,302	.	1	458	11,761		
1993	3,762	479	.	412	4,653		
1994	8,366	1	.	551	8,917	120,000	7%
1995	7,920	50	.	499	8,468	100,000	8%
1996	13,345	1,295	.	1,088	15,728	105,500	15%
1997	13,927	628	.	847	15,403	90,000	17%
1998	12,095	571	1,363	495	14,525	80,000	18%
1999	11,181	99	.	752	12,031	75,000	16%
2000	4,551	736	.	362	5,649	75,000	8%
2001	584	11,396	.	360	12,340	85,000	15%
2002	4,008	11,669	10,477	376	26,530	85,000	31%
2003	5,291	17,212	11,572	222	34,298	175,000	20%
2004	7,329	23,170	20,499	5,440	56,438	170,000	33%
2005	5,437	15,635	18,894	2,242	42,209	115,000	37%
2006	10,359	24,413	19,360	2,509	56,641	115,000	49%
2007	2,097	14,715	8,080	655	25,547	115,000	22%

Source: Unpublished NMFS dealer data

Location Detail

Mackerel are caught throughout the New England and Mid-Atlantic region but are generally concentrated off the coast of Delmarva through Rhode Island, as displayed in the following two maps. The first map shows the concentration of catches in the VTR data by ten minutes square for the years 1998-2002 and the second (next page) uses the years 2003-2007. Of particular note in the later map is the reduction in landings activity off the NC, VA, and MD coasts.

1998-2002:

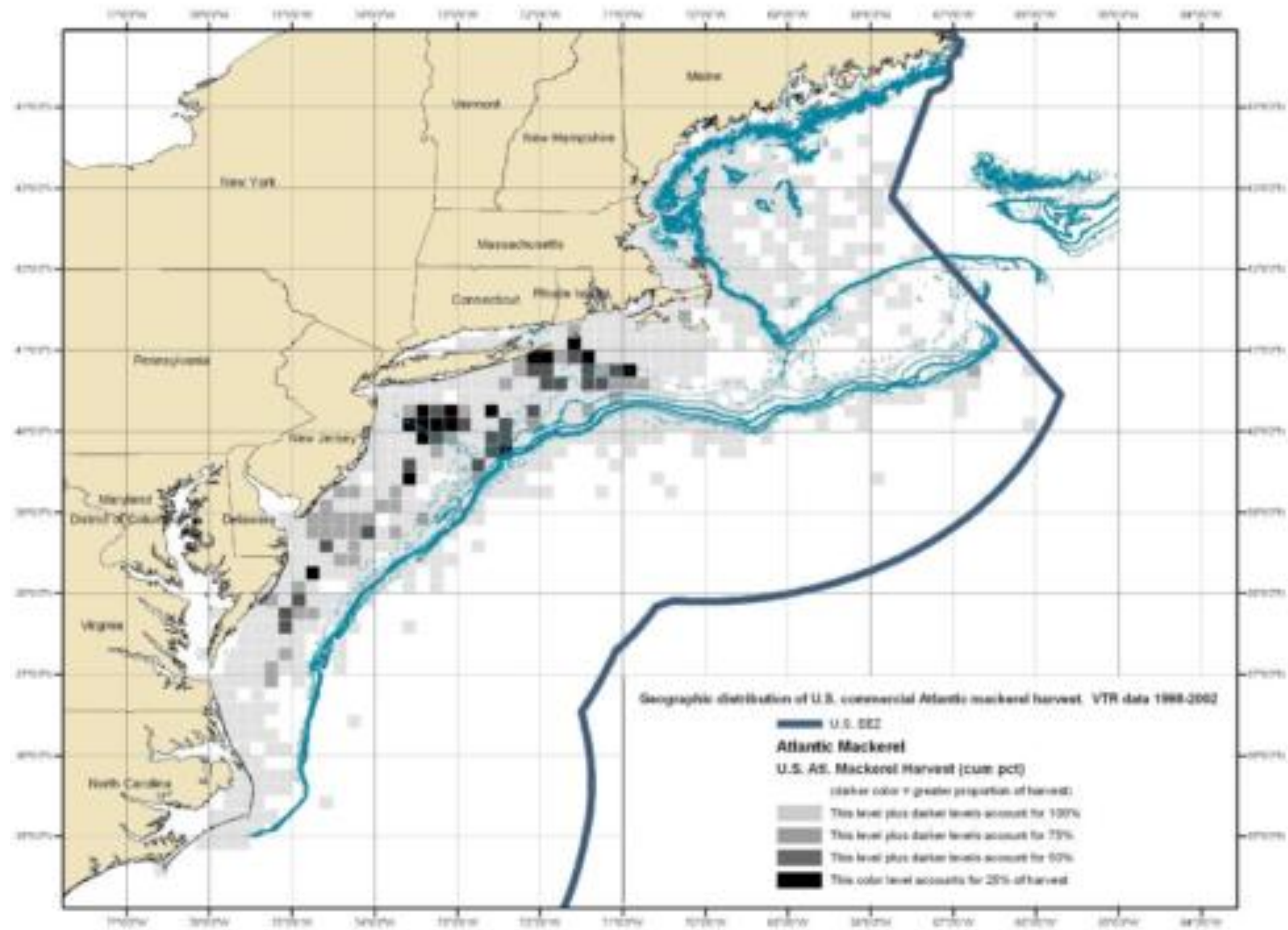

Figure 60. Mackerel VTR Landings 1998-2002

2003-2007:

(These patterns have not changed dramatically in more recent years as can be reviewed in recent specifications documents: http://www.mafmc.org/fmp/msb.htm.)

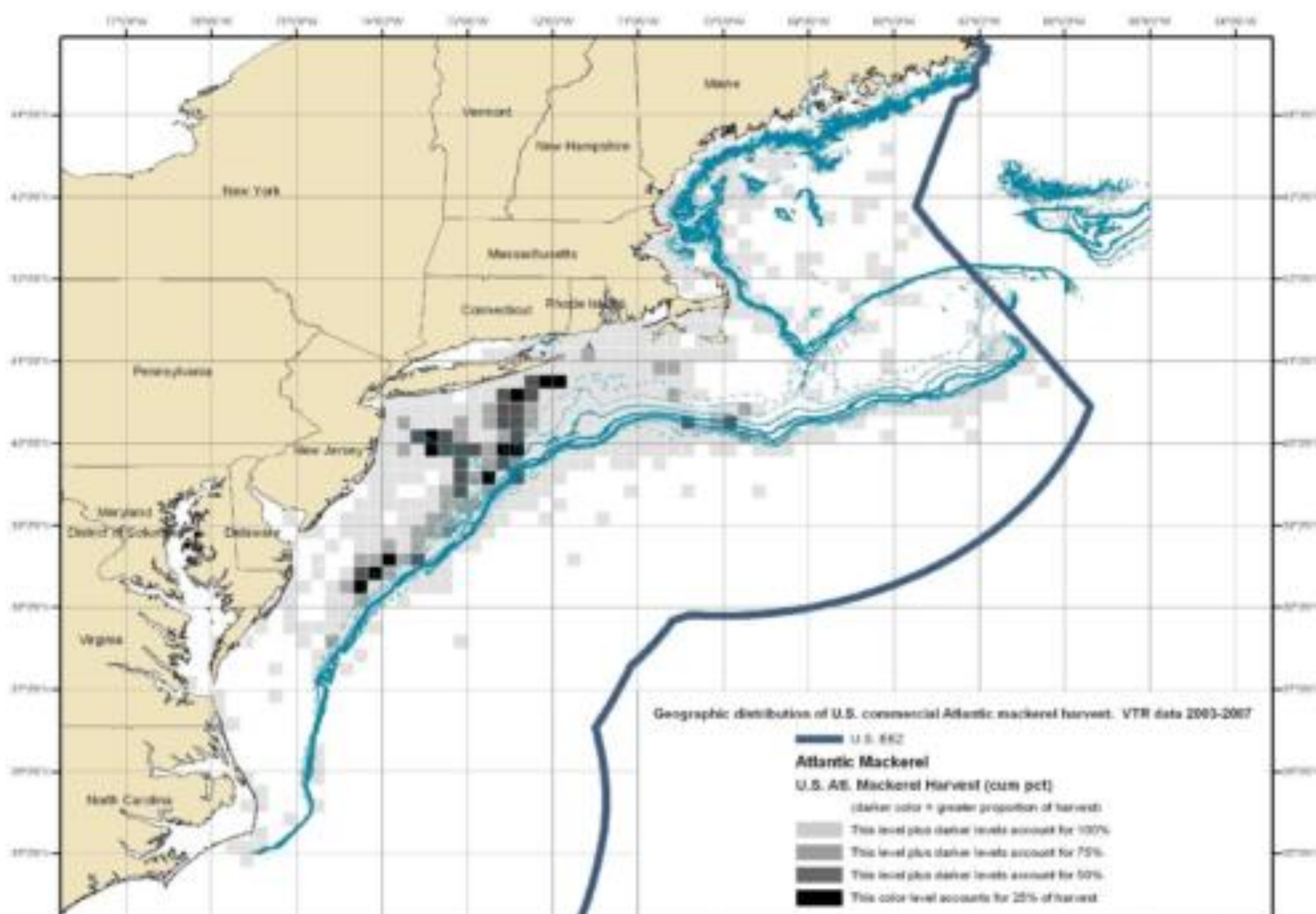

Figure 61. Mackerel VTR Landings 2003-2007.

Vessels land mackerel in a variety of states as described in Table 36. The subsequent table (37) lists the most important individual ports for mackerel landings. (2003-2007). These patterns have not changed dramatically in more recent years as can be reviewed in recent specifications documents: http://www.mafmc.org/fmp/msb.htm.

Table 36. 2003-2007 Mackerel Landings by State (mt)

	RI	NY	NJ	MA	ME	Domestic JV	All others	Total
2003	4,884	70	14,994	10,637	1	3,375	337	34,298
2004	6,926	35	16,371	32,970	26	0	109	56,438
2005	3,663	70	14,703	23,698	38	0	36	42,209
2006	4,601	60	11,329	40,612	10	0	28	56,641
2007	1,924	62	2,442	20,974	116	0	28	25,547

Source: Unpublished NMFS dealer data

Table 37. 2003-2007 Mackerel Landings by Port

PORT	STATE	Avg ANNUAL MT MACKEREL	PERCENT OF TOTAL
NEW BEDFORD	MASSACHUSETTS	12,325	29%
CAPE MAY	NEW JERSEY	11,923	28%
GLOUCESTER	MASSACHUSETTS	10,927	25%
N. KINGSTOWN & Point Judith	RHODE ISLAND	3,954	9%
FALL RIVER	MASSACHUSETTS	2,496	6%
DOMESTIC JOINT VENTURE	DOMESTIC JV	675	2%
OTHER WASHINGTON	RHODE ISLAND	289	1%
NEWPORT	RHODE ISLAND	140	0%
NEW LONDON	CONNECTICUT	52	0%
POINT PLEASANT	NEW JERSEY	28	0%
PORTLAND	MAINE	27	0%
MONTAUK	NEW YORK	26	0%
CHATHAM	MASSACHUSETTS	24	0%
HAMPTON	VIRGINIA	24	0%
ALL OTHERS	VARIOUS	118	0%

Source: Unpublished NMFS dealer data

Revenues

Details on the economics of the fishery are provided in Section 6.5.2, but annual landings in terms of metric tons and ex-vessel revenues are shown in Figure 62 a/b below.

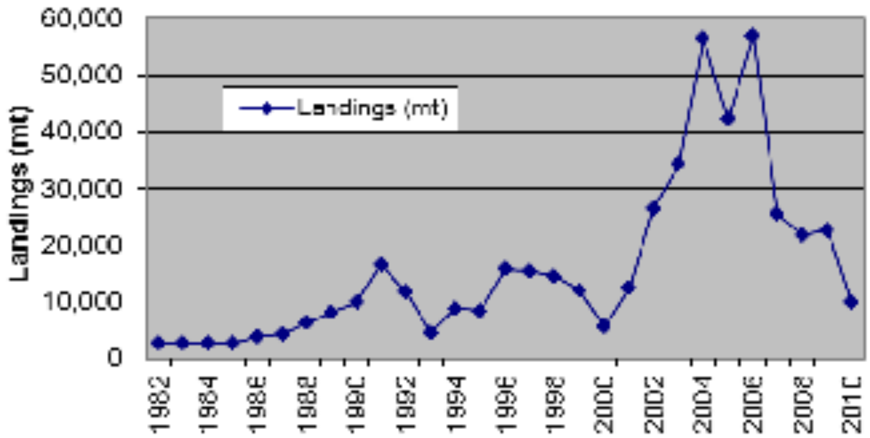

Figure 62a. Mackerel Landings
Source: Unpublished NMFS dealer data

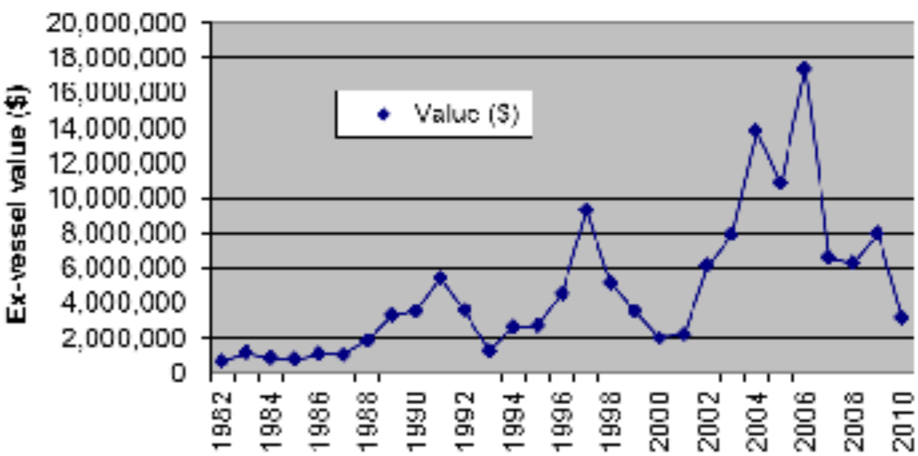

Figure 62b. Mackerel Ex-Vessel Revenues
Source: Unpublished NMFS dealer data

Recreational Fishery

Atlantic mackerel are seasonally important to the recreational fisheries of the Mid-Atlantic and New England regions. They are available to recreational anglers in the Mid-Atlantic primarily during the spring migration. Historically, mackerel first appear off Virginia in March and gradually move northward. Christensen *et al.* 1979 found mackerel to be available to the recreational fishery from Delaware to New York for about three weeks (generally from early April to early May). As a result, the annual recreational catch of mackerel appears to be sensitive to changes in their migration and subsequent distribution pattern (Overholtz *et al.* 1989).

Recreational landings of Atlantic mackerel since 1997, as estimated from the NMFS Marine Recreational Fishery Statistics Survey, are given in Table 38. In recent years, recreational mackerel landings have varied from roughly 1,737 mt in 1997 to 690 mt in 1998. The highest landings occur from New Jersey to Massachusetts. Most recreationally-caught Atlantic mackerel are taken from boats (Table 39). The reader is cautioned that MRFSS sampling does not generally occur in January and February, and that the available MRFSS estimates for Atlantic mackerel are relatively imprecise compared to some other species (e.g. croaker, summer flounder, black sea bass). Numbers of fish released alive are provided in Table 40.

Table 38. Recreational landings (rounded to nearest metric ton) of Atlantic mackerel by state, 1997-2007.

Year	ME	MD	MA	NH	NJ	NY	NC	RI	VA	DE	CT	Annual Total
1997	409	28	556	212	439	23	0	18	25	26	0	1737
1998	149	6	352	90	70	7	0	8	5	3	0	690
1999	258	17	624	156	214	15	0	45	5	0	0	1334
2000	364	1	857	166	31	10	0	2	15	0	0	1,448
2001	287	22	885	224	78	18	0	7	2	13	0	1,536
2002	387	2	728	65	60	0	0	47	0	3	1	1,294
2003	123	0	510	79	29	19	0	8	1	0	0	770
2004	207	0	291	27	2	0	0	0	0	3	0	530
2005	181	0	768	74	10	0	0	0	0	0	0	1,033
2006	109	0	1,488	31	0	0	0	1	0	0	3	1,633
2007	280	0	561	43	0	0	0	0	0	0	0	884
2008	148	0	413	129	0	0	0	0	0	0	0	691
2009	320	0	155	272	0	0	0	0	0	0	0	747
2010	250	0	461	68	0	0	0	0	0	0	0	779

Source: Personal communication from the National Marine Fisheries Service, Fisheries Statistics Division.

Table 39. Recreational landings (rounded to nearest metric ton) of Atlantic mackerel by mode, 1998-2007.

Year	SHORE	PARTY/ CHARTER	PRIVATE/ RENTAL	Annual Totals
1998	66	109	514	689
1999	87	293	955	1,335
2000	127	81	1,239	1,448
2001	82	164	1,290	1,536
2002	98	23	1,172	1,294
2003	123	53	594	770
2004	115	21	395	530
2005	14	25	994	1,033
2006	62	11	1,560	1,633
2007	63	20	801	884

These patterns have not changed dramatically in more recent years as can be reviewed in recent specifications documents: http://www.mafmc.org/fmp/msb.htm.

Source: Personal communication from the National Marine Fisheries Service, Fisheries Statistics Division.

Table 40. Recreational Mackerel Discards (Released Alive)

Mackerel (Numbers of Fish)	
Year	RELEASED ALIVE (TYPE B2)
1998	339,076
1999	402,362
2000	672,651
2001	795,585
2002	386,022
2003	216,368
2004	171,537
2005	151,535
2006	328,449
2007	190,229

Source: Personal communication from the National Marine Fisheries Service, Fisheries Statistics Division.

These patterns have not changed dramatically in more recent years as can be reviewed in recent specifications documents: http://www.mafmc.org/fmp/msb.htm.

6.1.2 *Illex*

6.1.2.1 *Illex* Biology

The age and growth of *Illex* has been well studied relative to other squid species, being one of the few for which the statolith ageing method has been validated (Dawe *et al.* 1985). Research on the age and growth of *Illex* based on counts of daily statolith growth increments indicates an annual life span (Dawe *et al.* 1985).

Illex is a terminal spawner with a protracted spawning season. There have been no direct observations of spawning in nature. The winter spawning area is believed to be south of Cape Hatteras over the Blake Plateau (Black *et al.* 1987), but other spawning occurs between the Florida Peninsula and central New Jersey at depths down to 990 ft (300 m; Fedulov and Froerman 1980). Some spawning may also occur in the northern part of the Gulf Stream/Slope Water frontal zone (Dawe and Beck 1985, O'Dor and Balch 1985, Rowell et al 1985). However, the only confirmed spawning area is located in the Mid-Atlantic where a large number of mated females have been collected during May in the vicinity of the US fishing grounds (Hendrickson, 2004, Hendrickson and Hart, 2006).

<u>*Illex* Prey (from EFH Source Document: http://www.nefsc.noaa.gov/nefsc/habitat/efh/)</u>

Trophic relationships between *Illex* and other marine species are described by Dawe and Brodziak (1998). Northern shortfin squid feed primarily on fish and crustaceans, but cannibalism of small individuals (most likely males) by larger females also occurs, particularly during autumn (Squires 1957; Froerman 1984; Maurer and Bowman 1985; Dawe 1988). An ontogenetic shift in diet from a predominance of crustaceans to a predominance of fish and squid is evident in squid from both stock components (Maurer and Bowman 1985; Dawe 1988).

Fish prey consists of the early life history stages of Atlantic cod, Arctic cod and redfish (Squires 1957, Dawe et al. 1997), sand lance (Dawe et al. 1997), mackerel and Atlantic herring (O'Dor et al. 1980a; Dawe et al. 1997), and haddock and sculpin (Squires 1957). *Illex* also feed on adult capelin (Squires 1957; O'Dor et al. 1980a; Dawe et al. 1997) and longfin inshore squid, *Loligo* pealeii (Vinogradov 1984).

Illex exhibit diel vertical migrations (Roper and Young 1975; Brodziak and Hendrickson 1999) and both juveniles (Arkhipkin and Fedulov 1986) and adults feed primarily at night in the upper layers of the water column (Maurer and Bowman 1985). On the U.S. shelf in the spring, I. illecebrosus primarily consume euphausiids, whereas fish and squid were the dominant prey in the summer and fall. I. illecebrosus 6-10 cm and 26-30 cm in size eat mostly squid, while 11-15 cm *Illex* eat mostly crustaceans and fish, and individuals 16-20 cm eat mostly crustaceans (Maurer and Bowman 1985).

Illex gut content data collected during Northeast Fisheries Science Center (NEFSC) bottom trawl surveys (Link and Almeida 2000) were combined across seasons to compute the percent composition of major prey categories. For both pre-recruits (92%) and recruits (57%), a majority of the gut contents consisted of well-digested prey. Pre-recruit prey types that could be identified consisted of crustaceans (3%) and fish (3%). The diet of recruits consisted of cephalopods (30%), crustaceans (including euphausiids, 7%), and fish (6%).

Available EFH information for prey species may be found at the EFH web site noted above (includes some but not all prey mentioned).

Illex as Prey

Illex are an important prey species and are known to be preyed upon by many pelagic and demersal fish species, as well as by marine mammals, seabirds, and *Loligo* squid (Butler 1971, Vinogradov 1972, Maurer 1975, Buckel 1997, Langton and Bowman 1977, Lilly and Osborne 1984, Templeman 1944, Stillwell and Kohler 1985, Scott and Scott 1988, Squires 1957, Wigley 1982, Major 1986, and Brown *et al.*1981). See http://www.nefsc.noaa.gov/nefsc/habitat/efh/ for details. *Illex*'s role as prey is considered in the specification of natural mortality in each stock assessment based on the best available scientific information.

6.1.2.2 Status of the *Illex* Stock

The *Illex* stock was most recently assessed at SARC 42. SARC 42 was publically available in 2006 and included data through 2004. It was not possible to evaluate current stock status because there are no reliable current estimates of stock biomass or fishing mortality rate. In addition, no projections were made in SAW 42. SAW 37 (the previous assessment) also could not evaluate current stock status because there were no reliable estimates of absolute stock biomass or fishing mortality to compare with existing reference points. However, based on a number of qualitative analyses, it was determined that overfishing was not likely to have occurred during 1999-2002. NEFSC indices for Fall surveys (#/tow) are included below in Figure 63.

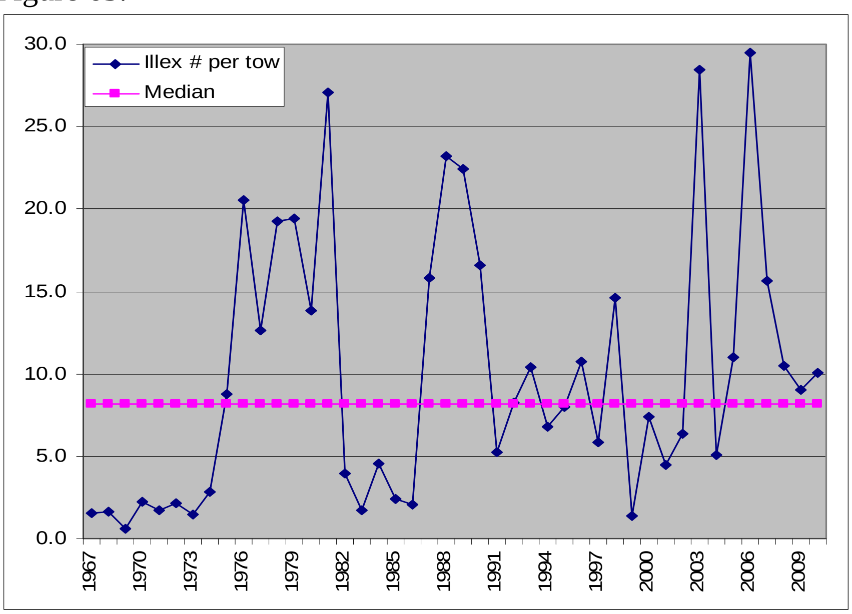

Figure 63. *Illex* Indices from NEFSC Fall survey.

Source: Unpublished NEFSC trawl survey data

6.1.2.3 The *Illex* Fishery

The *Illex* Fishery was discussed in detail in Amendment 10's FSEIS and in the 2011 Specifications Environmental Assessment (http://www.mafmc.org/fmp/msb.htm). While Am11 management actions are not expected to significantly impact the *Illex* fishery, Amendment 10's FSEIS and the 2011 Specifications Environmental Assessment can be consulted for details and/or updates on the *Illex* fishery (http://www.mafmc.org/fmp/msb.htm). Table 41 and Figures 64-67 below summarize *Illex* landings by gear (dealer weighout data), performance relative to annual quotas (dealer weighout data), monthly distribution of landings (dealer weighout data), locations of *Illex* landings (VTR data), and a comparison of landings versus ex-vessel value (dealer weighout data).

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Table 41. Illex landings by gear type, total landings, quota, percent of quota

YEAR	Bottom Otter Trawl	Other	TOTAL	IOY	Percent of IOY Landed
1982	3,530	3	3,533		
1983	1,413	16	1,428		
1984	3,287	3	3,290		
1985	2,447	0	2,447		
1986	4,408	1	4,409		
1987	6,468	494	6,962		
1988	1,953	4	1,957		
1989	6,801	0	6,801		
1990	11,315	0	11,316		
1991	11,906	2	11,908		
1992	17,822	5	17,827		
1993	18,012	0	18,012		
1994	17,693	657	18,350		
1995	13,970	6	13,976		
1996	15,690	1,279	16,969		
1997	13,004	352	13,356		
1998	23,219	349	23,568	19,000	124%
1999	7,309	80	7,389	19,000	39%
2000	8,967	44	9,011	24,000	38%
2001	4,009	0	4,009	24,000	17%
2002	2,709	41	2,750	24,000	11%
2003	6,111	280	6,391	24,000	27%
2004	24,428	1,669	26,097	24,000	109%
2005	7,955	4,057	12,011	24,000	50%
2006	13,447	497	13,944	24,000	58%
2007	7,948	1,074	9,022	24,000	38%

Source: Unpublished NMFS dealer data

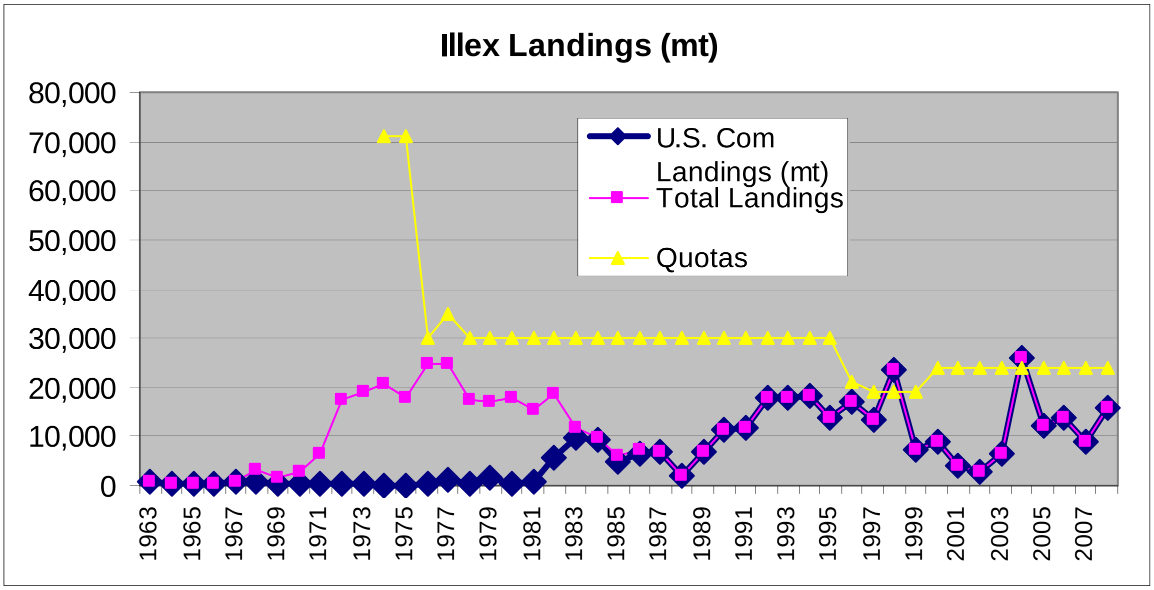

Figure 64. Illex 1960s-2008 (2008 Preliminary) landings with quotas marked

Source: Unpublished NMFS dealer data

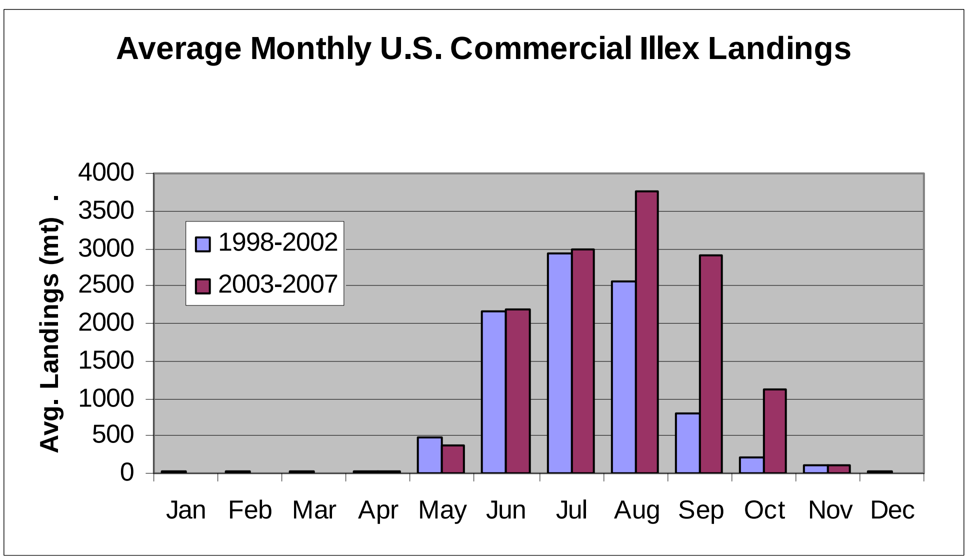

Figure 65. Average Illex monthly landings for 2 previous 5 year periods

Source: Unpublished NMFS dealer data

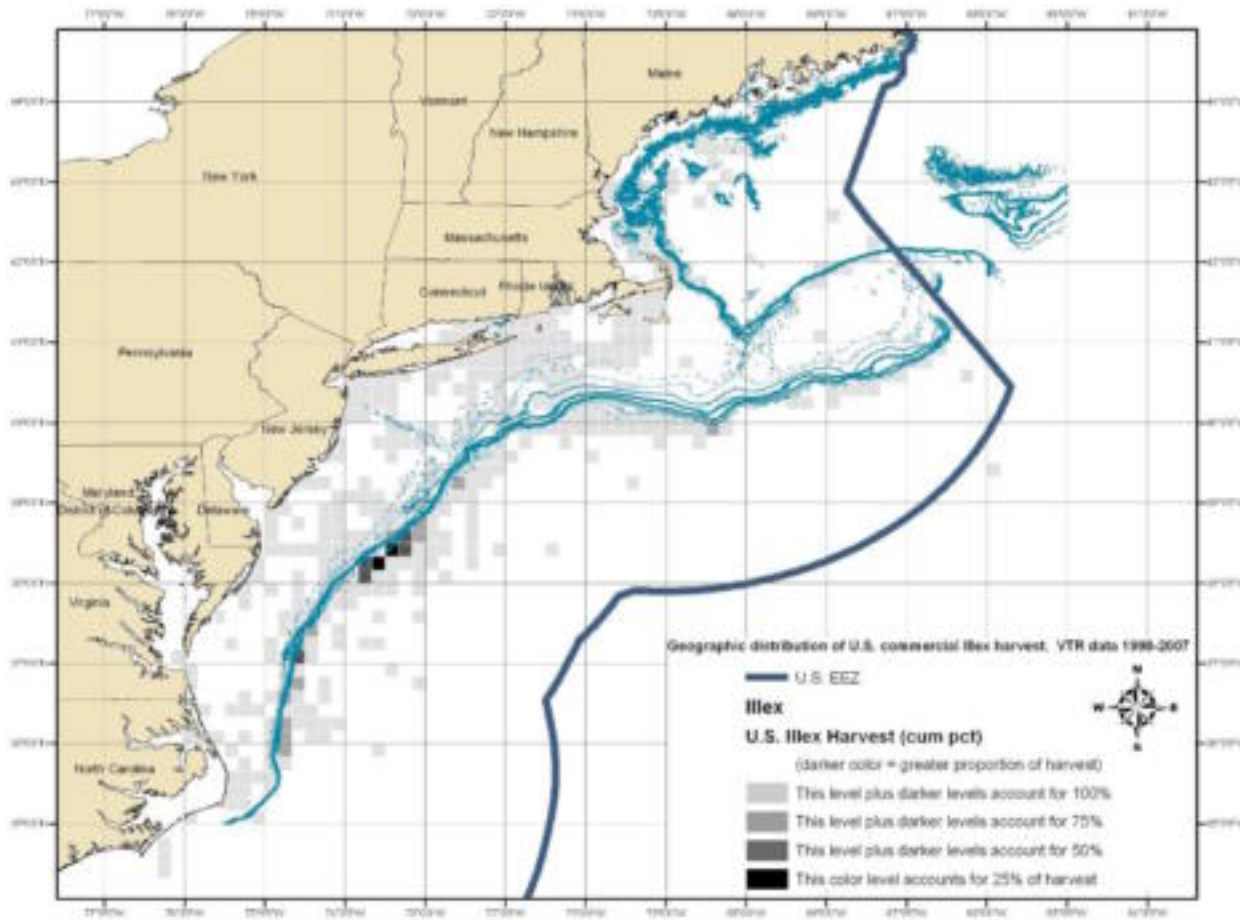

Figure 66. 1998-2007 Illex VTR Landings

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Revenues

Annual landings in terms of metric tons and ex-vessel revenues are shown in the figure below.

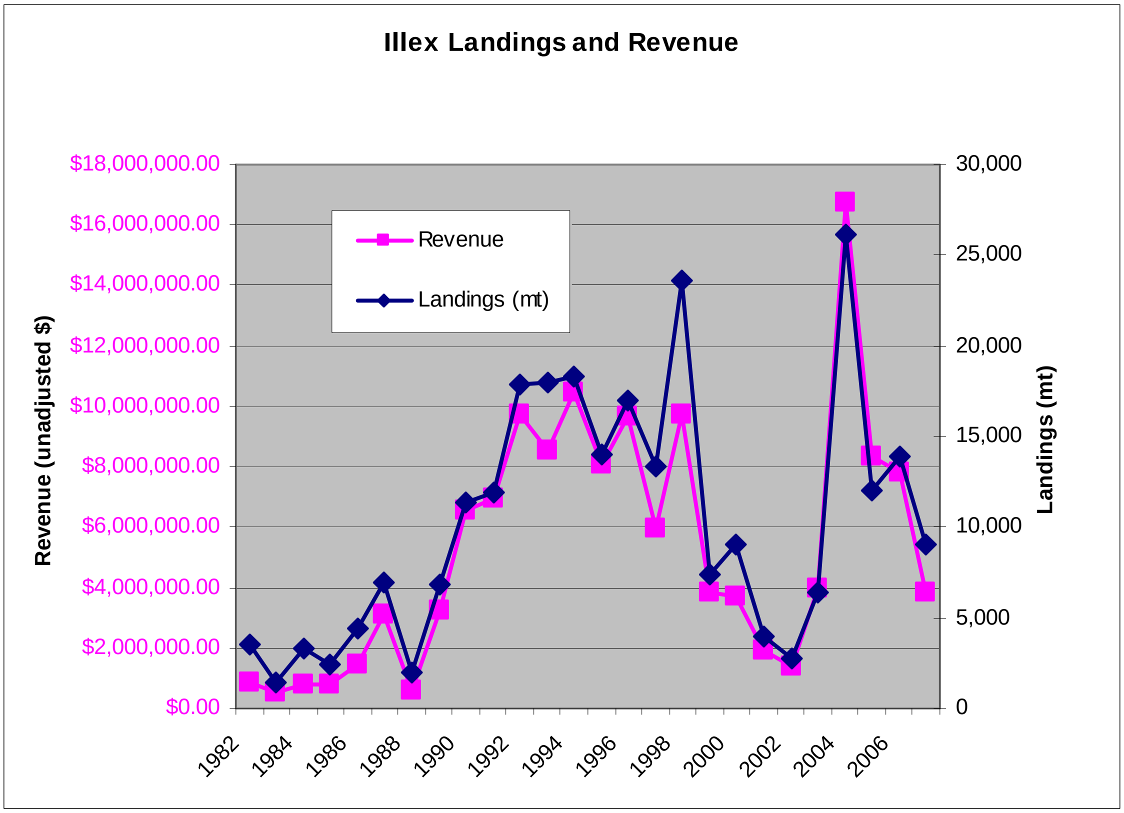

Figure 67. Illex Landings and Revenues
Source: Unpublished NMFS dealer data

6.1.3 *Loligo*

6.1.3.1 *Loligo* Biology

Statolith ageing studies of *Loligo pealeii* have indicated a life span of less than one year (Macy 1992, Brodziak and Macy 1996). Consequently, all recent stock assessments for *Loligo* have been conducted under the assumption that the species has a semelparous (i.e., annual) life-cycle and has the capacity to spawn throughout the year (NMFS 1994), as now appears typical of pelagic squid species studied throughout the world (Jereb *et a*l. 1991).

Loligo eggs are collected in gelatinous capsules as they pass through the female's oviduct during mating. Each capsule is about 3" long and 0.4" in diameter. Mating activity among captive *Loligo* was initiated when clusters of newly spawned egg capsules were placed in the tank. During spawning the male cements bundles of spermatophores into the mantle cavity of the female, and as the capsule of eggs passes out through the oviduct its jelly is penetrated by the sperm. The female then removes the egg capsule and usually attaches it to a preexisting cluster of newly spawned eggs (clusters are initiated on rocks, sand, and seaweeds). The female lays between 20 and 30 of these capsules, each containing 150 to 200 large (about 0.05"), oval eggs, for a total of 3,000 to 6,000 eggs. These clusters of demersal eggs, with as many as 175 capsules per cluster, are found in shallow waters (10-100') and may often be found washed ashore on beaches (Jacobson 2005, Grosslein and Azarovitz 1982).

Loligo Prey (http://www.nefsc.noaa.gov/nefsc/habitat/efh/)

The diet of *Loligo* changes with increasing size; small immature individuals feed on planktonic organisms (Vovk 1972a, Tibbetts 1977) while larger individuals feed on crustaceans and small fish (Vinogradov and Noskov 1979). Cannibalism is observed in individuals larger than 2 in (5 cm) (Whitacker 1978). Juveniles 1.6-2.4 in (4.1-6 cm) long fed on euphausiids and arrow worms, while those 2.4-4 in (6.1-10 cm) fed mostly on small crabs, but also on polychaetes and shrimp (Vovk and Khvichiya 1980, Vovk 1985). Adults 4.8-6.4 in (12.1-16 cm) long fed on fish (Clupeids, Myctophids) and squid larvae/juveniles, and those >6.4 in (16 cm) fed on fish and squid (Vovk and Khvichiya 1980, Vovk 1985). Fish species preyed on by *Loligo* include silver hake, mackerel, herring, menhaden (Langton and Bowman 1977), sand lance, bay anchovy, menhaden, weakfish, and silversides (Kier 1982). Maurer and Bowman (1985) demonstrated seasonal and inshore/offshore differences in diet: in the spring in offshore waters, the diet was composed of crustaceans (mainly euphausiids) and fish; in the fall in inshore waters, the diet was composed almost exclusively of fish; and in the fall in offshore waters, the diet was composed of fish and squid.

Available EFH information for prey species may be found at the EFH web site noted above (includes some but not all prey mentioned).

Loligo as Prey

Loligo are an important prey species and are known to be preyed upon by many pelagic and demersal fish species, as well as by marine mammals, seabirds, and *Illex* squid (Lange and Sissenwine 1980, Vovk and Khvichiya 1980, Summers 1983, Waring *et al.* 1990, Overholtz and Waring 1991, Gannon *et al.* 1997, Maurer 1975, Langton and Bowman 1977, Gosner 1978, Lange 1980, Vinogradov 1984). See http://www.nefsc.noaa.gov/nefsc/habitat/efh/ for details.

6.1.3.2 Status of the *Loligo* Stock

Based on a new proposed biomass reference point from the 2010 assessment (SAW SARC 51), the longfin inshore squid stock was not overfished in 2009, but overfishing status cannot be determined because no overfishing threshold was recommended. A new BMSY target of 50% of K (0.50*(76,329/0.90) = 42,405 mt) is recommended. The biomass (B) threshold is 50% of BMSY (= 21,203 mt). The biomass estimate, which is based on the two-year average of catchability-adjusted spring and fall survey biomass during 2008-2009, was 54,442 mt (80% CI = 38,452-71,783 mt). This is greater than the BTHRESHOLD and the BMSY target. The stock exhibits very large fluctuations in abundance (from variation in reproductive success and recruitment) which is expressed as large inter-annual changes (2-3 fold) in survey biomass.

A new threshold reference point for fishing mortality was not recommended in the 2010 assessment because there was no clear statistical relationship between Loligo catch and annual biomass estimates during 1975-2009. Furthermore, annual catches were low relative to annual estimates of minimum consumption by a subset of fish predators. The stock appears to be lightly exploited. The 2009 exploitation index of 0.176 (catch in 2009 divided by the average of the spring and fall survey biomass during 2008-2009; 80% CI = 0.124-0.232) was slightly below the 1987-2008 median of 0.237 (SAW SARC 51 - http://www.nefsc.noaa.gov/saw/). Loligo Fall survey indices are provided in Figure 68.

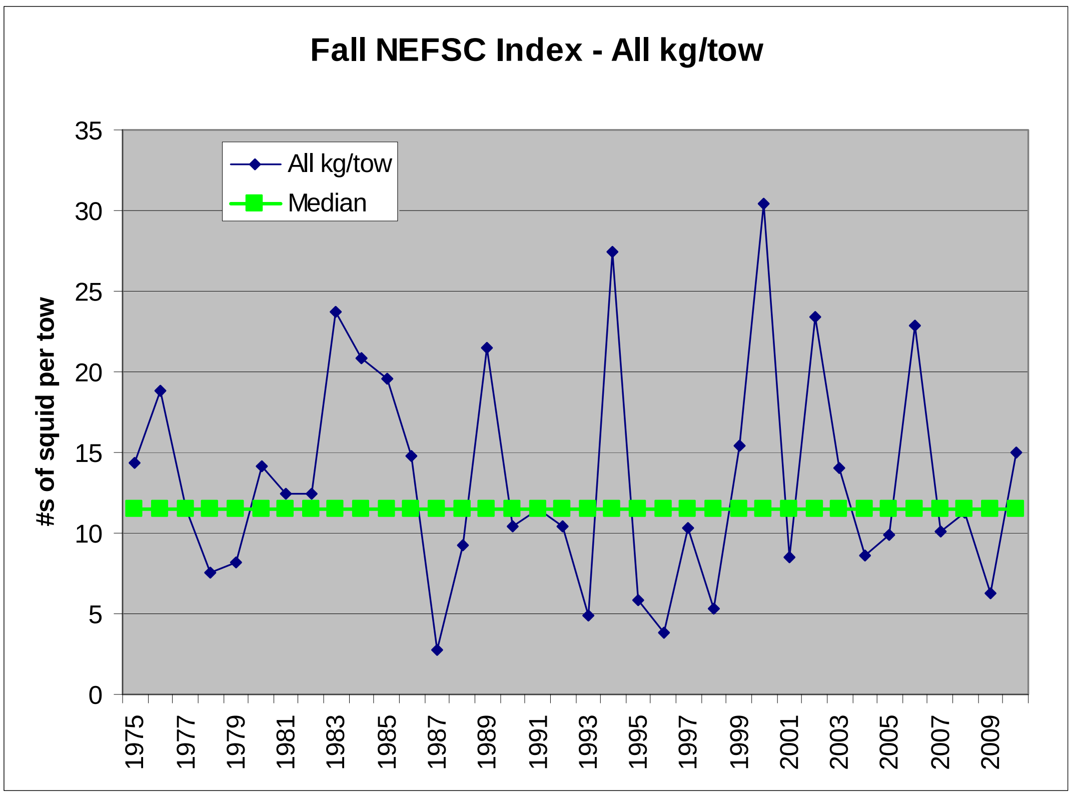

Figure 68. *Loligo* Indices from NEFSC Fall survey.
Source: Unpublished NEFSC trawl survey data

6.1.3.3 The *Loligo* Fishery

The *Loligo* Fishery was discussed in detail in Amendment 10's FSEIS and in the 2011 Specifications Environmental Assessment. While Am11 management actions are not expected to significantly impact the *Loligo* fishery, Amendment 10's FSEIS and the 2011 Specifications Environmental Assessment can be consulted for details/updates on the *Loligo* fishery (http://www.mafmc.org/fmp/msb.htm). Table 42 and Figures 69-72 below summarize *Loligo* landings by gear (dealer weighout data), performance relative to annual quotas (dealer weighout data), monthly distribution of landings (dealer weighout data), locations of *Loligo* landings (VTR data), and a comparison of landings versus ex-vessel value (dealer weighout data).

Table 42. Loligo landings by gear type, total landings, quota, percent of quota

YEAR	Bottom Otter Trawl	Single Midwater Trawl	Dredge (for unknown species)	All others	Total	IOY	Percent of IOY Landed
1982	2,445	0	.	79	2,524		
1983	8,266	.	.	466	8,731		
1984	6,648	.	.	509	7,158		
1985	6,217	.	.	647	6,864		
1986	10,867	.	.	646	11,512		
1987	9,699	.	.	655	10,354		
1988	16,811	.	.	1,751	18,562		
1989	22,416	.	.	1,234	23,650		
1990	14,354	.	.	599	14,954		
1991	18,849	3	.	557	19,409		
1992	17,914	.	.	263	18,177		
1993	21,885	.	.	386	22,272		
1994	22,404	.	.	159	22,563		
1995	17,622	.	.	725	18,348		
1996	11,720	440	.	254	12,414		
1997	15,649	2	.	461	16,113		
1998	18,962	2	.	159	19,123	21,000	91%
1999	18,938	0	.	171	19,109	21,000	91%
2000	17,198	23	.	259	17,480	13,000	134%
2001	14,021	45	.	171	14,238	17,000	84%
2002	16,508	.	.	198	16,707	17,000	98%
2003	11,839	.	.	96	11,935	17,000	70%
2004	12,874	493	364	1,834	15,566	17,000	92%
2005	11,673	1,290	1,037	2,982	16,983	17,000	100%
2006	12,577	333	892	2,105	15,907	17,000	94%
2007	9,990	272	602	1,477	12,342	17,000	73%

Source: Unpublished NMFS dealer data

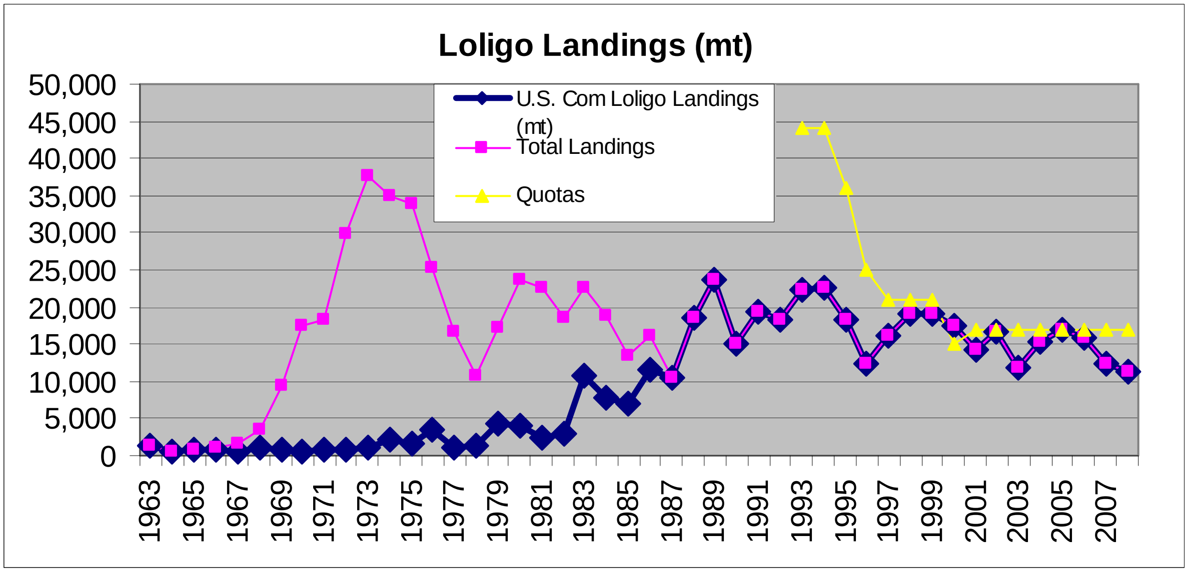

Figure 69. Loligo 1960s-2008 (2008 Preliminary) landings with quotas marked
Source: Unpublished NMFS dealer data

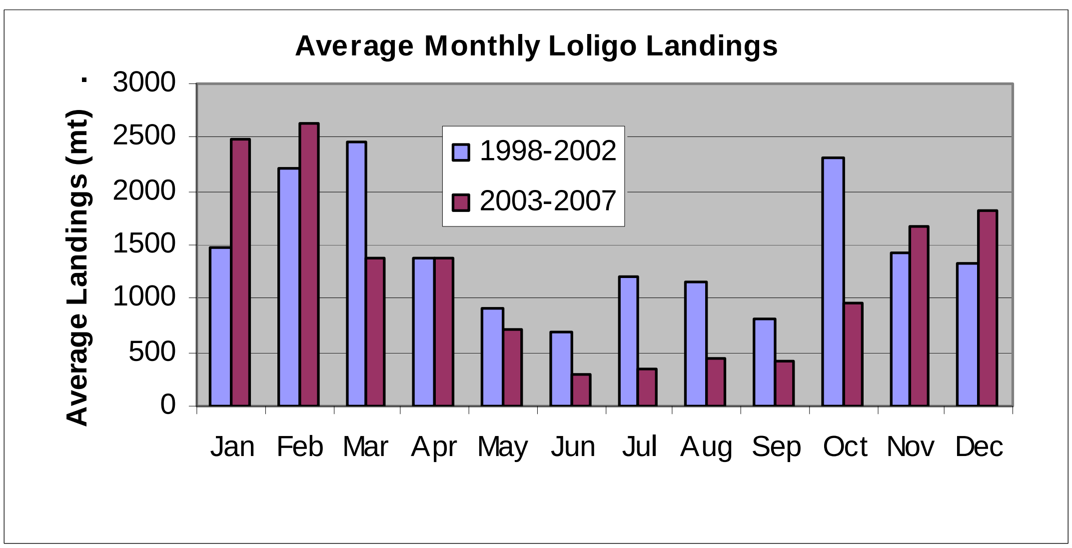

Figure 70. Average monthly landings for 2 previous 5 year periods
Source: Unpublished NMFS dealer data

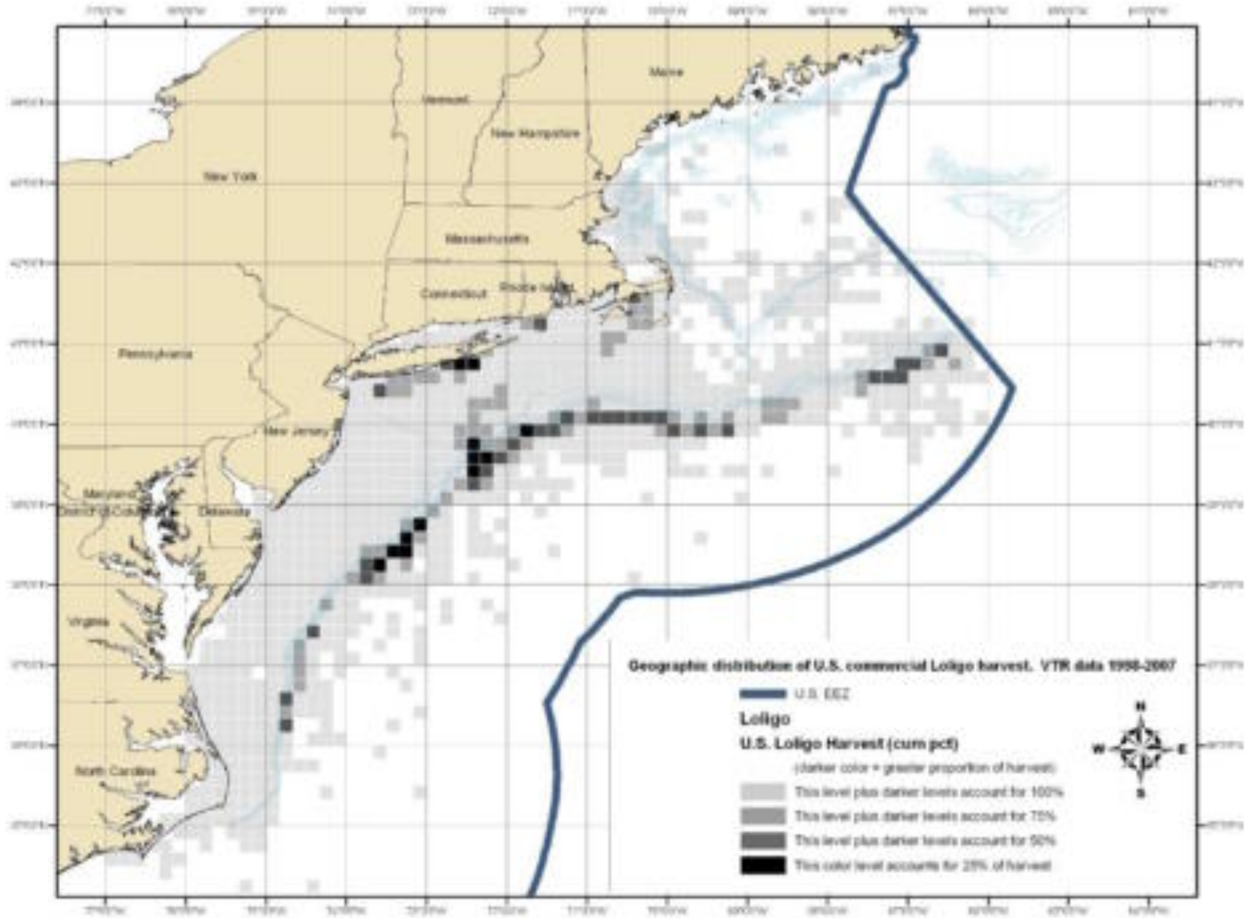

Figure 71. 1998-2007 Loligo VTR Landings

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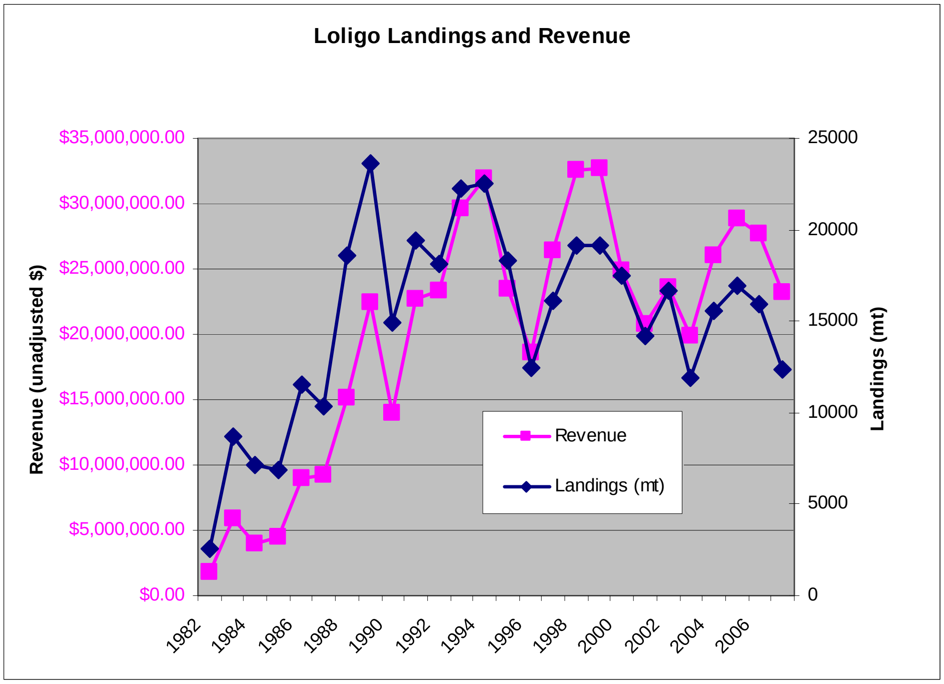

Figure 72. Loligo Landings and Revenues
Source: Unpublished NMFS dealer data

6.1.4 Butterfish

6.1.4.1 Butterfish Biology

Butterfish spawning takes place chiefly during summer (June- August) in inshore waters generally less than 100' deep and over 60 ^{o}F.. The times and duration of spawning are closely associated with changes in surface water temperature. Peak egg production occurs in Chesapeake Bay in June and July, off Long Island and Block Island in late June and early July, in Narragansett Bay in June and July, and in Massachusetts Bay June to August (Grosslein and Azarovitz 1982).

Butterfish eggs are found throughout the New York Bight and on Georges Bank, and they occur in the Gulf of Maine, but larvae appear to be relatively scarce east and north of Nantucket Shoals. In 1973, from mid-June to early September. Larvae are common in the plankton off Shoreham, NY. Post larvae and juveniles were common in plankton net samples taken in August in the vicinity of Little Egg Inlet, NJ. Juveniles 3-4" long have been taken in Rhode Island waters in late October (Grosslein and Azarovitz 1982).

Young of the year butterfish collected in October trawl surveys (at about 4 months old) average 4.8" long. Fish about 16 months old are 6.6", at about 28 months old fish are 6.8", and at 40 months old they are 7.8". Maximum age is reported as six years. More recent studies showed that the population was composed of four age groups ranging from young of the year to over age three. Some butterfish are sexually mature at age one, but all are sexually mature by age two (Grosslein and Azarovitz 1982).

Butterfish Prey (From EFH Source Documents http://www.nefsc.noaa.gov/nefsc/habitat/efh/)

Butterfish feed mainly on planktonic prey including thaliaceans (primarily Larvacea and Hemimyaria), mollusks (primarily squids), crustaceans (copepods, amphipods, and decapods), coelenterates (primarily hydrozoans), polychaetes (primarily Tomopteridae and Goniadidae), small fishes, and ctenophores (Fritz 1965; Leim and Scott 1966; Haedrich 1967; Horn 1970a, b; Schreiber 1973; Mauer and Bowman 1975; Oviatt and Kremer 1977; Tibbets 1977; Murawski *et al.* 1978; Bowman and Michaels 1984; Klein-MacPhee, in review).

The food habits of butterfish collected during the northeast shelf during Northeast Fisheries Science Center (NEFSC) bottom trawl surveys [see Reid *et al.* (1999) for details] were similar to diets reported in the literature. The stomach contents were dominated by unidentifiable animal remains. Arthropods dominated the identifiable items, followed by urochordates (thaliaceans and larvaceans), unidentified plankton, annelids (probably polychaetes), chaetognaths (arrowworms), mollusks (probably squids), cnidarians (coelenterates, probably jellyfish), and fishes.

Available EFH information for prey species may be found at the EFH web site noted above (includes some but not all prey mentioned).

Butterfish as Prey

Butterfish are an important prey species known to be preyed on by a variety of bony fish, sharks, *Loligo* squid, marine mammals, and seabirds (Bigelow and Schroeder 1953, Scott and Tibbo 1968, Horn 1970a, Maurer and Bowman 1975, Tibbets 1977, Stillwell and Kohler 1985, Brodziak 1995a, SAW 38). See http://www.nefsc.noaa.gov/nefsc/habitat/efh/ for details.

6.1.4.2 Status of the Butterfish Stock

The butterfish stock was most recently assessed at SARC 49 (2010 - http://www.nefsc.noaa.gov/saw/). The SARC review panel did not accept the adequacy of the redefined BRPs or the BRPs used for stock status determination in the 2004 butterfish assessment. The review panel questioned the application of MSY theory to a short-lived recruitment-dominated population, particularly the use of equilibrium methods when trends in the data suggest the stock is declining even with low fishing mortality. It was agreed that overfishing was not likely occurring. The review panel concluded that the decline in the butterfish stock appears to be driven by environmental processes and low recruitment. Determination of an overfished versus not overfished condition was not resolved at the meeting, which left the overfished status of butterfish unknown. Final model outputs for biomass, recruitment, and fishing mortality are shown below in Figure 73, though again the SARC concluded that the final model results were only accepted in terms of reflecting the appropriate trend. Figure 74 provides the most recent NEFSC trawl indices.

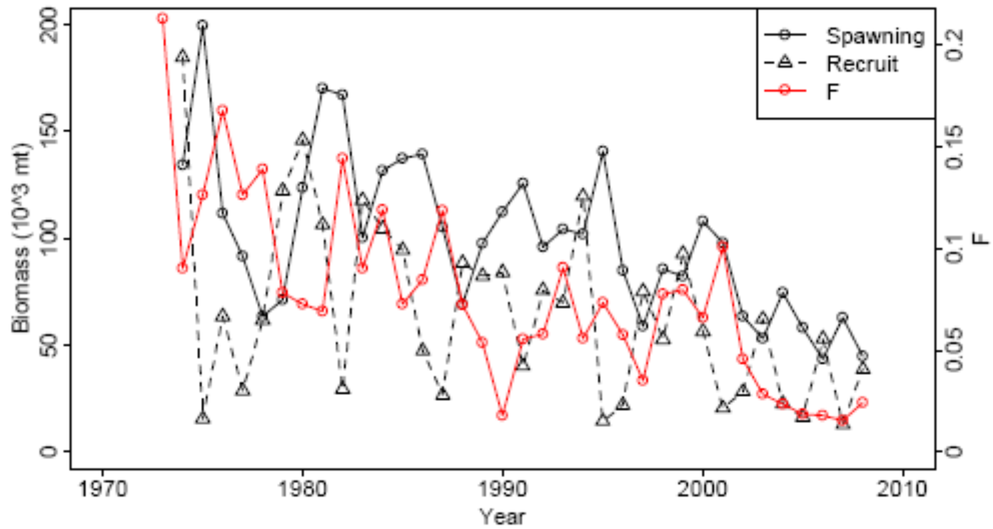

Figure 73. Butterfish recruitment and biomass.

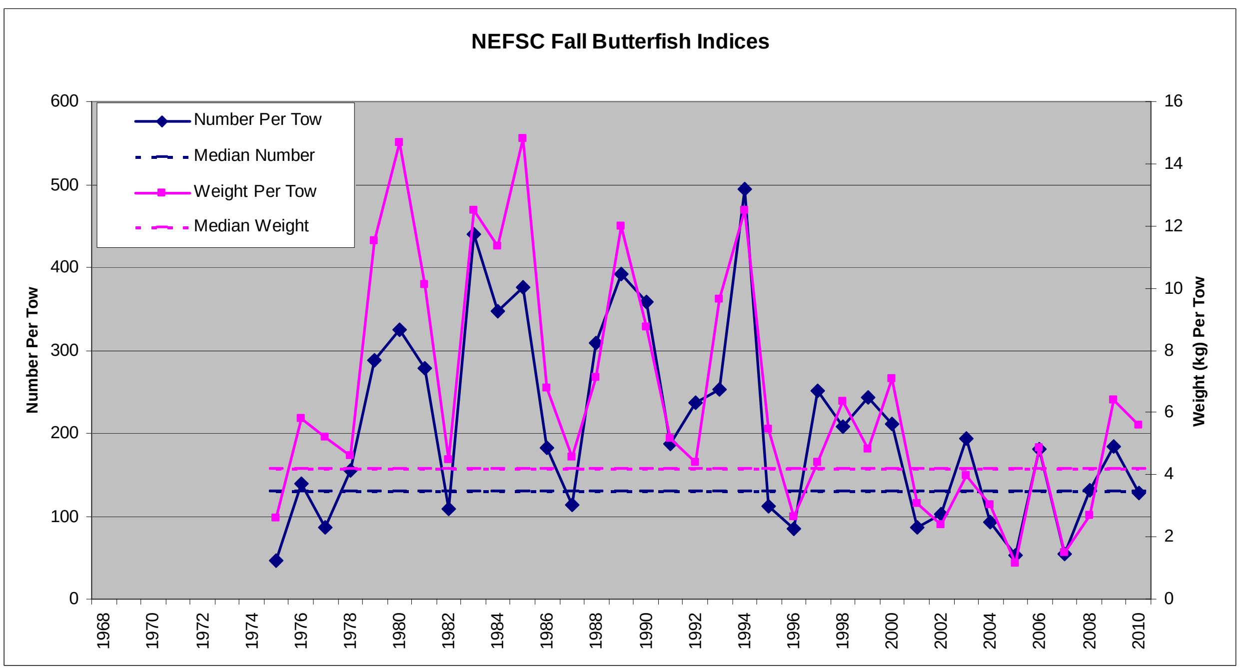

Figure 74. NEFSC fall trawl survey indices for butterfish, 1968-2010
Source: Unpublished NEFSC trawl survey data

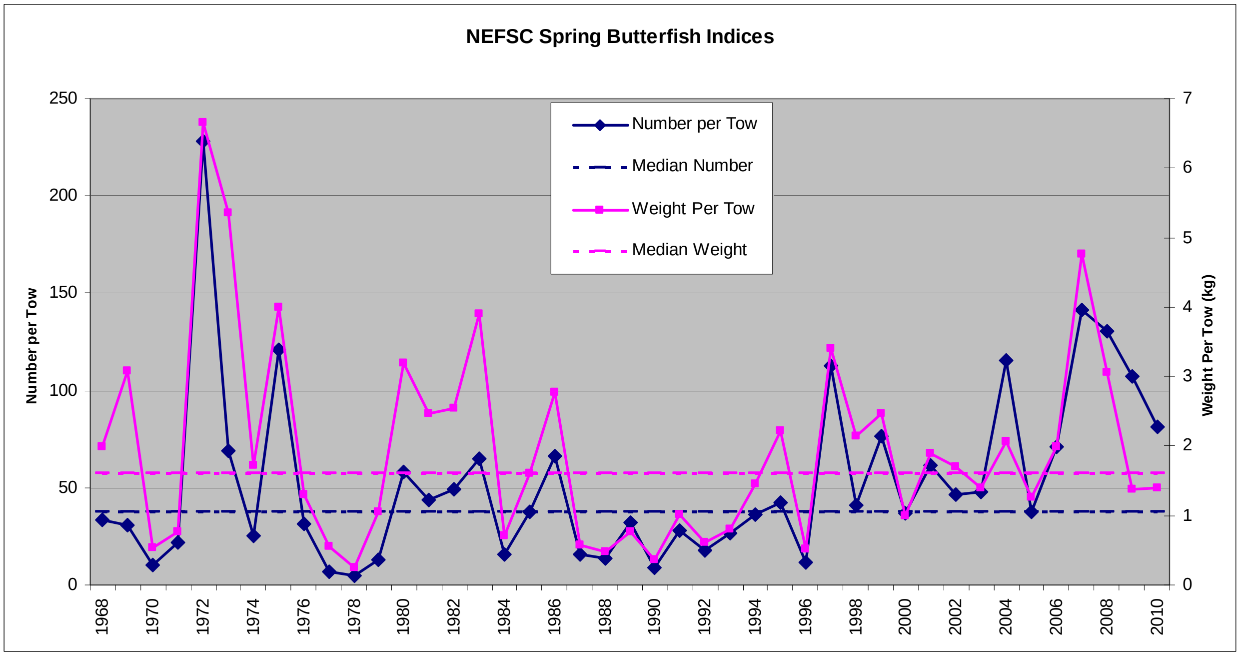

Figure 75. NEFSC spring trawl survey indices for butterfish, 1968-2010

6.1.4.3 The Butterfish Fishery

The butterfish fishery was discussed in detail in Amendment 10's FSEIS and in the 2011 Specifications Environmental Assessment. While Am11 management actions are not expected to significantly impact the butterfish fishery, Amendment 10's FSEIS and the 2011 Specifications Environmental Assessment can be consulted for details and/or updates on the butterfish fishery (http://www.mafmc.org/fmp/msb.htm). Table 43 and Figures 76-79 below summarize butterfish landings by gear (dealer weighout data), performance relative to annual quotas (dealer weighout data), monthly distribution of landings (dealer weighout data), locations of butterfish landings (VTR data), and a comparison of landings versus ex-vessel value (dealer weighout data). It is worth noting that while a butterfish rebuilding plan has been being developed, the fishery has been restricted to low levels and currently largely consists of retained bycatch.

Table 43. Butterfish landings by gear type, total landings, quota, percent of quota

Year	Bottom Otter Trawl	All Others	Total	IOY	Percent of IOY Landed
1982	7478.61	83.8337	7562.444		
1983	3635.01	162.513	3797.523		
1984	11131.64	137.685	11269.32		
1985	4039.83	100.5997	4140.43		
1986	4351.66	74.53627	4426.196		
1987	4457.63	50.09115	4507.721		
1988	1904.22	96.68668	2000.907		
1989	3064.63	138.5526	3203.183		
1990	2218.39	80.014	2298.404		
1991	2111.81	77.06965	2188.88		
1992	2681.49	72.781	2754.271		
1993	4369.26	105.6061	4474.866		
1994	3447.95	186.523	3634.473		
1995	1888.48	178.3811	2066.861		
1996	3342.05	212.5413	3554.591		
1997	2554.07	240.4246	2794.495		
1998	1832.12	133.9161	1966.036	5,900	33%
1999	1978.62	131.4663	2110.086	5,900	36%
2000	1315.81	133.2482	1449.058	5,900	25%
2001	4278.24	125.7441	4403.984	5,897	75%
2002	782.24	89.71328	871.9533	5,900	15%
2003	476.24	59.67085	535.9109	5,900	9%
2004	363.06	171.0152	534.0752	5,900	9%
2005	256.42	180.5659	436.9859	1,681	26%
2006	413.44	140.4034	553.8434	1,681	33%
2007	490.79	182.1901	672.9801	1,681	40%

Source: Unpublished NMFS dealer data

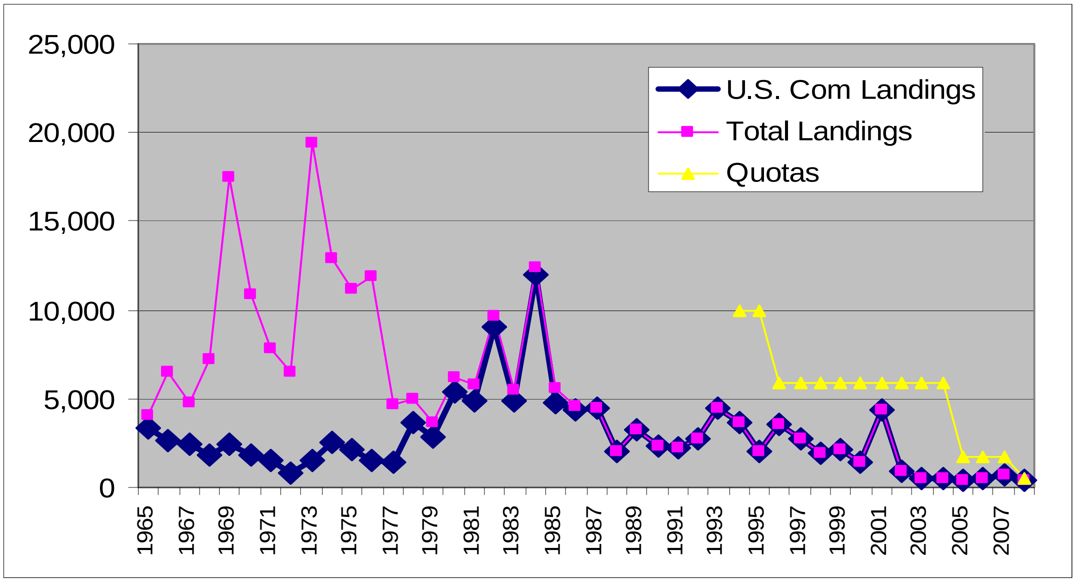

Figure 76. Butterfish 1960s-2008 (2008 Preliminary) landings with quotas marked
Source: Unpublished NMFS dealer data

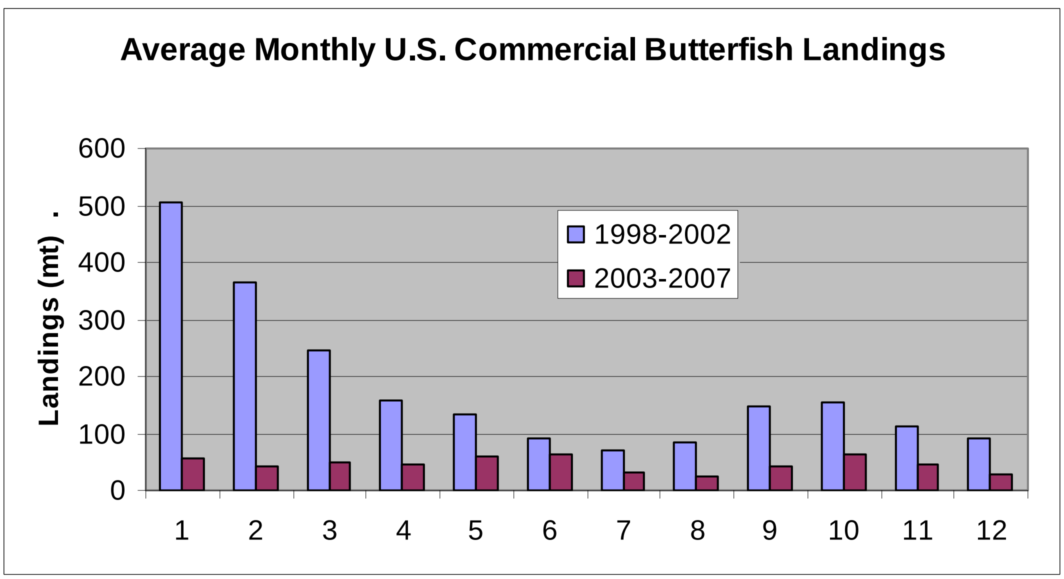

Figure 77. Monthly Butterfish Landings
Source: Unpublished NMFS dealer data

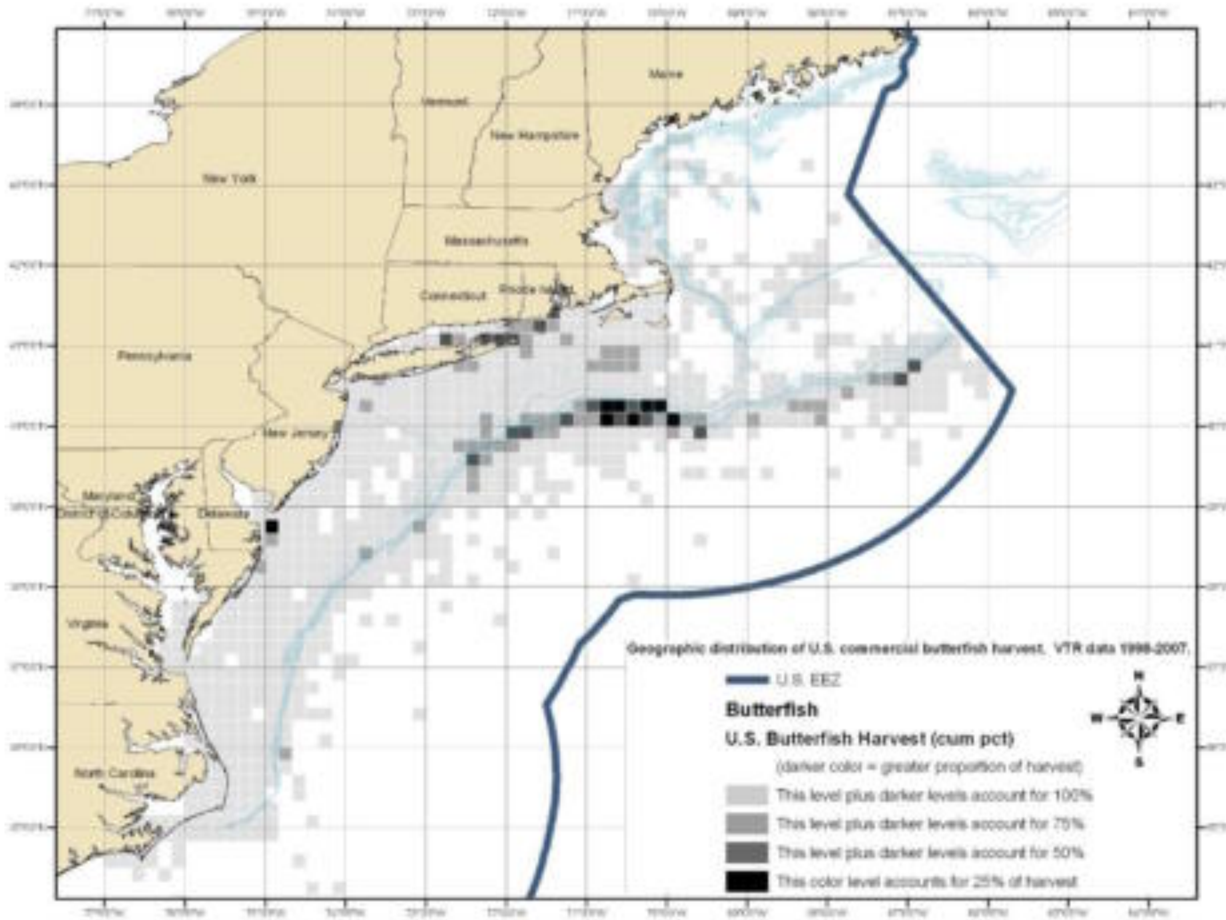

Figure 78. 1998-2007 Butterfish VTR Landings

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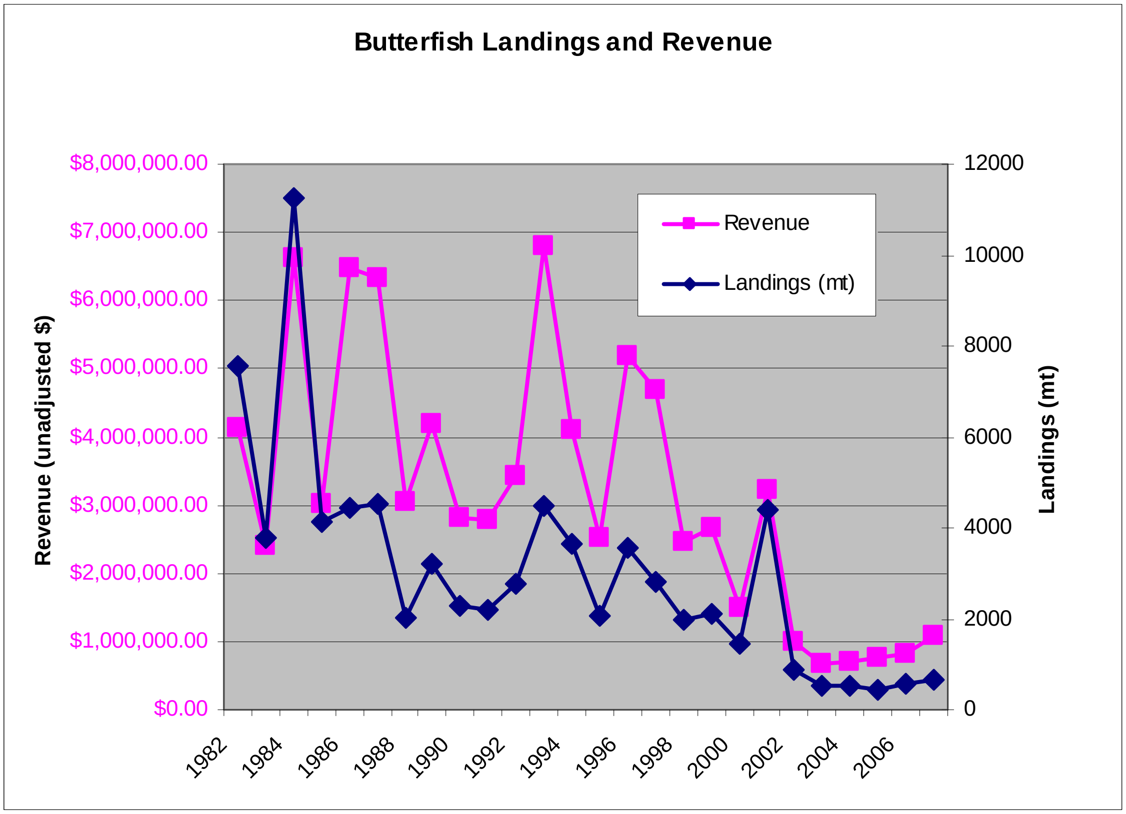

Figure 79. Butterfish landings and Revenue

Source: Unpublished NMFS dealer data

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6.2 Description of the Non-Target Species

Given that the *Illex*, *Loligo*, and butterfish fisheries are not the focus of Am11 and will not likely be significantly impacted by Am11, and given that interactions with these species were fully described in Amendment 10 and the 2011 specifications EA (http://www.mafmc.org/fmp/msb.htm), this document will only discuss discarding as pertains to the mackerel fishery. In general, these previous descriptions of discards show that there is relatively high discarding in the *Loligo* fishery, relatively low discarding in the *Illex* fishery, and that given recently butterfish has largely been an incidental fishery, it is difficult to describe non-target interactions for a directed butterfish fishery since to a great extent the kept butterfish themselves are a non-target species. Given non-target interactions are not a focus of Amendment 11 and no Amendment 11 alternatives are expected to increase non-target interactions compared to the status quo, the mackerel fishery non-target analysis has not been updated in this document beyond 2007 but is available in the 2011 specifications document.

The primary database used to assess discarding is the NMFS Northeast Fisheries Observer Program (NEFOP) database, which includes data from trips that had trained observers onboard to document discards. One critical aspect of using this database to describe discards is to correctly define the trips that constitute a given directed fishery. Presumably some criteria of what captains initially intend to target, how they may adjust targeting over the course of a trip, and what they actually catch would be ideal. Unfortunately, targeting data is not available in the dealer weighout database, which is essentially a census of catches. Thus to begin this process, staff first reviewed 1998-2007 trips in the dealer weighout database to see if a certain trip definition could account for most mackerel landed. The result of this review resulted in the following multiple criteria definition for mackerel trips using landings: All trips that had at least 50% mackerel by weight and 45,000 pounds mackerel **AND** those trips 33%-50% mackerel by weight but over 100,000 pounds mackerel. The general idea is to include significant landings that are over 50% mackerel and also those larger landings that might not have been quite 50% mackerel. This definition results in capturing slightly over 95% of all mackerel landings in the dealer weighout database and was applied to the NEFOP database to examine discards in the mackerel fishery. The resulting set of trips, nine on average for each year 2003-2007, covers only 4% of mackerel landings 2003-2007. Information for the 10 species (99.9% of all discards) that make up most discards on these trips is presented in Table 44. Some co-directing occurs with mackerel and Atlantic herring, so the high herring numbers to some extent are not the result of bycatch so much as directed fishing for both on the same trip. This also means that some of the discards described below may be more related to directed herring fishing rather than directed mackerel fishing, but given the co-directing that occurs it is very difficult to fully disentangle the two. Regarding the 5% of mackerel landings that are not captured in the trip definition, on the relevant identifiable trips 1998-2007 (some of the 5% are not identifiable because they are "lumped" state reports), a wide variety of species were landed (dealer weighout database) with *Loligo*, Atlantic herring, and silver hake making up the majority of landings on these trips, further suggesting that the current definition of a "mackerel trip" is appropriate for the purpose of bycatch/discard descriptions.

While a very rough estimate, especially given the low observer coverage and non-accounting for spatial and temporal trends, one can use Table 44 immediately below and the fact that about 43,000 MT of mackerel were caught annually 2003-2007 to generally estimate annual discards for the ten species in the table. Table 45 provides this estimate but readers are strongly cautioned that while this is a reasonable approach for a general, rough, and relative estimate given the available data, it is highly imprecise (the ratio of the species caught to mackerel kept is scaled up by dealer landings). Note also that even the estimates that can be calculated would only be valid for the 95% of landings captured by the chosen directed mackerel trip definition. It is difficult to assess the other 5% because to some degree the mackerel itself is being caught incidental to other fisheries.

The discards of large pelagics in the Atlantic mackerel fishery is generally unknown due to the inability of the observers to view these discards because of the pumping of fish that occurs from codend to hold - large-bodied species are prevented from entering the pump (the pump sends the catch directly from the codend into the hold) and are discarded while the codend is submerged.

