FRAMEWORK ADJUSTMENT 1
to the
ATLANTIC DEEP-SEA RED CRAB
FISHERY MANAGEMENT PLAN

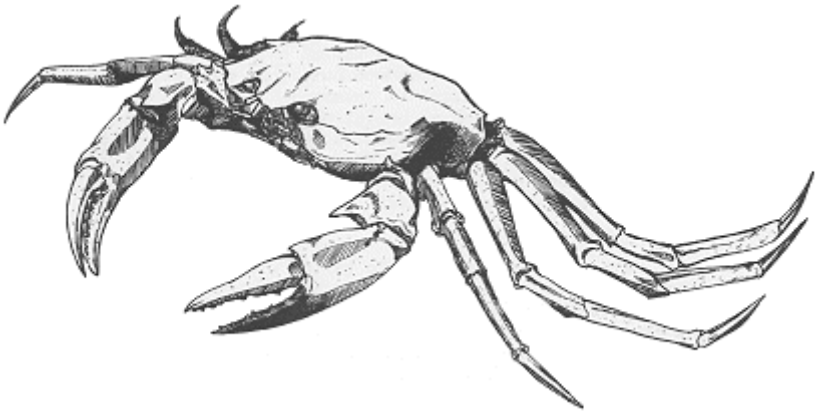
To modify the annual review and specification process

Including the

Environmental Assessment (EA),

Regulatory Impact Review (RIR), and

Initial Regulatory Flexibility Analysis (IRFA)



Prepared by the
New England Fishery Management Council
in consultation with
National Marine Fisheries Service

Initial Framework Meeting: May 14 2004
Final Framework Meeting: September 16 2004
NEFMC Submission Date: February 18, 2005 (Revised April 6, 2005)

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1.0 EXECUTIVE SUMMARY

The Deep-sea Red Crab FMP became effective on October 21, 2002. The primary management regime implemented by the regulations was a limited access program for the Atlantic deep-sea red crab fishery. That program includes a variety of measures including: Trap limits, days-at-sea (DAS) limitations, a target total allowable catch (TAC), reporting requirements, possession limits, and other measures. The regulations also require the Council to review the status of the deep-sea red crab stock and fishery every year, as well as prepare a biennial Stock Assessment and Fishery Evaluation (SAFE Report). This action proposes to modify that annual requirement to a multi-year review and specification process. Furthermore, this action recommends specifications for fishing years 2006 and 2007, which include a target TAC and fleet DAS allocation for the limited access fleet.

The proposed action is described in Section 5.0. In summary, this action proposes to modify the annual review and specification process to allow specifications to be set for up to a 3-year time frame. The Red Crab Plan Development Team (PDT) will continue to meet annually to monitor the status of the stock and fishery, but multi-year specifications would remain for the specified time period, unless the PDT recommends that a modification is necessary and the Council approves new specifications. In addition, because the Council recommended immediate implementation of the multi-year specification process, this action sets the target TAC and DAS allocations for fishing years 2006 and 2007 (the specifications for fishing year 2005 were submitted previously under separate cover). The proposed action includes a target TAC of 5.928 million pounds of males and a fleet DAS allocation of 780 for both fishing years. The primary justification for this action is to reduce the staff resources necessary to effectively manage this fishery by reducing the frequency with which SAFE Reports, specification packages, and rule making documents need to be prepared and processed, particularly since the specifications are not likely to change from year to year. This action is also expected to improve business planning for the red crab industry.

The impacts of this action are described in Section 7.0. In summary, the impacts of this action are expected to be the same as described in the FMP. The only differences as a result of multi-year specifications may be reduced administrative costs and potential benefits to the industry based on improved business planning. Overall, there are no significant impacts of this fishery action on the red crab resource, non-target species, social/economic resources, EFH, or protected species. The number of vessels that participate in this fishery is small, the amount of gear is limited, and the impacts on the ecosystem are not significant. Because this action proposes to continue the current specifications for an additional two years, there are no changes expected to the biological, economic, and social impacts assessed and identified in the FMP and previous specifications documents.