Table 44. Mackerel Discard Data (1998-2007 NEFOP Data)

NE Fisheries Science Center Common Name	Pounds Observed Caught - All observed Trips	Pounds Observed Discarded- All observed Trips	For every metric ton of mackerel caught, pounds of given species caught.	For every metric ton of mackerel caught, pounds of given species discarded.	Of all discards observed, percent that comes from given species	Percent of given species that was discarded
Directed Mackerel Trip Discards						
MACKEREL, ATLANTIC	18,791,390	211,172	na	24.8	49.7%	1%
DOGFISH SPINY	106,680	101,680	12.5	11.9	23.9%	95%
HERRING, ATLANTIC	545,973	56,183	64.1	6.6	13.2%	10%
SCUP	42,207	42,207	5.0	5.0	9.9%	100%
HERRING, BLUE BACK	39,859	8,442	4.7	1.0	2.0%	21%
BASS, STRIPED	1,739	1,739	0.2	0.2	0.4%	100%
SHAD, HICKORY	1,745	1,730	0.2	0.2	0.4%	99%
SHAD, AMERICAN	1,670	670	0.2	0.1	0.2%	40%
ALEWIFE	23,324	485	2.7	0.1	0.1%	2%
BUTTERFISH	6,076	386	0.7	0.0	0.1%	6%

Source: Unpublished NEFOP data

Table 45. Annual Discard Estimates from Mackerel Fishery 2003-2007

	Annual Catch (pounds) From Directed Mackerel Fishery	Annual Discards (pounds) From Directed Mackerel Fishery
MACKEREL, ATLANTIC	na	1,065,320
DOGFISH SPINY	538,177	512,953
HERRING, ATLANTIC	2,754,324	283,432
SCUP	212,926	212,926
HERRING, BLUE BACK	201,081	42,588
BASS, STRIPED	8,773	8,773
SHAD, HICKORY	8,803	8,728
SHAD, AMERICAN	8,425	3,380
ALEWIFE	117,665	2,447
BUTTERFISH	30,651	1,946

Source: Unpublished NEFOP and NMFS Dealer Data

While not well documented, it is unlikely that recreational fishing for mackerel results in significant interactions with bycatch species. When directly targeted, mackerel are pursued with specialized gear (mackerel jigs) and vessels concentrate of large schools of known aggregations.

Amendments 9 and 10 evaluated discarding in the MSB fisheries and may be consulted for additional details on discarding in the MSB fisheries. Through Amendments 9 and 10 the Council evaluated and minimized bycatch in the MSB fisheries to the extent practicable, per the requirements of the MSA. It is the Council's belief that discards are currently minimized to the extent practicable given the available scientific information.

Bycatch of river herrings (generally thought of as blueback herring and alewife) has become an important concern given declines in many river returns of these anadromous species. While there has been no recent range-wide stock assessment performed for river herring, North Carolina Division of Marine Fisheries completed a stock assessment in May 2005 on the river herring in the Albemarle Sound Area and reported that increased mortality rates, decreased recruitment and reduced spawning stock biomass are key indicators of continued decline in the area. The stock status for other areas of the state and the rest of the Atlantic coast is unknown; however, population declines have also been reported by Connecticut, Rhode Island, and Massachusetts. In response to declining trends, these states have instituted moratoria on taking and possessing river herring and the National Marine Fisheries Service has listed river herring as Species of Concern throughout their range. Although specific factors responsible for the decline have not been identified, contributing threats most likely include loss and degradation of habitat, overfishing, and increased predation due to recovering striped bass populations (http://www.nefsc.noaa.gov/sos/spsyn/af/herring/). The ASMFC is currently conducting a river herring stock assessment which should be available in 2012.

While river herrings and shads are encountered in the mackerel fishery, the current NMFS Northeast Fisheries Observer Program (NEFOP) data (see Tables 44-45) seem to indicate relatively low encounter rates. The Council and/or Council staff have requested additional observer coverage for small mesh fisheries from NMFS, have begun dialogue with the ASMFC to explore this issue further, and have been working with Maine state biologists to see if more information about bycatch in the mackerel fishery can be gleaned from dockside observing programs. As new information becomes available, the Council will continue to evaluate whether all bycatch has been minimized to the extent practicable and take action as appropriate. Amendment 14, the next MSB FMP Amendment, will also consider additional monitoring measures and/or management measures to address potential river herring bycatch.

6.3 Description of Habitat and Evaluation of Fishing Impacts

In the description of the habitat VEC presented here, the focus is on habitat and EFH for the managed resources. Specifically, this section addresses the vulnerability of benthic marine habitat utilized by the managed resources to gears used in the prosecution of the Atlantic mackerel, *Illex, Loligo*, and butterfish fisheries.

This section begins with a general discussion of habitat characteristics of the Northeast Shelf Ecosystem. The Northeast Shelf Ecosystem encompasses the core geographic scope where the targeted resource fisheries are prosecuted, and is a subset of habitat within the management unit and the total geographic scope, which is described for this VEC in section 6.0. For the purposes of discussing potential gear impacts on habitat throughout this section, the discussion will be limited to the role of benthic marine habitats in meeting the basic biological and physical requirements of federally managed species in the NOAA Fisheries Northeast Region. This is not to be confused with the susceptibility of the managed resources or non-target species to various gear types, which are addressed in sections 6.1 and 6.2 of this document.

A report entitled "Characterization of Fishing Practices and the Marine Benthic Ecosystems of the Northeast U.S. Shelf, and an Evaluation of the Potential Effects of Fishing on Essential Fish Habitat" was developed by NMFS (Stevenson et al. 2004). This document provides additional descriptive information on the physical and biological features of regional subsystems and habitats in the Northeast Shelf Ecosystem. It also includes a description of fishing gears used in the NMFS Northeast region, maps showing the regional distribution of fishing activity by different gear types during 1995-2001, and a summary of gear impact studies published prior to 2002 that indicate how and to what degree fishing practices used in the NMFS Northeast region affect benthic habitats and species managed by the New England and Mid-Atlantic fishery management councils. It is available by request through the NMFS Northeast Regional Office or electronically at: http://www.nefsc.noaa.gov/nefsc/publications.

6.3.1 Description of the Physical Environment

The Northeast Shelf Ecosystem has been described as the area from the Gulf of Maine south to Cape Hatteras, extending from the coast seaward to the edge of the continental shelf, including the slope sea offshore to the Gulf Stream (Sherman et al. 1996). The Gulf of Maine, Georges Bank, and Mid-Atlantic Bight are distinct subsystems within this region.

The Gulf of Maine is an enclosed coastal sea, characterized by relatively cold waters and deep basins, with a patchwork of sediment types. Georges Bank is a relatively shallow coastal plateau that slopes gently from north to south and has steep submarine canyons on its eastern and southeastern edge. It is characterized by highly productive, well-mixed waters and fast-moving currents. The Mid-Atlantic Bight is comprised of the sandy, relatively flat, gently sloping continental shelf from southern New England to Cape Hatteras, NC. Pertinent aspects of the physical characteristics of each of these subsystems are described below. The description provided is based on several review documents (Cook 1988; Pacheco 1988; Stumpf and Biggs 1988; Abernathy 1989; Townsend 1992; Mountain et al. 1994; Beardsley et al. 1996; Brooks 1996; Sherman et al. 1996; NEFMC 1998; Steimle et al. 1999).

Gulf of Maine: Although not obvious in appearance, the Gulf of Maine is actually an enclosed coastal sea, bounded on the east by Browns Bank, on the north by the Nova Scotia (Scotian) Shelf, on the west by the New England states and on the south by Cape Cod and Georges Bank. The Gulf of Maine (GOM) was glacially derived, and is characterized by a system of deep basins, moraines and rocky protrusions with limited access to the open ocean. This geomorphology influences complex oceanographic processes which result in a rich biological community.

Topographic highlights of the area include three basins that exceed 800 feet in depth; Jordan to the north, Wilkinson to the west, and Georges just north of Georges Bank. The average depth in the Gulf of Maine is 450 feet. The Gulf of Maine's geologic features, when coupled with the vertical variation in water properties, result in a great diversity of habitat types (Watling et al. 1988). An in-depth review of GOM habitat types has been prepared by Brown (1993).

Georges Bank: Georges Bank is a shallow (10 to 500 foot depth), elongate (100 miles wide by 200 miles long) extension of the continental shelf formed by the Wisconsinian glacial episode. It is characterized by a steep slope on its northern edge and a broad, flat, gently sloping southern flank. It is separated from the rest of the continental shelf to the west by the Great South Channel. The nature of the sea bed sediments varies widely, ranging from clay to gravel (Valentine and Lough 1991). Surficial sediments composed of a gravel-sand mix have been noted as important postlarval habitat for Atlantic cod, haddock, winter flounder, yellowtail flounder and other species. American plaice adults have been demonstrated to associate with gravel-sand sediments for a variety of potential reasons. Gravel-sand sediments have been noted as habitat for sea scallops, where movement of sand is relatively minor (Langton and Uzmann 1990; Valentine and Lough 1991). The gravel-sand mixture is usually a transition zone between coarse gravel and finer sediments.

Georges Bank is characterized by high levels of primary productivity, and historically, high levels of fish production. It has a diverse biological community that is influenced by many environmental conditions. Several studies have attempted to identify demersal fish assemblages over large spatial scales on Georges Bank. Overholtz and Tyler (1985) found five depth-related groundfish assemblages for Georges Bank and Gulf of Maine that were persistent temporally and spatially. Depth and salinity were identified as major physical influences explaining assemblage structure.

Mid-Atlantic Bight*:* The Mid-Atlantic Bight includes the shelf and slope waters from Georges Bank south to Cape Hatteras, and east to the Gulf Stream. Like the rest of the continental shelf, the Mid-Atlantic Bight was shaped largely by sea level fluctuations caused by past ice ages. The shelf's basic morphology and sediments are derived from the retreat of the last ice sheet, and the subsequent rise in sea level. Since that time, currents and waves have modified this basic structure.

The shelf slopes gently from shore out to between 75 and 150 miles offshore where it transforms to the slope (300 to 600 ft water depth) at the shelf break. In both the Mid-Atlantic and on Georges Bank, numerous canyons incise the slope, and some cut up onto the shelf itself. The primary morphological features of the shelf include shelf valleys and channels, shoal massifs, scarps, and sand ridges and swales.

The sediment type covering most of the shelf in the Mid-Atlantic Bight is sand, with some relatively small, localized areas of sand-shell and sand-gravel. On the slope, silty sand, silt, and clay predominate. Sand provides suitable habitat properties for a variety of fishes, invertebrates, and microorganisms. Invertebrates, such as surfclams, razor clams, and ocean quahogs, burrow between the grains to support their characteristic sessile behavior. Dunes and ridges provide refuge from currents and predators and habitat for ambush predators. Several species inhabit sand habitats (e.g. amphipods, polychaetes) that are important prey for flounder. Yellowtail and winter flounder distribution has been correlated to sand (Langton and Uzmann 1990). In general, flatfish are more closely associated with sand and finer sediments than are other demersal fishes.

Canyons occur near the shelf break along Georges Bank and the Mid-Atlantic Bight, cutting into the slope and occasionally up into the shelf as well. They exhibit a more diverse fauna, topography, and hydrography than the surrounding shelf and slope environments. The relative biological richness of canyons is in part due to the diversity of substrate types found in the canyons, and the greater abundance of organic matter.

Faunal assemblages were described at a broad geographic scale for Mid-Atlantic Bight continental shelf demersal fishes, based on NMFS bottom trawl survey data between 1967 and 1976 (Colvocoresses and Musick 1983). There were clear variations in species abundance, yet they demonstrated consistent patterns of community composition and distribution among demersal fishes of the Mid-Atlantic shelf. The boundaries between fish assemblages generally followed isotherms and isobaths.

Coastal Features

Coastal and estuarine features in the Northeast Shelf Ecosystem include salt marshes, mud flats, intertidal zones, and submerged aquatic vegetation, all of which provide critical to habitats for inshore and offshore fishery resources. Coastal areas and estuaries are important for nutrient recycling and primary productivity, and many economically important finfish and shellfish species use these as spawning areas and nurseries for juvenile life stages.

Rocky intertidal zones are periodically submerged, high energy environments found in the northern portion of the Northeast system. Specially adapted residents may include sessile invertebrates, finfish species, and algae, e.g., kelp and rockweed (which also function as habitat). Fishery resources may depend upon particular habitat features of the rocky intertidal zones that provide specific prey items and refuge from predators. Sandy beaches are most extensive along the Northeast coast. Different zones of the beach present habitat conditions ideal for a variety of marine and terrestrial organisms. For example, the intertidal zone is suitable habitat for many invertebrates and transient fish which forage in these areas during high tide. Several invertebrate and fish species are adapted for living in the high energy subtidal zone adjacent to sandy beaches.

Dump Sites

The Council has been requested via previous public comments to include mention that numerous old dump sites for municipal and industrial waste exist in the management area, specifically the "106-Mile Dump Site" formerly utilized east of Delaware's ocean coastline, beyond the Continental Shelf. Detailed information on the 106-Mile Dump Site can be found in the 1995 EPA report to Congress on the 106-Mile Dump Site available at: http://www.epa.gov/adminweb/history/topics/mprsa/Monitoring,%20Research%20and%20Surveillance%20of%20the%20106%20Mile%20Deepw.pdf. It generally concluded that sewage sludge and/or related contaminants did not reach important areas for commercial fisheries and that the 106-Mile Dump Site was not the prime source of the generally low chemical contamination in tilefish, the primary commercially important finfish species resident in the shelf/slope areas adjacent to the 106-Mile Dump Site (EPA 1995).

6.3.2 Description and Identification of EFH for the Target Species

Amendment 11 is updating the EFH identifications and descriptions for all species and lifestages in the MSB FMP. A full description of the status quo identifications, update methodology, and the resulting updated identification and description alternatives may be found in section 5.5.

6.3.3 Fishing Activities that May Adversely Affect EFH

This was done for all species/lifestages in Amendment 9 (2008) except for *Loligo* Egg EFH, which follows below.

Evaluation of adverse effects from fishing activities on *Loligo pealeii* egg EFH

Background information

Fishery Management Councils are required by the MSA to update EFH and evaluate adverse effects of fisheries on EFH every five years (50 CFR 600). The MAFMC evaluated adverse effects of fisheries on the four managed species included in the Atlantic Mackerel, Squid, and Butterfish Fishery Management Plan in Amendment 9, with the exception of impacts on EFH for *Loligo pealeii* eggs (hereafter called *Loligo* egg EFH), because *Loligo* egg EFH was initially designated in Amendment 9 (MAFMC 2008). Adverse effects are defined as any impact that reduces quality and/or quantity of EFH and may consist of direct or indirect physical, biological, or chemical alterations of the waters or substrate as well as loss of or injury to benthic organisms, prey species, and their habitats. The regulations state that if the effects of fishing on EFH (individually and/or cumulatively) are not clearly less than minimal and temporary in nature, then an evaluation of potential management measures to minimize adverse effects on EFH, to the extent practicable, is required. Temporary effects are those that are limited in duration and that allow the particular environment to recover without measurable impact. Minimal effects are those that may result in relatively small changes in the affected environment and insignificant changes in ecological functions.

Identification of fishing activities that occur in *Loligo* egg EFH

Loligo egg EFH was designated in Amendment 9 (MAFMC 2008) and the text descriptions are updated slightly via this document. EFH for *Loligo* eggs occurs in inshore and offshore bottom habitats from Georges Bank southward to Cape Hatteras, as depicted above in Section 5.5.4. EFH for *Loligo* eggs is generally found where bottom water temperatures are between 10°C and 23°C, salinities between 30 and 32 ppt (McMahon and Summers 1971), and depth is less than 50 meters (Bigelow 1924; Griswold and Prezioso 1981; Lange 1982). Loligo eggs have also been collected in bottom trawls in deeper water at various places on the continental shelf (Hatfield and Cadrin 2002). Like most loliginids (Boyle and Rodhouse 2005), L. pealeii egg masses or "mops" are demersal and anchored to the substrates on which they are laid, which include a variety of hard bottom types (e.g., shells, lobster pots, piers, fish traps, and rocks), submerged aquatic vegetation (e.g., Fucus sp..), sand, and mud (Griswold and Prezioso 1981; Roper et al. 1984; Summers 1983; Cargnelli et al. 1999).

Bottom-tending gear such as otter trawls and dredges (hydraulic and non-hydraulic) have been identified as the fishing gear types most likely to have adverse impacts on benthic EFH (NMFS 2002; MAFMC 2008) such as that designated for *L. pealeii* eggs. The federally-permitted *L. pealeii* bottom trawl fishery occurs within *Loligo* egg EFH during various times of the year as evidenced by catches of *Loligo* egg masses in *L. pealeii* trawls (Hatfield and Cadrin 2002). Figure 81 does not show fishing effort by vessels which fish for *L. pealeii* within state waters. However, these state fisheries also occur within *Loligo* egg EFH as evidenced by incidental catches of *Loligo* egg mops (McKiernen and Pierce 1995). Distribution maps of *L. pealeii* catches from NEFSC bottom trawl surveys indicate that the species migrates offshore during the late fall and remains near the shelf edge through the April, then migrates inshore where the species spends the remainder of the year (NEFSC 1996). Fishing effort maps indicate that the *L. pealeii* fishery tracks these seasonal migration patterns (Figure 81 A/B). Age data indicate that spawning occurs throughout the year (Brodziak and Macy 1996). However, the extent of *Loligo* egg EFH in inshore areas is better documented because the directed fishery targets the large spawning aggregations which occur inshore during May through September (Figure 81A). Maps of days absent from port (a proxy for fishing effort), by ten-minute square, suggest overlap between *Loligo* egg EFH and other federally-permitted bottom trawl fisheries, as well as non-hydraulic and hydraulic dredge fisheries (Figure 81).

Adverse effects on *Loligo* egg EFH from fishing activities

Temporary effects are those that are limited in duration and that allow the particular environment to recover without measurable impact. The duration and frequency of the impacts must be considered in order to evaluate whether fishing impacts on *Loligo* egg EFH are temporary. Minimal effects are those that may result in relatively small changes in the affected environment and insignificant changes in ecological functions. The following factors were used to evaluate whether the fishing impacts are minimal:

- The <u>intensity</u> of the impact at the specific site being affected;
- The <u>spatial extent</u> of the impact relative to the availability of the habitat type affected;
- The <u>sensitivity/vulnerability</u> of the habitat to the impact;
- The <u>habitat functions</u> that may be altered by the impact (e.g., shelter from predators)
- The <u>timing</u> of the impact relative to when the species or life stages need the habitat.

Amendment 9 to the MSB FMP detailed trawling impacts by habitat type, and impacts for the habitats used for *Loligo* eggs are described below based on the findings of Amendment 9.

<u>Hard Bottom (e.g., shells, lobster pots, piers, fish traps, and rocks) Impacts</u>

Trawling is likely to displace rocks and shells and/or remove mud covering such rocks and shells. Trawling in rocky substrate reduces the abundance of attached benthic organisms (e.g., sponges, anemones, and soft corals) and their associated epifauna. However, there is no evidence to suggest that for the purposes of *Loligo* egg EFH, any of these effects would be more than minimal and/or not temporary in nature given the wide variety of substrates used by *Loligo* for egg deposition without apparent preference (see below).

<u>Submerged Aquatic Vegetation (SAV) Impacts</u>

Of the various substrates types which comprise *Loligo* egg EFH, the type expected to be the most vulnerable to impacts from bottom trawls and dredges is submerged aquatic vegetation (SAV). Various research studies have shown that the adverse effects from bottom trawls and dredges operating on aquatic vegetation are not temporary and are not minimal, generally reducing the biomass of these substrates (Stevenson *et al*. 2004). However, there is no evidence to suggest that for the purposes of *Loligo* egg EFH, any of these effects would be more than minimal and/or not temporary in nature given the wide variety of substrates used by *Loligo* for egg deposition without apparent preference (see below). If there are adverse impacts, they would be limited primarily to state waters where SAV is generally found, and, therefore, would not be subject to the management authority of the Council.

Sand Impacts

Sand is by far the predominant substrate type on the continental shelf in the area designated as EFH for *Loligo pealii* eggs. Trawling can produce shallow furrows and low berms in sandy bottoms while reducing overall seafloor topographic features. Trawling re-suspends and disperses finer surface sediment, but likely has no lasting effects on sediment composition. Trawl door tracks may last up to one year in deep water but only for a few days in shallow water where natural disturbance (bottom currents and wave action) mobilize sandy sediments on a regular basis. Trawling likely causes mortality and/or damage to sedentary, immobile, and/or attached epifaunal and infaunal species inhabiting sandy bottoms. However, there is no evidence to suggest that for the purposes of *Loligo* egg EFH, any of these effects would be more than minimal and/or not temporary in nature given the wide variety of substrates used by *Loligo* for egg deposition without apparent preference (see below).

Mud Impacts

Trawl doors can produce furrows up to 10 cm deep and berms 10-20 cm high on mud bottom. There is large variation in the duration of these features (2-18 months). There is also evidence that trawling can increase general bottom roughness, smooth surface features, re-suspend and disperse fine surface sediments, and rollers can compress sediment. Trawling likely causes mortality and/or damage to sedentary, immobile, and/or attached epifaunal and infaunal species inhabiting muddy bottoms. However, there is no evidence to suggest that for the purposes of *Loligo* egg EFH, any of these effects would be more than minimal and/or not temporary in nature given the wide variety of substrates used by *Loligo* for egg deposition without apparent preference (see below).

Conclusion

The high degree of spatial and temporal overlap between the inshore *L. pealeii* bottom trawl fishery and *Loligo* egg EFH (Figure 81A) and the high vulnerability of SAV to trawling suggest that fishing impacts on SAV *Loligo* egg EFH are more than minimal (four of the five factors used to characterize “more than minimal” fishing impacts are met). However, *Loligo* eggs are found on a variety of substrates and it is not known whether there is a preference for one substrate type over another. A literature search did not identify any specific studies relating to preferred substrates for *L. pealeii* egg deposition. However, such studies have been conducted for other loliginid species. A quantitative study of the use of inshore seagrass beds for egg deposition suggested that the variability in egg density could not be attributed to differences in seagrass density or vegetation cover (Moltschaniwskyj and Pecl 2003). However, other quantitative studies conducted on the same species suggested that substrate type is an important factor in determining hatching success (Steer and Moltschaniwskyj 2007) and that substrate type preferences do exist (Moltschaniwskyj and Steer 2004). For *Loligo vulgaris reynaudii*, the distribution of egg mops within a spawning area differs according to substrate type (Sauer 1995) and a preferred substrate type was identified (Sauer *et al.* 1992; Sauer *et al.* 1993). However, with respect to *Loligo pealeii* egg deposition and hatching success, the lack of data pertaining to substrate type preferences and the use of a wide variety of substrates lead the Council to conclude that <u>any potential adverse effects on *Loligo* egg EFH from fishing are minimal and/or temporary in nature and do not require any mitigation.</u>

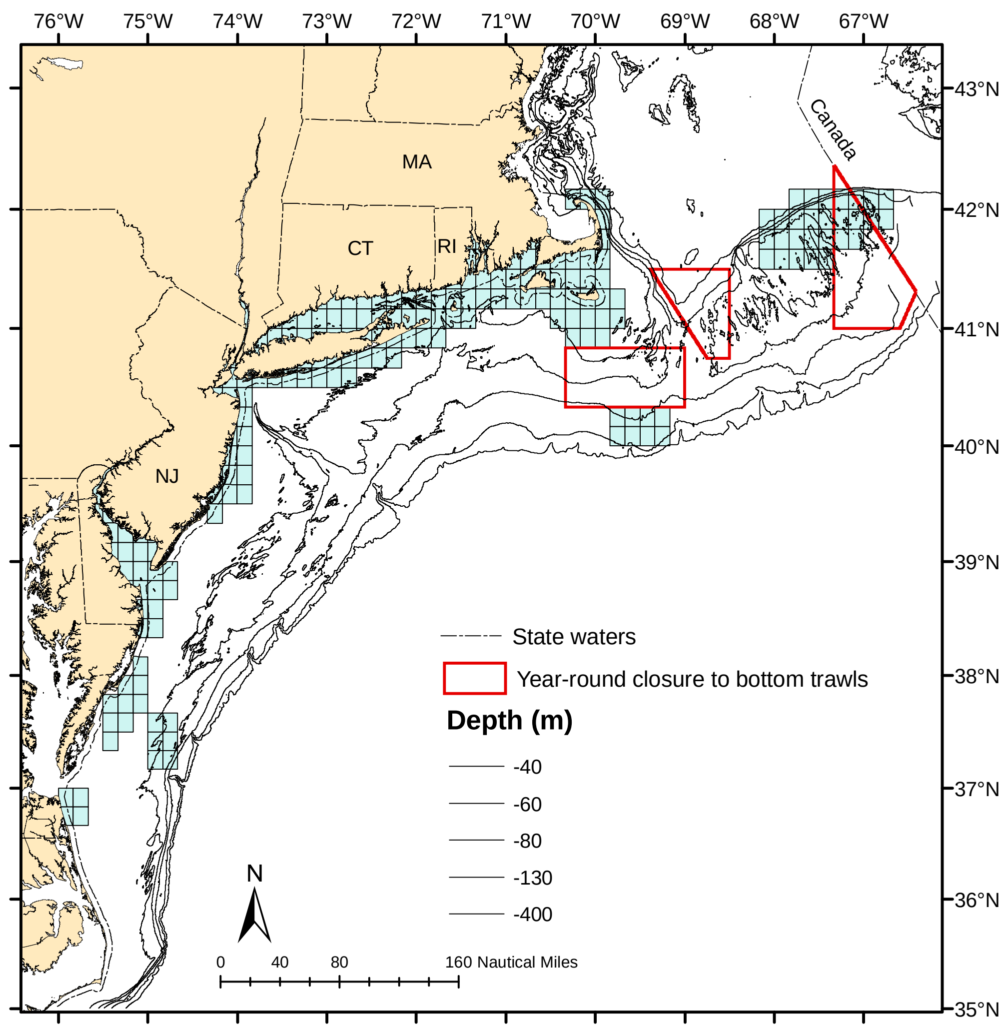

Figure 80. Geographic extent of Essential Fish Habitat, by ten-minute square, for *Loligo* pealeii eggs based on incidental catches of *Loligo* egg mops in L. pealeii bottom trawls.

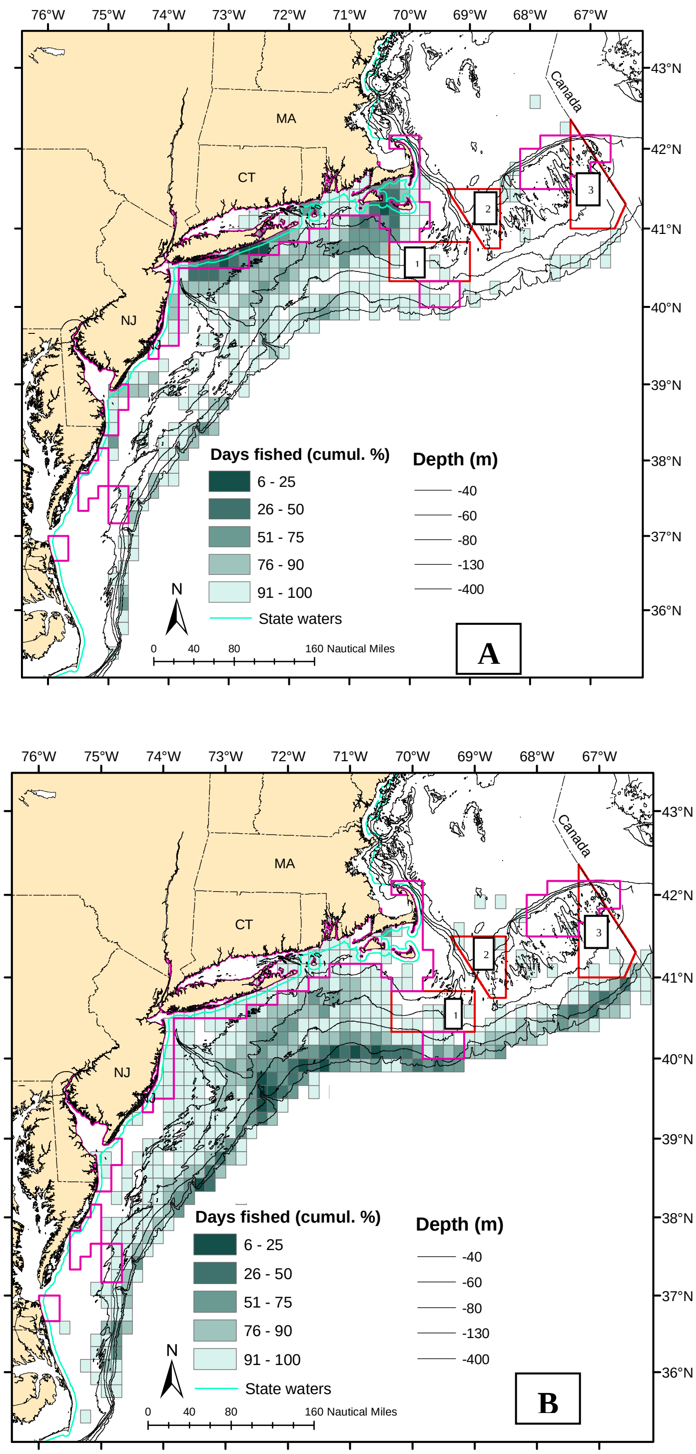

Figure 81. *Loligo* pealeii fishery effort (cumulative percent of days fished), by ten-minute square, during (A) May-September and (B) October-April (1997-2007) in relation to Essential Fish Habitat for *Loligo* pealeii eggs (magenta polygons). The red polygons numbered 1, 2, and 3 are areas closed throughout the year to all bottom trawl gear.

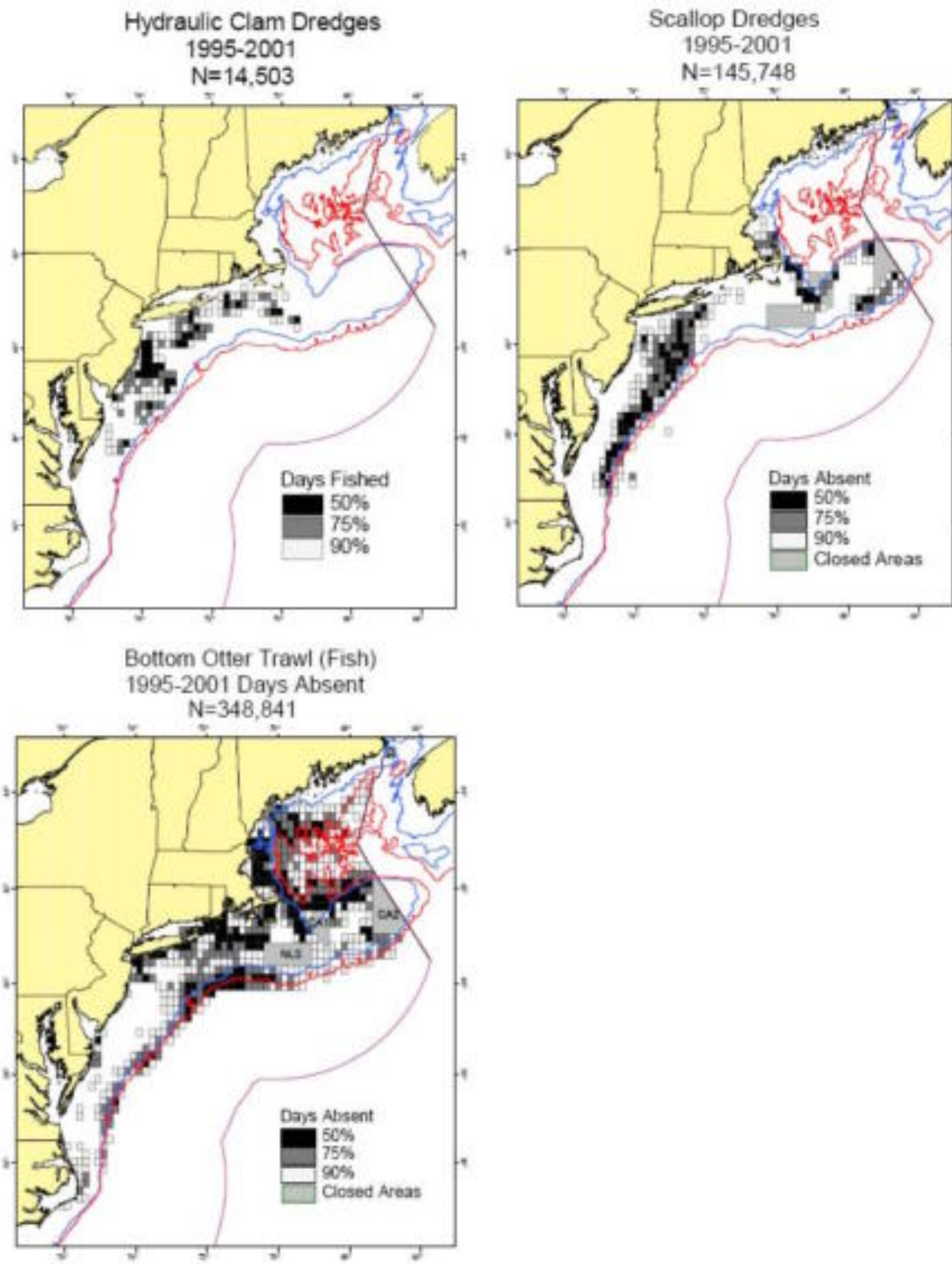

Figure 82. Spatial distributions of fishing effort (days absent from port), by ten-minute square, for gear types most likely to have negative impacts on benthic EFH (Stevenson et al 2004).

6.3.4 Identification of non-fishing related activities that may adversely affect EFH

6.3.4.1 Introduction

The information in this section is extracted from a 2008 NOAA Technical Memorandum that summarizes what is known about the potential threats of a variety of non-fishing activities on marine habitats (Johnson et al. 2008). This information up-dates the non-fishing habitat impacts information that was compiled for Amendment 8 to the Squid, Mackerel, and Butterfish FMP (MAFMC 1998) and satisfies the regulatory requirement [50 CFR §600.815(a)(ii)(10)] to include new information on non-fishing activities that have the potential to adversely impact EFH for the species managed under each FMP. The full report is available online at http://www/nefsc.noaa.gov/nefsc/publications/tm/tmlist.htm. The report was written as a follow-up to a workshop entitled "Technical Workshop on Impacts to Coastal Fishery Habitat from Non-fishing Activities," which was held January 10 – 12, 2005 in Mystic, CT (see Section 6.3.4.4).

The general purpose and goals of the report are to:

1. Identify human activities that may adversely impact Essential Fish Habitat (EFH) and other coastal fishery habitat.
2. Review and characterize existing scientific information regarding human-induced impacts to EFH and other coastal fishery habitat.
3. Provide Best Management Practices (BMPs) and conservation measures that can be implemented for specific types of activities that avoid or minimize adverse impacts to EFH and other coastal fishery habitat.
4. Provide a comprehensive reference document for use by federal and state marine resource managers, permitting agencies, professionals engaged in marine habitat assessment activities, the regulated community, and the public.
5. Ensure that the best scientific information is available for use in making sound decisions with respect to project planning, environmental assessment, and permitting.

The report is organized by activities that may potentially impact EFH and other fishery habitat occurring in riverine, estuarine/coastal, and marine/offshore areas. The major activities that were identified as impacting these three habitat areas include:

- coastal development
- energy-related activities
- alteration of freshwater systems
- marine transportation
- offshore dredging and disposal
- physical and chemical effects of water intake and discharge facilities
- agriculture and silviculture
- introduced/nuisance species and aquaculture
- global effects and other impacts

The BMPs and conservation measures provided in the report are designed to minimize or avoid the adverse effects of human activities on fishery habitat and to promote the conservation and enhancement of fishery habitat. The BMPs and conservation measures provided in the report reflect many of the conservation principals recommended in Hanson et al. (2003). These general principles include: (1) nonwater-dependent actions should not be located in fishery habitat if such actions may have adverse impacts on those resources; (2) activities that may result in significant adverse effects on fishery habitat should be avoided where less environmentally harmful alternatives are available; (3) if alternatives do not exist, the impacts of these actions should be minimized; and (4) environmentally sound engineering and management practices should be employed for all actions that may adversely affect fishery habitat.

6.3.4.2 Characterization of habitats in the Northwest Atlantic Ocean

The northwest Atlantic Ocean includes a broad range of habitats with varying physical and biological properties extending from the cold waters of the Gulf of Maine south to the more temperate climate of the Mid-Atlantic Bight (see Section 6.3.1). In this region, the oceanographic and physical processes interact to form a network of expansively to narrowly distributed habitat types (Stevenson et al. 2004). The offshore component of this region, also known as the Northeast US Continental Shelf Ecosystem (Sherman et al. 1996), is composed of four distinct subregions: the Gulf of Maine, Georges Bank, the Mid-Atlantic Bight, and the continental slope. In addition, the region contains freshwater rivers and streams that flow towards the sea into numerous bays and estuaries that serve as important refuge and nursery areas for marine species. The report focuses on the three major systems composing this ecosystem: riverine, estuarine/nearshore, and marine/offshore environments.

The habitat classifications described by Jury et al. (1994) and adopted by NOAA as a national standard for organizing its Estuarine Living Marine Resources (ELMR) program's database are useful because they facilitate consideration of physico-chemical interactions in water quality and habitat impacts and implications for aquatic organisms. Conveniently, this approach also aligns with ambient suspended sediment and particulate loads because maximum turbidity zones of temperate, well-mixed estuaries typically coincide with low salinity regions (Herman and Heip 1999). Accordingly, the report has used the three ELMR salinity ranges developed for coastal aquatic habitats to describe "riverine" (<0.5 ppt), "estuarine/nearshore" (0.5-25.0 ppt), and "marine/offshore" (>25.0 ppt) conditions.

<u>Riverine</u>

Riverine habitats, located along the coast of New England and the Mid-Atlantic, provide essential habitat to anadromous and catadromous ("diadromous") fishes. These habitats include freshwater streams, rivers, streamside wetlands, and the banks and associated vegetation that may be bordered by other freshwater habitats (NEFMC 1998). Depending upon the local water velocity and other physical characteristics, riverine systems may include a variety of benthic substrates ranging from exposed bedrock, cobble, and other hard bottom types to extremely unconsolidated, soft bottom material. These features have a great bearing on the fish and invertebrate species that may be present.

Riverine habitats serve multiple purposes including migration, feeding, spawning, nursery, and rearing functions. An important component of a river system also includes the riparian corridor. The term "riparian" refers to the land directly adjacent to a stream, lake, or estuary. A healthy riparian area has vegetation supporting prey items (e.g., insects); contributes necessary nutrients; provides large woody debris that creates channel structure and cover for fish; and provides shade, which controls stream temperatures (NEFMC 1998).

Estuarine/Nearshore

Estuaries are the bays and inlets influenced by both the ocean and rivers that serve as the transition zone between fresh and salt water. In the northeastern United States, they also may include the substantial inland reaches of large river systems where salinities exceed 0.5 ppt. For instance, ocean tides influence the lower 153 miles of the Hudson River, and oligohaline salinities (0.5 pp – 5 ppt) can extend well inland under low flow conditions. Typically, the northernmost intrusion of brackish water does not extend past the city of Poughkeepsie, nearly 75 miles north of The Battery at the southern tip of Manhattan, NY.

Estuaries support a community of plants and animals that are adapted to the zone where fresh and salt waters mix. Estuarine habitats fulfill fish and wildlife needs for reproduction, feeding, refuge, and other physiological necessities (NEFMC 1998). Coastal and estuarine features such as salt marshes, mud flats, rocky intertidal zones, sand beaches, and submerged aquatic vegetation are critical to inshore and offshore habitats and fishery resources of the northeastern United States (Stevenson et al. 2004). For example, healthy estuaries include eelgrass beds that protect young fish from predators, provide habitat for fish and wildlife, improve water quality, and can help stabilize sediments. In addition, mud flats, high salt marshes, and saltmarsh creeks also provide productive shallow water habitat for epibenthic fishes and decapods. Inshore habitats are dynamic and heterogeneous environments that support the majority of marine and anadromous fishes at some stage of development (NEFMC 1998).

Marine/Offshore

The Gulf of Maine is an enclosed coastal sea, characterized by relatively cold waters and deep basins with a patchwork of various sediment types. Georges Bank is a relatively shallow coastal plateau that slopes gently from north to south and has steep submarine canyons on its eastern and southeastern edge. It is characterized by highly productive, well-mixed waters and strong currents. The Mid-Atlantic Bight is composed of the sandy, relatively flat, gently sloping continental shelf from Southern New England to Cape Hatteras, NC. The continental slope begins at the continental shelf break and continues eastward with increasing depth until it becomes the continental rise. It is fairly homogenous, with exceptions at the shelf break, some of the canyons, the Hudson Shelf Valley (offshore New York), and areas of glacially rafted hard bottom (Stevenson et al. 2004).

The offshore benthic habitat features include sand waves, shell aggregates, gravel beds, boulder reefs, and submerged canyons which provide nursery areas for many fish species (NEFMC 1998). Many marine organisms inhabit the stable offshore environment for multiple stages of their life history.

6.3.4.3 Impacts to Habitat

Habitat alteration and disturbance occur from natural processes and human activities. Deegan and Buchsbaum (2005) placed human impacts to marine habitats into three categories: (1) permanent loss; (2) degradation; and (3) periodic disturbance. Permanent loss of habitat can result from activities such as wetland filling, coastal development, harbor dredging, and offshore mining operations (Robinson and Pederson 2005). Habitat degradation may be caused by physical changes, such as increased suspended sediment loading, overshadowing from new piers and wharves, as well as introduction of chemical contamination from land-based human activities (Robinson and Pederson 2005). Periodic disturbances are created by activities such as trawling and dredging for fish and shellfish and maintenance dredging of navigation channels.

The primary differences between these three categories are that permanent loss is irreversible, habitat degradation may or may not be reversible, and periodic disturbance is generally reversible once the source of disturbance is removed (Deegan and Buchsbaum 2005). These authors indicate that recovery times for degraded habitat depend on the nature of the agent causing the degradation and the physical characteristics of the habitat. Recovery times for periodic disturbances will vary depending on the intensity and periodicity of the disturbance and the nature of the habitat itself. Natural fluctuations in habitats, such as storms and long-term climatic changes, occur independently of anthropogenic impacts.

Deegan and Buchsbaum (2005) state that “habitat quantity is a measure of the total area available, while habitat quality is a measure of the carrying capacity of an existing habitat.” Generally, activities that lead to a permanent loss of habitat reduce the quantity of habitat, whereas habitat degradation and periodic disturbances result in a loss of habitat quality. The reduced quality of habitat (e.g., siltation, eutrophication, and alteration of salinity and food webs) may be equally damaging to the biological community as a loss in habitat quantity. As Deegan and Buchsbaum (2005) have noted, “the physical structure of the habitat does not need to be directly altered for negative consequences to occur.” For example, reductions in water quality can impair and limit the ability of aquatic organisms to grow, feed, and reproduce.

The end point of gradual declines in the quality of habitat can be the complete loss of habitat structure and function (Deegan and Buchsbaum 2005). Losses of habitat quantity and quality may reduce the ability of a region to support healthy and productive fish populations. From the population perspective, the loss of habitat quantity and quality creates stresses on a population. Populations that are stressed by one or more factors can be more susceptible to stresses caused by other factors (Robinson and Pederson 2005), resulting in cumulative effects. These authors call for a holistic approach to fishery management: one that considers the interactions among exploitation, contaminants, and habitat degradation on various fish stocks.

Lotze et al. (2006) show that severe depletion of marine resources (i.e., 50% reduction in abundance level) first began with the onset of European colonization. This study found that 45% of species depletions and 42% of extinctions involved multiple human impacts, mostly exploitation and habitat loss. Seventy eight percent of resource recoveries are attributed to both habitat protection and restricted exploitation, while only 22% of recoveries are attributed to reduced exploitation alone (Lotze et al. 2006). These authors also conclude that reduced exploitation, increased habitat protection, and improved water quality need to be considered together and that the cumulative effects of multiple human interventions must be included in both management and conservation strategies.

6.3.4.4 Technical workshop on impacts to coastal fisheries habitat from non-fishing activities

A technical workshop was hosted by the Northeast Region Essential Fish Habitat Steering Committee on January 10-12, 2005 in Mystic, CT, to seek the views and recommendations of approximately 40 scientists, resource managers, and other marine resource professionals on threats to fishery habitat from nonfishing activities in the northeast coastal region. The participants of the workshop, entitled *Technical Workshop on Impacts to Coastal Fishery Habitat from Nonfishing Activities*, were federal and state environmental managers and regulators, as well as individuals from academic institutions and other organizations that have expertise and knowledge of various human-induced impacts on coastal environmental resources. A list of workshop participants and their affiliations is provided in the appendix of Johnson et al. (2008).

The specific goals/tasks of the workshop included:

(1) Identify all known and potential adverse effects for each category of nonfishing activity by life history strategies or stages (i.e., benthic/demersal and pelagic) and ecosystem strata (i.e., riverine, estuarine, and marine). This list of activities may also include adverse impacts to identified prey species or other specific life history requirements for species.
(2) Create a matrix of nonfishing impacts for life history strategies/stages and ecosystem strata and ask the participants of the workshop to score the severity of each impact by using a relative scoring method.
(3) Develop a suite of conservation measures and best management practices (BMPs) intended to avoid and minimize the adverse effects on fishery habitat and resources.
(4) Identify possible information and data limitations and research needs in assessing impacts on fishery habitat or measures necessary to avoid and minimize those impacts.

Conservation measures were, to the extent possible, based on methods and technologies that have been evaluated through a scientific, peer-reviewed process. The intent was to develop recommendations that provide resource managers and regulators with specific methods and technologies yet have flexibility in their applications for various locations or project types. Ideally, providing a suite of conservation measures appropriate for various activities would give the end user several options of recommendations to consider.

Based upon the results of the workshop and effects scoring, some recommended research needs were developed. Identified research needs included basic life history requirements for some species and habitat types, physiological and biochemical responses of organisms to various physical and chemical perturbations and stressors, and technological advances in understanding or solutions to impact assessment and mitigation. Refer to Section 6.4.3.6 for a discussion on research needs, as recommended by workshop participants.

The format of the two-day workshop consisted of ten breakout sessions which represented the primary categories of nonfishing activities believed to threaten fishery resources and habitats in the Northeast region. For each of the breakout sessions, a matrix of activities and known or potential adverse effects to fishery habitat, prepared by the workshop organizers, was reviewed by the workshop participants. The participants were encouraged to openly discuss and evaluate the relevance and significance for each of the activities and effects and to provide any additional activities and effects not included in the matrix. A large number of non-fishing activities occur within the coastal region and have a wide range of effects and intensities on fishery habitat. Each activity type and effect identified was evaluated in the context of life history strategies or stages (i.e., benthic and demersal) and ecosystem type or strata (i.e., riverine, estuarine/ nearshore, and marine/offshore), in order to identify the importance of those factors. Following an open discussion, the participants were asked to score, by life history strategies/stages and ecosystem strata, the various activities and adverse effects on the impact matrix. In addition, participants were asked to include specific and relevant "conservation recommendations" and BMPs to avoid and minimize adverse effects to fishery habitat and resources.

On the last day of the workshop, the participants engaged in an informal discussion on the significance of cumulative effects and how multiple and additive effects can influence impacts to fishery habitat and resources. While the discussions were general in nature and few specifics of cumulative effects were discussed, there was a general agreement that cumulative effects are important and should play a larger role in assessment of habitat impacts. The scores provided by the participants in the impact matrices for most breakout sessions were relatively consistent throughout. While the variability in scores for some impact categories was high, we believe that the mean and median values for most effects' scores provide an accurate reflection of professional judgment by the participants. The relatively high variability in the scores of some activity types and effects may be due to varying interpretations of ecosystem strata and life history strategies or stages by the participants.

Because one workshop goal was to assess the severity or degree of threat for known and potential impacts to fishery habitats, the workshop organizers strived to develop a semi-quantitative scoring system that could measure the relative impacts for each activity and effect based upon the professional judgment of the participants. Developing defined values for measuring the significance of adverse effects for an activity is difficult and can depend upon the type of habitat being affected; the characteristic, intensity, and duration of the activity and disturbance; and a number of natural physical, chemical, and biological processes that may be occurring in the area and at the time of the activity. For this reason, the workshop organizers chose a semi-quantitative scoring system with a range from 0 to 5, with a 1 being the lowest impact and a 5 being the highest impact. A "0" was used if an impact is not expected to occur or is not applicable, and a "UN" (unknown) was used if the participant does not know the degree of impact for a particular activity.

We believe that a relative scoring method that allows for flexibility and professional judgment in assigning a value for an effect is better than an absolute scoring system that has discreet and predefined values. Using a relative scoring range of 0 through 5 provided the participants a choice from a continuum of impact values for each effect and avoids the difficulty in finding consensus for the definition of predefined values. We then calculated the mean and median values of each effect and assigned a qualitative value of the threat for each effect by using the following criteria:

If either the mean or median value was greater than or equal to 4.0, a “high” index score was assigned; if the mean value was between 2.1 and 3.9, a “medium” index score was assigned; and if the mean value was less than or equal to 2.0, a “low” index score was assigned.

Note: We defined the “high” index score to include either mean or median values in order to be risk averse in identifying activities that are known to be or may be a potentially high threat. Only mean values were used in assessing “medium” and “low” index scores.

The results of the workshop scoring in each session are listed in Tables 47 through 56. “High,” “medium,” and “low” index scores are notated as H, M, and L, respectively. As might be expected, there were positive correlations between the highest scoring effects and the ecosystem types in which those activities generally occur. For example, the high scoring effects in the alteration of freshwater systems and agriculture and silviculture sessions were generally all in the riverine ecosystem. Except for the offshore dredging and disposal session, there were fewer effects that were scored high in the marine/offshore ecosystem compared to the riverine and estuarine/nearshore ecosystems. This suggests the participants viewed the intensity of effects from nonfishing impacts to decrease as the distance from the activity increases. As one might expect, many of the far field effects that scored high were those activities that affect the water column (e.g., ocean noise, impacts to water quality) or effects that are capable of being transported by currents (oil spills or drilling mud releases). In addition, the global effects and other impacts session had high scores more evenly distributed across all ecosystems because of the nature of the impacts discussed in this session (e.g., climate change, atmospheric deposition, ocean noise). The number of activities and threats identified in the coastal development session were greater than other sessions because of the cross cutting nature of activities associated with human coastal development. Because of this, some activity types and effects assessed in the coastal development session were discussed to some degree in other sessions.

Some sessions had index scores with relatively high variability. For example, the scores for all activity types of the offshore dredging and disposal session had relatively low mean values and high standard deviations for effects in the estuarine/nearshore ecosystem. About half of the participants in this session either did not provide a score for impacts in the riverine or estuarine/nearshore ecosystems, or they marked them as “not-applicable.” Participants who provided a score for these two ecosystems generally scored them relatively high. This suggests a difference in participants’ interpretation of where “offshore” activities are located. Specifically, some individuals may consider the “offshore” area to be within close enough proximity of the nearshore and estuarine environments to adversely affect these areas, while others may perceive the “offshore” area to be too far removed to have a noticeable effect. There were activities in other sessions, such as beach nourishment in coastal development, with scores with high standard deviations. The high variability in perceived threats may be a reflection of regional perspectives. While the majority of the participants involved in this workshop were from the New England region, about one-quarter of the participants were from the Mid-Atlantic or southeast regions where beach nourishment projects are much more common. The associated impacts to benthic habitats from beach nourishment are also generally thought to be greater in the New England (where cobble or hard bottom habitats may be present) and south Atlantic (where live bottom habitats may be present) regions than in the Mid-Atlantic. However, because the responses of the workshop participants were anonymous, it was not possible to test this hypothesis.

Many of the effects that were scored as high in the workshop sessions were those that are well documented in the literature as having adverse effects on coastal resources. For example, nutrient enrichment and siltation/sedimentation effects were scored as high in nearly all workshop sessions, demonstrating the widely accepted views that these impacts translate to general reductions in the quality and quantity of fishery resources and habitats. Some of the more unexpected results of the workshop session scores are those effects that had high mean and/or median values but may be a topic that does not have a wealth of research documenting those impacts. Some of these results may be based upon a collective judgment by the participants that these activities or effects require additional scientific investigations to resolve the perceived risks and concerns. In several of these effects or activities, the authors of the associated report chapters were unable to locate information in the scientific literature regarding those threats. For example, release of pharmaceuticals and endocrine disruptors were two effects that were scored high in the workshop session, and yet the potential scope and intensity of adverse effects that these chemicals have on fishery resources has not been thoroughly investigated.

Those activities and effects considered by the workshop participants to have “high” threats to fishery habitat warrant further investigations, including research in characterizing and quantifying these impacts on fishery resources, as well as investigating methods for avoiding and/or minimizing the impacts. Refer to Section 6.3.4.6 for further discussions regarding the workshop results.

6.3.4.5 Potential impacts to squid, mackerel, and butterfish EFH from non-fishing activities

Based on the proposed new EFH descriptions (see Section 5.5), only those non-fishing activities that occur in nearshore/estuarine and marine/offshore pelagic habitats have the potential to adversely impact EFH for the four species managed under the MSB FMP. Relevant high, medium, and low potential effects for all the activity types evaluated in Johnson et al. (2008) are shown in the last two columns (highlighted in grey) of Tables 47-56. More specifically, the habitat types that would be designated as EFH for each species and life stage are the following:

Table 46. EFH Overview

Species	Life Stage	Pelagic Nearshore/estuarine	Pelagic Marine/offshore	Benthic Marine/offshore
Atlantic mackerel	All	√	√	
Loligo	Eggs			√
	Pre-recruits Recruits		√	
Illex	All		√	
Butterfish	All	√	√	

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Table 47. Habitat Impact Categories in Coastal Development Workshop Session (N=14).

Activity Type	Potential Effects	Habitat Impact Categories					
		Life History/Ecosystem Type					
		Benthic/Demersal Stages			Pelagic Stages		
		Riverine	Estuarine/ Nearshore	Marine/ Offshore	Riverine	Estuarine/ Nearshore	Marine/ Offshore
Nonpoint Source Pollution and Urban Runoff	Nutrient loading/eutrophication	H	H	M	H	H	M
	Loss/alteration of aquatic vegetation	H	H	L	H	H	L
	Release of petroleum products	M	M	M	M	M	M
	Alteration of water alkalinity	M	M	L	M	M	L
	Release of metals	H	H	M	M	H	M
	Release of radioactive wastes	M	M	L	M	M	L
	Release of pesticides	H	H	M	H	H	M
	Release of pharmaceuticals	H	M	L	H	H	L
	Alteration of temperature regimes	H	M	L	H	M	L
	Sedimentation/turbidity	H	H	L	H	H	L
	Altered hydrological regimes	M	M	L	M	M	L
	Introduction of pathogens	M	M	L	M	M	L
Road Construction and Operation	Release of sediments in aquatic habitat	H	M	L	M	M	L
	Increased sedimentation/turbidity	H	H	L	H	H	L
	Impaired fish passage	H	M	L	H	H	L
	Altered hydrological regimes	H	H	L	H	H	L
	Altered temperature regimes	H	M	L	H	M	L
	Altered stream morphology	H	M	L	H	M	L
	Altered stream bed characteristics	H	M	L	H	M	L
	Reduced dissolved oxygen	H	H	L	H	H	L
	Introduction of exotic invasive species	M	M	L	M	M	L
	Loss/alteration of aquatic vegetation	H	H	L	H	H	L
	Altered tidal regimes	H	H	L	H	M	L
	Contaminant releases	M	M	L	M	M	L
	Fragmentation of habitat	H	M	L	H	H	L
	Altered salinity regimes	M	M	L	M	M	L
Flood Control/ Shoreline Protection	Altered hydrological regimes	H	H	L	H	M	L
	Altered temperature regimes	M	M	L	M	M	L
	Altered stream morphology	H	M	L	H	M	L
	Altered sediment transport	H	H	L	H	H	L
	Alteration/loss of benthic habitat	H	H	L	M	M	L
	Reduction of dissolved oxygen	M	M	L	M	M	L
	Impaired fish passage	H	M	L	H	M	L
	Alteration of natural communities	H	M	L	M	M	L
	Impacts to riparian habitat	H	M	L	H	M	L
	Loss of intertidal habitat	H	H	L	M	H	L
	Reduced ability to counter sea level rise	H	H	L	M	H	L
	Increased erosion/accretion	H	H	L	H	H	L
Beach Nourishment	Altered hydrological regimes	M	M	L	M	M	L
	Altered temperature regimes	L	L	L	L	L	L
	Altered sediment transport	M	M	L	M	M	L
	Alteration/loss of benthic habitat	M	M	L	L	M	L
	Alteration of natural communities	M	M	M	L	M	L

	Increased sedimentation/turbidity	M	M	L	M	M	L

Table 47 (Continued). Habitat Impact Categories in Coastal Development Workshop Session (N=14)

Activity Type	Potential Effects	Habitat Impact Categories					
		Life History/Ecosystem Type					
		Benthic/Demersal Stages			Pelagic Stages		
		Riverine	Estuarine/ Nearshore	Marine/ Offshore	Riverine	Estuarine/ Nearshore	Marine/ Offshore
Wetland Dredging and Filling	Alteration/loss of habitat	H	H	L	H	H	L
	Loss of submerged aquatic vegetation	H	H	L	M	H	L
	Altered hydrological regimes	H	H	L	H	H	L
	Reduction of dissolved oxygen	M	M	L	M	M	L
	Release of nutrients/eutrophication	M	M	L	M	M	L
	Release of contaminants	M	M	L	M	M	L
	Altered tidal prism	M	M	L	M	M	L
	Altered current patterns	M	M	L	M	M	L
	Altered temperature regimes	M	M	L	M	M	L
	Loss of wetlands	H	H	L	H	H	L
	Loss of fishery productivity	H	H	L	H	H	L
	Introduction of invasive species	M	M	L	M	M	L
	Loss of flood storage capacity	H	H	L	H	H	L
	Increased sedimentation/turbidity	M	M	L	M	M	L
Overwater Structures	Shading impacts to vegetation	M	M	L	M	M	L
	Altered hydrological regimes	M	M	L	M	M	L
	Contaminant releases	M	M	L	M	M	L
	Benthic habitat impacts	M	M	L	M	M	L
	Increased erosion/accretion	M	M	L	M	M	L
	Eutrophication from bird roosting	M	M	L	M	M	L
	Shellfish closures because of bird roosting	H	M	L	M	M	L
	Changes in predator/prey interactions	H	H	L	H	H	L
Pile Driving and Removal	Energy impacts	M	M	L	M	M	L
	Benthic habitat impacts	M	M	L	M	M	L
	Increased sedimentation/turbidity	M	M	L	M	M	L
	Contaminant releases	M	M	L	M	M	L
	Shading impacts to vegetation	M	M	L	M	M	L
	Changes in hydrological regimes	M	M	L	M	M	L
	Changes in species composition	M	M	L	M	M	L
Marine Debris	Entanglement	M	M	L	M	M	L
	Ingestion	L	M	L	M	M	M
	Contaminant releases	L	M	L	L	M	M
	Introduction of invasive species	M	M	L	M	M	M
	Introduction of pathogens	L	M	L	L	M	M
	Conversion of habitat	L	M	L	L	M	L

Table 48. Habitat Impact Categories in Energy-related Activities Workshop Session (N=13)

Activity Type	Potential Effects	Habitat Impact Categories					
		Life History/Ecosystem Type					
		Benthic/Demersal Stages			Pelagic Stages		
		Riverine	Estuarine/ Nearshore	Marine/ Offshore	Riverine	Estuarine/ Nearshore	Marine/ Offshore
Petroleum Exploration, Production, and Transportation	Underwater noise	M	M	M	M	M	M
	Habitat conversion	H	H	H	H	H	M
	Loss of benthic habitat	M	H	M	M	M	M
	Contaminant discharge	M	H	M	M	H	M
	Discharge of debris	M	M	M	M	M	L
	Oil spills	H	H	H	H	H	H
	Siltation/sedimentation/turbidity	M	M	M	M	M	M
	Resuspension of contaminants	M	H	M	M	M	L
	Impacts from clean-up activities	H	H	M	M	H	M
Liquified Natural Gas	Habitat conversion	H	H	M	M	M	M
	Loss of benthic habitat	H	H	M	M	M	L
	Discharge of contaminants	H	H	H	H	H	H
	Discharge of debris	M	M	M	M	M	L
	Siltation/sedimentation/turbidity	M	H	M	M	M	M
	Resuspension of contaminants	M	H	M	M	H	L
	Entrainment/impingement	M	M	M	M	H	M
	Alteration of temperature regimes	M	M	L	M	M	L
	Alteration of hydrological regimes	M	M	L	M	M	L
	Underwater noise	M	M	M	H	H	M
	Release of contaminants	H	H	M	H	H	M
	Exclusion zone impacts	M	M	L	M	M	L
	Physical barriers to habitat	M	M	M	M	M	L
	Introduction of invasive species	H	H	M	H	M	M
	Vessel impacts	H	H	L	M	M	L
	Benthic impacts from pipelines	H	H	M	M	M	M
Offshore Wind Energy Facilities	Loss of benthic habitat	M	H	H	L	M	M
	Habitat conversion	M	H	H	L	M	M
	Siltation/sedimentation/turbidity	L	M	M	L	M	M
	Resuspension of contaminants	L	M	L	L	M	L
	Alteration of hydrological regimes	L	M	M	L	M	M
	Altered current patterns	L	M	M	L	M	M
	Alteration of electromagnetic fields	L	L	L	L	L	L
	Underwater noise	L	L	M	L	M	H
	Alteration of community structure	M	H	M	L	H	M
	Erosion around structure	L	M	M	L	L	L
	Spills associated w/ service structure	M	H	M	L	M	M

Table 48 (Continued). Habitat Impact Categories in Energy-related Activities Workshop Session (N=13)

Activity Type	Potential Effects	Habitat Impact Categories					
		Life History/Ecosystem Type					
		Benthic/Demersal Stages			Pelagic Stages		
		Riverine	Estuarine/ Nearshore	Marine/ Offshore	Riverine	Estuarine/ Nearshore	Marine/ Offshore
Wave/Tidal Energy Facilities	Habitat conversion	H	H	M	M	M	M
	Loss of benthic habitat	H	H	M	M	M	L
	Siltation/sedimentation/turbidity	M	H	M	M	M	L
	Resuspension of contaminants	M	M	L	M	M	L
	Alteration of hydrological regimes	M	M	M	M	H	L
	Altered current patterns	M	M	M	M	H	M
	Entrainment/impingement	M	M	L	H	H	M
	Impacts to migration	M	M	L	H	M	L
	Electromagnetic fields	L	L	L	L	L	L
Cables and Pipelines	Loss of benthic habitat	H	H	M	L	M	L
	Habitat conversion	H	H	M	M	M	M
	Siltation/sedimentation/turbidity	M	H	M	M	M	M
	Resuspension of contaminants	H	H	M	M	M	M
	Altered current patterns	M	M	M	L	M	L
	Alteration of electromagnetic fields	L	L	L	L	L	L
	Underwater noise	L	L	L	L	M	M
	Alteration of community structure	M	M	M	M	M	M
	Erosion around structure	L	M	M	L	M	M
	Biocides from hydrostatic testing	M	M	M	M	M	M
	Spills associated w/ service structure	H	H	M	M	M	M
	Physical barriers to habitat	H	H	H	L	L	L
	Impacts to submerged aquatic vegetation	M	H	M	M	M	L
	Water withdrawal	M	M	L	H	H	L
	Impacts from construction activities	M	H	H	M	M	M
	Impact from maintenance activities	M	M	M	L	M	M
	Thermal impacts associated with cables	L	L	L	L	L	L
	Impacts associated with armoring of pipe	M	M	M	L	L	L
	Impacts to migration	H	H	H	L	L	L

Table 49. Habitat Impact Categories in Alteration of Freshwater Systems Workshop Session (N=13)

Activity Type	Potential Effects	Habitat Impact Categories					
		Life History/Ecosystem Type					
		Benthic/Demersal Stages			Pelagic Stages		
		Riverine	Estuarine/ Nearshore	Marine/ Offshore	Riverine	Estuarine/ Nearshore	Marine/ Offshore
Dam Construction/ Operation	Impaired fish passage	H	H	L	H	H	L
	Altered hydrological regimes	H	H	L	H	M	L
	Altered temperature regimes	H	H	L	H	M	L
	Altered sediment/woody debris transport	H	M	L	H	M	L
	Altered stream morphology	H	M	L	H	M	L
	Altered stream bed characteristics	H	M	L	H	M	L
	Reduced dissolved oxygen	H	M	L	H	M	L
	Alteration of extent of tide	H	H	L	H	H	L
	Alteration of wetlands	H	H	L	H	H	L
	Change in species communities	H	M	L	H	M	L
	Bank erosion because of drawdown	M	L	L	M	L	L
	Riparian zone development	H	M	L	H	M	L
	Acute temperature shock	H	M	L	H	M	L
Dam Removal	Release of contaminated sediments	H	H	L	H	M	L
	Alteration of wetlands	H	M	L	H	M	L
Stream Crossings	Impacts to fish passage	H	M	L	H	M	L
	Alteration of hydrological regimes	H	M	L	H	M	L
	Bank erosion	H	L	L	M	L	L
	Habitat conversion	H	M	L	H	M	L
Water Withdrawal/ Diversion	Entrainment and impingement	M	M	L	H	M	L
	Impaired fish passage	H	H	L	H	H	L
	Altered hydrological regimes	H	M	L	H	M	L
	Reduced dissolved oxygen	H	M	L	H	M	L
	Altered temperature regimes	H	H	L	H	M	L
	Release of nutrients/eutrophication	H	M	L	H	M	L
	Release of contaminants	H	M	L	H	M	L
	Altered stream morphology	H	L	L	H	M	L
	Altered stream bed characteristics	H	M	L	H	M	L
	Siltation/sedimentation/turbidity	H	M	L	H	M	L
	Change in species communities	H	M	L	H	H	L
	Alteration in groundwater levels	H	L	L	H	L	L
	Loss of forested/palustrine wetlands	H	L	L	H	L	L
	Impacts to water quality	H	M	L	H	M	L
	Loss of flood storage	M	L	L	M	L	L

Table 49 (Continued). Habitat Impact Categories in Alteration of Freshwater Systems Workshop Session (N=13)

Activity Type	Potential Effects	Habitat Impact Categories					
		Life History/Ecosystem Type					
		Benthic/Demersal Stages			Pelagic Stages		
		Riverine	Estuarine/ Nearshore	Marine/ Offshore	Riverine	Estuarine/ Nearshore	Marine/ Offshore
Dredging and Filling, Mining	Reduced flood water retention	H	M	L	H	M	L
	Reduced nutrient uptake and release	M	M	L	M	M	L
	Reduced detrital food source	H	M	L	M	M	L
	Altered hydrological regimes	H	M	L	H	M	L
	Increased storm water runoff	H	M	L	H	M	L
	Loss of riparian and riverine habitat	H	M	L	H	M	L
	Altered stream morphology	H	M	L	H	L	L
	Altered stream bed characteristics	H	M	L	H	M	L
	Siltation/sedimentation/turbidity	H	M	L	H	M	L
	Reduced dissolved oxygen	H	M	L	H	M	L
	Altered temperature regimes	H	M	L	H	M	L
	Release of nutrients/eutrophication	H	M	L	H	H	L
	Release of contaminants	H	M	L	H	M	L
	Loss of submerged aquatic vegetation	H	H	L	H	H	L
	Change in species communities	H	H	L	H	M	L

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Table 50. Habitat Impact Categories in Marine Transportation Workshop Session (N=18)

Activity Type	Potential Effects	Habitat Impact Categories					
		Life History/Ecosystem Type					
		Benthic/Demersal Stages			Pelagic Stages		
		Riverine	Estuarine/ Nearshore	Marine/ Offshore	Riverine	Estuarine/ Nearshore	Marine/ Offshore
Construction and Expansion of Ports and Marinas	Loss of benthic habitat	H	H	H	M	M	M
	Siltation/sedimentation/turbidity	H	H	M	M	M	M
	Contaminant releases	H	H	M	M	H	M
	Altered hydrological regimes	H	H	L	H	H	L
	Altered tidal prism	M	H	L	M	H	L
	Altered current patterns	M	M	L	M	M	L
	Altered temperature regimes	H	M	L	H	M	L
	Loss of wetlands	H	H	L	H	H	L
	Underwater blasting/noise	M	M	L	M	M	M
	Loss of submerged aquatic vegetation	H	H	M	H	H	M
	Conversion of substrate/habitat	H	H	M	M	M	M
	Loss of intertidal flats	H	H	L	L	M	L
	Loss of water column	M	M	L	H	H	L
	Altered light regime	M	M	L	M	M	L
	Derelict structures	M	M	L	M	M	L
Operations and Maintenance of Ports and Marinas	Contaminant releases	H	H	M	M	M	M
	Storm water runoff	H	H	M	M	M	L
	Underwater noise	M	M	L	M	M	L
	Alteration of light regimes	M	M	L	M	M	L
	Derelict structures	M	M	L	L	L	L
	Mooring impacts	M	M	L	L	L	L
	Release of debris	M	M	L	M	L	L
Operation and Maintenance of Vessels	Impacts to benthic habitat	H	H	L	M	M	L
	Resuspension of bottom sediments	M	M	L	M	M	L
	Erosion of shorelines	M	M	L	M	M	L
	Contaminant spills and discharges	M	H	M	M	H	M
	Underwater noise	M	M	M	M	M	M
	Derelict structures	M	M	L	L	L	L
	Increased air emissions	L	L	L	L	L	L
	Release of debris	M	M	L	L	L	L
Navigation Dredging	Conversion of substrate/habitat	H	H	M	M	M	L
	Loss of submerged aquatic vegetation	H	H	M	H	H	L
	Siltation/sedimentation/turbidity	H	H	M	H	M	L
	Contaminant releases	H	H	M	M	M	M
	Release of nutrients/eutrophication	M	M	M	M	M	L
	Entrainment and impingement	M	M	M	M	M	L
	Underwater blasting/noise	M	M	L	M	M	L
	Altered hydrological regimes	H	H	L	H	M	L
	Altered tidal prism	M	M	L	M	M	L
	Altered current patterns	M	M	L	M	M	L
	Altered temperature regimes	H	H	L	M	M	L
	Loss of intertidal flats	H	H	L	H	H	L
	Loss of wetlands	H	H	L	H	H	L
	Contaminant source exposure	M	M	M	M	M	L

Table 51. Habitat Impact Categories in Offshore Dredging and Disposal Workshop Session (N=22)

Activity Type	Potential Effects	Habitat Impact Categories					
		Life History/Ecosystem Type					
		Benthic/Demersal Stages			Pelagic Stages		
		Riverine	Estuarine/ Nearshore	Marine/ Offshore	Riverine	Estuarine/ Nearshore	Marine/ Offshore
Offshore Mineral Mining	Loss of benthic habitat types	L	L	H	L	L	M
	Conversion of substrate/habitat	L	L	H	L	L	L
	Siltation/sedimentation/turbidity	L	L	M	L	L	M
	Changes in bottom topography	L	L	M	L	L	L
	Changes in sediment composition	L	L	H	L	L	L
	Sediment transport from site (erosion)	L	L	M	L	L	L
	Impacts to water quality	L	L	M	L	L	M
	Release of contaminants	L	L	M	L	L	M
	Change in community structure	L	L	H	L	L	M
	Changes in water flow	L	L	M	L	L	M
	Noise impacts	L	L	L	L	L	M
Petroleum Extraction	Contaminant releases	L	L	H	L	L	H
	Drilling mud impacts	L	L	H	L	L	H
	Siltation/sedimentation/turbidity	L	L	M	L	L	M
	Release of debris	L	L	M	L	L	L
	Noise impacts	L	L	M	L	L	M
	Changes in light regimes	L	L	M	L	L	M
	Habitat conversion	L	L	M	L	L	M
	Pipeline installation	L	L	M	L	L	L
Offshore Dredge Material Disposal	Burial/disturbance of benthic habitat	L	M	H	L	L	M
	Conversion of substrate/habitat	L	L	H	L	L	M
	Siltation/sedimentation/turbidity	L	L	M	L	L	M
	Release of contaminants	L	L	M	L	L	M
	Release of nutrients/eutrophication	L	L	M	L	L	M
	Altered hydrological regimes	L	L	M	L	L	M
	Altered current patterns	L	L	M	L	L	M
	Changes in bottom topography	L	L	M	L	L	L
	Changes in sediment composition	L	L	H	L	L	L
	Changes in water bathymetry	L	L	M	L	L	L
Fish Waste Disposal	Introduction of pathogens	L	L	H	L	L	H
	Release of nutrients/eutrophication	L	L	H	L	L	H
	Release of biosolids	L	L	H	L	L	M
	Loss of benthic habitat types	L	L	H	L	L	L
	Behavioral affects	L	L	M	L	L	M
Vessel Disposal	Release of contaminants	L	L	M	L	L	M
	Conversion of substrate/habitat	L	L	H	L	L	M
	Changes in bathymetry	L	L	M	L	L	L
	Changes in hydrodynamics	L	L	M	L	L	M
	Changes in community structure	L	L	H	L	L	M
	Impacts during deployment	L	L	M	L	L	M
	Release of debris	L	L	M	L	L	L

Table 52. Habitat Impact Categories in Chemical Effects: Water Discharge Facilities Workshop Session (N=19)

Activity Type	Potential Effects	Habitat Impact Categories					
		Life History/Ecosystem Type					
		Benthic/Demersal Stages			Pelagic Stages		
		Riverine	Estuarine/ Nearshore	Marine/ Offshore	Riverine	Estuarine/ Nearshore	Marine/ Offshore
Sewage Discharge Facilities	Release of nutrients/eutrophication	H	H	H	H	H	H
	Release of contaminants	H	H	H	H	H	H
	Impacts to submerged aquatic	H	H	M	H	H	M
	Reduced dissolved oxygen	H	H	M	H	H	M
	Siltation/sedimentation/turbidity	H	H	M	H	H	M
	Impacts to benthic habitat	H	H	M	M	M	M
	Changes in species composition	H	H	M	H	H	M
	Trophic level alterations	H	H	M	H	H	M
	Introduction of pathogens	H	H	M	M	H	M
	Introduction of harmful algal blooms	H	H	H	H	H	M
	Bioaccumulation/biomagnification	H	H	H	H	H	M
	Behavioral avoidance	M	H	M	M	H	M
	Release of pharmaceuticals	M	M	M	M	M	M
Industrial Discharge Facilities	Alteration of water alkalinity	H	M	M	M	M	L
	Release of metals	H	H	M	M	M	M
	Release of chlorine compounds	H	H	M	H	H	M
	Release of pesticides	H	H	M	H	H	M
	Release of organic compounds	H	H	H	M	H	M
	Release of petroleum products	H	H	M	M	H	M
	Release of inorganic compounds	H	H	M	H	H	M
	Release of organic wastes	M	M	M	M	M	M
	Introduction of pathogens	M	M	M	M	M	M
Combined Sewer Overflows	Potential for all of the above effects	H	H	H	H	H	H

Table 53. Habitat Impact Categories in Physical Effects: Water Intake and Discharge Facilities Workshop Session (N=11)

Activity Type	Potential Effects	Habitat Impact Categories					
		Life History/Ecosystem Type					
		Benthic/Demersal Stages			Pelagic Stages		
		Riverine	Estuarine/ Nearshore	Marine/ Offshore	Riverine	Estuarine/ Nearshore	Marine/ Offshore
Discharge Facilities	Scouring of substrate	M	M	L	L	L	L
	Turbidity/sedimentation	H	H	M	M	M	L
	Alteration of sediment composition	H	H	M	L	L	L
	Reduced dissolved oxygen	H	H	M	H	H	L
	Alteration of salinity regimes	H	H	L	H	H	M
	Alteration of temperature regimes	H	H	M	H	H	M
	Conversion/loss of habitat	M	M	M	M	M	M
	Habitat exclusion/avoidance	H	H	L	H	H	L
	Restrictions to migration	H	H	L	H	H	L
	Acute toxicity	M	H	M	H	H	M
	Behavioral changes	M	M	L	M	M	L
	Cold shock	M	M	M	H	M	L
	Stunting of growth in fishes	M	M	L	M	M	L
	Attraction to flow	H	H	M	H	H	M
	Alteration of community structure	H	H	M	H	H	M
	Changes in local current patterns	M	M	L	M	M	L
	Physical/chemical synergies	M	H	M	M	M	M
	Increased need for dredging	H	H	L	H	H	L
	Ballast water discharge	H	H	M	M	M	M
	Gas-bubble disease/mortality	M	M	L	M	H	L
	Release of radioactive wastes	H	H	M	H	H	M
Intake Facilities	Entrainment/impingement	H	H	H	H	H	H
	Alteration of hydrological regimes	H	H	M	H	H	L
	Flow restrictions	H	H	L	H	H	L
	Construction related impacts	H	M	M	M	M	M
	Conversion/loss of habitat	H	H	M	H	H	M
	Seasonal loss of habitat	M	M	L	M	M	M
	Backwash (cleaning of system)	M	M	L	M	M	L
	Alteration of community structure	H	H	L	H	H	L
	Increased need for dredging	H	H	M	H	H	L
	Ballast water intake	H	H	M	H	H	M

Table 54. Habitat Impact Categories in Agriculture and Silviculture Workshop Session (N=11)

Activity Type	Potential Effects	Habitat Impact Categories					
		Life History/Ecosystem Type					
		Benthic/Demersal Stages			Pelagic Stages		
		Riverine	Estuarine/ Nearshore	Marine/ Offshore	Riverine	Estuarine/ Nearshore	Marine/ Offshore
Cropland, Rangelands, Livestock, and Nursery Operations	Release of nutrients/eutrophication	H	H	L	H	H	L
	Bank/soil erosion	H	H	L	M	M	L
	Altered temperature regimes	M	M	L	M	M	L
	Siltation/sedimentation/turbidity	H	H	L	H	H	L
	Altered hydrological regimes	M	M	L	M	M	L
	Entrainment and impingement	M	L	L	H	L	L
	Impaired fish passage	M	L	L	H	M	L
	Reduced soil infiltration	M	L	L	M	L	L
	Release of pesticides	H	H	L	H	M	L
	Reduced dissolved oxygen	H	M	L	H	M	L
	Soil compaction	M	M	L	M	L	L
	Loss/alteration of wetlands	H	H	L	M	M	L
	Land-use change (post agriculture)	H	M	L	H	M	L
	Introduction of invasive species	M	M	L	M	L	L
	Introduction of pathogens	H	M	L	M	M	L
	Endocrine disruptors	H	H	L	H	H	L
	Change of community structure	M	M	L	M	M	L
	Change in species composition	H	M	L	M	M	L
Silviculture and Timber Harvest Activities	Reduced soil infiltration	M	M	L	M	L	L
	Siltation/sedimentation/turbidity	H	M	L	H	M	L
	Altered hydrological regimes	M	M	L	M	M	L
	Impaired fish passage	M	L	L	H	M	L
	Bank/soil erosion	H	M	L	H	M	L
	Altered temperature regimes	H	M	L	H	M	L
	Release of pesticides	H	H	L	H	H	L
	Release of nutrients/eutrophication	H	H	L	H	H	L
	Reduced dissolved oxygen	H	M	L	H	M	L
	Loss/alteration of wetlands	H	M	L	H	M	L
	Soil compaction	M	L	L	M	L	L
Timber and Paper Mill Processing Activities	Chemical contaminant releases	H	H	L	H	H	L
	Entrainment and impingement	M	L	L	H	M	L
	Thermal discharge	H	L	L	M	L	L
	Reduced dissolved oxygen	H	M	L	H	M	L
	Conversion of benthic substrate	H	M	L	M	L	L
	Loss/alteration of wetlands	M	M	L	M	M	L
	Alteration of light regimes	M	L	L	M	L	L

Table 55. Habitat Impact Categories in Introduced/Nuisance Species and Aquaculture Workshop Session (N=14)

Activity Type	Potential Effects	Habitat Impact Categories					
		Life History/Ecosystem Type					
		Benthic/Demersal Stages			Pelagic Stages		
		Riverine	Estuarine/ Nearshore	Marine/ Offshore	Riverine	Estuarine/ Nearshore	Marine/ Offshore
Introduced/ Nuisance Species	Habitat alterations	H	H	M	M	M	M
	Trophic alterations	M	H	M	M	M	M
	Gene pool alterations	H	H	M	H	H	M
	Alterations of communities	H	H	M	M	H	M
	Introduced diseases	M	H	M	M	H	M
	Changes in species diversity	H	H	H	H	H	M
	Alteration in health of native species	M	M	M	M	M	M
	Impacts to water quality	M	M	M	M	M	M
Aquaculture	Discharge of organic waste	M	H	M	M	M	M
	Seafloor impacts	M	H	M	M	M	M
	Introduction of exotic invasive species	H	H	M	M	H	M
	Food web impacts	H	H	M	H	H	M
	Gene pool alterations	H	H	M	H	M	M
	Impacts to water column	M	M	M	M	H	M
	Impacts to water quality	M	H	L	M	H	M
	Changes in species diversity	M	H	M	M	H	M
	Sediment deposition	H	H	M	L	L	L
	Introduction of diseases	M	H	M	M	M	M
	Habitat replacement/exclusion	H	H	M	M	M	L
	Habitat conversion	H	H	M	M	H	M

Table 56. Habitat Impact Categories in Global Effects and Other Impacts Workshop Session (N=17)

Activity Type	Potential Effects	Habitat Impact Categories					
		Life History/Ecosystem Type					
		Benthic/Demersal Stages			Pelagic Stages		
		Riverine	Estuarine/ Nearshore	Marine/ Offshore	Riverine	Estuarine/ Nearshore	Marine/ Offshore
Climate Change	Alteration of hydrological regimes	H	H	M	H	H	H
	Alteration of temperature regimes	H	H	H	H	H	H
	Changes in dissolved oxygen	H	H	M	H	H	M
	Nutrient loading/eutrophication	M	H	M	M	M	M
	Release of contaminants	H	H	M	M	M	M
	Bank/soil erosion	H	M	L	M	M	L
	Alteration in salinity	M	H	M	M	H	M
	Alteration of weather patterns	H	H	M	H	H	H
	Alteration of alkalinity	M	M	M	M	M	M
	Changes in community structure	H	H	H	H	H	H
	Changes in ocean/coastal use	M	M	M	M	M	M
	Changes in ecosystem structure	M	H	L	M	H	L
	Loss of wetlands	H	H	L	H	H	L
Ocean Noise	Mechanical injury to organisms	M	M	H	M	M	H
	Impacts to feeding behavior	M	M	M	M	M	M
	Impacts to spawning behavior	M	M	M	M	M	M
	Impacts to migration	M	M	M	M	M	M
	Exclusion of organisms to habitat	M	M	M	M	M	M
	Changes in community structure	M	M	M	M	M	M
Atmospheric Deposition	Nutrient loading/eutrophication	H	H	M	H	H	M
	Mercury loading/bioaccumulation	H	H	M	H	H	H
	Polychlorinated biphenyls and other	H	H	M	H	H	M
	Alteration of ocean alkalinity	M	M	M	M	M	M
	Alteration of climatic cycle	M	M	M	M	M	M
Military/ Security Activities	Exclusion of organisms to habitat	L	L	M	L	M	M
	Noise impacts	M	M	M	M	M	H
	Chemical releases	M	H	M	M	M	M
	Impacts to tidal/intertidal habitats	M	M	L	L	M	L
	Blasting injuries from ordinances	M	M	M	M	M	M
Natural Disasters and Events	Loss/alteration of habitat	H	H	M	H	H	M
	Impacts to habitat from debris	M	M	M	M	M	L
	Impacts to water quality	M	H	M	H	H	M
	Impacts from emergency response	M	M	L	M	M	L
	Alteration of hydrological regimes	M	M	M	M	M	L
	Changes in community composition	M	H	M	M	M	M
	Underwater landslides	L	L	M	L	L	M
Electromagnetic Fields	Changes to migration of organisms	M	M	M	M	M	M
	Behavioral changes	M	M	M	M	M	M
	Changes in predator/prey	L	M	M	M	M	M

6.3.4.6 Conclusions, recommendations, and research needs

The purpose of this section is to synthesize the information included in Johnson et al. (2008) and to identify topics for future research. In addition, the participants of the technical workshop identified non-fishing activities and effects that are known or suspected to have adverse impacts on fisheries habitat. We have attempted to draw some conclusions, based upon the results of the impact and effects scores, on those activities and effects that deserve further scrutiny and discussion. While many of these activities and effects clearly have direct, adverse impacts on the quantity and quality of fisheries habitat, their effects at the population and ecosystem level are generally poorly understood or unknown. For example, the Gulf of Maine contains a number of ports and harbors that are documented to be the most contaminated sites in U.S. coastal waters for polycyclic aromatic hydrocarbons, chlorinated hydrocarbons, and trace metals (Buchsbaum 2005). Although the effects of these pollutants at the cellular, physiological and whole organism level have been documented, little information on the effects at the population and ecosystem level is available.

There were some notable results from the technical workshop on non-fishing impacts, particularly in the geographic areas that were scored high for some impact types and effects. As one might expect, the workshop participants considered impacts on fisheries habitats from non-fishing activities to be generally focused in the nearshore coastal areas. Except for the Offshore Dredging and Disposal session, the majority of the high-scoring impact types and effects in each session were in the riverine and estuarine/nearshore ecosystems. These results are not particularly surprising considering the proximity of riverine and nearshore habitats to industrial facilities and shipping and human coastal development. However, one should not conclude from these results that species inhabiting offshore habitats are not susceptible to non-fishing impacts. Estuarine and wetland dependent fish and shellfish species account for about 75 percent of the total annual seafood harvest of the U.S. (Dahl 2006). Rivers, estuaries and coastal embayments are essential for fisheries because they serve as nurseries for the juvenile stages of species harvested offshore or for the prey of commercially important species (Deegan and Buchsbaum 2005).

One interesting result from the Energy-Related Activities workshop session was the high scores for oil spill effects in all ecosystems and life history stages/strategies for the Petroleum Exploration and Production impact type. Currently, there are no petroleum exploration or production activities along the east coast of the U.S. However, based upon the workshop results, the workshop participants considered oil spills to have a high potential for adverse effects to coastal ecosystems in the northeast region of the U.S. Should petroleum exploration and production be proposed in the northeast region, considerable work would likely be necessary to assess the potential effects these activities may have on coastal ecosystems.

Although nearly all impact types and effects were scored high for the riverine ecosystem in the Alterations to Freshwater Systems workshop session, several were also scored as high in the estuarine/nearshore ecosystem. For example, impaired fish passage and altered temperature regimes were scored high for riverine and estuarine/nearshore ecosystem in both dam construction/operation and water withdrawal impact types, suggesting that the participants viewed these activities and effects to have broad ecosystem impacts.

Most impact types and effects in the both the chemical and physical effects workshop sessions were scored high in the both riverine and estuarine/nearshore ecosystems. However, some of these impact types and effects were also scored high in the marine/offshore ecosystem. For the chemical effects session, the release of nutrients/eutrophication, release of contaminants, introduction of harmful algal blooms, contaminant bioaccumulation/biomagnification, and all effects under combined sewer overflows impact type were scored high in all ecosystem types. The concern of the workshop participants regarding impacts to coastal resources due to eutrophication and pollution reflect some recently published assessments on threats to coastal habitats (USEPA 2004; Deegan and Buchsbaum 2005; Lotze et al. 2006). The National Coastal Condition Report (USEPA 2004) assessed the coastal water condition in the northeast to be the poorest in the nation, with 19 percent of estuarine waters in poor condition and another 42 percent in fair condition. One of the primary factors contributing to poor water condition in the northeast region is poor water quality, which is typically caused by high total nitrogen loading, low dissolved oxygen concentrations, and poor water clarity. In the northeast region, the contributing factors associated with nutrient enrichment are principally high human population density and, in the Mid-Atlantic states, agriculture (USEPA 2004). Harmful algal blooms (HABs) have been associated with eutrophication of coastal waters, which can deplete oxygen in the water, result in hypoxia or anoxia, and lead to large-scale fish kills (Deegan and Buchsbaum 2005). HABs may also contain species of algae that produce toxins, such as red tides, that can decimate large numbers of fish, contaminate shellfish species, and cause health problems in humans. The extent and severity of coastal eutrophication and HABs will likely continue, and may worsen, as coastal human population density increases. Considerable attention should be focused on the effects of eutrophication on populations of fisheries and the role of natural versus anthropogenic sources of nutrients in the occurrence of HABs.

For the physical effects session, entrainment and impingement effects were scored as high in all ecosystem types by the participants. Entrainment and impingement of eggs, larvae, and juvenile fish and shellfish is increasingly being identified as a potential threat to fishery populations from a wide variety of activities, including industrial and municipal water intake facilities, electric power generating facilities, and liquefied natural regassification facilities (Hanson *et al.* 1977; Travnichek *et al.* 1993; Richkus and McLean 2000; Deegan and Buchsbaum 2005). Future research is needed to assess the long-term effects of entrainment and impingement on fish stocks.

The participants of the Global Effects and Other Impacts workshop session scored most impact types and effects in the estuarine/nearshore ecosystem as high. However, several effects in the climate change impact were scored high for all ecosystems, including alteration of temperature and hydrological regimes, alteration in weather patterns and changes in community structure. Although the effects of climate change on fisheries have not been the focus of intense discussion and research, we believe that greater emphasis on this topic will be necessary as the effects of global warming become more pronounced (Bigford 1991; Lotze et al. 2006).

A number of activities and effects were identified during the workshop and preparation of this report that may be substantial threats to fisheries habitat, but lack a thorough understanding of the problem and implications to aquatic ecosystems. Some of these activities and effects are relatively recent issues, such as the effects of endocrine disrupting chemicals on aquatic organisms and threats to fisheries habitat from global warming, and will require additional research to better understand the mechanism and scope of the problem. However, other activities and effects such as sedimentation impacts on benthic habitats and biota have been the focus of considerable research and attention, but questions remain as to the lethal and sub-lethal thresholds of sedimentation on individual species and its effect on populations. For example, the demersal and adhesive eggs of winter flounder are known to be adversely effected by burial from sediments during navigation channel dredging (Berry *et al.* 2004; Klein-MacPhee *et al.* 2004; Wilber *et al*. 2005). However, a better understanding of the upper lethal limits for sediment depth and the duration of burial is needed. In addition, how does grain size and contaminated sediments affect egg and larvae survival, how do natural suspended sediment concentration levels effect egg and larvae survival rates, and what are the implications at the population level?

A number of energy-related activities were assessed for adverse effects on fisheries habitat in the technical workshop and in the Energy Related Activities chapter, including offshore liquefied natural gas platforms, wind turbines, and wave and tidal energy facilities. Although various impacts were discussed, there have not been any facilities of this type constructed in the northeast region of the U.S. at the time of this report. While we believe the assessments of these types of facilities are based upon the best available information, further monitoring and assessments will be necessary when, and if, they are constructed.

The workshop participants identified a number of chemical effects in several sessions that may have a high degree of impact on fisheries habitat, such as endocrine disrupting chemicals and pharmaceuticals in treated wastewater. Personal care products (PPCPs) can persist in treated wastewater and have been found in natural surface waters at very high concentrations (parts per thousand (USEPA 1999). Unfortunately, few PPCPs have associated aquatic toxicity data, and are extremely persistent in the environment and are introduced into surface waters in very high concentrations (USEPA 1999). Some of these PPCPs include steroid compounds, which may be endocrine disruptors. Endocrine disruptors can mimic the functions of sex hormones, androgen and estrogen, and can interfere with reproductive functions and potentially result in population-level impacts. Some chemicals shown to be estrogenic include PCB congeners, pesticides (e.g., dieldrin, DDT), and compounds used in some industrial manufacturing (e.g., phthalates, alkylphenols) (Thurberg and Gould 2005). In addition, some heavy metal compounds have also been implicated in disrupting endocrine secretions of marine organisms (Brodeur *et al.* 1997). Additional investigation into the effects of PPCPs and endocrine disruptors on aquatic organisms and their potential impacts at the population and ecosystem level are needed.

In addition, the workshop participants identified a number of adverse effects on aquatic ecosystems from introduced/nuisance species, particularly in the estuarine/nearshore ecosystem. Introduction of non-native invasive species into marine and estuarine waters are a significant threat to living marine resources in the U.S. (Carlton 2001). Non-native species introductions occur through a wide range of activities, including ballast water releases from ships, aquaculture operations, fish stocking and pest control programs, and aquarium discharges (Hanson et al. 2003; Niimi 2004). The rate of introductions has increased exponentially over the past 200 years and it does not appear that this rate will level off in the near future (Carlton 2001). Increased research focused towards reducing the rate of non-native species introductions is needed, in addition to a better understanding as to the potential effects of non-native species on commercial fisheries in the U.S.

Overfishing is likely the greatest factor in the decline of groundfish species in New England (Buchsbaum 2005), and is responsible for the majority of species depletions and extinctions worldwide (Lotze *et al.* 2006). However, habitat loss and degradation (including pollution, eutrophication, and sedimentation) closely follows exploitation as a causative agent in fishery declines, and may be equally or more important for some species such as Atlantic salmon (Buchsbaum 2005; Lotze *et al.* 2006). Cumulative effects likely play a role in a large majority of historic changes in fish stocks. Worldwide, nearly half of all marine and estuarine species depletions and extinctions have been attributed to multiple human impacts, most notably exploitation and habitat loss (Lotze *et al.* 2006). It is imperative that reduced exploitation, habitat protection, and improved water quality must be applied holistically, and the cumulative effects of multiple human interactions should be considered in both management and conservation strategies (Lotze *et al.* 2006).

There is no direct evidence for which of the above mentioned impacts may have the greatest potential to adversely impact MSB EFH. That said, discussions by NERO Habitat Staff and MAFMC Council staff developed a short list of activities that preliminarily could be of concern. They include:

-Activities that increase eutrophication and anoxic events such as non-point nitrogen pollution and wetland loss.
-Activities that could involve risk of large-scale oil spills such as oil extraction and transportation.
-Activities that could lead to large scale temperature changes such as open-loop LNG facilities.
-Activities that could cause large scale bottom disturbances such as mineral mining and waste/dredge spoils disposal.

In terms of conservation recommendations, the Council recommends collaborative efforts by all responsible parties to mitigate any negative effects for the above types of activities and recommends further research to identify which of the above activities, or other non-fishing activities, could pose the most risk to habitats utilized by MSB species.

6.4 Endangered and Protected Species

There are numerous species which inhabit the environment within the management unit of this FMP that are afforded protection under the Endangered Species Act (ESA) of 1973 (i.e., for those designated as threatened or endangered) and/or the Marine Mammal Protection Act of 1972 (MMPA). Eleven are classified as endangered or threatened under the ESA, while the rest are protected by the provisions of the MMPA. The subset of these species that are known to have interacted with the MSB fisheries is provided in this document section. The Council has determined that the following list of species protected either by the Endangered Species Act of

1973 (ESA), the Marine Mammal Protection Act of 1972 (MMPA), or the Migratory Bird Treaty Act of 1918 may be found in the environment utilized by Atlantic mackerel, squid and butterfish fisheries:

This list also includes two candidate fish species and one proposed fish species (species being considered for listing as an endangered or threatened species), as identified under the ESA.

Candidate species are those petitioned species that are actively being considered for listing as endangered or threatened under the ESA, as well as those species for which NMFS has initiated an ESA status review that it has announced in the *Federal Register*. Atlantic sturgeon, Atlantic bluefin tuna, and cusk are known to occur within the action area of the MSB fisheries and have documented interactions with types of gear used in MSB fisheries.

Candidate species receive no substantive or procedural protection under the ESA; however, NMFS recommends that project proponents consider implementing conservation actions to limit the potential for adverse effects on candidate species from any proposed project. The Protected Resources Division of the NMFS Northeast Regional Office has initiated review of recent stock assessments, bycatch information, and other information for these candidate species which will be incorporated in the status review reports for both candidate species. The results of those efforts are needed to accurately characterize recent interactions between fisheries and the candidate species in the context of stock sizes. Any conservation measures deemed appropriate for these species will follow the information from these reviews. Please note that the conference provisions apply only if a candidate species is proposed for listing (and thus, becomes a proposed species) (see 50 CFR 402.10)."

* = Known to have interacted with MSB fisheries

Cetaceans

Species	Status
Northern right whale (*Eubalaena glacialis*)	Endangered
Humpback whale (*Megaptera novaeangliae*)	Endangered
Fin whale (*Balaenoptera physalus*)	Endangered
Blue whale (*Balaenoptera musculus*)	Endangered
Sei whale (*Balaenoptera borealis*)	Endangered
Sperm whale (*Physeter macrocephalus*	Endangered
Minke whale (*Balaenoptera acutorostrata*)	Protected
Beaked whales (*Ziphius and Mesoplodon spp*.)	Protected
*Risso's dolphin (*Grampus griseus*)	Protected
*Pilot whale (*Globicephala spp*.)	Protected
*White-sided dolphin (*Lagenorhynchus acutus*)	Protected
*Common dolphin (*Delphinus delphis*)	Protected
Spotted and striped dolphins (*Stenella spp*.)	Protected
*Bottlenose dolphin (*Tursiops truncatus*)	Protected

Sea Turtles

Species	Status
*Leatherback sea turtle (*Dermochelys coriacea*)	Endangered
Kemp's ridley sea turtle (*Lepidochelys kempii*)	Endangered
Green sea turtle (*Chelonia mydas*)	Endangered
Hawksbill sea turtle (*Eretmochelys imbricata*)	Endangered
*Loggerhead sea turtle (*Caretta caretta*)	Threatened

Fish

Species	Status
Shortnose sturgeon (*Acipenser brevirostrum*)	Endangered
Atlantic salmon (*Salmo salar*)	Endangered
Smalltooth sawfish (*Pristis pectinata*)	Endangered
Cusk (*Brosme brosme*)	Candidate
Atlantic sturgeon (*Acipenser oxyrinchus*)	Proposed
Atlantic bluefin tuna (*Thunnus thynnus*)	Candidate

Birds

Species	Status
*Northern Gannet (*Morus bassanus*)	Protected

Protected Species Interactions with the Managed Resources – Includes Fishery Classification under Section 118 of Marine Mammal Protection Act

Species	Status
Common dolphin (*Delphinus delphis*)	Protected
White-sided dolphin (*Lagenorhynchus acutus*)	Protected
Pilot whale (*Globicephala spp.*)	Protected
Leatherback sea turtle (*Dermochelys coriacea*)	Endangered
Loggerhead sea turtle (*Caretta caretta*)	Threatened

Under section 118 of the MMPA, the NMFS must publish and annually update the List of Fisheries (LOF), which places all U.S. commercial fisheries in one of three categories based on the level of incidental serious injury and mortality of marine mammals in each fishery (arranging them according to a two tiered classification system). The categorization of a fishery in the LOF determines whether participants in that fishery may be required to comply with certain provisions of the MMPA, such as registration, NEFOP observer coverage, and take reduction plan requirements. The classification criteria consists of a two tiered, stock-specific approach that first addresses the total impact of all fisheries on each marine mammal stock (Tier 1) and then addresses the impact of the individual fisheries on each stock (Tier 2). If the total annual mortality and serious injury of all fisheries that interact with a stock is less than 10% of the Potential Biological Removal (PBR) for the stock then the stock is designated as Tier 1 and all fisheries interacting with this stock would be placed in Category III. Otherwise, these fisheries are subject to categorization under Tier 2. PBR is the product of minimum population size, one-half the maximum productivity rate, and a "recovery" factor (MMPA Sec. 3. 16 U.S.C. 1362; Wade and Angliss 1997). The current (2011) list of fisheries is available at: http://www.nmfs.noaa.gov/pr/interactions/lof/.

Under Tier 2, individual fisheries are subject to the following categorization:

Category I. Annual mortality and serious injury of a stock in a given fishery is greater than or equal to 50% of the PBR level;

Category II. Annual mortality and serious injury of a stock in a given fishery is greater than one percent and less than 50% of the PBR level; or

Category III. Annual mortality and serious injury of a stock in a given fishery is less than one percent of the PBR level.

In Category I, there is documented information indicating a "frequent" incidental mortality and injury of marine mammals in the fishery. In Category II, there is documented information indicating an "occasional" incidental mortality and injury of marine mammals in the fishery. In Category III, there is information indicating no more than a "remote likelihood" of an incidental taking of a marine mammal in the fishery or, in the absence of information indicating the frequency of incidental taking of marine mammals, other factors such as fishing techniques, gear used, methods used to deter marine mammals, target species, seasons and areas fished, and species and distribution of marine mammals in the area suggest there is no more than a remote likelihood of an incidental take in the fishery. "Remote likelihood" means that annual mortality and serious injury of a stock in a given fishery is less than or equal to 10% of the PBR level or, that it is highly unlikely that any marine mammal will be incidentally taken by a randomly selected vessel in the fishery during a 20-day period or, in the absence of reliable information it is at the discretion of the Assistant Administrator (AA) for Fisheries to determine whether the incidental injury or mortality qualifies (or not) for a specific category.

Marine Mammal Stock Assessment Reports:

As required by the Marine Mammal Protection Act (MMPA), NMFS has incorporated earlier public comments into revisions of marine mammal stock assessment reports (SARs). These reports contain information regarding the distribution and abundance of the stock, population growth rates and trends, the stock's Potential Biological Removal level, estimates of annual human-caused mortality and serious injury from all sources, descriptions of the fisheries with which the stock interacts, and the status of the stock. The MMPA requires these assessments to be reviewed at least annually for strategic stocks and stocks for which significant new information is available, and at least once every 3 years for non-strategic stocks. The most recent SARs are available at: http://www.nmfs.noaa.gov/pr/sars/.

NMFS elevated the (mid-water) MSB fishery to Category I in the 2001 LOF but it was reduced to a Category II fishery in 2007 (see discussion below describing the Atlantic Trawl Gear Take Reduction Plan). The reduction in interactions documented between the MSB fisheries and several species/stocks of marine mammals compared to previous years led to the re-classification. No classification changes have occurred since 2007

6.4.1 Description of species of concern which are protected under MMPA

The following is a description of species of concern because they are protected under MMPA and, as discussed above, have had documented interactions with fishing gears used to harvest species managed under this FMP. This following species of cetaceans are known to interact with the Atlantic Mackerel Squid and Butterfish fisheries:

Common dolphin (2009 PBR = 1000, all fisheries take = 160)

The common dolphin may be one of the most widely distributed species of cetaceans, as it is found worldwide in temperate, tropical, and subtropical seas. In the North Atlantic, common dolphins appear to be present along the coast over the continental shelf along the 200-2000 m isobaths or over prominent underwater topography from 50° N to 40°S latitude (Evans 1994). The species is less common south of Cape Hatteras, although schools have been reported as far south as eastern Florida (Gaskin 1992). They are widespread from Cape Hatteras northeast to Georges Bank (35 to 42 North latitude) in outer continental shelf waters from mid-January to May (Hain et al. 1981; CETAP 1982; Payne et al. 1984). Common dolphins move northward onto Georges Bank and the Scotian Shelf from mid-summer to autumn (Palka et al. Unpubl. Ms.). Selzer and Payne (1988) reported very large aggregations (greater than 3,000 animals) on Georges Bank in autumn. Common dolphins are occasionally found in the Gulf of Maine, where temperature and salinity regimes are lower than on the continental slope of the Georges Bank/Mid-Atlantic region (Selzer and Payne 1988). Migration onto the Scotian Shelf and continental shelf off Newfoundland occurs during summer and autumn when water temperatures exceed 11°C (Sergeant et al. 1970; Gowans and Whitehead 1995).

The following information was taken from the most recent Stock Assessment Report for the species (Waring *et al*. 2009) Total numbers of common dolphins off the USA or Canadian Atlantic coast are unknown, although several estimates from selected regions of the habitat do exist for selected time periods. However, the most recent SAR considers the best abundance estimate for common dolphins to be 120,743 animals (CV=0.23). This is the sum of the estimates from two 2004 U.S. Atlantic surveys, where the estimate for the northern U.S. Atlantic is 90,547 (CV=0.24) and 30,196 (CV=0.54) for the southern U.S. Atlantic. This joint estimate is considered best because together these two surveys have the most complete coverage of the species' habitat. The minimum population size is 99,975. The maximum productivity rate is 0.04, the default value for cetaceans. The "recovery" factor, which accounts for endangered, depleted, threatened stocks, or stocks of unknown status relative to optimum sustainable population (OSP) is assumed to be 0.5 because the CV of the average mortality estimate is less than 0.3 (Wade and Angliss 1997). PBR for the western North Atlantic common dolphin is 1000.

Fishery Interactions - The following information was taken from the latest stock assessment for common dolphin contained in Waring *et al.* (2009) which summarizes incidental mortality of this species through 2007.

Illex Squid - No incidental takes of common dolphins have been observed in the *Illex* fishery.

Loligo Squid

Historically, in the Southern New England/Mid-Atlantic fishery all incidental takes attributed to this fishery were observed during the first quarter of the year (Jan-Mar), exclusively in the offshore fishery. The estimated fishery-related mortality of common dolphins attributable to the fall/winter offshore fishery was 0 for 1997 and 1998 and 49 in 1999 (CV=0.97). Presently, since 1999, this fishery is included in both the Northeast and Mid-Atlantic bottom trawl fisheries. For the Mid-Atlantic bottom trawl fishery the mean estimated annual mortality of common dolphin was 119 (CV=0.12) during the five year period 2003-2007. The portion of estimated common dolphin mortality attributable to the directed *Loligo* fishery is unknown. For the north-Atlantic bottom trawl fishery the mean estimated annual mortality of common dolphin was 27 (CV=0.12) during the five year period 2003-2007. The portion attributable to the directed *Loligo* fishery is unknown.

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Atlantic Mackerel

Historically, the estimated fishery-related mortality attributed to this fishery was 161 (CV=0.49) animals in 1997 and 0 in 1998 and 1999. After 1999, this fishery included as a component of the Mid-Atlantic bottom trawl and mid-water trawl fisheries. As noted above, the mean estimated annual mortality of common dolphin during the five year period 2003-2007 in the Mid-Atlantic bottom trawl fishery was 119 animals (CV=0.12). For the Mid-Atlantic mid-water trawl fishery the mean estimated annual mortality of common dolphin was 1 (CV=0.7) during the five year period 2003-2007. The portion of the estimated common dolphin mortality in the Mid-Atlantic bottom and mid-water trawl fisheries attributable to the directed Atlantic mackerel fishery is unknown.

A U.S. joint venture (JV) fishery was conducted in the Mid-Atlantic region from February-May 1998. NMFS maintained 100% observer coverage on the foreign JV vessels where 152 transfers from the U.S. vessels were observed. Seventeen incidental takes of common dolphin were observed in the 1998 JV mackerel fishery.

Atlantic white-sided dolphin (*Lagenorhynchus acutus*) (PBR = 509, all fisheries take = 328)

Atlantic white-sided dolphins are found in temperate and sub-polar waters of the North Atlantic, primarily in continental shelf waters to the 100m depth contour. The species inhabits waters from central West Greenland to North Carolina (about 35° N) and perhaps as far east as 43° W (Evans 1987). Distribution of sightings, strandings and incidental takes suggest the possible existence of three stocks units: Gulf of Maine, Gulf of St. Lawrence and Labrador Sea stocks (Palka et al. 1997). Evidence for a separation between the well documented unit in the southern Gulf of Maine and a Gulf of St. Lawrence population comes from a hiatus of summer sightings along the Atlantic side of Nova Scotia. This has been reported in Gaskin (1992), is evident in Smithsonian stranding records, and was seen during abundance surveys conducted in the summers of 1995 and 1999 that covered waters from Virginia to the entrance of the Gulf of St. Lawrence. White-sided dolphins were seen frequently in Gulf of Maine waters and in waters at the mouth of the Gulf of St. Lawrence, but only a few sightings were recorded between these two regions. The Gulf of Maine stock of white sided dolphins is most common in continental shelf waters from Hudson Canyon (approximately 39°N) north through Georges Bank, and in the Gulf of Maine to the lower Bay of Fundy. Sightings data indicate seasonal shifts in distribution (Northridge et al. 1997). During January to May, low numbers of white-sided dolphins are found from Georges Bank to Jeffrey's Ledge (off New Hampshire), and even lower numbers are south of Georges Bank, as documented by a few strandings collected on beaches of Virginia and North Carolina. From June through September, large numbers of white-sided dolphins are found from Georges Bank to lower Bay of Fundy. From October to December, white-sided dolphins occur at intermediate densities from southern Georges Bank to southern Gulf of Maine (Payne and Heinemann 1990). Sightings south of Georges Bank, particularly around Hudson Canyon, have been seen at all times of the year but at low densities. The Virginia and North Carolina observations appear to represent the southern extent of the species range. Prior to the 1970's, white-sided dolphins in U.S. waters were found primarily offshore on the continental slope, while whitebeaked dolphins (L. albirostris) were found on the continental shelf. During the 1970's, there was an apparent switch in habitat use between these two species. This shift may have been a result of the decrease in herring and increase in sand lance in the continental shelf waters (Katona et al. 1993; Kenney et al. 1996).

The total number of white-sided dolphins along the eastern USA and Canadian Atlantic coast is unknown, although the best available current abundance estimate for white-sided dolphins for the Gulf of Maine stock is 63,368 (CV=0.27) as estimated from 2002 – 2006 aerial and shipboard line-transect surveys. This is considered the best estimate of abundance because this survey is recent and provided the most complete coverage of the known habitat. The minimum population size is 50,883. The maximum productivity rate is 0.04, the default value for cetaceans. The "recovery" factor, which accounts for endangered, depleted, threatened, or stocks of unknown status relative to optimum sustainable population (OSP) is assumed to be 0.5 because the CV of the average annual mortality estimate is less than 0.3. PBR for the western North Atlantic stock of white-sided dolphin is 509.

Fishery Interactions

The following information was taken from the latest stock assessment for white-sided dolphin contained in Waring *et al* (2009) which summarized incidental mortality of this species through 2007.

Illex squid - Historically, no white-sided dolphin takes have been observed taken incidental to *Illex* squid fishing operations.

Loligo squid

According to Waring *et al*. (2009), no white-sided dolphin takes have been observed taken incidental to *Loligo* squid fishing operations since 1996.

Atlantic mackerel

NMFS NEFOP observers in the Atlantic foreign mackerel fishery reported 44 takes of Atlantic white-sided dolphins incidental to fishing activities in the continental shelf and continental slope waters between March 1977 and December 1991. This total includes 9 documented takes by U.S. vessels involved in joint-venture fishing operations in which U.S. captains transfer their catches to foreign processing vessels. No incidental takes of white-sided dolphin were observed in the Atlantic mackerel JV fishery when it was observed in 1998.

Northeast Mid-water Trawl Fishery (Including Pair Trawl)

The two most commonly targeted fish in this fishery are herring (94% of vessel trip report (VTR) records) and mackerel (0.4%). The observer coverage in this fishery was highest during 2003 and 2004, although a few trips in earlier years were observed. A white-sided dolphin was observed taken in the single trawl fishery on the northern edge of Georges Bank during July 2003 in a haul targeting herring. A bycatch rate model fit to all observed mid-water trawl data (including paired and single, and Northeast and Mid-Atlantic mid-water trawls, that targeted either herring or mackerel and were observed between 2003 and 2007) provided the following annual fishery-related morality (CV in parentheses) estimates: 24 (0.56) in 2003, 19 (0.58) in 2004, 15 (0.68) in 2005, and 19 (0.44) in 2006 and 0 in 2007. The average annual estimated fishery-related mortality during 2003-2007 was 15 (0.26).

Mid-Atlantic Mid-water Trawl Fishery (Including Pair Trawl)

The observer coverage in this fishery was highest after 2003, although a few trips in other years were observed. A white-sided dolphin was observed taken in the pair trawl fishery near Hudson Canyon (off New Jersey) during February 2004 in a haul targeting mackerel (but landing nothing). A bycatch rate model provided the following annual fishery-related mortality (CV in parentheses) estimates: 51 (0.46) in 2003, 105 (0.38) in 2004, 97 (0..36) in 2005, 54 (0.57) in 2006 and 3.2 (.70) in 2007. The average annual estimated fishery-related mortality during 2003-2007 was 62 (0.21).

Mid-Atlantic Bottom Trawl Fishery

One white-sided dolphin incidental mortality was observed in 1997 resulting in a mortality estimate of 161 (CV =1.58) animals. No takes were observed from 1998-2004 or 2006. One mortality was observed in 2005 and 2 were observed in 2007. A bycatch rate model provided the following annual fishery-related mortality (CV in parentheses) estimates: 31 (0.25) in 2003, 26 (0.2) in 2004, 38 (0.29) in 2005, 26 (0.25) in 2006 and 21 (0.24) in 2007. The average annual estimated fishery-related mortality during 2003-2007 was 28 (0.11).

Long-finned (*Globicephala melas*) and short-finned (*Globicephala macrorhynchus*) pilot whales (PBR = 249, all fisheries take = 166)

There are two species of pilot whales in the Western Atlantic - the Atlantic (or long-finned) pilot whale, *Globicephala melas*, and the short-finned pilot whale, *G. macrorhynchus*. These species are difficult to identify to the species level at sea; therefore, the descriptive material below refers to *Globicephala* sp., and is identified as such. The species boundary is considered to be in the New Jersey to Cape Hatteras area. Sightings north of this are likely *G. melas*.

Pilot whales (*Globicephala* sp.) are distributed principally along the continental shelf edge in the winter and early spring off the northeast USA coast, (CETAP 1982; Payne and Heinemann 1993). In late spring, pilot whales move onto Georges Bank and into the Gulf of Maine and more northern waters, and remain in these areas through late autumn (CETAP 1982; Payne and Heinemann 1993). In general, pilot whales occupy areas of high relief or submerged banks. They are also associated with the Gulf Stream north wall and thermal fronts along the continental shelf edge (Waring *et al.* 1992; Waring *et al.* 2002).

The long-finned pilot whale is distributed from North Carolina to North Africa (and the Mediterranean) and north to Iceland, Greenland and the Barents Sea (Leatherwood *et al.* 1976; Abend 1993; Buckland *et al.* 1993). The stock structure of the North Atlantic population is uncertain (Fullard *et al.* 2000). Recent morphometrics and genetics (Siemann 1994; Fullard *et al.* 2000) studies have provided little support for stock structure across the Atlantic (Fullard *et al.* 2000). However, Fullard *et al.* (2000) have proposed a stock structure that is correlated to sea surface temperature: 1) a cold-water population west of the Labrador/North Atlantic current and 2) a warm-water population that extends across the Atlantic in the Gulf Stream (Waring *et al.* 2002).

The short-finned pilot whale is distributed worldwide in tropical to warm temperate water (Leatherwood and Reeves 1983). The northern extent of the range of this species within the USA Atlantic Exclusive Economic Zone (EEZ) is generally thought to be Cape Hatteras, North Carolina (Leatherwood and Reeves 1983). Sightings of these animals in U.S. Atlantic EEZ occur primarily within the Gulf Stream [Southeast Fisheries Science Center (SEFSC) unpublished data], and along the continental shelf and continental slope in the northern Gulf of Mexico. There is no information on stock differentiation for the Atlantic population (Waring *et al.* 2002).

The total number of pilot whales off the eastern USA and Canadian Atlantic coast is unknown, although the best abundance estimate for *Globicephala sp*. is 31,139 (CV=0.27) based on 2004 survey data. The minimum population size for *Globicephala sp*. is 24,866. The maximum productivity rate is 0.04, the default value for cetaceans. The “recovery” factor, which accounts for endangered, depleted, threatened stocks, or stocks of unknown status relative to optimum sustainable population (OSP) is assumed to be 0.5 because the CV of the average mortality estimate is less than 0.3 (Wade and Angliss 1997) and because this stock is of unknown status. PBR for the western North Atlantic *Globicephala sp*. is 249.

Fishery Interactions

The following information was taken from the latest stock assessment for pilot whales contained in Waring *et al.* (2009) which summarizes incidental mortality of these species through 2007. Mortality estimates within the Atlantic mackerel, squid and butterfish complex were made by sub-fishery prior to 2000. After that, each sub-fishery was re-categorized into bottom otter trawl or mid-water fishery categories.

Illex Squid

The estimated fishery-related mortality of pilot whales attributable to this fishery was: 45 in 1996 (CV=1.27), 0 in 1997, 85 in 1998 (CV=0.65), and 0 in 1999. After 1999, this fishery has been included in the Mid-Atlantic bottom trawl fishery (see below).

Loligo Squid

Only one pilot whale incidental take has been observed in *Loligo* squid fishing operations 1996-1999. The one take was observed in 1999 in the offshore fishery. No pilot whale takes have been observed in the inshore fishery. The estimated fishery-related mortality of pilot whales attributable to the fall/winter offshore fishery was 0 between 1996 and 1998 and 49 in 1999 (CV=0.97). Since 1999, this fishery has been categorized in the Mid-Atlantic bottom trawl fishery (see below).

Atlantic Mackerel

No incidental takes of pilot whales have been observed in the mackerel fishery. The former distant water fleet fishery has been non-existent since 1977. There is also a mackerel trawl fishery in the Gulf of Maine that generally occurs during the summer and fall months (May-December). There have been no observed incidental takes of pilot whales reported for the Gulf of Maine fishery.

Mid-Atlantic Bottom Trawl

Two pilot whales were taken in the Gulf of Maine in 2004, four in 2005 and one in 2006. A bycatch rate model provided the following annual fishery-related mortality (CV in parentheses) estimates: 31 (0.31) in 2003, 35 (0.33) in 2004, 31 (0.31) in 2005, 37 (0.34) in 2006 and 36 (0.38) in 2007. The average annual estimated fishery-related mortality during 2003-2007 was 34 (0.11).

Northeast Bottom Trawl

Two pilot whales were observed taken in the Northeast bottom trawl in 2004, four in 2005, one in 2006, and four in 2007. The estimated fishery-related mortality to pilot whales in the U.S. Atlantic attributable to this fishery was: 18 (CV=0.29) in 2000, 30 (CV=0.27) in 2001, 22 (CV=0.26) in 2002, 20 (CV=0.26) in 2003, 15 (CV=0.29) in 2004, 15 (CV=0.30) in 2005, 14 (0.28) in 2006, and 12 (CV=0.35) in 2007. The 2003-2007 average mortality attributed to the northeast bottom trawl was 15 animals (CV=0.13).

Mid-Atlantic Mid-Water Trawl – Including Pair Trawl

The observer coverage in this fishery was highest after 2003, though a few trips in earlier years were observed. No pilot whales were observed bycaught in this fishery for the period 2002-2006 and one in 2007; data pooling enabled estimates to be generated. A bycatch rate model provided the following annual fishery-related mortality (CV in parentheses) estimates: 3.9 (0.46) in 2003, 8.1 (0.38) in 2004, 7.5 (0.76) in 2005, 0 (0) in 2006 and 4.9 (0.7) in 2007. The average annual estimated fishery-related mortality during 2003-2007 was 5 (0.31).

Northeast Mid-Water Trawl – Including Pair Trawl

A pilot whale was observed taken in the single trawl fishery on the northern edge of Georges Bank (off of Massachusetts) in a haul that was targeting (and primarily caught) herring in 2004. Due to small sample sizes, the bycatch rate model used the 2003 to September 2007 observed mid-water trawl data, including paired and single, and Northeast and Mid-Atlantic mid-water trawls (Palka, pers. comm.). The model that best fit these data was a Poisson logistic regression model that included latitude and bottom depth, as significant explanatory variables, where soak duration was the unit of effort. Estimated annual fishery-related mortalities were: unknown in 2001-2002, 1.9 (CV=0.56) in 2003, and 1.4 (CV=0.58) in 2004, 1.1 (CV=0.68) in 2005, 0 in 2006, and 0 in 2007. The average annual estimated fishery-related mortality during 2003-2007 was 1 (CV=0.35).

Risso's dolphin (*Grampus griseus*) (PBR = 124, all fisheries take = 26)

Risso's dolphins are distributed worldwide in tropical and temperate seas, and in the Northwest Atlantic occur from Florida to eastern Newfoundland . Off the northeast U.S. coast, Risso's dolphins are distributed along the continental shelf edge from Cape Hatteras northward to Georges Bank during spring, summer, and autumn. In winter, the range is in the Mid-Atlantic Bight and extends outward into oceanic waters. In general, the population occupies the Mid-Atlantic continental shelf edge year round, and is rarely seen in the Gulf of Maine. During 1990, 1991 and 1993, spring/summer surveys conducted along the continental shelf edge and in deeper oceanic waters sighted Risso's dolphins associated with strong bathymetric features, Gulf Stream warm-core rings, and the Gulf Stream north wall. There is no information on stock structure of Risso's dolphin in the western North Atlantic, or to determine if separate stocks exist in the Gulf of Mexico and Atlantic. In 2006, a rehabilitated adult male Risso’s dolphin stranded and released in the Gulf of Mexico off Florida was tracked via satellite to waters off Delaware. The Gulf of Mexico and Atlantic stocks are currently being treated as two separate stocks (Waring *et al.* 2009).

Fishery Interactions

NMFS foreign-fishery observers have reported four deaths of Risso's dolphins incidental to squid and mackerel fishing activities in the continental shelf and continental slope waters between March 1977 and December 1991 (Waring et al. 1990; NMFS unpublished data). No recent estimates of fishery-related mortality are available.

Bottlenose dolphin (*Tursiops truncatus*) Offshore Form (not updated in 2009 so information below is from Waring et al 2008). (PBR = 566, all fisheries take is unknown)

There are two morphologically and genetically distinct bottlenose dolphin morphotypes (Duffield et al. 1983; Duffield 1986) described as the coastal and offshore forms. Both inhabit waters in the western North Atlantic Ocean (Hersh and Duffield 1990; Mead and Potter 1995; Curry and Smith 1997) along the U.S. Atlantic coast. The two morphotypes are genetically distinct based upon both mitochondrial and nuclear markers (Hoelzel et al. 1998). The offshore form is distributed primarily along the outer continental shelf and continental slope in the Northwest Atlantic Ocean; however the offshore morphotype has been documented to occur relatively close to shore over the continental shelf south of Cape Hatteras, NC.

Fisheries Information

Total estimated mean annual fishery-related mortality for this stock during 2001-2006 is unknown, however mortalities of offshore bottlenose dolphins were observed during this period in the Northeast Sink Gillnet and Mid-Atlantic Gillnet commercial fisheries. Detailed fishery information is reported in Appendix III.

Earlier Interactions

Thirty-two bottlenose dolphin mortalities were observed in the pelagic pair trawl fishery between 1991 and 1995. Estimated annual fishery-related mortality (CV in parentheses) was 13 dolphins in 1991 (0.52), 73 in 1992 (0.49), 85 in 1993 (0.41), 4 in 1994 (0.40) and 17 in 1995 (0.26).

Although there were reports of bottlenose dolphin mortalities in the foreign squid mackerel butterfish fishery during 1977-1988, there were no fishery-related mortalities of bottlenose dolphins reported in the self-reported fisheries information from the mackerel trawl fishery during 1990-1992.

One bottlenose dolphin mortality was documented in the North Atlantic bottom trawl in 1991 and the total estimated mortality in this fishery in

6.4.2 Atlantic Trawl Gear Take Reduction Plan

In September 2006, the National Oceanic and Atmospheric Administration's (NOAA) National Marine Fisheries Service (NMFS) convened the Atlantic Trawl Gear Take Reduction Team (ATGTRT) under the Marine Mammal Protection Act (MMPA). The ATGTRT was convened to address incidental mortality and serious injury of long-finned pilot whales (Globicephala melas), short-finned pilot whales (Globicephala macrorhynchus), common dolphins (Delphinus delphis), and Atlantic white-sided dolphins (Lagenorhynchus acutus) in several trawl gear fisheries operating in the Atlantic Ocean. These marine mammal species are known to interact with the Mid-Atlantic Mid-Water Trawl, the Mid-Atlantic Bottom Trawl, Northeast Mid-Water Trawl and the Northeast Bottom Trawl fisheries.

Section 118 of the MMPA establishes a method for managing incidental interactions between marine mammals and commercial fisheries. Under section 118, Take Reduction Plans (TRPs) are developed to identify actions necessary to conserve and protect strategic marine mammal stocks[6]

[6] The MMPA defines the term "strategic stock" to mean a marine mammal stock (A) for which the level of direct human-caused mortality exceeds the potential biological removal level; (B) …..is declining and is likely to be listed as a threatened species under the Endangered Species Act (ESA) of 1973 within the foreseeable future; or (C) ….is listed as a threatened or endangered species under the ESA or is designated as a depleted stock under this Act. The term "potential biological removal level" means the maximum number of animals, not including natural mortalities that may be removed from a marine mammal stock while allowing that stock to reach or maintain its optimum sustainable population.

that interact with Category I and II fisheries.[7] The immediate goal of a TRP is to reduce, within six months of implementation, the incidental serious injury or mortality of marine mammals from commercial fishing to levels less than PBR. The long-term goal is to reduce, within five years of its implementation, the incidental serious injury and mortality of marine mammals from commercial fishing operations to insignificant levels approaching a zero serious injury and mortality rate, taking into account the economics of the fishery, the availability of existing technology, and existing state or regional fishery management plans.

Take Reduction Teams (TRTs) consisting of representatives from the fishing industry, fishery management councils, state and federal resource management agencies, the scientific community and conservation organizations develops the TRP while NMFS is responsible for its implementation. After a TRP is finalized, the TRT and NMFS meet periodically to monitor implementation of the plan and update as necessary. Take reduction plans must recommend regulatory or voluntary measures for the reduction of incidental mortality and serious injury; and recommend dates for achieving the specific objectives of the plan.

Presently, none of these marine mammal stocks under consideration by the ATGTRT are classified as a strategic stock nor do they currently interact with a Category I fishery.
At its first meeting the ATGTRT raised several issues critical to the take reduction planning process and the development of an ATGTRP. The ATGTRT requested clarification of the requirements under the MMPA for development of a take reduction plan for marine mammal stocks that are non-strategic and that do not interact with Category I fisheries. Specifically, the ATGTRT wanted to know if the 11 month timeline specified in the MMPA for the development of a TRP and the 5 year timeline for reaching ZMRG apply under the specific circumstances of the ATGTRT. The ATGTRT also requested that NMFS conduct a Tier Analysis for the 2007 annual List of Fisheries to verify whether the Squid, Mackerel Butterfish Fishery (Mid-Atlantic Midwater Trawl Fishery) should remain as a Category I fishery or be reclassified as a Category II fishery.

NOAA GC provided detailed legal guidance regarding the TRP timeline and requirements for development of a TRP for marine mammal stocks that are non-strategic in response to questions raised by the ATGTRT. In short, NOAA's GC legal guidance stated that neither the 11 month timeline for the development of a TRP nor the 5 year goal for reaching ZMRG apply to non-strategic stocks that do not interact with Category I fisheries.

The ATGTRT agreed that while a ATGTRP may not be required at this time[8], efforts should be made to identify and conduct research necessary to identify measures to reduce serious injury

[7] NMFS must publish, at least annually, a List of Fisheries (LOF) that classifies U.S. commercial fisheries into one of three categories, based on the relative frequency of incidental serious injuries and mortalities of marine mammals in each fishery:
• Category I designates fisheries with frequent serious injuries and mortalities incidental to commercial fishing;
• Category II designates fisheries with occasional serious injuries and mortalities;
• Category III designates fisheries with a remote likelihood or no known serious injuries or mortalities.
[8] At the April 2007 meeting, the ATGTRT tabled the discussion of the NOAA GC's legal guidance without reaching consensus, with some members questioning the conclusions reached by NOAA GC. The ATGTRT agreed to focus

and mortality of marine mammals in Atlantic trawl fisheries and, ultimately, to achieve the MMPA's ZMRG. This information is captured in the Atlantic Trawl Gear Take Reduction Strategy (ATGTRS).[9]

In addition, the ATGTRT recommended that certain voluntary measures be implemented immediately for the Atlantic trawl fisheries in defined areas. NMFS funded outreach placards highlighting these voluntary measures. The placards were designed in collaboration with Garden State Seafood Association, who is also a member of the ATGTRT.

The ATGTRT recommended that two plans be developed to achieve the overall goal of the Take Reduction Strategy to reduce the incidental take of marine mammals in Atlantic trawl fisheries. These include an Education and Outreach Plan and a Research Plan as part of an overall take reduction strategy. The ATGTRT established two sub-groups to develop the Education and Outreach and Research Plans. The Education and Outreach Plan identifies activities that promote the exchange of information necessary to reduce the bycatch of marine mammals in Atlantic trawl fisheries. The Research Plan identifies information and research needs necessary to improve our understanding of the factors resulting in the bycatch in Atlantic trawl fisheries. The results of the identified research will be used to direct additional research and/or identify measures to reduce the serious injury and mortality of short- and long-finned pilot whales, Atlantic white-sided dolphins, and common dolphins in trawl fisheries to levels approaching the ZMRG. The Atlantic Trawl Gear Take Reduction Strategy is available at: http://www.nero.noaa.gov/prot_res/atgtrp/.

6.4.3 Description of Turtle Species with Documented Interactions with the MSB Fisheries

The October 2010 Biological Opinion for the MSB (http://www.nero.noaa.gov/prot_res/section7/NMFS-signedBOs/SMB%20BIOP%202010.pdf) fisheries contains detailed information on sea-turtle interactions. This document updates information on sea turtle interactions with trawl gear in the MSB fisheries. Summary information is provided below and the full document above may be consulted for details.

The primary species likely to be adversely affected by the MSB fishery would be loggerhead sea turtles, as they are the most abundant species occurring in U.S. Atlantic waters. Sea sampling and observer data indicate that fewer interactions occur between fisheries that capture MSB and leatherback, Kemp's ridley, and green sea turtles. The primary area of impact of the directed commercial fishery for MSB on sea turtles is likely bottom otter trawls in waters of the Mid-Atlantic from Virginia through New York, from late spring through fall (peak Loligo abundance

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on areas of consensus; specifically the need to identify and implement research and education and outreach initiatives to reduce serious injury and mortality of marine mammals in Atlantic trawl fisheries and ultimately to achieve the MMPA goal of reducing marine takes to Zero Mortality Rate Goal (ZMRG).

[9] The Atlantic Trawl Gear Take Reduction Strategy (ATGTRS) identifies informational and research tasks as well as education and outreach needs the ATGTRT believes are necessary to provide the basis for achieving the ultimate MMPA goal of achieving ZMRG. The ATGTRS has identified several potential voluntary measures that can be adopted by certain trawl fishing sectors to potentially reduce the incidental capture of marine mammals. The tasks identified by this ATGTRS are necessary to make reasoned management decisions that could provide the basis for any future take reduction plan should it be determined that a TRP is needed.

July-October). In New England, interactions with trawl gear may occur in summer through early fall (peak squid abundance August -September), although given the level of effort, the probability of interactions is much lower than in the Mid-Atlantic.

There have been 9 observed sea turtle takes in the MSB fishery during the past 11 years (using top species landed). All sea turtle takes have occurred in bottom otter trawl gear participating in the squid fishery. Loggerhead sea turtles are more likely to interact with MSB trawl gear but green, Kemps ridley and leatherback interaction may also occur. All sea turtles were released alive, except the 2002 take, when a gillnet was hauled up as part of the catch when the loggerhead turtle entangled was fresh dead.

Based on data collected by observers for the reported sea turtle captures in or retention in MSB trawl gear, the NEFSC estimated loggerhead bycatch in the MSB trawl fishery between 2000-2004 (Murray 2008) was 62 animals annually. NMFS estimates 1 leatherback, 2 green, and 2 Kemp's ridley turtles are taken each year based on the very low encounter rates for these species and/or unidentified turtles.

The loggerhead sea turtle is listed as threatened throughout its worldwide range. On July 12, 2007, NMFS and USFWS (Services) received a petition from Center for Biological Diversity and Turtle Island Restoration Network to list the ''North Pacific populations of loggerhead sea turtle'' as an endangered species under the ESA. In addition, on November 15, 2007, the Services received a petition from Center for Biological Diversity and Oceana to list the ''Western North Atlantic populations of loggerhead sea turtle'' as an endangered species under the ESA. NMFS published notices in the *Federal Register*, concluding that the petitions presented substantial scientific information indicating that the petitioned actions may be warranted (72 FR 64585, November 16, 2007; 73 FR 11849; March 5, 2008). In 2008, a Biological Review Team (BRT) was established to assess the global population structure to determine whether DPSs exist and, if so, the status of each DPS. The BRT identified nine loggerhead DPSs, distributed globally (Conant et al. 2009). On March 16, 2010, the Services announced 12-month findings on the petitions to list the North Pacific populations and the Northwest Atlantic populations of the loggerhead sea turtle as DPSs with endangered status and published a proposed rule to designate nine loggerhead DPSs worldwide, seven as endangered (North Pacific Ocean DPS, South Pacific Ocean DPS, Northwest Atlantic Ocean DPS, Northeast Atlantic Ocean DPS, Mediterranean Sea DPS, North Indian Ocean DPS, and Southeast Indo-Pacific Ocean DPS) and two as threatened (Southwest Indian Ocean DPS and South Atlantic Ocean DPS). On March 22, 2011, the timeline for the final determination was extended for six months until September 16, 2011 (76 FR 15932).

6.4.4 Birds

Northern Gannet (*Morus bassanus*)

The Northern gannet is a migratory seabird federally protected in the U.S. and Canada. Gannets spend the boreal summer along coastal Canada and the winter along the U.S. East Coast continental shelf waters. North American breeding colonies exist at 6 main sites in the Gulf of St. Lawrence and along the Atlantic coast of Newfoundland. During the nesting season, March – November, birds forage throughout the North Atlantic from the Bay of Fundy, off the coasts of Newfoundland, Labrador and Greenland and throughout the Gulf of St. Lawrence. Dispersal from breeding sites begins in September, where gannets migrate south along the Northeast Atlantic coast and are considered common winter residents off most Northeast coastal states. Primary prey of the Northern gannet include herring, mackerel and squids. North American breeding population has been increasing since the early 1970's and in 2000 the population was estimated at 144,596 individuals. Northern gannets were not listed as a species of conservation concern by the USFWS in 2008.

Northern gannet Fishery Interactions:

Illex squid: No interactions observed for 2004 – 2008.

Loligo squid: For 2004 to 2008, one Northern Gannet take was observed in March of 2004.

Atlantic mackerel: For 2004 to 2008 a total of 62 Northern Gannets have been observed (2004, n = 17; 2005, n = 1; 2006, n = 2; 2007, n = 30; 2008, n = 12).

Butterfish: No interactions observed for 2004 – 2008.

6.4.5 Description of Species Proposed for Listing Under the ESA

At this time, Atlantic sturgeon has been proposed for listing under the ESA. A status review for Atlantic sturgeon was completed in 2007. NMFS has concluded that the U.S. Atlantic sturgeon spawning populations comprise five Distinct Population Segments (DPSs) (ASSRT, 2007). The Gulf of Maine DPS of Atlantic sturgeon is proposed to be listed as threatened, and the New York Bight, Chesapeake Bay, Carolina, and South Atlantic DPSs of Atlantic sturgeon are proposed as endangered. On October 6, 2010, NMFS proposed listing five populations of Atlantic sturgeon along the U.S. East Coast as either threatened or endangered species (75 FR 61872 and 75 FR 61904). A final listing determination is expected by October 6, 2011.

Comprehensive information on current abundance of Atlantic sturgeon is lacking for all of the spawning rivers (ASSRT, 2007). Based on data through 1998, an estimate of 870 spawning adults per year was developed for the Hudson River (Kahnle et al., 2007), and an estimate of 343 spawning adults per year is available for the Altamaha River, GA, based on data collected in 2004-2005 (Schueller and Peterson, 2006). Data collected from the Hudson River and Altamaha River studies cannot be used to estimate the total number of adults in either subpopulation, since mature Atlantic sturgeon may not spawn every year, and it is unclear to what extent mature fish in a non-spawning condition occur on the spawning grounds. Nevertheless, since the Hudson and Altamaha Rivers are presumed to have the healthiest Atlantic sturgeon subpopulations within the United States, other U.S. subpopulations are predicted to have fewer spawning adults than either the Hudson or the Altamaha (ASSRT, 2007). It is also important to note that the estimates above represent only a fraction of the total population size as spawning adults comprise only a portion of the total population (e.g., this estimate does not include subadults and early life stages).

Atlantic sturgeon from any of the five DPSs could occur in areas where MSB fisheries operate, and the species has been captured in gear targeting *Loligo* squid (Stein et al. 2004a, ASMFC 2007). The proposed action to modify the MSB fisheries is expected to be completed before the anticipated date of a final listing determination for Atlantic sturgeon. However, the conference provisions of the ESA apply to actions proposed to be taken by Federal agencies once a species is proposed for listing (50 CFR 402.10). Therefore, this EA includes information on the anticipated effects of the action on Atlantic sturgeon.

Atlantic sturgeon is an anadromous species that spawns in relatively low salinity, river environments, but spends most of its life in the marine and estuarine environments from Labrador, Canada to the Saint Johns River, Florida (Holland and Yelverton 1973, Dovel and Berggen 1983, Waldman et al. 1996, Kynard and Horgan 2002, Dadswell 2006, ASSRT 2007). Tracking and tagging studies have shown that subadult and adult Atlantic sturgeon that originate from different rivers mix within the marine environment, utilizing ocean and estuarine waters for life functions such as foraging and overwintering (Stein et al. 2004a, Dadswell 2006, ASSRT 2007, Laney et al. 2007, Dunton et al. 2010). Fishery-dependent data as well as fishery-independent data demonstrate that Atlantic sturgeon use relatively shallow inshore areas of the continental shelf; primarily waters less than 50 m (Stein et al. 2004b, ASMFC TC 2007, Dunton et al. 2010). The data also suggest regional differences in Atlantic sturgeon depth distribution with sturgeon observed in waters primarily less than 20 m in the Mid-Atlantic Bight and in deeper waters in the Gulf of Maine (Stein et al. 2004b, ASMFC TC 2007, Dunton et al. 2010). As noted above, information on population sizes for each Atlantic sturgeon DPS is very limited. Based on the best available information, NMFS has concluded that bycatch, vessel strikes, water quality and water availability, dams, lack of regulatory mechanisms for protecting the fish, and dredging are the most significant threats to Atlantic sturgeon.

Atlantic sturgeon are known to be captured in sink gillnet, drift gillnet, and otter trawl gear (Stein et al. 2004a, ASMFC TC 2007). Of these gear types, sink gillnet gear poses the greatest known risk of mortality for bycaught sturgeon (ASMFC TC 2007). Sturgeon deaths were rarely reported in the otter trawl observer dataset (ASMFC TC 2007). However, the level of mortality after release from the gear is unknown (Stein et al. 2004a). In a review of the Northeast Fishery Observer Program (NEFOP) database for the years 2001-2006, observed bycatch of Atlantic sturgeon was used to calculate bycatch rates that were then applied to commercial fishing effort to estimate overall bycatch of Atlantic sturgeon in commercial fisheries. This review indicated sturgeon bycatch occurred in statistical areas abutting the coast from Massachusetts (statistical area 514) to North Carolina (statistical area 635) (ASMFC TC 2007). Based on the available data, participants in an ASMFC bycatch workshop concluded that sturgeon encounters tended to occur in waters less than 50 m throughout the year, although seasonal patterns exist (ASMFC TC 2007). The ASMFC analysis determined that an average of 650 Atlantic sturgeon mortalities occurred per year (during the 2001 to 2006 timeframe) in sink gillnet fisheries. Stein et al (2004a), based on a review of the NMFS Observer Database from 1989-2000, found clinal variation in the bycatch rate of sturgeon in sink gillnet gear with lowest rates occurring off of Maine and highest rates off of North Carolina for all months of the year.

Stein et al. (2004a) estimated Atlantic sturgeon bycatch in both the *Loligo* squid and butterfish fisheries for 1989-2000. They found the bycatch rate of Atlantic sturgeon (reported as pounds of sturgeon catch per pounds of targeted species landed) to be 0.000194 for *Loligo* squid and 0.000800 for butterfish. There was no observed bycatch during this period for vessels targeting *Illex* squid or Atlantic mackerel. For the years 2006 through 2010, an average of 775 Atlantic sturgeon encounters with small mesh otter trawl gear occurred in all areas (759 in the 600 series of statistical areas).

In an updated analysis, NEFSC was able to use data from the NEFOP database to provide updated estimates for the 2006 to 2010 timeframe. Data were limited by observer coverage to waters outside the coastal boundary (fzone>0) and north of Cape Hatteras, NC. Sturgeon included in the data set were those identified by federal observers as Atlantic sturgeon, as well as those categorized as unknown sturgeon. At this time, data were limited to information collected by the NEFOP. Limited data collected in the At-Sea Monitoring Program were not included, although preliminary views suggest the incidence of sturgeon encounters was low. The frequency of encounters in the observer programs were expanded by total landings recorded in fishing vessel trip reports (VTR) rather than dealer data, since the dealer data does not include information on mesh sizes. Generally, the VTR data represent greater than 90 percent of total landings. Data were combined into division (identified as the first 2 digits in the statistical area codes), quarter, gear type (otter trawl (fish) and sink gillnet) and mesh categories. Mesh sizes were categorized for otter trawl as small (<5.5”) or large (greater than or equal to 5.5”) and small (<5.5”), large (between 5.5” and 8”) and extra large (>8”) in sink gillnets.

For each cell (year, division, quarter, gear, mesh), the ratio of sturgeon count to total kept weight of all species was calculated. This ratio was then applied to total weight in the cell recorded in the VTR data. No imputation was done at this time to estimate sturgeon in missing cells. Totals are presented for encounters as well as encounters where the observer recorded the fish as dead (a subset of total encounters). The two categories represent bounds of possible sturgeon mortalities. The results should not be considered definitive estimates of Atlantic sturgeon losses until further work can be done to account for missing cells. The NEFSC is undertaking additional analyses to account for the missing cells, and this will be available this fall.

MSB species are primarily harvested using small-mesh otter trawl gear. Thus, the analysis in Amendment 11 focuses on the impacts to Atlantic sturgeon associated with small-mesh otter trawl gear. The data for encounter rates by month and statistical area for small-mesh otter trawl is presented in Table A. The expanded estimates of all sturgeon encounters with small-mesh otter trawl by quarter, division and year are in Table B. Total estimated dead sturgeons resulting from small-mesh otter trawl encounters are in Table C. For reference, estimated total annual takes for all gear types (otter trawl and sink gillnet) ranged from 1536 to 3221 (average 2,215); estimated annual mortalities for all gear types ranged from 37 to 376 sturgeon. For small-mesh otter trawls, total annual takes from 2006 to 2010 ranged from 394 to 1546 (average 775).

Table A. Encounters of Atlantic Sturgeon and Unknown Sturgeon By Month, Area and Mesh Size In Otter Trawl Gear, 2006-2010 Combined.

small mesh otter trawl

	month											
area	1	2	3	4	5	6	7	8	9	10	11	12
465									0			
512							0		0		0	
513	0	0				0	0	0	0		0	
514	0	0	0				0	0	0	0	1	0
515	0		0			0	0		0		0	
521	0	0	0				0	0	0	0	0	0
522						0	0	0	0	0		
525	0	0	0	0	0	0	0	0	0	0	0	0
526	0	0	0				0	0	0	0	0	0
533				0								
534									0			
537	0	0	0	0	0	**1**	**1**	0	0	0	0	0
538				0	0	0	0	0	0	0		
539	0	0	0	0	0	1	0	0	0	0	0	0
562	0	0	0		0	0	0	0	0	0	0	0
611	0	0		0	1	0	0	0	0	0	0	0
612	0		0	**6**	**14**	**13**	0	0	**1**	0	0	0
613	0	0	0	0	0	0	**1**	0	0	**1**	**4**	0
614					**1**	**3**	0	0	0	0	0	
615	0	0	0	0	0	0	0	0	0	0	0	0
616	0	0	0	0	0	0	0	0	0	0	0	0
621	0	0	0	0	**3**	**1**	**1**	0	3	9	2	0
622	0	0	0	0	0	0	0	0	0	0	0	0
623	0	0	0	0				0	0	0	0	0
625	4		0			0				**1**	**12**	**2**
626	0	0	0	0		0	0	0	0	0	0	0
627	0	0		0			0	0	0	0		
631	**2**	**2**	**22**	**7**						**1**	**2**	**3**
632	0			0		0	0	0	0	0	0	0
633								0				
635	**10**	**4**	**8**	**1**						0	0	0
636	0	0		0		0	0	0	0	0	0	0

Table B. All Atlantic Sturgeon Encounters Expanded By VTR Landings By Division, Mesh Size, and Year for Otter Trawls (2006 Across Top Row to 2010 Across Bottom Row).

small mesh otter trawl
All sturgeon
Expanded by ratio to VTR landings

	1	2	3	4	
51	0		0	0	
52	0	0	0	0	
53	0	0	0	0	
56					
61	0	996	0	184	
62	29	0	8	309	
63	20	0	0	0	1546

51	0		0	0	
52	0	0	0	0	
53	0	0	0	0	
56					
61	0	0	0	0	
62	0	0	0	449	
63	47			40	536

51	0	0	0	0	
52	0	0	0	0	
53	0	0	0	0	
56					
61	0	279	80	0	
62	0	21	0	19	
63	19		0	36	454

51	0		0	22	
52	0	0	0	0	
53	0	0	17	0	
56					
61	0	336	9	0	
62	0	9	48	24	
63	435	0	0	6	907

51	0		0	0	
52	0	0	0	0	
53	0	39	0	0	
56					
61	0	317	0	0	
62	0	0	0	0	
63	41	36	0	0	433

Table C. Dead Atlantic Sturgeon Encounters Expanded By VTR Landings By Division, Mesh Size, and Year for Otter Trawl (2006 Across Top Row to 2010 Across Bottom Row).

small mesh otter trawl
Expanded by ratio to VTR landings
dead sturgeon expanded

Year	Division	1	2	3	4	Total
2006	51	0		0	0	
	52	0	0	0	0	
	53	0	0	0	0	
	56					
	61	0	0	0	61	
	62	29	0	0	0	
	63	0	0	0	0	90
2007	51	0		0	0	
	52	0	0	0	0	
	53	0	0	0	0	
	56					
	61	0	0	0	0	
	62	0	0	0	0	
	63	4			0	4
2008	51	0	0	0	0	
	52	0	0	0	0	
	53	0	0	0	0	
	56					
	61	0	0	0	0	
	62	0	0	0	0	
	63	0		0	0	0
2009	51	0		0	0	
	52	0	0	0	0	
	53	0	0	0	0	
	56					
	61	0	0	0	0	
	62	0	0	0	0	
	63	19	0	0	0	19
2010	51	0		0	0	
	52	0	0	0	0	
	53	0	0	0	0	
	56					
	61	0	0	0	0	
	62	0	0	0	0	
	63	7	0	0	0	7

It should be noted that other fisheries, such as the small-mesh multispecies fishery, utilize the small-mesh otter trawl gear and fish in the same area where MSB species occur. Accordingly, it is likely that actual encounters with Atlantic sturgeon by the MSB fisheries are lower than what is presented in Table B. However, because the NEFOP data available for this analysis did not identify the species targeted, a more precise evaluation of encounters in only the MSB fisheries cannot be specified at this time.

A comparison of the location of the MSB fisheries (see Section 6.1) and with the known-preferred habitat of Atlantic sturgeon (shallow inshore areas, primarily less than 50 m), suggests that the portion of 2006-2010 small-mesh otter trawl interactions attributable to MSB fisheries could likely have occurred in the summer/fall inshore *Loligo* squid fishery. Most fishing activity in the MSB fisheries occurs in the 600 series of statistical areas (i.e., waters directly south of Long Island, including waters off New York and New Jersey), which is also the same area where almot all of the 2006-2010 small-mesh otter trawl encounters with Atlantic sturgeon occurred (Table B). The majority of *Illex*, mackerel, and winter and spring *Loligo* landings occur along the continental shelf in waters greater than 100 m. Because these fisheries tend to occur in deeper waters, it is less likely that they would interact with Atlantic sturgeon DPSs. Conversely, the summer and fall *Loligo* squid fishery occurs nearshore in waters less than 40 fathoms (Figures 18-20, Amendment 10 FSEIS). The *Loligo* squid quota is allocated in trimesters (43% for Trimester 1; 17% for Trimester 2; 40% for Trimester 3), so roughly half of the quota is available during the summer and fall period. The nearshore effort in the summer and fall *Loligo* fishery overlaps with the water depths in which most observed sturgeon encounters occur. This is supported by the Stein et al. (2004a) analysis, which showed sturgeon encounters with the *Loligo* squid and butterfish fisheries during the period from 1989-2000, but showed no encounters with *Illex* squid and mackerel fisheries.

Atlantic sturgeon interactions with small-mesh otter trawl are distributed throughout the year. On average, the most estimated small-mesh otter trawl encounters with Atlantic sturgeon in the 600 series of statistical areas occur during Quarter 2 (April through June), and the fewest occur during Quarter 3 (July – September) (Table D). However, the contribution of each quarter to total estimated encounters differs from year to year.

Table D. Atlantic Sturgeon Encounters Expanded by VTR Landings for Southern (600 Series of Statistical Areas) for Small-Mesh Otter Trawls in Each Quarter of the Year.

Year	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Total Estimated Encounters
2006	49	996	8	493	1546
2007	47	0	0	489	536
2008	19	300	80	55	454
2009	435	345	57	30	867
2010	41	353	0	0	394
Average	114	399	29	213	759

As noted above, there are no total population size estimates for any of the 5 Atlantic sturgeon DPSs at this time. However, there are two estimates of spawning adults per year for two river systems (e.g., 870 spawning adults per year for the Hudson River, and 343 spawning adults per year for the Altamaha River). These estimates represent only a fraction of the total population size as Atlantic sturgeon do not appear to spawn every year and additionally, these estimates do not include subadults or early life stages.

Compared to gillnet gear, small-mesh otter trawl gear accounts for relatively few sturgeon mortalities (Table C). Put another way, the contribution small-mesh otter trawl gear to total estimated Atlantic sturgeon mortalities is likely very low. The number of small-mesh otter trawl takes resulting in mortality remained at less than 5% of total estimated encounters for the entire period, with estimated annual mortalities ranging from 4 to 90 (total mortalities for all gear types ranged from 37 to 376). Between 2006 and 2010, there were no estimated Atlantic sturgeon mortalities in small-mesh otter trawl gear during Quarters 2 and 3, and an average of 11 estimated mortalities in Quarters 1. Estimated Quarter 4 mortalities in small-mesh otter trawl gear only occurred 2006 (61 total estimated mortalities). All mortalities in small-mesh otter trawl gear occurred in the 600 series of statistical areas. It is important to note that the information provided on mortality rates may be an underestimate as the rate of post-release mortality for those reportedly released alive is unknown.

Based on the available information, it is not possible at this time to attribute these mortalities to the DPS(s) from which these fish originated. However, given the migratory nature of subadult and adult Atlantic sturgeon, it is expected that these mortalities represent takes from multiple DPSs. This conclusion is supported by preliminary genetic mixed stock analyses undertaken by Dr. Isaac Wirgin from New York University and Dr. Tim King from the U.S. Geological Survey. These additional data support the conclusion from the earlier bycatch estimate that MSB fisheries may interact with Atlantic sturgeon from now until the time a final listing determination is made for the species. Thus, while the operations of the MSB fisheries prior to October 2011 (i.e. operation during Quarters 2 and 3) will most likely result in adverse impacts to Atlantic sturgeon in the form of encounters in small-mesh otter trawl gear, the magnitude of that interaction during this short timeframe of interest and the low observed rates of mortalities during Quarters 2 and 3 are not likely to result in jeopardy to the species, thereby obviating the need for a conference as required under Section 7(a)(4) of the ESA.

6.5 Human Communities

Overview of MSB Fishing

Amendment 9 contained extensive narrative based on interviews with MSB fishermen in order to give some perspective on the lives and day to day operations involved in making a living from the harvest of the managed resources. Information in the following two paragraphs was compiled from interviews carried out in June, 2005 with MAFMC advisors: James Ruhle, Lars Axelson, and Geir Monsen.

The extensive otter trawl fishery for *Loligo*, *Illex*, Atlantic mackerel, and butterfish ranges from Massachusetts to Maryland. Due to the diversity in fishing vessels and strategies for prosecuting the fisheries it is difficult to describe a "typical" squid, mackerel, or butterfish fishing experience. However, vessels generally fall into one of two size classes: 30-45 feet or 50-160 feet. The smaller vessels account for approximately 10-15% of the otter trawl vessels targeting squid, mackerel, and butterfish. These vessels are known as "day boats" and fish inshore waters from early May through July. Typically a day boat carries a crew of one to three fishermen and the boat returns to the dock each night.

Larger vessels ranging from 50 to 160 feet carry three to four fishermen on average, however, vessels that freeze and process fish at sea may carry up to 10-12 crewmen. These larger vessels run from 1-18 day trips depending upon the vessel's capability to store catch and meet quota. Vessels that do not freeze and process at sea are known as "wet boats"; these vessels either ice their catch or store it in refrigerated sea water for up to seven days. Vessels that freeze at sea have the ability to make longer trips averaging 12-14 days and extending as long as 18 days at sea.

Landings and Permit Data on The Fleet that Catches Mackerel

Section 4.0 contains a description of the mackerel fleet and that information is summarized below. Section 4.0 also provides some updated data beyond 2007 and additional updates are available via recent specification documents (http://www.mafmc.org/fmp/msb.htm) but the fleet has not generally changed in terms of how it operates between 2007 and 2010, the most recently available full year of data.

There were 2622 vessels that had federal mackerel permits at some point in 2007. Over 2005-2007 18 vessels ("primary participants") accounted for 90.7% of landings with average annual landings of 2,091 MT annually each (range of 4,342 MT - 568 MT). Another 81 vessels (secondary participants) had average annual landings over 1 MT (2204.6 pounds) average per year, accounting for 8.5% of landings with average annual landings of 43 MT annually each (range of 527 MT - 1 MT). Together these 99 vessels account for over 99% of landings. Clearly the fishery is dominated by a relatively small number of vessels. However, there are not clusters of vessels around given annual landings amounts but rather a smooth and steep decline in size of landings from one vessel to the next that then becomes a smooth and flat trailing off in size of annual landings.

The current fleet of vessels that have landed over 100 pounds of mackerel in a single year has an estimated physical capacity to harvest over 200,000 MT of mackerel annually, and the entrance of even one new vessel can substantially increase fleet capacity. This is demonstrated by examining landings by vessel for 2004 and 2006, the best years for the domestic mackerel fishery. The top 5 vessels landed an average of 9% of the catch each, or 5,008 MT per year each in these years.

Primary participants make larger trips than secondary participants. The types of trips for both primary and secondary participants consist of mostly relatively smaller trips (within each respective group) with fewer larger trips. The secondary participants' trips highlights the diversity of trips found within this group - from less than 100 pounds (907 trips) to more than 500,000 pounds (10 trips) (see Figures 1 and 2).

The primary participants are generally larger vessels, averaging 112 feet, about 1700 horsepower with a crew of 7. Catches are either frozen on board or kept in refrigerated seawater and processed on shore. The secondary participants are generally medium size vessels, averaging 72 feet, about 650 horsepower with a crew of 4. Catches are likely handled in a variety of ways as there is greater diversity of vessels among the smaller participants.

While when discussing impacts of limited access later in this document discussion revolves around the vessels in each Tier rather than trying to discuss impacts by other delineations such as primary and secondary participants, it is worth noting that except for one vessel that would qualify for the second highest level of access in scenarios where a 2005 control date is used, all of the primary vessels qualify for the highest level of access, so they would not be significantly impacted other than long run indirect benefits from belonging to a limited access fishery where they have the highest level of access (these benefits are discussed shortly below). This discussion jumps ahead a bit but it might be helpful for the reader to know that when later in the document the impacts of limited access are discussed, the "primary participants" discussed here just for purposes of characterizing the fleet do generally qualify for the highest levels of access, as would likely be expected.

Almost all mackerel from these vessels are landed at five ports that land over $50,000 worth of mackerel each: Cape May, NJ, New Bedford, MA, Gloucester, MA, North Kingstown, RI, Fall River, MA, and Point Judith, RI. In Fall River about 20% of ex-vessel revenues came from mackerel 2005-2007 and the others derived 5% or less from mackerel (see Table 9). Port details may be found in Section 6.5.

A more formal description of the Ports and Communities and Economic Environment is provided in subsequent sections (6.5.1 and 6.5.2, respectively). Because Am11 is not expected to significantly affect fishing for butterfish, *Illex*, or *Loligo*, the discussion of key ports is focused on those ports with significant mackerel landings.

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Recreational Fishing

As detailed in Section 6.1.1.3, MRFSS estimates that over the last 10 years the recreational landings of mackerel have ranged from approximately 500 MT to 1600 MT. Compared to commercial landings, the recreational catch 1997-2007 has been small, 4.1 percent of the combined catch. Landings are dominated by private/rental boats in the states of Massachusetts, New Hampshire, and Maine. Depending on availability, there can be a short spring fishery for mackerel off the Mid-Atlantic States. It is important to note that estimates for mackerel are relatively imprecise compared to other species (e.g. fluke or bluefish) due to relatively low effort in the recreational mackerel fishery. For example, the 2007 coast-wide recreational harvest estimate was 884 MT with a 95% chance that the real number was between 548 MT and 1,220 MT. Estimates are also generated relatively slowly - there is no mechanism to track the recreational harvest in real time and make in-season responses to the recreational fishery. For example, 2009 estimates will be available in spring 2010 and thus usable for setting 2011 specifications. In addition, the entire system of recreational data collection and the accuracy of resulting estimates have come under heavy criticism from both academia and the recreational fishing community and the system is currently being overhauled (i.e. the Marine Recreational Information Program - "MRIP" - see countmyfish.noaa.gov for details). Improved survey methodologies will be implemented over time.

6.5.1 Key Ports and Communities

Six locations landing on average more than $50,000 annually in mackerel were identified as key ports or communities prosecuting the Atlantic mackerel fishery based on NMFS landings data from 2005-2007. They are listed in descending order of average annual mackerel value in the table below (Table 57) and in the subsequent community descriptions.

Table 57. Key Ports

Ranking by Value of Mackerel Landings	PORT	STATE	Mackerel landings average value	Total landings average value	Percent of Port's Ex-Vessel revenues from mackerel
1	CAPE MAY	NJ	$ 2,753,921	$ 50,267,083	5%
2	NEW BEDFORD	MA	$ 2,482,075	$ 276,679,024	1%
3	GLOUCESTER	MA	$ 2,371,630	$ 46,714,997	5%
4	NORTH KINGSTOWN	RI	$ 2,277,259	$ 12,328,892	18%
5	FALL RIVER	MA	$ 1,363,999	$ 6,379,153	21%
6	POINT JUDITH	RI	$ 138,492	$ 40,593,871	<1%

NMFS has been working on a project to describe all major ports (http://www.nefsc.noaa.gov/read/socialsci/community_profiles/), and NMFS staff provided updated port descriptions for this amendment to describe the top six mackerel ports, in order of their average annual mackerel landings value (highest first). While the landings summary at the beginning of each port section uses 2005-2007 data, the most up to date information from the NMFS port project which is used to create the port descriptions goes through 2006.

Limited information and confidentiality issues preclude detailed description of shoreside processing facilities within each port. However, section 6.5.2.1 does provide information on active mackerel dealers by state as well as information on dealer dependence on mackerel according to purchases of mackerel compared to purchases of other species.

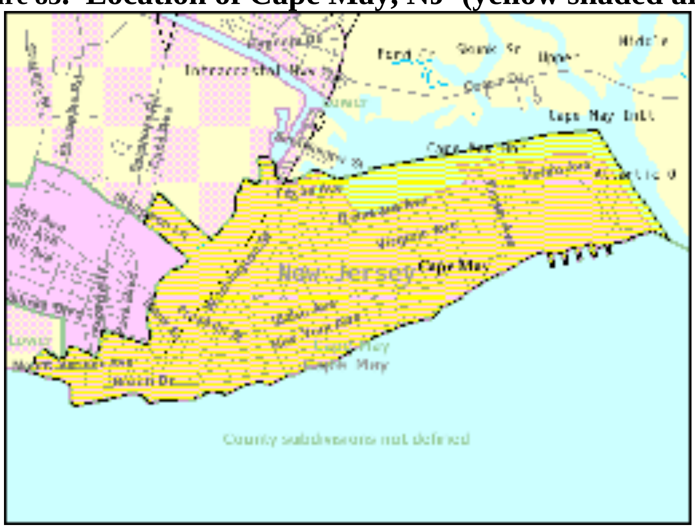
1. CAPE MAY

2005-2007 Average Mackerel Landings Value Per Year = $ 2.8 mil
2005-2007 Average Total Landings Value per Year = $ 50.3 mil
Percent of Total Landings Value from Mackerel = 5%

Regional orientation

The city of Cape May, New Jersey (38.94°N, 74.91°W), is located in Cape May County. It is at the southern tip of the state of New Jersey on Cape Island at the end of Cape May Peninsula, with the Atlantic Ocean to the east and Delaware Bay to the west.

Figure 83. Location of Cape May, NJ (yellow shaded area)



Historical/Background

Cape May is part of Cape Island at the southern tip of Cape May Peninsula. The island was artificially created in 1942 when the U.S. Army Corps of Engineers dredged a canal that passes through to the Delaware Bay. Fishing and farming have been important in this area since its beginnings, and whaling, introduced by the Dutch, was a significant industry in Cape May for roughly a century beginning in the mid-1600s. In the 18th century, this area became a summer resort for wealthy residents of Philadelphia wishing to escape the crowded city during the summer months, and is known as “America’s oldest seaside resort”. Because of this history and because of a fire that destroyed much of the city in 1878, Cape May has numerous Victorian homes and hotels, and was declared a National Historic Landmark City in 1976. “Today commercial fishing is still the backbone of the county and is the second largest industry in Cape May County.

Involvement in Northeast Fisheries - Commercial

The combined port of Cape May/Wildwood is the largest commercial fishing port in New Jersey and is one of the largest on the East Coast. Cape May/Wildwood is the center of fish processing and freezing in New Jersey. Some of the largest vessels fishing on the East Coast are home ported here. Cape May fishing vessels have frequently been responsible for developing new fisheries and new domestic and international markets. The targeted species are diverse; fisheries focus on squid, mackerel, fluke, sea bass, porgies, lobsters and menhaden. Some of the boats out of Wildwood are also targeting surf clams and ocean quahogs.

F.H. Snow's Canning Co./Doxsee is a large clam cannery based in Cape May, and the only domestic manufacturer to harvest its own clams. Snow's/Doxsee possesses the nation's largest allocation for fishing and harvesting ocean clams. Established in 1954 in Cape May, Lund's Fisheries, Inc. is a freezer plant and a primary producer of various species of fish found along the Eastern Seaboard of the USA. It is also a member of the Garden State Seafood Association. There are also two other exporters of seafood in Cape May, the Atlantic Cape Fisheries Inc. exporting marine fish and shellfish, oysters, scallops, clams and squids, and the Axelsson and Johnson Fish Company Inc. exporting shad, marine fish, conch, American lobster, lobster tails, scallops and whole squid.

The top species landed in Cape May in 2006 were scallops (over $23 million), squid, mackerel, butterfish (over $12 million) and summer flounder, scup, and black sea bass (over $1.9 million) (see Table 58) Between 1997 and 2006 home ported vessels increased from 109 to 184 while the number of vessels whose owner's city was Cape May also increased from 73 to 88 vessels. Additionally, home port value and landed port value also steadily increased over the same time period, with the exception of a decline in the latter category in 2006 (see Table 59).

Landings by Species

Table 58. Dollar value of Federally Managed Groups of landings for Cape May

	Average from 1997-2006	2006 only
Scallop	22,263,937	23,677,160
Squid, Mackerel, Butterfish	7,584,550	12,375,958
Summer Flounder, Scup, Black Sea Bass	2,044,420	1,979,899
Other	1,696,617	1,637,321
Surf Clams, Ocean Quahog	588,296	0
Lobster	420,312	8,861
Herring	412,103	2,896,122
Monkfish	322,895	397,841
Red Crab	40,358	0
Smallmesh Groundfish	23,939	2,997
Bluefish	20,626	4,267
Skate	12,299	4,387
Largemesh Groundfish	8,067	3,705
Dogfish	6,574	0
Tilefish	597	1,230

Vessels by Year

Table 59. All columns represent vessel permits or landings value combined between 1997-2006

Year	# Vessels (home ported)	# Vessels (owner's city)	Level of fishing home port ($)	Level of fishing landed port ($)
1997	109	73	27,687,667	23,636,983
1998	105	68	27,614,763	25,770,007
1999	106	72	29,153,706	22,353,284
2000	116	74	30,488,271	23,936,235
2001	116	71	32,923,798	27,155,864
2002	118	72	34,529,920	28,312,296
2003	129	78	42,777,501	36,372,658
2004	135	73	62,308,441	60,630,752
2005	155	82	69,641,897	63,298,068
2006	184	88	75,058,370	42,989,748

 # Vessels home ported = No. of permitted vessels with location as homeport
 # Vessels (owner's city) = No. of permitted vessels with location as owner residence
Level of fishing home port ($) = Landed value of fisheries associated with home ported vessels
Level of fishing landed port ($) = Landed value of fisheries landed in location

Recreational

The Cape May County Party and Charter Boat Association lists several dozen charter and party vessels based out of the City of Cape May. There are 35 vessels listed carrying 1-6 passengers, six vessels which can carry more than six passengers, and three party boats. The Miss Chris fleet of party boats makes both full- and half-day trips, targeting largely fluke and stripers for most of the year. The Porgy IV, another party boat, targets sea bass, blackfish, and flounder. Many of the charter boats go offshore canyon fishing. Between 2001- 2005, there were 56 charter and party vessels making 6,599 total trips registered in NMFS logbook data by charter and party vessels in Cape May, carrying a total of 116,917 anglers (NMFS VTR data). There are several fishing tournaments held throughout the year sponsored by the Cape May Tuna and Marlin Club.

Future

Information on planned future activities in Cape May has not yet been compiled.

2. NEW BEDFORD

2005-2007 Average Mackerel Landings Value Per Year = $ 2.5 mil
2005-2007 Average Total Landings Value per Year = $ 276.7 mil
Percent of Total Landings Value from Mackerel = 1%

Regional orientation

New Bedford is the fourth largest city in the commonwealth of Massachusetts. It is situated on Buzzards Bay, located in the southeastern section of the state in Bristol County. New Bedford is bordered by Dartmouth on the west, Freetown on the north, Acushnet on the east, and Buzzards Bay on the south. The city is 54 miles south of Boston, and has a total area of 24 mi², of which about 4 mi² (16.2%) is water.

Figure 84. Location of New Bedford, MA (yellow shaded area)

Historical/Background

New Bedford, originally part of Dartmouth, was settled by Plymouth colonists in 1652. Fishermen established a community in 1760 and developed it into a small whaling port and shipbuilding center within five years. By the early 1800s, New Bedford had become one of the world's leading whaling ports. Over one half of the U.S. whaling fleet, which totaled more than 700 vessels, was registered in New Bedford by the mid-1800s. However, the discovery of petroleum greatly decreased the demand for sperm oil, bringing economic devastation to New Bedford and all other whaling ports in New England. The last whale ship sailed out of New Bedford in 1925. In attempts to diversify its economy, the town manufactured textiles until the southeast cotton boom in the 1920s. Since then, New Bedford has continued to diversify, but the city is still a major commercial fishing port. It consistently ranks in the top two ports in the U.S. for landed value.

Involvement in Northeast Fisheries
Commercial

In the 1980s, fishermen experienced high landings and bought new boats due to a booming fishing industry. In the 1990s, however, due to exhausted fish stocks, the fishing industry experienced a dramatic decrease in groundfish catches and a subsequent vessel buyback program, and strict federal regulations in attempts to rebuild the depleted fish stocks. A new decade brought more changes for the fishing industry. By 2000 and 2001 New Bedford was the highest value port in the U.S. (generating $150.5 million in dockside revenue).

The range of species landed in New Bedford is quite diverse. According to State permits, the largest landings were of cod, haddock, and lobster, and with impressive representation by a number of different species (Table 60). According to the federal commercial landings data, New Bedford's most successful fishery in the past ten years has been scallops, followed by groundfish (Table 61). Scallops were worth significantly more in 2006 than the 1997-2006 average values, and the total value of landings for New Bedford generally increased over the same time period. The value of groundfish in 2006, however, was considerably less than the ten-year average value. The number of vessels whose home port was New Bedford increased somewhat between 1997 and 2006, while the value of fishing for home port vessels more than doubled from $80 million to $184 million over the same time period. The number of vessels whose owner's city was New Bedford fluctuated between 137 and 199 vessels, while the value of landings in New Bedford tripled from $94 million in 1998 to and $281 million in 2006 (see Table 62).

New Bedford has approximately 44 fish wholesale companies, 75 seafood processors, and some 200 shore side industries. Maritime International has one of the largest U.S. Department of Agriculture-approved cold treatment centers on the East Coast. Its terminal receives approximately 25 vessels a year, most carrying about 1,000 tons of fish each.