2.0 INTRODUCTION

This is the first framework adjustment to the Atlantic Deep-Sea Red Crab Fishery Management Plan (Red Crab FMP). This framework contains the New England Fishery Management Council's recommended alternative for modifying the review and specification process implemented with the Red Crab FMP, as well as the proposed specifications for fishing years 2006 and 2007. This document also contains the supporting analysis required under other applicable law, namely the National Environmental Policy Act (Environmental Assessment, EA), the Regulatory Flexibility Act (the Initial Regulatory Flexibility Analysis, IRFA) and Executive Order 12866 (Regulatory Impact Review, RIR) and other applicable laws.

The Red Crab FMP was implemented on October 21, 2002. According to section 648.260 of the Red Crab regulations *(Annual Specifications),* the Red Crab PDT is required to review the status of the red crab stock annually and set the target total allowable catch (target TAC) and fleet days-at-sea (DAS) allocation prior to the start of every fishing year, which is March 1. The regulations also require the Council to prepare a biennial Stock Assessment and Fishery Evaluation (SAFE) Report. The New England Council proposes modifying the annual review process to allow specification to be set for up to 3 years. The alternatives considered are in Section 5.0, and the impacts of these alternatives are compared in Section 7.0. Since the Council approved a multi-year specification process, then the Council also recommended specifications for the 2006 and 2007 fishing years in order to complete the multi-year specifications. Specifications for fishing year 2005 were developed and submitted under separate cover due to the timing requirements for implementation prior to March 1, 2005.

This framework adjustment is being considered to reduce the administrative resources needed to review and set specifications annually and to provide the industry with advance information regarding upcoming fishing years. The current process has proven to be administratively burdensome given that the overall specifications have not changed since the FMP was implemented. The burden derives from the fact that, under the current process, the Council must develop and recommend specifications on an annual basis, including preparation of regulatory analyses in accordance with applicable law and regulations. Multi-year specifications would simplify the overall process by reducing the frequency of Council decision-making, and NOAA Fisheries rulemaking, as long as the specifications do not need to be changed from those specified in advance.

Because the red crab fishery is a small fleet that is managed closely using both input and output control methods, landings are not expected to exceed predicted amounts. Furthermore, the fleet has not exceeded the TAC nor used all allocated DAS since implementation of the FMP. Lastly, there is incomplete data on the red crab resource; therefore, attempting to assess the stock every year is not possible and is considered a waste of valuable management resources.

3.0 PURPOSE AND NEED

The need for this action is to improve the administrative processes required under the Red Crab FMP and reduce inefficiencies associated with the current annual specifications process. The purpose of this action is: (1) To modify the annual review requirement to allow for a multi-year

process; and (2) to establish the specifications for fishing years 2006 and 2007, if a multi-year review and specification process is approved.

4.0 AFFECTED ENVIRONMENT

4.1 Biological Environment

A complete description of the affected environment is included in the Red Crab FMP/EIS (NEFMC, March 2002:Section 8.0). There is no new biological information that would suggest that red crab distribution has changed since the FMP was implemented. In summary, the Affected Environment section of the FMP describes the biological and ecological characteristics of red crab, the habitat needs of the resource and various threats to EFH, as well as the economic and social characteristics of the fishery. In general, the red crab is a slow growing crustacean and may live for fifteen years or more (Serchuk and Wigley, 1982). Red crabs are patchily distributed along the continental shelf edge and slope of the western Atlantic, primarily at depths of 200-1800 meters. Juvenile crabs live in deeper waters than adult crabs, and for the majority of the year, males are generally distributed in deeper waters than females.