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Landings by Species

Table 60. Landings in pounds for state-only permits

	Pounds landed
Cod**	6,311,413
Haddock**	5,949,880
Lobster***	1,168,884
Scup**	593,394
Fluke**	480,165
Crab***	315,395
Loligo* squid*	207,769
Striped bass**	189,055
Quahog (littleneck)*	147,249
Monkfish	137,300
Conch*	136,276
Skate	121,522
Quahog (cherrystone)	113,341
Black sea bass**	113,071
Pollock	65,500
Quahog (chowder)*	64,999
Bluefish**	44,045
Quahog (mixed)*	11,513
Red hake	10,100
Cusk	1,880
Illex* squid*	1,305
Soft shell clam*	985
Dab (Plaice)	870
Dogfish**	537
Winter flounder	500
Yellowtail flounder	383
Gray sole (witch)	200

Asterisks indicate data sources: MA DMF has 2 gear-specific catch reports: Gillnet & Fish Weirs. All state-permitted fish-weir and gillnet fishermen report landings of all species via annual catch reports. NOTE: Data for these species do not include landings from other gear types (trawls, hook & line, etc.) and therefore should be considered as a subset of the total landings. (Massachusetts Division Marine Fisheries).

***** All state-permitted fishermen catching shellfish in state waters report landings of all shellfish species to us via annual catch reports. NOTE: These data do not include landings from non-state-permitted fishermen (federal permit holders fishing outside of state waters), nor do they include landings of ocean quahogs or sea scallops.)

****** These species are quota-managed and all landings are therefore reported by dealers via a weekly reporting phone system (IVR).

******* All lobstermen landing crab or lobster in MA report their landings to us via annual catch reports.

Table 61: Dollar value of Federally Managed Groups of landings in New Bedford

	Average from 1997-2006	2006 only
Scallop	108,387,505	216,937,686
Largemesh Groundfish	30,921,996	23,978,055
Monkfish	10,202,039	8,180,015
Surf Clams, Ocean Quahog	7,990,366	9,855,093
Lobster	4,682,873	5,872,100
Other	4,200,323	2,270,579
Skate	2,054,062	3,554,808
Squid, Mackerel, Butterfish	1,916,647	5,084,463
Summer Flounder, Scup, Black Sea Bass	1,481,161	2,227,973
Smallmesh Groundfish	897,392	1,302,488
Herring	767,283	2,037,784
Red Crab	740,321	0
Dogfish	89,071	13,607
Bluefish	25,828	10,751
Tilefish	2,675	1,084

Vessels by Year

Table 62: All columns represent vessel permits or landings value combined between 1997-2006

Year	# Vessels (home ported)	# Vessels (owner's city)	Level of fishing home port ($)	Level of fishing landed port ($)
1997	244	162	80,472,279	103,723,261
1998	213	137	74,686,581	94,880,103
1999	204	140	89,092,544	129,880,525
2000	211	148	101,633,975	148,806,074
2001	226	153	111,508,249	151,382,187
2002	237	164	120,426,514	168,612,006
2003	245	181	129,670,762	176,200,566
2004	257	185	159,815,443	206,273,974
2005	271	195	200,399,633	282,510,202
2006	273	199	184,415,796	281,326,486

(Note: # Vessels home ported = No. of permitted vessels with location as homeport
 # Vessels (owner's city) = No. of permitted vessels with location as owner residence
Level of fishing home port ($) = Landed value of fisheries associated with home ported vessels
Level of fishing landed port ($) = Landed value of fisheries landed in location)

Recreational

While recreational fishing in New Bedford Harbor is discouraged due to heavy metal contamination, a number of companies in New Bedford offer the public recreational fishing excursions including boat charters. There are also several bait and tackle stores, many of which serve as official state fishing derby weigh-in stations. "In 1999 there were approximately 950 slips in New Bedford Harbor and 85% were visitor based. According to FXM Associates, marina operators agreed that an additional 200 slips could be filled. A few owners of fishing boats in the 45 to 50 foot range have obtained licenses for summer party boat fishing. Tuna is a popular object for recreational fishing as are stripped bass. "

Future

For several years, work was underway to construct the New Bedford Oceanarium that would include exhibits on New Bedford's history as a whaling and fishing port, and was expected to revitalize the city's tourist industry and create jobs for the area. The Oceanarium project failed to receive its necessary funding in 2003 and 2004, and while the project has not been abandoned, it seems unlikely the Oceanarium will be built anytime in the near future.

According to a 2002 newspaper article, many fishermen believe that based on the quantity and ages of the species they catch, the fish are coming back faster than studies indicate. While most admit that regulations have worked, they believe further restrictions are unnecessary and could effectively wipe out the industry.

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3. GLOUCESTER

2005-2007 Average Mackerel Landings Value Per Year = $ 2.4 mil
2005-2007 Average Total Landings Value per Year = $ 46.7 mil
Percent of Total Landings Value from Mackerel = 5%

Regional orientation

The city of Gloucester (42.62°N, 70.66°W) is located on Cape Ann, on the northern east coast of Massachusetts in Essex County. It is 30 miles northeast of Boston and 16 miles northeast of Salem. The area encompasses 41.5 square miles of territory, of which 26 square miles is land.

Figure 85. Location of Gloucester, MA (yellow shaded area)

Historical/Background

The history of Gloucester has revolved around the fishing and seafood industries since its settlement in 1623. Part of the town's claim to fame is being the oldest functioning fishing community in the United States. It was established as an official town in 1642 and later became a city in 1873. By the mid-1800s, Gloucester was regarded by many to be the largest fishing port in the world.

In 1924 a town resident developed the first frozen packaging device, which allowed Gloucester to ship its fish around the world without salt. The town is still well-known as the home of Gorton's frozen fish packaging company, the nation's largest frozen seafood company.

As in many communities, after the U.S. passed and enforced the MSA and foreign vessels were prevented from fishing within the country's EEZ (Exclusive Economic Zone), Gloucester's fishing fleet soon increased -- only to decline with the onset of major declines in fish stocks and subsequent strict catch regulations. For more detailed information regarding Gloucester's history see Hall-Arber et al. (2001).

Involvement in Northeast Fisheries

Commercial

Although there are threats to the future of Gloucester's fishery, the fishing industry remains strong in terms of recently reported landings. Gloucester's commercial fishing industry had the 13th highest landings in pounds (78.5 million) and the nation's ninth highest landings value in 2002 ($41.2 million). In 2003 recorded state landings totaled 11.6 million pounds, with catches of lobster, cod, and haddock at 2.0 million, 4.7 million, and 2.6 million pounds landed, respectively. In 2002 Gloucester had the highest landings value of lobster in Massachusetts with the state-only landings worth $2 million and the combined state and federal landings recorded from federally permitted vessels was just over $10 million.

MSB species were the 6th most important segment of Gloucester's landings by value. Gloucester's federally managed group with the highest landed value was large mesh groundfish with nearly $20 million in 2006 (Table 63). Lobster landings were second in value, bringing in more than $10 million in 2006, a significant increase from the 1997-2006 average value of just over $7 million. Monkfish and herring were also valuable species; both had more valuable landings in 2006 than the ten year average values. The number of vessels home ported (federal) increased slightly from 1997 to 2006, but there was a slight reduction for the years 1998, 1999, and 2000 (Table 64).

Landings by Species

Table 63. Dollar value of Federally Managed Groups of landing in Gloucester

	Average from 1997-2006	**2006 only**
Largemesh Groundfish	17,068,934	19,577,975
Lobster	7,036,231	10,179,221
Monkfish	3,556,840	4,343,644
Other	3,246,920	1,906,551
Herring	3,127,523	5,623,383
Squid, Mackerel, Butterfish	1,065,567	3,692,506
Scallop	735,708	1,113,749
Smallmesh Groundfish	732,353	254,287
Dogfish	375,972	316,913
Red Crab	127,997	0
Skate	63,488	27,334
Tilefish	52,502	245,398
Surf Clams, Ocean Quahog	29,033	77,805
Bluefish	21,672	18,116
Summer Flounder, Scup, Black Sea Bass	1,286	603
Salmon	0	0

Vessels by Year

Table 64. All columns represent vessel permits or landings value combined between 1997 and 2006

Year	# Vessels (home ported)	# Vessels (owner's city)	Level of fishing home port ($)	Level of fishing landed port ($)
1997	277	216	15,483,771	23,497,650
1998	250	196	18,078,326	28,394,802
1999	261	199	18,396,479	25,584,082
2000	261	202	19,680,155	41,929,807
2001	295	230	18,614,181	37,961,334
2002	319	247	21,316,029	37,795,464
2003	301	225	22,451,526	37,795,464
2004	298	227	24,531,345	42,760,975
2005	287	217	34,319,544	45,966,974
2006	284	213	34,255,146	47,377,485

(Note: # Vessels home ported = No. of permitted vessels with location as homeport
 # Vessels (owner's city) = No. of permitted vessels with location as owner residence
Level of fishing home port ($) = Landed value of fisheries associated with home ported vessels
Level of fishing landed port ($) = Landed value of fisheries landed in location)

Recreational

Gloucester is home to roughly a dozen fishing charter companies and party boats fishing for bluefin tuna, sharks, striped bass, bluefish, cod, and haddock. Between 2001- 2005, there were 50 charter and party vessels making 4,537 total trips registered in logbook data by charter and party vessels in Gloucester carrying a total of 114,050 anglers (NMFS VTR data). Some of the charter and party boats may be captained by part-time fishermen that needed a new seasonal income.

Future

The Massachusetts Department of Housing and Community Development recognizes that the fishing industry is changing. The city must adapt to these major economic changes. Although the city is preparing for other industries, such as tourism, they are also trying to preserve both the culture of fishing and the current infrastructure necessary to allow the fishing industry to continue functioning. The city is also currently working with the National Park Service to plan an industrial historic fishing port, which would include a working fishing fleet. This would preserve necessary infrastructure for the fishing industry and preserve the culture to further develop tourism around fishing.

According to newspaper articles and city planning documents, residents have conflicting visions for the future of Gloucester. Many argue that the fishing industry is in danger of losing its strength. For example an anthropological investigation of the fishing infrastructure in Gloucester found that the port is in danger of losing its full-service status if some of the businesses close down. With stricter governmental regulations on catches to rebuild declining and depleted fish stocks, many residents are choosing to find other livelihood strategies, such as tourism or other businesses. In 1996, the NMFS piloted a vessel buyback program to decrease the commercial fishing pressure in the northeast. Of the 100 bids applying to be bought by the government, 65 were from Gloucester fishermen. This could be taken as an indication that these fishermen do not see any future in fishing for themselves in the Northeast. NMFS adjusted this program to just buy back permits rather than vessels. Massachusetts had the highest sale of permits, though the number of Gloucester permits could not be obtained at this time.

On the other hand, there are fishermen who claim the fishing and seafood industries will remain strong in the future, despite the pessimistic forecasts. The Gloucester Seafood Festival and Forum is one example of celebrating and promoting Gloucester seafood industry.[40]

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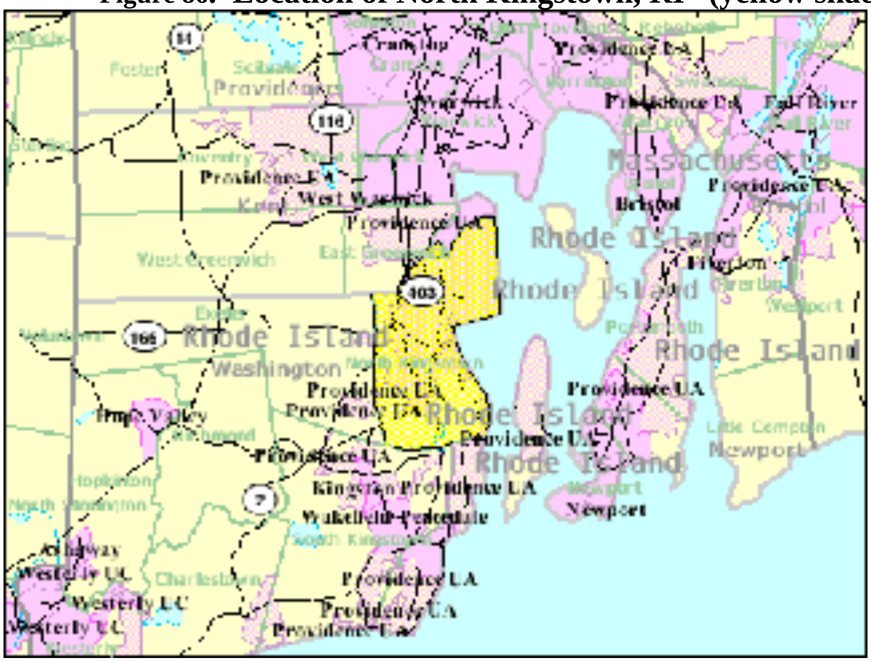
4. NORTH KINGSTOWN

2005-2007 Average Mackerel Landings Value Per Year = CI
2005-2007 Average Total Landings Value per Year = CI
Percent of Total Landings Value from Mackerel = CI

Regional orientation

North Kingstown (41.55°N, 71.46°W) is located in Narragansett Bay in Washington County in the state of Rhode Island. The city is located 8.2 miles from Narragansett Pier, 23 miles from Providence, 73 miles from Boston, MA, and 170 miles from New York City. The town is sometimes referred to as North 'Kingston'.

Figure 86. Location of North Kingstown, RI (yellow shaded area)



Historical/Background

North Kingstown is a small town on the west side of Narragansett Bay. It is comprised of nine villages, with Wickford as the center of town and the seat of the local government. The city is known as Rhode Island's sea town. Kings Towne was incorporated in 1674, and included what is now known as Narragansett County. North Kingstown and South Kingstown were the same town until they split in 1723. World War II dramatically changed the economy of North Kingstown. Quonset Naval Air Station and the Davisville Construction Training Center were built in an area north of Wickford village and used as a site to protect the Northeast coast during the war. Today, North Kingstown has strong economic growth potential due to a deep-water port, rail lines, the state's longest runway, and its natural harbor and beaches which make it famous as a summer resort.

Involvement in Northeast Fisheries

Commercial

North Kingstown's highest landed values for 1997-2006 were from the squid, mackerel, and butterfish species grouping, followed by "other" species and herring (Table 65). In 2006, the value of landings for squid, mackerel, and butterfish was much higher than the ten-year average values, while the landings values of "other" species and herring had declined. North Kingstown has a diverse fishery with landings from a wide variety of species groupings. The number of vessels whose home port was North Kingstown was significantly lower than the number of vessels whose owner's city was North Kingstown over the 1997-2006 time period. While home port vessel numbers ranged from 2-3, the owner's city vessels ranged from 15-23 (see Table 66). A number of home ported vessels were also listed for Davisville, a village located within the town of North Kingstown (see Table 67).

Landings by Species

Table 65. Rank Value of Landings for Federally Managed Groups*

Species	**Rank Value of Average Landings from 1997-2006**
Squid, Mackerel, Butterfish	1
Other	2
Herring	3
Lobster	4
Summer Flounder, Scup, Black Sea Bass	5
Monkfish	6
Largemesh Groundfish	7
Smallmesh Groundfish	8
Bluefish	9
Surf Clams, Ocean Quahog	10
Skate	11
Scallop	12
Tilefish	13
Dogfish	14

***Due to dealer confidentiality, exact dollar values cannot be supplied. Thus, only rankings are given.**

Vessels by Year

Table 66. Federal Vessel Permits Between 1997-2006 in North Kingstown

Year	# Vessels (home ported)	# Vessels (owner's city)
1997	3	23
1998	2	20
1999	3	21
2000	3	23
2001	2	21
2002	2	22
2003	2	20
2004	3	18
2005	3	15
2006	3	15

Table 67. Federal Vessel Permits Between 1997-2006 in Davisville

Year	# Vessels (home ported)	# Vessels (owner's city)
1997	2	0
1998	6	1
1999	7	1
2000	7	1
2001	4	1
2002	3	1
2003	3	1
2004	3	1
2005	3	1
2006	3	1

(Note: # Vessels home ported = No. of permitted vessels with location as homeport,
 # Vessels (owner's city) = No. of permitted vessels with location as owner residence)

Recreational

Narragansett Bay attracts a variety of recreational fishermen. These fishermen target many species, but primarily quahogs and bluefish. Rhode Island recreational anglers spent $138,737,000 in 1998.

Future

The 2001 Town of North Kingstown Comprehensive Plan 5-Year Update (2006 update not yet available) notes that in a 1999 survey, North Kingstown residents were asked what type of additional economic development they prefer. The top four responses were: industrial development within Quonset Point Davisville 86.3%; aquaculture 78.8%; tourism-based industry 77.3% ; and commercial fishing 64.8%. Thus the Plan’s objectives include: improved water quality for recreational and commercial fishing activities, and boating; improvement of the Jamestown Bridge fishing pier; and maintenance of fishing-related trades at the Quonset Point/Davisville Pier.

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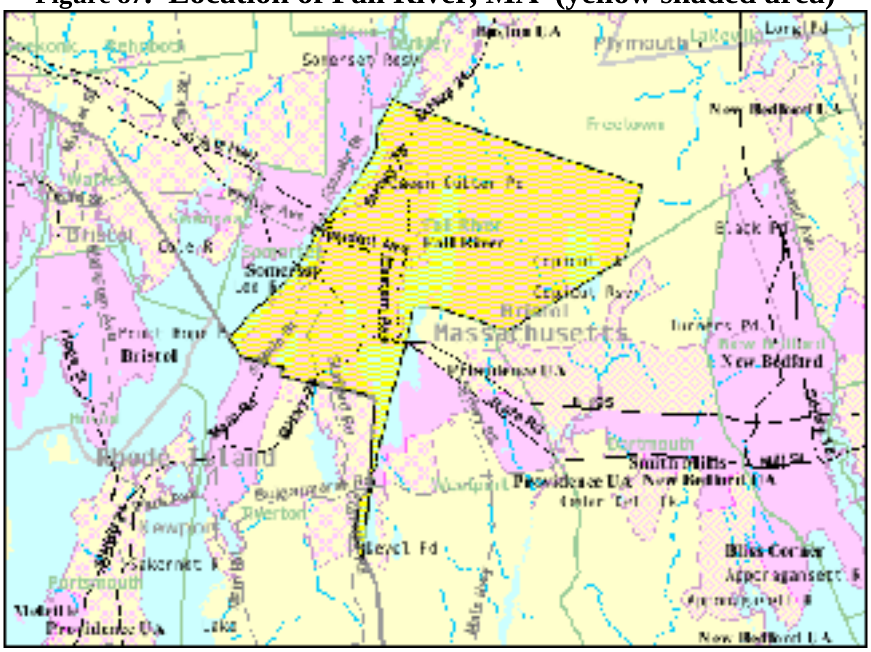
5. FALL RIVER

2005-2007 Average Mackerel Landings Value Per Year = $ 1.4 mil
2005-2007 Average Total Landings Value per Year = $ 6.4 mil
Percent of Total Landings Value from Mackerel = 21%

Regional orientation

The city of Fall River (41.70º N, 71.56º W) is located in Southeastern Massachusetts in Bristol County, along the Rhode Island border. It borders Westport, RI and is about 15 miles from New Bedford, MA. Fall River is 34 square miles in area and sits on Mount Hope Bay at the mouth of the Taunton River. Mount Hope Bay is a component of the larger Narragansett Bay.

Figure 87. Location of Fall River, MA (yellow shaded area)



Historical/Background

Fall River was home to the Wampanoag tribe until they were pushed out during King Phillip's War in 1675. The name comes from a translation of Quequechan, meaning "falling waters", the Wampanoag name for the area. The original settlers to the area were farmers and ships' carpenters from Rhode Island. It was founded in 1803, and incorporated as a city in 1854. Fall River has a long industrial history; the first cotton mill was built here in 1811. This started a trend in textiles manufacturing that would eventually make Fall River one of the textile capitals of the nation. By the early 20th century it was known as Spindle City and had over 100 mills employing over 30,000 people. During the Depression, there was a significant economic downturn as jobs moved to the south and many mills closed; this economic decline continued through much of the 20th century and is only recently reversing itself. Today Fall River continues to have a highly ethnically diverse population.

Involvement in Northeast Fisheries

Commercial

Atlantic Frost Seafoods is a shore-side processing facility based on a vessel docked in Fall River. They process mackerel and herring, and have a capacity of 150 tons per day. Atlantic Frost is owned by Global Fish, a Norwegian corporation which is one of the world's largest suppliers of pelagic fish. In 2004, Blount Seafood, established in 1880, relocated its headquarters and much of its value-added seafood processing operations to Fall River.

There are presently four red crab vessels based in Fall River which are members of the New England Red Crab Harvesters Association. Crabs landed here are shipped to a facility in Nova Scotia for processing.

MSB species were the 3rd most important segment of Fall River's landings by value. The landings data for Fall River show that red crab is by far the most valuable species landed here for the years 1997-2006 (Table 68). This information paints a picture of a highly variable fishery. Landings fluctuated considerably between the years 1997-2006, from a low in 1998 to a high the following year. Landings then declined again for the next few years, but were up again. Exact numbers cannot be provided for confidentiality reasons.

The trend in home port fishing seems to follow the landings somewhat, with landings being more than two orders of magnitude higher than home port fishing in some years, but in later years the level of home port fishing increases and is closer to, but still lower than, the level of landings. It seems many of the boats landing their catch here are ported elsewhere. Interestingly, the number of home port vessels is relatively consistent in all years, as is the number of city owner vessels (Table 69).

Landings by Species

Table 68. Rank Value of Landings for Federally Managed Groups*

*Due to dealer confidentiality, exact dollar values cannot be supplied. Thus, only rankings are given.

	Average from 1997-2006
Red Crab	1
Lobster	2
Squid, Mackerel, Butterfish	3
Monkfish	4
Summer Flounder, Scup, Black Sea Bass	5
Other	6
Herring	7
Skate	8
Largemesh Groundfish	9
Dogfish	10
Smallmesh Groundfish	11
Surf Clams, Ocean Quahog	12
Bluefish	13
Tilefish	14

Vessels by Year

Table 69. Federal Vessel Permits Between 1997-2006

Year	# Vessels (home ported)	# Vessels (owner's city)
1997	7	7
1998	5	6
1999	7	7
2000	6	8
2001	6	7
2002	6	8
2003	6	5
2004	6	5
2005	6	5
2006	6	8

 # Vessels home ported = No. of permitted vessels with location as homeport
 # Vessels (owner's city) = No. of permitted vessels with location as owner residence
Level of fishing home port ($) = Landed value of fisheries associated with home ported vessels
Level of fishing landed port ($) = Landed value of fisheries landed in location

Recreational

One of the Massachusetts Saltwater Fishing Derby Official Weigh Stations is located at Main Bait & Tackle in Fall River. This is one of four bait and tackle shops in Fall River. Fall River also has a jetty and a ramp with paved access, which are usable at all tides. There is also a Fall River Junior Bassmasters club, though it operates out of Cambridge, MA (60 miles away).

Subsistence

Hall-Arber et al. (2001) notes that "lots of the people who participate in recreational fishing in Tiverton are Cambodian or have other ethnic backgrounds." Some of this "recreational" activity may actually support a fisheries- based subsistence life style." Tiverton, RI is only 8 miles from Fall River and many of these Cambodian fishermen probably reside in Fall River, given Fall River's Cambodian population and the fact that that Tiverton's 2000 population was 98% white and the "Other Asian" category (where Cambodians would be found) was composed fewer than 5 people.

Future

As of February 2007, "Fall River [was] in the final phase of its comprehensive Harbor Plan. With funding provided by the state, the city commissioned consultants to formulate a definitive marketing and development blueprint for the waterfront and downtown districts. Implementation has already begun. An extended boardwalk has been completed and the state has committed funding for the overhaul of the State Pier as a marine-related mixed use development." The Commerce Park in Fall River will soon hold large facilities for Main Street Textiles and the TJX Corporation, creating 1,600 new jobs for the city.

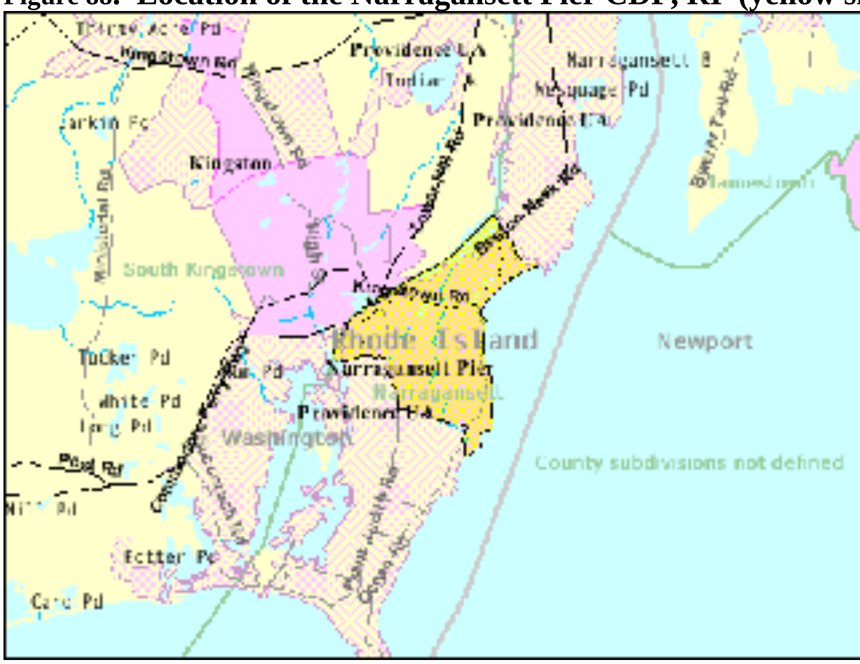
6. POINT JUDITH

2005-2007 Average Mackerel Landings Value Per Year = $ 0.1 mil
2005-2007 Average Total Landings Value per Year = $ 40.6 mil
Percent of Total Landings Value from Mackerel = <1%

Regional orientation

Narragansett (41.45°N, 71.45°W) is located in Washington County, 30 miles south of Providence. Point Judith is located in Washington County, 4 miles south of Narragansett along Highway 108 near Galilee State Beach, located at the western side of the mouth of Rhode Island Sound, within the Census Designated Place (CDP) of Narragansett Pier. Point Judith itself is not a CDP or incorporated town, and as such has no census data associated with it. Thus, this profile provides census data from Narragansett Pier CDP and other data from both Point Judith itself and Narragansett.

Figure 88. Location of the Narragansett Pier CDP, RI (yellow shaded area)



Historical/Background

By the 1800's many farmers began to supplement their income by fishing for bass and alewife, or digging oysters. Eventually, the Port of Galilee was established in the mid 1800's as a small fishing village. By the early 1900's Point Judith's Port of Galilee became one of the largest fishing ports on the east coast. This was largely due to a series of construction projects that included dredging the present breachway and stabilizing it with stone jetties and the construction of three miles of breakwater that provided refuge from the full force of the ocean. By the 1930's wharves were constructed to facilitate large ocean-going fishing vessels. At this point the port became important to the entire region's economy. Today, Point Judith is not only an active commercial fishing port, but it supports a thriving tourism industry that includes restaurants, shops, whale watching, recreational fishing, and a ferry to Block Island.

Involvement in Northeast Fisheries – Commercial

The number of commercial vessels in port in 2003 was 224. Vessels ranged from 45-99 feet, with most being groundfish trawlers. Of these, 55 were between 45 and 75 feet, and 17 over 75 feet. In 2001, Point Judith was ranked 16th in value of landings by port (fourth on the East Coast).

The state's marine fisheries are divided into three major sectors: shellfish, lobster, and finfish. The shellfish sector includes oysters, soft shell clams, and most importantly, quahogs. The lobster sector is primarily comprised of the highly valued American lobster with some crabs as well. The finfish sector targets a variety of species including winter, yellowtail and summer flounder, tautog, striped bass, black sea bass, scup, bluefish, butterfish, squid, whiting, skate, and dogfish. A wide range of gear including otter trawl nets, floating fish traps, lobster traps, gill nets, fish pots, rod and reel, and clam rakes are used to harvest these species. The state currently issues about 4,500 commercial fishing licenses.

Over the ten year period from 1997-2006, the value of landings in Point Judith varied but seemed to show a declining trend between 1997-2006, from a high of just over $51 million to a low of $31 million in 2002-2003. However, in 2004 the landings value began to increase again, back to just under $47 million in 2006. The landings value for the squid, mackerel, and butterfish species grouping was higher in 2006 than the average value for 1997-2006 (see Table 70). In general, the number of vessels home ported in Point Judith (see Tables 71/72), far exceeded the number of vessels listed in this category for Narragansett. However, there are no vessel owners listed for Point Judith (because the name refers only to the port), indicating that many fishermen live in the Narragansett area and fish out of Point Judith.

Landings by Species

Table 70. Value ($) of federally managed groups of landings in Point Judith, RI.

	Average from 1997-2006	2006 only
Squid, Mackerel, Butterfish	11,298,781	13,188,211
Lobster	11,022,301	8,675,086
Summer Flounder, Scup, Black Sea Bass	4,718,136	6,495,568
Smallmesh Groundfish	2,816,677	1,799,479
Monkfish	2,687,563	2,110,227
Largemesh Groundfish	2,451,647	3,383,452
Other	2,056,576	2,697,425
Scallop	1,457,702	7,420,396
Skate	618,033	604,990
Herring	470,065	376,506
Tilefish	230,142	32,985
Bluefish	112,378	118,466
Dogfish	48,031	45,000
Red Crab	9,593	0

Vessels by Year

Table 71. Vessels and All columns represent vessel permits or landings value between 1997 and 2006 (for Narragansett)

Year	# Vessels (home ported)	# Vessels (owner's city)	Level of fishing home port ($)	Level of fishing landed port ($)
1997	21	61	5,629,991	0
1998	25	55	5,926,038	0
1999	27	60	7,650,042	0
2000	32	61	7,902,294	0
2001	30	62	6,194,920	0
2002	29	53	7,935,212	0
2003	30	52	9,218,945	0
2004	32	51	8,987,817	0
2005	29	52	7,633,761	0
2006	22	51	6,448,654	0

Table 72. All columns represent vessel permits or landings value between 1997 and 2006 (for Point Judith)

Year	# Vessels (home ported)	# Vessels (owner's city)	Level of fishing home port ($)	Level of fishing landed port ($)
1997	160	0	27,391,809	47,529,746
1998	150	0	26,944,185	42,614,251
1999	154	0	28,674,140	51,144,479
2000	152	0	26,009,364	41,399,853
2001	156	0	23,926,615	33,550,542
2002	150	0	22,079,497	31,341,472
2003	143	0	23,574,480	31,171,867
2004	142	0	28,070,205	36,016,307
2005	142	0	29,516,480	38,259,922
2006	146	0	34,572,493	46,947,791

(Note: # Vessels home ported = No. of permitted vessels with location as homeport
 # Vessels (owner's city) = No. of permitted vessels with location as owner residence
Level of fishing home port ($) = Landed value of fisheries associated with home ported vessels
Level of fishing landed port ($) = Landed value of fisheries landed in location)

Recreational

Rhode Island marine waters also support a sizable recreational fishing sector. While complete data on this component is lacking, it is estimated that in the year 2000, some 300,000 saltwater anglers, most from out-of-state, made 1 million fishing trips. This indicates that the recreational component is significant both in terms of the associated revenues generated (support industries) and harvesting capacity. Between 2001- 2005, there were 66 charter and party vessels making 7,709 total trips registered in logbook data by charter and party vessels in Point Judith carrying a total of 96,383 anglers (MRFSS data). A 2005 survey by the RI Dept. of

Environmental Management showed Point Judith to be the most popular site in the state for shore based recreational fishing.

Future

Point Judith fishermen are not very positive about the future of Point Judith as a fishing port. Besides the main concern of stringent fishing regulations Point Judith fishermen also must contend with the ever increasing tourism at the port. This has caused parking issues and rent increases.

Oceanlinx Limited (formerly Energetech Australia) is a wave power company working on a pilot project to build and install a wave power plant off Point Judith. Called “Project GreenWave”, the effort is a non-profit pilot, with funding from Massachusetts, Rhode Island and Connecticut and would become the first wave power installation in the U.S. if successful. As the effort is a first, there has been confusion over whether the regulatory jurisdiction is state or federal, which has slowed the projects commencement. “The station would be located just outside the Point Judith breakwater and about a mile offshore. Care is being taken not to disrupt commercial ship traffic or recreational boaters. The station will be designed to: withstand ‘100 year storm criteria’, be easily towed to port, make 100 times less noise than an outboard motor; and have only one moving part — the turbine.”

6.5.2 Economic Environment

The focus in this section is on participation, fleet characteristics, and economic trends in the mackerel fishery. When average results are given, it is generally an average of the most recent three years (unless otherwise noted) so that a relatively current picture is given. The *Illex*, *Loligo*, and butterfish fisheries are not expected to be significantly impacted by the management measures contained in this amendment so they are not detailed here. The reader can consult section 6.1 for an overview of these fisheries, and additional details on the economic environment for these fisheries can be found in Amendment 10's FSEIS and in the annual specification EAs (http://www.mafmc.org/fmp/msb.htm - 2011 would be the most recent). Significant other fleet details can be garnered from the analysis section, which looks at vessel characteristics in terms of the proposed Tiered limited access system.

6.5.2.1 Atlantic Mackerel Fishery

Market for Atlantic Mackerel

From 2005-2007, the disposition of the vast majority of the U.S. commercial harvest of Atlantic mackerel is in the food/unknown category (average = 91%). 9% goes to bait, and very small percentages go to pet or other animal foods (dealer weighout data). Most of the Atlantic mackerel harvest is exported. In 2007, exports were sold as frozen product (74%), fresh product (21%), and prepared/preserved product (5%) according to the NOAA Fisheries Office of Science and Technology (http://www.st.nmfs.gov/st1/index.html).

Revenues

Revenues generally track landings and were high in 2004 and 2006 but dropped significantly in 2007 due to lower landings (Figure 89). Revenues are highest in the winter and spring months when the mackerel are available to the US fishery. Figures 62a-b provide updates for the most recent years, which have seen additionally lower landings and revenues.

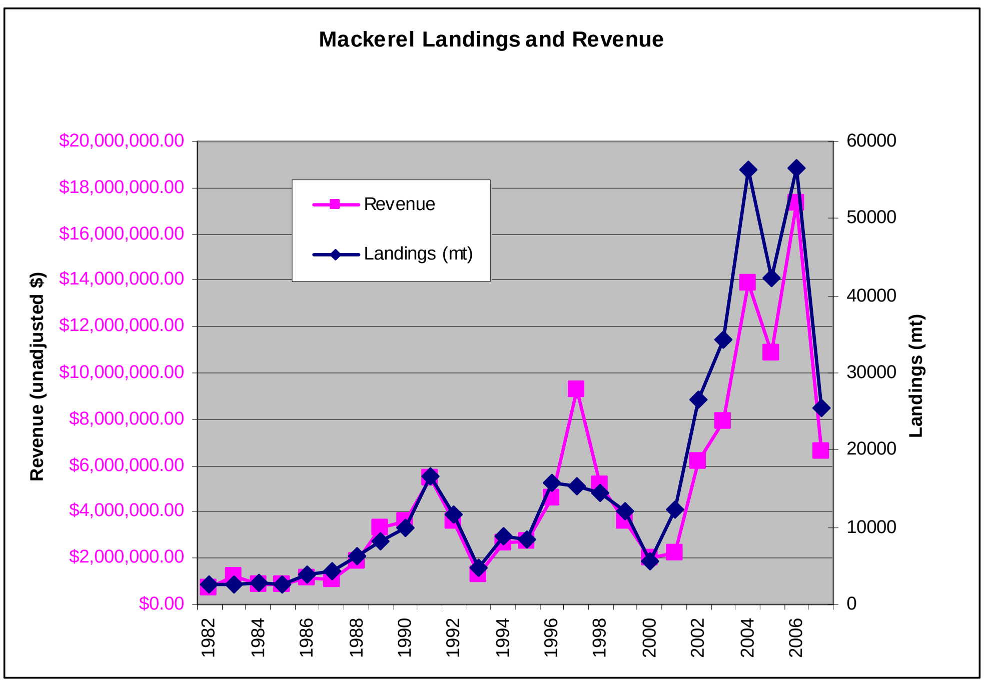


Figure 89. Mackerel Landings and Revenues Annual

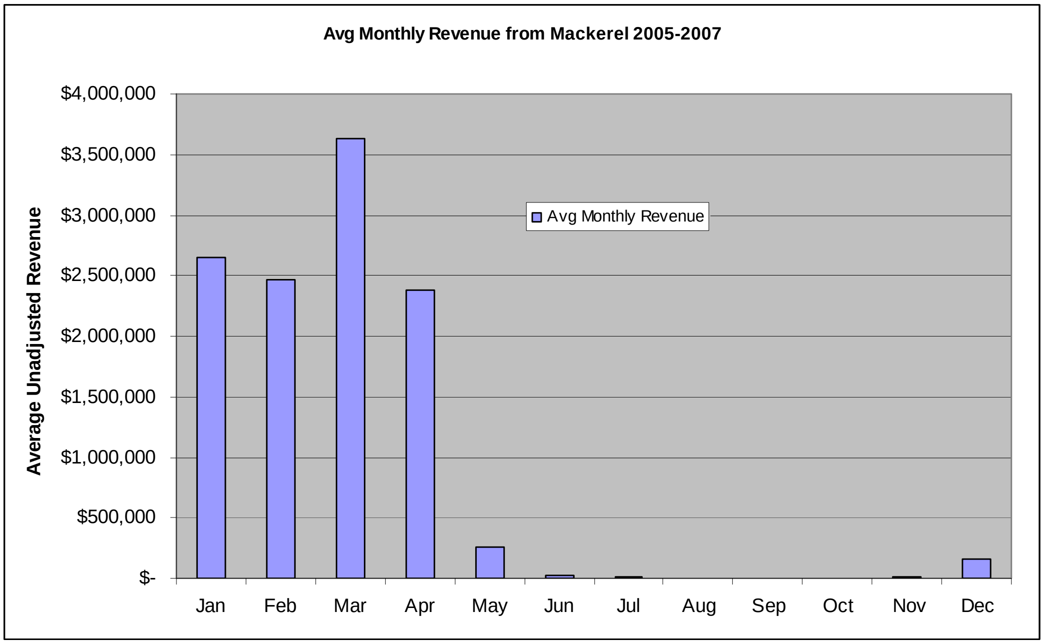


Figure 90. Avg. Monthly Mackerel Revenues

These patterns have not changed dramatically in more recent years as can be reviewed in recent specifications documents: http://www.mafmc.org/fmp/msb.htm.

Prices

Prices have fluctuated over time with changes in global supply, global demand, or both. Given generally most mackerel is processed, frozen, and can be sold throughout the year into a global market, and given there have not been any fishery closures that could drive prices up in a given part of the year, only annual prices (nominal) are provided.

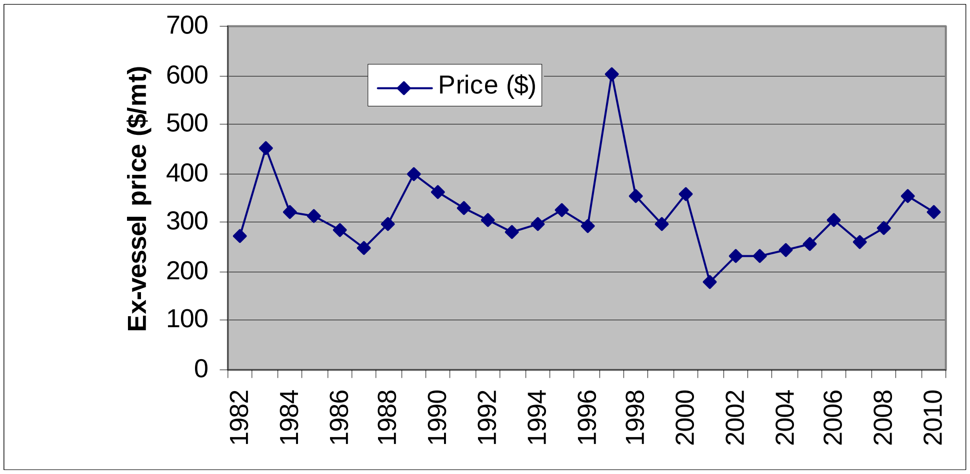


Figure 91. Mackerel Prices 1982-2007

Vessels

Fleet Characteristics

Detailed fleet characteristic analysis was limited to those vessels that accounted for 95% of total mackerel revenues over the period 2005-2007 (i.e., the most recent 3 years with complete data at the time the EIS was developed). Note this is a slightly different definition than the "primary participants" described earlier and the reason is predominantly just the analyst's effort to show that a small number of vessels account for 95% of revenues. These criteria resulted in a list of 26 vessels (this criterion is different than the limited access criteria so while there is a lot of overlap, these are not the same 26 vessels that qualify for Tier 1 under some of the limited access scenarios). These vessels will be termed "major" vessels hereafter. Of the major vessels, the vessel with the most mackerel revenue 2005-2007 was at $3,830,045 (eleven percent of total mackerel revenues) and the vessel with the least was at $104,156 (less than 1/3 of one percent of total mackerel revenues). Their dependence on mackerel is described in Table 73 and most show significant dependence on mackerel.

Principle ports of the major vessels include (as indicated in the NMFS permit data) Gloucester, MA, Cape May, NJ, New Bedford, MA, Davisville RI, Newington, NH, Boston, MA, Fall River, MA, Point Judith RI, Portland, ME, and Rockland, ME. The importance of mackerel to various ports is described in the community section (above). The major vessels range in size from 14 to 496 gross tons, and are between 34 and 150 feet in length. Crew size for these vessels ranges between 2 and 14. There is a range of dependence upon mackerel by the major vessels:

Table 73. Relative importance of Mackerel revenue for the major Mackerel vessels totaled across years and averaged across vessels from 2005 – 2007.

Pct of annual revenue from Mackerel	Vessels (N)	Mean Mackerel revenue	Mean revenue (all species)
<10%	5	$ 226,421	$ 4,305,315
10%-25%	3	$ 1,251,743	$ 6,078,925
25%-50%	8	$ 2,129,254	$ 5,884,548
50%-100%	10	$ 1,101,659	$ 1,744,272

While there were only 26 so called "major vessels," there are many more permitted and/or active vessels (i.e. landing 1 pound or more of mackerel average per year 2005-2007), as described in Table 74.

Table 74. Permitted and/or active vessels

Home Port State	Permitted Vessels	Vessels with at least 1 pound of mackerel landings 2005-2007
MA	966	99
NJ	321	66
ME	304	9
NY	234	46
RI	167	66
NC, VA	214	10
NH	114	17
CT	47	3
MD	34	9
All Others	61	5

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Mackerel revenues come from a variety of gear types and vessels in different states can tend to use different gear types. It is interesting to note that while single or paired midwater trawlers account for more landings (see Table 35), because of higher prices bottom trawl caught fish result in about the same average annual revenues as either of the midwater gears (see Table 75). The reasons for this are not currently clear but likely have to do with volume and fresh versus frozen processing.

Table 75. Mackerel Revenues by State and Gear Avg per year 2005-2007

	MA	NJ	RI	ME	NY	All Other States	Total
TRAWL,OTTER,MIDWATER	$2,819,721	$965,818	CI	CI	CI	CI	$3,803,795
TRAWL,OTTER,BOTTOM,FISH	$233,040	$602,190	$2,399,986	CI	CI	CI	$3,306,490
TRAWL,OTTER,MIDWATER PAIRED	$2,957,090	$223,001	CI	CI	CI	CI	$3,187,396
HAND LINE, OTHER	CI	CI	CI	CI	CI	CI	$721,210
DREDGE, OTHER	CI	CI	CI	CI	CI	CI	$210,024
LONGLINE, BOTTOM	CI	CI	CI	CI	CI	CI	$134,891
UNKNOWN	$45,349	$19,618	CI	CI	$13,057	CI	$83,994
TRAWL,OTTER,BOTTOM PAIRED	CI	CI	CI	CI	CI	CI	$42,452
GILL NET,SINK, OTHER	CI	CI	CI	CI	CI	CI	$35,174
GILL NET,OTHER	CI	CI	CI	CI	CI	CI	$20,240
POUND NET, OTHER	CI	CI	CI	CI	CI	CI	$18,837
ALL OTHER GEARS	$15,736	$156	$6,424	$479	$3,091	$194	$26,080

Dealers/Processors

The majority of mackerel are caught by trawlers with refrigerated seawater tanks and brought to processing plants back at shore, though significant quantities are also frozen and packaged at sea by trawlers with onboard packaging and freezing capabilities. In either case the fish are sorted from the rest of the catch, weighed, processed, boxed, and frozen for sale. The final frozen product is either whole round fish (predominantly), or headed and gutted fish. The final frozen product may be kept frozen for extended periods of time (up to about a year) before it is shipped to buyers (often internationally). There is a limited fresh product market and a bait fishery that catches mackerel along with herring. In general the fishery typically produces large volumes of fish in a short season in the winter and early spring. Expansion of shoreside processing capacity has been an important component of the expansion of the mackerel fishery. The current estimate of domestic processing capacity used by the Council is 100,000 MT. The following table provides information on permitted and active mackerel dealers by states with at least one active dealer. An active dealer would be a dealer that received at least 1 pound of mackerel from 2005-2007.

Table 76. Permitted and Active Mackerel Dealers 2005-2007

State	Number of Permitted Dealers	Number of Active Dealers
NY	108	36
MA	161	31
RI	46	20
NC	35	8
NJ	71	8
ME	33	7
VA	31	5
CT, MD, NH, DE	44	7

Dealers have a variety of dependence on mackerel as a product. While no dealer revenue information is available, one can calculate what percent of the dollars spent by dealers to buy fish comes from mackerel, which gives one a rough idea of the dependence by dealers on mackerel. The following table (Table 77) breaks down the active dealers with over $1,000 in mackerel purchases according to this measure of dependence for 2005-2007 by value:

Table 77. Dealer Dependence on Mackerel (dollars)

Relative Dependence Category	Number of Dealers in Category	Average Annual Mackerel Purchases Per Dealer	Average Annual Total Purchases Per Dealer
<5%	50	$8,459	$4,484,281
5%-25%	3	$1,687,657	$10,202,781
25%-75%	3	$826,368	$1,905,739
75%+	3	$1,198,285	$1,385,688

The following table (Table 78) breaks down the active dealers with over 5,000 pounds in mackerel purchases according to the same general concept of dependence for 2005-2007 by weight:

Table 78. Dealer Dependence on Mackerel (Weight)

Relative Dependence Category	Number of Dealers in Category	Average Annual Mackerel Purchases Per Dealer (MT)	Average Annual Total Purchases Per Dealer (MT)
<25%	51	16	1,907
25%-50%	3	8,170	22,849
50%+	4	4,026	5,291

7.0 Analysis of the Impacts of the Alternatives

For all alternative sets (1-7) and all valued ecosystem components (VECs), the first alternative ("A") equals no action, which is what is predicted to happen with the status quo management measures. Subsequent alternatives are the action alternatives and diverge from the status quo management measures as described in Section 5. See Tables 5,6, and 7 for a summary of the impacts of the alternatives. The impact analysis focuses on the valued ecosystem components (VECs) that were identified for Amendment 11 and described in detail in Section 6.0 of this document. These VECs include:

1. Managed Resources
   - Atlantic mackerel stock
   - *Illex* stock
   - *Loligo* stock
   - Atlantic butterfish stock
2. Non-target species
3. Habitat including EFH for the managed resources and non-target species
4. Endangered and other protected resources
5. Human Communities

One critical point for context of all the analyses in this section is that future mackerel quotas are expected to be lower than recent mackerel quotas. As described in Section 6, while stock status and reference point information was not accepted in a recent 2010 assessment, most indicators pointed toward lower productivity and the recommended catch levels could produce quotas consistent with the quotas originally considered in the DEIS (12,000 MT-56,000 MT) (TRAC 2010). This is described in more detail in Section 6.1.1.2. For the rest of Section 7, the fact that quotas are expected to get smaller will be referenced but each subsection will not repeat the explanation of why quotas are expected to get smaller. 2011 quotas were lowered to 47,395 mt.

Another general point is that if vessels want to increase fishing effort in general, but cannot increase effort toward mackerel because of limited access, then they may increase effort toward other species. Given: that mackerel permitted vessels hold a wide variety of other permits; that this principle also holds for vessels without mackerel permits; that a wide variety of species are available to some degree in the mackerel season (generally January-April); that vessels could move to other geographic areas; and that this is a future issue and management in any of the other fisheries may change in the future (affecting how vessels could enter those other fisheries), it is impossible to describe what other fisheries could be impacted, but it is just noted that such impacts are theoretically possible.

7.1 Impacts on Managed Resources

7.1.1 Impacts on Managed Resources from Alternative Set 1 alternatives (1A-1I): Alternatives to develop a tiered limited access system in the Atlantic mackerel fishery.

For all alternatives, impacts on butterfish, *Loligo*, and *Illex* are expected to be negligible because the measures would not impact the mortality of these species.

1A - No Action

The mackerel fishery would remain an open access fishery with quotas set as described in 4.1.A "Current Determination of Annual Quotas." Vessels would just have to get federal permits annually to harvest mackerel in federal waters. Effort would likely rise and fall, and shift spatially and temporally, depending on market conditions, mackerel abundance, and mackerel availability, all of which are difficult to predict alone, let alone in combination. Recent (2003-2007) harvests have ranged from 24,000 MT to 56,000 MT. However, since the mackerel fishery is already hard quota managed with weekly monitoring and in-season closures based on current and near-future projected landings, significant impacts on the managed resources would not be expected, regardless of quota size. Landings would be expected to be at or below the specified quota, so the quota specification would be the most important management factor determining possible levels of fishing-related mackerel mortality. The quota specification process will presumably set quotas so as to maintain a healthy mackerel stock. Quotas are expected to fall in the future once more average recruitment causes the mackerel stock to fall from current above-average stock size related to good recruitment events, but the higher quotas now (greater than 100,000 MT) at a higher stock size and the lower quotas later (56,000 MT-12,000 MT) at a lower stock size have the same overall impact on the mackerel stock: they maintain the overall health of the mackerel stock at or above Bmsy, so minimal impacts on managed resources are expected.

Capacity could increase without significant constraint in an open access situation. Current open access capacity is estimated to be over 200,000 MT, though comparing quotas to capacity is difficult because optimum capacity, as measured in this document may be significantly higher than the quota level (see 4.1.A for more discussion of this topic). Should quotas fall and/or capacity increase sufficiently, a race to fish could develop in the future (not possible to quantify exact degree necessary). Should a substantial race to fish develop, it is theoretically possible that effort would be so intense that the risk of quota overages could increase, but since the current management regime is relatively flexible, the likelihood of substantial ongoing quota overages is likely to be small.

1B-1I - Action

For the same basic reasons as discussed under the no action alternative, minimal impacts are expected. All managed species are already managed with hard quotas and in-season closures when landings approach a given percentage of the quota (except for recreational mackerel landings, which have been and are likely to continue to be a very small part of overall catch) such that the total quota and/or overfishing level are not likely to be exceeded. Thus under any of the limited access systems (1B-1I), there would likely be minimal impacts on the managed resources compared to the status quo open access management regime or compared to each other, regardless of quota size, because the existing and continued use of a hard quota is the primary human-related factor affecting the managed resources. Landings would be expected to be at or below the specified quota, so the quota specification would be the most important management factor determining possible levels of fishing-related mackerel mortality. The quota specification process will presumably set quotas so as to maintain a healthy mackerel stock.

In general, there may be indirect benefits to the resource, especially over the long-term, of a limited access program if it prevents or minimizes overcapacity. A paper written by Pamela Mace (Developing and Sustaining World Fishery Resources: The State of Science and Management, delivered to the World Fisheries Congress, Brisbane, 1997) addresses some of the potential biological impacts associated with preventing overcapacity in a fishery (or failing to prevent overcapacity). Although not specific to the mackerel fishery, the problems identified and described below should be considered relative to the no action (or status quo) alternative, which maintains an open-access fishery, and along the continuum of resulting capacities as described above:

“When a high proportion of fishers are economically marginal, the net result is likely to be, (i) increased pressure on scientists to conduct ‘optimistic’ assessments and increased challenges of the validity of the science, (ii) increased pressure on managers to select TACs from the upper, risk-prone confidence intervals of projected catch distributions, (iii) increased pressure on governments to provide financial aid (i.e., subsidies) to prop up failing businesses, and (iv) increased incentive to circumvent fishing regulations, including under-reporting of landings and use of destructive fishing practices. In addition, highliners who are doing well may not want to change the status quo.” (Mace 1997)

To the extent that future quotas are lower than current specifications, driving a race to fish, capping the capacity of the mackerel fleet could reduce a race to fish, thereby reducing chances of future mackerel quota overages, but the effects are impossible to quantify since the flexibility in the current regime would still allow other future actions to avoid quota overages should a race to fish in fact develop. In this regard, one would expect higher benefits from the scenarios with lower capacity: 1E>1D>1C>1J>1B=1F>1G=1A (see capacity discussion in 7.5.1). Since 1H and 1I would only add vessels to Tier 3, they are not expected to significantly add to capacity as Tier 3 is expected to have relatively low trip limits in most scenarios. 1E would result in approximately a 49% reduction in capacity to 104,000 MT while 1B and 1F would result in approximately a 35% reduction in capacity to 104,000 MT 131,000 MT, with 1J, 1D, and 1C in between. 1G is assumed equal to 1A because of high trip limits for the open access fleet. These compare to the 12,000 to 56,000 assumed long term quotas, so the limited access fleets would appear to at least have the physical capacity to harvest long-term quotas.

Regardless of capacity, since limited access would institutionalize the current character of the fleet, unless otherwise constrained by quotas, one would expect that Tier 1 and Tier 2 would continue to harvest in the range they have recently, 24,000 MT to 56,000 MT if abundance and availability are similar in the future - if these change landings could change as well. Since these vessels have been the major harvesters and this would be preserved by limited access, one would not expect spatial/temporal changes as a result of limited access, though environmental changes could always have affects but that is separate from limited access effects.

Capacity estimates for alternatives that use earlier date ranges (1B, 1F, and to a lesser degree 1D and 1J) would have higher uncertainty associated because less verifiable data could be used for qualification purposes, but because use of the earlier dates is limited to the lower tiers the impacts would not be as substantial compared to if the earlier dates applied to Tier 1, but if more vessels obtain limited access permits than expected then any potential future racing to fish could be exacerbated.

The modifications made to 1C and 1D, which result in more vessels in Tier 3, should not change the original DEIS's conclusions regarding impacts on the mackerel stock. While the modifications do lead to higher numbers of Tier 3 permit holders with relatively high trip limits, the proposed cap should ensure that the resulting limited access system effectively controls catch and minimizes additional capitalization of most vessels for purposes of targeting mackerel.

7.1.2 Impacts on Managed Resources from Alternative Set 2 alternatives (2A-2D): Alternatives to allocate quota to limited access Tiers based on historical landings. For all alternatives, impacts on butterfish, *Loligo*, and *Illex* are expected to be negligible because the measures would not impact the mortality of these species.

<u>2A - No Action</u>

The fishery would either remain under an open access fishery or one could be in a situation of limited access but with only trip limits and no allocation, with quotas set as described in 4.1.A "<u>Current Determination of Annual Quotas</u>" in both cases. Effort would likely rise and fall, and shift spatially and temporally, depending on market conditions, mackerel abundance, and mackerel availability, all of which are difficult to predict alone, let alone in combination. Recent (2003-2007) harvests have ranged from 24,000 MT to 56,000 MT. However, since the mackerel fishery is already hard quota managed with weekly monitoring and in-season closures based on current and near-future projected landings, significant impacts on the managed resources would not be expected, regardless of quota size. Landings would be expected to be at or below the specified quota, so the quota specification would be the most important management factor determining possible levels of fishing-related mackerel mortality. The quota specification process will presumably set quotas so as to maintain a healthy mackerel stock. Quotas are expected to fall in the future once more average recruitment and higher fishing mortality rates cause the mackerel stock to fall from current above-average stock size related to good recruitment events and low fishing mortality rates (2004 F was .05 and Fs since then have been below the .12 target), but the higher quotas now (greater than 100,000 MT) at a higher stock size and the lower quotas later (56,000 MT- 12,000 MT) at a lower stock size have the same overall impact on the mackerel stock: they maintain the overall health of the mackerel stock at or above Bmsy, so minimal impacts on managed resources are expected.

Capacity could increase without significant constraint in an open access situation. Should quotas fall and/or capacity increase sufficiently, a race to fish could develop in the future (not possible to quantify exact degree necessary). Should a substantial race to fish develop, it is theoretically possible that effort would be so intense that the risk of quota overages could increase, but since the current management regime is relatively flexible, the likelihood of substantial ongoing quota overages is likely to be small. In a situation of limited access but with only trip limits and no allocation, a race to fish could still develop but to a lesser degree, and with the vast majority of vessels under relatively restrictive trip limits, the likelihood of substantial ongoing quota overages is likely to be even smaller. If the situation was limited access with trip limits, one would expect even less effort than in the open access situation because the vast majority of permitted vessels (all but 54-90 of 2,622 in 2007) would have relatively low trip limits, reducing effort from what could have otherwise occurred.

<u>2B-2D - Action</u>

For the same basic reasons as discussed under the no action alternative, minimal impacts are expected. All managed species are already hard quota managed with in-season closures when landings approach a given percentage of the quota such that the total quota and/or overfishing level are not likely to be exceeded (except for recreational mackerel landings, which have been and are likely to continue to be a very small part of overall catch). Thus under any of the limited access allocation scenarios, there would likely be minimal impacts on these resources compared to the status quo open access management regime or compared to each other, because the existing and continued use of a hard quota is the primary human-related factor affecting these resources. From the perspective that the allocations are part of the limited access system, there are benefits as described in 7.1.1. Because of the transfer provisions if Tier 2 does not catch much of its quota for the alternatives (2C and 2D) that allocate more to Tier 2 than they have caught (proportionally) since 1997, there is not likely to be a significant difference in achieving any given quota between the alternatives. While the transfer would not occur until April, in a year when Tier 1 needed that quota it would likely be the result of relatively good mackerel availability so the small amount transferred would have the potential of being used even though April is relatively late in the mackerel season. Thus 2C and 2D should not significantly impinge on harvesting of the full quota.

The modifications made to 1C and 1D include eliminating the allocation to Tier 2. This could result in a slightly different distribution of effort among vessels compared to if Tier 2 received a discrete allocation, but the results of such a change are not possible to predict given the dynamic nature of the mackerel fishery.

7.1.3 Impacts on Managed Resources from Alternative Set 3 alternatives (3A-3G): Alternatives to specify trip limits for each Tier. For all alternatives, impacts on butterfish, *Loligo*, and *Illex* are expected to be negligible because the measures would not impact the mortality of these species.

3A - No Action

The proposed limited access system requires that some action alternative be selected from Alternative Set 3, so if 3A was selected, the mackerel fishery would remain an open access fishery with quotas set as described in 4.1.A "Current Determination of Annual Quotas." Vessels would just have to get federal permits annually to harvest mackerel in federal waters. Effort would likely rise and fall, and shift spatially and temporally, depending on market conditions, mackerel abundance, and mackerel availability, all of which are difficult to predict alone, let alone in combination. Recent (2003-2007) harvests have ranged from 24,000 MT to 56,000 MT. However, since the mackerel fishery is already hard quota managed with weekly monitoring and in-season closures based on current and near-future projected landings, significant impacts on the managed resources would not be expected, regardless of quota size. Landings would be expected to be at or below the specified quota, so the quota specification would be the most important management factor determining possible levels of fishing-related mackerel mortality. The quota specification process will presumably set quotas so as to maintain a healthy mackerel stock. Quotas are expected to fall in the future once more average recruitment causes the mackerel stock to fall from current above-average stock size related to good recruitment events, but the higher quotas now (greater than 100,000 MT) at a higher stock size and the lower quotas later (56,000 MT- 12,000 MT) at a lower stock size have the same overall impact on the mackerel stock: they maintain the overall health of the mackerel stock at or above Bmsy, so minimal impacts on managed resources are expected.

Capacity could increase without significant constraint in an open access situation. Should quotas fall and/or capacity increase sufficiently, a race to fish could develop in the future (not possible to quantify exact degree necessary). Should a substantial race to fish develop, it is theoretically possible that effort would be so intense that the risk of quota overages could increase, but since the current management regime is relatively flexible, the likelihood of substantial ongoing quota overages is likely to be small.

3B-3G - Action

For the same basic reasons as discussed under the no action alternative, minimal impacts are expected. All managed species are already hard quota managed with in-season closures when landings approach a given percentage of the quota such that the total quota and/or overfishing level are not likely to be exceeded (except for recreational mackerel landings, which have been and are likely to continue to be a very small part of overall catch). Thus under any of the limited access trip limit scenarios, there would likely be minimal impacts on these resources compared to the status quo open access management regime or compared to each other, because the existing and continued use of a hard quota is the primary factor affecting these resources. Also, the trip limits are not being used to reduce effort; rather they are being used to prevent current participants from expanding beyond their historical participation levels. Thus the trip limits were designed to not affect the vast majority of trips by vessels in the various tiers, so one would expect regulatory discarding to be minimal.

From the perspective that the trip limits are part of the limited access system, there are benefits as described in 7.1.1 (trip limits are one tool to keep the lower tier vessels from landing more than they historically landed). To the extent that lower trip limits encourage incidental vessels to remain as incidental vessels (not capitalized for the purposes of mackerel fishing), lower trip limits could be considered as also contributing to capping capacity, thus in terms of resulting fleet capacity, 3D<3C<3B<3F<3G<3A (i.e. 3D would result in the lowest capacity fleet and highest benefits). If the situation was limited access with trip limits, one would expect less effort than in the open access situation because the vast majority of permitted vessels (all but 54-90 of 2,622 in 2007) would have relatively low trip limits, reducing effort from what would have otherwise occurred. While the modification to 3F increased the trip limits, since open access would still be lower than that under 3G, 3F is still probably more restrictive, especially given it would work in concert with the Tier 3 cap proposed in 1C/1D.

3E would only apply to Tier 2 vessels that had already qualified for a relatively high Tier (which would be capped by a quota) and thus probably not likely to impact capacity significantly, but without a trip limit there could be some incentive to increase capitalization on Tier 2 vessels though the extent is unquantifiable.

As discussed in Section 5.3, the trip limits are specifically designed to not affect most trips. This is because they are intended to minimize expansion of effort rather than constrict existing effort. Thus they are designed to maintain the status quo fishing practices and would not be expected to cause significant regulatory discarding or significantly change fishing practices (including temporally or spatially).

Trip limits can be relatively difficult to enforce. However, since the catch is onboard at any point in time the vessel can be inspected by enforcement personnel. Also, since landings must be reported to federal dealers there is a paper trail that can be used to focus enforcement efforts.

7.1.4 Impacts on Managed Resources from Alternative Set 4 alternatives (4A-4F): Alternatives to indicate Council intent on a variety of standard policy and administrative matters inherent in Northeast limited access systems needed to maintain consistency with other FMPs and to simplify management. For all alternatives, impacts on butterfish, *Loligo*, and *Illex* are expected to be negligible because the measures would not impact the mortality of these species.

4A - No Action

The proposed limited access system requires that some action alternative be selected from Alternative Set 4 so if 4A was selected, the mackerel fishery would remain an open access fishery with quotas set as described in 4.1.A "Current Determination of Annual Quotas." Vessels would just have to get federal permits annually to harvest mackerel in federal waters. Effort would likely rise and fall, and shift spatially and temporally, depending on market conditions, mackerel abundance, and mackerel availability, all of which are difficult to predict alone, let alone in combination. Recent (2003-2007) harvests have ranged from 24,000 MT to 56,000 MT. However, since the mackerel fishery is already hard quota managed with weekly monitoring and in-season closures based on current and near-future projected landings, significant impacts on the managed resources would not be expected, regardless of quota size. Landings would be expected to be at or below the specified quota, so the quota specification would be the most important management factor determining possible levels of fishing-related mackerel mortality. The quota specification process will presumably set quotas so as to maintain a healthy mackerel stock. Quotas are expected to fall in the future once more average recruitment causes the mackerel stock to fall from current above-average stock size related to good recruitment events, but the higher quotas now (greater than 100,000 MT) at a higher stock size and the lower quotas later (56,000 MT- 12,000 MT) at a lower stock size have the same overall impact on the mackerel stock: they maintain the overall health of the mackerel stock at or above Bmsy, so minimal impacts on managed resources are expected.

Capacity could increase without significant constraint in an open access situation. Should quotas fall and/or capacity increase sufficiently, a race to fish could develop in the future (not possible to quantify exact degree). Should a substantial race to fish develop, it is theoretically possible that effort would be so intense that the risk of quota overages could increase, but since the current management regime is relatively flexible, the likelihood of substantial ongoing quota overages is likely to be small.

<u>4B- Action</u>

All managed species are already hard quota managed with in-season closures when landings approach a given percentage of the quota such that the total quota and/or overfishing level are not likely to be exceeded (except for recreational mackerel landings, which have been and are likely to continue to be a very small part of overall catch). The hard quota will remain in effect regardless of the administrative measures chosen. Thus there would likely be minimal impacts on the managed resources compared to the status quo open access management regime or any other alternative, because the existing and continued use of a hard quota is the primary factor beneficially affecting the managed resources. From the perspective that the administrative provisions are part of the limited access system, there are indirect benefits as described in 7.1.1 tied to limiting any potential race to fish, especially related to 4B2 and 4B10 that limit permit splitting, 4B5 that establishes vessel baselines, and 4B6 that limits vessel upgrades because these provisions will limit the capacity of the resulting mackerel fleet.

<u>4C- Action - Fish Hold Measurements</u>

If 4C was selected, holds would have to be surveyed and documented for Tier 1 and Tier 2 vessels, and upgrades would be limited in terms of hold size. This could constrain additional capitalization on existing permits, thus there are indirect benefits as described in 7.1.1 tied to limiting any potential race to fish. However, all managed species are already hard quota managed with in-season closures when landings approach a given percentage of the quota such that the total quota and/or overfishing level are not likely to be exceeded (except for recreational mackerel landings, which have been and are likely to continue to be a very small part of overall catch). The hard quota will remain in effect regardless of the administrative measures chosen.

Thus there would likely be minimal impacts on the managed resources compared to the status quo open access management regime or any other alternative, because the existing and continued use of a hard quota is the primary factor beneficially affecting the managed resources.

<u>4D- Action - History retention/Permit Splitting Exception (preferred)</u>

If 4D was selected, there would likely be additional vessels that qualify for the limited access Tiers, though the extent is not possible to quantify. With additional capital in the fleet, there could be a greater likelihood of a race to fish, and therefore less benefit related to instituting limited access as described in 7.1.1. However, all managed species are already hard quota managed with in-season closures when landings approach a given percentage of the quota such that the total quota and/or overfishing level are not likely to be exceeded (except for recreational mackerel landings, which have been and are likely to continue to be a very small part of overall catch). The hard quota will remain in effect regardless of the administrative measures chosen. Thus there would likely be minimal impacts on the managed resources compared to the status quo open access management regime or any other alternative, because the existing and continued use of a hard quota is the primary factor beneficially affecting the managed resources.

<u>4E- Action - Permit baseline established by the vessel that created the fishing history</u>

If 4E was selected, histories created on small vessels could not be used to qualify a large vessel. This could constrain additional capitalization on existing permits, thus there are indirect benefits as described in 7.1.1 tied to limiting any potential race to fish. However, all managed species are already hard quota managed with in-season closures when landings approach a given percentage of the quota such that the total quota and/or overfishing level are not likely to be exceeded (except for recreational mackerel landings, which have been and are likely to continue to be a very small part of overall catch). The hard quota will remain in effect regardless of the administrative measures chosen. Thus there would likely be minimal impacts on the managed resources compared to the status quo open access management regime or any other alternative, because the existing and continued use of a hard quota is the primary factor beneficially affecting the managed resources.

<u>4F- Action - Multiple Vessels with One Owner</u>

Given the 10-10-20 stipulation, allowing owners of multiple vessels to switch out one vessel for another should have minimal impacts since the resulting qualifying vessels could not be that different from the vessel that created the history. Moreover, all managed species are already hard quota managed with in-season closures when landings approach a given percentage of the quota such that the total quota and/or overfishing level are not likely to be exceeded (except for recreational mackerel landings, which have been and are likely to continue to be a very small part of overall catch). The hard quota will remain in effect regardless of the administrative measures chosen. Thus there would likely be minimal impacts on the managed resources compared to the status quo open access management regime or any other alternative, because the existing and continued use of a hard quota is the primary factor beneficially affecting the managed resources.

4G - Action - Additional Tier 3 Reporting

Since the fishery would still close based on total landings by all Tiers, most of which would not have the additional reporting, impacts would likely be minimal.

7.1.5 Impacts on Managed Resources from Alternative Set 5 alternatives (5A-5E): Alternatives to update the EFH definitions in the MSB FMP because the measures would not impact the mortality of these species.

5A - No Action

The EFH designation alternatives would remain as they are. For any given species and life stage, the current EFH designations identify the geographic domain within which fishery management measures could be implemented that would minimize to the extent practicable the adverse impacts of fishing, if they are determined to be necessary. It is highly unlikely that such measures would be needed to minimize impacts to EFH for MSB because they are pelagic species with life stages (except for *Loligo* egg EFH, which is not being updated) that inhabit the water column. EFH for MSB species is therefore not vulnerable to fishing, because gears of concern are all bottom-tending gears that affect benthic EFH (see EFH vulnerability evaluation in Stevenson et al. 2004, as summarized in Am9). Therefore, because none of the current EFH designations are expected to lead to any regulations affecting fishing activity, they would not have any differential impact on the productivity of these resources.

There are non-fishing activities that affect the water column that could be limited to varying degrees by regulations made possible by current MSB EFH designations, e.g., the intake of seawater by LNG operations impacts water temperature which could affect the water's suitability for MSB species. NMFS comments on federal activities that could impact EFH and those comments are taken into account when permitting and regulatory decisions are made. It is impossible to quantify the benefits but presumably if decisions were made to protect MSB habitat MSB species would benefit.

5B-5E - Action

The EFH designation alternatives being considered in this amendment would identify geographic areas of varying size, and describe habitat types within them, that are essential for "spawning, breeding, feeding, or growth to maturity" of MSB species and life stages. For any given species and life stage, the EFH designations identify the geographic domain within which fishery management measures could be implemented that would minimize to the extent practicable the adverse impacts of fishing, if they are determined to be necessary. It is highly unlikely that such measures would be needed to minimize impacts to EFH for MSB because they are pelagic species with life stages (except for *Loligo* egg EFH, which is not being updated) that inhabit the water column. EFH for MSB species is therefore not vulnerable to fishing, because gears of concern are all bottom-tending gears that affect benthic EFH (see EFH vulnerability evaluation in Stevenson et al. 2004, as summarized in Am9). Therefore, because none of the EFH designation alternatives being considered in this amendment are expected to lead to any regulations affecting fishing activity, they would not have any differential impact on the productivity of these resources.

There are non-fishing activities that affect the water column that could be limited to varying degrees by regulations made possible by different MSB EFH designation alternatives, e.g., the intake of seawater by LNG operations impacts water temperature which could affect the water's suitability for SMB species. NMFS comments on federal activities that could impact EFH and those comments are taken into account when permitting and regulatory decisions are made. It is impossible to quantify the benefits, but one would expect more benefits to accrue if more EFH is designated. Each alternative would however result in different sized geographical areas being designated, with 5A<5B<5C<5D<5E (5B would designate the least amount of area other than the no action alternative). All would generally designate more EFH than the status quo because of methodological changes and the density thresholds selected compared to the current designations.

7.1.6 Impacts on Managed Resources from Alternative Set 6 alternatives (6A-6D): Alternatives to establish a recreational allocation based on historical landings to prepare for development of ACLs/AMs.

For all alternatives, impacts on butterfish, *Loligo*, and *Illex* are expected to be negligible because the measures would not impact the mortality of these species.

6A - No Action

It would continue to be assumed that the recreational fishery could catch 15,000 MT. This assumption will continue to not be a hard quota. Should the recreational fishery catch equal 15,000 MT, there could be an overall quota overage because the commercial fishery closes when it reaches 90% of the total quota (commercial plus recreational). If the total quota falls substantially, as is predicted to occur, this potential problem would become potentially worse. For example, currently with the recreational assumption of 15,000 mt and with DAP = 100,000, the commercial quota closes at 90% of 115,000 which equals 103,500. If the recreational fishery actually caught 15,000 (unlikely) then at the point of the commercial closure the overall fishery would have harvested 15,000 + 103,500 = 118,500, i.e. there would be a 3% overage already at the point when the commercial fishery closed. If there was a total quota of only 56,000, if the recreational fishery caught 15,000 and the commercial fishery closes at 90% of 56,000 (50,400) then at the point of the commercial closure the overall fishery would have already harvested 15,000 + 50,400 = 65,400, i.e. there would be a 17% overage already at the point when the commercial fishery closed. So under the current assumption of future lower quotas, the status quo will lead to an increased likelihood of mackerel quota overages. The recreational fishery has taken a very small portion of the quota historically so these scenarios are largely theoretical but from a technical perspective the possibility does exist.

6B-6D - Action

This would only affect mackerel, and it would be expected to have a low positive impact in that it lays the groundwork for recreational ACLs/AMs in the Omnibus ACL/AM amendment.

ACLs/AMs will presumably lead to better conservation of the managed species. Since recreational landings have been and are expected to be a minimal part of mackerel mortality, the effect would likely be low. The overage scenarios described under the no-action alternative above would be avoided because each sector would be fishing on its own quota. Even with an allocation decision made, there are still no controls in place on the recreational mackerel fishery should it alone increase for some reason, but the Omnibus ACL/AM Amendment is expected to address this issue and the Council has a number of measures currently available to address a recreational quota overage via specifications (e.g. bag limits, seasons, etc.).

7.1.7 Impacts on Managed Resources from Alternative Set 7 alternatives (7A-7F): Alternatives to limit at-sea processing of Atlantic mackerel. For all alternatives, impacts on butterfish, *Loligo*, and *Illex* are expected to be negligible because the measures would not impact the mortality of these species.

<u>7A - No Action (preferred)</u>

There would be no limitations on at-sea processing of mackerel via transfers from catcher vessels to processor vessels. If no processors enter the business then there would be no changes from the status quo. If processors did enter the business in a significant fashion, a proportion of mackerel would be transferred and processed at sea but no impacts on the mackerel stock would be predicted because total landings are and would be controlled with a hard quota that is monitored weekly and closed in-season. With at-sea processing, there could be a higher probability that any given quota is reached, but presumably all quotas will be set so as to maintain the health of the mackerel stock. Since there is no at sea processing occurring now, it is difficult to predict how entrance of at-sea processors could shift effort temporally/spatially.

<u>7B-F - Action</u>

All managed species are already hard quota managed with in-season closures when landings approach a given percentage of the quota such that the total quota and/or overfishing level are not likely to be exceeded (except for recreational mackerel landings, which have been and are likely to continue to be a very small part of overall catch). Thus under any of the at-sea processing restrictions, there would likely be minimal impacts on the managed resources compared to the status quo, because the existing and continued use of a hard quota is the primary factor beneficially affecting the managed resources.

From a theoretical perspective, to the extent that at-sea processing could lead to more rapid harvests and therefore a higher likelihood of exceeding the annual quota, capping at-sea processing could lead to positive benefits for the mackerel stock. However, since the existing management regime has the flexibility to make other changes to ensure that quotas are not exceeded (like lowering the closure threshold) it is impossible to quantify any such theoretical benefits and there is no evidence that the flexibility in the existing management regime would be insufficient to avoid quota overages.

7.2 Impacts on non-Target Species

7.2.1 Impacts on non-Target Species from Alternative Set 1 alternatives (1A-1I): Alternatives to develop a tiered limited access system in the Atlantic mackerel fishery.

1A - No Action

The mackerel fishery would remain an open access fishery with quotas set as described in 4.1.A "Current Determination of Annual Quotas." As more average recruitment events occur, the mackerel stock is expected to fall from it currently high levels, and quotas will be reduced. Reduced quotas should lead to reduced effort, which will reduce impacts on all non-target species depending on how much quotas fall and if/how much effort is reduced. The timing and degree are impossible to predict, but quotas could fall to 12,000 MT - 56,000 MT. If effort fell accordingly, impacts to non-target species could fall accordingly. Temporal changes in effort would be unlikely since the mackerel season is generally confined to January-April already related to mackerel availability. Also, the limited observer data for mackerel fishing does not allow meaningful month to month spatial comparisons of bycatch levels. General spatial changes in effort related to falling quotas are also nearly impossible to predict because spatial effort is related to market conditions, mackerel abundance, and mackerel availability, which can vary from year to year, as demonstrated by the range of landings over 2003-2007, 24,000Mt to 56,000MT despite a quota of over 100,000 MT.

The relevant non-target species are spiny dogfish, Atlantic herring, scup, blueback herring, striped bass, hickory shad, American shad, alewife, and butterfish.

While a very rough estimate, especially given the low observer coverage and non-accounting for spatial and temporal trends, one can use Table 44 and the fact that about 43,000 MT of mackerel were caught annually 2003-2007 to generally estimate annual discards for the ten species in the table. Table 79 provides this estimate but readers are strongly cautioned that while this is a reasonable approach for a general, rough, and relative estimate given the available data, it is highly imprecise (the ratio of the species caught to mackerel kept is scaled up by dealer landings). Note also that even the estimates that can be calculated would only be valid for the 95% of landings captured by the chosen directed mackerel trip definition. It is difficult to assess the other 5% because to some degree the mackerel itself is being caught incidental to other fisheries. Updated discard/incidental catch information is available in the 2011 Specifications EA (http://www.mafmc.org/fmp/msb.htm).

These amounts would be expected to be lower if lower quotas (which are expected in the future) constrain catch and effort. The discards of large pelagics in the Atlantic mackerel fishery is generally unknown due to the inability of the observers to view these discards because of the pumping of fish that occurs from codend to hold - large-bodied species are prevented from entering the pump (the pump sends the catch directly from the codend into the hold) and are discarded while the codend is submerged.

Should lower quotas drive a race to fish, reductions in non-target interactions may be smaller than otherwise anticipated above because a race to fish can lead fishermen to be less careful about avoiding bycatch while they are trying to catch the target species as quickly as possible before other vessels catch the quota.

Table 79. Annual Discard Estimates from Mackerel Fishery 2003-2007

	Annual Catch (pounds) From Directed Mackerel Fishery	Annual Discards (pounds) From Directed Mackerel Fishery
MACKEREL, ATLANTIC	na	1,065,320
DOGFISH SPINY	538,177	512,953
HERRING, ATLANTIC	2,754,324	283,432
SCUP	212,926	212,926
HERRING, BLUE BACK	201,081	42,588
BASS, STRIPED	8,773	8,773
SHAD, HICKORY	8,803	8,728
SHAD, AMERICAN	8,425	3,380
ALEWIFE	117,665	2,447
BUTTERFISH	30,651	1,946

1B-1I - Action

The overall quota affects effort more than any other management decision and effort affects the impacts on non-Target species. The overall quota is expected to fall over time which means that impacts to non-target species should also fall to the extent that lower quotas constrain effort. To the extent that limited access, by capping capacity, reduces any race to fish (and therefore effort) that could develop in the future in the mackerel fishery, compared to the status quo, limited access would be expected to reduce bycatch and therefore lead to positive but unquantifiable future impacts. Reducing a race to fish can reduce discarding because fishermen are not as concerned about catching the quota quickly and can try to avoid bycatch in order to avoid having to then sort bycatch. The smaller the fleet, the greater the initial positive impacts, but since capacity is elastic (can increase) in the long run even with a fixed fleet (see 4.1.A - individual vessels inevitably find ways to increase fishing power), the differential between alternatives is impossible to quantify. In general, one would expect higher benefits from the scenarios with lower capacity: 1E>1D>1C>1J>1B=1F>1G=1A (see capacity discussion in 7.5.1). Since limited access generally institutionalizes the existing fleet, there are no significant expected spatial/temporal impacts associated with limited access. Impacts may be minimal regardless since mackerel availability can be unpredictable, and when fish are available fishing may occur at a rapid pace regardless of the possibility of fishery shutdown related to the quota (nature can shut the fishery down at unpredictable points).

To the extent that preventing new entry into the mackerel fishery causes effort to shift into or focus on other fisheries, non-Target species in those other fisheries could be negatively impacted, but the effects are unquantifiable.

Selection of 1H or 1I would add Herring vessels to Tier 3 for purposes of avoiding potential regulatory discarding issues and would not be expected to significantly change effort from the status quo.

To the extent that Alternative Sets 2, 3, and 4 are part of the overall limited access system, as described in 7.1, they also provide benefits related to avoiding/minimizing the race to fish just like Alternative Set 1.

The modifications made to 1C/1D could potentially create a race to fish within Tier 3 given the trip limits could facilitate some directing, but given Tier 3 will be capped at a small percentage of the overall quota, impacts would likely be minimal relative to other alternatives or to the status quo.

7.2.2 Impacts on non-Target Species from Alternative Set 2 alternatives (2A-2D): Alternatives to allocate quota to limited access Tiers based on historical landings.

2A - No Action

The fishery would either remain under an open access fishery or one could be in a situation of limited access but with only trip limits and no allocation, with quotas set as described in 4.1.A "Current Determination of Annual Quotas" in both cases. As described in 7.2.1, quotas are expected to fall in the long term which should result in lower non-target species impacts even under open access to the extent that lower quotas constrain effort. If the situation was limited access with trip limits, one would expect even less effort than in the open access situation because the vast majority of permitted vessels (all but 54-90 of 2,622 in 2007) would have relatively low trip limits, reducing effort from what could have otherwise occurred.

2B-2D - Action

The overall quota affects effort more than any other management decision and effort affects the impacts on non-Target species. The overall quota is expected to fall over time which means that impacts to non-target species should also fall to the extent that lower quotas constrain effort. The proposed allocations of quota are unlikely to affect effort significantly compared to the status quo, so there are likely minimal impacts compared to the status quo. Since limited access generally institutionalizes the existing fleet, there are no significant expected spatial/temporal impacts associated with limited access. To the extent that the allocation scenarios cause effort to go into or focus on other fisheries, non-Target species in those other fisheries could be negatively impacted, but the effects are unquantifiable.

7.2.3 Impacts on non-Target Species from Alternative Set 3 alternatives(3A-3G): Alternatives to specify trip limits for each Tier.

3A - No Action

The proposed limited access system requires that some action alternative be selected from Alternative Set 3 so if 3A was selected, the mackerel fishery would remain an open access fishery with quotas set as described in 4.1.A "Current Determination of Annual Quotas." As described in 7.2.1, quotas are expected to fall in the long term which should result in lower non-target species impacts to the extent that lower quotas constrain effort.

3B-3G - Action

The overall quota affects effort more than any other management decision and effort affects the impacts on non-Target species. The proposed trip limits are unlikely to affect effort significantly compared to the status quo (that is their design), so there are likely minimal impacts compared to the status quo. Since limited access generally institutionalizes the existing fleet, there are no significant expected spatial/temporal impacts associated with limited access. To the extent that the proposed trip limits cause effort to shift into or focus on other fisheries, non-Target species in those other fisheries could be negatively impacted, but the effects are unquantifiable.

To the extent that trip limits help avoid racing to fish, there could be benefits to non-target species. If the situation was limited access with trip limits, one would expect less effort than in the open access situation because the vast majority of permitted vessels (all but 54-90 of 2,622 in 2007) would have relatively low trip limits, reducing effort from what would have otherwise occurred. In general, one would expect higher benefits from the scenarios with lower trip limits: 3D<3C<3B<3F<3G<3A (i.e. 3D would result in the lowest capacity fleet and therefore have more benefits); the lower trips limits will discourage increases in capacity directed at mackerel and thus reduce possible racing to fish. Incrementally, if 3E is selected, exempting Tier 2 from trip limits, one would expect more effort and possibly greater non-Target impacts than otherwise, but only incrementally in the context of limited access, not compared to the current open access situation.

The modifications made to 1C/1D could potentially create a race to fish within Tier 3 given the trip limits could facilitate some directing, but given Tier 3 will be capped at a small percentage of the overall quota, impacts would likely be minimal relative to other alternatives or to the status quo.

7.2.4 Impacts on non-Target Species from Alternative Set 4 alternatives (4A-4F): Alternatives to indicate Council intent on a variety of standard policy and administrative matters inherent in Northeast limited access systems needed to maintain consistency with other FMPs and to simplify management.

4A - No Action

The proposed limited access system requires that some action alternative be selected from Alternative Set 4 so if 4A was selected, the mackerel fishery would remain an open access fishery with quotas set as described in 4.1.A "Current Determination of Annual Quotas." As described in 7.2.1, quotas are expected to fall in the long term which should result in lower non-target species impacts to the extent that lower quotas constrain effort.

4B-4F - Action

The overall quota affects effort more than any other management decision and effort affects the impacts on non-Target species. As described in 7.2.1, quotas are expected to fall in the long term which should result in lower non-target species impacts to the extent that lower quotas constrain effort. The proposed administrative provisions are unlikely to affect effort significantly compared to the status quo, so there are likely minimal impacts compared to the status quo. Since limited access generally institutionalizes the existing fleet, there are no significant expected spatial/temporal impacts associated with limited access.

To the extent that choices of administrative provisions affect qualification of vessels they could cause effort to go into or focus on other fisheries, and non-Target species in those other fisheries could be negatively impacted, but the effects are unquantifiable. From the perspective that the administrative provisions are part of the limited access system, there are benefits as described in 7.2.1. Perhaps most importantly, the upgrade provisions (4B, 4C, 4E) would be important for keeping capacity capped once the fleet is defined, thus minimizing race to fish issues as described above. Given the 10-10-20 stipulation, allowing owners of multiple vessels to switch out one vessel for another should have minimal impacts (4F). However, if 4D is selected, there could be more vessels qualifying than anticipated, with a subsequent increased chance of developing a race to fish in the future (see 7.1.1), but because history retention agreements between vessel owners are unknown, the impacts cannot be quantified.

4G - Action

It is not anticipated that additional reporting for Tier 3 would have any impact on non-target species.

7.2.5 Impacts on non-Target Species from Alternative Set 5 alternatives (5A-5E): Alternatives to update the EFH definitions in the MSB FMP.

5A - No Action

For any given species and life stage, the current EFH designations identify the geographic domain within which fishery management measures could be implemented that would minimize to the extent practicable the adverse impacts of fishing, if they are determined to be necessary. It is highly unlikely that such measures would be needed to minimize impacts to EFH for MSB because they are pelagic species with life stages (except for *Loligo* egg EFH, which is not being updated) that inhabit the water column. EFH for MSB species is therefore not vulnerable to fishing, because gears of concern are all bottom-tending gears that affect benthic EFH (see EFH vulnerability evaluation in Stevenson et al. 2004, as summarized in Am9). Therefore, because none of the current EFH designation alternatives are expected to lead to any regulations affecting fishing activity, they would not have any differential impact on these resources.

There are non-fishing activities that affect the water column that could be limited to varying degrees by regulations made possible by current EFH designation alternatives, e.g., the intake of seawater by LNG operations impacts water temperature which could affect the water's suitability for SMB species. NMFS comments on federal activities that could impact EFH and those comments are taken into account when permitting and regulatory decisions are made. It is imaginable that such restrictions could also indirectly affect non-target species, though it is impossible to quantify the benefits.

5B-5E - Action

The EFH designation alternatives being considered in this amendment would identify geographic areas of varying size, and describe habitat types within them, that are essential for “spawning, breeding, feeding, or growth to maturity” of MSB species and life stages. For any given species and life stage, the EFH designations identify the geographic domain within which fishery management measures could be implemented that would minimize to the extent practicable the adverse impacts of fishing, if they are determined to be necessary. It is highly unlikely that such measures would be needed to minimize impacts to EFH for MSB because they are pelagic species with life stages (except for *Loligo* egg EFH, which is not being updated) that inhabit the water column. EFH for MSB species is therefore not vulnerable to fishing, because gears of concern are all bottom-tending gears that affect benthic EFH (see EFH vulnerability evaluation in Stevenson et al. 2004, as summarized in Am9). Therefore, because none of the EFH designation alternatives being considered in this amendment are expected to lead to any regulations affecting fishing activity, they would not have any differential impact on these resources.

There are non-fishing activities that affect the water column that could be limited to varying degrees by regulations made possible by different MSB EFH designation alternatives, e.g., the intake of seawater by LNG operations impacts water temperature which could affect the water's suitability for SMB species. NMFS comments on federal activities that could impact EFH and those comments are taken into account when permitting and regulatory decisions are made. It is imaginable that such restrictions could also indirectly affect non-target species, though it is impossible to quantify the benefits.

7.2.6 Impacts on non-Target Species from Alternative Set 6 alternatives (6A-6D): Alternatives to establish a recreational allocation based on historical landings to prepare for development of ACLs/AMs.

6A - No Action

Bycatch in the recreational mackerel fishery is not well documented but likely minimal, and the recreational fishery has and is likely in the future to harvest only a small portion of the overall mackerel quota.

6B-6D - Action

Bycatch in the recreational mackerel fishery is not well documented but likely minimal, and the recreational fishery has and is likely in the future to harvest only a small portion of the overall mackerel quota.

7.2.7 Impacts on non-Target Species from Alternative Set 7 alternatives (7A-7F): Alternatives to limit at-sea processing of Atlantic mackerel.

7A - No Action (preferred)

There would be no limitations on at-sea processing of mackerel via transfers from catcher vessels to processor vessels. If no processors enter the business then there would be no changes from the status quo. If processors did enter the business in a significant fashion, a proportion of mackerel would be transferred and processed at sea. It is unknown if this would shift effort spatially or temporally (or how it would if it did) but if this occurred then there could be impacts to non-target species based on any effort changes. However, such impacts might be minimal compared to the setting of the quota since the quota is likely to have the largest impact on effort compared to other management measures.

7B-F - Action

If at sea processing leads to more overall effort or more bycatch per unit of effort, then **limiting** at-sea processing could provide **positive** impacts for non-targets. If at sea processing leads to less overall effort or less bycatch per unit of effort, then **limiting** at-sea processing could provide **negative** impacts for non-targets. If limitations on at-sea processing shifted fishing effort location there could also be impacts, but it is not possible to quantify any of these theoretical impacts and the impact may be minimal compared to the impact related to the size of the quota.

7.3 Impacts on Habitat (Including EFH)

7.3.1 Impacts on Habitat (Including EFH) from Alternative Set 1 alternatives (1A-1I): Alternatives to develop a tiered limited access system in the Atlantic mackerel fishery.

1A - No Action

The mackerel fishery would remain an open access fishery with quotas set as described in 4.1.A "Current Determination of Annual Quotas." As more average recruitment events occur, the mackerel stock is expected to fall from it currently high levels (related to good recruitment), and quotas will be reduced. Reduced quotas should generally lead to reduced effort, which would reduce impacts on EFH depending on how much quotas fall and how much effort is reduced. The timing and degree are impossible to predict, but quotas could fall to 12,000 MT - 56,000 MT. If effort fell accordingly, impacts to Habitat could fall accordingly. General spatial changes in effort related to falling quotas are also nearly impossible to predict because spatial effort is related to market conditions, mackerel abundance, and mackerel availability, which can vary from year to year, as demonstrated by the range of landings over 2003-2007, 24,000Mt to 56,000MT despite a quota of over 100,000 MT. Impacts on EFH may be minimal because recently most mackerel fishing has been done with mid-water trawl gear. Bottom trawling has only accounted for 8%-18% of recent mackerel landings (last five years).

Should lower quotas drive a race to fish, reductions in effort described above may be smaller than anticipated because a race to fish can lead fishermen to use more effort that they would normally use because they are trying to catch the target species as quickly as possible before other vessels catch the quota.

1B-1I - Action

Most mackerel are caught with mid-water trawl gear so overall habitat effects are likely minimal. To the extent that fishing that might affect benthic habitat occurs (bottom trawling), the overall quota affects effort more than any other management decision. To the extent that limited access, by capping capacity, reduces any race to fish (and therefore reduces effort and/or spreads out effort over a longer part of the year) that could develop in the future in the mackerel fishery, compared to status quo limited access would be expected to reduce EFH-fishing gear interaction and therefore lead to positive but unquantifiable future impacts. The smaller the fleet, the greater the initial positive impacts, but since capacity is elastic in the long run, the differential between alternatives is impossible to quantify. In general, one would expect higher benefits from the scenarios with lower capacity: 1E>1D>1C>1J>1B=1F>1G=1A (see capacity discussion in 7.5.1). Impacts may be minimal regardless since mackerel availability can be unpredictable, and when fish are available fishing may occur at a rapid pace regardless of possibility of fishery shutdown related to quota (nature can shut the fishery down at unpredictable points). To the extent that preventing new entry into the mackerel fishery causes effort to go into or focus on other fisheries, EFH for any number of species related to effort in those other fisheries could be negatively impacted, but the effects are unquantifiable. Selection of 1H or 1I would add Herring vessels to Tier 3 for purposes of avoiding potential regulatory discarding issues and would not be expected to significantly change effort from the status quo. To the extent that Alternative Sets 2,3, and 4 support the limited access system, as described in 7.1 they also provide benefits in avoiding/minimizing the race to fish just like Alternative Set 1. Impacts on EFH may be minimal because recently most mackerel fishing has been done with mid-water trawl gear. Bottom trawling has only accounted for 8%-18% of recent mackerel landings (last five years).

The modifications made to 1C and 1D, which result in more vessels in Tier 3, should not change the original DEIS's conclusions regarding impacts on habitat. While the modifications do lead to higher numbers of Tier 3 permit holders with relatively high trip limits, the proposed cap should ensure that the resulting limited access system effectively controls catch and minimizes additional capitalization of most vessels for purposes of targeting mackerel.

7.3.2 Impacts on Habitat (Including EFH) from Alternative Set 2 alternatives (2A-2D): Alternatives to allocate quota to limited access Tiers based on historical landings.

2A - No Action

The fishery would either remain under an open access fishery or one could be in a situation of limited access but with only trip limits and no allocation, with quotas set as described in 4.1.A "Current Determination of Annual Quotas" in both cases. As described in 7.3.1, quotas are expected to fall in the long term which should result in lower habitat impacts even under open access. If the situation was limited access with trip limits, one would expect even less effort than in the open access situation because the vast majority of permitted vessels (all but 54-90 of 2,622 in 2007) would have relatively low trip limits, reducing effort from what could have otherwise occurred. Impacts on EFH may be minimal because recently most mackerel fishing has been done with mid-water trawl gear. Bottom trawling has only accounted for 8%-18% of recent mackerel landings (last five years).

2B-2D - Action

The overall quota affects effort more than any management decision, and effort affects the impacts on Habitat. The proposed allocations of quota are unlikely to affect effort significantly compared to the status quo, so there are likely minimal impacts compared to the status quo. Since limited access generally institutionalizes the existing fleet, there are no significant expected spatial/temporal impacts associated with limited access. Impacts may be minimal regardless since most mackerel are caught with mid-water trawls. To the extent that preventing new entry into the mackerel fishery causes effort to go into or focus on other fisheries, habitat encountered in those other fisheries could be negatively impacted, but the effects are unquantifiable.

The modifications made to 1C and 1D include eliminating the allocation to Tier 2. This could result in a slightly different distribution of effort among vessels compared to if Tier 2 received a discrete allocation, but the results of such a change are not possible to predict given the dynamic nature of the mackerel fishery.

7.3.3 Impacts on Habitat (Including EFH) from Alternative Set 3 Alternatives(3A-3G): Alternatives to specify trip limits for each Tier.

<u>3A - No Action</u>

The proposed limited access system requires that some action alternative be selected from Alternative Set 3 so if 3A was selected, the mackerel fishery would remain an open access fishery with quotas set as described in 4.1.A "<u>Current Determination of Annual Quotas."</u> As described in 7.3.1, quotas are expected to fall in the long term which should result in lower habitat impacts. Impacts on EFH may be minimal because recently most mackerel fishing has been done with mid-water trawl gear. Bottom trawling has only accounted for 8%-18% of recent mackerel landings (last five years).

<u>3B-3G - Action</u>

The overall quota affects effort more than any management decision, and effort affects the impacts on Habitat. The proposed trip limits are unlikely to affect effort significantly compared to the status quo, so there are likely minimal impacts compared to the status quo. Since limited access generally institutionalizes the existing fleet, there are no significant expected spatial/temporal impacts associated with limited access. Impacts may be minimal regardless since most mackerel are caught with mid-water trawls. To the extent that preventing new entry into the mackerel fishery causes effort to go into or focus on other fisheries, habitat encountered in those other fisheries could be negatively impacted, but the effects are unquantifiable.

7.3.4 Impacts on Habitat (Including EFH) from Alternative Set 4 alternatives (4A-4F): Alternatives to indicate Council intent on a variety of standard policy and administrative matters inherent in Northeast limited access systems needed to maintain consistency with other FMPs and to simplify management.

<u>4A - No Action</u>

The proposed limited access system requires that some action alternative be selected from Alternative Set 4 so if 4A was selected, the mackerel fishery would remain an open access fishery with quotas set as described in 4.1.A "<u>Current Determination of Annual Quotas."</u> As described in 7.3.1, quotas are expected to fall in the long term which should result in lower habitat impacts. Impacts on EFH may be minimal because recently most mackerel fishing has been done with mid-water trawl gear. Bottom trawling has only accounted for 8%-18% of recent mackerel landings (last five years).

4B-4F - Action

The overall quota affects effort more than any other management decision and effort affects the impacts on EFH. As described in 7.3.1, quotas are expected to fall in the long term which should result in lower EFH impacts to the extent that lower quotas constrain effort. The proposed administrative provisions are unlikely to affect effort significantly compared to the status quo, so there are likely minimal impacts compared to the status quo. Since limited access generally institutionalizes the existing fleet, there are no significant expected spatial/temporal impacts associated with limited access. Impacts on EFH may be minimal because recently most mackerel fishing has been done with mid-water trawl gear. Bottom trawling has only accounted for 8%-18% of recent mackerel landings (last five years).

To the extent that choices of administrative provisions affect qualification of vessels, the provisions could cause effort to go into or focus on other fisheries, and EFH related to those other fisheries could be negatively impacted, but the effects are unquantifiable. From the perspective that the administrative provisions are part of the limited access system, there are benefits as described in 7.3.1. Perhaps most importantly, the upgrade provisions (4B, 4C, 4E) would be important for keeping capacity capped once the fleet is defined, thus minimizing race to fish issues as described above. Given the 10-10-20 stipulation, allowing owners of multiple vessels to switch out one vessel for another should have minimal impacts (4F). However, if 4D is selected, there could be more vessels qualifying than anticipated, with a subsequent increased chance of developing a race to fish in the future (see 7.1.1), but because history retention agreements between vessel owners are unknown, the impacts cannot be quantified but would be expected to be minimal given the majority of landings come from mid-water gear.

To the extent that preventing new entry into the mackerel fishery causes effort to go into or focus on other fisheries, habitat encountered in those other fisheries could be negatively impacted, but the effects are unquantifiable.

4G - Action

It is not anticipated that additional reporting for Tier 3 would have any impact on habitat.

7.3.5 Impacts on Habitat (Including EFH) from Alternative Set 5 alternatives (5A-5E): Alternatives to update the EFH definitions in the MSB FMP.

5A - No Action

For any given species and life stage, the current EFH designations identify the geographic domain within which fishery management measures could be implemented that would minimize to the extent practicable the adverse impacts of fishing, if they are determined to be necessary. It is highly unlikely that such measures would be needed to minimize impacts to EFH for MSB because they are pelagic species with life stages (except for *Loligo* egg EFH, which is not being updated) that inhabit the water column. EFH for MSB species is therefore not vulnerable to fishing, because gears of concern are all bottom-tending gears that affect benthic EFH (see EFH vulnerability evaluation in Stevenson et al. 2004, as summarized in Am9). Therefore, because none of the current EFH designation alternatives are expected to lead to any regulations affecting fishing activity, they would not have any differential impact on these resources.

There are non-fishing activities that affect the water column that could be limited to varying degrees by regulations made possible by current EFH designation alternatives, e.g., the intake of seawater by LNG operations impacts water temperature which could affect the water's suitability for SMB species. NMFS comments on federal activities that could impact EFH and those comments are taken into account when permitting and regulatory decisions are made. Such restrictions would be designed to benefit habitat, though it is impossible to quantify the benefits.

5B-5E - Action

The updates to EFH are unlikely to affect EFH from a fishing gear perspective because MSB species are pelagic species with life stages (except for *Loligo* egg EFH, which is not being updated) that inhabit the water column. EFH for MSB species is therefore not vulnerable to fishing, because gears of concern are all bottom-tending gears that affect benthic EFH (see EFH vulnerability evaluation in Tech Memo 181, as summarized in Am9). Thus one would not expect restrictions on fishing activity related to any changes made to EFH designations in this document.

There are non-fishing activities that affect the water column that could be limited to varying degrees by regulations made possible by different MSB EFH designation alternatives, e.g., the intake of seawater by LNG operations impacts water temperature which could affect the water's suitability for SMB species. NMFS comments on federal activities that could impact EFH and those comments are taken into account when permitting and regulatory decisions are made. It is impossible to quantify the benefits, but one would expect more benefits to accrue if more EFH is designated. Expanded MSB EFH designations have a much greater potential for increasing the effectiveness of NOAA’s EFH consultation process for non-fishing activities that affect pelagic habitats

Each alternative would result in different sized geographical areas being designated, with 5B<5C<5D<5E (5B would designate the least amount of area). All would generally designate more EFH than the status quo because of methodological changes and the density thresholds selected compared to the current designations.

7.3.6 Impacts on Habitat (Including EFH) from Alternative Set 6 alternatives (6A-6D): Alternatives to establish a recreational allocation based on historical landings to prepare for development of ACLs/AMs.

6A - No Action

No adverse impact - the hook and line gear used by the recreational fishery is not expected to adversely affect EFH for MSB species (NOAA Technical Memorandum NMFS NE 209, Impacts to Marine Fisheries Habitat from Nonfishing Activities in the Northeastern United States, available at: http://www.nefsc.noaa.gov/publications/tm/tm209/index.html).

6B-6D - Action

No adverse impact - the hook and line gear used by the recreational fishery is not expected to adversely affect EFH for MSB species (NOAA Technical Memorandum NMFS NE 209, Impacts to Marine Fisheries Habitat from Nonfishing Activities in the Northeastern United States, available at: http://www.nefsc.noaa.gov/publications/tm/tm209/index.html).

7.3.7 Impacts on Habitat (Including EFH) from Alternative Set 7 alternatives (7A-7F): Alternatives to limit at-sea processing of Atlantic mackerel.

7A - No Action (preferred)

There would be no limitations on at-sea processing of mackerel via transfers from catcher vessels to processor vessels. If no processors enter the business then there would be no changes from the status quo. If processors did enter the business in a significant fashion, a proportion of mackerel would be transferred and processed at sea. It is unknown if this would shift effort spatially or temporally (or how it would if it did) but if this occurred then there could be impacts to habitat. Impacts on EFH may be minimal because recently most mackerel fishing has been done with mid-water trawl gear. Bottom trawling has only accounted for 8%-18% of recent mackerel landings (last five years).

7B-F - Action

If at sea processing leads to more overall effort or more use of bottom-tending gears, then **limiting** at-sea processing could **provide** positive impacts for EFH. If at sea processing leads to less overall effort or less use of bottom-tending gears, then **limiting** at-sea processing could provide **negative** impacts for non-targets. If limitations on at-sea processing shifted fishing effort location there could also be impacts, but it is not possible to quantify any of these theoretical impacts. The impacts may be minimal regardless compared to the impacts of the overall quota. Impacts on EFH may be minimal because recently most mackerel fishing has been done with mid-water trawl gear. Bottom trawling has only accounted for 8%-18% of recent mackerel landings (last five years).

7.4 Impacts on Protected Resources

7.4.1 Impacts on Protected Resources from Alternative Set 1 alternatives(1A-1I): Alternatives to develop a tiered limited access system in the Atlantic mackerel fishery.

1A - No Action

The mackerel fishery would remain an open access fishery with quotas set as described in 4.1.A "Current Determination of Annual Quotas." As more average recruitment events occur, the mackerel stock is expected to fall from it currently high levels (related to good recruitment), and quotas will be reduced. Reduced quotas should lead to reduced effort, which will reduce impacts on protected resource species depending on how much quotas fall and how much effort is reduced. The timing and degree are impossible to predict, but quotas could fall to 12,000 MT - 56,000 MT. If effort fell accordingly, impacts to protected resource species could fall accordingly. Temporal changes in effort would be unlikely since the mackerel season is generally confined to January-April already related to mackerel availability. The limited observer data for mackerel does not allow meaningful month to month spatial comparisons of protected resource encounter levels, but the species of concern (dolphins and pilot whales) do tend to occur in the mackerel fishing areas for the entire mackerel season. General spatial changes in effort related to falling quotas are also nearly impossible to predict because spatial effort is related to market conditions, mackerel abundance, and mackerel availability, which can vary from year to year, as demonstrated by the range of landings over 2003-2007, 24,000Mt to 56,000MT despite a quota of over 100,000 MT.

The October 2010 Biological Opinion did not consider effects to Atlantic sturgeon. Atlantic sturgeon occur in the mackerel fishing area throughout the mackerel fishing season. The Stein et al. (2004a) review of sturgeon bycatch from 1989-2000 showed no observed sturgeon bycatch on vessels targeting Atlantic mackerel. Atlantic sturgeon interactions in small-mesh otter trawl fisheries from 2006-2010 have not been analyzed on a fishery-by-fishery basis (see Section 6.4.5), so it is not yet possible to determine if recent small-mesh otter trawl trips targeting Atlantic mackerel have contributed to sturgeon mortality. If the mackerel fishery has contributed to recent sturgeon encounters, and if mackerel availability in the upcoming years is consistent with the relatively low availability from 2006 – 2010, then the No Action alternative should maintain the levels of interaction described in Section 6.4.5. However, if mackerel availability were to return to historic high levels, the No Action alternative would neither limit current participants from increasing their mackerel fishing activity, nor prevent new participants from entering the mackerel fishery. Additional capacity in the mackerel fishery may translate to increased Atlantic sturgeon interactions on small-mesh otter trawl trips that target Atlantic mackerel. Overall, while there may be Atlantic sturgeon interactions with small-mesh otter trawl gear targeting Atlantic mackerel, these interactions are not likely to result in jeopardy for the species in the timeframe between when the action is authorized and a listing determination is made in early October.

Should lower quotas drive a race to fish, reductions in protected resource species interactions may be smaller than anticipated because a race to fish can lead fishermen to be less careful about avoiding protected resources while they are trying to catch the target species as quickly as possible before other vessels catch the quota.

1B-1I - Action

The overall quota affects effort more than any management decision, and effort affects the impacts on protected resources. To the extent that limited access, by capping capacity, reduces any race to fish (and therefore effort) that could develop in the future in the mackerel fishery, compared to status quo limited access would be expected to reduce PR-fishing gear interaction and therefore lead to positive but unquantifiable future impacts. The smaller the fleet, the greater the initial positive impacts, but since capacity is elastic in the long run, the differential between alternatives is impossible to quantify. In general, one would expect higher benefits from the scenarios with lower capacity: 1E>1D>1C>1J>1B=1F>1G=1A (see capacity discussion in 7.5.1). Impacts may be minimal regardless since mackerel availability can be unpredictable, and when fish are available fishing may occur at a rapid pace regardless of possibility of fishery shutdown related to quota (nature can shut the fishery down at unpredictable points). Since limited access generally institutionalizes the existing fleet, there are no significant expected spatial/temporal impacts associated with limited access. To the extent that preventing new entry into the mackerel fishery causes effort to go into or focus on other fisheries, protected resources encountered related to effort in those other fisheries could be negatively impacted, but the effects are unquantifiable.

Selection of 1H or 1I would add Herring vessels to Tier 3 for purposes of avoiding potential regulatory discarding issues and would not be expected to significantly change effort from the status quo.

For Atlantic sturgeon, the limited access program alternatives will cap capacity in the mackerel fishery; thereby, maintaining the current amount of fishing effort for future fishing years. If the mackerel fishery has contributed to recent sturgeon encounters, and if mackerel availability in the upcoming years is consistent with the relatively low availability from 2006 – 2010, then the No Action alternative should maintain the levels of interaction described in Section 6.4.5. Thus, while there may be Atlantic sturgeon interactions with small-mesh otter trawl gear targeting Atlantic mackerel, these interactions are not likely to result in jeopardy for the species in the timeframe between when the action is authorized and a listing determination is made in early October.

To the extent that Alternative Sets 2,3, and 4 support the limited access system, as described in 7.1 they also provide benefits in avoiding/minimizing the race to fish just like Alternative Set 1, but it is not necessary to repeat the logic chain.

The modifications made to 1C and 1D, which result in more vessels in Tier 3, should not change the original DEIS's conclusions regarding impacts on protected resources. While the modifications do lead to higher numbers of Tier 3 permit holders with relatively high trip limits, the proposed cap should ensure that the resulting limited access system effectively controls catch and minimizes additional capitalization of most vessels for purposes of targeting mackerel.

7.4.2 Impacts on Protected Resources from Alternative Set 2 alternatives (2A-2D): Alternatives to allocate quota to limited access Tiers based on historical landings.

2A - No Action

The fishery would either remain under an open access fishery or one could be in a situation of limited access but with only trip limits and no allocation, with quotas set as described in 4.1.A "Current Determination of Annual Quotas" in both cases. As described in 7.4.1, quotas are expected to fall in the long term which should result in lower protected resource impacts even under open access if less effort ensues. If the situation was limited access with trip limits, one would expect even less effort than in the open access situation because the vast majority of permitted vessels (all but 54-90 of 2,622 in 2007) would have relatively low trip limits, reducing effort from what could have otherwise occurred.

2B-2D - Action

The overall quota affects effort more than any management decision, and effort affects the impacts on protected resources. The proposed allocations of quota are unlikely to affect effort (including temporally or spatially) significantly compared to the status quo, so there are likely minimal impacts compared to the status quo. Since limited access generally institutionalizes the existing fleet, there are no significant expected spatial/temporal impacts associated with limited access. To the extent that preventing new entry into the mackerel fishery causes effort to go into or focus on other fisheries, protected resources encountered in those other fisheries could be negatively impacted, but the effects are unquantifiable.

7.4.3 Impacts on Protected Resources from Alternative Set 3 alternatives(3A-3G): Alternatives to specify trip limits for each Tier.

3A - No Action

The proposed limited access system requires that some action alternative be selected from Alternative Set 3 so if 3A was selected, the mackerel fishery would remain an open access fishery with quotas set as described in 4.1.A "Current Determination of Annual Quotas." As described in 7.4.1, quotas are expected to fall in the long term which should result in lower protected resource impacts even under open access if less effort ensues.

3B-3G - Action

The overall quota affects effort more than any management decision, and effort affects the impacts on protected resources. The proposed trip limits are unlikely to affect effort significantly compared to the status quo (including temporally or spatially), so there are likely minimal impacts compared to the status quo. To the extent that low trip limits provided disincentive for additional capitalization and lessened the race to fish (i.e. led to less effort), there could be benefits in having lower trip limits. In general, one would expect higher benefits from the scenarios with lower trip limits: 3D<3C<3B<3F<3G<3A (i.e. 3D would result in the lowest capacity fleet and therefore have more benefits). To the extent that preventing new entry into the mackerel fishery causes effort to go into or focus on other fisheries, protected resources encountered in those other fisheries could be negatively impacted, but the effects are unquantifiable. Incrementally, if 3E is selected, exempting Tier 2 from trip limits, one would expect more effort and possibly greater protected resource impacts than otherwise, but only incrementally in the context of limited access, not compared to the current open access situation.

7.4.4 Impacts on Protected Resources from Alternative Set 4 alternatives (4A-4F): Alternatives to indicate Council intent on a variety of standard policy and administrative matters inherent in Northeast limited access systems needed to maintain consistency with other FMPs and to simplify management.

4A - No Action

The proposed limited access system requires that some action alternative be selected from Alternative Set 4 so if 4A was selected, the mackerel fishery would remain an open access fishery with quotas set as described in 4.1.A "Current Determination of Annual Quotas." As described in 7.4.1, quotas are expected to fall in the long term which should result in lower protected resource impacts even under open access if less effort ensues.

4B-4F - Action

The overall quota affects effort more than any management decision, and effort affects the impacts on protected resources. The proposed administrative provisions are unlikely to affect effort significantly compared to the status quo, so there are likely minimal impacts compared to the status quo (including temporally or spatially). To the extent that preventing new entry into the mackerel fishery causes effort to go into or focus on other fisheries, protected resources encountered in those other fisheries could be negatively impacted, but the effects are unquantifiable.

From the perspective that the administrative provisions are part of the limited access system, there are benefits as described in 7.4.1 (potentially more careful fishing or less effort if a race to fish is avoided). Perhaps most importantly, the upgrade provisions (4B, 4C, 4E) would be important for keeping capacity capped once the fleet is defined, thus minimizing race to fish issues as described above. Given the 10-10-20 stipulation, allowing owners of multiple vessels to switch out one vessel for another should have minimal impacts (4F). However, if 4D is selected, there could be more vessels qualifying than anticipated, with a subsequent increased chance of developing a race to fish in the future (see 7.1.1), but because history retention agreements between vessel owners are unknown, the impacts cannot be quantified.

<u>4G - Action</u>

It is not anticipated that additional reporting for Tier 3 would have any impact on protected resources.

7.4.5 Impacts on Protected Resources from Alternative Set 5 alternatives (5A-5E): Alternatives to update the EFH definitions in the MSB FMP.

<u>5A - No Action</u>

For any given species and life stage, the current EFH designations identify the geographic domain within which fishery management measures could be implemented that would minimize to the extent practicable the adverse impacts of fishing, if they are determined to be necessary. It is highly unlikely that such measures would be needed to minimize impacts to EFH for MSB because they are pelagic species with life stages (except for *Loligo* egg EFH, which is not being updated) that inhabit the water column. EFH for MSB species is therefore not vulnerable to fishing, because gears of concern are all bottom-tending gears that affect benthic EFH (see EFH vulnerability evaluation in Stevenson et al. 2004, as summarized in Am9). Therefore, because none of the current EFH designation alternatives are expected to lead to any regulations affecting fishing activity, they would not have any differential impact on these resources.

There are non-fishing activities that affect the water column that could be limited to varying degrees by regulations made possible by different MSB EFH designation alternatives, e.g., the intake of seawater by LNG operations impacts water temperature which could affect the water's suitability for SMB species. NMFS comments on federal activities that could impact EFH and those comments are taken into account when permitting and regulatory decisions are made. It is imaginable that such restrictions could also indirectly affect protected resource species, though it is impossible to quantify the impacts.

The proposed action is not expected to result in additional impacts on Atlantic sturgeon beyond those already occurring in the fishery given that this action will likely have little to no effect on fishing effort levels in comparison to taking no action.

5B-5E - Action

The EFH designation alternatives being considered in this amendment would identify geographic areas of varying size, and describe habitat types within them, that are essential for "spawning, breeding, feeding, or growth to maturity" of MSB species and life stages. For any given species and life stage, the EFH designations identify the geographic domain within which fishery management measures could be implemented that would minimize to the extent practicable the adverse impacts of fishing, if they are determined to be necessary. It is highly unlikely that such measures would be needed to minimize impacts to EFH for MSB because they are pelagic species with life stages (except for *Loligo* egg EFH, which is not being updated) that inhabit the water column. EFH for MSB species is therefore not vulnerable to fishing, because gears of concern are all bottom-tending gears that affect benthic EFH (see EFH vulnerability evaluation in Stevenson et al. 2004, as summarized in Am9). Therefore, because none of the EFH designation alternatives being considered in this amendment are expected to lead to any regulations affecting fishing activity, they would not have any differential impact on these resources.

There are non-fishing activities that affect the water column that could be limited to varying degrees by regulations made possible by different MSB EFH designation alternatives, e.g., the intake of seawater by LNG operations impacts water temperature which could affect the water's suitability for SMB species. NMFS comments on federal activities that could impact EFH and those comments are taken into account when permitting and regulatory decisions are made. It is imaginable that such restrictions could also indirectly affect protected resource species, though it is impossible to quantify the impacts.

The proposed action is not expected to result in additional impacts on Atlantic sturgeon beyond those already occurring in the fishery given that this action will likely have little to no effect on fishing effort levels in comparison to taking no action.

7.4.6 Impacts on Protected Resources from Alternative Set 6 alternatives (6A-6D): Alternatives to establish a recreational allocation based on historical landings to prepare for development of ACLs/AMs.

6A - No Action

Protected species interactions, if any, in the recreational mackerel fishery are not well documented. However, impacts would likely be minimal since the recreational fishery has and is likely in the future to harvest only a small portion of the overall quotas.

The proposed action is not expected to result in additional impacts on Atlantic sturgeon beyond those already occurring in the fishery given that this action will likely have little to no effect on fishing effort levels in comparison to taking no action.

6B-6D - Action

Protected species interactions, if any, in the recreational mackerel fishery are not well documented. However, impacts would likely be minimal since the recreational fishery has and is likely in the future to harvest only a small portion of the overall quotas.

The proposed action is not expected to result in additional impacts on Atlantic sturgeon beyond those already occurring in the fishery given that this action will likely have little to no effect on fishing effort levels in comparison to taking no action.

7.4.7 Impacts on Protected Resources from Alternative Set 7 alternatives (7A-7F): Alternatives to limit at-sea processing of Atlantic mackerel.

7A - No Action (preferred)

There would be no limitations on at-sea processing of mackerel via transfers from catcher vessels to processor vessels. If no processors enter the business then there would be no changes from the status quo. If processors did enter the business in a significant fashion, a proportion of mackerel would be transferred and processed at sea. It is unknown if this would shift effort spatially or temporally (or how it would if it did) but if this occurred then there could be impacts to protected resources. Generally, marine mammals are known to be attracted to trawling activity, and suffer negative impacts if harmed by gear but could theoretically gain benefits from food being concentrated or disoriented (Fertl and Leatherwood 1997). The net effect is uncertain.

NEFSC staff investigated if JV operations, which involved transfers at sea, had differential marine mammal encounter rates compared to standard domestic mackerel fishing. While highly uncertain, the bycatch rate of common dolphins in JV bottom trawl mackerel hauls was about 22 times higher than the rate in traditional bottom trawl mackerel hauls. The rates for white-sided dolphins were essentially the same for JV and traditional bottom trawl mackerel hauls. There was insufficient data to examine mid-water trawls. Their complete analysis is included in the following pages. Their conclusion was that marine mammal bycatch in the domestic and JV fleets seemed similar but that there may have been higher common dolphin bycatch in the JV bottom trawl fleet than the domestic bottom trawl fleet but that the low coverage rates and different spatial coverages result in low confidence in knowing whether or not there is a true difference. It is also important to note that bottom trawling has only accounted for 8%-18% of recent mackerel landings (last five years). In general, historical at-sea observations of previous JV operations recorded marine mammal interactions (dolphins and pilot whales), however it is unknown to what extent the transfer at sea portion of the JV activity influenced the interaction rate or how JV encounter rates would have compared to domestic activity (NMFS 2007 available at: http://www.nmfs.noaa.gov/pr/sars/species.htm).

Given the uncertainty of the data and because most mackerel are caught with mid-water trawls (not bottom trawls like the observed JV trips), the available JV data does not reasonably support a definitive conclusion that domestic at-sea processing would increase marine mammal encounters.

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Marine mammal bycatch rates in trawls that target mackerel: traditional versus Joint Venture (JV) trawls

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Purpose

Compare the bycatch rate of marine mammals that are taken in Joint Venture (JV) trawls that target mackerel to the bycatch rates in non-JV (traditional) trawls that target mackerel. The trawls include bottom, paired mid-water, and single mid-water trawls.

Data

According to the Northeast Fisheries Observer Program (NEFOP) JV fishing operations for Atlantic Mackerel has not occurred since 1998 (with the exception of two transfers in 2002). JV fishing activity requires 100% observe coverage of all transfers. In 1998, 152 transfers of mackerel were observed between bottom trawl fishing boats and processor vessels, while in 2002, two transfers of mackerel were observed between single mid-water trawl fishing boats and processor vessels. JV transfers that were observed before 1998 are currently not available in electronic form in the NEFOP databases and hence not available for analysis.

Non-JV trawl fishing (referred to in this document as traditional trawl fishing) include bottom, mid-water single and mid-water paired trawls that target a variety of species. Traditional trawl fishing has been observed annually by the NEFOP since the middle of the1990's. During 1995 to 2007, 211 bottom trawl hauls that targeted mackerel were observed. During 2003 to 2007, 68 single and 103 paired mid-water trawls that targeted mackerel were observed.

Methods

Usually the marine mammal bycatch rates for trawl fisheries is defined as the number of observed dead marine mammals per observed amount of time the trawl is in the water (otherwise known as days fished). However, the data collected from the JV vessels were from observers that were on the foreign processor vessel. Limited information from the vessel deploying fishing gear is transmitted to the observer on board the processing boat. As a result, detailed information on setting and towing the gear (i.e. set and tow times) was not available. In conclusion, for this comparison marine mammal bycatch rates from JV trawl and traditional trawl fishing were defined as the number of observed dead marine mammals per observed number of hauls. A JV transfer is equivalent to a haul and will be referred to as haul for the remainder of the report.

Results

Common and white-sided dolphins have been observed taken in traditional mackerel trawls (Table 1), but only common dolphins were observed in JV trawls.
Because few JV mid-water trawl hauls have been observed (Table 1), comparisons between JV and traditional trawls are restricted to only bottom trawl fishing in this

analysis. Using bottom trawls, 17 common dolphins were observed taken in seven JV hauls from bottom trawl boats in 1998, while 1 common dolphin and 1 white-sided dolphin was observed taken in traditional bottom trawls in 1997 (Table 1). The bycatch rate of common dolphins in JV hauls was about 22 times higher than the rate in traditional hauls: 0.112 animals/haul in JV trawls versus 0.005 common dolphins/haul in traditional trawls (Table 1). The rates for white-sided dolphins were essentially the same for JV and traditional hauls (0 versus 0.005, respectively). However, these values are not necessarily comparable due to differences in coverage levels and spatial distribution of fishing effort of the JV and traditional trawl fleets that target mackerel.

Discussion

Several factors effect our ability to know whether there is a true difference in bycatch between the JV and traditional fleets: spatial coverage, observer coverage and inter-annual variability.

Spatial analysis of the 1998 observed JV and traditional bottom trawl hauls targeting mackerel shows that the two fleets fished in separate areas, at least in 1998 (Figure 1). However, over the entire time period that the traditional bottom trawls targeting mackerel were observed (1995 to 2007), the traditional trips spatially overlapped the 1998 observed JV mackerel hauls (Figure 1). If the 1998 JV activity is representative of where JV activity would generally occur, then the observer data shows that JV and traditional trawl mackerel fishing would occur in the same areas during January to May. However there are only a few traditional bottom trawl mackerel trips observed in the southern Mid-Atlantic region (statistical area 631) where the majority of JV common dolphins were taken in 1998 (Figure 1); thus, making direct comparisons difficult.

The JV fleet had 100% coverage in 1998. In contrast, the traditional bottom trawl fishery had observer coverage ranging from less than 1% in 1998 to about 6% in 2006 and 2007. The low traditional bottom trawl observer coverage results in high variance estimates; thus making direct comparisons difficult.

The mackerel JV transfers from bottom trawl boats were observed in only one year, 1998. Thus, it is not possible to know what type of inter-annual variability exists in the bycatch rates in the JV fishery. That is, it is not possible to know if the 17 common dolphins taken in the JV fishery during 1998 is a typical event or a rare event.

In conclusion, the marine mammal bycatch in the mackerel fishery generally appears similar for both JV and traditional fleets, though common dolphin bycatch in the JV bottom trawl fleet may have been greater than in the traditional bottom trawl fleet. However, the differences in coverage levels and spatial distribution between the two fleets makes comparing these two fisheries difficult and reduces our confidence in knowing whether there is a true difference in the bycatch rates.

Trawl gear type	Fishery type	Observed number of transfers or hauls	Observed number of marine mammal takes: common dolphin	Observed number of marine mammal takes: white-sided dolphin	Bycatch rate (animals/haul or animals/transfer): Common dolphin	Bycatch rate: white-sided dolphin	Bycatch rate: all species
bottom	JV	[illegible]	[illegible]	0	0.112	0.000	0.112
	traditional	211	1	1	0.005	0.005	0.009
single mid-water	JV	2	0	0	0.000	0.000	0.000
	traditional	66	1	1	0.015	0.015	0.029
paired mid-water	JV	*	*	*	*	*	*
	traditional	103	0	9	0.000	0.087	0.087

* Not available

Table 80. Bycatch rates of marine mammals in the JV fishing style versus the traditional fishing style. JV fishing was observed in 1998 (bottom trawl) and in 2002 (single mid-water trawl). Traditional bottom trawl fishing was observed from 1995 to 2007. Midwater trawl fishing was observed from 2003 to 2007.

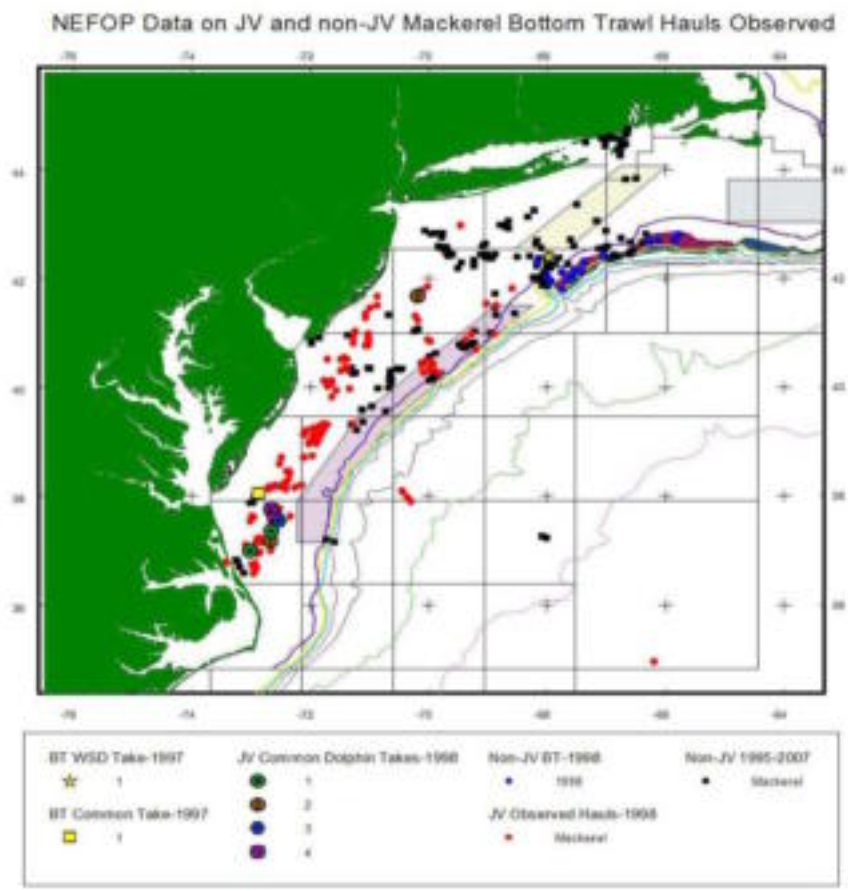

Figure 92. Spatial Distribution of observed hauls and incidental takes from JV (1998) and non-JV (traditional; 1995-2007) bottom trawl trips.

(END OF NEFSC DOLPHIN ANALYSIS)

There is currently no at-sea processing in the mackerel fishery. If no processors enter the business, then there will be no change in impact to any of the Atlantic sturgeon DPSs. If a significant number of processors enter the business, any change in the timing of mackerel fishing or the spatial focus of effort related to the increases related to at-sea processing could result in additional, unquantifiable, impacts to Atlantic sturgeon. It is unknown if allowing at-sea processing would change the spatial or temporal factors of the mackerel fishery.

7B-F - Action

These alternatives would limit any development of at-sea processing via transfers of mackerel. If at sea processing leads to more overall effort or more interactions per unit of effort, then **limiting** at-sea processing could provide **positive** impacts for protected resource species. If at sea processing leads to less overall effort or fewer interactions per unit of effort, then **limiting** at-sea processing could provide **negative** impacts for protected resource species. It is not clear which scenario would occur. If limitations on at-sea processing shifted fishing effort location there could also be impacts, but it is not possible to quantify any of these theoretical impacts.

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7.5 Social and Economic Impacts

7.5.1 Social and Economic Impacts from Alternative Set 1 alternatives (1A-1I): Alternatives to develop a tiered limited access system in the Atlantic mackerel fishery.

1A - No Action

The mackerel fishery would remain an open access fishery with quotas set as described in 4.1.A "Current Determination of Annual Quotas." As more average recruitment events occur, the mackerel stock is expected to fall from its currently high levels (related to good recruitment), and quotas will be reduced. Reduced quotas could lead to reduced revenues. The timing and degree are impossible to predict, but quotas could fall to 12,000 MT - 56,000 MT. General spatial changes in effort related to falling quotas are also nearly impossible to predict because spatial effort is related to market conditions, mackerel abundance, and mackerel availability, which can vary from year to year, as demonstrated by the range of landings over 2003-2007, 24,000Mt to 56,000MT despite a quota of over 100,000 MT.

Under open access, more vessels could enter the fishery, which in a situation of lower quotas could lead to racing to fish, which leads to lower safety at sea (more incentive to fish in poor weather) and lower profits (fisherman use more effort and equipment to catch a given amount of fish before other vessels catch the quota).

1B-1I - Action

Data Limitations

It is important to note the data limitations faced by the Council. Mandatory reporting in the mackerel fishery was not fully required until 1997. Therefore, mackerel landing data before 1997 is incomplete. As a result, there may be additional vessels that qualify if they can produce records that are not contained in the dealer weighout database. Mandatory reporting in many Northeast limited access fisheries commenced in 1994 so to the extent that mackerel vessels had other limited access permits they would have also reported their mackerel landings.

In general it is very difficult to predict specific outcomes regarding the social and economic impacts because of the multiple intervening variables which affect vessel behavior including world prices for mackerel (reflecting global demand and global supply), local variable operational costs (crew, fuel), mackerel abundance, and mackerel availability. These interacting variables cannot be currently modeled with available data.

Quotas

The quota amount, which is generally independent of whether the fishery is managed with open access or limited access likely has the greatest economic impact. I.e. the primary social and economic driver is maintaining a healthy stock, which is related to keeping the fishery to its quotas, which would be likely to happen under either the status quo or action alternatives given the goals of the MSB FMP and historical performance of the MSB fishery relative to quotas. As more average recruitment events occur, the mackerel stock is expected to fall from its currently high levels (related to good recruitment), and quotas will be reduced. Reduced quotas could lead to reduced revenues. The timing and degree are impossible to predict, but quotas could fall to 12,000 MT - 56,000 MT. General spatial changes in effort related to falling quotas are also nearly impossible to predict because spatial effort is related to market conditions, mackerel abundance, and mackerel availability, which can vary from year to year, as demonstrated by the range of landings over 2003-2007, 24,000Mt to 56,000MT despite a quota of over 100,000 MT.

Short Term Impacts

There would likely be minimal short term impacts compared to the status quo since most vessels fishing for mackerel over the last 10 years would qualify for a category designed not to significantly impact them. Possibly there could be negative impacts to newest (2008) entrants but these are impossible to quantify given available data (through 2007). Use of a 2005 control date could impact some vessels in a similar fashion and is described below. In either case, as notified in 2002 and reaffirmed in 2005, vessels have been aware that landings after 2002 may be treated differently than landings before 2002.

Another potential short term impact is that recently the quota has been under harvested, and limiting new entry could potentially result in short term missed opportunities to harvest available quota. However, the Council is balancing these possible short run forgone fishing opportunities with the long run benefits of avoiding additional capitalization given long run quota assumptions are significantly lower than recent annual quotas. If a situation developed where the fleet appeared unable to harvest the quota chronically, the Council could always allow temporary entrance of additional vessels through a future action.

Long Term Impacts

To the extent that limited access, by capping capacity, reduces any race to fish that could develop in the future in the mackerel fishery (e.g. if quotas fall significantly as is expected), compared to status quo any limited access system would be expected to reduce additional capitalization and therefore lead to positive long-term economic benefits for the qualifying fleet related to avoiding racing to fish. Racing to fish leads to lower profits because fishermen use more effort and/or capital (equipment) than is necessary to harvest a given quantity of fish. The higher effort and/or additional capital means higher costs which means lower profits than could be attained. In general, one would thus expect higher benefits from the scenarios with lower capacity: 1E>1D>1C>1J>1B=1F>1G=1A (see capacity discussion later in 7.5.1). The modifications made to 1C and 1D, which result in more vessels in Tier 3, should not change the original DEIS's conclusions regarding racing to fish. While the modifications do lead to higher numbers of Tier 3 permit holders with relatively high trip limits, the proposed cap should ensure that the resulting limited access system effectively controls catch and minimizes additional capitalization of most vessels for purposes of targeting mackerel.

Limited access is a first step to controlling capitalization and establishing the universe of participants in a given fishery. In the future the Council may consider establishing a LAPP which could result in additional economic efficiencies/benefits. To the extent that preventing new entry into the mackerel fishery causes effort to go into or focus on other fisheries, capacity in those fisheries could increase leading to negative economic impacts in those fisheries, but the effects are unquantifiable.

While specific social and economic impacts are very difficult to predict, the following sections and tables provide descriptive information for the vessels that, based on dealer weighout data, would qualify under each Tier scenario. The general conclusion from the descriptive information is that most vessels that do not qualify for Tier 1 should not be significantly impacted compared to how they have operated recently because over the last five years the vessels that do not get into Tier 1 have on average received a minimal percentage of their revenues from mackerel fishing. Furthermore, the vessels that do not qualify for Tier 1 will have some access to the fishery via trips limits, and those trips limits are designed to impact only a small percent of those vessels' trips so as to keep them from greatly expanding their mackerel landings. Since vessels that do not qualify for Tier 1 receive only a minimal percentage of their revenues from mackerel, and will be subject to trip limits that only affect a minimum amount of the mackerel trips they do make, economic impacts on most vessels should be minimal.

There could also be a negative economic impact to "future participants" who may need to purchase a Limited Access permit instead of just going fishing (this involves a transfer from "future participants" to "current permit holders"). Conversely, if stocks are higher potential future participants also benefit.

There is likely to be a benefit to the nation in terms of avoiding the costs of reducing capacity. Under status quo, capacity could increase. It is almost definitely less expensive to cap capacity at current levels than it would be to allow capacity to increase and then take measures to reduce capacity to the current levels (through a buyback, management change, or some other capacity reduction program). We don't know the probability that capacity would increase in the future, the size to which it would increase, or the costs of reducing capacity. But there is still a positive impact.

Herring Vessels

1H or 1I would grant Tier 3 privileges to Herring limited access boats that would not otherwise get more than open access privileges to avoid forced regulatory discarding of incidental mackerel. This would be expected to result in positive benefits for the herring fleet. For those vessels without documented mackerel landings it is of course impossible to verify this problem, but given only Tier 3 access is involved, one would not expect that these vessels would have a great impact on the overall mackerel fishery. The NEFMC is considering extending a similar courtesy to mackerel vessels who have had problems retaining mackerel due to herring mixing in with their mackerel (and because they have low herring trip limits). As described in 5.1.3, there is a known connection between the herring and mackerel fleets, and individual vessels may target both on the same trip.

Impact of Control Date

Compared to how vessels have operated in the last five years, the only group of vessels that could be substantially impacted would be those vessels that had sizable landings in 2006 or 2007 but would not qualify for a Tier 1 or Tier 2 quota due to use of a 2005 control date. This would be illustrated by comparing Alt 1C with Alt 1E. Just by looking at the numbers of qualifying vessels (Table 81) it is difficult to analyze these affected vessels because the effects are masked by the reduction of the Tier 1 threshold from 1,000,000 pounds in the best year to 400,000 pounds in a best year. The reduction to 400,000 pounds was designed so as to not have many large vessels in Tier 2 that could use up a disproportionate amount of the Tier 2 quota. Staff tracked movement of each vessel in Tiers 1 and 2 when changing the criteria from Alt 1C to Alt 1E to illustrate the effects of using the 2005 control date.

The reader will note that for 1C there were 26 vessels predicted to be in Tier 1 and 35 vessels predicted to be in Tier 2. For Tier 1 when switching to the 1E criteria, three Tier 1 vessels fell to lower tiers, two to Tier 3 and one to Tier 2. For Tier 2 when switching to the 1E criteria, six moved up to Tier 1 (the effect of the lower threshold) and five moved down to Tier 3 (the effect of using the control date). With three vessels moving out of Tier 1 and six moving in, the net effect was three moving into Tier one, which is why 1E has 29 Tier 1 vessels compared to 26 in 1C.

The vessels with negative impacts are the three that moved lower and were originally in Tier 1 and the five that moved lower and were originally in Tier 2. For these three Tier 1 vessels that fall to lower Tiers, for their 2003-2007 dependence (revenue) one was 3% ($205,608 from mackerel; 4 trips total averaging about 643,000 pounds each), one was 9% ($159,070 from mackerel; 6 trips total averaging about 285,000 pounds each) and one was 31% ($1,165,434 from mackerel; 30 trips total averaging about 485,000 pounds each). Should Tier 2 be subject to trip limits, the trip limits when the 2005 cut-off is used range from 39,000 pounds to 553,000 pounds so it is possible these vessels might be impacted should they be placed into Tier 2, depending on what if any trip limits are selected for Tier 2.

For the five Tier 2 vessels that fall to Tier 3, for their 2003-2007 dependence (revenue) one was 60% ($268,002 from mackerel; 5 trips total averaging about 199,000 pounds each), one was 1% ($50,217 from mackerel; 22 trips total averaging about 16,000 pounds each), and three were less than 1% ($32,551 with 20 trips total averaging 23,123 pounds each, $14,853 with 1 trip at 186,000 pounds, and $10,243 with 1 trip at 128,000 pounds). Tier 3 would be subject to trip limits and the trip limits when the 2005 cut-off is used range from 6,000 pounds to 33,000 pounds so it is possible these vessels might be impacted should they be placed into Tier 3, depending on what if any trip limits are selected for Tier 3.

Since these vessels would have qualified for higher Tiers because of their recent landings, these vessels would be most impacted by using the control date in terms of how they operated recently (i.e. they had relatively large landings recently but because of the 2005 control date they would not qualify for a tier that would permit as large continued/future large landings).

Impact of Start Date

Because the dealer weighout data is less complete before 1997, the number of additional vessels that are predicted to qualify with earlier dates may be underestimated. Comparing the numbers of vessels that appear to qualify (weighout data) under Alt 1B and Alt 1C illustrates the effect of different start dates, in this case going back to 1988 (1B) or 1997 (1C) for Tiers 2 and 3. Compared to 1988, 29 fewer vessels qualify for Tier 2 and 13 fewer vessels quality for Tier 3 when 1997 is the beginning date. In general, it makes sense that earlier start dates mean more qualifying vessels, which has an effect on all vessels because more vessels must share the quota. For the individual vessel the impacts can be important in terms of future access but there should not be significant economic impacts compared to recent performance. This is because A) the 42 (29+13) vessels described in the example above are still placed in a Tier based on recent (since 1997) performance, B) the trip limits are designed to not impact the majority of recent trips by vessels in a Tier, and C) as described below the lower Tiers derive a very small percentage of their revenue from mackerel. If more vessels obtain limited access permits than expected then any potential future racing to fish could be exacerbated, which would erode the associated economic benefits.

Impacts Related to Simplified Tier Structure

Because 1G proposes to use a relatively high trip limit, there would not be short term economic effects associated with grouping all lower Tiers into open access. However, if the quota falls in the future, as is expected, then grouping all the lower Tier vessels into one open access Tier could exacerbate racing to fish with the typical negative economic and social consequences already described above related to racing to fish.

Impacts Related to Alternative 1C/1D (preferred) Modifications

Historical and smaller vessel participants who qualify for Tier 3 under 1C/1D would benefit by having more access to the mackerel fishery. The tradeoff however is that the same amount of quota will be spread more thinly, so the smaller group under the original alternatives will have less access as a result. Since Tier 3 will be capped the directed fishery should not be substantially affected. The 1C/1D modifications also eliminate a quota allocation to Tier 2. This could work in Tier 2's favor or against Tier 2 depending on how active the different Tiers are in the future, which is not possible to predict. If opportunities expand for Tier 2 and the lack of a quota enables them to expand they could benefit and others could lose quota share. On the other hand, if Tier 1 is very active Tier 1 could catch much of the quota before Tier 2 given Tier 1's higher capacity.

Descriptive Tables

The following tables (81-107) describe the outcomes of applying the Tier criteria to the vessels and landings in the dealer weighout database. The characteristics of qualifying vessels in the Tiers under the various Tier structures are also provided. For open access, the characteristics of all vessels landing mackerel 2003-2007 but not qualifying for a Tier are included to give a sense of the open access vessels' characteristics. However, given it would be open access, in reality other vessels not included in the descriptions could enter the fishery. Taken together, the following tables describe the makeup of the mackerel limited access fishery vessels under each alternative from Alternative Set 1.

Each Tier scenario results in a different group of vessels being predicted to qualify for the proposed limited access Tiers. The numbers of vessels in each case are described in the Tier Summary Table below. For the Tier Summary Table (Table 81) below, "Tier" is the access category, "Years" are the years used for qualification, "Threshold" is the poundage required in a vessel's best year to qualify for a given Tier, and "Vessels" is the number of Vessels that are predicted to qualify. The reader is reminded that these are predicted qualifiers, based on the current dealer weighout database, and there are errors in this database which means once individuals start applying and possibly challenging the existing records, the numbers are likely to change.

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Table 81. Numbers of Vessels in Each Tier and Open Access (OA) for 1B-1J

Tier	Years	Threshold	Vessels
1B - Capacity: 131,157 MT			
Tier 1	1997-2007	1,000,000	26
Tier 2	1988-2007	100,000	64
Tier 3	1988-2007	25,000	56
Open Access	Na	na	Na
1C - Capacity: 121,031 MT			
Tier 1	1997-2007	1,000,000	26
Tier 2	1997-2007	100,000	36
Tier 3	1997-2007	1,000	309
Open Access	Na	na	Na
1D - Capacity: 107,578 MT			
Tier 1	1997-2005	**400,000**	29
Tier 2	1994-2005	100,000	45
Tier 3	1994-2005	1,000	329
Open Access	Na	na	Na
1E - Capacity: 103,754 MT			
Tier 1	1997-2005	**400,000**	29
Tier 2	1997-2005	100,000	25
Tier 3	1997-2007	25,000	50
Open Access	Na	na	Na
1F - Capacity: 131,157 MT			
Tier 1	1997-2007	1,000,000	26
Tier 2	1988-2007	100,000	64
Tier 3	1988-2007	10,000	121
Open Access	Na	na	na
1G - Capacity: 202,111 MT			
Tier 1	1997-2007	1,000,000	26
Open Access	Na	na	Na
1J - Capacity: 124,840 MT			
Tier 1	1997-2007	1,000,000	26
Tier 2	1994-2007	100,000	55
Tier 3	1994-2007	25,000	49
Open Access	Na	na	Na

Table 82. Avg Length, GTons, HP, crew size for vessels in each Tier under different Alternative Set 1 alternatives.

Tier	Vessels	mean Length	mean GTONS	mean VHP	mean CREW
1B					
Tier 1	26	110	211	1,664	7
Tier 2	64	78	145	783	6
Tier 3	56	65	92	504	5
Open Access	679	51	50	401	3
1C					
Tier 1	26	110	211	1,664	7
Tier 2	36	76	145	823	6
Tier 3 , 1000 lb	309	58	73	460	4
Tier 3, just permit	2414	47	46	411	4
1D					
Tier 1	29	103	191	1,414	7
Tier 2	45	76	142	774	6
Tier 3 , 1000 lb	329	56	67	448	4
Tier 3, just permit	2402	46	46	412	4
1E					
Tier 1	29	103	193	1,414	7
Tier 2	25	74	144	858	6
Tier 3	50	72	120	664	5
Open Access	603	51	51	406	3
1F					
Tier 1	26	110	211	1,664	7
Tier 2	64	78	145	783	6
Tier 3	121	62	82	500	4
Open Access	614	50	47	391	3
1G					
Tier 1	26	110	211	1,664	7
Open Access	799	54	61	439	4

Tier	Vessels	mean Length	mean GTONS	mean VHP	mean CREW
1J					
Tier 1	26	110	211	1664	7
Tier 2	55	77	143	767	6
Tier 3	49	65	96	508	4
Open Access	636	51	50	401	3

(Table 82 Continued)

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Table 83. Annual Revenues ($) 2003-2007 from mackerel and dependency on mackerel for vessels in each Tier under different Alternative Set 1 alternatives.

Tier	Vessels	Average Revenue From Mackerel ($)	Percent of Total Revenue from Mackerel
1B			
Tier 1	26	404,391	30%
Tier 2	64	4,272	1%
Tier 3	56	1,570	<1%
Open Access	679	76	<1%
1C			
Tier 1	26	404,391	30%
Tier 2	36	$7,206	1%
Tier 3, 1000 pound	309	$483	<1%
Tier 3, permit	2,414	<$100	<1%
1D			
Tier 1	29	353,977	28%
Tier 2	46	8,310	1%
Tier 3, 1000 pound	329	560	<1%
Tier 3, permit	2,402	<$100	<1%
1E			
Tier 1	29	353,977	28%
Tier 2	25	14,406	2%
Tier 3	50	4,712	1%
Open Access	603	110	<1%
1F			
Tier 1	26	404,391	30%
Tier 2	64	4,272	1%
Tier 3	121	927	<1%
Open Access	614	45	<1%
1G			
Tier 1	26	404,391	30%
Open Access	799	517	<1%
1J			
Tier 1	26	404,391	30%
Tier 2	55	4,968	1%
Tier 3	49	1,758	<1%
Open Access	636	85	<1%

Table 84. Average annual landings by Tier and vessel 1997-2007.

From 1997-2007 an average of 28,621 MT of mackerel were landed (commercial), split between the proposed tiers in the following manner (all number are annual averages):

Tier	Vessels	Avg MT (Vessel)	Avg Pounds (Vessel)
1B			
Tier 1	26	1,004	2,212,844
Tier 2	64	16	35,423
Tier 3	56	3	5,893
Open Access	679	2	4,368
1C			
Tier 1	26	974	2,148,111
Tier 2	36	27	58,426
Tier 3, 1000 pound	309	1	2,226
Tier 3, permit	2,414	0	292
1D			
Tier 1	29	859	1,894,478
Tier 2	46	24	53,181
Tier 3, 1000 pound	329	1	2,576
Tier 3, permit	2,402	0	395
1E			
Tier 1	29	885	1,951,162
Tier 2	25	44	97,094
Tier 3	50	9	20,683
Open Access	603	2	5,061
1F			
Tier 1	26	1,004	2,212,844
Tier 2	64	16	35,423
Tier 3	121	2	3,609
Open Access	614	2	4,657
1G			
Tier 1	26	1,004	2,212,844
Open Access	799	3	6,963
1J			
Tier 1	26	1,004	2,212,844
Tier 2	55	18	40,497
Tier 3	49	3	7,160
Open Access	636	2	4,694

In some cases in Table 84 the open access catch per vessel is very similar (1B) or even higher (1F) than Tier 3. This is due to the March 21, 2007 permit requirement causing some vessels with relatively larger landings in the database to end up in the open access category. Some of these vessels may no longer exist, thus somewhat inflating the relative catch per vessel by the open access Tier. The open access category vessel count is simply the number of vessels that had landings but did not otherwise qualify.

Tables 82-84 provide descriptions of the vessels that would qualify for each Tier. For each Tier scenario (Alternative Set 1), Table 82 describes the number of vessels in each Tier, their mean length, mean gross tons (GTONS), mean vessel horsepower (VHP) and mean crew size. Looking at any of the descriptors, one can note than the Tier one vessels are bigger operations and there is an orderly progression of smaller average characteristics as one proceeds down to the lower Tiers. Table 83 describes average revenues and revenue dependence for vessels in each Tier under the different Tier scenarios created by Alternative Set 1. Again one can see that there are differences among the tiers of how much revenue the vessels in each Tier derive from mackerel, which was expected based on the qualifying criteria for the Tiers. Table 84 describes a similar pattern but from a weight perspective. Altogether, the analysis supports that the Tiers as developed by the Council result in groupings of vessels that are significantly different from each other.

Tables 86-107 describe the primary gear types (as percentage of vessel revenue) and homeport state of qualifiers for each Tier under each Tier scenario created by Alternative Set 1 based on dealer weighout data 2003-2007. Since there are six Tier scenarios under Alternative Set 1 and three Tiers plus open access for all but Alternative 1G, many tables are required to provide a complete description. Table 85 provides a reference key for determining which table is discussing which Tier (OA = Open Access, but it is just the vessels that actually had mackerel landings in the qualification period). In general, the reader will notice that Tier 1 has a relatively high proportion of mid-water trawl vessels, with bottom otter trawl vessels as well, and that the lower Tiers have a more diverse mix of principal gear types, as would be expected given they are not as focused on mackerel. Tables 86-107 are generally intended to inform the reader about the anticipated distribution of limited access qualifiers by state and gear type across Alternative Set 1 Alternatives. Given the modifications to 1C and 1D, instead of providing a description of the open access vessels that had mackerel landings, the distribution of permit holders who had mackerel landings in the qualification period is provided.

Table 85. Descriptive Table Key.

Alternative Set 1 Alternative	Tier	Corresponding Table
1B	1	86
1B	2	87
1B	3	88
1B	OA	89
1C	1	90
1C	2	91
1C	3, 1000 lb	92
1C	3, permit	93
1D	1	94
1D	2	95
1D	3, 1000 lb	96
1D	3, permit	97
1E	1	98
1E	2	99
1E	3	100
1E	OA	101
1F	1	102
1F	2	103
1F	3	104
1F	OA	105
1G	1	106
1G	OA	107
1J	1	108
1J	2	109
1J	3	110
1J	OA	111

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Number of Anticipated Vessels by Principal Gear (by value all species 2003-2007) and Homeport State by Tier groupings **under Alt 1B follow in Tables 86-89.**

For the open access category, the descriptions include all vessels that landed mackerel over the course of the qualifying period.

Table 86. Alternative 1B, Tier 1, Qualifying vessels by gear and state.

GEAR	NJ	MA	NH	RI	ME	NE
DREDGE, OTHER	1	.	.	.	.	.
DREDGE, SCALLOP,SEA	1	2	.	.	.	.
PURSE SEINE, OTHER	1	.	.	.	.	.
TRAWL,OTTER,BOTTOM,FISH	3	1	1	1	.	.
TRAWL,OTTER,MIDWATER	2	4	.	1	1	.
TRAWL,OTTER,MIDWATER PAIRED	.	5	1	.	.	1

Table 87. Alternative 1B, Tier 2, Qualifying vessels by gear and state.

GEAR	MA	MD	NJ	PA	RI	VA	NC	NY	WA	ME
DREDGE, OTHER	1	1	14	3	1	1	.	.	.	.
DREDGE, SCALLOP,SEA	.	.	2	1	.	.	.	.	.	.
GILL NET,SINK, OTHER	.	.	1	.	1	.	.	.	.	.
LONG SEINE	1	.	.	.	.	.	.	.	.	.
POUND NET, OTHER	1	.	.	.	1	.	.	.	.	.
PURSE SEINE, OTHER	1	.	.	.	.	.	.	.	.	.
TRAWL,OTTER,BOTTOM,FISH	10	.	3	.	12	.	1	3	.	.
TRAWL,OTTER,MIDWATER	1	.	.	.	.	.	.	.	1	.
TRAWL,OTTER,MIDWATER PAIRED	1	.	.	.	.	.	.	.	.	.
UNKNOWN	1	.	.	.	.	.	.	.	.	.
Z_NO LANDINGS 2003-2007	.	.	.	.	.	.	.	.	.	1

Table 88. Alternative 1B, Tier 3, Qualifying vessels by gear and state.

GEAR	MA	NJ	RI	VA	ME	MD	NY	NC
BOX TRAP	1	.	.	.	.	.	.	.
DREDGE, OTHER	1	2	1	1	.	.	.	.
DREDGE, SCALLOP,SEA	1	.	.	.	.	.	.	.
GILL NET,SINK, OTHER	1	3	.	1	1	.	.	.
POUND NET, OTHER	.	1	.	.	.	.	.	.
TRAWL,OTTER,BOTTOM,FISH	2	13	16	1	.	1	5	.
TRAWL,OTTER,BOTTOM,OTHER	.	.	.	.	.	.	.	1
UNKNOWN	.	.	1	.	.	.	.	.
Z_NO LANDINGS 2003-2007	1	.	1	.	.	.	.	.

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Table 89. Alternative 1B, Open Access vessels that had landings 2003-2007 by gear and state.

GEAR	MA	ME	NC	NH	NJ	NY	PA	RI	VA	MD	CT	DE	FL
BY HAND, OTHER	1	.	.	.	.	.	.	.	.	.	.	.	.
DREDGE, OTHER	26	4	11	1	23	2	1	3	6	.	.	.	.
DREDGE, SCALLOP,SEA	8	1	.	.	2	.	.	1	.	1	.	.	.
DREDGE, SURF CLAM + OCEAN QUAHO	.	1	.	.	.	.	.	.	.	.	.	.	.
GILL NET,DRIFT, OTHER	.	.	.	.	1	.	.	.	1	.	.	.	.
GILL NET,SET /STAKE, SEA BASS	.	.	3	.	.	.	.	.	.	.	.	.	.
GILL NET,SINK, OTHER	79	13	3	20	38	11	.	14	4	1	1	1	1
HAND LINE, OTHER	18	.	.	3	4	9	.	.	2	.	.	.	.
HARPOON,OTHER	1	.	.	.	.	.	.	.	.	.	.	.	.
LONGLINE, BOTTOM	2	.	.	.	4	1	.	.	.	1	.	.	.
LONGLINE, PELAGIC	.	.	1	.	.	.	.	.	.	.	1	.	.
POT/TRAP, LOBSTER INSH NK	1	2	.	1	.	.	.	.	.	.	.	.	.
POT/TRAP, LOBSTER OFFSH NK	.	.	.	1	.	.	.	3	.	.	.	.	.
POTS + TRAPS,BLUE CRAB	.	.	1	.	.	1	.	.	.	.	.	.	.
POTS + TRAPS,FISH	1	.	.	.	.	.	.	.	.	1	.	.	.
POTS + TRAPS,OTHER	26	.	.	.	2	.	.	8	1	1	.	1	.
TRAWL,OTTER,BOTTOM,FISH	86	31	20	11	20	35	.	31	5	3	3	1	.
TRAWL,OTTER,BOTTOM,OTHER	.	.	2	.	.	.	.	.	.	.	.	.	.
TRAWL,OTTER,BOTTOM,SHRIMP	.	2	3	.	.	.	.	.	.	.	.	.	.
UNKNOWN	7	.	.	.	2	5	.	4	.	3	1	.	.

Number of Anticipated Vessels by Principal Gear (by value 2003-2007) and Homeport State by Tier groupings **under Alt 1C follow in Tables 90-93.**

Table 90. Alternative 1C, Tier 1, Qualifying vessels by gear and state.

GEAR	NJ	MA	NH	RI	ME	NE
DREDGE, OTHER	1	.	.	.	.	.
DREDGE, SCALLOP,SEA	1	2	.	.	.	.
PURSE SEINE, OTHER	1	.	.	.	.	.
TRAWL,OTTER,BOTTOM,FISH	3	1	1	1	.	.
TRAWL,OTTER,MIDWATER	2	4	.	1	1	.
TRAWL,OTTER,MIDWATER PAIRED	.	5	1	.	.	1

Table 91. Alternative 1C, Tier 2, Qualifying vessels by gear and state.

GEAR	MA	NJ	PA	VA	RI	NC	NY	WA
DREDGE, OTHER	1	7	2	1	.	.	.	.
DREDGE, SCALLOP,SEA	.	2	1	.	.	.	.	.
GILL NET,SINK, OTHER	.	1	.	.	1	.	.	.
LONG SEINE	1	.	.	.	.	.	.	.
POUND NET, OTHER	1	.	.	.	.	.	.	.
PURSE SEINE, OTHER	1	.	.	.	.	.	.	.
TRAWL,OTTER,BOTTOM,FISH	5	1	.	.	5	1	1	.
TRAWL,OTTER,MIDWATER	1	.	.	.	.	.	.	1
TRAWL,OTTER,MIDWATER PAIRED	1	.	.	.	.	.	.	.

Table 92. Alternative 1C, Tier 3 (1000 lb qualification), Qualifying vessels by gear and state.

GEAR	MA	ME	NC	NJ	NY	PA	RI	MD	DE	NH	VA	CT
BOX TRAP	1	.	.	.	.	.	.	.	.	.	.	.
DREDGE, OTHER	9	1	3	14	2	2	3	.	.	.	.	.
DREDGE, SCALLOP,SEA	1	1	.	1	.	.	1	1	.	.	.	.
GILL NET,DRIFT, OTHER	.	.	.	1	.	.	.	.	.	.	.	.
GILL NET,SINK, OTHER	33	7	1	21	3	.	8	1	1	5	5	.
HAND LINE, OTHER	4	.	.	2	3	.	.	.	.	.	.	.
LONGLINE, BOTTOM	.	.	.	2	.	.	.	1	.	.	.	.
LONGLINE, PELAGIC	.	.	.	.	.	.	.	.	.	.	.	1
POTS + TRAPS,FISH	.	.	.	.	.	.	.	1	.	.	.	.
POTS + TRAPS,OTHER	4	.	.	.	.	.	3	.	1	.	1	.
POUND NET, OTHER	.	.	.	1	.	.	1	.	.	.	.	.
TRAWL,OTTER,BOTTOM,FISH	36	3	7	29	27	.	34	2	.	1	1	2
TRAWL,OTTER,BOTTOM,OTHER	.	.	3	.	.	.	.	.	.	.	.	.
UNKNOWN	4	.	.	1	1	.	.	1	.	.	.	1
Z_NO LANDINGS 2003-2007	2	1	.	1	.	.	1	.	.	.	.	.

Table 93. Alternative 1C, Tier 3 with only permit requirement; vessels that had mackerel landings in qualification period.

GEAR	MA	ME	NC	NH	NJ	NY	PA	RI	VA	MD	CT	DE	FL
BOX TRAP	1	.	.	.	.	.	.	.	.	.	.	.	.
BY HAND, OTHER	1	.	.	.	.	.	.	.	.	.	.	.	.
DREDGE, OTHER	18	3	7	1	26	3	2	4	2	.	.	.	.
DREDGE, SCALLOP,SEA	5	1	.	.	1	.	.	1	.	1	.	.	.
GILL NET,DRIFT, OTHER	.	.	.	.	1	.	.	.	1	.	.	.	.
GILL NET,SET /STAKE, SEA BASS	.	.	3	.	.	.	.	.	.	.	.	.	.
GILL NET,SINK, OTHER	78	15	3	17	39	12	.	14	5	1	1	1	1
HAND LINE, OTHER	16	.	.	2	3	9	.	.	.	.	.	.	.
LONGLINE, BOTTOM	2	.	.	.	4	1	.	.	.	1	.	.	.
LONGLINE, PELAGIC	.	.	.	.	.	.	.	.	.	.	1	.	.
POT/TRAP, LOBSTER INSH NK	1	.	.	.	.	.	.	.	.	.	.	.	.
POT/TRAP, LOBSTER OFFSH NK	1	.	.	.	.	.	.	1	.	.	.	.	.
POTS + TRAPS,BLUE CRAB	.	.	1	.	.	1	.	.	.	.	.	.	.
POTS + TRAPS,FISH	1	.	.	.	.	.	.	.	.	1	.	.	.
POTS + TRAPS,OTHER	21	.	.	.	2	.	.	8	1	1	.	1	.
POUND NET, OTHER	.	.	.	.	1	.	.	1	.	.	.	.	.
TRAWL,OTTER,BOTTOM,FISH	82	13	16	10	36	45	.	49	3	4	2	.	.
TRAWL,OTTER,BOTTOM,OTHER	.	.	3	.	.	.	.	.	.	.	.	.	.
TRAWL,OTTER,BOTTOM,SHRIMP	.	.	1	.	.	.	.	.	.	.	.	.	.
UNKNOWN	8	.	.	.	2	6	.	4	.	3	1	.	.
Z_NO LANDINGS 2003-2007	4	1	1	1	1	4	.	1	2	.	.	.	.

Number of Anticipated Vessels by Principal Gear (by value 2003-2007) and Homeport State by Tier groupings **under Alt 1D follow in Tables 94-97.**

Table 94. Alternative 1D, Tier 1, Qualifying vessels by gear and state.

GEAR	NJ	PA	MA	NC	NH	RI	ME	NE
DREDGE, OTHER	2	1	.	.	.	.	.	.
DREDGE, SCALLOP,SEA	1	.	1	.	.	.	.	.
PURSE SEINE, OTHER	1	.	.	.	.	.	.	.
TRAWL,OTTER,BOTTOM,FISH	4	.	2	1	1	2	.	.
TRAWL,OTTER,MIDWATER	2	.	3	.	.	1	1	.
TRAWL,OTTER,MIDWATER PAIRED	.	.	4	.	1	.	.	1

Table 95. Alternative 1D, Tier 2, Qualifying vessels by gear and state.

GEAR	MA	NJ	PA	RI	VA	NY
DREDGE, OTHER	1	10	2	1	1	.
DREDGE, SCALLOP,SEA	.	2	1	.	.	.
GILL NET,SINK, OTHER	.	1	.	1	.	.
LONG SEINE	1	.	.	.	.	.
POUND NET, OTHER	1	.	.	1	.	.
TRAWL,OTTER,BOTTOM,FISH	6	.	.	10	.	3
TRAWL,OTTER,MIDWATER	2	.	.	.	.	.
UNKNOWN	1	.	.	.	.	.

Table 96. Alternative 1D, Tier 3, Qualifying vessels by gear and state.

GEAR	MA	ME	NC	NJ	NY	PA	RI	VA	MD	DE	FL	NH	CT
BOX TRAP	1	.	.	.	.	.	.	.	.	.	.	.	.
DREDGE, OTHER	9	2	2	14	2	1	3	1	.	.	.	.	.
DREDGE, SCALLOP,SEA	4	1	.	2	.	.	1	.	1	.	.	.	.
GILL NET,DRIFT, OTHER	.	.	.	1	.	.	.	.	.	.	.	.	.
GILL NET,SINK, OTHER	42	8	1	21	6	.	10	5	1	1	1	6	.
HAND LINE, OTHER	4	.	.	3	3	.	.	1	.	.	.	.	.
LONGLINE, BOTTOM	.	.	.	2	1	.	.	.	1	.	.	.	.
LONGLINE, PELAGIC	.	.	.	.	.	.	.	.	.	.	.	.	1
POTS + TRAPS,FISH	.	.	.	.	.	.	.	.	1	.	.	.	.
POTS + TRAPS,OTHER	5	.	.	.	.	.	3	1	1	1	.	.	.
POUND NET, OTHER	.	.	.	1	.	.	.	.	.	.	.	.	.
TRAWL,OTTER,BOTTOM,FISH	33	2	7	29	24	.	32	1	3	.	.	2	2
TRAWL,OTTER,BOTTOM,OTHER	.	.	3	.	.	.	.	.	.	.	.	.	.
UNKNOWN	3	.	.	1	1	.	1	.	1	.	.	.	1
Z_NO LANDINGS 2003-2007	3	1	.	1	.	.	1	.	.	.	.	1	.

Table 97. Alternative 1D, Tier 3 with only permit requirement; vessels that had mackerel landings in qualification period.

GEAR	MA	ME	NC	NH	NJ	NY	PA	RI	VA	MD	CT	DE	FL
BOX TRAP	1	.	.	.	.	.	.	.	.	.	.	.	.
BY HAND, OTHER	1	.	.	.	.	.	.	.	.	.	.	.	.
DREDGE, OTHER	19	3	6	1	27	3	1	4	3	.	.	.	.
DREDGE, SCALLOP,SEA	10	1	.	.	2	.	.	1	.	1	.	.	.
DREDGE, SURF CLAM + OCEAN QUAHO	.	1	.	.	.	.	.	.	.	.	.	.	.
GILL NET,DRIFT, OTHER	.	.	.	.	1	.	.	.	1	.	.	.	.
GILL NET,SET /STAKE, SEA BASS	.	.	3	.	.	.	.	.	.	.	.	.	.
GILL NET,SINK, OTHER	77	15	3	17	35	12	.	15	5	1	1	1	1
HAND LINE, OTHER	17	.	.	3	4	10	.	.	2	.	.	.	.
LONGLINE, BOTTOM	1	.	.	.	3	1	.	.	.	1	.	.	.
LONGLINE, PELAGIC	.	.	1	.	.	.	.	.	.	.	1	.	.
POT/TRAP, LOBSTER INSH NK	1	.	.	1	.	.	.	.	.	.	.	.	.
POT/TRAP, LOBSTER OFFSH NK	1	.	.	1	.	.	.	1	.	.	.	.	.
POTS + TRAPS,BLUE CRAB	.	.	1	.	.	1	.	.	.	.	.	.	.
POTS + TRAPS,FISH	.	.	.	.	.	.	.	.	.	1	.	.	.
POTS + TRAPS,OTHER	25	.	.	.	2	.	.	8	1	1	.	1	.
POUND NET, OTHER	.	.	.	.	1	.	.	.	.	.	.	.	.
TRAWL,OTTER,BOTTOM,FISH	85	19	18	10	34	38	.	44	4	4	3	.	.
TRAWL,OTTER,BOTTOM,OTHER	.	.	3	.	.	.	.	.	.	.	.	.	.
TRAWL,OTTER,BOTTOM,SHRIMP	.	.	1	.	.	.	.	.	.	.	.	.	.
UNKNOWN	7	.	.	.	2	5	.	4	.	2	1	.	.
Z_NO LANDINGS 2003-2007	6	2	1	3	1	3	.	1	2	.	.	.	.

Number of Anticipated Vessels by Principal Gear (by value 2003-2007) and Homeport State by Tier groupings **under Alt 1E follow in Tables 98-101.**

Table 98. Alternative 1E, Tier 1, Qualifying vessels by gear and state.

GEAR	NJ	PA	MA	NC	NH	RI	ME	NE
DREDGE, OTHER	2	1	.	.	.	.	.	.
DREDGE, SCALLOP,SEA	1	.	1	.	.	.	.	.
PURSE SEINE, OTHER	1	.	.	.	.	.	.	.
TRAWL,OTTER,BOTTOM,FISH	4	.	2	1	1	2	.	.
TRAWL,OTTER,MIDWATER	2	.	3	.	.	1	1	.
TRAWL,OTTER,MIDWATER PAIRED	.	.	4	.	1	.	.	1

Table 99. Alternative 1E, Tier 2, Qualifying vessels by gear and state.

GEAR	MA	NJ	PA	VA	RI	NY
DREDGE, OTHER	1	6	1	1	.	.
DREDGE, SCALLOP,SEA	.	2	1	.	.	.
GILL NET,SINK, OTHER	.	1	.	.	1	.
LONG SEINE	1	.	.	.	.	.
POUND NET, OTHER	1	.	.	.	.	.
TRAWL,OTTER,BOTTOM,FISH	3	.	.	.	3	1
TRAWL,OTTER,MIDWATER	2	.	.	.	.	.

Table 100. Alternative 1E, Tier 3, Qualifying vessels by gear and state.

GEAR	MA	MD	NJ	PA	RI	VA	NY	NC	WA
BOX TRAP	1	.	.	.	.	.	.	.	.
DREDGE, OTHER	.	1	4	1	2	.	.	.	.
DREDGE, SCALLOP,SEA	1	.	.	.	.	.	.	.	.
GILL NET,SINK, OTHER	1	.	3	.	.	1	.	.	.
PURSE SEINE, OTHER	1	.	.	.	.	.	.	.	.
TRAWL,OTTER,BOTTOM,FISH	2	.	5	.	15	.	6	.	.
TRAWL,OTTER,BOTTOM,OTHER	.	.	.	.	.	.	.	1	.
TRAWL,OTTER,MIDWATER	.	.	.	.	.	.	.	.	1
TRAWL,OTTER,MIDWATER PAIRED	2	.	.	.	.	.	.	.	.
UNKNOWN	1	.	.	.	.	.	.	.	.
Z_NO LANDINGS 2003-2007	1	.	.	.	.	.	.	.	.

Table 101. Alternative 1E, Open Access vessels that had landings 2003-2007 by gear and state.

GEAR	MA	ME	NC	NH	NJ	NY	PA	RI	VA	MD	CT	DE	FL
BY HAND, OTHER	1	.	.	.	.	.	.	.	.	.	.	.	.
DREDGE, OTHER	19	2	7	1	21	2	1	3	2	.	.	.	.
DREDGE, SCALLOP,SEA	5	1	.	.	1	.	.	1	.	1	.	.	.
GILL NET,DRIFT, OTHER	.	.	.	.	1	.	.	.	1	.	.	.	.
GILL NET,SET /STAKE, SEA BASS	.	.	3	.	.	.	.	.	.	.	.	.	.
GILL NET,SINK, OTHER	79	12	3	20	37	9	.	13	4	1	1	1	1
HAND LINE, OTHER	16	.	.	2	3	8	.	.	.	.	.	.	.
LONGLINE, BOTTOM	2	.	.	.	4	1	.	.	.	1	.	.	.
LONGLINE, PELAGIC	.	.	.	.	.	.	.	.	.	.	1	.	.
POT/TRAP, LOBSTER INSH NK	1	.	.	.	.	.	.	.	.	.	.	.	.
POT/TRAP, LOBSTER OFFSH NK	.	.	.	.	.	.	.	2	.	.	.	.	.
POTS + TRAPS,BLUE CRAB	.	.	1	.	.	1	.	.	.	.	.	.	.
POTS + TRAPS,FISH	1	.	.	.	.	.	.	.	.	1	.	.	.
POTS + TRAPS,OTHER	20	.	.	.	2	.	.	8	1	1	.	1	.
POUND NET, OTHER	.	.	.	.	1	.	.	1	.	.	.	.	.
TRAWL,OTTER,BOTTOM,FISH	76	15	16	10	28	36	.	39	4	4	2	1	.
TRAWL,OTTER,BOTTOM,OTHER	.	.	2	.	.	.	.	.	.	.	.	.	.
TRAWL,OTTER,BOTTOM,SHRIMP	.	.	1	.	.	.	.	.	.	.	.	.	.
UNKNOWN	7	.	.	.	2	5	.	4	.	3	1	.	.