Since implementation of the FMP, the biological and economic information about the red crab resource and fishery has been updated in the 2004 Stock Assessment and Fishery Evaluation (SAFE Report). In summary, there are now additional data to supplement the single red crab assessment completed over 30 years ago. Researchers have used both trawl- and camera-based sampling methods to determine whether the abundance, size structure, and sex composition of the population has changed since the 1974 survey. Preliminary findings suggest that the overall population density estimates of red crab are higher than the previous survey, but the proportion of harvestable crabs (males larger than 114 mm carapace width) is less than the 1974 survey (Wahle et al, 2004). There is also additional observer data, port sampling data, as well as fishery-dependent data that have provided new information about red crab discards, catch composition, and red crab fishing effort. These data have been summarized in the 2004 SAFE Report as well. In general, the red crab fishery is very clean and does not have significant levels of bycatch, if any. On the other hand, red crabs are caught as bycatch in several other fisheries offshore and within the Gulf of Maine. The PDT will continue to monitor the red crab discards in other fisheries as more data become available.

4.2 Background of Fishery

During the 1960s and 1970s, the resource was considered underutilized, and several vessels began experimenting in the early 1970s to develop a deep-sea red crab fishery in this region. The directed red crab fishery is entirely a trap fishery. The primary fishing zone for red crab, as reported by the fishing industry, is at a depth of 400-800 meters along the continental shelf in the Northeast region, and is limited to waters north of 35° 15.3N (Cape Hatteras, NC) and south of the Hague Line. Prior to implementation of the FMP, the fishery fluctuated in terms of the number of vessels pursuing red crab and in terms of the annual landings.

The FMP was implemented on October 21, 2002, which limited the number of vessels that could harvest red crab in a directed fishery. The Red Crab FMP/EIS regulations implemented a limited access program for the directed fishery with a target TAC of 5.928 million pounds and a days-at-

sea allocation of 780 fleet days to harvest the TAC. A number of measures were implemented including trip limits, limit on the number of traps permitted per vessel, a prohibition against harvesting female crabs, and several other measures intended to prevent overfishing. Although this is a small fishery in terms of the number of vessels that participate, ex-vessel revenues are estimated to be about $4-5 million dollars a year. The majority of individuals that are involved in the harvesting sector of this fishery report almost complete economic dependence on red crab as their primary fishery. All limited access vessels are now docked out of Fall River, MA; and the majority of participants and crew members are from New England. The processing sector for red crabs was relatively small prior to the FMP, and now all crabs are processed at one facility in Nova Scotia, Canada. This processor then sells the entire red crab product to several large food chains. The crab is primarily sold as generic crabmeat, and cocktail claws.

Fishing year 2003 (March 1, 2003 – February 29, 2004) was the first complete fishing year under the FMP. The fleet was allocated 780 DAS to harvest the target TAC of 5.928 million pounds, and at the end of the year, 571 DAS were used. Only four of the five limited access vessels were active in FY2003, and the fleet landed approximately 4.1 million pounds of red crab. In fishing year 2004, the fifth vessel opted out of the fishery. The FMP regulates that if a limited access vessel formally opts out of the fishery, then those DAS are divided equally among the remaining vessels. For example, instead of each vessel receiving 156 DAS as in FY2003, in FY2004 each vessel was allocated 195 DAS (780 DAS divided by four vessels versus five). To date, 577 DAS have been used in FY2004, and approximately 3.7 million pounds of red crab have been landed as of December 31,2004, but there are still two months left in the fishing year. The Council recently submitted the specifications for the 2005 fishing year. It recommended maintaining the TAC and fleet DAS allocation from the previous year, 5.928 million pounds and 780 DAS respectively.

4.3 Essential Fish Habitat

4.3.1 Red Crab

The EFH designation for red crab has not changed since implementation of the FMP. Section 3.7.4 of the FMP describes the EFH text and map definition for each life stage. EFH for red crab is based primarily on known depth affinities from Cape Hatteras to the Hague line. Figures 5 through 8 of the FMP, display where red crab EFH is spatially; but in general, EFH for red crab eggs is benthic habitats on the continental slope between 200-400 meters, larvae is from 200-1800 meters, juvenile EFH is from 700-1800 meters, and adult EFH is defined as 200-1300 meters. Additional information about red crab EFH can be found in Appendix A of the FMP, which is the EFH source document prepared for red crab. Table 1 in that document summarizes the life history and habitat characteristics of red crab for each life stage. Characteristics such as growth, substrate, temperature, salinity, prey and predator species are provided, but some information is unknown about this species. The designations for red crab EFH are being re-evaluated as part of the next Omnibus Habitat Amendment, a multi-year process to review and update all EFH designations, as well as other requirements related to essential fish habitat regulations. This Amendment is not expected to be implemented before 2007.

Since development of the Red Crab FMP, there is some additional information about red crab habitat from the camera sled that Wahle and others have developed. Although the results are

preliminary, the video documents red crabs scurrying out of burrow-like structures on the ocean floor. The implications of this finding are unclear, however, and additional information is necessary to determine whether this affects the aforementioned EFH designations for red crab. The researchers have also documented that more juvenile crabs live in deeper waters than larger crabs, confirming previous observations that red crabs sizes are segregated by depth (Wigley et al. 1974). In a comparison of surveys conducted in July and again in August 2003 at the same sites, Wahle and coworkers observed a significant upslope movement of small crabs.

4.3.2 Other Northeast Region Species

The area where the red crab fishery takes place is primarily between 400 and 800 meters along the continental shelf from Maine to North Carolina. There are a handful of species in this region that overlap with this fishery, but not many. Table 1 in Appendix 1 of this document summarizes the EFH text descriptions for all benthic (demersal) life stages for federally-managed species in the Northeast region. The species with EFH that potentially overlap with the red crab fishery (based on depth) are in bold face. The only species that have benthic EFH defined in waters that potentially overlap with the primary red crab fishing zone (400-800 meters) are halibut, redfish, witch flounder, spiny dogfish, golden crab, and most skate species.

4.4 Protected Species

The protected species and marine mammals that may be found in the environment utilized by the deep-sea red crab fishery are described in Section 8.7.1 of the Red Crab FMP/EIS. The list of species protected by either the Endangered Species Act or the Marine Mammal Protection Act that may be found in the environment utilized by the deep-sea red crab fishery are cetaceans (14 different species), sea turtles (5 different species), fish (2 species), and birds (2 species) (See Appendix II). However, since the red crab fishery is limited to the narrow shelf edge of the continental shelf, the extent of interaction between the fishery and protected species is not expected to be significant, and the fishery is not expected to adversely affect these populations. Section 8.7.4.6 of the Red Crab FMP concludes that the Red Crab FMP will affect, but is not likely to jeopardize, the continued existence of right whales, humpback whales, fin whales, blue whales, sei whales, sperm whales, or leatherback turtles. Furthermore, the Council has determined that the red crab fishery will not affect the endangered roseata tern, piping plover, loggerhead, ridley, and hawksbill sea turtles, shortnose sturgeon or Atlantic salmon.

In terms of the right whale, the Biological Opinion for the Red Crab FMP concluded that the FMP would maintain satisfactory control over any expanding effort that might occur in a fishery that is restricted by the distribution of the target species to the fringe of the right whale's range. NOAA Fisheries is currently considering regulations to implement a strategy to reduce mortalities to North Atlantic right whales. The red crab fleet is already in compliance with offshore management regulations, which require a weak link at the buoy that breaks away knotless at 3,780 lb (1,714.6 kg). Additionally, NOAA Fisheries is currently preparing an Environmental Impact Statement for the Atlantic Large Whale Take Reduction Plan (ALWTRP) to solicit comments on current management measures and provisions in the plan as well as additional modifications to reduce interactions of right, humpback, fin and minke whales with commercial fisheries. Participants in the red crab fishery are already part of the process, but if the strategy to reduce mortalities to North Atlantic right whales changes, then red crab

regulations will have to be modified. The specifications for FY2005 are not expected to have adverse impacts on North Atlantic right whales, or any other protected species in the region.

The most recent change to the ALWTRP, which became effective on September 25, 2003, allows lobster trap and anchored gillnet gear in a dynamic area management (DAM) zone once a closure is triggered, but specifies additional gear modifications designed to reduce the risk of entanglements of Northern right whales. A DAM zone may be identified and a closure triggered within defined areas north of 40° N. latitude. The agency is also preparing to publish a proposed rule for a Bottlenose Dolphin Take Reduction Plan, an action that could affect the operations of the red crab fishery, particularly in waters south of Long Island.