Number of Anticipated Vessels by Principal Gear (by value 2003-2007) and Homeport State by Tier groupings **under Alt 1F follow in Tables 102-105.**

Table 102. Alternative 1F, Tier 1, Qualifying vessels by gear and state.

GEAR	NJ	MA	NH	RI	ME	NE
DREDGE, OTHER	1	.	.	.	.	.
DREDGE, SCALLOP,SEA	1	2	.	.	.	.
PURSE SEINE, OTHER	1	.	.	.	.	.
TRAWL,OTTER,BOTTOM,FISH	3	1	1	1	.	.
TRAWL,OTTER,MIDWATER	2	4	.	1	1	.
TRAWL,OTTER,MIDWATER PAIRED	.	5	1	.	.	1

THIS SPACE INTENTIONALLY LEFT BLANK

Table 103. Alternative 1F, Tier 2, Qualifying vessels by gear and state.

GEAR	MA	MD	NJ	PA	RI	VA	NC	NY	WA	ME
DREDGE, OTHER	1	1	14	3	1	1	.	.	.	.
DREDGE, SCALLOP,SEA	.	.	2	1	.	.	.	.	.	.
GILL NET,SINK, OTHER	.	.	1	.	1	.	.	.	.	.
LONG SEINE	1	.	.	.	.	.	.	.	.	.
POUND NET, OTHER	1	.	.	.	1	.	.	.	.	.
PURSE SEINE, OTHER	1	.	.	.	.	.	.	.	.	.
TRAWL,OTTER,BOTTOM,FISH	10	.	3	.	12	.	1	3	.	.
TRAWL,OTTER,MIDWATER	1	.	.	.	.	.	.	.	1	.
TRAWL,OTTER,MIDWATER PAIRED	1	.	.	.	.	.	.	.	.	.
UNKNOWN	1	.	.	.	.	.	.	.	.	.
Z_NO LANDINGS 2003-2007	.	.	.	.	.	.	.	.	.	1

Table 104. Alternative 1F, Tier 3, Qualifying vessels by gear and state.

GEAR	MA	NJ	NY	RI	VA	ME	NH	MD	CT	NC	PA
BOX TRAP	1	.	.	.	.	.	.	.	.	.	.
DREDGE, OTHER	3	3	1	3	2	.	.	.	.	.	.
DREDGE, SCALLOP,SEA	2	.	.	.	.	.	.	.	.	.	.
GILL NET,SINK, OTHER	8	4	.	2	2	3	2	.	.	.	.
HAND LINE, OTHER	1	1	.	.	1	.	.	.	.	.	.
POTS + TRAPS,FISH	.	.	.	.	.	.	.	1	.	.	.
POUND NET, OTHER	.	1	.	.	.	.	.	.	.	.	.
TRAWL,OTTER,BOTTOM,FISH	9	19	12	22	1	1	.	2	2	4	.
TRAWL,OTTER,BOTTOM,OTHER	.	.	.	.	.	.	.	.	.	2	.
UNKNOWN	.	1	1	1	.	.	.	.	.	.	.
Z_NO LANDINGS 2003-2007	1	.	.	1	.	.	.	.	.	.	1

Table 105. Alternative 1F, Open Access vessels that had landings 2003-2007 by gear and state.

GEAR	MA	ME	NC	NH	NJ	NY	PA	RI	VA	MD	CT	DE	FL
BY HAND, OTHER	1	.	.	.	.	.	.	.	.	.	.	.	.
DREDGE, OTHER	24	4	11	1	22	1	1	1	5	.	.	.	.
DREDGE, SCALLOP,SEA	7	1	.	.	2	.	.	1	.	1	.	.	.
DREDGE, SURF CLAM + OCEAN QUAHO	.	1	.	.	.	.	.	.	.	.	.	.	.
GILL NET,DRIFT, OTHER	.	.	.	.	1	.	.	.	1	.	.	.	.
GILL NET,SET /STAKE, SEA BASS	.	.	3	.	.	.	.	.	.	.	.	.	.
GILL NET,SINK, OTHER	72	11	3	18	37	11	.	12	3	1	1	1	1
HAND LINE, OTHER	17	.	.	3	3	9	.	.	1	.	.	.	.
HARPOON,OTHER	1	.	.	.	.	.	.	.	.	.	.	.	.
LONGLINE, BOTTOM	2	.	.	.	4	1	.	.	.	1	.	.	.
LONGLINE, PELAGIC	.	.	1	.	.	.	.	.	.	.	1	.	.
POT/TRAP, LOBSTER INSH NK	1	2	.	1	.	.	.	.	.	.	.	.	.
POT/TRAP, LOBSTER OFFSH NK	.	.	.	1	.	.	.	3	.	.	.	.	.
POTS + TRAPS,BLUE CRAB	.	.	1	.	.	1	.	.	.	.	.	.	.
POTS + TRAPS,FISH	1	.	.	.	.	.	.	.	.	.	.	.	.
POTS + TRAPS,OTHER	26	.	.	.	2	.	.	8	1	1	.	1	.
TRAWL,OTTER,BOTTOM,FISH	79	30	16	11	14	28	.	25	5	2	1	1	.
TRAWL,OTTER,BOTTOM,OTHER	.	.	1	.	.	.	.	.	.	.	.	.	.
TRAWL,OTTER,BOTTOM,SHRIMP	.	2	3	.	.	.	.	.	.	.	.	.	.
UNKNOWN	7	.	.	.	1	4	.	4	.	3	1	.	.

Number of Anticipated Vessels by Principal Gear (by value 2003-2007) and Homeport State by Tier groupings **under Alt 1G follow in Tables 106-107.**

Table 106. Alternative 1G, Tier 1, Qualifying vessels by gear and state.

GEAR	NJ	MA	NH	RI	ME	NE
DREDGE, OTHER	1	.	.	.	.	.
DREDGE, SCALLOP,SEA	1	2	.	.	.	.
PURSE SEINE, OTHER	1	.	.	.	.	.
TRAWL,OTTER,BOTTOM,FISH	3	1	1	1	.	.
TRAWL,OTTER,MIDWATER	2	4	.	1	1	.
TRAWL,OTTER,MIDWATER PAIRED	.	5	1	.	.	1

THIS SPACE INTENTIONALLY LEFT BLANK

Table 107. Alternative 1G, Open Access vessels that had landings 2003-2007 by gear and state.

GEAR	MA	MD	ME	NC	NH	NJ	NY	PA	RI	VA	CT	DE	FL	WA
BOX TRAP	1	.	.	.	.	.	.	.	.	.	.	.	.	.
BY HAND, OTHER	1	.	.	.	.	.	.	.	.	.	.	.	.	.
DREDGE, OTHER	28	1	4	11	1	39	2	4	5	8	.	.	.	.
DREDGE, SCALLOP,SEA	9	1	1	.	.	4	.	1	1	.	.	.	.	.
DREDGE, SURF CLAM + OCEAN QUAHO	.	.	1	.	.	.	.	.	.	.	.	.	.	.
GILL NET,DRIFT, OTHER	.	.	.	.	.	1	.	.	.	1	.	.	.	.
GILL NET,SET /STAKE, SEA BASS	.	.	.	3	.	.	.	.	.	.	.	.	.	.
GILL NET,SINK, OTHER	80	1	14	3	20	42	11	.	15	5	1	1	1	.
HAND LINE, OTHER	18	.	.	.	3	4	9	.	.	2	.	.	.	.
HARPOON,OTHER	1	.	.	.	.	.	.	.	.	.	.	.	.	.
LONG SEINE	1	.	.	.	.	.	.	.	.	.	.	.	.	.
LONGLINE, BOTTOM	2	1	.	.	.	4	1	.	.	.	.	.	.	.
LONGLINE, PELAGIC	.	.	.	1	.	.	.	.	.	.	1	.	.	.
POT/TRAP, LOBSTER INSH NK	1	.	2	.	1	.	.	.	.	.	.	.	.	.
POT/TRAP, LOBSTER OFFSH NK	.	.	.	.	1	.	.	.	3	.	.	.	.	.
POTS + TRAPS,BLUE CRAB	.	.	.	1	.	.	1	.	.	.	.	.	.	.
POTS + TRAPS,FISH	1	1	.	.	.	.	.	.	.	.	.	.	.	.
POTS + TRAPS,OTHER	26	1	.	.	.	2	.	.	8	1	.	1	.	.
POUND NET, OTHER	1	.	.	.	.	1	.	.	1	.	.	.	.	.
PURSE SEINE, OTHER	1	.	.	.	.	.	.	.	.	.	.	.	.	.
TRAWL,OTTER,BOTTOM,FISH	98	4	31	21	11	36	43	.	59	6	3	1	.	.
TRAWL,OTTER,BOTTOM,OTHER	.	.	.	3	.	.	.	.	.	.	.	.	.	.
TRAWL,OTTER,BOTTOM,SHRIMP	.	.	2	3	.	.	.	.	.	.	.	.	.	.
TRAWL,OTTER,MIDWATER	1	.	.	.	.	.	.	.	.	.	.	.	.	1
TRAWL,OTTER,MIDWATER PAIRED	1	.	.	.	.	.	.	.	.	.	.	.	.	.
UNKNOWN	8	3	.	.	.	2	5	.	5	.	1	.	.	.

Number of Anticipated Vessels by Principal Gear (by value all species 2003-2007) and Homeport State by Tier groupings **under Alt 1J follow in Tables 108-111.**

Table 108. Alternative 1J, Tier 1, Qualifying vessels by gear and state.

GEAR	NJ	MA	NH	RI	ME	NE
DREDGE, OTHER	1	.	.	.	.	.
DREDGE, SCALLOP,SEA	1	2	.	.	.	.
PURSE SEINE, OTHER	1	.	.	.	.	.
TRAWL,OTTER,BOTTOM,FISH	3	1	1	1	.	.
TRAWL,OTTER,MIDWATER	2	4	.	1	1	.
TRAWL,OTTER,MIDWATER PAIRED	.	5	1	.	.	1

Table 109. Alternative 1J, Tier 2, Qualifying vessels by gear and state.

GEAR	MA	NJ	PA	RI	VA	NC	NY	WA
DREDGE, OTHER	1	11	3	1	1	.	.	.
DREDGE, SCALLOP,SEA	.	2	1	.	.	.	.	.
GILL NET,SINK, OTHER	.	1	.	1	.	.	.	.
LONG SEINE	1	.	.	.	.	.	.	.
POUND NET, OTHER	1	.	.	1	.	.	.	.
PURSE SEINE, OTHER	1	.	.	.	.	.	.	.
TRAWL,OTTER,BOTTOM,FISH	8	1	.	12	.	1	3	.
TRAWL,OTTER,MIDWATER	1	.	.	.	.	.	.	1
TRAWL,OTTER,MIDWATER PAIRED	1	.	.	.	.	.	.	.
UNKNOWN	1	.	.	.	.	.	.	.

Table 110. Alternative 1J, Tier 3, Qualifying vessels by gear and state.

GEAR	MA	MD	NJ	RI	ME	VA	NY	NC
BOX TRAP	1	.	.	.	.	.	.	.
DREDGE, OTHER	1	1	3	1	.	.	.	.
DREDGE, SCALLOP,SEA	1	.	.	.	.	.	.	.
GILL NET,SINK, OTHER	1	.	3	.	1	1	.	.
POUND NET, OTHER	.	.	1	.	.	.	.	.
TRAWL,OTTER,BOTTOM,FISH	1	.	12	13	.	1	4	.
TRAWL,OTTER,BOTTOM,OTHER	.	.	.	.	.	.	.	1
Z_NO LANDINGS 2003-2007	1	.	.	1	.	.	.	.

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Table 111. Alternative 1J, Open Access vessels that had landings 2003-2007 by gear and state.

GEAR	MA	ME	NC	NH	NJ	NY	PA	RI	VA	MD	CT	DE	FL
BY HAND, OTHER	1	.	.	.	.	.	.	.	.	.	.	.	.
DREDGE, OTHER	21	3	7	1	23	2	1	3	3	.	.	.	.
DREDGE, SCALLOP,SEA	8	1	.	.	2	.	.	1	.	1	.	.	.
DREDGE, SURF CLAM + OCEAN QUAHO	.	1	.	.	.	.	.	.	.	.	.	.	.
GILL NET,DRIFT, OTHER	.	.	.	.	1	.	.	.	1	.	.	.	.
GILL NET,SET /STAKE, SEA BASS	.	.	3	.	.	.	.	.	.	.	.	.	.
GILL NET,SINK, OTHER	79	12	3	20	37	10	.	14	4	1	1	1	1
HAND LINE, OTHER	17	.	.	3	4	9	.	.	2	.	.	.	.
LONGLINE, BOTTOM	2	.	.	.	4	1	.	.	.	1	.	.	.
LONGLINE, PELAGIC	.	.	1	.	.	.	.	.	.	.	1	.	.
POT/TRAP, LOBSTER INSH NK	1	.	.	1	.	.	.	.	.	.	.	.	.
POT/TRAP, LOBSTER OFFSH NK	.	.	.	1	.	.	.	2	.	.	.	.	.
POTS + TRAPS,BLUE CRAB	.	.	1	.	.	1	.	.	.	.	.	.	.
POTS + TRAPS,FISH	1	.	.	.	.	.	.	.	.	1	.	.	.
POTS + TRAPS,OTHER	25	.	.	.	2	.	.	8	1	1	.	1	.
TRAWL,OTTER,BOTTOM,FISH	82	22	18	10	21	36	.	34	4	4	3	1	.
TRAWL,OTTER,BOTTOM,OTHER	.	.	2	.	.	.	.	.	.	.	.	.	.
TRAWL,OTTER,BOTTOM,SHRIMP	.	.	1	.	.	.	.	.	.	.	.	.	.
UNKNOWN	7	.	.	.	2	5	.	4	.	3	1	.	.

Capacity Discussion

Council and NMFS staff worked to develop a physical-technical capacity estimate based on data envelopment analysis (DEA) techniques. This analysis essentially looks at the best performing vessels, their capacity based on documented landings, and then looks at how these vessels and other vessels use inputs like labor, days-at-sea, and vessel characteristics to come up with a maximum feasible capacity for each vessel with landings in a given year, in our case 2006. The DEA analysis provides an estimate of capacity per trip for each vessel with mackerel landings in 2006. Separate analyses were performed for bottom trawl vessels, single mid-water trawl vessels, and paired mid-trawl vessels. For the paired mid-water trawl vessels, DEA was not used due to technical problems applying the model to this type of fishing operation. Instead, trip capacity was assumed to equal actual landings. Trip level capacity was converted to a daily basis. Annual capacity was then estimated by multiplying daily capacity by each vessel's actual days-at-sea in 2006. The total annual capacity for mackerel was estimated to be 91,000 metric tons in 2006.

Since the qualification periods for the various tiers proposed in Amendment 11 include vessels that did not have landings in 2006, the 2006 capacity estimates were used to extrapolate the estimates to these vessels. To do this, vessels were grouped by gear and size. Size was determined by an index equal to (horsepower*length*gross tons)/10,000. The values used for extrapolation are shown in the following table (Table 112).

Table 112. Capacity Proxy Information

Gear Type	Size Group	Estimated daily capacity (mt)
Single midwater trawl	Small (Index <= 5000)	54
	Large (Index > 5000)	151
Paired midwater trawl	Small (Index <= 2500)	54
	Large (Index > 2500)	64
Bottom trawl	Small (Index <= 500)	9
	Medium (500 < Index <= 2000)	13
	Large (Index > 2000)	52

Only capacity scores for Tiers 1 and 2 were calculated (Table 113) since the other Tiers will be substantially limited by trip limits, except for 1G since all vessels would have restively high trip limits. Being physical/technical measurements, one must be careful when comparing them to quotas in terms of evaluating predicted capacities versus an optimal capacity. Optimal capacity is unknown and may be much higher than the quota (Terry et al 2008 - NMFS Tech Memo). The technical capacity scores more indicate that if a variety of circumstances align (availability, weather, price, and costs of effort related to multiple species) then the fleet could catch the predicted amount. A bioeconomic model could evaluate optimal capacity and how management alternatives affect capacity in relation to optimal capacity but such a model does not exist for the mackerel fishery. The capacity scores are useful however for comparing between alternatives. For comparison to the status quo (open access), capacity scores were estimated for all vessels with over 100 pounds of mackerel landings in at least one year in the dealer weighout database, but since other and/or new vessels can currently enter at will, the status quo/open access estimate may be an underestimate of the capacity that could be directed toward the mackerel fishery. However, since some vessels that had landings no longer exist, the capacity estimate could be overestimated. Also, for Alternatives 1B, 1D, 1J, and 1F that use 1988 or 1994 as a start date for

Tier 2, the capacity estimate may be an underestimate since there may be additional vessels that have landings records but just not landings records in the dealer database. As one would expect, the alternatives with the longest qualifying periods have the highest qualifying estimates. Alternative 1E is the most restrictive in terms of estimated capacity for Tiers 1 and 2 and reduces capacity in these tiers by nearly 50%. Alternatives 1B and 1F are the least restrictive other than no action or 1G; a 35% reduction in capacity from the no action alternative. Capacity is included for the Open Access under 1G because they would have a relatively high trip limit based on the current alternatives which essentially means that 1G may be equivalent to no action in terms of limiting capacity because of the high trip limits associated with 1G to accommodate the larger participants in that category.

Table 113. Capacity by Tier

Tier	Vessels	Capacity (MT)
1A	1,695	**202,111**
1B		
Tier 1	26	105,626
Tier 2	64	25,531
Total		**131,157**
1C		
Tier 1	26	105,626
Tier 2	36	15,406
Total		**121,031**
1D		
Tier 1	29	91,991
Tier 2	45	15,587
Total		**107,578**
1E		
Tier 1	29	91,991
Tier 2	25	11,763
Total		103,754
1F		
Tier 1	26	105,626
Tier 2	64	25,531

Total		**131,157**
1G		
Tier 1	26	105,626
OA	1669	**96,485**
Total		**202,111**
1J		
Tier 1	26	105,626
Tier 2	55	19,215
Total		**124,840**

7.5.2 Social and Economic Impacts from Alternative Set 2 alternatives (2A-2D): Alternatives to allocate quota to limited access Tiers based on historical landings.

2A - No Action

The fishery would either remain under an open access fishery or one could be in a situation of limited access but with only trip limits and no allocation, with quotas set as described in 4.1.A "Current Determination of Annual Quotas" in both cases. As described in 7.5.1, quotas are expected to fall in the long term which could result in lower revenues. Under open access, more vessels could enter the fishery, which in a situation of lower quotas could lead to racing to fish, which leads to lower safety at sea and lower profits as fisherman use more effort and equipment to catch a smaller amount of fish before other vessels catch the quota.

Under limited access with trip limits only, vessels would all share the same quota but be limited by trip limits. Since compared to the 2622 vessels that had federal mackerel permits at some point in 2007, only 54-90 (Tiers 1 and 2) would be able to access the directed fishery (the others would have relatively low trip limits), one would expect that the race to fish would not be as bad since so many vessels would be limited to their historically lower-level landings. Since Tier 1 has no trip limits and has potentially high capacity it could potentially take the lower long term quota quickly, and without an allocation Tier 2 could potentially not have the same level of access it has had historically (see Table 83 for mackerel-derived revenues for Tier-2 vessels).

See also the discussions above of the modifications made to 1D from the DEIS (the modified 1D is the preferred alternative).

2B-2D - Action

Alternative Set 2 action alternatives are not expected to significantly affect current/historical participation. Under limited access with allocation to Tier 2, giving Tier 2 a separate allocation means that their access would be preserved. Since Tier 1 has no trip limits, this would primarily impact Tier 2, in the sense that the allocation primarily serves to ensure that some quota remains available to Tier 2 vessels.

As a stand-alone set of alternatives (absent any trip limits) allocations of quota to tiers only constrains the group of vessels within a tier or group of tiers. Any constraint on landings by individual vessels would depend on how quickly other vessels in the group land the shared quota. Given that all three alternatives base the Tier 2 quota on a minimum of 100% of their collective historical landings, from 1997-2007, Tier 2 is likely to not experience any reduction in landings. While Alternatives 2C and 2D double and triple the Tier 2 allocation they effectively reduce the quota to Tiers 1 and 3 and the open access category. However, since landings have historically been well below the fishery quota (maximum fishery-wide landings were 56,641 metric tons in 2006) this would not result in a real reduction in landings for the Tiers 1 and 3 and open access vessels in the short term with high quotas. For example, even if Tier 2 was allocated 12.1% (the highest possible percentage, see Table 21), that would leave 87.9% for the remaining tiers. Since Tier 2 historically lands between 3% and 4% of the total quota (i.e. the other categories have landed 96%-97%), the quota would have to be below 62,000 metric tons for the Tiers 1 and 3 and the open access quota to become binding as compared to historical participation levels. The high points of the domestic fishery have been about 56,000 MT. 96.5% of that is 54,000 MT - this is approximately proportionately what Tier 1 plus Tier 3 plus open access have landed recently. 62,000 MT X .879 = 54,500 MT so it is only when the quota gets below 62,000 that Tier 1 plus Tier 3 plus open access would appear to be constrained even if Tier 2 was given triple its historical (since 1997) landings proportion.

If Tier 3 and open access take more than expected from the Tier 1/Tier 2/Open Access quota then the trip limits of Tier 2/Open Access can be reduced (see Alternative Set 3).

As indicated throughout the document, future quotas are expected to be lower, in the range of 12,000-56,000 MT per year. Under 2B-2D, allocation to Tier 2 vessels may impact Tier 1 vessels because the Tier1 allocation can reasonably be expected to become constraining under lower quotas. Furthermore, if Tier 2's allocation is not caught while Tier 1's allocation is binding, this represents a loss of benefits to the nation, and a loss to Tier 1 vessels.

7.5.3 Social and Economic Impacts from Alternative Set 3 alternatives(3A-3G): Alternatives to specify trip limits for each Tier.

3A - No Action

The proposed limited access system requires that some action alternative be selected from Alternative Set 3 so if 3A was selected, the mackerel fishery would remain an open access fishery with quotas set as described in 4.1.A "Current Determination of Annual Quotas." As described in 7.5.1, quotas are expected to fall in the long term which should result in lower revenues which could be even lower than would be expected if a race to fish keeps fishermen from fishing as efficiently as possible.

3B-3G - Action

The proposed trip limits are designed to affect a small number of current/historical trips. When combined with the fact that vessels in tiers with trip limits have derived small percentage (2 % or less) of their revenues from mackerel, overall impacts should be minimal. If a 2005 control date is used and current participants are placed in lower tiers than they would otherwise be, they could be affected by the trip limits as described above, but the affect stems more from the decisions to use a 2005 control date rather than a decision to use any given trip limit.

All alternatives, except the no action alternative, are designed to choose a trip limit that is greater than historical trip landings for the majority of the fleet (95% to nearly 100%). In addition, for the Tiers with trip limits (Tier 2 and below) those Tiers typically derive a very small percentage of their revenues from mackerel (see Table 83). Therefore, the impact is expected to be low. However, market and availability conditions in the mackerel fishery could change and the trip limits could become limiting. If this were the case, the per unit cost of landing mackerel could increase if vessels make more trips per season (and so increase the ratio of steaming time to fishing time) because they are shortening their trips in order to stay under the trip limit.

If the no action alternative were selected and quota was allocated to tiers as described in Alternative Set 2, there would be no effective distinction between Tiers 1 and 3 and the open access vessels. That is, their only limitation would be the combined quota. Open access and Tier 3 vessels, if capable, could fish at the same level of landings as Tier 1 vessels. The purpose of the Trip limits is really to keep vessels in one Tier from significantly expanding effort to the point where they are more characteristic of vessels in the higher Tiers. In this sense the trip limits really work in conjunction with the proposed allocations so that one or a few vessels does not expand and disproportionately use up the quota available to other vessels in that Tier.

Another potential consequence of trip limits is that it reduces the incentive for vessels within a tier to cooperate with each other on timing of their landings to obtain better prices or to consolidate landings on fewer vessels to reduce costs (as was the experience of the Tier 1 tilefish vessels). Since Alternative Set 2 would only result in at most two groups of vessels with distinct quotas (Tier 2 and all others), the chance for cooperation is perhaps already limited. The addition of trip limits would further reduce the incentive. However, Alternative 3E does provide an exemption from trip limits for Tier 2 vessels thus providing consideration of an alternative that would allow them the opportunity to cooperate.

To the extent that low trip limits discouraged additional capitalization, they could also reduce a potential race to fish, providing economic benefits. This discouraging could occur because the vast majority of mackerel permit holders (all but 54-90 of 2,622 in 2007 depending on the alternative - this is the range of Tier 1 plus Tier 2 vessels) would have relatively low trip limits that would limit their incentive to capitalize for the purposes of mackerel fishing.

7.5.4 Social and Economic Impacts from Alternative Set 4 alternatives (4A-4F): Alternatives to indicate Council intent on a variety of standard policy and administrative matters inherent in Northeast limited access systems needed to maintain consistency with other FMPs and to simplify management.

4A - No Action

The proposed limited access system requires that some action alternative be selected from Alternative Set 4 so if 4A was selected, the mackerel fishery would remain an open access fishery with quotas set as described in 4.1.A "Current Determination of Annual Quotas." As described in 7.5.1, quotas are expected to fall in the long term which should result in lower revenues which could be even lower than would be expected if a race to fish keeps fishermen from fishing as efficiently as possible.

4B-4F - Action

The administrative matters are generally designed to provide a fair and even playing field for potential applicants to (and participants in) a limited access mackerel fishery. Alt 4C, which requires hold measurements for Tier 1 and Tier 2 vessels would involve some cost to vessels, but it may be relatively small compared to overall vessel operating costs and the benefits that these vessels could receive by being in a higher access level Tier of a limited access fishery. Informal contacts by council staff with several marine surveyors revealed that a fish hold measurement could run approximately $13.30-$40 per foot of vessel length, which could range from as low as $1,000 for a 75 foot vessel to as high as $6,000 for a 150 foot vessel, not including travel expenses. To the extent that surveys are already required for insurance purposes these costs may be already part of a vessels operating costs. Provisions that limit upgrades (4B, 4C, 4E) would limit additional capitalization which could provide potential benefits (especially long-term) to the fishery. 4F could also add flexibility to owners of multiple vessels to optimize their operations.

Alternatives 4B/4D could have substantial impacts on fishermen depending on how they have bought/acquired fishing histories over the years and on how such history is treated for the purposes of qualifying for limited access. Given the written agreements between fishermen are unavailable for analysis, it is not possible to quantify the impacts related to this alternative. However, if fishermen have purchased histories at substantial cost and then cannot use those histories to qualify vessels, they would have negative economic impacts related to this potential situation (if 4D is not selected). However if 4D is selected, there could be more vessels qualifying, with a subsequent increased chance of developing a race to fish in the future, but because history retention agreements between vessel owners are unknown, the impacts cannot be quantified.

4G - Action

It is not anticipated that additional reporting for Tier 3 would have any impact on the sustainability of the resource. The additional reporting could involve additional costs to participants, particularly if VMS was required. To the extent that most vessels already have to make weekly VTR submissions and to the extent that IVR notifications would involve minimal cost, such measures would be likely to have minimal impact. Requiring VMS would involve higher costs for vessels however, approximately $2,000 in start-up costs and $25-$100 in monthly costs.

7.5.5 Social and Economic Impacts from Alternative Set 5 alternatives (5A-5E): Alternatives to update the EFH definitions in the MSB FMP.

5A - No Action

For any given species and life stage, the current EFH designations identify the geographic domain within which fishery management measures could be implemented that would minimize to the extent practicable the adverse impacts of fishing, if they are determined to be necessary. It is highly unlikely that such measures would be needed to minimize impacts to EFH for MSB because they are pelagic species with life stages (except for *Loligo* egg EFH, which is not being updated) that inhabit the water column. EFH for MSB species is therefore not vulnerable to fishing, because gears of concern are all bottom-tending gears that affect benthic EFH (see EFH vulnerability evaluation in Stevenson et al. 2004, as summarized in Am9). Therefore, because none of the current EFH designation alternatives are expected to lead to any regulations affecting fishing activity, they would not have any differential social or economic impacts.

There are non-fishing activities that affect the water column that could be limited to varying degrees by regulations made possible by different MSB EFH designation alternatives, e.g., the intake of seawater by LNG operations impacts water temperature which could affect the water's suitability for SMB species. NMFS comments on federal activities that could impact EFH and those comments are taken into account when permitting and regulatory decisions are made. It is imaginable that such restrictions could have social and/or economic impacts, though it is impossible to quantify the benefits. Presumably any short-term negative impacts would be countered by benefits from improved long-run health of the ecosystem.

5B-5E - Action

There could be possible unquantifiable future short term negative impacts if used to restrict fishing but possible future long term positive impacts if restrictions lead to overall healthier stocks and higher yields. However, it is highly unlikely that such measures would be needed to minimize impacts to EFH for MSB because they are pelagic species with life stages (except for *Loligo* egg EFH, which is not being updated) that inhabit the water column. EFH for MSB species is therefore not vulnerable to fishing, because gears of concern are all bottom-tending gears that affect benthic EFH (see EFH vulnerability evaluation in Stevenson et al. 2004, as summarized in Am9).

Social and economic impacts have the potential to vary depending on the limitations placed on non-fishing development activities that result from EFH consultations and habitat conservation measures. EFH is designated in state waters and NMFS can comment on federal activities that affect EFH in state waters, even though the Councils cannot regulate fishing activities in state waters (only for federally-permitted vessels). In this case, alternatives that identify more state waters as EFH would increase the probability that certain non-fishing activities would be restricted, thus having positive or negative socio-economic impacts (e.g. fewer jobs, higher transportation costs), but also could protect valuable habitat.

7.5.6 Social and Economic Impacts from Alternative Set 6 alternatives (6A-6D): Alternatives to establish a recreational allocation based on historical landings to prepare for development of ACLs/AMs.

6A - No Action

It will be assumed that the recreational fishery could catch 15,000 MT. This assumption will continue to not be a hard quota. Should the recreational fishery catch 15,000 MT, there could be an overall quota overage because the commercial fishery closes when it reaches 90% of the total quota (commercial plus recreational). If the total quota falls substantially, as is predicted to occur, this problem will become worse. For example, currently with the recreational assumption = 15,000 mt and with DAP = 100,000, the commercial quota closes at 90% of 115,000 which equals 103,500. If the recreational fishery caught 15,000 then at the point of the commercial closure the overall fishery would have harvested 15,000 + 103,500 = 118,500, i.e. there would be a 3% overage already at the point when the commercial fishery closed. If there was a total quota of only 56,000, if the recreational fishery caught 15,000 and the commercial fishery closes at 90% of 56,000 (50,400) then at the point of the commercial closure the overall fishery would have harvested 15,000 + 50,400 = 65,400, i.e. there would be a 17% overage already at the point when the commercial fishery closed. So under the current prediction of future lowering quotas, the status quo will lead to increased likelihoods of mackerel quota overages, which could compromise the sustainability of the resource and long-term economic benefits. The recreational fishery has taken a small portion of the quota historically so these scenarios are largely theoretical but from a technical perspective the possibility exists.

6B-6D - Action

If the ABC remains in the range of recent years (156,000 mt), impacts should be minimal given recent recreational fishery harvests have been well below the proposed allocations given recent ABC specifications. Long term, facilitating ACLs/AMs should have benefits related to maintaining the health of the stock. Recreational landings over the last ten years have ranged from 500-1,600 mt and the range of quotas that result from the allocations is 6,400 to 12,800 given an ABC of 156,000 mt. If overall quotas fall then the recreational allocation would also fall, but since the Council would likely adjust the current recreational measures if the quota significantly fell (and the recreational fishery was accounting for a significant amount of mortality), it is difficult to compare how having a formal allocation would differ from the informal allocation currently specified in the case of a generally smaller quota and would be highly speculative. For purposes of illustration assume that the total quota available for US landings was 47,395 MT, the amount the Council has recommended for 2011. Under the status quo the recreational sector would get 15,000 mt and the commercial sector would get the rest. The proposed percentage allocations would allow the quotas of each to vary according to the overall quota. If the recreational sector received 6.2% of 47,395, this would translate into a 2,938 mt recreational quota. This compares with actual 2005-2007 average landings of 1,183 mt for the recreational sector. While lower quotas could become newly constraining on both sectors, the outcome is more likely related to the overall quota versus any particular allocation within the range considered.

If one sector's quota is binding on that sector but the total quota is not harvested (recall currently the commercial and recreational sectors fish on the same quota) then the forgone harvest represents a potential loss of benefits to the nation and specifically to the fishery that was closed.

7.5.7 Social and Economic Impacts from Alternative Set 7 alternatives (7A-7F): Alternatives to limit at-sea processing of Atlantic mackerel.

<u>7A - No Action (preferred)</u>

There would be no limitations on at-sea processing of mackerel via transfers from catcher vessels to processor vessels. If no at-sea processors enter the business then there would be no changes from the status quo. If at-sea processors did enter the business in a significant fashion, a proportion of the mackerel market share could be transferred to the at-sea processor. No impacts on the mackerel stock would be predicted because total landings would be controlled with a hard quota that is monitored weekly and closed in-season.

With no limits in place, at-sea processors could realize the full benefits from processing mackerel at potentially lower per unit cost than land-based processors. Cost savings could be realized because it would not be necessary to purchase or lease land and to build permanent structures. During the off-season, or if there is a resource downturn, at-sea processors could move to other geographic areas (domestic or international). In the mackerel fishery, at-sea processors could enter the fishery on a short-term seasonal basis (possibly to take advantage of periods where abundance and/or availability is high) without developing permanent land-based processing capacity. From a net national benefit perspective, if overall per unit processing costs decline as a result of the entry of at-sea processors then the net benefits would be positive. At-sea processors may also have access to new markets and their ability to compete successfully in the world market might help further the development of additional markets for U.S. mackerel which would benefits all stakeholders.

Catcher Vessels

The greater the number of buyers, the greater the ability for fishing vessels to negotiate price and other conditions of sale. In addition, if at-sea processors were able to develop/access markets that are otherwise unavailable to land-based processors, fishermen may benefit from the access to new markets. There could also be efficiency gains from offloading at sea - fuel costs could be significantly reduced by offloading at sea rather than returning to port for each offload.

Local Community Economic Impacts

If some processing production were to shift from land to sea, there could be economic impacts to the local communities which contain the land-based processor. Land-based processors buy some of their supplies, materials, and other production inputs from the local community. If some of the production were to shift offshore it is possible that some of those inputs would not be purchased locally (to the extent that they are purchased locally now). Many of the same inputs would still be purchased by at-sea processors but their supply source may be different. From a national perspective, there would likely be no net loss. From a regional perspective (city, county, state) there may be some shifting of economic activity. If at-sea processors were able to operate at a higher profit margin, there could be net economic gains from a national perspective.

Besides physical inputs into production, processors also hire employees. Again, to the extent that those employees are hired from the local community, there could be a loss of employment to a local region with a shift to offshore production. The degree of this impact would depend on which communities supply employment to offshore processors. Informal, non-representative contacts by staff with industry revealed that processors may utilize both permanent and seasonal workers to meet processing demands and that the mackerel season can involve hiring of additional seasonal workers to manage the high volume processing characteristic of the mackerel fishery.

Generally, measures which allow competition, including competition between land-based and at-sea processing activities are more likely to promote efficient use of mackerel. Less control over processing activities may ultimately result in more markets filled by a wider variety of industry participants. The optimal mix is not likely to be achieved by controlling participation, but by allowing market signals on prices to fishermen or processors to determine the allocation of mackerel to different industry sectors. Attempting to engineer the market by restricting at-sea processing may result in inefficient outcomes.

7B-F - Action

Since there are currently no at-sea processors in the mackerel fishery, there would be no immediate economic impact from the implementation of a cap. The benefits and costs described below are only potential impacts in the event an at-sea processor wanted to enter the mackerel fishery but could not because of the existence of a cap. Generally, while land-based processors would benefit from a cap, there are likely to be overall negative impacts relating to restricting markets in order to resolve allocation issues.

Processors

Land-based mackerel processors would benefit from a cap on at-sea processing to the extent that the cap would keep landings with the land-based sector. Currently, all mackerel landings are processed on land. If an at-sea processor were to begin processing at sea, the cap would ensure that the remaining percentage of landings would stay with land-based processors. This would lessen competition. Reduced competition is a benefit to land-based processors in two respects: 1) it avoids the potential for at-sea processors to take market share of processed product and, 2) it reduces the ability of catcher vessels to negotiate the ex-vessel price of landed mackerel thereby avoiding the possibility of land-based processors having to increase their offer price in order to attract landings to the land-based plants. However, the cost savings described under 7A related to at-sea processing would be forgone.

Catcher Vessels

A potential cost to catcher vessels for capping at-sea processing is that it could limit access to additional buyers of mackerel. The greater the number of buyers, the greater the ability for fishing vessels to negotiate price and other conditions of sale. In addition, if at-sea processors were able to develop/access markets that are otherwise unavailable to land-based processors, fishermen may miss opportunities to access new markets.

On the fishing side, minimizing at sea processing could lead to missed efficiency gains from offloading at sea. Fuel costs might have been significantly reduced by offloading at sea rather than returning to port for each offload.

Local Community Economic Impacts

If some processing production would have otherwise shifted from land to sea, there could be some reduction in the economic impacts to the local communities which contain the land-based processor. Land-based processors buy some of their supplies, materials, and other production inputs from the local community. If some of the production would have otherwise shifted offshore it is possible that some of those inputs would still be purchased locally (to the extent that they are purchased locally now). Thus from a regional perspective (city, county, state) there may be some avoided loss of economic activity related to restricting at-sea processing. If at-sea processors would have operated at a higher profit margin, those net economic gains would be forgone so from a national perspective, there could be a net loss.

Besides physical inputs into production, processors also hire employees. Again, to the extent that those employees are hired from the local community, with a cap there could be a minimization of loss of employment to a local region with a shift to offshore production, but an at-sea processor would have to hire employees also so the net employment effects are uncertain.

Clearly there can be distributional impacts related to this alternative, but the overall costs and/or benefits are highly uncertain, and a model to fully analyze economic behavior should an at-sea processor enter the mackerel processor business is unavailable.

7.6. Summary of Analyses as they relate to MSA 303(b)(6).

The Magnuson Act states that Councils may "establish a limited access system for the fishery in order to achieve optimum yield if, in developing such system, the Council and the Secretary take into account—

(A) present participation in the fishery;
(B) historical fishing practices in, and dependence on, the fishery;
(C) the economics of the fishery;
(D) the capability of fishing vessels used in the fishery to engage in other fisheries;
(E) the cultural and social framework relevant to the fishery and any affected fishing communities;
(F) the fair and equitable distribution of access."

This document as a whole addresses these considerations, but the following summarizes how the Council has taken into account each point:

(A) present participation in the fishery;

To consider present participation in the fishery, the Council has included alternatives that consider fishing history through 2007. To avoid speculative fishing activity to build history some control date must be used; the Council included some alternatives that consider fishing history through 2007 to consider present participation (during development of the Amendment, 2007 was the most recent full year of available data). Also as part of considering present participation, the Council dismissed alternatives that could have used a 2002 control date because the Council decided such alternatives would not sufficiently consider present participation. It is possible that additional vessels have entered the fishery since Jan 1 2008, but the Council has provided repeated notices that a limited access system was under development and that recent entrants landings might not count for purposes of qualifying for limited access. The use of 2005 as a control date would impact some vessels that entered the fishery relatively recently, and these impacts are described in Section 7.5.1. The modifications to 1C and 1D will also expand opportunities for accessing the mackerel resource through Tier 3, though the tradeoff is that the Tier 3 cap will be spread thinly over many vessels.

(B) historical fishing practices in, and dependence on, the fishery;

The Council has included alternatives that consider fishing history as far back as 1997 for Tier 1 vessels and as far back as 1988 for the lower Tiers. The Council at times during amendment development had considered going back as far as 1983 but chose to use the presently proposed dates in an effort to balance past participation along with current participation, as well as keeping in mind the data limitations inherent in the databases that would be used to document landings histories. The average dependence of each Tier on mackerel as a proportion of revenues was also described in Section 7.5.1. There was considerable discussion at Council meetings that mackerel, with its shifting availability, requires a diverse fleet in a variety of geographical locations to utilize mackerel availability in a given year. This is precisely the reason why the Council included qualification dates that go back to before mandatory reporting and is willing to be subject to the difficulties thereby raised in terms of data quality - so that as long a time frame as is reasonable is used to account for the shifting availability of mackerel. The modifications to 1C and 1D were also an effort to address concerns by historical participants. Many more participants who had pre-1994 landings but would not qualify for a Tier under the thresholds originally considered for Tier 3 (10,000-25,000 pounds in best year) will qualify if the threshold is just a permit as of March 21, 2007 or if the threshold is only 1,000 pounds. While Tier 3 will have a relatively low cap (up to 7% of the quota), the relatively high trip limits currently under consideration (100,000 pounds) will facilitate at least occasional substantial landings.

(C) the economics of the fishery;

The economic information presented in this document, especially from sections 6.5 and 7.5, documents consideration of the economics of the fishery. In developing and evaluating the alternatives, the Council considered such information as vessel characteristics, vessel revenues from mackerel, vessel dependence on mackerel revenues, dealer dependence on mackerel purchases, fishing community dependence on mackerel, and other relevant factors as detailed in sections 6.5 and 7.5.

After considering the available information, the economics of the fishery were accounted for by providing opportunities for mackerel fishing at a variety of different levels. The Council recognizes the importance of this opportunity as a component of total revenue for some vessels in any given year. Moreover, the limited access program is designed to cap capacity which theoretically could reduce the chance of overfishing, which has long-term economic benefits on the fishery overall.

(D) the capability of fishing vessels used in the fishery to engage in other fisheries;

The capability of fishing vessels to engage in other fisheries was accounted for during development of this plan. The alternatives (allocation, trips limits, qualifying years, etc.) were developed so as to minimally hinder vessels historical mackerel fishing activities partly because vessels that participate in the mackerel fishery may or may not have the permits or equipment to engage in other fisheries; there is a wide variety of access levels to other fisheries by vessels with mackerel landings histories. Some vessels have many other permits while some only have a few in addition to their currently open-access permit. Since mackerel is one of the last major open-access fisheries in the Mid-Atlantic/New England region, if a vessel does not have other permits it may be quite restricted from engaging in other fisheries. However, for those vessels that are heavily dependent on just mackerel, their landings histories should mean they maintain access to the mackerel fishery, so even if they do not have access to other fisheries they should not be substantially negatively impacted by implementation of limited access in the mackerel fishery.

(E) the cultural and social framework relevant to the fishery and any affected fishing communities;

The cultural and social framework relevant to the fishery and affected fishing communities was considered as the Council developed a limited access program. The primary way the Council fulfilled this requirement was via evaluation of the information presented in sections 6.5, 7.5, and

6.1. (principal states and ports of landings, community descriptions, and social/economic impacts). Another of the most important ways the Council sought to fulfill this requirement was the evaluation of public comments received at committee meetings, Council meetings, and through the public hearings and written comment periods held specifically for this Amendment and its environmental impact analyses. Comments on a supplemental NOI for this amendment are attached in Appendix 1, Part A. Original written comments and a summary of oral comments from the public hearings and DEIS comment period are attached in Appendix 1, Part B.

In addition, the Council ultimately selected criteria that were relatively inclusive to permit vessels that have participated in the fishery at various levels, and not just the largest participants. Since mackerel availability can be sporadic, the inclusiveness of the qualifying criteria is to some degree intended to be a placeholder for the future to provide some access to a fishery that has been part of the social framework of fishing in the Mid-Atlantic/New England region to varying extents in different time periods.

(F) the fair and equitable distribution of access.

The criteria used to determine access levels (documented landings history in the mackerel fishery and to a minor extent landings history in the herring fishery) will be applied uniformly across vessels so as to result in a fair and equitable distribution of access. An appeals process is also proposed to ensure fair and equitable consideration of the proposed criteria if individual permit holders feel they do not receive the permit that their landings and permit history should result in given the selected qualifications criteria.

There has been discussion over the fairness of including time periods before 1997, i.e. before mandatory reporting in the MSB fisheries. On one hand one can argue that as one uses earlier data, boats that had mandatory reporting for other species and so happened to report their mackerel or those who happened to retain their dealer receipts are advantaged compared to other participants who did not (and may not be able to substantiate landings through dealer records.) Prior to 1994 those that mackerel fished, kept copies of their dealer receipts, and would like to qualify the vessel they fished prior to 1994 would have an advantage. Those that did not keep their receipts or are using another's history (which cannot be verified) to qualify their vessel may be disadvantaged. Between 1994 and 1997 those that had a groundfish or scallop permit would have an advantage in the sense that they would have been reporting all landings as a condition of their other permits. Since 1997 everyone should have been reporting mackerel and should have an equal likelihood of having their landings accurately documented in NMFS' electronically-maintained dealer records database.

On the other hand, as highlighted by public comments, one can argue that why should someone who was reporting earlier be disadvantaged (i.e. not be able to apply) because other people happened to not be reporting. Or why should someone who kept their records not be able to apply because others happened to not do so. From this perspective everyone would have a fair and equitable opportunity to locate their records, though the outcomes would differ based on who kept records and who did not. In the end the Council carefully weighed both perspectives before making a final decision. The modifications made to 1C/1D as discussed in (A) and (B) above represent further efforts by the Council to consider concerns about fairness and equity.

8.0 Cumulative Effects Assessment

A cumulative effects assessment (CEA) is a required part of an EIS according to the Council on Environmental Quality (CEQ) (40 CFR part 1508.7). The purpose of the CEA is to integrate into the impact analyses, the combined effects of many actions over time that would be missed if each action were evaluated separately. CEQ guidelines recognize that it is not practical to analyze the cumulative effects of an action from every conceivable perspective but rather, the intent is to focus on those effects that are truly meaningful. This section serves to examine the potential direct and indirect effects of the alternatives in Amendment 11 together with past, present, and reasonably foreseeable future actions that affect the MSB environment. It may be noted that the predictions of potential synergistic effects from multiple actions, past, present and/or future will generally be qualitative in comparison to the analysis of the effects of individual actions given in Section 7.0.

The assessment presented here is explicitly structured upon the CEQ's 11-step CEA process that is described in their 1997 report, "Considering Cumulative Effects under the National Environmental Policy Act" (CEQ 1997). These eleven steps are itemized below:

The CEQ's eleven step CEA process. Taken from Table 1-5 in CEQ (1997).

1. Identify the significant cumulative effects issues associated with the proposed action and define the assessment goals.

2. Establish the geographic scope for the analysis.

3. Establish the timeframe for the analysis.

4. Identify other actions affecting the resources, ecosystems, and human communities of concern.

5. Characterize the resources, ecosystems, and human communities identified in scoping in terms of their response to change and capacity to withstand stresses.

6. Characterize the stresses affecting these resources, ecosystems, and human communities and their relation to regulatory thresholds.

7. Define a baseline condition for the resources, ecosystems, and human communities.

8. Identify the important cause-and-effect relationships between human activities and resources, ecosystems, and human communities.

9. Determine the magnitude and significance of cumulative effects.

10. Modify and add alternatives to avoid, minimize, or mitigate significant cumulative effects.

11. Monitor the cumulative effects of the selected alternative(s) and adapt management.

To a great extent, the descriptions and analyses presented in previous sections of this document have contributed to the completion of most of the CEQ's eleven steps, however; the purpose of this section of the document is to point out to the reader how these steps have been accomplished within the development of Amendment 11 and its accompanying environmental impact analyses.

8.1 Significant Cumulative Effects from Proposed Action and Assessment Goals

In Section 6.0 (Description of the Affected Environment) the valued ecosystem components (VECs) that exist within the MSB fishery environment are identified and the basis for their selection is established. This is associated with the completion of Step 1 in the CEQ's 11-Step process. The VECs are listed below.

6. Managed Resources
    - Atlantic mackerel stock
    - *Illex* stock
    - *Loligo* stock
    - Atlantic butterfish stock
7. Non-target species
8. Habitat including EFH for the managed resources and non-target species
9. Endangered and other protected resources
10. Human Communities

8.2 Geographic Boundaries

The analysis of impacts focuses primarily on actions related to the harvest of the managed resources. Therefore, the geographic area used to define the core geographic scope for *managed resources*, *non-target species*, *habitat*, and *endangered and protected species* was the area within which the majority of harvest effort for the managed resources occurs (See Figure 49). For *human communities*, the core geographic boundaries are defined as those U.S. fishing communities directly involved in the harvest of the managed resources. These communities were found to occur in coastal states from Maine to North Carolina.

8.3 Temporal Boundaries

The temporal scope of past and present actions for *managed resources*, *non-target species*, *habitat and human communities* is primarily focused on actions that have occurred after FMP implementation (1979). For *endangered and other protected species*, the scope of past and present actions is on a species-by-species basis (Section 6.4) and is largely focused on the 1980s and 1990s through the present, when NMFS began generating stock assessments for marine mammals and turtles that inhabit waters of the U.S. EEZ. The temporal scope of future actions for all five VECs, which includes the measures proposed by this amendment, extends five years into the future following the expected implementation in 2010 (i.e., ~2015). This period was chosen because the dynamic nature of resource management and lack of information on projects that may occur in the future makes it difficult to predict impacts beyond this timeframe with any certainty.

8.4 Identify Other Action Affecting the Resources, Ecosystems, and Human Communities of Concern.

Table 114 accomplishes Step 4 of the CEQ process which calls for the identification of other actions that affect the VECs, i.e., actions *other* than those being developed in this document. These actions are presented in chronological order, and codes indicate whether an action relates to the past (**P**), present (**Pr**), or reasonably foreseeable future (**RFF**). When any of these abbreviations occur together, it indicates that some past actions are still relevant to the present and/or future. A brief explanation of the rationale for concluding what effect each action has (or will have) had on each of the VECs is provided in the table and is not repeated here.

Note that most of these *other* actions come from *fishery-related activities* (e.g., Federal fishery management actions). As expected, these activities have fairly straight-forward effects on environmental conditions, and were, are, or will be taken, in large part, to improve those conditions. The reason for this is the statutory basis for Federal fisheries management - the MSA, as amended in 1996 and 2007. That legislation was enacted to promote long-term positive impacts on the environment in the context of fisheries activities. More specifically the act stipulates that management comply with a set of National Standards that collectively serve to optimize the conditions of the human environment. Under this regulatory regime, the cumulative impacts of past, present, and future Federal fishery management actions on the VECs should be expected to result in positive long-term outcomes. Nevertheless, these actions are often associated with offsetting impacts. For example, constraining effective fishing effort (e.g., minimum mesh size for *Loligo* in Amendment 5) may result in negative short-term socio-economic impacts for fishery participants (added cost of modifying gear). However, these impacts are usually necessary to bring about long-term sustainability of a given resource (in this case, increasing butterfish escapement, albeit marginally), and as such, should, in the long-term, promote positive effects on human communities, especially those that are economically dependent upon the managed resource.

Non-fishing activities that have meaningful effects on the VECs include the introduction of chemical pollutants, sewage, changes in water temperature, salinity, dissolved oxygen, and suspended sediment into the marine environment. These activities pose a risk to the all of the identified VECs in the long term. Human induced non-fishing activities that affect the VECs under consideration in this document are those that tend to be concentrated in nearshore areas. Examples of these activities include, but are not limited to agriculture, port maintenance, beach nourishment, coastal development, marine transportation, marine mining, dredging and the disposal of dredged material. Wherever these activities co-occur, they are likely to work additively or synergistically to decrease habitat quality and, as such, may indirectly lower the maximum sustainable yield of the managed resources, and negatively affect non-target species and protected resources. Decreased habitat suitability would tend to reduce the tolerance of these VECs to the impacts of fishing effort. Mitigation of this outcome through regulations that would reduce fishing effort could then negatively impact human communities.

The overall impacts of these *other* (past, present, and reasonably foreseeable) actions are summarized in Table 115 and discussed below. These impacts, in addition to the impacts of the management actions being developed in this document (Section 7.0), comprise the total cumulative effects that will contribute to the significance determination for each of the VECs exhibited later in Table 116 (Section 8.9).

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Table 114. Impacts of Past, Present and Reasonably Foreseeable Future Actions on the five VECs. These actions do not include those under consideration in this Amendment. These actions are presented in chronological order, and codes indicate whether an action relates to the past (P), present (Pr), or reasonably foreseeable future (RFF)

Action	Description	Impacts on Managed Resources	Impacts on Non-target Species	Impacts on Habitat and EFH	Impacts on Protected Species	Impacts on Human Communities
FISHERY-RELATED ACTIONS						
[P] Prosecution of the MSB fisheries by foreign fleets in the area that would become the U.S. EEZ (prior to implementation of the MSA)	Foreign fishing pressure peaked in the 1960s and slowly declined until passage of the MSA and implementation of the FMPs	**Direct High Negative** Foreign fishing depleted Atl. Mackerel stock below biomass threshold	**Potentially Direct High Negative** Limited information on discarding, but fishing effort was very high	**Potentially Direct High Negative** Limited information on discarding, but fishing effort was very high	**Potentially Direct High Negative** Limited information on protected resource encounters, but fishing effort was very high	**Potentially Indirect Negative** Revenue from fishing benefited foreign businesses
[P] Original FMPs (3) implemented (1978 and 1979)	Established management of the MSB fisheries	**Indirect Positive** Regulatory tool available to rebuild and manage stocks	**Indirect Positive** Reduced fishing effort	**Indirect Positive** Reduced fishing effort	**Indirect Positive** Reduced fishing effort	**Indirect Positive** Benefited domestic businesses
[P, Pr] Original FMPs merged (1983)	Consolidated management of the MSB fisheries under one FMP	**No Impact** Administrative procedure	**No Impact** Administrative procedure	**No Impact** Administrative procedure	**No Impact** Administrative procedure	**No Impact** Administrative procedure
[P, Pr] Amendment 2 to the MSB FMP (1986)	Revised squid bycatch TALFF allowances	**Indirect Positive** Reduced squid mortality	**Indirect Positive** Reduced fishing effort	**Indirect Positive** Reduced fishing effort	**Indirect Positive** Reduced fishing effort	**Indirect Positive** Benefited domestic businesses
[P] Amendment 3 to the MSB FMP (1991)	Established overfishing definitions for all four species	**Indirect Positive** Provided basis for sustainable management	**Indirect Low Positive** Reduced fishing effort	**Indirect Low Positive** Reduced fishing effort	**Indirect Low Positive** Reduced fishing effort	**Indirect Positive** Increased probability of long term sustainability
[P] Amendment 4 to the MSB FMP (1991)	Limited activity of directed foreign fishing and JV transfers to foreign vessels	**Indirect Low Positive** Reduced fishing effort	**Indirect Low Positive** Reduced fishing effort	**Indirect Low Positive** Reduced fishing effort	**Indirect Low Positive** Reduced fishing effort	**Indirect Positive** Benefited domestic businesses

Table 114 (continued)

Action	Description	Impacts on Managed Resources	Impacts on Non-target Species	Impacts on Habitat and EFH	Impacts on Protected Species	Impacts on Human Communities
[P, Pr] Amendment 5 to the MSB FMP (1996)	Eliminated foreign fisheries for squids and butterfish	**Potentially Indirect Positive** Reduced fishing effort	**Potentially Indirect Positive** Reduced fishing effort	**Potentially Indirect Positive** Reduced fishing effort	**Potentially Indirect Positive** Reduced fishing effort	**Indirect Positive** Benefited domestic businesses
	Implemented limited access for squids and butterfish	**Indirect Positive** Constrained fishing effort	**Indirect Positive** Constrained fishing effort	**Indirect Positive** Constrained fishing effort	**Indirect Positive** Constrained fishing effort	**Indirect Positive** Reduced overcapacity
	Expanded management unit for all four species	**No Impact** Administrative	**No Impact** Administrative	**No Impact** Administrative	**No Impact** Administrative	**No Impact** Administrative
	Establish *Loligo* minimum mesh size (included exemption for *Illex* fishery)	**Low Positive** Marginal increase in butterfish escapement	**Direct Positive** Increased finfish escapement	**Unknown** Changes in fishing effort unknown	**Unknown** Changes in fishing effort unknown	**Indirect Negative (short term)** Cost of modifying gear
[P, Pr] Amendment 8 to the MSB FMP (1998)	Brought FMP into compliance with new and revised National Standards	**Indirect Positive** Improved regulatory tool for ensuring sustainability	**Indirect Positive** Strengthened mandate to reduce bycatch	**Indirect Positive** Strengthened mandate to protect habitat	**Indirect Positive**	**Indirect Positive (long term)**
[P, Pr] Summer Flounder, Scup and Black Sea Bass Specifications (2000)	Established scup small mesh gear restricted areas	**Potentially Indirect Positive** Reduced fishing effort locally	**Potentially Indirect Positive** Reduced fishing effort locally	**Potentially Indirect Positive** Reduced fishing effort locally	**Potentially Indirect Positive** Reduced fishing effort locally	**Indirect Negative (short term)** Cost associated with shifting effort for some participants
[P, Pr] Framework 2 to the MSB FMP (2002)	Extended moratorium on entry into limited access *Illex* fishery	**Indirect Positive** Constrain harvest capacity	**Indirect Positive** Constrain fishing effort	**Indirect Positive** Constrain fishing effort	**Indirect Positive** Constrain fishing effort	**Potentially Indirect Positive** Prevented increases in capacity
[P] Framework 3 to the MSB FMP (2003)	Extended by one year moratorium on entry into limited access *Illex* fishery	**Indirect Positive** Constrain harvest capacity	**Indirect Positive** Constrain fishing effort	**Indirect Positive** Constrain fishing effort	**Indirect Positive** Constrain fishing effort	**Potentially Indirect Positive** Prevented increases in capacity
[P, Pr] Framework 4 to the MSB FMP (2004)	Extended by five years moratorium on entry into limited access *Illex* fishery	**Indirect Positive** Constrain harvest capacity	**Indirect Positive** Constrain fishing effort	**Indirect Positive** Constrain fishing effort	**Indirect Positive** Constrain fishing effort	**Potentially Indirect Positive** Prevented increases in capacity

Table 114 (continued)

Action	Description	Impacts on Managed Resources	Impacts on Non-target Species	Impacts on Habitat and EFH	Impacts on Protected Species	Impacts on Human Communities
[P, Pr] Amendment 9 to the MSB FMP (2008)	Multiple year specs	**No Impact** Administrative	**No Impact** Administrative	**No Impact** Administrative	**No Impact** Administrative	**No Impact** Administrative
	Extend *Illex* moratorium	**Positive** Would decrease the likelihood that the fishing quota would be exceeded	**Positive** Constrains effort	**No Impact** If current trawling effort is maintained, would not increase habitat disturbances.	**Positive** Constrains effort	**Potentially Positive** Maintains net benefits to fleet and dependent communities by limiting overcapitalization.
	Revise biological reference points for *Loligo*	**Potentially Positive** Increase chance of achieving long term sustainable yield for *Loligo*.	**Potential low negative** May increase effort slightly if it results in a higher quota.	**Potential low negative** May increase effort slightly if it results in a higher quota.	**Potential low negative** May increase effort slightly if it results in a higher quota.	**Potential low positive** May increase benefits slightly if it results in a higher quota.
	Designate EFH for *Loligo* eggs based on documented observations of egg mops	**Potentially positive** if used as basis for future management.	**Potentially positive** if used as basis for future management.	**Potentially positive** if used as basis for future management.	**Potentially positive** if used as basis for future management.	**Potentially negative short term** if used as basis for future management. **Potentially positive long term** if used as basis for future management to improve long-term sustainability of resource.
	Area closures to reduce gear impacts on EFH	**Low positive** Small area with low effort impacted	**Low positive** Small area with low effort impacted	**Low positive** Protects deep-sea corals in small area.	**Low positive** Small area with low effort impacted	**No impact** Small area with low effort impacted

Table 114 (continued)

Action	Description	Impacts on Managed Resources	Impacts on Non-target Species	Impacts on Habitat and EFH	Impacts on Protected Species	Impacts on Human Communities
[P, RFFA] Amendment 10 to the MSB FMP (2010-2011)	Rebuild Butterfish with butterfish bycatch mortality cap.	**Low Positive** Latest assessment suggests butterfish stock declining without substantial fishing mortality.	**Indirect Positive** Constrain fishing effort	**Indirect Positive** Constrain fishing effort	**Indirect Positive** Constrain fishing effort	**Variable** Significant losses possible if *Loligo* fishery cannot avoid butterfish.
	Reduce bycatch to the extent practicable.	**Low Positive** Latest assessment suggests butterfish stock declining without substantial fishing mortality.	**Low Positive** Minor mesh increase included.	**Likely neutral.**	**Likely neutral.**	**Potentially negative if efficiency decreases.**
[Pr, RFFA] Atlantic Trawl Gear Take Reduction Research Plan	Recommend measures to reduce mortality and injury to the common dolphin and long fin pilot whale	**Indirect Positive** Will improve data quality for monitoring total removals	**Indirect Positive** Reducing availability of gear could reduce bycatch	**Indirect Positive** Reducing availability of gear could reduce gear impacts	**Indirect Positive** Reducing availability of gear could reduce encounters	**Indirect Negative** Reducing availability of gear could reduce revenues
[P,Pr] Standardized Bycatch Reporting Methodology (2008)	Recommend measures to monitor bycatch at an acceptable level of precision and accuracy	**Indirect Positive** Will improve data quality for monitoring total removals of managed resources	**Indirect Positive** Will improve data quality for monitoring removals of non-target species	**Neutral** Will not affect distribution of effort	**Indirect Positive** Will increase and/or optimize observer coverage	**Potentially Indirect Negative** May impose an inconvenience on vessel operations
[RFFA] Omnibus ACL/AM Amendment (2011)	Would implement ACLs/AMs in all FMPs	**Neutral to Positive** Managed species already managed with quotas Possibly forage considerations lead to positive impacts	**Indirect Positive** Constrain fishing effort	**Indirect Positive** Constrain fishing effort	**Indirect Positive** Constrain fishing effort	**Positive** Sustainability of resources maintained.
[RFFA] Strategy for Sea Turtle Conservation for the Atlantic Ocean and the Gulf of Mexico Fisheries (w/in next 5 years)	May recommend strategies to prevent the bycatch of sea turtles in commercial fisheries operations	**Indirect Positive** Will improve data quality for monitoring total removals	**Indirect Positive** Reducing availability of gear could reduce bycatch	**Indirect Positive** Reducing availability of gear could reduce gear impacts	**Indirect Positive** Reducing availability of gear could reduce encounters	**Indirect Negative** Reducing availability of gear could reduce revenues

Table 114 (continued)

NON –FISHERY RELATED ACTIONS						
Action	**Description**	**Impacts on Managed Resources**	**Impacts on Non-target Species**	**Impacts on Habitat and EFH**	**Impacts on Protected Species**	**Impacts on Human Communities**
P, Pr, RFFA Agriculture runoff	Nutrients applied to agriculture land are introduced into aquatic systems	**Indirect Negative** Reduced habitat quality in the immediate project area	**Indirect Negative** Reduced habitat quality in the immediate project area	**Direct Negative** Reduced habitat quality in the immediate project area	**Indirect Negative** Reduced habitat quality in the immediate project area	**Indirect Negative** Reduced habitat quality negatively affects resource viability in the immediate project area
P, Pr, RFFA Port maintenance	Dredging of wetlands, coastal, port and harbor areas for port maintenance	**Indirect Negative** Localized decreases in habitat quality	**Indirect Negative** Localized decreases in habitat quality	**Direct Negative** Reduced habitat quality in the immediate project area	**Indirect Negative** Localized decreases in habitat quality in the immediate project area	**Indirect Negative** Reduced habitat quality negatively affects resource viability in the immediate project area
P, Pr, RFFA Offshore disposal of dredged materials	Disposal of dredged materials	**Indirect Negative** Localized decreases in habitat quality in the immediate project area	**Indirect Negative** Localized decreases in habitat quality in the immediate project area	**Direct Negative** Reduced habitat quality in the immediate project area	**Indirect Negative** Localized decreases in habitat quality in the immediate project area	**Indirect Negative** Reduced habitat quality negatively affects resource viability in the immediate project area
P, Pr, RFFA Beach nourishment	Offshore mining of sand for beaches	**Indirect Negative** Localized decreases in habitat quality in the immediate project area	**Indirect Negative** Localized decreases in habitat quality in the immediate project area	**Direct Negative** Reduced habitat quality in the immediate project area	**Indirect Negative** Localized decreases in habitat quality in the immediate project area	**Mixed** Positive for mining companies, possibly negative for fisheries
	Placement of sand to nourish beach shorelines	**Indirect Negative** Localized decreases in habitat quality in the immediate project area	**Indirect Negative** Localized decreases in habitat quality in the immediate project area	**Direct Negative** Reduced habitat quality in the immediate project area	**Indirect Negative** Localized decreases in habitat quality in the immediate project area	**Positive** Beachgoers generally like sand
P, Pr, RFFA Marine transportation	Expansion of port facilities, vessel operations and recreational marinas	**Indirect Negative** Localized decreases in habitat quality in the immediate project area	**Indirect Negative** Localized decreases in habitat quality in the immediate project area	**Direct Negative** Reduced habitat quality in the immediate project area	**Indirect Negative** Localized decreases in habitat quality in the immediate project area	**Mixed** Positive for some interests, potential displacement for others

Table 114 (continued)

Action	Description	Impacts on Managed Resources	Impacts on Non-target Species	Impacts on Habitat and EFH	Impacts on Protected Species	Impacts on Human Communities
P, Pr, RFFA Installation of pipelines, utility lines and cables	Transportation of oil, gas and energy through pipelines, utility lines and cables	**Unknown** Dependent on mitigation effects	**Unknown** Dependent on mitigation effects	**Potentially Direct Negative** Reduced habitat quality in the immediate project area	**Unknown** Dependent on mitigation effects	**Unknown** Dependent on mitigation effects
RFFA Liquefied Natural Gas (LNG) terminals (w/in 5 years)	Transportation of natural gas via tanker to terminals located offshore and onshore (Several LNG terminals are proposed, including MA, RI, NY, NJ and DE)	**Unknown** Dependent on mitigation effects	**Unknown** Dependent on mitigation effects	**Potentially Direct Negative** Localized decreases in habitat quality possible in the immediate project area	**Unknown** Dependent on mitigation effects	**Unknown** Dependent on mitigation effects
RFFA Offshore Wind Energy Facilities (medium probability w/in 5 years)	Construction of wind turbines to harness electrical power (Several facilities proposed from ME through NC, including off the coast of MA, NY/NJ and VA)	**Unknown** Dependent on mitigation effects	**Unknown** Dependent on mitigation effects	**Potentially Direct Negative** Localized decreases in habitat quality possible in the immediate project area	**Unknown** Dependent on mitigation effects	**Unknown** Dependent on mitigation effects

Summary of Non-Fishing Effects Though largely unquantifiable, it is likely that the non-fishing activities noted above would have negative impacts on habitat quality from disturbance and construction activities in the area immediately around the affected area. This would be a direct impact on habitat and an indirect effect to planktonic, juvenile, and adult life stages of fish and protected species in the project areas due to habitat degradation. Given the wide distribution of the affected species, minor overall negative effects to habitat are anticipated since the affected areas are localized to the project sites, which involve a small percentage of the fish populations and their habitat.

Summary Effects of Past and Present Actions The present conditions of the VECs are empirical indicators of the summary effects of past actions since, independent of natural processes, and these present conditions are largely the product of these past actions. The combined effects of these actions are described in the VEC-by-VEC discussion below and are summarized in Table 116.

Managed species: The condition of the Loligo stock as of 2009 was "not overfished" and above the biomass target. The condition of the Illex stock is unknown with no apparent trends. The statuses of the butterfish and mackerel stocks are unknown however recent assessments suggest both may be in lower productivity regimes. The decline of the butterfish stock does not appear related to fishing mortality and potential causes of lower mackerel productivity are unknown. Environmental conditions are likely important drivers of productivity for all of the managed stocks but the causative relationships are unknown.

While the negative effects of past and present actions associated with non-fishing activities (**Table 114**) may have increased negative effects, it is likely that those actions were minor due to the limited scale of the habitat impact compared with the populations at large.

In summary, the net effects of past and present actions on Loligo are likely positive given that stock's overall positive condition, while the net effects for the other managed resources are currently unknown except that it is likely that their populations would likely to some degree be lower than they are now if not for the general constraints of fishery management.

Non-target species: The summary effects of past and present actions on non-target species are also unclear. This is because the information needed to quantitatively measure the impacts on these species of MSB fishery activities and non-fishing activities is generally lacking. The continued implementation of the omnibus SBRM Amendment is expected to provide more data to allow management to better manage bycatch. The summary effects of past and present actions on non-target species are considered to be a mixed set of partially offsetting positive effects through fishery effort reduction and negative effects through bycatch mortality and non-fishing activities. The prosecution of fishing activities in general will necessarily reduce the abundance of various non-target species. As such, effort reduction or gear modifications will, in effect, reduce the magnitude of the negative impact of fishing in general. Again, although the negative effects of past and present actions associated with non-fishing activities (**Table 114**) may have increased negative effects, it is likely that those actions were minor due to the limited scale of the habitat impact compared with the populations at large. Altogether, the resultant impact of past and present actions on non-target species is a likely net negative sum effect. Again this would likely improve with future actions to reduce bycatch.

Habitat and Protected Species: For the habitat and protected resource VECs, the summary effects of past and present actions are also considered to be negative. This follows the same logic presented under the discussion of impacts on non-target species: effort reduction or gear modifications will, in effect, reduce the magnitude of the negative impact on these VECs that results from fishing activities. Again, although the negative effects of past and present actions associated with non-fishing activities (**Table 114**) may have increased negative effects, it is likely that those actions were minor due to the limited scale of the habitat impact compared with the populations at large. Thus, the resultant impact of past and present actions on habitat and protected species is likely a net negative sum effect on these VECs.

As discussed in section 6.4.5, estimated encounters with Atlantic sturgeon and small-mesh otter trawl gear in the 600 series of statistical areas average 759 sturgeon annually. Of these small-mesh otter trawl encounters, less than 5 percent are expected to result in serious injury or mortality. For reference, estimated total annual takes for all gear types (otter trawl and sink gillnet) from 2006-2010 ranged from 1536 to 3221 (average 2,215); estimated annual mortalities for all gear types ranged from 37 to 376 sturgeon. Overall, the contribution of small-mesh otter trawl gear to sturgeon mortalities is low compared to the contribution of gillnet gear to sturgeon mortalities.

DPS-specific population levels for Atlantic sturgeon are difficult to quantify at this time, and further work needs to be done to develop accurate population estimates for each DPS. Current estimates indicate that the Hudson River DPS likely consists of approximately 870 spawning individuals in any one year. However, adult Atlantic sturgeon are not believed to spawn annually, but rather every other year for males and every two to five years for females. Although NMFS does not have information necessary to determine the sex or spawning condition of Atlantic sturgeon encountered by the MSB fisheries, these encounters may include both males and females and fish that may or may not spawn during that year. Therefore, encounters of Atlantic sturgeon by the MSB fisheries may be a subset of the entire population, as opposed to being comprised exclusively of the smaller annual spawning population.

Despite limited information that can be used to accurately estimate the number of Atlantic sturgeon in each DPS and because estimated encounters and expected mortalities are lower in recent years than has been estimated in the past, it is unlikely that the implementation of Amendment 11 would result in significant impacts under NEPA to any DPS of Atlantic sturgeon. Moreover, compared to the No Action alternative, the proposed establishment of a limited access program for mackerel may result in fewer impacts to Atlantic sturgeon because it will cap capacity in the mackerel fishery at current levels. This would prevent future increases in fishing effort if mackerel availability were to rise to historic levels. It is important to note again that the mackerel fishery does not occur in the areas of greatest sturgeon interactions. As such, the proposed action is expected to have little to no impact on total fishing effort associated with small-mesh otter trawl gear. Therefore, the preferred limited access program alternatives in Amendment 11 are not likely to result in a significant impact under NEPA on Atlantic sturgeon.

Human communities: The summary effect of past and present actions is complex since the effects have varied among fishery participants, consumers, and communities. Nevertheless, the net effect is considered to be positive in that the fisheries managed under the MSB FMP currently support viable domestic and international market demand. While some short-term economic costs have been associated with effort reductions and gear modifications (see **Table 114**), economic returns have generally been positive and as such, have tended to make a positive contribution to the communities associated with harvest of these species.

<u>Summary Effects of Future Actions</u> As with past and present actions, the list of reasonably foreseeable future actions is provided in **Table 114**. Additionally, the same general trends will be noted with regard to the expected outcomes of fishery-related actions and non-fishing actions; the summary effects of fishery related actions tend to be positive with respect to natural resources although short-term negative or mixed effects are expected for human communities. Conversely, for the non-fishing actions listed in **Table 114**, the general outcome remains negative in the immediate project area, but minor for all VECs, again due to the difference in scale of exposure of the habitat perturbation and the population.

The directionality of the impacts of future actions on the VECs will necessarily be a function of the offsetting negative vs. positive impacts of each of the actions. Since the magnitude and significance of the impacts of these future actions, especially non-fishing impacts, is poorly understood, conclusions as to the summary effects will essentially consist of an educated guess.

Recall that the future temporal boundary for this CEA is five years after implementation of the amendment (~2015; Section 8.3). Within that timeframe, the summary effects of future actions on managed resources, non-target species, habitat, and protected resources are all expected to be positive, notwithstanding the localized nearshore negative effects of non-fishing actions. The optimization of the conditions of the resources is the primary objective of the management of these natural resources. Additionally, it is unknown, but expected that technology to allow for mitigation of the negative impacts of non-fishing activities will improve. Also noteworthy is the forthcoming Trawl Take Reduction Strategy, which would reduce the take of marine mammals and other species in the trawl gear used in these fisheries.

For human communities, short-term (i.e., within the temporal scope of this CEA) costs may occur. This negative impact is expected to be the byproduct of an adjustment to the improved management of the natural resources. In the longer term, positive impacts on human communities should come about as sustainability of natural resources is attained.

Table 115. Summary effects of past, present and reasonably foreseeable future actions on the VECs identified for Amendment 11 (based on actions listed in Table 114).

VEC	Past Actions (P)	Present Actions (Pr)	Reasonably Foreseeable Future Actions (RFFA)	Combined Effects of Past, Present, Future Actions
Managed Resources	Loligo – **positive – stock has not been overfished**	Loligo – **positive – stock probably not becoming overfished**	Loligo – **positive – stock should be maintained**	Loligo – **positive –** sustainable stock sizes
	Other MSB – **unknown** Stock status unknown	Other MSB – **unknown** Stock status unknown	Other MSB – **unknown** Stock status unknown	Other MSB – **unknown** Stock status unknown
Non-Target Species	**negative** combined effects of bycatch mortality and non-fishing actions that reduce habitat quality	**negative or somewhat less negative than past** combined effects of reduced bycatch mortality and non-fishing actions that reduce habitat quality	**positive** reductions in bycatch incidence, improved bycatch estimation,	**Negative in short term** bycatch will continue until reduction measures are implemented **Long term positive** Amendment 10 measures benefiting other species, improved bycatch accounting, improved habitat quality
Habitat	**negative** combined effects of disturbance by fishing gear and non-fishing actions have reduced habitat quality	**negative or somewhat less negative than past** continued combined effects of disturbance by fishing gear and non-fishing actions have reduced habitat quality	**positive** reduction in effects of disturbance by fishing gear are expected	**positive** reduced habitat disturbance by fishing gear
Protected Resources	**negative** combined effects of gear encounters and non-fishing actions that reduce habitat quality	**Negative or somewhat less negative than past** combined effects of gear encounters and non-fishing actions that reduce habitat quality	**positive** reduced gear encounters through effort reduction, Trawl Take Reduction Research Plan completed and Sea Turtle Strategy fully implemented; improved habitat quality is expected	**Negative in short term** **long term positive** reduced gear encounters through effort reduction and Take Reduction Research Plan /Sea Turtle Strategy
Human Communities	**positive** fisheries have supported profitable industries and viable fishing communities	**positive** fisheries continue to support profitable industries and viable fishing communities	**short-term negative** some revenue loss may occur if management results reduction of revenue per unit of effort	**short-term negative** lower revenues would continue until stocks are fully rebuilt **long-term positive** sustainable resources should support viable communities and economies

8.5 RESOURCES, ECOSYSTEMS, AND HUMAN COMMUNITIES IDENTIFIED IN SCOPING IN TERMS OF THEIR RESPONSE TO CHANGE AND CAPACITY TO WITHSTAND STRESSES

See 8.6, below.

8.6 STRESSES AFFECTING THE RESOURCES, ECOSYSTEMS, AND HUMAN COMMUNITIES AND THEIR RELATION TO REGULATORY THRESHOLDS

CEQ Steps 5 and 6 were accomplished either explicitly or implicitly in this document for each VEC in Section 6.0. A summary of that information is provided in Table 116. It is suggested that the reader refer to the appropriate subsections to obtain details regarding this information.

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Table 116. Summary of information related to CEQ steps 5 and 6 that were addressed in Section 6.0.
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VEC	CEQ Step 5 (Response to change and ability to withstand stress – i.e., significance criteria)	CEQ Step 6 (Stresses affecting the resources)
Managed Resource	• Biomass drops below threshold (e.g., ½ B_{MSY}) • Fishing mortality exceeds threshold (e.g., F_{MAX}) (these thresholds are defined for each managed resource in Section 6.1)	• Directed harvest • Discarding • Non-fishing activities
Non-target species	• Largely unquantifiable, but continued implementation of SBRM should improve VEC	• Encounters with fishing gear • Non-fishing activities
Habitat	See EFH overlap analysis of Amendment 9, Section 6.3.4.1	• Encounters with fishing gear • Non-fishing activities
Protected Resources	• Marine mammals - mortalities exceed potential biological removal (PBR) which is defined for each species in Section 6.4. • Sea Turtles – nest counts, or estimated number of nesting females below target levels	• Encounters with fishing gear • Non-fishing activities
Human Communities	In general, the significance of impacts is measured by the potential for revenue loss. The standards established under E.O. 12866 or RFA may be candidates.	• Short term: revenue losses from changes in current fishing practices (e.g., gear modifications, area closures). • Short term and long term: revenue losses from resource depletion

For the purposes of providing a conceptual context for this discussion of the affect the human environment, some general categories of the environmental influences on the VECs are provided in **Figure 93**. Most of the time, influences of actions on the population size of a managed resource can, by and large, be extended to populations of non-target species or protected species, and vice versa, especially with regard to increases and decreases in fishing effort. The effects of actions on habitat quality can come from a wide variety of fishing and non-fishing activities. In turn, habitat quality factors into the condition of the managed resource, non-target species, and protected resource VECs.

The condition of the human communities VEC is generally associated with increases and decreases in revenue from fishing operations. Operating costs tend to increase when availability of the managed resource decreases either through scarcity or through regulatory restrictions on harvest. The availability of the managed resource also affects competition among fishing entities for resources and consumer demand. These factors influence product price which feeds back to the economic and social well-being of the human communities.

Optimizing the future condition of a given VEC can have offsetting impacts on other VECs. For example, if updating EFH designations led to future gear restricted areas, closing areas to bottom otter trawling would directly improve habitat quality, and be expected to indirectly improve the conditions of managed resources, non-target species, and protected resources. This action, however, would negatively impact human communities dependent on revenue from otter trawling in that area, at least in the short term. Additionally, the indirect benefits to managed resources, non-target species, and protected resources may be localized, and increased bottom trawl effort in other areas may offset these benefits to some degree.

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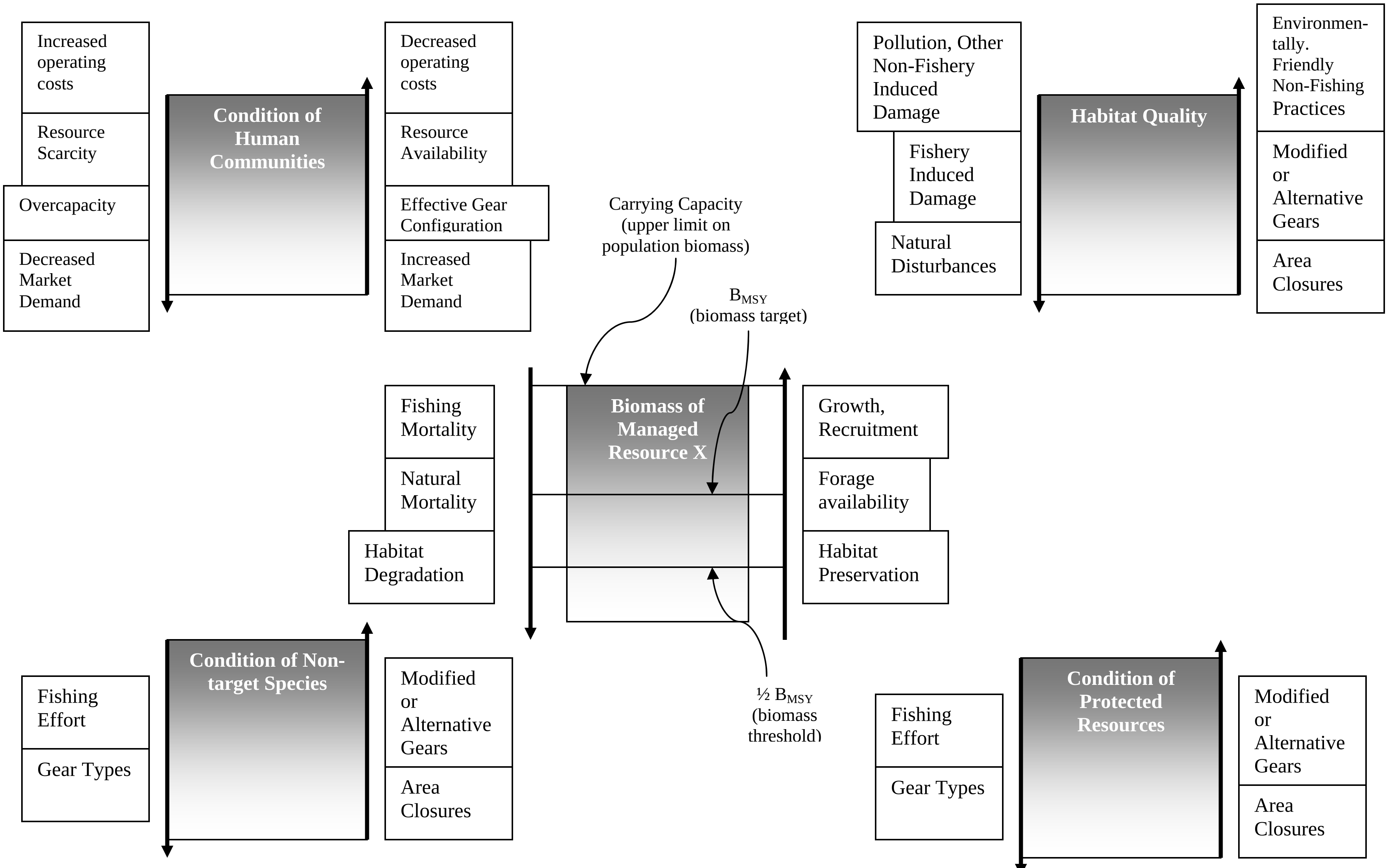

Figure 93. Examples of environmental sources of positive impacts (up arrows) and negative impacts (down arrows) for the five VECs.

8.7 BASELINE CONDITION FOR THE RESOURCES, ECOSYSTEMS, AND HUMAN COMMUNITIES

The CEQ's step 7 calls for a characterization of the baseline conditions for the VECs. For the purposes of this CEA, the baseline condition is considered as the present condition of the VECs plus the combined effects of the past, present and reasonably foreseeable future actions. **Table 117** summarizes the added effects of the condition of the VECs (i.e., status/trends/stresses from Section 6 and **Table 116**) and the sum effect of the past, present and reasonably foreseeable future actions (from Table 116). The resulting CEA baseline for each VEC is exhibited in the last column (shaded). In general, straight-forward quantitative metrics of the baseline conditions are only available for the managed resources and protected resources. For non-target species, the constraints of data quality preclude a quantitative baseline. The conditions of the habitat and human communities VECS are complex and varied. As such, the reader should refer to the characterizations given in Sections 6.3 and 6.5, respectively. As mentioned above, this CEA Baseline is then used to assess cumulative effects of the proposed management actions.

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Table 117. CEA baseline conditions of the VECs.

VEC		Status/Trends/Stresses	Combined Effects of Past, Present Reasonably Foreseeable Future Actions (Table 115)	Combined CEA Baseline Conditions
Managed Resource	**Atl. Mackerel**	Unknown but U.S. landings declining.	**Unknown**	**Unknown**
	Illex	Stock size unknown; landings variable but appear sustainable	**Unknown**	**Unknown**
	Loligo	Stock not overfished; landings variable but appear sustainable	**Positive** overfishing not known to be occurring	**Positive** overfishing not known to be occurring
	Butterfish	In depleted state though fishing does not appear to be cause.	**Unknown**	**Unknown**
Non-target Species (principle species listed in section 6. 2)		Quantitative characterization of bycatch in MSB fisheries is poor to unknown; *Loligo* fishery continues to account for large proportion of discards observed in NEFOP for several species including butterfish	**Negative in short term** Effects of Amendment 10 uncertain. **Long term positive** Amendment 10 measures should reduce non-target interactions, improve bycatch accounting	**Negative in short term** - Increased bycatch rates will continue until reduction measures are implemented **Positive** – Long term reduced bycatch, improved bycatch accounting, improved habitat quality
Habitat		Complex and variable - See Section 6.3.4.1of Amendment 9; Non-fishing activities had historically negative but site-specific effects on habitat quality; Mouth of Hudson Canyon/Tilefish HAPC among the areas most ecologically sensitive	**Positive** reduced habitat disturbance by fishing gear	**Positive** - reduced habitat disturbance by fishing gear and non-fishing actions
Protected Resources	Common dolphin	Unknown status, but takes are below PBR; taken by *Loligo*, mackerel and other fisheries;	**Negative or low negative in short term** until Take Reduction Research Plan is fully implemented **Long term positive** reduced gear encounters through effort reduction and Take Reduction Research Plan /Sea Turtle Strategy;	**Negative or low negative in short term** -- until Take Reduction Research Plan is fully implemented **Long term positive** reduced gear encounters through effort reduction and Take Reduction Research Plan /Sea Turtle Strategy;
	White-sided dolphin	Unknown status, but takes are below PBR; historically taken by foreign mackerel vessels;		
	Pilot whales	Unknown status, but takes are below PBR; taken by *Illex* and *Loligo*		
	Leatherback sea turtle	ESA classification: Endangered, number of nesting females below sustainable level; taken by *Loligo* trawl		
	Loggerhead sea turtle	ESA classification: Threatened, nest counts (~6,200 in 1998) below goal (12,800); taken by *Illex* and *Loligo* trawl		

Table 117 (continued)

VEC	Status/Trends/Stresses	Combined Effects of Past, Present Reasonably Foreseeable Future Actions (Table 115)	Combined CEA Baseline Conditions
Human Communities	Complex and variable - See Section 6.5	**Short Term: Complex and variable - See Section 6.5** **Long Term: Positive -** sustainable resources should support viable communities and economies	**Short-term is mixed. Some stocks have been rebuilt or maintained leading to higher revenues but uncertainty raises possibility of unnecessary restrictions.** **Long-term positive as sustainable resources should support viable communities and economies**

The following sections elaborate on each CEA Baseline:

Managed Resource Impacts CEA Baseline: With the exception of Loligo which the latest assessment suggested was above its biomass target, the condition of the managed resources is generally unknown (though mackerel and butterfish appear to be in a state of diminished productivity). Actions are still expected to be positive in the long run as quotas should prevent overfishing in the long run as assessments are improved and management is adjusted accordingly.

Non-target Species Impacts CEA Baseline: Fishery encounters with non-target species (6.2), and the subsequent bycatch mortality remains a substantial fishery management problem. At present, the nature and extent of non-target species discarding by the MSB fisheries, as well as many others operating in the U.S. Atlantic remains difficult to characterize. Given ongoing bycatch reduction management measures, the CEA baseline is negative in the short run as high bycatch rates (especially in the *Loligo* fishery) are likely still occurring but positive in the long run as management measures are implemented to reduce bycatch. As mentioned above, non-fishing effects, although potentially negative to all fish species, are likely not exerting much negative effects on non-target species, due to the small scale of the habitat perturbation relative to the populations at large.

Habitat Impacts CEA Baseline: For habitat, the summary effects of past and present actions assessed above in Section 8.4 were considered to be positive. Effort reduction or gear modifications will, in effect, reduce the magnitude of the negative impact on this VEC that results from fishing activities. Again, although the negative effects of past and present actions associated with non-fishing activities (**Table 114**) may have increased negative effects, it is likely that those actions were minor due to the limited scale of the habitat impact compared with the populations at large. Considering fishing effort over the next 5 years will likely be reduced, a resultant positive impact on habitat of "other" actions is anticipated.

Protected Resource Impacts CEA Baseline: For the protected species affected by this Amendment (listed in Section 6.4), the summary effects of the "other" past and present actions assessed above were considered to be negative in the short term but positive in the long term due to future effort reduction or gear modifications (gear modifications lessen the negative impact of a given level of effort). Future actions that would directly reduce the mortality of protected resources from encounters with MSB fisheries include the implementation of the Atlantic Trawl Gear Take Reduction Research Plan and the Strategy for Sea Turtle Conservation for the Atlantic Ocean and the Gulf of Mexico Fisheries. These actions and the current protection under MMPA and ESA are expected to result in positive cumulative impacts for these protected resources.

Human Communities Impacts CEA Baseline: The net effect of past and present "other" actions is considered to be positive in that the fisheries managed under the MSB FMP currently support viable domestic and international market demand. While some short-term economic costs have been associated with effort reductions and gear modifications (see **Table 114**), economic returns should be positive and tend to make a positive contribution to the communities associated with harvest of these species. In the short-term future (i.e., within the temporal scope of this CEA), costs may occur and the high degree of management uncertainty makes it more likely that unnecessary restrictions could result. In the longer term, positive impacts on human communities should come about as sustainability of natural resources is attained.

8.8 CAUSE-AND-EFFECT RELATIONSHIPS BETWEEN HUMAN ACTIVITIES AND RESOURCES, ECOSYSTEMS, AND HUMAN COMMUNITIES

CEQ's step 8 has been accomplished through the analyses of impacts presented in Section 7.0, as well as the summary of past, present, and reasonably foreseeable future actions presented in **Table 114**, and the relationships between the VECs illustrated in **Figure 93** and its accompanying text.

8.9 MAGNITUDE AND SIGNIFICANCE OF CUMULATIVE EFFECTS

According to CEQ guidance, determining the magnitude of the cumulative effects consists of determining the separate effects of past actions, present actions, the proposed action (and reasonable alternatives), and other future actions. Once that is done, cumulative effects can be calculated. The significance of the effects is related to the magnitude, but also takes into account context and distribution.

Table 114 in Section 8.4 lists the effects of individual past, present, and future actions and is organized in chronological order so that review of that table will assist the reader in understanding the conclusions presented below regarding the summary effects of these separate actions. Note that fishery-related activities consist almost entirely of positive effects (with the exception of some short-term negative effects on human communities) while non-fishing activities are generally associated with negative effects. The basis for this general outcome is explained in the text provided in Section 8.4. **Table 117** and associated text describes the summary effects of the past, present and future actions on the VECs.

Summary Effects of the Proposed (Amendment 11) Actions The summary effects of the proposed actions are dependent on which combinations of actions are ultimately implemented. All of the alternatives have been described repeatedly throughout this document and the Council has selected preferred alternatives (bolded and underlined below). Analysis of the individual impacts of each of the alternatives are presented in detail in Section 7.0 and summarized in the executive summary in Tables 6 and 7. The following groupings are first provided for individual relative incremental impacts.

Managed Resource Impacts

Neutral Impact (Managed Resources) Alternatives:

1A, 1G, 1H, 1I, **2A**, 3A, 3G, 4A, 5A, 6A, **7A**-F, 4F

1A, 2A, 3A, 4A, 5A, 6A, and 7A maintain the status quo and would not be expected to have other than neutral impacts. There is no evidence that the processor cap (7B-7F) would have other than neutral impacts for mackerel. 1H and 1I will let in vessels into Tier 3 so it is unlikely they would impact the stock in a more than minimal and they may have just caught and discarded otherwise. 1G/3G may not be substantially different from the status quo because of high trip limits for the open access group. The same may be true for 3E because without trip limits on Tier 2 vessels the ability of that group of vessels to increase capacity may result in a situation indiscernible from the status quo. 4F is unlikely to have significant impacts because of the included 10-10-20 provision so it should not affect capacity.

Positive Impact (Managed Resources) Alternatives:

1B-1F (including **1D**), 1J, 2B-2D, 3B, 3C, 3D, **3F**, **4B**, **4C**, 4E, **4G2**, 5B-5E (including **5C**), 6B-6D (including **6C**)

1B-1F, 1J, 2B-2D, 3B, 3C, 3D, 3F, 4B, 4C, 4E and 4G2 are all components of a proposed capacity-capping limited access system so one would expect positive impacts with these alternatives for mackerel to the extent they mitigate future racing to fish. 5B-5E bring the EFH designations current and will allow more effective EFH impact mitigation in the future, and 6B-6D pave the way for ACLs/AMs by creating a recreational allocation.

Negative Impact (Managed Resources) Alternatives:

3E, **4D** and **4F** may lessen the effectiveness of the limited access program in terms of capping capacity.

Non-target Species Impacts

Neutral Impact (Non-target Species) Alternatives:

1A, 1G, **2A**, 3A, 3G, 4A, 5A, 6A, **7A**, 1H-1I, 4F, 5B-5E (including **5C**), 6B-6D (including **6C**), 7B-7F

Most of the alternatives in this amendment are not geared toward impacting non-target species (amendments 9 and 10 addressed this issue) and the quota has a dominant effect on effort compared to the measures being considered. Alternatives that may make the limited access system an ineffective cap on capacity would also not help (1G, 3G).

Positive Impact (Non-target Species) Alternatives:

1B-1F (including **1D**), 1J, 2B-2D, 3B-3D, **3F**, **4B**, **4C**, 4E, **4G2**

1B-1F, 1J, 2B-2D, 3B, 3C, 3D, 3F, 4B, 4C, 4E, and 4G2 are all components of the proposed limited access system so one would expect positive if indirect impacts with these alternatives for non-target species to the extent they mitigate future racing to fish and result in lower effort than would otherwise occur.

Negative Impact (Non-target Species) Alternatives:

3E, **4D**, and **4F** may lessen the effectiveness of the limited access program in terms of capping capacity.

Habitat Impacts

Neutral Impact (Habitat) Alternatives:

1A, **2A**, 3A, 4A, 5A, 6A, **7A**, 1B-1I (including **1D**), 2B-2D, 3B-3G (**3F**), **4B-4G2**, 6B-6D, 7B-7F.

Most of the alternatives in this amendment are not geared toward addressing habitat issues (amendment 9 addressed this issue). Moreover, the overall quota is a much larger determining factor in effort and therefore habitat impacts and most mackerel fishing, which this Amendment would affect, is done with mid-water trawls.

Positive Impact (Habitat) Alternatives:

5B-5E (including **5C**)

One would also expect the EFH Update provisions 5B-5E to positively impact habitat in that more effective mitigation of habitat impacts can occur in the future with better EFH designations. The proposed alternatives would designate more area than is currently designated.

Negative Impact (Habitat) Alternatives:

None significant.

Protected Resource Impacts

Neutral Impact (Protected Resources) Alternatives:

1A, 1G, 3G, **2A**, 3A, 4A, 5A, 6A, **7A**, 1H-1I, 4F, 5B-5E (**5C**), 6B-6D (**6C**), 7F

Most of the alternatives in this amendment are not geared toward impacting protected species and the quota has a dominant effect on effort compared to the measures being considered. While most Alternative Set 7 alternatives may have an impact on protected species, 7F would not be expected to be binding on an at-sea processor sector, should one develop.

Positive Impact (Protected Resources) Alternatives:

1B-1F (**1D**), 1J, 2B-2D, 3B-3D, **3F**, **4B**, **4C**, **4G2**, 4E, 7B-7E.

1B-1F, 1J, 2B-2D, 3B-3D, 3F, 4B, 4C, and 4E are all components of the proposed limited access system so one would expect positive impacts with these alternatives for protected resources to the extent they mitigate future racing to fish (and reduce effort). Given the documented takes of marine mammals in JV activities, it is theoretically possible, though highly uncertain that capping at-sea processing (7B-7E) could result in positive but unquantifiable impacts for protected resources.

Negative Impact (Protected Resources) Alternatives:

3E, **4D**, or **4F** may somewhat lessen the effectiveness of the limited access program in terms of capping capacity and result in more effort than would have otherwise occurred.

Human Communities Impacts

Uncertain:

Uncertain 5B-5E (**5C**): Depending in how habitat protections impacted economic development, the overall impact is unclear.
Uncertain 7B-7F: The processor cap could help some individuals and hurt others (i.e. produce distributional impacts) but the net impact is unclear.
Uncertain 3E: Tier 2 would be able to harvest more but could contribute to a race t offish that would dissipate profits.
Uncertain **4D**: Likely allows additional qualifiers but could lead to higher likelihood of a race to fish in the future.

Neutral Impact (Human Communities) Alternatives:

1A, 1G/3G, **2A**, 3A, 4A, 5A, 6A, **7A**, **4G2**

By definition, the no-action alternatives or ones which end up being similar to no-action would not be expected to have an impact.

Positive Impact (Human Communities) Alternatives:

1B-1F (**1D**), 1J, 1H, 1I, 2B-2D, 3B-3D, **3F**, **4B-C**, **4F**, 6B-6D (**6C**)

1B-1F, 1J, 1H, 1I, 2B-2D, 3B-3D, 3F, 4B-4C, 4E, and 4F are all components of the proposed limited access system so one would expect positive impacts with these alternatives for protected resources to the extent they mitigate future racing to fish. 1H and 1I could potentially avoid unnecessary regulatory discarding scenarios and thus convey positive impacts. 6B-6D would be expected to return long-term positive returns in that facilitation ACLs/AMs should also facilitate sustainable management and a productive stock.

Negative Impact (Human Communities) Alternatives:

3E may somewhat lessen the effectiveness of the limited access program in terms of capping capacity.

Analysis of Total Cumulative Effects Regardless of which actions are ultimately implemented through this amendment, it is expected that the overall long-term cumulative effects should be positive for all VECs. This is because, barring some unexpected natural or human-induced catastrophe, the regulatory atmosphere within which Federal fishery management operates requires that management actions be taken in a manner that will optimize the conditions of resources, habitat, and human communities. Consistent with NEPA, the MSA requires that management actions be taken only after consideration of impacts to the biological, physical, economic, and social dimensions of the human environment. This document functions to identify the likely outcomes of various management alternatives. Identification of alternatives that would compromise resource sustainability should make implementation of those alternatives unlikely.

Cumulative Managed Resources: Butterfish will continue to be negative in the short term and positive in the long term related to implementation of Amendment 10. The squids should not be impacted by this amendment so should stay positive. This amendment, by ending open access should reinforce the positive cumulative impacts already seen in regards to the mackerel stock..

Cumulative Non-target Species Impacts: Non-targets seem unlikely to be significantly impacted by this amendment though there may be some indirect benefits to ending open access in the mackerel fishery related to reducing possible future racing to fish and therefore possibly effort. Given this, cumulative non-target impacts are likely the same as the baseline, negative in the short run but positive in the long run.

Cumulative Habitat Impacts: Mackerel related alternatives are unlikely to have significant impacts. The re-designation of EFH should have positive impacts, especially related to consultations on non-fishing impacts, so the cumulative baseline of positive should be reinforced.

Cumulative Protected Resource Impacts: The alternatives seem unlikely to significantly impact protected resources though there may be some indirect benefits to ending open access in the mackerel fishery related to reducing possible future racing to fish and therefore possibly effort.   Given this, cumulative protected resource impacts are likely the same as the baseline, negative in the short run but positive in the long run.

Cumulative Human Communities Impacts : Ending open access mackerel fishing before a significant race to fish develops should reinforce the sustainable nature of mackerel fishing. Establishing a recreational mackerel allocation to facilitate ACLs/AMs should have the same effect, both reinforcing the baseline positive cumulative impacts in that the mackerel fishery supports a significant market and these actions should help ensure this continues to be the case.

9.0 CONSISTENCY WITH THE MAGNUSON-STEVENS FISHERY CONSERVATION AND MANAGEMENT ACT

9.1 NATIONAL STANDARDS

Section 301 of the MSA requires that FMPs contain conservation and management measures that are consistent with the ten National Standards:

In General. – Any fishery management plan prepared, and any regulation promulgated to implement any such plan, pursuant to this title shall be consistent with the…national standards for fishery conservation and management.

Unless otherwise mentioned below, the alternatives identified in this amendment do not address any of the management measures previously implemented under the FMP which were found to be fully in compliance with all national standards of the MSA.

(1) Conservation and management measures shall prevent overfishing while achieving, on a continuing basis, the optimum yield from each fishery for the United States fishing industry.

The primary goal of MSRA is to prevent overfishing while achieving optimum yield (i.e., maintain greatest benefits to the nation). This implies exploiting each stock at or near some maximum rate while not jeopardizing the stock's capacity to achieve maximum sustainable yield (i.e., at or near B_{msy}). Each FMP must contain provisions to prevent overfishing and to rebuild stocks that become overfished, commonly referred to as fishing mortality control rules. The maximum fishing mortality rate allowable under MSRA is $F_{msy,}$ the rate associated with maximum sustainable yield (if the fishing mortality rate exceeds this level *overfishing* is occurring). This fishing mortality rate sets the upper bound for annual catch limits under all circumstances. The minimum stock size threshold (MSST) is generally defined as ½ the level of B_{msy} but may vary depending on the reproductive biology of the stock and the degree of scientific (un)certainty.

The fishing mortality rate control rule contained in each FMP provides the blueprint for specification of annual catch limits in upcoming fishing years. The control rule provides an upper limit on fishing mortality and a target fishing mortality rate, each of which are conditional on the current stock size. The difference, or buffer, between the target and threshold fishing mortality rates is a function of both the uncertainty about current stock status and the efficacy of management measures in achieving the fishing rate in the upcoming year. Amendment 8 to this FMP implemented fishing mortality rate control rules for each managed species contained in the management unit which were subsequently found to be in compliance with National Standard 1.

Since then Congress passed the Magnuson Stevens Reauthorization Act of 2007. The MSRA contains new requirements for Councils to set annual catch limits and define accountability measures for each of its managed species. The Council considered implementing ACLs/AMs in Am11 but chose to primarily deal with ACLs/AMs in an Omnibus amendment so that

ACLs/AMs could be dealt with in a comprehensive and holistic manner across all MAFMC-managed species. The issue of creating a hard recreational allocation, which is necessary for developing ACLs/AMs, has been left in Amendment 11 since is seemed more appropriate for the species FMP to deal with the allocation rather than in the Omnibus.

(2) Conservation and management measures shall be based upon the best scientific information available.

The analyses used to predict the impacts of the alternatives in this amendment were based on the best scientific information available at the time of analysis.

A 2004 assessment concluded that fishing mortality was low and the stock was quite large, over 3 ½ times greater than the MSY stock size, likely related to recent good recruitment events. As recruitment returned to more average levels, it was expected that the mackerel stock would fall. The likely smaller biomass would support sustainable yields that are smaller than recent quotas, probably in the range of 12,000 MT-56,000 MT available to the US fishery under the current specifications process (and some of this quota would have to be allocated to the recreational fishery).

The Atlantic mackerel stock was most recently assessed via a Transboundary Resource Assessment Committee in 2010 (TRAC 2010), which analyzed data though 2008 (www.mar.dfo-mpo.gc.ca/science/trac/tsr.html). A number of different models and model formulations were evaluated. Given the uncertainty in the assessment results, the TRAC agreed that short term projections and characterization of stock status relative to estimated reference points would not be an appropriate basis for management advice at this time. Given current indications of reduced productivity and lack of older fish in the survey and catch, the TRAC recommended that annual total catches not exceed the average total landings over the most recent three years of data available at that time (2006-2008; 80,000 mt) until new information suggests a different amount is more appropriate. Since Canadian catches must be accounted for, this level of total catch would still probably lead to U.S. catches in the 12,000 MT - 56,000 MT range described in the DEIS. In this sense the new assessment did not substantially alter the perception of future quotas other than to highlight indications of potential reduced productivity. These points are also described in Section 6.1.1.2.

Several other sources of data were used in the development of this document, including the analysis of potential impacts. These data sources include, but are not limited to: landings data from vessel trip reports (VTRs), information from resource trawl surveys, sea sampling (observer) data, data from the dealer weighout purchase reports, as well as other sources. Fishing industry members have also provided useful information about various aspects of the mackerel fishery that have been integrated into this document when applicable as well. Although there are various limitations inherent in the data used in the analysis of impacts of management measures and in the description of the affected environment, these data are considered to be the best available. Information about bycatch is based on reports collected by NMFS' Northeast Fishery Observer Program (NEFOP) and incorporated into the NOAA Fisheries observer database. The observer data are collected using a peer-reviewed sampling process. Furthermore, all analyses were prepared by and reviewed by the Council's MSB Am11 Fishery Management Action Team (FMAT), which includes review by NMFS staff from the

NERO and the NEFSC. This document complies with the Information Quality Act and additional discussion related to the Information Quality Act can be found in Section 10.6 of this document.

(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.

No alternative in this document alters the MSB FMP in relation to this National Standard. The mackerel stock is managed as a unit throughout its range (see section 6.1.1.1 for a description) and this action will not change this aspect of mackerel management. While they are not the primary focus of this action, the same holds for the other species in the MSB FMP. Impacts assessed in this action are evaluated for some components of the fishery individually, as well as the fishery overall.

The mackerel resource does extend into Canadian waters. There is no direct or indirect management coordination with Canada; however, scientists from both countries collaborate on stock assessment processes. In addition, expected Canadian catch is deducted from a fishery-wide ABC to derive a U.S. ABC that is low enough to ensure a low probability that mackerel catch could exceed what is recommended for the entire stock as a unit throughout its range.

(4) Conservation and management measures shall not discriminate between residents of different States. If it becomes necessary to allocate or assign fishing privileges among various United States fishermen, such allocation shall be (A) fair and equitable to all such fishermen; (B) reasonably calculated to promote conservation; and (C) carried out in such manner that no particular individual, corporation, or other entity acquires an excessive share of such privileges.

No measures are expected to discriminate between residents of different states.

Mackerel is currently an open-access fishery, which means there are no limits on how many vessels can get permits to harvest mackerel. One of the primary purposes of Amendment 11 is to establish a cap on capacity through implementation of a limited access system based on current and a range of historical participation in the Atlantic mackerel fishery in a manner that does not impede optimal U.S. utilization of the Atlantic mackerel resource. The limited access system contemplated by the Council is generally designed to prohibit additional entrants and restrict current and a range of historical participants to their current and/or historical levels of mackerel fishing. The social and economic impacts of the proposed alternatives to limit access to the mackerel fishery are discussed in Section 7.5.1 of this document. The Council concluded that there would likely minimal short term impacts compared to the status quo since everyone who has been fishing for mackerel for at least last 10 years would qualify for a limited access permit commensurate with their level of fishing activity. As a result, the Council also concluded that the proposed limited access system is fair and equitable. As described in Section 7.6 the Council considered both current and historical participants in the process of designing a limited access system for mackerel. No particular individual, corporation, or other entity is expected to acquire an excessive share of fishing privileges for Atlantic mackerel as a result of this action.

As described in this document, depending on the alternative selected, the processor cap would favor existing shoreside processors versus potential future at-sea processors with the limits applying equally to all fishermen. The proposed at-sea processing measures also address national standard 8 by considering the needs of fishing communities.

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

As described in Section 7.5, the proposed limited access system, by reducing the probability of a race to fish compared to open access, would be expected to increase efficiency in the utilization of fishery resources.

The processor cap could result in some inefficiencies as described in section 7.5, however the proposed measures could have also addressed national standard 8 to consider the needs of fishing communities (see 7.5.7) and potential marine mammal interactions (7.4.7). The range of proposed alternatives allowed evaluation of these issues. However, analysis presented in this document suggested that the sole justifiable rationale behind the processor cap was economic allocation. Because the sole justifiable rationale behind this alternative appeared to be economic allocation, which is prohibited under MSA, the Council chose the no action as the preferred alternative.

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

The proposed limited access system attempts to provide fishermen with as much flexibility as possible by utilization of a system that primarily restricts new entry into the mackerel fishery. Also, the trip limits that would govern lower access Tiers and the processor cap would be set annually so the Council can respond to changing conditions as necessary.

(7) Conservation and management measures shall, where practicable, minimize costs and avoid unnecessary duplication.

The proposed measures attempt to avoid unnecessary duplication. In terms of alternatives in Alternative Sets 1-4, there is currently no limited access system in place for mackerel and these alternatives would institute a new limited access system. While many historical participants are incorporated into the limited access fishery, limiting entry of new, high-capacity vessels will limit further capitalization of this fishery. Given limited access exists in most other fisheries, the probability of increased interest in mackerel when other fisheries are restricted is relatively high and adds to the rationale of why instituting limited access, even if it is just capping current capacity, is important. Regarding Alternative Set 5, while there are already EFH designations in place, they are overdue (see NMFS EFH final rule) for review and updating. Regarding Alternative Set 6, while there are currently some assumptions made about potential recreational harvest of mackerel, implementation of ACLs/AMs in the future will require a hard quota, which is the purpose of Alternative Set 6. Regarding Alternative Set 7, there is no current cap on at-sea processing and Alternative Set 7 allows consideration of such a cap to address socio-economic and protected resource issues.

(8) Conservation and management measures shall, consistent with the conservation requirements of this Act (including the prevention of overfishing and rebuilding of overfished stocks), take into account the importance of fishery resources to fishing communities in order to (A) provide for the sustained participation of such communities, and (B) to the extent practicable, minimize adverse economic impacts on such communities.

The Council carefully considered the importance of the mackerel fishery to affected fishery-related businesses and communities when developing the management measures proposed in Amendment 11. The limited access and at-sea processor alternatives developed by the Council are specifically designed to avoid adverse impacts on communities by capping capacity without eliminating access to current and a range of historical participants. The socioeconomic impacts of alternatives were considered as described in Section 7.5 and provided substantial guidance for the selection of final alternatives.

Descriptions of the fishing communities engaged in the mackerel fishery are provided in Section 6.5 of this document. This information represents the best available information, consistent with National Standard 2, and contributed to a thorough analysis of economic and social impacts of this amendment. The proposed action for Amendment 11 includes measures that will provide access to this fishery for a variety of vessels from coastal communities along the east coast. For example, landings criteria for the lower Tiers include relatively low thresholds to provide access to this fishery to more vessels that have participated in this fishery at various levels, whether small-scale directed or incidental in nature.

(9) Conservation and management measures shall, to the extent practicable, (A) minimize bycatch and (B) to the extent bycatch cannot be avoided, minimize the mortality of such bycatch.

No alternative in this document directly addresses this national standard, but as described in Section 7 several of the alternatives may indirectly reduce bycatch by reducing the likelihood of a race to fish. Impacts may be minimal regardless since mackerel availability can be unpredictable, and when fish are available fishing may occur at a rapid pace regardless of the possibility of fishery shutdown related to the quota (nature can shut the fishery down at unpredictable points).

The limited access system does include trip limits for the lower Tiers. In a traditional limited access system, one group of vessels is given access with no or high trip limits and most other vessels receive relatively low trip limits that can cause regulatory discarding. The Tiered limited access system considered in this action would likely reduce regulatory discarding compared to such a traditional system because vessels are grouped with other vessels that have had similar landings, and the trip limits for each Tier/group are designed to only impact a small percentage of trips within each Tier. Thus regulatory discarding should be kept to a minimum by the design features of the Tiered approach.

(10) Conservation and management measures shall, to the extent practicable, promote the safety of human life at sea.

Fishing is a dangerous occupation; participants must constantly balance the risks imposed by weather against the economic benefits. A management plan should be designed so that it does not encourage dangerous behavior by the participants. The Council is aware of the safety implications of its management decisions, both through extensive public comment and the practical experience of its members and advisors. The bulk of the mackerel fishery generally takes place in winter and early spring, so weather risks may be higher than average.

One of the anticipated benefits of limited access system for mackerel is the avoidance, at least to some degree, of the so called "race to fish". While the proposed limited access system alone may not fully prevent derby style fishing practices *per se* without an accompanying limited access privilege program, derby fishing under limited access is expected to be less of a problem compared to perpetuation of the current open access situation in the mackerel fishery. Therefore, the proposed limited access program is expected to promote (albeit in a limited fashion) safety at sea relative to the status quo. Impacts may be minimal regardless since mackerel availability can be unpredictable, and when fish are available fishing may occur at a rapid pace regardless of the possibility of fishery shutdown related to the quota (nature can shut the fishery down at unpredictable points).

9.2 OTHER REQUIRED PROVISIONS OF THE MAGNUSON-STEVENS ACT

Section 303 of the MSA contains 15 additional required provisions for FMPs, which are discussed below. Any FMP prepared by any Council, or by the Secretary, with respect to any fishery, shall:

(1) contain the conservation and management measures, applicable to foreign fishing and fishing by vessels of the United States, which are-- (A) necessary and appropriate for the conservation and management of the fishery to prevent overfishing and rebuild overfished stocks, and to protect, restore, and promote the long-term health and stability of the fishery; (B) described in this subsection or subsection (b), or both; and (C) consistent with the National Standards, the other provisions of this Act, regulations implementing recommendations by international organizations in which the United States participates (including but not limited to closed areas, quotas, and size limits), and any other applicable law;

None of the measures proposed in this Amendment alter the primary conservation measures contained in the current FMP. For Atlantic mackerel, the primary mechanism to achieve the conservation goals of the FMP is the annual quota with in-season closures when landings approach a given percentage of the quota such that the total quota and/or overfishing level are not likely to be exceeded (except for recreational mackerel landings, which have been and are likely to continue to be a very small part of overall catch). Thus under any of the limited access systems, there would likely be minimal impacts on the managed resources compared to the status quo open access management regime or compared to each other, because the existing and continued use of a hard quota is the primary factor beneficially affecting the managed resource.

(2) contain a description of the fishery, including, but not limited to, the number of vessels involved, the type and quantity of fishing gear used, the species of fish involved and their location, the cost likely to be incurred in management, actual and potential revenues from the fishery, any recreational interest in the fishery, and the nature and extent of foreign fishing and Indian treaty fishing rights, if any;

Sections 6.1 and 6.5 in this document include a description of the fisheries managed under this FMP.

(3) assess and specify the present and probable future condition of, and the maximum sustainable yield and optimum yield from, the fishery, and include a summary of the information utilized in making such specification;

The specification of annual management measures under this FMP includes the identification of MSY and OY for all MSB fisheries. With the exception of butterfish, all the species managed under this FMP are above their pre-defined biomass thresholds and/or are not experiencing overfishing. In the case of butterfish, the stock was defined as being overfished in 2005 based on the fact that average biomass had fallen below the threshold biomass threshold defined in the FMP (i.e., ½ B_{msy}). The current estimates of maximum sustainable yield for Atlantic mackerel is defined as a range of 89,000-148,000 mt as described in section 6.

(4) assess and specify-- (A) the capacity and the extent to which fishing vessels of the United States, on an annual basis, will harvest the optimum yield specified under paragraph (3); (B) the portion of such optimum yield which, on an annual basis, will not be harvested by fishing vessels of the United States and can be made available for foreign fishing; and (C) the capacity and extent to which United States fish processors, on an annual basis, will process that portion of such optimum yield that will be harvested by fishing vessels of the United States;

The specification of annual management measures under this FMP includes analyses of the fisheries' ability to harvest OY. The most recent analyses for the 2009 proposed specifications indicate that fishing vessels of the United States have the ability and intent to harvest all of the OY specified for each species. In addition, the processing sector has the capacity and intent to process all of the OY specified for 2009 for each species.

(5) specify the pertinent data which shall be submitted to the Secretary with respect to commercial, recreational, and charter fishing in the fishery, including, but not limited to, information regarding the type and quantity of fishing gear used, catch by species in numbers of fish or weight thereof, areas in which fishing was engaged in, time of fishing, number of hauls, and the estimated processing capacity of, and the actual processing capacity utilized by, United States fish processors;

Section 6 in this document includes an extensive presentation of pertinent data for the Atlantic mackerel fisheries, and as such, satisfies this provision.

(6) consider and provide for temporary adjustments, after consultation with the Coast Guard and persons utilizing the fishery, regarding access to the fishery for vessels otherwise prevented from harvesting because of weather or other ocean conditions affecting the safe conduct of the fishery; except that the adjustment shall not adversely affect conservation efforts in other fisheries or discriminate among participants in the affected fishery;

No alternative in this amendment addresses this provision. But NMFS has the authority to issue emergency regulations.

(7) describe and identify essential fish habitat for the fishery based on the guidelines established by the Secretary under section 305(b)(1)(A), minimize to the extent practicable adverse effects on such habitat caused by fishing, and identify other actions to encourage the conservation and enhancement of such habitat;

Section 6.3 of this document describes and identifies EFH in order to satisfy this provision.

(8) in the case of a fishery management plan that, after January 1, 1991, is submitted to the Secretary for review under section 304(a) (including any plan for which an amendment is submitted to the Secretary for such review) or is prepared by the Secretary, assess and specify the nature and extent of scientific data which is needed for effective implementation of the plan;

The preparation of this amendment included a review of the scientific data that were available to assess the impacts of all alternatives in this amendment.

(9) include a fishery impact statement for the plan or amendment (in the case of a plan or amendment thereto submitted to or prepared by the Secretary after October 1, 1990) which shall assess, specify, and describe the likely effects, if any, of the conservation and management measures on-- (A) participants in the fisheries and fishing communities affected by the plan or amendment; and (B) participants in the fisheries conducted in adjacent areas under the authority of another Council, after consultation with such Council and representatives of those participants;

Section 7.5 of this document provides an extensive assessment of the likely effects of the actions proposed in this amendment on fishery participants and communities.

(10) specify objective and measurable criteria for identifying when the fishery to which the plan applies is overfished (with an analysis of how the criteria were determined and the relationship of the criteria to the reproductive potential of stocks of fish in that fishery) and, in the case of a fishery which the Council or the Secretary has determined is approaching an overfished condition or is overfished, contain conservation and management measures to prevent overfishing or end overfishing and rebuild the fishery;

Each of the species managed under this FMP has threshold criteria for identifying when the stocks are overfished which are presented in Section 6.1 of this document.

(11) establish a standardized reporting methodology to assess the amount and type of bycatch occurring in the fishery, and include conservation and management measures that, to the extent practicable and in the following priority-- (A) minimize bycatch; and (B) minimize the mortality of bycatch which cannot be avoided;

This FMP is in compliance with this provision as established through the implementation of the Standardized Bycatch Reporting Methodology (SBRM) Amendment for fisheries in the Northeast Region.

(12) assess the type and amount of fish caught and released alive during recreational fishing under catch and release fishery management programs and the mortality of such fish, and include conservation and management measures that, to the extent practicable, minimize mortality and ensure the extended survival of such fish;

Estimates of numbers of mackerel released alive can be found in 6.1.1.3, "The Mackerel Fishery."

(13) include a description of the commercial, recreational, and charter fishing sectors which participate in the fishery and, to the extent practicable, quantify trends in landings of the managed fishery resource by the commercial, recreational, and charter fishing sectors;

Recreational fishing for Atlantic mackerel is addressed in Section 6.1 of this document. The other species managed under this FMP have no significant recreational component.

(14) to the extent that rebuilding plans or other conservation and management measures which reduce the overall harvest in a fishery are necessary, allocate any harvest restrictions or recovery benefits fairly and equitably among the commercial, recreational, and charter fishing sectors in the fishery.

No alternative in this amendment addresses this provision.

(15) establish a mechanism for specifying annual catch limits in the plan (including a multiyear plan), implementing regulations, or annual specifications, at a level such that overfishing does not occur in the fishery, including measures to ensure accountability.

No alternative in this amendment addresses this provision. Amendment 13 to the MSB FMP will address this provision (Omnibus ACL/AM Amendment)

9.3 NEED FOR ESSENTIAL FISH HABITAT ASSESSMENT

The MSA / EFH Provisions (50 CFR 600.920(e)(3)) require that any Federal action which may adversely affect EFH must include a written assessment of the effects of that action on EFH. As summarized in Table 7 and as described in Section 7.3, there are not expected to be any adverse impacts on EFH.

10.0 Relationship to Other Applicable Law

10.1 NATIONAL ENVIRONMENTAL POLICY ACT (NEPA)

10.1.1 Introduction

In order to consider a full range of alternatives related to instituting limited access and other provisions in Amendment 11, the Council determined that the development of an EIS would be necessary to fulfill the requirements of NEPA. NEPA requires preparation of an Environmental Impact Statement (EIS) for major Federal actions that significantly affect the quality of the environment. The Council published a Notice of Intent (NOI) to prepare this Amendment and the EIS in the *Federal Register* on 3/4/2005. Because of other issues that the Council has had to deal with, consideration of mackerel limited access was delayed. An FR notice that limited access was being transferred to Amendment 11 was published on 12/19/2005. Another notice that an EIS was being developed was published in the FR on 2/27/2007, and an 8/11/2008 supplemental notice added ACLs/AMs (which have since been transferred to an Omnibus ACL/AM amendment), the processor cap, and EFH measures to the list of issues that might be considered in Am11. Comments on the latest FR notice are included in Appendix 1.

The primary purposes of Amendment 11 to the Atlantic Mackerel, Squid, and Butterfish (MSB) Fishery Management Plan (FMP) are to:

A) "**Cap Capacity**" - Establish a Cap on Capacity via Limited Access Based on Current and Range of Historical Participation that does not impede optimal U.S. utilization of the fishery.

B) "**Update EFH**" - Update MSB species' essential fish habitat (EFH) descriptions per National Marine Fisheries Service (NMFS) regulatory guidance on EFH designation review and updating.

C) "**Evaluate Gear Impacts on *Loligo* Egg EFH**" - Evaluate fishing-related impacts on *Loligo* egg EFH and if necessary, minimize (to the extent practicable) any adverse effects on *Loligo* egg EFH caused by fishing.

D) "**Establish Recreational Mackerel Allocation**" – While ACLs/AMs have been moved to an Omnibus ACL/AM Amendment, that Omnibus will need a hard quota/allocation established for the recreational sector as part of ACLs/AMs. A recreational allocation had been part of the original ACL/AM provisions, and is remaining in Amendment 11.

E) "**Avoid At-Sea Processing Problems**" - Avoid related potential problems, primarily negative fishing community impacts from disruption of supply of Atlantic mackerel to shoreside processors, but theoretically also including marine mammal interactions.

Potential measures being considered are as follows:

A) Cap Capacity

- **Alternative Set 1:** Alternatives to develop a tiered limited access system in the Atlantic mackerel fishery.
- **Alternative Set 2:** Alternatives to allocate quota to limited access Tiers based on historical landings.
- **Alternative Set 3:** Alternatives to specify trip limits for each Tier.
- **Alternative Set 4:** Alternatives to indicate Council intent on a variety of standard policy and administrative matters inherent in Northeast limited access systems needed to maintain consistency with other FMPs and to simplify management.

B) Update EFH

- **Alternative Set 5:** Alternatives to update the EFH definitions in the MSB FMP.

C) Evaluate Gear Impacts on *Loligo* Egg EFH

- There was minimal scientific information available on gear impacts to *Loligo* egg EFH. The available information suggested that gear impacts on *Loligo* egg EFH were minimal and/or temporary in nature so Amendment 11 does not contain alternatives regarding possible gear impacts to *Loligo* egg EFH.

D) Establish Recreational Mackerel Allocation

- **Alternative Set 6:** Alternatives to establish a recreational allocation based on historical landings to prepare for development of ACLs/AMs.

E) Avoid At-Sea Processing Problems

- **Alternative Set 7:** Alternatives to limit at-sea processing of Atlantic mackerel.

During the course of development of this amendment a number of issues were identified by stakeholders. First, the data ranges used to qualify participants have been controversial because the dates affect the numbers of qualifiers and have some regional impacts because of how mackerel abundance has varied over time. The Council has attempted to balance data issues with pre 1997 data with ensuring sufficient consideration of historical participation. In addition, some individuals have also questioned why the Council is pursuing Limited Access given the quota is not being harvested. Given quotas are currently predicted to decline to about half of current IOYs, the Council is pursuing Limited Access at this time in a proactive manner to avoid additional capitalization in the mackerel fishery

10.1.2 Development of EIS

The Council began the formal development of Amendment 11's EIS in 2008 following the publication of the supplemental NOI to prepare an EIS. The Council held a number meetings of its Squid, Mackerel, and Butterfish (SMB) Committee, and Amendment 11's Fishery

Management Action Team (FMAT). All of these meetings, as well as several related Council meetings, were open to the public.

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10.2 MARINE MAMMAL PROTECTION ACT (MMPA)

The MAFMC has reviewed the impacts of Amendment 11 on marine mammals and has concluded that the proposed management actions are consistent with the provisions of the MMPA, and will not alter existing measures to protect the species likely to inhabit the management unit. For further information on the potential impacts of the fishery and the proposed management action on marine mammals, see Section 7.4 of this document.

10.3 ENDANGERED SPECIES ACT (ESA)

A formal consultation on the MSB fisheries was completed in October 2010 and concluded that the operation of the MSB fisheries was not likely to jeopardize the continued existence of listed species and would not result in the destruction or adverse modification of designated critical habitat.

While ESA Section 7 consultations are required when the proposed action may affect listed species, a conference is required only when the proposed action is likely to jeopardize the continued existence of a proposed species or destroy or adversely modify proposed critical habitat. Therefore, a conference would be required if it was determined that the MSB fisheries, including implementation of Amendment 11, was likely to jeopardize one or more of the proposed five DPSs of Atlantic sturgeon or one or more of the nine DPSs of loggerhead sea turtles.

A biological assessment evaluates the potential effects of an action on listed and proposed species and designated and proposed critical habitat to determine whether any such species or habitat are likely to be adversely affected by the action. A biological assessment is used in determining whether formal consultation or a conference is necessary. A formal Section 7 consultation was completed in October 2010 which analyzed the effects of the MSB fisheries on listed species and designated critical habitat, including loggerhead sea turtles. For listed species, therefore, the actions under Amendment 11 have been analyzed in the informal consultation dated March 3, 2011, and it has been determined that they are not likely to cause an effect to listed species or critical habitat not considered in the October 2010 Biological Opinion.

One of the primary threats cited in NMFS' proposed listing for the five DPSs of Atlantic sturgeon is bycatch. The ASMFC analysis concluded that to remain stable or grow, populations of Atlantic sturgeon can sustain only very low anthropogenic sources of mortality. It is apparent, therefore, that should the proposed listing be finalized, reductions in bycatch mortality may be required in order to recover Atlantic sturgeon. Final listing determinations for the Atlantic sturgeon DPSs are expected by October 6, 2011. If final listing rules are published, they will likely become effective 30 days after publication. With the publication of a final listing rule, a Section 7 consultation would be required as the analysis conducted by the ASMFC and Stein et al. (2004a) demonstrate that the *Loligo* and butterfish fisheries may affect Atlantic sturgeon. Through that consultation process, the effects would be estimated and analyzed. At this point, because Atlantic sturgeon is a proposed species under the ESA, the question is whether the proposed action is likely to jeopardize the continued existence of the proposed species to determine the need for a conference.

Atlantic sturgeon is a proposed species only until a final listing determination is made. When a final listing determination is made, the proposed rules will either be withdrawn or final listing rules will be published. NMFS has considered whether the MSB fisheries, including implementation of Amendment 11, is likely to jeopardize the proposed Atlantic sturgeon DPSs and conclude that it is not in the timeframe between when the action is authorized and a listing determination is made in early October. While it is possible that there may be interactions between Atlantic sturgeon and gear used in the MSB fisheries, the number of interactions that will occur between now and until the time a final listing determination will be made (i.e. there were no observed mortalities in otter trawl gear during Quarters 2 and 3 from 2006-2010) is not likely to cause an appreciable reduction in survival and recovery for any of the five DPSs.

Serious injuries and mortalities of Atlantic sturgeon in commercial fishing gear are a likely concern for the long term persistence and recovery of the DPSs and were a primary reason cited for the proposals to list the DPSs under the ESA. If final listing determinations are issued, the existing Section 7 consultation for the MSB fisheries would need to be reinitiated consistent with the requirement to reinitiate formal consultation where discretionary Federal agency involvement or control of the action has been retained and a new species is listed that may be affected by the action. During the reinitiation, the effects of the MSB fisheries on the five DPSs would be fully examined.

That October 2010 Biological Opinion for the MSB fisheries concluded that MSB fisheries may affect, but was not likely to jeopardize, loggerhead sea turtles. An incidental take statement and associated reasonable and prudent measures and terms and conditions were included with that Biological Opinion. In reaching that conclusion, the Biological Opinion considered the effect of the estimated take on nesting beach aggregations and ultimately to the global species as listed. The difference between the analysis contained in the October 2010 Biological Opinion and that conducted for the proposed species would be that it was conducted at the level of the global species and it was conducted for a species listed as threatened whereas the proposal is for nine DPSs, two of which are proposed to be listed as threatened and seven to be listed as endangered.

The Northwest Atlantic DPS is the one affected the most by the MSB fisheries and it is proposed to be listed as endangered. It is important to note that the effects analysis was conducted by examining the estimated number of takes against what is known about the biological status of loggerhead sea turtles and did not explicitly include any specific variable that would be affected by the listing status (e.g. threatened or endangered). Since the October 2010 Biological Opinion considered effects at the nesting beach aggregation level first and then aggregated up to consider effects at the species level, an analysis considering effects at the DPS rather than species level and on an endangered rather than threatened species would not change the jeopardy conclusion of that Biological Opinion. Therefore, we conclude that a conference for the proposed loggerhead DPSs is not required.

10.4 COASTAL ZONE MANAGEMENT ACT

Section 307(c)(1) of the Federal CZMA of 1972 requires that all Federal activities that directly affect the coastal zone be consistent with approved state coastal zone management programs to the maximum extent practicable. Pursuant to the CZMA regulations at 15 CFR 930.35, a negative determination may be made if there are no coastal effects and the subject action: (1) Is identified by a state agency on its list, as described in § 930.34(b), or through case-by-case monitoring of unlisted activities; or (2) which is the same as or is similar to activities for which consistency determinations have been prepared in the past; or (3) for which the Federal agency undertook a thorough consistency assessment and developed initial findings on the coastal effects of the activity. Accordingly, NMFS has determined that this action would have no effect on any coastal use or resources of any state. Letters documenting the NMFS negative determination, along with this document, will be sent to the coastal zone management program offices of the states of Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, Delaware, Maryland, Virginia, North Carolina, South Carolina, Georgia, and Florida. A list of the specific state contacts and a copy of the letters will be made available upon request.

10.5 ADMINISTRATIVE PROCEDURES ACT

Section 553 of the Administrative Procedure Act establishes procedural requirements applicable to informal rulemaking by Federal agencies. The purpose of these requirements is to ensure public access to the Federal rulemaking process, and to give the public adequate notice and opportunity for comment. At this time, the Council is not requesting any abridgement of the rulemaking process for this action.

10.6 INFORMATION QUALITY ACT

Utility of Information Product

The proposed document includes: A description of the management issues, a description of the alternatives considered, and the reasons for selecting the management measures, to the extent that this has been done. These actions propose modifications to the existing FMP. These proposed modifications implement the FMP's conservation and management goals consistent with the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) as well as all other existing applicable laws.

This proposed amendment was developed as part of a multi-stage process that involves review of the amendment document by affected members of the public. The public had the opportunity to review and comment on management measures at public hearings after the Council approved the public hearing document/DEIS. There will also be a comment period for the FEIS. The Federal Register notice that announces the proposed rule and the implementing regulations will be made available in printed publication and on the website for the Northeast Regional Office. The notice provides metric conversions for all measurements.

Integrity of Information Product

The information product meets the standards for integrity under the following types of documents:

Other/Discussion (e.g., Confidentiality of Statistics of the Magnuson-Stevens Fishery Conservation and Management Act; NOAA Administrative Order 216-100, Protection of Confidential Fisheries Statistics; 50 CFR 229.11, Confidentiality of information collected under the Marine Mammal Protection Act.)

Objectivity of Information Product

The category of information product that applies for this product is “Natural Resource Plans.”

In preparing documents which amend the FMP, the Council must comply with the requirements of the Magnuson-Stevens Act, the National Environmental Policy Act, the Regulatory Flexibility Act, the Administrative Procedure Act, the Paperwork Reduction Act, the Coastal Zone Management Act, the Endangered Species Act, the Marine Mammal Protection Act, the Data Quality Act, and Executive Orders 12630 (Property Rights), 12866 (Regulatory Planning), 13132 (Federalism), and 13158 (Marine Protected Areas).

This amendment was developed to comply with all applicable National Standards, including National Standard 2. National Standard 2 states that the FMP's conservation and management measures shall be based upon the best scientific information available. Despite current data limitations, the conservation and management measures proposed to be implemented under this amendment are based upon the best scientific information available. This information includes NMFS dealer weighout data for 2007, which was used to characterize the economic impacts of the management proposals. These data, as well as the NMFS Northeast Fisheries Observer Program (NEFOP) database, were used to characterize historic landings, species co-occurrence in the MSB catch, and discarding. The specialists who worked with these data are familiar with the most recent analytical techniques and with the available data and information relevant to the MSB fisheries. Marine Recreational Fisheries Statistical Survey (MRFSS) data were used to characterize the recreational fishery for Atlantic mackerel (the only species managed under this FMP with a significant recreational component).

The policy choices (i.e., management measures) proposed to be implemented by this amendment document are supported by the available scientific information and, in cases where information was unavailable, proxy reference points are based on observed trends in survey data. The management measures contained in the specifications document are being designed to meet the conservation goals and objectives of the FMP, and prevent overfishing and rebuild overfished resources, while maintaining sustainable levels of fishing effort to ensure a minimal impact on fishing communities.

The supporting materials and analyses used to develop the measures in the amendment are contained in the amendment document and to some degree in previous amendments and/or FMPs as specified in this document.

The review process for this amendment involves the Mid-Atlantic Fishery Management Council, the Northeast Fisheries Science Center, the Northeast Regional Office, and NOAA Fisheries headquarters. The Center's technical review is conducted by senior level scientists with specialties in population dynamics, stock assessment methods, demersal resources, population biology, and the social sciences. The Council review process involves public meetings at which affected stakeholders have the opportunity to provide comments on the document. Review by staff at the Regional Office is conducted by those with expertise in fisheries management and policy, habitat conservation, protected species, and compliance with the applicable law. Final approval of the amendment document and clearance of the rule is conducted by staff at NOAA Fisheries Headquarters, the Department of Commerce, and the U.S. Office of Management and Budget.

10.7 PAPERWORK REDUCTION ACT

The Paperwork Reduction Act (PRA) concerns the collection of information. The intent of the PRA is to minimize the Federal paperwork burden for individuals, small businesses, state and local governments, and other persons as well as to maximize the usefulness of information collected by the Federal government. There are generally no changes to the existing reporting requirements previously approved under this FMP for dealer reporting. Alternative 4G does consider additional reporting options for Tier 3 including VMS or IVR trip notifications, weekly VTR submission, and/or weekly IVR catch reporting. These would be considered in the cases where many vessels were part of Tier 3, i.e. if 1C or if 1D was selected in order to monitor the cap on Tier 3 that is also proposed. If selected, the measures considered in 4G would be evaluated per the PRA as appropriate.

10.8 IMPACTS RELATIVE TO FEDERALISM/E.O. 13132

This amendment does not contain policies with federalism implications sufficient to warrant preparation of a federalism assessment under Executive Order (EO) 13132.

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10.9 ENVIRONMENTAL JUSTICE/E.O. 12898

This EO provides that "each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations." EO 12898 directs each Federal agency to analyze the environmental effects, including human health, economic, and social effects of Federal actions on minority populations, low-income populations, and Indian tribes, when such analysis is required by NEPA. Agencies are further directed to "identify potential effects and mitigation measures in consultation with affected communities, and improve the accessibility of meetings, crucial documents, and notices."

The alternatives in this amendment are not expected to significantly affect participation in the MSB fisheries. Since the amendment represents no changes relative to the current level of participation in this fishery relative to recent levels (i.e., last ten years), no negative economic or social effects are anticipated as a result (section 7.5). Therefore, the proposed action is not expected to cause disproportionately high and adverse human health, environmental or economic effects on minority populations, low-income populations, or Indian tribes.

10.10 Regulatory Flexibility Act/E.O. 12866

10.10.1 Regulatory Impact Review and Initial Regulatory Flexibility Analysis (IRFA)

This section provides the analysis and conclusions to address the requirements of Executive Order 12866 and the Regulatory Flexibility Act (RFA). Since many of the requirements of these mandates duplicate those required under the Magnuson-Stevens Act and NEPA, this section contains references to other sections of this document. The following sections provide the basis for concluding that the proposed actions are not significant under E.O. 12866 and will not have a significant economic impact on a substantial number of small entities under the RFA.

10.10.2 Description of Management Objectives

The goals and objectives of the management plan for the MSB resources are stated in Section 4.3 of this document. The proposed actions are consistent with, and do not modify those goals and objectives.

10.10.3 Description of the Fisheries

Section 6.1 of this document contains a detailed description of the fisheries managed under this FMP.

10.10.4 Statement of Problem/Need for Action

The purpose and need for this action is identified in Section 4.1 of this document. The general purposes of this amendment is to achieve the management objectives of the Atlantic mackerel, squid and butterfish FMP as outlined in Section 4.2, as well as to:
A) "**Cap Capacity**" **-** Establish a Cap on Capacity via Limited Access Based on Current and Range of Historical Participation that does not impede optimal U.S. utilization of the fishery.

B) "**Update EFH**" **-** Update MSB species' essential fish habitat (EFH) descriptions per National Marine Fisheries Service (NMFS) regulatory guidance on EFH designation review and updating.

C) "**Evaluate Gear Impacts on *Loligo* Egg EFH**" **-** Evaluate fishing-related impacts on *Loligo* egg EFH and if necessary, minimize (to the extent practicable) any adverse effects on *Loligo* egg EFH caused by fishing.

D) "**Establish Recreational Mackerel Allocation**" **–** While ACLs/AMs have been moved to an Omnibus ACL/AM Amendment, that Omnibus will need a hard quota/allocation established for the recreational sector as part of ACLs/AMs. A recreational allocation had been part of the original ACL/AM provisions, and is remaining in Amendment 11.

E) "**Avoid At-Sea Processing Problems**" - Avoid related potential problems, primarily negative fishing community impacts from disruption of supply of Atlantic mackerel to shoreside processors, but theoretically also including marine mammal interactions.

10.10.5 Description of the Alternatives

Potential measures being considered are as follows:

A) Cap Capacity

- **Alternative Set 1:** Alternatives to develop a tiered limited access system in the Atlantic mackerel fishery.
- **Alternative Set 2:** Alternatives to allocate quota to limited access Tiers based on historical landings.
- **Alternative Set 3:** Alternatives to specify trip limits for each Tier.
- **Alternative Set 4:** Alternatives to indicate Council intent on a variety of standard policy and administrative matters inherent in Northeast limited access systems needed to maintain consistency with other FMPs and to simplify management.

B) Update EFH

- **Alternative Set 5:** Alternatives to update the EFH definitions in the MSB FMP.

C) Evaluate Gear Impacts on *Loligo* Egg EFH

- There was minimal scientific information available on gear impacts to *Loligo* egg EFH. The available information suggested that gear impacts on *Loligo* egg EFH were minimal and/or temporary in nature so Amendment 11 does not contain alternatives regarding possible gear impacts to *Loligo* egg EFH.

D) Establish Recreational Mackerel Allocation

- **<u>Alternative Set 6</u>:** Alternatives to establish a recreational allocation based on historical landings to prepare for development of ACLs/AMs.

E) Avoid At-Sea Processing Problems

- **<u>Alternative Set 7</u>:** Alternatives to limit at-sea processing of Atlantic mackerel.

10.10.6 Economic Analysis

The economic impacts of the alternatives in this amendment are discussed in Section 7.5 of this document. Because of the design of the alternatives, it is not anticipated that there will be significant impacts on the fishery compared to how it has operated in recent history. If a 2005 control date is utilized (Alternatives 1D and 1E) there are approximately 8 vessels that could have more constraints compared to their recent landings. The potential impacts on these vessels are described in 7.5.1, "Impact of Control Date."

10.10.7 Determination of Significance under E.O. 12866

NMFS Guidelines provide criteria to be used to evaluate whether a proposed action is significant. A significant regulatory action means any regulatory action that is likely to result in a rule that may:

1. *Have an annual effect on the economy of $100 million or more, or adversely effect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or State, local or tribal governments or communities.*

The proposed actions are not expected to have an effect on the economy in excess of $100 million. The proposed actions are not expected to have any adverse impacts on the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or state, local or tribal governments or communities.

2. *Create a serious inconsistency or otherwise interfere with an action taken or planned by another agency.*

The proposed actions will not create a serious inconsistency with or otherwise interfere with an action taken or planned by another agency. No other agency has indicated that it plans an action that will interfere with the MSB fisheries in the EEZ.

3. *Materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights and obligations of recipients thereof.*

The proposed action will not materially alter the budgetary impact of entitlements, grants, user fees or loan programs, or the rights and obligations of their participants.

4. *Raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in the Executive Order.*

The proposed action does not raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in E.O. 12866.

10.10.8 Initial Regulatory Flexibility Analysis

The following sections contain analyses of the effect of the proposed action on small entities. Under Section 603(b) of the RFA, each initial regulatory flexibility analysis is required to address:

1. Reasons why the agency is considering the action,
2. The objectives and legal basis for the proposed rule,
3. The kind and number of small entities to which the proposed rule will apply,
4. The projected reporting, record-keeping and other compliance requirements of the proposed rule, and
5. All Federal rules that may duplicate, overlap, or conflict with the proposed rule.

10.10.9 Reasons for Considering the Action

The needs and purposes for action are described in Section 5 of this document.

10.10.10 Objectives and Legal Basis for the Action

Amendment 11 was developed in accordance with the Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA) and the National Environmental Policy Act (NEPA), the former being the primary domestic legislation governing fisheries management in the U.S. Exclusive Economic Zone (EEZ). In 1996, Congress passed the Sustainable Fisheries Act (MSA), which amended and reauthorized the MSFCMA and included a new emphasis on precautionary fisheries management. New provisions mandated by the MSA require managers to end overfishing and rebuild overfished stocks within specified time frames, minimize bycatch and bycatch mortality to the extent practicable, and identify and protect essential fish habitat (EFH). This document presents and evaluates management alternatives and measures to achieve specific goals and objectives for the Atlantic mackerel, squid and butterfish fisheries (Section 4.0). The associated document was prepared by the Mid-Atlantic Fishery Management Council (Council) in consultation with the National Marine Fisheries Service (NMFS, NOAA Fisheries).

10.10.11 Description and Number of Small Entities to Which the Rule Applies

The mackerel fishery is the only fishery directly affected by Amendment 11. All of the potentially affected businesses are considered small entities under the standards described in

NOAA Fisheries guidelines because they have gross receipts that do not exceed $4 million annually. Since mackerel is currently open access, any vessel could currently get a permit and fish for mackerel in an unlimited manner subject to the constraints of the quota. In this sense anyone who might even want to fish for mackerel could be impacted by Amendment 11. However, for the purposes of this analysis the universe of potentially impacted small entities are those vessels with a federal mackerel permit since they have at least demonstrated intent to catch mackerel. There were 2622 vessels that had federal mackerel permits at some point in 2007. Of these, all had ex-vessel revenues under $4 million in 2007. There were 2331 such vessels in 2010.

The Small Business Administration (SBA) size standard for commercial fishing (NAICS code 114111) is $4 million in sales. Available data indicate that no single fishing entity earned more than $4 million annually. Although we acknowledge there are likely to be entities that, based on rules of affiliation, would qualify as large business entities, due to lack of reliable ownership affiliation data we cannot apply the business size standard at this time. Data are currently being compiled on vessel ownership that should permit a more refined assessment and determination of the number of large and small entities in the mackerel fishery for future actions. For this action, since available data are not adequate to identify affiliated vessels, each operating unit is considered a small entity for purposes of the RFA, and, therefore, there is no differential impact between small and large entities.

10.10.12 Recordkeeping and Reporting Requirements

Alternative 4G considers additional reporting options for Tier 3 including VMS or IVR trip notifications, weekly VTR submission, and/or weekly IVR catch reporting. These would be considered in the cases where many vessels were part of Tier 3, i.e. if 1C or if 1D (preferred) was implemented in order to monitor the cap on Tier 3 that is also proposed.

The Proposed Action introduces one new reporting requirement. Owners of vessels who plan to apply for any limited access mackerel permit, and owners of vessels that sank or were destroyed and can meet the current permit eligibility requirement for a limited access permit, will be required to submit to NMFS application materials that support their request to receive a limited access permit.

10.10.13 Duplication, Overlap, or Conflict with Other Federal Rules

The proposed action does not duplicate, overlap or conflict with any other Federal rules.

10.10.14 Economic Impacts on Small Entities

Section 7.5 of this document contains the economic analysis of the alternatives that are being considered in this amendment. The proposed management measures are not expected to cause significant economic impacts to the vast majority of small entities because the measures are designed to preserve current and historical access, not reduce access to existing participants. Vessels that have been fishing mackerel within the last 10 years would be unlikely to have their fishing significantly impacted as a result of the proposed management measures. If a 2005 control date is utilized (Alternatives 1D and 1E) there are approximately 8 vessels that could have more constraints compared to their recent landings. All of these 8 vessels are small entities. The potential impacts on these vessels are described in 7.5.1, "Impact of Control Date."

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12.0 Appendix 1 - Comments

Appendix 1 Part A: Supplemental NOI Comments

Letters begin on next page.

September 10, 2008

Sustainable Fisheries Division
Northeast Regional Office, NMFS
One Blackburn Drive
Gloucester, MA 01930
Sent via fax (978) –281-9135

Scoping Comments on Supplemental NOI for Amendment 11: Fisheries of the Northeastern United States; Atlantic Mackerel, Squid, and Butterfish Fisheries; Amendment 11 (73 46590-46591).

We are writing to you on behalf of Cape Seafoods, Inc. (Gloucester, MA), Lund's Fisheries, Inc. (Cape May, NJ) and Northern Pelagic Group, LLC. (New Bedford, MA). These companies have made significant investments that make it possible for the offloading, processing and marketing of Atlantic mackerel and service the many fishing vessels that rely upon these facilities. Representatives of these companies actively participate in the fishery management council process and sit on the advisory panels where these fishery management plans are developed.

Limited Access Program for Atlantic Mackerel

We are encouraged that the Mid-Atlantic Fishery Management Council (MAFMC) is recommending a qualification period for limited access that would not utilize the control date of July 5, 2002. Not only has there been a significant amount of time since the control date was implemented but the recent development and investment in this fishery after that date accounts for approximately two-thirds of the current total landings. Utilizing a control date that is six years old would remove current participants into the fishery and insure that the U.S. fishery does not harvest its optimum yield.

The Agency should support the MAFMC decision to consider the present participation in the fishery, historical participation and dependence on the fishery when developing a limited access program for the Atlantic mackerel fishery. If a limited access program is developed contrary to these requirements a situation could arise that leaves the U.S. fishing industry at a severe disadvantage to the Canadian industry and perhaps make TALFF or JVP with European countries possible.

The implementation of annual catch limits (ACLs) and accountability measures (AMs) for Atlantic mackerel

We believe that a statutory exemption from ACL's and ACM's should be provided for trans-boundary stocks such as Atlantic mackerel. The U.S. is unable to control harvesting amounts of Atlantic mackerel by other nations on the same stock of fish that are found within the U.S. EEZ and into the territorial waters of Canada. Given this situation any additional measures to reduce U.S. catch would only serve as a disadvantage to the U.S. commercial fishing industry.

Limitations on At-Sea Processing

We request the Agency prohibit offshore processing by vessels greater than 165 feet and deny future applications from such vessels to conduct offshore processing in the Atlantic mackerel fishery. The arrival of offshore processing vessels entering the Atlantic mackerel fishery remains a serious concern. It would have a serious negative economic impact on shoreside facilities to the point where it may reduce long-term profitability, leaving fishing vessels without a facility to land product. Shoreside processing facilities remain the most consistent, safe and convenient option for fishing vessels participating in the Atlantic mackerel fishery.

Update of the description and identification of essential fish habitat (EFH) for all life stages of mackerel, *Loligo* squid, *Illex* squid, and butterfish

Essential Fish Habitat descriptions found in Amendment 8 to the SMB FMP describes EFH throughout all life stages for these 4 species essentially as… "pelagic water found over the Continental Shelf (from the coast out to the limits of the EEZ), from the Gulf of Maine through Cape Hatteras, North Carolina". According to the FMAT meeting notes of January 22, 2008, Mr. Dave Stevenson, raised questions about the data used to develop the original EFH maps and descriptions contained in Amendment 8. In addition to these concerns there was a request that the MAFMC should consider adding areas off the continental slope beyond the extent of the NMFS trawl survey.

We are concerned that further designation of EFH would be done without the proper scientific evidence to support such a designation and we would like the concerns about the current EFH designations clearly articulated.

- What concerns does the FMAT have regarding the original descriptions and EFH maps contained in Amendment 8?

- Given the extent of the current EFH definitions found in Amendment 8, plus the recent description of Loligo egg EFH, how can EFH for theses species be described or identified further?

- How can EFH be described for any species that is currently beyond the extent of the NMFS trawl survey, including areas off of the continental slope?

Update of the description and identification of gear impacts on *Loligo* egg EFH

The Agency makes it perfectly clear in the final rule for Amendment 9 that further action to protect *Loligo* egg EFH is required and would need to be evaluated, and if necessary, minimized in a future management action. According to the FMAT meeting notes of January 22, 2008, Mr. Dave Stevenson stated that a revised gear effects analysis would not be needed because a new analysis was just completed as part of Amendment 9 but that Amendment 11 will need to address potential impacts of the SMB fishery or any other federally managed species on *Loligo* egg EFH.

We are particularly concerned that the management measures will include mobile gear prohibitions. The impacts of mobile gear closures will have serious negative impacts on many fisheries. In addition we believe that the Agency will take further action to protect *Loligo* egg EFH based upon the findings stated in the Amendment 9 Final Supplemental Environmental Impact Analysis, which states the following vague conclusion, " *Based on examination of* *research studies of gear effects on habitat described in this section 6.3.3, bottom-tending mobile gears and bottom tending static gear are the only gear types expected to impact bottom habitat or EFH.*" Clearly this does not qualify as the best scientific information.

- Is Amendment 11 going to evaluate whether if further action is needed to protect *Loligo* egg EFH?
- What new information or analysis will be included in Amendment 11 to determine if trawling for squid, mackerel or butterfish has been shown to adversely impact EFH in a manner that is more than minimal or more than temporary in nature?
- Will additional analysis be conducted to determine the possible impact of trawling on *Loligo* egg EFH?
- Besides the conclusion of the current literature and the results of another literature search how will the potential impact of the MSB fishery be assessed?
- How will the potential impacts be assessed without conducting a scientific experiment to determine the impacts of the MSB fishery?
- Will prohibitions on mobile gear be used to address possible impacts to *Loligo* egg EFH?

We appreciate the opportunity to comment and we will continue to participate in the development of Amendment 11.

Sincerely

Greg P. Di— for the following:

Brady Schofield ✓
NORPEL
New Bedford, MA

Dave Ellenton ✓
Cape Seafoods
Gloucester, MA

Jeff Reichle ✓
Lunds's Fisheries
Cape May, NJ

Marine Fish Conservation Network
4189 SE Division
Portland, OR 97202
www.ConserveFish.org

urgent

facsimile

To:	**Sustainable Fisheries Division, NERO, NMFS**
Fax Number:	1-978-281-9135

From:	**Tony DeFalco**
Fax Number:	503-230-0903
Business Phone:	503-234-3505
Home Phone:	

Pages:	6
Date/Time:	9/10/2008 3:26:49 PM
Subject:	Scoping Comments on Supplemental NOI for Amendment 11

Note: 2 Copies of this letter were received from officers of the organization.

marine fish conservation network

September 10, 2008

VIA E-MAIL AND FACSIMILE

Sustainable Fisheries Division
Northeast Regional Office
National Marine Fisheries Service
One Blackburn Drive
Gloucester, MA 01930
MSBAmendment11@noaa.gov

RE: Scoping Comments on Supplemental NOI for Amendment 11

To Whom It May Concern:

The Marine Fish Conservation Network (Network) appreciates the opportunity to comment on the Supplemental Notice of Intent (NOI) for Amendment 11 to the Atlantic mackerel, squid, and butterfish fishery management plan. The Network is the nation's largest fish conservation organization with nearly 200 member organizations representing commercial and recreational fishing organizations, environmental groups, and marine science groups and aquariums. Collectively, the Network membership comprises five million individuals and seeks to achieve healthy oceans and productive fisheries.

The Network applauds the Mid-Atlantic Fishery Management Council (council) for proposing to include issues such as essential fish habitat, limiting at sea-processing, accountability measures, and annual catch limits in Amendment 11, however these issues do not encompass all the immediate concerns surrounding the Atlantic mackerel resource and the fishery. As the NOI prescribes, the Network strongly encourages the council to consider the following issues that are in the best interest of the fish, fishing communities, and the nation.

NATIONAL OFFICE: 600 PENNSYLVANIA AVENUE, SE • SUITE 210 • WASHINGTON, D.C., 20003
MID-ATLANTIC OFFICE: P.O. BOX 601 • HARRISBURG, PENNSYLVANIA 17108
PHONE: (717) 221-0148 • FAX: (717) 221-0142
WWW.CONSERVEFISH.ORG

Delay development of any limited access program until the 2009 stock assessment is completed.

While significant attention and resources have been spent determining the validity and efficacy of developing a limited access program for the Atlantic mackerel fishery, it would be imprudent for the council to establish a quota based on historical landings given the stock uncertainty. The results of a stock assessment may paint a different picture with respect to stock abundance, especially since the 2009 assessment will be the first time that the U.S. and Canada are assessing the stock jointly. The stock's distribution has changed substantially in recent years, moving northward and offshore resulting in increased Canadian landings. This trend underscores the importance of the data that will result from the collaborative assessment. The limited access program under consideration would prematurely memorialize the status quo in terms of fishing capacity, at a time when there is substantial uncertainty about the status of the resource, both in terms of the fishing it can sustain and its role in the ecosystem.

The Network does believe the council should act immediately in Amendment 11 to prevent any further increase in excess capacity, which is currently estimated to be in the range of 12-38%.[1] Rather than a limited access program which locks in a capacity model, we encourage the council to enact a moratorium on new permits. This may help to solve the issue of overcapitalization and could serve as a placeholder until the stock assessment is completed.

Incorporating the results of the 2009 stock assessment will likely put the council in a much stronger position to develop a limited access program that may lay the groundwork for a limited access privilege program in the future. Moreover, the stock assessment would also provide valuable information for the council to use in developing an ecosystem-based approach to managing Atlantic mackerel, noting the importance of bycatch species such as river herring and other non-target pelagic stocks in the ocean food web.

Establish 1983 - 2002 as the control period to qualify for the Atlantic mackerel limited access program.

If the council chooses to move forward with the limited access program, it should honor its prior establishment of a control date as noticed in the Federal Register of July 5, 2002. The control date notified anyone who was interested in participating in the mackerel fishery that July 5, 2002 was the control date and could be used "as eligibility criteria for determining levels of future access to the Atlantic mackerel fishery subject to Federal authority." That the public was notified provides the council and the National Marine Fisheries Service with ample authority to exercise their prerogative and establish a control date to determine eligibility. Individuals who entered into the mackerel fishery after July 5, 2002 did so knowing the risk. With Tier I vessels catching most of the quota, the council and NMFS need to limit vessels from entering an already overcapitalized fishery.

Adopting a start date of 1983 and a cut off date of 2002 is reasonable given that Tier I vessels increased by 13 vessels from 2002 to 2007, a period which saw significant increase in quota and landed quota for all years except 2003 and 2007. The high efficiency at which large industrial fishing vessels can target a stock has to be seriously considered. To the extent that a control date limits vessels that have the capacity to harvest vast quantities of Atlantic mackerel, when a stock assessment is not yet completed for the population, a control date is the right action for the council and NMFS to use to control an overcapitalized fishery. The Network proposes a start date of 1983 to allow historical participation and to address any inequalities that may result from a fishery that did not require reporting until 1997.

Address ecosystem concerns and species of concern.

For use in the upcoming stock assessment, the Network urges the council to collaborate with the Northeast Science Center to determine the extent to which other predator fish, sea birds, and marine mammals depend on Atlantic mackerel to satisfy dietary requirements. A recent study of Atlantic herring consumption conducted by Overholtz and Link (2007) has provided valuable insights for long term management of the resource in a manner that allocates an adequate supply of herring for dependent predator groups.[2] A similar examination of Atlantic mackerel consumption would be of great value to the council and is consistent with the National Marine Fisheries Service's intent to move toward an ecosystem-based management approach.

The Network is particularly concerned that the environmental assessment being prepared does not analyze the impacts of the fishery on the target species, Atlantic mackerel, as a forage fish, or to other forage fish species taken as substantial bycatch in the Atlantic mackerel fishery, namely shad and river herring. In response to the declining populations of two river herring species -- alewife and blueback herring – the National Marine Fisheries Service designated both Species of Concern in 2006.[3] Today, the status of river herring is unknown.

Pursue conservation management measures outlined by the Atlantic States Marine Fisheries Commission.

The Atlantic States Marine Fisheries Commission (ASMFC) is currently exploring measures to reduce at-sea bycatch in multiple amendments to the shad and river herring management plan. Reducing at-sea bycatch of these species, through increased catch sampling, monitoring, reporting, and closed areas, is a prominent feature of these amendments, and the council should develop management measures to support the ASMFC recommendations, and encourage complimentary action in federal waters.

Reduce river herring bycatch.

Observer coverage in the Atlantic mackerel fishing fleet is around three to six percent, making accurate estimates of bycatch difficult.[4] One estimate suggests that 40 million pounds of blueback herring were caught as bycatch in 2002.[5] However, more mackerel were landed in 2006 (49 percent of the quota versus 31 percent in 2002), so this figure may likely be higher in subsequent years.

The council should require industry to share a greater responsibility for the costs related to observer coverage by increasing the number of trips where observers are required in the Atlantic mackerel fishery. The council should caution against the legal practice of dumping catch at sea to avoid reporting it as bycatch. This practice, coupled with low observer coverage, leads to unreported bycatch.

Ensure a full scoping of Amendment 11.

As evidenced by the recent groundswell of support for a stronger NEPA regulation that upholds the long-standing tradition of public input and opportunity to comment on actions that may significantly impact on the environment and public health, the Network strongly encourages the council to let the NEPA process work. For example, Amendment 11, as presented in the original NOI published in 2005, previously only envisioned the development of a limited access program. Scoping meeting were held prior to the council choosing to address essential fish habitat, annual catch limits and accountability measures, and limits on at-sea processing. Stakeholders should be given ample opportunity to comment on these important issues, yet not a singe hearing was scheduled prior to the deadline date to comment on the current NOI. Without providing for a thorough scoping process, the council is foregoing an important opportunity to reach out to its constituents on these and other matters surrounding the mackerel fishery. At-sea mortality of river herring is one example of an issue that is very important to stakeholders in the Mid-Atlantic that requires immediate attention, yet the council has not addressed this issue to date.

The Network recognizes that delaying Amendment 11 is not an option given the council calendar and the resources needed to implement MSA regulations and a congressional mandate to assess stocks by a date certain. Still, the Network urges deliberations and a dialogue on the items mentioned herein. Moving forward with Amendment 11 with a major emphasis on a limited access program in advance of a new stock assessment will lock in fishing effort at current levels, while the public along with other agencies (e.g., ASMFC) have raised concerns about bycatch in the mackerel trawl fisheries and the need to set total allowable catches that account for predation demand.

Thank you for the opportunity to comment. I can be reached at (717) 221-0148 or bmountcastle@conservefish.org in the event you have additional questions.

Sincerely,

Brooks Mountcastle

Brooks Mountcastle
Mid-Atlantic Regional Representative

cc: Daniel Furlong, Executive Director, MAFMC

---

[1] NMFS. 2008. Excess Harvesting Capacity in U.S. Fisheries: A Report to Congress. http://www.nmfs.noaa.gov/msa2007/docs/042808_312_b_6_report.pdfu

[2] Overholtz, W.J. & Link, J.S. 2007. Consumption impacts by marine mammals, fish, and seabirds on the Gulf of Maine-Georges Bank Atlantic Herring (Clupea harengus) complex during 1977-2002. ICES J. Mar. Sci. 64:83-96.

[3] NMFS. 2007. Species of concern: river herring. http://www.nmfs.noaa.gov/msa2007/docs/042808_312_b_6_report.pdf

[4] Herring Alliance. 2007. Empty rivers: the decline of river herring and the need to reduce mid-water trawl bycatch. www.herringalliance.org

[5] Harrington, J.M., *et al.* 2005. Wasted resources: bycatch and discards in U.S. fisheries. Prepared by MRAG Americas, Inc. for Oceana.

Subject: publiccomment on federal register attached below in full
From: bk1492@aol.com
Date: Mon, 11 Aug 2008 17:35:49 -0400
To: MSBAmendment11@noaa.gov, americanvoices@mail.house.gov, comments@whitehouse.gov, bluewater@bluewaternetwork.gov

the scandal plagued us dept of commerce, focused on business and industry and certainly not pro environmental noaa agency has a plan on atlantic mackeral, squid butterfish, which have been virturally fished out of existence. this agency has failed to implement magnuston stevens for the past 50years, allowing commercial fishing profiteers to take all they wanted to take, with no discipline, no enforcement, no inspection. they relied on these same fishing profiteers to give reports on how much was left - when the lying by these commercial profiteers was enormous and artificial and corrupt in these status reports. all takings of this fish species should be banned by all commercial fishing profiteers. our children deserve better than the raping of the fish stocks which has been allowe3d by this scandal filled dept run by lobbyists who want fists full of money and take those bribes.
there is no honor in this agency, just bribery and corruption in sin city washington dc. the guys monitoring the agency take long vacation trips where they decide how much they are going to allow fishing profiteers to take-its all a big mess. an absolute mess in this industry and in the govt agency that was supposed to be representing the general public, but instead represented the industry it was supposed to govern.

b sachau
15 elm st
florham park nj07932

[Federal Register: August 11, 2008 (Volume 73, Number 155)][Notices] [Page 46590-46591]From the Federal Register Online via GPO Access [wais.access.gpo.gov][DOCID:fr11au08-34]
---DEPARTMENT OF COMMERCENational Oceanic and Atmospheric AdministrationRIN 0648-AX05Fisheries of the Northeastern United States; Atlantic Mackerel, Squid, and Butterfish Fisheries; Amendment 11AGENCY: National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.ACTION: Supplemental Notice of Intent (NOI) to prepare an environmental impact statement (EIS); reque f mackerel, Loligo squid (Loligo), Illex squid (Illex), and butterfish (including gear impacts on Loligo egg EFH); and possible limitations on at-sea processing of mackerel. For purposes of scoping, this supplemental NOI seeks comments on only the above listed new measures that may be included in Amendment 11. Additional scoping will take place via solicitation of public comment at Council meetings and related Council committee meetings as Amendment 11 is considered and developed.DATES: Public comments on the supplemental NOI for Amendment 11 must be received on or before 5 p.m., local time, September 10, 2008.ADDRESSES: Written comments on the supplementary notice of intent for Amendment 11 may be sent by any of the following methods: E-mail to the following address: MSBAmendment11@noaa.gov;[[Page 46591]] Mail to Sustainable Fisheries Division, Northeast Regional Office, NMFS, One Blackburn Drive, Gloucester, MA 01930. Mark the outside of he development of Amendment 9, the Council notified the public on December 19, 2005 (70 FR 75114), that the mackerel limited access program would be considered in Amendment 11. The Council subsequently notified the public on February 27, 2007 (72 FR 8693), that it would begin the development of Amendment 11 and the associated SEIS simultaneously with the development of Amendment 10 to the MSB FMP.Additional Issues Under ConsiderationDuring the course of the development of Amendment 11, the Council has identified three additional issues that may be considered in this amendment, in addition to mackerel limited entry. The first issue is implementation of ACLs and accountability measures AMs for mackerel and butterfish. The MSRA requires that fishery management plans contain a mechanism for specifying ACLs such that overfishing does not occur in the fishery, including measures to ensure accountability (AMs). Examples of AMs include in-season closures or pay-back provisions in cases of ov etings and public comment periods required by the National Environmental Policy Act, the MSRA, and the Administrative Procedure Act. To date, the location and/or timing of these meetings and comment periods has yet to be finalized, but appropriate notice of them will be published in the Federal Register.Authority: 16 U.S.C. 1801 et seq.Dated: August 6, 2008.James P. Burgess,Acting Director, Office of Sustainable Fisheries, National Marine Fisheries Service.[FR Doc. E8-18489 Filed 8-8-08; 8:45 am]BILLING CODE 3510-22-S

Appendix 1 Part B: DEIS Written Comments

Didden, Jason T.

From: Furlong, Daniel T.
Sent: Monday, March 01, 2010 9:45 AM
To: Didden, Jason T.
Cc: Seagraves, Richard J.
Subject: FW: Mackeral

FYI.

From: Doug Wilson [mailto:foulset@yahoo.com]
Sent: Sunday, February 28, 2010 1:47 PM
To: Info1
Subject: Mackeral

Dear MAFMC : My name is Doug Wilson , i am the owner and long time operator of the **F/V BARBARA PAULINE.** Ferderal Doc. # 598622 and Federal fish permit # # **330308. i** have been a commercial fisherman full time since the United States Army Released me from active duty three months early through a program they had for fisherman and farmers .I am a third generational fisherman in the United States and worked my way up the ranks on boats until purchasing the F/V Barbara Pauline in 1980. Since that time i have spent countless hours on the Ocean trying to make a living for my family while paying for this boat off to the bank.

During this time i feel like i was a pioneer in the process called **Americanization** of the fishing industry along with our Department of Commerce including the Mackeral fishery. I was very much a part of the so called **Fish and Chips** program that was supported by the Dept. of Commerce. I was one of the political pawns as well as the Mackeral bio mass for our goverment to enjoy political favors.During this time **1988 to 1992** the F/V Barbara Pauline harvested and landed Mackeral in support and along with our government for both reasons.I landed fish both joint venture and shore side during this time with some years landings from **1.1 to 2.4** million lbs with a small boat . I continued to Mackeral fish when the Eastern block countries goverments changed and their fisheries programs whent bankrupt.At this time we ended directed fishing and joint ventures came to a halt.I landed all my mackeral shore side to for a few more years.Watching the mackeral size get smaller as well as the location of the bio mass.

Because i also own permits in other fisheries and a way of regulating potential harvest was limit the size of the vessel size,horsepower and tonnage in these other fisheries it became difficult to make money with the mackeral price on the smaller fish. I still maintained a 250,000 lbs average for several more years while waiting for the mackeral size to return. I had to switch to other fisheries to keep my business and family economicaly sound.

With this all being said and attending your Mackeral meeting in Cape May ,New Jersey at the Congress Hall and finding out that the plan to be used to category us in a Tier 1 or Tier 2 Tier 3 system and i would fall through the cracks and end up with a small part of the allocation because of the cut off dates and history to be used with no regards for my economic impact with a daughter starting collage next fall and the economy the way it is seemed just not right. I do not agree with this at all because i know very well that during the time of our joint ventures that all those Eastern block ships were maintaining detailed harvest records with ferderal observers on board their vessels This is all in the federal data base readily available.So why can't this be used to let a few more deserving boats in the Tier 1 rather than give it to boats that are less deserving.The goverment has no trouble recognizing the indians rights because it is recorded what was done to them.Well so is the the history of the pioneers of the Americanization of the Mackeral fishery.

3/14/2010

I Doug Wilson dissagree with the dates being used to qualify for a Tier 1, Tier 2 or Tier 3 Mackeral permit . I trulely feel i did myself and my country service Mackeral fishing in the late 80's and early 90's with accurate federal data that is obtainable. That these years should be allowed to qualify the F/V Barbara Pauline permit # 330308.

Feb. 26,2010 Thank You

Doug Wilson

3/14/2010

SUSTAINABLE FISHERIES COALITION
www.fisheriescoalition.org
PO Box 440 Winterport, Maine 04496-0440

The Sustainable Fisheries Coalition is an organization of the Atlantic herring and Atlantic mackerel mid-water trawl and purse seine industry, operating from Maine through New Jersey. The Coalition was established in 2007 to improve public outreach and education and increase awareness of the economic importance and environmental sustainability of the Atlantic herring and Atlantic mackerel fisheries.