5.0 PROPOSED ACTION AND OTHER ALTERNATIVES CONSIDERED

5.1 Proposed Action

This action includes two basic decisions of the Council. First, the Council determined whether the annual review and specification process should be modified (Decision 1). Since the Council selected to modify the annual review and specification process, then the second decision was to determine the specifications for fishing years 2006 and 2007. Table 1 is a decision tree that was used during the development of this framework action; the decisions for the proposed action are shaded.

5.1.1 Decision 1 of the proposed action (Alternative 1.1 Option 2)

The Council decided to modify the current annual review and specification process to one that is completed every 3 years. A 3-year timeframe was identified as an appropriate length of time to reduce the administrative burden associated with an annual review cycle without necessarily increasing the risk of over-harvesting the red crab resource. All of the appropriate environmental and regulatory reviews required under the Magnuson-Stevens Act, the National Environmental Policy Act (NEPA), and other applicable law, would be completed during the year in which 3-year specifications are set. Every 3 years the Red Crab PDT will complete an updated SAFE Report, as well as recommend specifications for the following 3 fishing years. Multi-year specifications do not have to be constant from year to year, and will be based on the expected future stock condition according to the best scientific information available. The Council will always have the flexibility to set specifications for less than 3 years based on new information or recommendations from the PDT.

The PDT will prepare a SAFE Report at least every 3 years. Based on this SAFE Report, the PDT will also develop recommended specifications for up to 3 fishing years after completion of the SAFE Report. The PDT will be required to meet at least once annually during the intervening years to review the status of the fishery and any new information on the condition of the stock. The PDT will provide a brief report to the Council on any changes or new information about the red crab stock and or fishery, and it will recommend whether the specifications for the upcoming years need to be modified based on updated information. The annual review will be limited in scope and will concentrate on the most recent fishery-dependent information including, but not limited to DAS used and red crab landings. The PDT will not evaluate other

aspects of the fishery such as bycatch every year; those types of analyses will be conducted in the SAFE Report every 3 years.

For example, if this action were implemented, the Red Crab PDT would prepare a SAFE Report in 2007 and, at that time, would be able to recommend specifications for fishing years 2008, 2009, and 2010. If the stock status changed when the PDT met prior to the 2009 or 2010 fishing years, the PDT may recommend that total allocated DAS should be adjusted for the next fishing year only, or up to 3 years. In the event that the PDT recommends an adjustment to the specifications, the PDT would prepare a supplemental specification package for that specific length of time (up to 3 years). Under this alternative, a SAFE Report will still be completed at least every 3 years.

5.1.2 Decision 2 of the proposed action (Alternative 2.1 and 2.2)

During the development of this action, there were 3 alternatives identified for Decision 2, the specifications for FY2006 and FY2007. Alternative 2.1 was developed to maintain the same specifications as FY2004. Alternative 2.2 was developed to maintain the same specifications that the Council recommended for FY2005. Since the Council decided to recommend the same specifications for FY2005, as in FY2004, these two alternatives essentially became the same. Due to timing issues, since the Council was scheduled to make final recommendations about the FY2005 specifications, as well as this framework action, this document was developed with two separate alternatives in the event that the Council selected different specifications for FY2005. Since the Council decided to recommend maintaining the same specifications for FY2005, Alternative 2.1 and 2.2 are essentially the same, a target TAC of 5.928 million pounds and DAS allocations of 780 for both FY2006 and FY2007. These alternatives have been kept separate for this document primarily for NEPA purposes, to include all alternatives considered, but they are the same based on the decision the Council made for the 2005 specifications.