March 1, 2010

Mr. Daniel T. Furlong
Mid-Atlantic Fishery Management Council
800 North State Street, Suite 201
Dover, DE 19901
Email to: info@mafmc.org
Re: MSB Amendment 11 Comments

Dear Dan:

On behalf of the fishermen and plant employees of the Atlantic mackerel companies organized as the Sustainable Fisheries Coalition; Cape Seafoods, Inc. of Gloucester, Massachusetts; Irish Venture, Inc. of New Bedford, Massachusetts; Lund's Fisheries, Inc. of Cape may, New Jersey; and NORPEL of New Bedford, Massachusetts, I am writing to provide you with our comments on Amendment 11 to the Atlantic mackerel, squid and butterfish FMP. These companies directly employ about 350 people and have collectively invested approximately $80 million in plants and vessels, in addition to providing markets for many independent vessels, and are nearly 100 % dependent upon the Atlantic mackerel and Atlantic herring fisheries. Our comments generally follow the structure of the Council's January 2010 public hearing document.

Purpose A: Cap Capacity

Although the current Optimum Yield for the Atlantic mackerel fishery is not being harvested, we agree with the Council that quotas in the fishery may decline in the future and support the Council's decision to pursue limiting access to the fishery at this time, in a proactive manner, to minimize additional capitalization in the mackerel fishery. We support limiting access to the fishery based on landings histories, utilizing a 3-tiered system to prohibit additional entrants and restrict current, and a range of historical participants, to their current and/or historical levels of mackerel fishing. We also support the Council's requirement that all qualifiers for limited access would have to have held an active mackerel permit on March 21, 2007.

Alternative Set 1: Alternatives to develop a tiered limited access system in the Atlantic mackerel fishery.

We are opposed to Alternative 1A, the 'no action' alternative since it ignores the fact that there is already adequate capacity to harvest the expected yields from the mackerel fishery. We are also opposed to the single-tiered limited access system proposed in Alternative1G.

We support Alternative 1D, based on the following thresholds, as the most effective option to reduce capacity in the fishery, maximize historic participation for the greatest number of participants in the fishery and minimize adverse economic impacts:

Tier 1: At least 400,000 pounds landed in any one year 1997-2005
Tier 2: At least 100,000 pounds landed in any one year 3/1/1994-2005
Tier 3: At least 25,000 pounds landed in any one year 3/1/1994-2007
Open access: All other vessels

We also support Alternative 1H, which would grant Tier 3 privileges to Category A and B Atlantic herring limited access boats, to avoid forced regulatory discarding of mackerel caught incidental to the herring fishery

Alternative Set 2: Alternatives to allocate quota to limited access Tiers based on historical landings.

Each of the 4 proposed management actions in this alternative would close directed fishing within a give allocation/Tier when 90% of the allocation is projected to be harvested. At the same time, much of the rationale for several Amendment 11 management alternatives is to establish consistency between the MAFMC's Atlantic mackerel plan and the NEFMC's Atlantic herring plan. For the past several years, herring quotas have been successfully managed by closing fishing areas when 95% of the quota is projected to be harvested.

To establish additional consistency between these two plans, particularly since many of the same vessels participate regularly in both fisheries, we ask that the Council use this amendment, or the next available management action, including the 2011 specification process, to clarify that directed fishing for Atlantic mackerel would be closed when 95% of the allocation is projected to be harvested.

Similarly, we ask that the Council use this amendment, or Amendment 14, to establish the same reporting requirements in the mackerel fishery that are required in the herring fishery under the herring plan, in order to eliminate confusion over reporting requirements in the two fisheries.

In addition, we ask that the Council use this amendment or Amendment 14 to establish a daily IVR reporting requirement in the mackerel fishery, like that being proposed for the herring fishery by the NEFMC in Amendment 5. Daily IVR reporting by vessels would further ensure that a mackerel fishery closure at 95% could be effectively managed.

Finally, we ask that the Council use this amendment to allow vessels leaving on either a herring or a mackerel trip to notify the observer provider that they are sailing on a "Pelagic Trip", when either mackerel or herring may be taken on the trip, with the species and amounts subsequently reported by both VTR and IVR.

Concerning the alternatives proposed for allocating Tier 2 quota (Tier 1, 3 and open access quotas being separately established), we support Alternative 2B, which would allocate to Tier 2 the percentage of the total landings Tier 2 landed from 1997-2007, in consideration of these vessels historical participation, and support closing directed fishing when 95% of the allocation is projected to be harvested.

Alternative Set 3: Alternatives to specify trip limits for each Tier.

We support the approach taken in Alternative 3C, which would annually set trip limits through the specification process, with no Tier 1 directed fishery trip limit. Initial trip limits for Tier 2, Tier 3 and the open access fishery would be set at the levels which would not have affected 98% of the trips in each category during the period 1997-2007, with the intent that regulatory discards would only occur in less than 2% of the trips. This alternative would establish a reasonable trip limit of about 95,000 pounds for Tier 2 and set directed fishery closure limits at 20,000 pounds for Tiers 1 and 2 and, for Tier 3 and open access, at either the directed trip limit or 20,000 pounds, whichever is less.

This Alternative establishes incidental trip limits when 90% of a quota is reached. As we have commented above, we ask that these limits be established when 95% of a quota is reached, so that the mackerel plan may become consistent with the herring plan.

Alternative Set 4: Alternatives to indicate Council intent on a variety of standard policy and administrative matters inherent in Northeast limited access systems.

We support Alternatives 4B6(3)'s use of and 4C's establishment of a volumetric fish hold measurement requirement for Tier 1 and Tier 2 vessels. A similar requirement is being proposed in the NEFMC's Amendment 5 to the Atlantic herring FMP, in order to increase confidence in the accuracy of catches in these pelagic fisheries. Any increase in hold size could be increased only once and may not exceed 10% of the vessel's baseline specification.

We support Alternative 4B1, which would clarify that eligibility for a mackerel limited access permit would be established during the first year after the implementation of Amendment 11.

We support Alternative 4D – the Council's preferred option – which would allow 'vessel owners who sold vessels with limited access permits and retained mackerel history in a purchase and sale agreement to qualify a different vessel for the mackerel limited access program', within the 10-10-20-10 rule. After initial issuance mackerel limited entry permits could not be split.

We support the intent of Alternative 4B3 to provide a Confirmation of Permit History (CPH) to a 'person who does not currently own a fishing vessel but has owned a qualifying vessel that has sunk, been destroyed or transferred to another person' during the application period for the mackerel limited access program, if the fishing and permit history has been retained lawfully by the applicant. The attributes of the vessel that is the basis of the CPH would be used to establish the vessel's baseline and any upgrade should be within the 10-10-20-10 rule.

We support Alternative 4B4's establishment of a permit appeals procedure, which would allow a vessel denied a limited access mackerel permit to fish under a letter of authorization during the time that the appeal is pending.

We support the vessel upgrade restrictions in Alternative 4B6 and support the addition of a hold capacity measurement requirement established in Alternative 4C. We support the maintenance of existing vessel size restrictions for fishing vessels in Alternative 4B7 and the vessel replacement and voluntary exit provisions in Alternatives 4B7 & 8.

We agree with the intent of Alternative 4B10, which would treat all limited access permits as a "package" for the purposes of vessel replacement or for the purposes of limited access retention, when a vessel is sold or transferred, after implementation of Amendment 11, and clarifies that a 'limited access permit not be issued to a vessel or its replacement, or remain valid, if the vessel's permit or fishing history has been used to qualify another vessel for another Federal fishery.'

We support Alternative 4E, which establishes that the permit baseline would be 'established by the vessel that created the fishing history, and was initially issued a limited access permit'.

We support Alternative 4F, which would allow an owner with more than one vessel, only one of which has landings history, to use that history on a replacement vessel, but only within the 10-10-20-10 rule.

Alternative Set 5: Alternatives to update the EFH designations in the MSB FMP.

We support Alternative 5A, the no action alternative, which would make no updates or revisions to EFH descriptions because we remain concerned that further designation of EFH would be done with insufficient scientific evidence to support an EFH expansion. (See our 10/10/08 scoping comments for additional justification.)

Alternative Set 6: Establish Recreational Mackerel Allocation.

We support Alternative 6B, which would allocate to the recreational fishery the percentage of the ABC that corresponds to the proportion of total U.S. landings that was accounted for by the recreational fishery from 1997-2007 from the MRFSS database. This percentage would be 4.1 %, or 6,396 MT, under the current 156,000 MT ABC.

Alternative Set 7: Alternatives to limit at-sea processing of Atlantic mackerel.

We share the concerns of others that significant amounts of at-sea processing of mackerel would create significant negative fishing community impacts from disruption of supply of Atlantic mackerel to shoreside processors. We are disappointed that the Council has not provided an Amendment 11 alternative that would have eliminated offshore processing, by vessels exceeding 165 feet in length. We ask that the Council eliminate the size exemption for at-sea processing that exists in the current Atlantic mackerel FMP either with this amendment or through the next available management action.

Thank you for your attention to, and consideration of our comments. Please do not hesitate to contact us if we can provide you with additional information.

With best regards,

Jeff Kaelin
SFC Clerk; Lund's Fisheries Inc.

Dave Ellenton
Cape Seafoods, Inc.

Peter Mullen
Irish Venture, Inc.

Jeff Reichle
Lund's Fisheries, Inc.

Peter Moore
NORPEL

Brady Schofield
NORPEL

Jerry O'Neill
Western Sea Fishing Co., Inc.

GARDEN STATE SEAFOOD ASSOCIATION

212 West State Street
Trenton, New Jersey 08608
office (609) 898-1100
gregdl@volcenet.com

March 1, 2010

Mr. Daniel T. Furlong
Mid-Atlantic Fishery Management Council
800 North State Street, Suite 201
Dover, DE 19901
Sent via Email to: info@mafmc.org

Comments on: Squid, Mackerel and Butterfish Amendment 11

Dear Mr. Furlong:

Please accept these comments on behalf of the Garden State Seafood Association (GSSA); GSSA is comprised of commercial fishermen, shore-based processors, commercial dock facilities, seafood markets, restaurants, and various industry support businesses from New Jersey.

Purpose A: Cap Capacity

We support limiting access to the fishery based on landings histories, utilizing a 3-tiered system to prohibit additional entrants and restrict current participants, to their historical levels of mackerel fishing. We also support the Council's requirement that all qualifiers for limited access would have to have held an active mackerel permit on March 21, 2007.

Alternative Set 1: Alternatives to develop a tiered limited access system in the Atlantic mackerel fishery.

We are requesting that the Council includes and analyzes an alternative for the tiered limited access system proposed for the mackerel fishery that would establish eligibility for Tier 1 vessels based on historical landings from 1994-2005, with a 400,000 pound qualification threshold in any one of those years. In addition we request that Tier 2 eligibility should be based upon landings from 1988-2005, with a 100, 000 pound qualification. These vessels have historically participated in, and depended upon the mackerel fishery but changes in the geographical range of the resource may have limited their participation in recent years.

The DEIS states that the Council wanted to use an earlier qualifying date, like 1988, to qualify vessels for the mackerel limited entry program but opposition from NMFS kept the Council from doing so. The Agency claimed that people would fabricate landings and they were concerned about landings prior to reporting requirements. Contrary to this position, the NMFS allowed and supported landings from before 1994 and as far back as 1988 for Amendment 1 to the Atlantic herring plan. Please consider the qualifying dates and allowances for proving landings history implemented in the Final Rule for Herring Amendment 1 **(FR 72 pages 11252-11281).** " the landings requirements to qualify for the All Areas Limited Access Herring Permit require the vessel and/or any vessel it replaced to have landed at least 500 mt of herring in any one calendar year between January 1, 1993, and December 31, 2003, as verified by dealer reports submitted to NMFS or documented through valid dealer receipts, if dealer reports were not required by NMFS (dealers of Atlantic herring were required to obtain a dealer permit and to comply with reporting requirements as of January 10, 2001). The landings requirements to qualify for an Areas 2 and 3 Limited Access Herring Permit require the vessel and/or any vessel it replaced to have landed at least 250 mt of herring in any one calendar year between January 1, 1993, and December 31, 2003,…In those cases where a vessel has sold herring but there are no required dealer receipts, e.g., transfers of bait at sea and border transfers (BT), a vessel owner can submit other documentation that verifies such transactions and proves that the herring thus transferred should be added to the vessel's landings history". The Agency approved the following dates to qualify for a limited access incidental catch herring permit, "the vessel and/or any vessel it replaced must also document that it landed at least 33,000 lb (15 mt) of herring in any calendar year between January 1, 1988, and December 31, 2003."

How can the Agency justify accepting landings before 1994 and as far back as 1988 in one fishery but not allow or accept those periods for another fishery? Furthermore, how can the Agency liberalize the documentation for proving landings history for one fishery and not another?

We are requesting that the Council analyze the following landings criteria to maximize historic participation for the greatest number of participants in the fishery and minimize adverse economic impacts:

Tier 1: **At least 400,000 pounds landed in any one year 1/1/1994-2005**
Tier 2: **At least 100,000 pounds landed in any one year 1/1/1988-2005**
Tier 3: **At least 25,000 pounds landed in any one year 1/1/1994-2007**
Open access: **All other vessels**

We also support Alternative 1H, which would grant Tier 3 privileges to Category A and B Atlantic herring limited access boats, to avoid forced regulatory discarding of mackerel caught incidental to the herring fishery

2

Alternative Set 2: Alternatives to allocate quota to limited access Tiers based on historical landings.

Each of the 4 proposed management actions in this alternative would close directed fishing within a give allocation/Tier when 90% of the allocation is projected to be harvested. At the same time, much of the rationale for several Amendment 11 management alternatives is to establish consistency between the MAFMC's Atlantic mackerel plan and the NEFMC's Atlantic herring plan. For the past several years, herring quotas have been successfully managed by closing fishing areas when 95% of the quota is projected to be harvested.

To establish additional consistency between these two plans, particularly since many of the same vessels participate regularly in both fisheries, we ask that the Council use this amendment, or the next available management action, including the 2011 specification process, to clarify that directed fishing for Atlantic mackerel would be closed when 95% of the allocation is projected to be harvested.

Similarly, we ask that the Council use this amendment, or Amendment 14, to establish the same reporting requirements in the mackerel fishery that are required in the herring fishery under the herring plan, in order to eliminate confusion over reporting requirements in the two fisheries.

In addition, we ask that the Council use this amendment or Amendment 14 to establish a daily IVR reporting requirement in the mackerel fishery, like that being proposed for the herring fishery by the NEFMC in Amendment 5. Daily IVR reporting by vessels would further ensure that a mackerel fishery closure at 95% could be effectively managed.

Finally, we ask that the Council use this amendment to allow vessels leaving on either a herring or a mackerel trip to notify the observer provider that they are sailing on a "Pelagic Trip", when either mackerel or herring may be taken on the trip, with the species and amounts subsequently reported by both VTR and IVR.

Concerning the alternatives proposed for allocating Tier 2 quota (Tier 1, 3 and open access quotas being separately established), we support Alternative 2B, which would allocate to Tier 2 the percentage of the total landings Tier 2 landed from 1997-2007, in consideration of these vessels historical participation, and support closing directed fishing when 95% of the allocation is projected to be harvested.

Alternative Set 3: Alternatives to specify trip limits for each Tier.

We support the approach taken in Alternative 3C, which would annually set trip limits through the specification process, with no Tier 1 directed fishery trip limit. Initial trip limits for Tier 2, Tier 3 and the open access fishery would be set at the levels which would not have affected 98% of the trips in each category during the period 1997-2007, with the intent that regulatory discards would only occur in less than 2% of the trips. This alternative would establish a reasonable trip limit of about 95,000 pounds for Tier 2 and set directed fishery closure limits at 20,000 pounds for Tiers 1 and 2 and, for Tier 3 and open access, at either the directed trip limit or 20,000 pounds, whichever is less.

This Alternative establishes incidental trip limits when 90% of a quota is reached. As we have commented above, we ask that these limits be established when 95% of a quota is reached, so that the mackerel plan may become consistent with the herring plan.

Alternative Set 4: Alternatives to indicate Council intent on a variety of standard policy and administrative matters inherent in Northeast limited access systems.

We support Alternatives 4B6 (3)'s use of and 4C's establishment of a volumetric fish hold measurement requirement for Tier 1 and Tier 2 vessels. A similar requirement is being proposed in the NEFMC's Amendment 5 to the Atlantic herring FMP, in order to increase confidence in the accuracy of catches in these pelagic fisheries. Any increase in hold size could be increased only once and may not exceed 10% of the vessel's baseline specification.

We support Alternative 4B1, which would clarify that eligibility for a mackerel limited access permit would be established during the first year after the implementation of Amendment 11.

We support Alternative 4D – the Council's preferred option – which would allow 'vessel owners who sold vessels with limited access permits and retained mackerel history in a purchase and sale agreement to qualify a different vessel for the mackerel limited access program', within the 10-10-20-10 rule. After initial issuance mackerel limited entry permits could not be split.

We support the intent of Alternative 4B3 to provide a Confirmation of Permit History (CPH) to a 'person who does not currently own a fishing vessel but has owned a qualifying vessel that has sunk, been destroyed or transferred to another person' during the application period for the mackerel limited access program, if the fishing and permit history has been retained lawfully by the applicant. The attributes of the vessel that is the basis of the CPH would be used to establish the vessel's baseline and any upgrade should be within the 10-10-20-10 rule.

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We agree with the intent of Alternative 4B10, which would treat all limited access permits as a "package" for the purposes of vessel replacement or for the purposes of limited access retention, when a vessel is sold or transferred, after implementation of Amendment 11, and clarifies that a 'limited access permit not be issued to a vessel or its replacement, or remain valid, if the vessel's permit or fishing history has been used to qualify another vessel for another Federal fishery."

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We support Alternative 4F, which would allow an owner with more than one vessel, only one of which has landings history, to use that history on a replacement vessel, but only within the 10-10-20-10 rule.

Alternative Set 5: Alternatives to update the EFH designations in the MSB FMP.

We support Alternative 5A, the no action alternative, which would make no updates or revisions to EFH descriptions because we remain concerned that further designation of EFH would be done with insufficient scientific evidence to support an EFH expansion. (See our 10/10/08 scoping comments for additional justification.)

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We support Alternative 6B, which would allocate to the recreational fishery the percentage of the ABC that corresponds to the proportion of total U.S. landings that was accounted for by the recreational fishery from 1997-2007 from the MRFSS database. This percentage would be 4.1 %, or 6,396 MT, under the current 156,000 MT ABC.

Alternative Set 7: Alternatives to limit at-sea processing of Atlantic mackerel.

We share the concerns of others that significant amounts of at-sea processing of mackerel would create significant negative fishing community impacts from disruption of supply of Atlantic mackerel to shoreside processors. We are disappointed that the Council has not provided an Amendment 11 alternative that would have eliminated offshore processing, by vessels exceeding 165 feet in length. We ask that the Council eliminate the size exemption for at-sea processing that exists in the current Atlantic mackerel FMP either with this amendment or through the next available management action.

Thank you for your attention to, and consideration of our comments.

Sincerely,

Gregory P. DiDomenico
Executive Director
Garden State Seafood Association

LUND'S FISHERIES INCORPORATED
Phone: (609) 884 - 7600 Fax: (609) 884 - 0664 lundsfish@lundsfish.com
997 Ocean Drive, Cape May, New Jersey 08204, U.S.A.

Email to: info@lundsfish.com

March 1, 2010

Mr. Daniel T. Furlong
Mid-Atlantic Fishery Management Council
800 North State Street, Suite 201
Dover, DE 19901
Email to: info@mafmc.org
Re: MSB Amendment 11 Comments

Dear Dan:
I am writing on behalf of the 150 employees of Lund's Fisheries, Inc., and the independent fishermen who supply Atlantic mackerel to our processing facility in Cape May, NJ, to provide comments on Amendment 11 to the Atlantic mackerel, squid and butterfish FMP. Lund's Fisheries, Inc. is an incorporating member of the Sustainable Fisheries Coalition (SFC), an organization of the Atlantic herring and Atlantic mackerel mid-water trawl and purse seine industry, operating between Maine and New Jersey. The SFC has also provided the Council with comments on Amendment 11, which we support, although we continue to have a particular concern with one important element of the draft amendment.

Specifically, we are disappointed and concerned that the Council has not included and analyzed an alternative for the tiered limited access system proposed for the mackerel fishery that would establish eligibility for Tier 1 vessels based on historical landings from 1/1/1988, with a 400,000 pound qualification threshold in any one of those years. These vessels have historically participated in, and depended upon the mackerel fishery but changes in the geographical range of the resource may have limited their participation in recent years. Council policies should recognize the need for fishermen to have the opportunity to fish seasonally on resources that may be available to them from week to week, month to month and year to year, to the greatest extent possible.

The DEIS states that the Council wanted to use an earlier qualifying date, like 1988, in qualifying vessels for the mackerel limited entry program but opposition from NMFS kept the Council from doing so except for qualifying vessels in Tiers 2 and 3 in Alternative 1F. One concern highlighted in the draft is the potential for "fabricated landings for data before 3/1/1994". This statement by the agency judges people as guilty before they are given an opportunity to make their case, which I find to be unfortunate and unsupportable.

Thank you for your attention to and your consideration of my concerns.

Sincerely,

Jeffrey Reichle
President

Fax from : 252 633 9616 02-24-04 13:04 Pg: 2

North Carolina Fisheries Association, Inc.

P.O. Box 12303
New Bern, N.C. 28561
Phone: (252) 633-2288
Fax: (252) 633-9616

Website:
www.ncfish.org

Email:
ncfa@ncfish.org

Mr. Daniel T. Furlong
Mid-Atlantic Fishery Management Council
Suite 201
900 N. State Street
Dover, DE 19901

Re: MSB Amendment 11 Comments

February 26, 2010

According to the NOAA website, "Atlantic mackerel, *Scomber scombrus*, is a fast swimming, pelagic, schooling species distributed in the Northwest Atlantic between Labrador and **North Carolina.** (Emphasis added) There are two major spawning components in the population: a southern group that spawns primarily in the Mid-Atlantic Bight during April and May, and a northern group that spawns in the Gulf of St. Lawrence in June and July. Both groups winter between Sable Island (off Nova Scotia) and Cape Hatteras in waters generally warmer than 7°C (45°F), with extensive northerly (spring) and southerly (autumn) migrations to and from spawning and summering grounds (Figure 22.1). The two groups are managed as a unit stock. Maximum observed size in recent years is about 42 cm (16.5 in) in length and 1.0 kg (2.2 lb) in weight. Sexual maturity begins at age 2 and is usually complete by age 3. Maximum age is about 20 years."

As the NOAA document clearly shows North Carolina has had a substantial mackerel fishery in the past and may, indeed, have one again when weather and other cyclical patterns change the current distribution pattern of the fishery. In fact, one of our members, Mr. Billy Carl Tillett from Wanchese, N.C. recently sent documentation of his company's (Moon Tillett Fish Co., Inc.) fishing history in the mackerel fishery showing that it was substantial; Mr. Tillett's experience is not unique for boats in our state. (See Tillett letter dated February 26, 2010 and supporting documents)

The North Carolina Fisheries Association supports the Council adopting the Tier 2 landings criteria (100,000 lbs landings in any one year during the period 1983-2007). We feel this Tier 2 approach will be most fair to North Carolina fishermen considering the eventuality that these fish will once again be plentiful throughout their historic range, which includes our state.

Thank you for this opportunity to present these comments.

Sincerely,

Sean

Sean McKeon
President

Proudly Serving North Carolina's Commercial Fishing Families Since 1952

MOON TILLETT FISH CO., INC
P.O. BOX 310
1703 MILL LANDING ROAD
WANCHESE, NORTH CAROLINA 27981
PH: (252) 473-2323
FAX: (252) 473-5831

February 26, 2010

TO: Daniel T. Furlong

RE: MSB Amendment 11 Comments

My original letter was submitted to our N.C. Council Representatives approximately 1 year ago. Dennis Spitsbergen was on the Mackeral Committee at this time. I would like to add that some N.C. fishermen ran into a similar situation with Monkfish and through the work of Jimmy Ruhle and this council they finally got their permits . We are in the most southern range of this fishery so we have to have special consideration. It would be unconstitutional to leave us out just because Mackeral do not swim south every year.

Billy Carl Tillett

Billy Carl Tillett

MOON TILLETT FISH CO., INC.
F/V LINDA GAYLE
F/V GALLANT FOX
P.O. BOX 310
4703 MILL LANDING ROAD
WANCHESE, NC 27981
PHONE: (252) 473-2323
FAX: (252) 473-5831

Mid Atlantic Fish Management Council

To whom it may concern,

Boston Mackeral have been known to migrate as far south as Cape Hatteras in the months of January through March. The year I refer to documents our history as far back as 1984. As you can see on the attached papers there are not a large amount of directed Mackeral trips. This was due to market conditions and a lack of a shoreside freezing facility. In January, 1994 our company Moon Tillett Fish Co., Inc. built a freezing facility to accommodate our two Trawlers, the Linda Gayle and the Gallant Fox. Since then there have been very few Mackeral that have migrated to our area. Our most fished area is from Cape Henry to Cape Hatteras. Mackeral will migrate again to this area when we have colder winters, which we will certainly experiance again. From 1994 to present we would have had significant landings if there had been fish present here because of our investment and our interest in this fishery. Weather cycles have put us in this situation therefore we cannot afford to be left out. I know we do not have Tier 1 history under any alternative but we do have Tier 2 history under all of the alternatives at this point. I recommend adopting a Tier 2 (100,000 pounds landing in any one year 1983-2007) landing criteria so as to accommodate our two boats, as well as anyone else who might qualify in this area . Due to our involvement in this fishery our two boats hold a Herring Limited Access Incidental Permit.

Sincerely,

Billy Carl Tillett

Billy Carl Tillett
Vice President
Moon Tillett Fish Co., Inc.

ORIGINAL LETTER

F/V LINDA GAYLE

PERSONAL LOG BOOK OF BILLY CARL TILLETT

BOSTON MACKERAL LANDINGS

Dates are available in log books and copies can be made.

1984	62,200	**1985**	13,100	**1986**	18,800	**1987**	50,000	**1988**	1,000
	1,500		21,300		70,700		101,400		80,000
	12,800		8,300		42,000		20,000		5,200
	10,000		31,100		13,700		60,000		76,200
	60,000		16,300		2,000		**231,400**		**162,400**
	10,700		10,300		29,100				
	46,700		**101,300**		2,500				
	15,000				**178,800**				
	218,400								

TRIP TICKET

BOSTON MACKERAL LANDINGS

1990	01/01/1990	28,925	**1991**	03/02/1991	16,390	**1992**	02/05/1992	210
	01/04/1990	104,250			**16,390**		02/20/1992	26,635
	02/10/1990	73,375					03/24/1992	35,100
	02/22/1990	19,650						**61,945**
	03/02/1990	23,726						
	03/11/1990	90,550						
	03/13/1990	58,000						
	03/19/1990	42,150						
		440,626						

1993	02/18/1993	33,825	**1996**	01/31/1996	57	**1997**	02/20/1997	10,286
	02/25/1993	18,750		02/08/1996	18,200		03/10/1997	275
	03/03/1993	3,850		02/20/1996	4,050		03/28/1997	96
	03/08/1993	92		03/16/1996	2,237			5,750
		56,517		03/23/1996	7,250			**16,407**
				03/27/1996	2,475			
				04/13/1996	125			
				04/20/1996	7,372			
					14,931			

Linda Gayle

1998	02/14/1998	4	**1999**	02/28/1999	38
	02/28/1998	300		03/03/1999	200
	03/06/1998	100		03/06/1999	150
	03/14/1998	2675		03/22/1999	4,834
	03/19/1998	100		03/26/1999	34,225
	03/23/1998	50		04/02/1999	46,400
	03/27/1998	29,375		04/08/1999	50
	03/27/1998	75,225			**85,897**
		57,829			

Due to computer access 1994 a d 1995 are not available at this time. We may have to get this information from NCDMF Trip Ticket Program.

F/V GALLANT FOX

I OSTON MACKERAL LANDINGS

1990	01/04/1990	86,383
	01/16/1990	68,850
	01/18/1990	41,000
	02/10/1990	55,900
	02/14/1990	4,900
	02/14/1990	273
	03/03/1990	8,450
	03/14/1990	28,150
		293,906

1998	03/18/1998	775
	03/24/1998	1,725
	03/31/1998	4,150
		6,650

1996	02/09/1996	8,475
	02/20/1996	2,894
	03/16/1996	2,137
	03/26/1996	1,375
	04/13/1996	50
		14,931

1997	02/21/1997	4,400
	03/07/1997	1,350
	03/12/1997	1,155
	03/13/1997	480
	03/29/1997	675
		8,060

Due to computer access 1994 and 1995 are not available at this time. We may have to get this information from NCDMF Trip Ticket Program.

3

Mailing Address:
PO Box 764
Wakefield, R.I. U.S.A. 02880
Phone: (401) 782-1330
Fax: (401) 782-4011

SEA FROZEN PRODUCTS

Plant Address:
65 State Street
Narragansett, R.I., U.S.A. 02882
email: info@deepseafish.net
web: http://www.deepseafish.net

Mr. Daniel T. Furlong
Mid-Atlantic Fishery Management Council
Room 2115 Federal Building
300 S. New Street
Dover, DE 19904

17 February 10

REF: Amendment 11 Public hearing comments
Warwick, RI

Mr. Furlong,

As a vessel owner, shoreside processor and wholesaler, I am concerned that this public hearing document does not adequately address historical participants in the Mackerel Fishery. The Fishery has not, in recent years, even come close to filling the available quota. Why is it that the Council has chosen this time frame to restrict activity in this Fishery? Are there new participants chomping at the bit to enter this fishery? Is there an At Sea processor move afoot? Is there an increase in land based infrastructure investment in the works? I believe the answer to these questions is a resounding NO.

It is with the above situation in mind that I request the Council consider Changing the qualifying criteria for a Tier system to the following thresholds:

CHANGE THE QUALIFYING PERIODS FOR ALL TIERS TO 1988-2006

The public hearing document references the desire to "…account for the historical participation by vessels given the shifting availability of mackerel, the Council would like to use as long a time period as possible to cover different scenarios of availability." (p.13) This change would cover both historical participants and current ones in a more realistic time frame. The inherent difficulty in proving landings prior to 3/1/94 would put the burden of proof on the vessel owners to verify landings and be more stringent than the Councils original 1983 qualifying date. Including 2006 would also acknowledge the capitol investment made by several current participants. Choosing a start date of 1988 would also meet the Councils discussion that "..going back to 1988 as an earliest date best considered current and historical participation." (p 60 sec 1.10 p3)

CHANGE THE THRESHOLD LEVELS FOR TIER 1 TO 500,000 LBS

By lowering this qualifier, the Fishery would be better positioned to meet the potential economic yield of the biomass. This would benefit everyone involved in the Fishery including vessels, processors, shoreside service providers and worldwide markets.

1/2

The biomass of mackerel could provide a tremendous economic benefit if Amendment 11 is crafted to allow both historical and current participants the opportunity to further develop the Fishery. By adopting the changes outlined above you will best accomplish this goal.

Thank you,

Eric Reid
President
Deep Sea Fish of Rhode Island, Inc.
Silhouette Trawlers, Inc. F/V Huntress I
Swamp Yankee Seafood, Inc. F/V Saint Jude

2/2

Appendix 1 Part C: Summary of comments including written and oral public hearing comments, and responses to comments.

	Notes: If the same person provided the same comments multiple times, unless they were representing different entities for each replication, they are counted just once, and only in the "written" comment box if the repetition involved both "written" and "oral" comments. "For self" means on behalf of one person or one company. "For a group" means the person indicated they were acting on behalf of a group of people or group of companies.					
		Number of individuals expressing given idea				
	Comment from Public	Oral (Public Hearings)		Written		Preliminary/Draft Reply to Comment
Ref #		Number of persons for self	Number of persons for a group	Number of persons for self	Number of persons for a group	
1	What the Council has contemplated so far will likely force significant regulatory dumping by herring vessels that have not been reporting their mackerel until recently. Any Herring boat that fishes in Area 2 for Herring needs to have a Tier 1 mackerel permit. Otherwise have dumping when get a mixed haul. Look at data through last year to see what the trends are.	1				The lack of data makes this a difficult issue but see discussion in 5.1.3 which includes data through 2007, which is the last year for qualifying and the most recent year when the DEIS analysis was conducted. The current document proposes to grant at least a Tier 3 permit to Herring vessels that would not otherwise qualify for a mackerel permit. If regulatory discarding is documented the Council could make changes later through a framework action.
2	Rationale behind allocation alternatives unusual. Seems arbitrary. Use earlier data rather than just doubling or tripling.	1				This is discussed in Section 5.2.4, "Data used for Allocation"
3	Why would Council use allocation criteria that are different than qualification criteria? Dates should be the same for qualification and allocation.	1				The rationale behind the range of qualification dates is described in Section 5.1.4, "Qualification Criteria - Years." The rationale for the allocation methodology is described in Section 5.2.4, "Data used for Allocation."
4	Support Hold Measurement and Upgrade Restriction	1				Noted
5	How do you define at-sea processing. Would it include a carrier ferrying fish back into a shore-side processor.	1				Via transfers-at-sea. Possibly could include such ferrying - Council will clarify if an action alternative is selected.
6	Why might there be additional marine mammal interactions with at-sea processing?	1				Transfers could theoretically attract marine mammals. In the end the evidence was not sufficient to answer this question.

	Comment from Public	Oral (Public Hearings)		Written		Preliminary/Draft Reply to Comment
Ref #		Number of persons for self	Number of persons for a group	Number of persons for self	Number of persons for a group	
7	Why are there different dates for different Tiers?	1				The lower Tiers generally have earlier dates to provide additional consideration for historical participation.
8	What is considered historical participation?	1				The Council has considered alternatives going as far back as 1983 as part of the Amendment development process considering historical participation. Subsequent to that consideration, the Council selected the included timeframes in an effort to balance both current and historic participation (some alternatives go from 2007 back 14 years for Tier 1 and 20 years for the lower tiers).
9	The document states that the intent via the restriction on the Tiers is not to affect historical participation but the Tiers themselves eliminate historical participation	1				See response to #8.
10	Did some vessels not getting into Tier 1 because of using a 2005 control date generate the 400,000 pound Tier 1 qualifying threshold when the 2005 date is utilized?	1				The 400,000 pound threshold was developed to create a range of qualifying poundage thresholds. Part of the thinking of pairing the 400,000 pound threshold with the 2005 date was to mitigate economic losses for vessels that would be negatively impacted by the 2005 control date, but there are still some vessels that would not qualify, as discussed in Section 7.5.1 "Impact of the Control Date."
11	For illustrations of what recreational fishery would get at ABC of 156,000 MT, was Canadian catch accounted for?	1				Yes. Since the new allocation would be percentage based, it could be strongly influenced by the overall quota.
12	Did you say you don't have data to track landings before 1997? We can supply data that we have gotten from NMFS pre-1997.	1				See discussion of pre-1997 data in Sections 5.1.4 and/or 7.6 F.

	Comment from Public	Oral (Public Hearings)		Written		Preliminary/Draft Reply to Comment
Ref #		Number of persons for self	Number of persons for a group	Number of persons for self	Number of persons for a group	
13	If data is good enough to go back to 1994 for lower Tiers, why not for Tier 1?	1				The rationale behind the different years is discussed in 5.1.4, "Qualification Criteria Years." It is not so much a question of good enough as what years have the best data and the trade-offs involved in using earlier but less complete data.
14	Wouldn't there be accurate data for pre-1997 joint-venture operations when there was mandatory observer coverage? Council should consider using data from JV operations for purposes of qualifying (1988 on).	2				There is some good data before 1997 but it is not as complete. See #s 12-13 above.
15	Most of us have had boats for 30 years... further back is better for us.	1				This comment has been passed on to the Council.
16	People who submitted records pre-1997 should not loose out because some people did not submit records before 1997.	1				This comment has been passed on to the Council. Also see the equity discussion in 7.6 F.
17	Seems like you are worried more about the new entrants in the fishery, which are big boats, and forgetting about the small boats.	1				This comment has been passed on to the Council.
18	I think it's disgusting and manipulative that you are giving about 90% of the fishery to 26-29 boats. Should be double. That is not the American Way.	1				This comment has been passed on to the Council.
19	By cutting off the landings qualifications at 1997 you are going to reduce the re-sale value of my permit.	1				This comment has been passed on to the Council.
20	A 1996 participant should qualify more than a 2007 participant. 2007 is a new participant. It's not fair.	1				This comment has been passed on to the Council.
21	Use earlier date (1988) and put onus on vessels to prove landings history. 1988 is a compromise date.	3				This comment has been passed on to the Council.

	Comment from Public	Oral (Public Hearings)		Written		Preliminary/Draft Reply to Comment
Ref #		Number of persons for self	Number of persons for a group	Number of persons for self	Number of persons for a group	
22	Is there any intention to change any of the years?	1				The Council has significant flexibility in the qualification dates but if it wants to select something substantially outside of the range considered in the DEIS, a revised document would have to go back out for public comment.
23	This plan is a classic example of a complete failure of the existing system to preserve and protect the resources and its associate industries. In 1992-3 before there was any sign of a concern for this resource based on totally inflated biological estimates that the industry had zero confidence in we were told... "No limited access plan at this point. You're not taking enough of the quota." Look where you are now. Now, if the stock assessment is low, you're facing such a ridiculouly low quota (which is 5-6 years too late anyway). Everybody in this room knew this was coming. The fishery was going down hill fast. For practical industry purposes the mackerel fishery in the U.S. is over. Information on the fishery by industry to the Council was ignored. When industry brought concerns about the resource NMFS scientist said if the foreign fishing fleets were here they would show you where they were.	1				This comment has been passed on to the Council.
24	My suggestion is to go with the Tiers or some basic limited access fishery and let the fishery sort itself out (no allocations or trip limits). Will see a drastic change in the levels of landing over the next few years. The big boats will not make it. Then set up something that protects the resource and remaining vessels.	1				This comment has been passed on to the Council.

Ref #	Comment from Public	Oral (Public Hearings)		Written		Preliminary/Draft Reply to Comment
		Number of persons for self	Number of persons for a group	Number of persons for self	Number of persons for a group	
25	Current plan will not address avoidance of discarding when availability changes 5-7 years from now.	1				This comment has been passed on to the Council. The range of years (14-20) selected for qualification was designed to incorporate at least some availability shifting.
26	The Council has lost control of the process to the FMAT/NMFS	1				This comment has been passed on to the Council.
27	Is NMFS only going with 1997 forward because of the data issues or to keep the pool of vessels small?	1				Please see the enclosed 3-1-2010 letter from NERO NMFS to the Council that details their issues with pre-1997 data. In general the answer seems to be both issues are a concern.
28	Seems to me that NMFS could use older data and deal with appeals but NMFS is muscling Council to keep number of qualifying vessel low/make things easy for NMFS. The Council has the opportunity to make recommendations and not be fearful of NMFS reaction.	5				This comment has been passed on to the Council.
29	Is there an option for there to be no trip limit for Tier 2?	1				Yes
30	Is there an option for there to be no quota for Tier 2?	1				Yes
31	Can Tier 2 issues be addressed through specifications? (Trip limits or allocations)	1				The document contemplates that trip limits could be changed through the specifications process but allocations between Tiers would need to be changed through an Amendment or Framework.
32	Historical participants are going to be lost forever if the Council uses 1997 as the beginning criteria.	1				This comment has been passed on to the Council.
33	If the Council selects a given year period, could an appeal be based on having documented landings outside of the years selected by the Council?	2				The appeals process will only look at data within the qualification timeline criteria selected by the Council.
34	When I requested my landings from NOAA they go back to 1984. They have my statistics why don't they have everybody else's?	1				See discussion of this data issue in 5.1.4, "Qualification Criteria - Years" or in 7.6 F.

	Comment from Public	Oral (Public Hearings)		Written		Preliminary/Draft Reply to Comment
Ref #		Number of persons for self	Number of persons for a group	Number of persons for self	Number of persons for a group	
35	How many additional vessel would qualify if you went back to 1988 (1 million pounds) versus 1997 or 1994?	1				Staff will have this data at the April 2010 Council meeting.
36	There are not a lot of buyers that deal with large quantities of mackerel in terms of falsifying records (i.e. it would be difficult)	1				This comment has been passed on to the Council.
37	What exactly was the date in 1996 when mandatory reporting began for the mackerel fishery?	1				May 2, 1996.
38	The equity argument that using pre-1997 data should not be used because some people would be disadvantaged does not make sense because not using the earlier data would also disadvantage some people.	1				This perspective has been added to the equity discussion in the FEIS. See Section 7.6, F.
39	What in the Amendment is actually required by law?	1				EFH updates. The recreational/commercial allocation issue will have to be dealt with either in this Amendment or in the ACL/AM Omnibus.
40	All qualifying years should be 1988-2007. If, not my suggestion to the Council is "Stop." Things are changing and changing drastically. Keep 2007 end date - that's the cutoff. The fishery will probably ratchet itself down. Just consider EFH issues.	17				This comment has been passed on to the Council.
41	The boats that founded this fishery and had landings in the late 1980s and early 1990s that are in the federal database should not be cut out of the mackerel fishery. Doing so gives no regard to the economic impact to those who do not qualify.			1		This comment has been passed on to the Council.

	Comment from Public	Oral (Public Hearings)		Written		Preliminary/Draft Reply to Comment
Ref #		Number of persons for self	Number of persons for a group	Number of persons for self	Number of persons for a group	
42	We support limiting access to the fishery based on landings histories, utilizing a 3-tiered system to prohibit additional entrants and restrict current, and a range of historical participants, to their current and/or historical levels of mackerel fishing. We also support the Council's requirement that all qualifiers for limited access would have to have held an active mackerel permit on March 21, 2007.				2	This comment has been passed on to the Council.
43	We are opposed to Alternative 1A, the 'no action' alternative since it ignores the fact that there is already adequate capacity to harvest the expected yields from the mackerel fishery. We are also opposed to the single-tiered limited access system proposed in Alternative1G.				1	This comment has been passed on to the Council.
44	We support Alternative 1D				1	This comment has been passed on to the Council.
45	We also support Alternative 1H, which would grant Tier 3 privileges to Category A and B Atlantic herring limited access boats, to avoid forced regulatory discarding of mackerel caught incidental to the herring fishery				2	This comment has been passed on to the Council.
46	we ask that the Council use this amendment, or the next available management action, including the 2011 specification process, to clarify that directed fishing for Atlantic mackerel would be closed when 95% of the allocation is projected to be harvested.				2	This comment has been passed on to the Council. This action could not be undertaken in the Amendment without additonal public comment but could be considered via the specification setting process.

Ref #	Comment from Public	Oral (Public Hearings) Number of persons for self	Number of persons for a group	Written Number of persons for self	Number of persons for a group	Preliminary/Draft Reply to Comment
47	Similarly, we ask that the Council use this amendment, or Amendment 14, to establish the same reporting requirements in the mackerel fishery that are required in the herring fishery under the herring plan, in order to eliminate confusion over reporting requirements in the two fisheries.				2	This comment has been passed on to the Council. This action could not be undertaken in the Amendment without additonal public comment.
48	In addition, we ask that the Council use this amendment or Amendment 14 to establish a daily IVR reporting requirement in the mackerel fishery, like that being proposed for the herring fishery by the NEFMC in Amendment 5. Daily IVR reporting by vessels would further ensure that a mackerel fishery closure at 95% could be effectively managed.				2	This comment has been passed on to the Council. This action could not be undertaken in the Amendment without additonal public comment.
49	Finally, we ask that the Council use this amendment to allow vessels leaving on either a herring or a mackerel trip to notify the observer provider that they are sailing on a "Pelagic Trip", when either mackerel or herring may be taken on the trip, with the species and amounts subsequently reported by both VTR and IVR.				2	This comment has been passed on to the Council. This action could not be undertaken in the Amendment without additonal public comment.
50	we support Alternative 2B...and support closing directed fishing when 95% of the allocation is projected to be harvested.				2	This comment has been passed on to the Council. See also # 46 above re: the 95% threshold.
51	We support the approach taken in Alternative 3C				2	This comment has been passed on to the Council.
52	We support Alternatives 4B6(3)'s use of and 4C's establishment of a volumetric fish hold measurement requirement for Tier 1 and Tier 2 vessels.				2	This comment has been passed on to the Council.
53	**We support Alternative 4B1**				2	This comment has been passed on to the Council.
54	**We support Alternative 4D**				2	This comment has been passed on to the Council.

	Comment from Public	Oral (Public Hearings)		Written		Preliminary/Draft Reply to Comment
Ref #		Number of persons for self	Number of persons for a group	Number of persons for self	Number of persons for a group	
55	We support the intent of Alternative 4B3 to provide a Confirmation of Permit History (CPH) to a 'person who does not currently own a fishing vessel but has owned a qualifying vessel that has sunk, been destroyed or transferred to another person' during the application period for the mackerel limited access program, if the fishing and permit history has been retained lawfully by the applicant. The attributes of the vessel that is the basis of the CPH would be used to establish the vessel's baseline and any upgrade should be within the 10-10-20-10 rule.				2	This comment has been passed on to the Council.
56	We support Alternative 4B4				2	This comment has been passed on to the Council.
57	We support the vessel upgrade restrictions in Alternative 4B6 and support the addition of a hold capacity measurement requirement established in Alternative 4C. We support the maintenance of existing vessel size restrictions for fishing vessels in Alternative 4B7 and the vessel replacement and voluntary exit provisions in Alternatives 4B7 & 8.				2	This comment has been passed on to the Council.
58	We agree with the intent of Alternative 4B10, which would treat all limited access permits as a "package" for the purposes of vessel replacement or for the purposes of limited access retention, when a vessel is sold or transferred, after implementation of Amendment 11, and clarifies that a 'limited access permit not be issued to a vessel or its replacement, or remain valid, if the vessel's permit or fishing history has been used to qualify another vessel for another Federal fishery.'				2	This comment has been passed on to the Council.

	Comment from Public	Oral (Public Hearings)		Written		Preliminary/Draft Reply to Comment
Ref #		Number of persons for self	Number of persons for a group	Number of persons for self	Number of persons for a group	
59	We support Alternative 4E, which establishes that the permit baseline would be 'established by the vessel that created the fishing history, and was initially issued a limited access permit'.				2	This comment has been passed on to the Council.
60	We support Alternative 4F, which would allow an owner with more than one vessel, only one of which has landings history, to use that history on a replacement vessel, but only within the 10-10-20-10 rule.				2	This comment has been passed on to the Council.
61	We support Alternative 5A, the no action alternative, which would make no updates or revisions to EFH descriptions because we remain concerned that further designation of EFH would be done with insufficient scientific evidence to support an EFH expansion. (See our 10/10/08 scoping comments for additional justification.)				2	This comment has been passed on to the Council. Staff notes that the methodology used to re-designate EFH is commonly used by the MAFMC and NEFMC and was vetted by the MSB Am11 FMAT. The methodology relies on peer-reviewed literature for textual descriptions and on NEFSC trawl data for geographical designations, so the FMAT concluded the proposed methodology, which is described in detail in Section 5.5, constitutes the best available science. Staff also notes that, as described in the document (e.g. 7.5.5), since the EFH for MSB species that is being redesignated (all but Loligo eggs) is the water column itself (pelagic species), fishing does not negatively impact the EFH so restrictions on fishing would be highly unlikely. Federal permitting of non-fishing activities within the new EFH areas (oil/gas, wind energy, etc) would require consultation with NMFS however.

	Comment from Public	Oral (Public Hearings)		Written		Preliminary/Draft Reply to Comment
Ref #		Number of persons for self	Number of persons for a group	Number of persons for self	Number of persons for a group	
62	We support Alternative 6B, which would allocate to the recreational fishery the percentage of the ABC that corresponds to the proportion of total U.S. landings that was accounted for by the recreational fishery from 1997-2007 from the MRFSS database. This percentage would be 4.1 %, or 6,396 MT, under the current 156,000 MT ABC.				2	This comment has been passed on to the Council. Some additional analysis has also been added to the socio-economic impact section (7.5.6)
63	We are disappointed that the Council has not provided an Amendment 11 alternative that would have eliminated offshore processing, by vessels exceeding 165 feet in length. We ask that the Council eliminate the size exemption for at-sea processing that exists in the current Atlantic mackerel FMP either with this amendment or through the next available management action.				2	This comment has been passed on to the Council.
64	Contrary to NMFS' position in Amendment 11, the NMFS allowed and supported landings from before 1994 and as far back as 1988 for Amendment 1 to the Atlantic herring plan. How can the Agency justify accepting landings before 1994 and as far back as 1988 in one fishery but not allow or accept those periods for another fishery?				1	Please see the March 1, 2010 letter from NERO that details their concerns about qualifying dates.

	Comment from Public	Oral (Public Hearings)		Written		Preliminary/Draft Reply to Comment
Ref #		Number of persons for self	Number of persons for a group	Number of persons for self	Number of persons for a group	
65	We are requesting that the Council analyze the following landings criteria to maximize historic participation for the greatest number of participants in the fishery and minimize adverse economic impacts: Tier 1: At least 400,000 pounds landed in any one year 1/1/1994-2005 Tier 2: At least 100,000 pounds landed in any one year 1/1/1988-2005 Tier 3: At least 25,000 pounds landed in any one year 1/1/1994-2007 Open access: All other vessels				1	Staff will have this data at the April 2010 Council meeting.
66	We are disappointed and concerned that the Council has not included and analyzed alternatives that include a Tier 1 qualification period beginning in 1988 with a 400,000 pound threshold (best year) to account for historical fishing that has taken place when fish have been seasonably available.			1		The rationale behind the included dates is described in the document including in Section 5.1.4
67	I find the rationale that presupposes individuals would fabricate landings if earlier dates are included to be unfortunate and unsupportable.			1		This comment has been passed on to the Council.
68	Support the Council adopting criteria for Tier 2 that would include landings from 1983-2007 with a 100,000 pound threshold (best year) to account for historical landings and the probability that mackerel will be available throughout their historic range in the future (including NC)			1	1	This comment has been passed on to the Council. The rationales behind the included dates and thresholds are described in the document including in Section 5.1.4
69	Given the fishery has not come close to filling the quota in recent years, why has the Council now chosen to restrict activity in the mackerel fishery?			1		Recent assessments have suggested that long term yields will likely be significantly lower than recent short-term yields.

	Comment from Public	Oral (Public Hearings)		Written		Preliminary/Draft Reply to Comment
Ref #		Number of persons for self	Number of persons for a group	Number of persons for self	Number of persons for a group	
70	Change the qualifying periods for all Tiers to 1988-2006 for all tiers to better cover both historical and current participants. 1988 would be more stringent than 1983 and the burden of proof would be placed on the applicants.			1		Staff will have this data at the April 2010 Council meeting.
71	Change the Threshold levels for Tier 1 to 500,000 pounds so that the fishery would be better positioned to meet the potential economic yield of the biomass by current and historical participants.			1		Staff will have this data at the April 2010 Council meeting.

Appendix 1 Part D: EPA Comments on DEIS and summary of edits/responses.

SF

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

MAR - 2 2010

OFFICE OF
ENFORCEMENT AND
COMPLIANCE ASSURANCE

Patricia A. Kurkul
Regional Administrator
Northeast Region
National Marine Fisheries Service
National Oceanic and Atmospheric Administration
55 Great Republic Drive
Gloucester, MA 01930-2298

Dear Ms. Kurkul:

In accordance with the National Environmental Policy Act and Section 309 of the Clean Air Act, the Environmental Protection Agency (EPA) has reviewed the National Oceanic and Atmospheric Administration's draft supplemental environmental impact statement (DEIS) for Amendment 11 to the Atlantic Mackeral, Squid, and Butterfish (MSB) Fishery Management Plan (FMP) (CEQ No. 20100004).

Amendment 11 of the MSB FMP has several purposes: A) cap the capacity of mackerel landings by instituting a limited access program; B) update the Essential Fish Habitat (EFH) for all life stages of mackerel, *Loligo* squid, *Illex* squid, and butterfish; C) evaluate gear impacts to *Loligo* egg EFH; D) establish recreational mackerel allocation; and E) avoid at-sea processing problems. Based on our review of the draft supplemental EIS, we have no objections to the proposed action; however, we offer the enclosed comments for clarification.

We appreciate the opportunity to review this draft supplemental EIS. The staff contact for this review is Aimee Hessert (hessert.aimee@epa.gov; 202-564-0993).

Sincerely,

Susan E. Bromm

Susan E. Bromm
Director
Office of Federal Activities

cc: Steve Kokkinakis, NOAA Office of Strategic Planning

MAR - 8 2010

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EPA Comments on NOAA's Draft Supplemental EIS for Amendment 11 to the MSB FMP

1. Purpose E (Avoid At-Sea Problems) - From a water quality perspective, the FEIS should discuss how at-sea discharges of fish offal and/or process water (if any) are handled from the processor ships in federal versus state waters in terms of 1) any permitting requirements, 2) any effluent treatment before discharge, and 3) the volume of discharge. Water quality considerations could also help determine limits to at-sea processing.

2. Purpose B (EFH) – EPA supports designation of EFH areas and updating them at least once every five years consistent with the EFH rule (pg. 33). Regarding a preferred alternative within Alternative Set 5 for Purpose B, we suggest only designating areas as EFH where mackerel and squid have been "frequently" trawled (since they are not overfished) and in areas where butterfish have been "moderately-frequently" trawled (since they are overfished).

3. Purpose C (Gear Impacts on *Loligo* egg EFH) – On pages 3 and 6 it indicates that no scientific information exists to suggest that gear impacts provide substantive impacts, and therefore no alternatives were provided for Purpose C. This conclusion seems reasonable. If further verification of trawl impacts is desired, we suggest that trawl samples be analyzed to determine damage to any eggs collected (if none are collected in otter trawls due to mesh size, perhaps a plankton tow could be used as a surrogate to collect the emersal/pelagic squid eggs). This method could include a physical examination as well as attempting to hatch collected eggs in the laboratory to determine post-tow survival.

4. Purpose D (Mackerel Recreational Quota) – Page 36 indicates there is technically only one (combined) recreational/commercial quota for mackerel, and that a separate recreational quota is needed for a pending NOAA amendment (Omnibus ACL/AM Amendment) in the possible (albeit unlikely) event that recreational landings would impact the commercial landings. For Alternative Set 6, we recommend that the current assumed recreational quota be fixed (Alternative 6A) as a hard quota (to establish a recreational quota since one is desired and does not exist). Alternatively, the quota might be moderately increased (Alternative 6B) but not significantly increased without cause.

5. Mackerel Recreational Quotas – We recommend Amendment 11 explain how a mackerel recreational quota, if implemented, would be monitored and enforced. In addition, we recommend the Final EIS include an explanation of how the current metric ton landings were determined.

6. Resource Status – We recommend the FEIS include a brief introduction on the overfishing status of each species considered in Amendment 11. Based on the DEIS, it appears that only butterfish are overfished (see Alternatives 5B, 5C & 5D on pg. 34).

Tracking #	EPA Comments on MSB Amendment 11 DEIS	Edits/Response
EPA1	FEIS should discuss at-sea processing waste discharge issues	Per discussion with EPA, added: "Note: Comments on this alternative from the U.S. EPA noted that processing operations may be subject to regulations related to EPA's authority under the Ocean Dumping Act and/or Clean Water Act, and that interested parties should consult EPA regarding any applicable regulations."
EPA2	Only designate for mackerel and squid where they are frequently trawled and for butterfish where they are "moderately-frequently" trawled.	The action uses a quantitative threshold related to total catch. But the end result is similar to what EPA suggests in that the Council would designate more area if the species is overfished and the designations are based on where the species is caught in the greatest quantity.
EPA3	If further information on trawl impacts to squid eggs is desired, collect samples of trawled eggs and/or try to hatch squid eggs in lab.	For EFH, the Council is evaluating habitat impacts, not impacts on the eggs themselves. This could be interesting as a potential research topic however…
EPA4	Recommend fixing quota (6A) or moderately increasing quota (6B).	6A, the status quo would mean that the fishery continues to proceed where there is no clear cap on either sector. 6B would likely be a decrease from 15,000 MT but the change is really about how it is calculated (historical proportions) and applied (a percentage of the total vs a fixed amount), than a decrease or increase per se. This is described in Section 5.6.
EPA5	Explain how recreational quota would be monitored and enforced. Explain how current estimates were determined.	Recreational catch estimation methodology and monitoring are described in Section 5.6.3. The upcoming Omnibus ACL/AM Amendment will change how quotas are set and monitored for all Council-managed species (also mentioned in section).
EPA6	Introduce the status of each species.	The DEIS had, and the FEIS will have, a section on the status of each stock: 6.1.1.2, 6.1.2.2, 6.1.3.2, 6.1.4.2. Also added a summary in 6.1's intro section.

13.0 Appendix 2 - ELMR Bays and Estuaries

Note: The Table label numbers and page numbers from Amendment 8 have been preserved to facilitate referencing Amendment 8.

Table 13. North and Mid-Atlantic estuaries that are designated as Atlantic mackerel essential fish habitat. Estuaries with an "x" are Atlantic mackerel essential fish habitat.

	North Atlantic Estuaries																	
	Passamaquoddy Bay			Englishman/ Machias Bays			Narraguagus Bay			Blue Hill Bay			Penobscot Bay			Muscongus Bay		
Life Stage	T	M	S	T	M	S	T	M	S	T	M	S	T	M	S	T	M	S
A		x	x		x	x		x	x		x	x		x	x		x	x
J		x	x											x	x		x	x
L																		
E																		

	Damariscotia River			Sheepscot River			Kennebec/ Androscoggin Rivers			Casco Bay			Saco Bay			Wells Harbor		
Life Stage	T	M	S	T	M	S	T	M	S	T	M	S	T	M	S	*	M	S
A		x	x		x	x		x	x		x	x		x	x			
J		x	x		x	x		x	x		x	x		x	x			
L																		
E																		

	Great Bay			Merrimack River			Massachusetts Bay			Boston Harbor			Cape Cod Bay		
Life Stage	T	M	S	T	M	*	*	*	S	*	M	S	*	M	S
A									x		x	x		x	x
J			x						x		x	x		x	x
L		x	x		x				x		x	x		x	x
E		x	x		x				x		x	x		x	x

	Mid-Atlantic Estuaries																	
	Waquoit Bay			Buzzards Bay			Narragansett Bay			Long Island Sound			Connecticut River			Gardiner / Peconic Bays		
Life Stage	*	M	S	*	M	S	T	M	S	T	M	S	T	M	*	*	M	S
A			x			x			x			x						x
J									x			x						x
L									x			x						x
E						x			x			x						x

<u>Salinity Zone</u>

T - Tidal Fresh
M - Mixing
S - Seawater
* - Salinity Zone Not Present

<u>Life Stage</u>

A - Adults
J - Juveniles
L - Larvae
E - Eggs

Table 13 (continued). North and Mid-Atlantic estuaries that are designated as Atlantic mackerel essential fish habitat. Estuaries with an "x" are Atlantic mackerel essential fish habitat.

	Mid-Atlantic Estuaries																	
	South Shore Bay Complex			Hudson R./ Raritan Bay			Barnegat Bay			New Jersey Inland Bays			Delaware Bay			Delaware Inland Bays		
Life Stage	*	M	S	T	M	S	T	M	S	T	M	S	T	M	S	*	M	S
A			x			x												
J			x			x												
L			x															
E			x															

	Chincoteague Bay			Chesapeake Bay Mainstem			Chester River			Choptank River			Patuxent River			Potomac River		
Life Stage	*	*	S	T	M	S	T	M	*	T	M	*	T	M	*	T	M	*
A																		
J																		
L																		
E																		

	Tangier / Pocomoke Sound			Rappahannock River			York River			James River		
Life Stage	*	M	*	T	M	*	T	M	*	T	M	*
A												
J												
L												
E												

<u>Salinity Zone</u>

T - Tidal Fresh
M - Mixing
S - Seawater
* - Salinity Zone Not Present

<u>Life Stage</u>

A - Adults
J - Juveniles
L - Larvae
E - Eggs

Table 14. North and Mid-Atlantic estuaries that are designated as butterfish essential fish habitat. Estuaries with an "x" are butterfish essential fish habitat.

	North Atlantic Estuaries																	
	Passamaquoddy Bay			Englishman/ Machias Bays			Narraguagus Bay			Blue Hill Bay			Penobscot Bay			Muscongus Bay		
Life Stage	T	M	S	T	M	S	T	M	S	T	M	S	T	M	S	T	M	S
A																		
J																		
L																		
E																		

	Damariscotta River			Sheepscot River			Kennebec/ Androscoggin Rivers			Casco Bay			Saco Bay			Wells Harbor		
Life Stage	T	M	S	T	M	S	T	M	S	T	M	S	T	M	S	*	M	S
A																		
J																		
L																		
E																		

	Great Bay			Merrimack River			Massachusetts Bay			Boston Harbor			Cape Cod Bay		
Life Stage	T	M	S	T	M	*	*	*	S	*	M	S	*	M	S
A									x					x	x
J									x					x	x
L												x			
E									x			x			x

	Mid-Atlantic Estuaries																	
	Waquoit Bay			Buzzards Bay			Narragansett Bay			Long Island Sound			Connecticut River			Gardiner / Peconic Bays		
Life Stage	*	M	S	*	M	S	T	M	S	T	M	S	T	M	*	*	M	S
A			x		x	x		x	x		x	x		x			x	x
J			x		x	x		x	x		x	x		x			x	x
L			x			x			x			x						x
E			x			x			x			x						x

Salinity Zone

T - Tidal Fresh
M - Mixing
S - Seawater
* - Salinity Zone Not Present

Life Stage

A - Adults
J - Juveniles
L - Larvae
E - Eggs

Table 14 (continued). North and Mid-Atlantic estuaries that are designated as butterfish essential fish habitat. Estuaries with an "x" are butterfish essential fish habitat.

	Mid-Atlantic Estuaries																	
	South Shore Bay Complex			Hudson R./ Raritan Bay			Barnegat Bay			New Jersey Inland Bays			Delaware Bay			Delaware Inland Bays		
Life Stage	*	M	S	T	M	S	T	M	S	T	M	S	T	M	S	*	M	S
A			x		x	x									x			x
J			x		x	x		x	x		x	x		x	x			x
L			x		x										x			
E			x															

	Chincoteague Bay			Chesapeake Bay Mainstem			Chester River			Choptank River			Patuxent River			Potomac River		
Life Stage	*	*	S	T	M	S	T	M	*	T	M	*	T	M	*	T	M	*
A					x	x												
J					x	x												
L					x	x												
E					x	x												

	Tangier / Pocomoke Sound			Rappahannock River			York River			James River		
Life Stage	*	M	*	T	M	*	T	M	*	T	M	*
A								x			x	
J								x			x	
L												
E												

<u>Salinity Zone</u>

T - Tidal Fresh
M - Mixing
S - Seawater
* - Salinity Zone Not Present

<u>Life Stage</u>

A - Adults
J - Juveniles
L - Larvae
E - Eggs

14.0 Appendix 3 - Post DEIS Comment Period Letters and Summary of May 2010 Joint Committee and Advisory Panel meeting to resolve historical participation issues.

Rich / Jason

June Briefing Book

Congress of the United States
Washington, DC 20515

April 27, 2010

RECEIVED MAY - 5 2010 Mid-Atlantic Fishery Management Council

Chairman Richard B. Robins, Jr.
Mid-Atlantic Fishery Management Council
Suite 201
800 N. State St
Dover, DE 19901-3910

Dear Chairman Robbins:

We are writing to express our concern with developments at the recent Council meeting in Duck, North Carolina regarding Amendment 11 to the Atlantic Mackerel, Squid, and Butterfish (MSB) Fishery Management Plan (FMP). We are particularly concerned that as the council tries to use this amendment to move to a limited access management structure, it may include a "capping capacity" provision that unfairly discriminates against the ability of North Carolina vessels to participate in the Atlantic mackerel fishery when those fish return to our state's waters.

It is our understanding that, as discussed at the council meeting in Duck, the "control" dates for determining which fishermen will remain in the fishery will guarantee that North Carolina boats will be left out of a fishery historically available to them. We understand the Advisory Committee, the Fisheries Management Action Team (FMAT) and others are scheduled to review this provision prior to the June council meeting. We hope this review will lead the council to select alternative control dates that do not disenfranchise North Carolina boats.

As you know, mackerel have historically been caught off North Carolina. But in recent years they stayed farther north out of range for most of our fishermen. There are signs that mackerel may be returning to North Carolina as a result of colder water temperatures during the past few winters. In fact, thousands of pounds of mackerel were landed in North Carolina as recently as February, as illustrated by documents distributed by the State at the Duck meeting.

For these reasons and others, we encourage you to include North Carolina's historical mackerel fishery when the Council sets control dates for the new limited access fishery. To achieve that, we suggest such dates go back to 1988. We also ask that you distribute this letter to the Advisory Committee when they meet to reconsider this matter.

Thank you for your attention. We look forward to hearing from you.

Sincerely,

Walter B. Jones
Walter B. Jones
Member of Congress

Richard Burr
Senator

PRINTED ON RECYCLED PAPER

Rick/Jason
June Brief.
Book

NCDENR

North Carolina Department of Environment and Natural Resources
Division of Marine Fisheries

Beverly Eaves Perdue
Governor

Dr. Louis B. Daniel III
Director

Dee Freeman
Secretary

RECEIVED
MAY
Mid-Atlantic Fishery Management Council

April 29, 2010

Mr. Rick Robins, Chairman
Mid-Atlantic Fishery Management Council
Suite 201
800 North State Street
Dover, DE 19901-3910

Dear Chairman Robins,

The North Carolina Division of Marine Fisheries (NCDMF) is greatly concerned that North Carolina fishermen that were historical participants in the Atlantic mackerel fishery will be disenfranchised if a qualifying date other than 1988 is used as the basis for qualification for a limited access fishery in Amendment 11 to the Atlantic Mackerel, Squid and Butterfish Fishery Management Plan (FMP). With many commercially fished species, landings by geographic area are directly correlated with stock abundance and distribution. Atlantic mackerel landings in North Carolina are particularly influenced by stock distribution because our state is located at the southern end of the range of the species.

North Carolina commercial landings statistics for Atlantic mackerel from the 1975/76 through the 1995/96 fishing seasons clearly show the variations in landings. From the 1975/76 through the 1984/85 seasons, landings ranged from 50 pounds to 440,302 pounds, with mean landings of 147,390 pounds for the time series. For the next ten year period, 1985/86 through 1994/95, landings ranged from 5,695 pounds to 870,503 pounds per season, with mean landings of 296,025 pounds. North Carolina Trip Ticket Data from 1994 through 2007 indicate that annual dealer reports of landings of 1,000 pounds or more range from zero pounds to 144,841 pounds, with mean landings of 65,499 pounds for the 14 year time series.

Since data on the number of participating vessels or number of trips are not available from the NC Commercial Landing Statistics for 1975-1995, we are not able to compare the amount of effort that occurred in the historical fishery with the effort data since 1994 that are available from our Trip Ticket Program. However, I firmly believe that had Atlantic mackerel been available within a reasonable operating range of North Carolina vessels over the past 14 years, the fishery would have been fully prosecuted by our fleet. Consequently, because Atlantic mackerel have not been available in southern mid-Atlantic waters in recent years, our vessels do not have the catch history since 1994 or later to qualify for the higher Limited Access Options proposed in Amendment 11 to the FMP.

3441 Arendell Street, P.O. Box 769, Morehead City, North Carolina 28557
Phone: 252-726-7021 \ FAX: 252-726-0254 \ Internet: www.ncdmf.net

One NorthCarolina *Naturally*

The NCDMF recommends that the Mid-Atlantic Council select Management Alternative 1B as the preferred alternative for a limited access system for Atlantic mackerel. This option would address our concerns about the need to use North Carolina historical landings to capture the periods that Atlantic mackerel were available to our fleet. Also, this option would be more fair and equitable as it would not allocate limited access opportunities to vessels with more recent catch history at the expense of vessels that historically participated in the fishery. One thing that definitely needs to be avoided in Amendment 11 is creating a scenario similar to that in the original Monkfish FMP whereby North Carolina fishermen with catch history were excluded from the fishery after being advised that the FMP would not apply to NC waters. Although the Mid-Atlantic Council acknowledged during the FMP approval process in 1998 that NC fishermen should have been included in the fishery, it took seven years and a lot of hard work for them to gain access to the fishery, through Category H Permits, as a result of Amendment 2 to the Monkfish FMP.

Should the Mid-Atlantic Council be concerned that Alternative 1B would result in greater capacity than other alternatives, a sub-alternative could be proposed that would limit the geographical range in which vessels could operate if they qualified with landings prior to a specific date. This approach could be patterned after the Monkfish Category H Permits which allow permit holders to fish for monkfish only in waters lying south of Delaware Bay.

Thank you for the opportunity to comment on Amendment 11 to the Atlantic Mackerel, Squid and Butterfish FMP.

Sincerely,

Louis B. Daniel III, Director
N.C. Division of Marine Fisheries

cc: Dan Furlong
Rich Seagraves
Fentress Munden
Erling Berg
Jule Wheatly
Pres Pate
Sean McKeon
Billy Carl Tillett

LBD/fm/cb

Didden, Jason T.

From: Didden, Jason T.
Sent: Wednesday, April 07, 2010 12:14 PM
To: 'Carrie Nordeen'
Subject: FW: Am 11 Mackerel Tier Concerns

Attachments: Am 11 Mackerel Tier concerns

Am 11 Mackerel Tier concerns ...

fyi

-----Original Message-----
From: Joanne Poffenberger [mailto:jpoffenberger@optimum.net]
Sent: Wednesday, April 07, 2010 12:16 PM
To: Robins, Rick; Anderson, Lee; Kurkul, Pat; Darcy, George
Cc: Didden, Jason T.; Seagraves, Richard J.
Subject: Am 11 Mackerel Tier Concerns

Empire Fisheries
322 New Haven Ave, Milford, CT 06460
34 Briarpatch Rd, Stonington, CT 06378
203-876-8923

Richard B. Robins, Jr.
MAFMC
800 N. State Street, Suite 201
Dover, DE 19901

April 7, 2010

Dear Mr. Robins,

As a stakeholder in the industry, I am writing with regard to the proposed Amendment 11 for the Mackerel, Squid, and Butterfish fishery, specifically concerning the limited access program for Atlantic Mackerel.

Another alternative should be added to the options available for Tier structures in which Tier 1 would include landings data from 1988 - 2007.
That alternative should be:
1K: Implement a 3-tiered limited access system. Vessels would be grouped based on the highest tier (Tier 1 highest) qualified for based on the following
thresholds:
Tier 1: At least 1,000,000 pounds landed in any one year 1988-2007 Tier 2: At least 100,000 pounds landed in any one year 1988-2007 Tier 3: At least 25,000 pounds landed in any one year 1988-2007 Open Access: All other vessels.

If the Council is willing to accept data from years prior to 1994 in other Tier considerations, these data should be deemed reliable for Tier 1 considerations as well. By not including fishing landings data since 1988, many fishermen would be prevented from fishing at their historic participation levels due to the shifting availability of mackerel.

The value of instituting a LA program to cap capacity is understandably necessary. Although, the statistics involved with this fishery indicate only 20-50% of the available quota was landed in recent years. With that evidence, and with only a hypothesized reduction in coming years, it would be prudent to take less restrictive steps initially setting up the program.
Any limiting effort in regards to this fishery would show some amount of reduction. Taking smaller steps to manage the fishery would give better understanding to the impacts of each particular step.

I urge you and the Council to consider and vote for the inclusion of landings data from 1988-2007 for Tier 1 of the Limited Access program for Mackerel.

Amendment 11 - Mackerel Limited Access

The SMB Committee, the SMB Advisory Panel (AP), and the Amendment 11 FMAT met on May 26, 2010. The purpose of the meeting was to resolve outstanding issues with Amendment 11, principally the tension between providing access to historical vessels and effectively capping capacity. The meeting took place the day before the June mail-out so Council staff is including this brief preliminary summary and additional details can be provided at the June Council meeting. The Committee and AP will be meeting in June to address 2011 specifications as well as Amendment 11 and may clarify staff's summary - there was not time to circulate this summary to the committee/AP/FMAT prior to mail-out.

The Committee received substantial comments from the SMB advisory panel that they thought that the ranges of vessels in Tiers 1 and 2 proposed so far were generally reasonable and that having fewer vessels could impede harvesting of quotas even in the range of 42,000 mt. The Committee also received input from the FMAT on issues related to the current alternatives in terms of capacity and data issues.

To summarize perspectives on mackerel limited access, Council staff requested input on two possible scenarios. The first scenario would be a small fleet, perhaps 18 vessels that had directed access, and that during a "good" mackerel year might harvest mackerel January through April. The second would be a larger fleet like those discussed in the current document (Tiers 1 and 2) that during a "good" mackerel year, if most actually fished, might harvest the quota relatively quickly and perhaps only fish January-February. The AP panel was unanimously in favor of the second scenario. The AP panel felt such early closures would likely happen relatively rarely in peak abundance years and that it was better to have more vessels able to search and fish for mackerel in the majority of years when mackerel availability was not near its peak.

The participants also discussed ways to allow historical vessels a degree of participation without relying on old (pre-3/1/1994) landings data. The approach for addressing this issue involves simplifying the system to three Tiers, with the higher Tiers requiring the most recent data and then having a Tier 3 that would consist of all other vessels (about 2,500) with permits on 3/21/2007. This Tier would have a 100,000 pound trip limit and would close to a low-level trip limit (staff will be provide a range in June for the Committee to consider) once it reaches a certain cap, perhaps 1%-5% of the quota. While such a cap might only allow about forty 100,000 pound trips total for the 2,500+ Tier 3 vessels under anticipated near-future quotas, the Committee and AP concluded that this option would address providing some access for historical and latent vessels as well as capping the number of vessels that have access to the principal directed fishery. The committee made the following motions related to the above-described approach:

Motion that the Committee recommend to the Council to take the following alternatives out for additional public comment:

Alternative B (simplified 1C)
T1: 1,000,000 1997-2007
T2: 100,000 1997-2007
T3: 3/21/2007 Permit

Alternative C (simplified 1D)
T1: 400,000 1997-2005
T2: 100,000 1994-2005
T3: 3/21/2007 Permit

-And include a cap on Tier 3 based on historic percentages of (1988-2007) commercial landings: Minimum, Average, Maximum percents.
-Indicate "C" (simplified 1D) as preferred.
-No allocation between Tiers.
Tooley/Pate (9/0/0) Motion Passes

Note: Record reflects that AP agreed by consensus with motion(unanimous).
Note: Committee further clarified that 3/21/2007 permit would apply to all Tiers.
Note: Committee further clarified that there would be an-open access group with low trip limits and that staff would develop a range of alternatives.

Motion that the trip limits associated with new alternative for Tier 2 be 135,000 pounds and Tier 3 be 100,000 pounds.
Tooley/Pate (9/0/0)
Record reflects that AP agreed by consensus with motion (unanimous)

It is likely that consideration of these alternatives will require a supplement to the Amendment's draft EIS be published and an additional written comment period. Also, the addition may require substantial editing of the Amendment's final EIS. Staff will investigate and report on the relevant procedural issues at the June Council meeting. Staff will also summarize any additional outstanding issues pertaining to Amendment 11.

15.0 Appendix 4 - SDEIS Comments

GARDEN STATE SEAFOOD ASSOCIATION

212 West State Street
Trenton, New Jersey 08608
office (609) 898-1100
gregdi@voicenet.com

October 12, 2010

Ms. Aja Peters-Mason
National Marine Fisheries Service
Northeast Regional Office
55 Great Republic Drive
Gloucester, MA 09130-2276
Sent via email to: aja.peters-mason@noaa.gov & jdidden@mafmc.org

Comments on the Revised EIS for Amendment 11 to the Squid, Mackerel and Butterfish Fishery Management Plan. (75 Federal Register 52736)

Dear Ms. Peters-Mason:

Please accept these comments on behalf of the Garden State Seafood Association (GSSA) and Lund's Fisheries, Inc. Our members and the employees from Lund's rely heavily upon this fishery and are supportive of Amendment 11. We are encouraged by the alternatives being considered, especially the options for considering the historical nature of this fishery. In fact the options being considered will allow for some level of access by vessels from ports that are routinely in the range of the Atlantic mackerel resource. We have followed this amendment since its inception and look forward to its implementation.

We support **Alternative 1D** the preferred option:
Implement a 3-tiered limited access system. Vessels would be grouped based on the highest tier (Tier 1 highest) qualified for based on the following thresholds:
Tier 1: At least 400,000 pounds landed in any one year 1997-2005
Tier 2: At least 100,000 pounds landed in any one year 3/1/1994-2005
Tier 3: Possessed mackerel permit on March 21, 2007 along with a sub-option of requiring 1,000 pounds in best year 3/1/1994-2005.
Tier 3 would be capped for a maximum catch up to 7% of the commercial quota, set annually during the specifications process.
Open Access: All other vessels.

This alternative was developed and unanimously supported by the SMB Committee and the Advisory Panel during the May 26th meeting. The Committee and AP concluded that this option would provide some access for historical and latent vessels as well as capping the number of vessels that have access to the principal directed fishery. It is important that all applicants be required to demonstrate landings to qualify for a permit and the amendment should reiterate that state dealer receipts

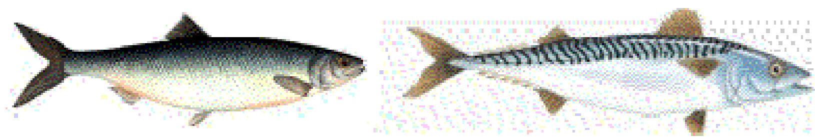
may be used to verify landings. Furthermore, the importance of accurate and timely reporting of landings should be acted upon by requiring daily reporting of mackerel landings.

We support **Alternative 3F** the preferred option:
Trip limits set annually though the annual specifications process. Initially set the Tier 2 trip limit to be 135,000 pounds, adjustable during specifications. Initially set the Tier 3 trip limit to be 100,000 pounds, adjustable during specifications. Set the open access trip limit in the range of 1,000 pounds to 20,000 pounds, adjustable during specifications. Initially set directed fishery closure trip limits as: Tiers 1, 2, and 3: 20,000 pounds; open access stays at same level during a closure.

Thank for the opportunity to comment and we will provide additional public comments during the discussion of Amendment 11.

Sincerely,

Gregory DiDomenico
Executive Director
Garden State Seafood Association



SUSTAINABLE FISHERIES COALITION
www.fisheriescoalition.org
PO Box 440 Winterport, Maine 04496-0440

The Sustainable Fisheries Coalition is an organization of the Atlantic herring and Atlantic mackerel mid-water trawl and purse seine industry, operating from Maine through New Jersey. The Coalition was established in 2007 to improve public outreach and education and increase awareness of the economic importance and environmental sustainability of the Atlantic herring and Atlantic mackerel fisheries.

October 12, 2010

Ms. Aja Peters-Mason
National Marine Fisheries Service
Northeast Regional Office
55 Great Republic Drive
Gloucester, MA 09130-2276
Sent via email to: **aja.peters-mason@noaa.gov** & **jdidden@mafmc.org**

Re: Comments on the Revised EIS for Amendment 11 to the Squid, Mackerel and Butterfish (SMB) Fishery Management Plan. (75 Federal Register 52736)

Dear Ms. Peters-Mason:

I am writing on behalf of the fishermen and plant employees of the Atlantic mackerel and Atlantic herring companies organized as the Sustainable Fisheries Coalition; Cape Seafoods, Inc. and Western Sea Fishing Company, Inc. of Gloucester, Massachusetts; Irish Venture, Inc. of New Bedford, Massachusetts; Lund's Fisheries, Inc. of Cape May, New Jersey; and NORPEL (Northern Pelagic Group) of New Bedford, Massachusetts.

These companies directly employ about 400 people and have collectively invested approximately \$100 million in plants and vessels, in addition to providing markets for many independent vessels, and are nearly 100 % dependent upon the Atlantic mackerel and Atlantic herring fisheries.

We are writing in support of establishing a limited entry program in the Atlantic mackerel fishery through the implementation of Amendment 11 to the SMB fishery management plan.

Specifically, we support the alternatives developed unanimously by the SMB Committee and the Advisory Panel during their May 26, 2010 meeting. The Committee and AP intentionally included an option that would provide broad geographical access to the Atlantic mackerel resource for some latent vessels in this fishery, which may have historical landings, as well as capping the number of vessels that have access to the directed fishery.

Limited Access Qualification

We support **Alternative 1D,** the preferred option. This alternative would implement a 3-tiered limited access system with vessels qualifying for each tier based upon the following thresholds:
Tier 1: At least 400,000 pounds landed in any one year 1997-2005
Tier 2: At least 100,000 pounds landed in any one year 3/1/1994-2005
Tier 3: Possessed mackerel permit on March 21, 2007 along with a sub-option of requiring 1,000 pounds in best year 3/1/1994-2005. Tier 3 would be capped for a maximum catch up to 7% of the commercial quota, set annually during the specifications process.
Open Access: All other vessels.

It is important that all applicants for these limited access permits be required to demonstrate landings to qualify for a permit. The amendment should reiterate that state dealer receipts may be used to verify landings. In addition, the importance of accurate and timely reporting of landings would be enhanced by requiring daily reporting of mackerel landings.

Trip Limits

We support **Alternative 3F,** the preferred option. This option would establish trip limits, which would be set though the annual specifications process, for the lower tiers. The Tier 2 trip limit would initially be set at 135,000 pounds; the Tier 3 trip limit would initially be set at 100,000 pounds; and the open access trip limit would be established initially somewhere in the range of 1,000 pounds to 20,000 pounds. Initially, the directed fishery closure trip limits would be established for Tiers 1, 2, and 3 at 20,000 pounds with the open access trip limit remaining the same during a closure.

Thank you for the opportunity to provide you with our comments on this important amendment. We look forward to discussing the amendment in greater detail with you when the MAFMC meets in Cape May later this week.

With best regards,

Jeff Kaelin
SFC Clerk; Lund's Fisheries Inc.

Peter Mullen
Irish Venture, Inc.

Peter Moore
NORPEL

Jerry O'Neill
Western Sea Fishing Co., Inc.

Dave Ellenton
Cape Seafoods, Inc.

Jeff Reichle
Lund's Fisheries, Inc.

Brady Schofield
NORPEL

Greg DiDomenico
Garden State Seafood Assn.

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
NORTHEAST REGION
55 Great Republic Drive
Gloucester, MA 01930-2276

OCT - 8 2010

Richard R. Robins, Jr., Chairman
Mid-Atlantic Fishery Management Council
800 N. State Street, Suite 201
Dover, DE 19901

Dear Rick:

After reviewing the revised alternatives for the limited access program in the Supplement to the Draft Environmental Impact Statement (SDEIS) for Amendment 11 to the Atlantic Mackerel, Squid, and Butterfish (MSB) Fishery Management Plan (FMP) (Amendment 11), I have identified concerns that warrant Council consideration as it adopts limited access measures. These concerns are similar to those raised in my March 1, 2010, letter.

The SDEIS for Amendment 11 expresses concern about a "race to fish" as rationale for a capping the capacity of the mackerel fishery. However, adopting liberal qualification criteria and a high trip limit for Tier 3 in the preferred alternative, 1D, has the potential to create a derby fishery. Alternative 1D has 2 suboptions; one would base Tier 3 vessels qualification on issuance of an Atlantic mackerel (mackerel) permit on March 21, 2007, and the other would require both the issuance of a permit and landings of 1,000 pounds in a year between March 1, 1995, and December 31, 2005. The analysis presented in the Amendment predicts that the adoption of a permit-only qualification requirement would result in over 2,400 vessels qualifying for Tier 3. Pairing the permit requirement with the 1,000-pound landings requirement would result in just over 300 Tier 3 vessels. If Tier 3 has a quota of 3,275 mt (7% of the domestic annual harvest (DAH) proposed for mackerel in 2011) and Tier 3 vessels catch the proposed 100,000-pound trip limit, the quota could be harvested in just 73 trips. Amendment 11 needs to clarify the rationale for this approach, which is briefly summarized in Appendix 3. This discussion should be expanded.

If the Council adopts Alternative 1D as the tiered limited access system measure, I encourage the Council to also adopt the 1,000-pound landings requirement for Tier 3 in order to limit the total number of Tier 3 vessels. Because a potentially large number of vessels may be fishing on a relatively small quota, I urge the Council to adopt Alternative 4G2 (i.e., requirement for weekly vessel trip reports (VTR)) to aid in quota monitoring. I note that Amendment 14 will further examine monitoring in the mackerel fishery.

In addition, Amendment 11 should clarify two points related to the administration of the application process for the limited access program. First, the SDEIS acknowledges that applicants will be required to demonstrate landings to qualify for a permit, and that dealer receipts have been used to verify landings in other limited access programs, but does not explicitly state that dealer receipts will be used to verify landings. If this is the Council's intent, this should be made clear in Alternative 4B1. Second, because the amendment considers both permit and landings requirements, Alternative 4D should clarify that vessels need to satisfy both requirements by April 3, 2009.

I value the continued cooperation between NMFS and the Council on the development of the limited access program in Amendment 11.

Sincerely,

Patricia A. Kurkul
Regional Administrator

16.0 Index