Since the specifications for year 1 of the first multi-year cycle, fishing year 2005, are being submitted under separate cover, this decision only addresses years 2 and 3 of the 3-year specifications process. The Council decided to maintain the same TAC (5.928 million pounds) and fleet DAS allocation (780 DAS) for FY2006 and FY2007 as proposed under the FMP, in FY2004 and in FY2005. The main rationale for not adjusting the TAC is that there is no new scientific information to suggest that the TAC should be modified. There is preliminary research that will become part of the stock assessment process, but those analyses are not complete at this time. Similarly, the Council determined that there is no information available at this time that would suggest that the DAS should be adjusted. Therefore, this alternative proposes to maintain the same DAS allocation of 780 DAS for fishing years 2006 and 2007.

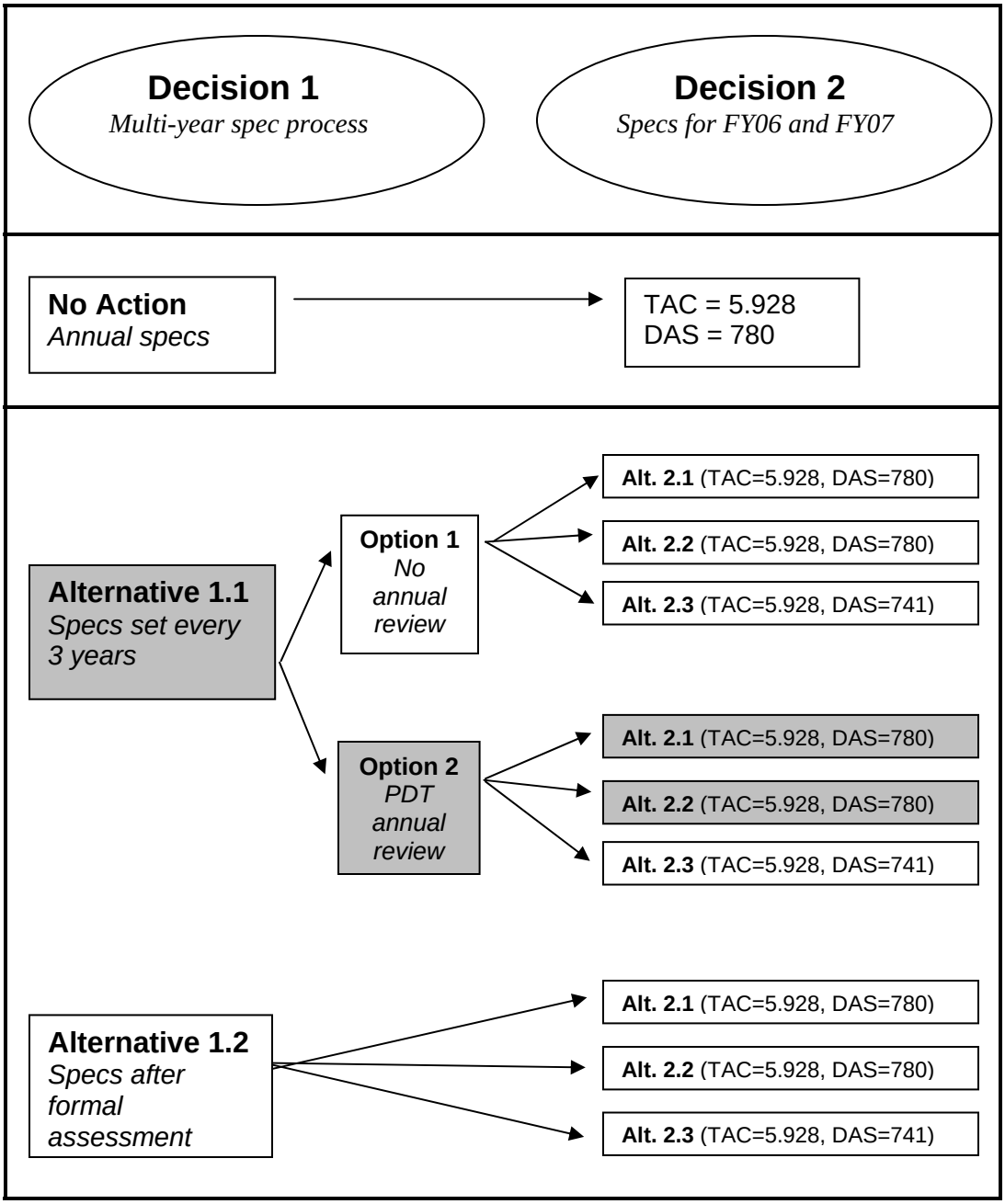

Figure 1 – Decision tree for Framework 1 to the Red Crab FMP, proposed action is shaded.

5.2 Other alternatives under consideration

5.2.1 Decision 1: Consider modification of the annual review and specification process

5.2.1.1 No Action

If the Council determines that no change to the annual review and specifications process is necessary, then there would be no need to submit this framework document. As such, the

Council would continue to recommend an annual specification (TAC and total fleet DAS) prior to the start of each fishing year. The annual review and specification requirements currently defined in section 648.260 of the Red Crab regulations would remain in effect. Section 648.260 reads:

> *(a)* ***Process for setting annual specifications****: The Council's Red Crab Plan Development Team (PDT) will meet at least annually to review the status of the stock and the fishery. Based on this review, the PDT will report to the Council's Red Crab Committee, no later than October 1, any necessary adjustments to the management measures and recommendations for the specifications. Specifications include the specification of OY, the setting of any target TACs, allocation of DAS, and/or adjustments to trip/possession limits. The PDT will specifically recommend target TACs for the following year and an estimated target TAC for the year after.*

5.2.1.2 Alternative 1.1 – Option 1

Three-year review and specification process with NO annual review by the PDT

Under this alternative, the Council would recommend modifying the current annual review and specification process to one that is completed every 3 years. A 3-year timeframe was identified as an appropriate length of time to reduce the administrative burden associated with an annual review cycle without necessarily increasing the risk of over-harvesting the red crab resource. All of the appropriate environmental and regulatory reviews required under the Magnuson-Stevens Act, the National Environmental Policy Act (NEPA), and other applicable law, would be completed during the year in which 3-year specifications were set. Multi-year specifications do not have to be constant from year to year, and would be based on the expected future stock condition according to the best scientific information available.

The PDT would prepare a SAFE Report every 3 years. Based on this SAFE Report, the PDT would also develop recommended specifications for the next 3 fishing years. The PDT would *not* be required to meet during the intervening years, unless the Council requested an interim review. Although there would be no annual review under this option, the Council would always have the discretion to request a review of any new information, such as a formal stock assessment, that may become available before a SAFE Report is due. If, as a result of any new information that is not part of the 3-year cycle, the Council determines additional management action is necessary, the Council could develop a new FMP amendment or framework adjustment.

For example, under this scenario, the Red Crab PDT would prepare a SAFE Report in 2007 and recommend specifications for fishing years 2008, 2009, and 2010. If no new information regarding the condition of the red crab stock, or information indicating a change in fishing effort or practices, becomes available in 2008 or 2009, the PDT would not meet again until 2010, at which time they would prepare a new SAFE Report and recommend specifications for fishing years 2011, 2012, and 2013. The only difference between this alternative and the proposed action is that this alternative does not require an annual review of the status of the red crab resources and fishery.

5.2.2 Alternative 1.2

Stock status review and specification conducted after completion of a new stock assessment
Under this alternative, the Red Crab PDT would meet only after completion of each formal stock assessment, or at the request of the New England Fishery Management Council, to review red crab landings information and other available data, to determine if the current TAC and fleet DAS allocations require modifications in order to respond to stock status changes. If a new stock assessment is not completed, or the Council does not request the PDT to review the status of the stock, the specifications from the previous year would remain in effect.

For example, a red crab stock assessment is currently scheduled for June 2006. After that assessment, the Red Crab PDT would meet to prepare a SAFE Report in 2007 and recommended specifications for FY2008. Under this scenario, the specifications set for FY2008 would remain in effect until the next stock assessment and subsequent SAFE Report. For example, if a stock assessment was not scheduled until 2016, then the specifications set in FY2008 would remain in effect until the SAFE Report completed in 2017. Under this alternative the Council would still have the authority to request the PDT to review new information at any time. In the event that additional information suggests that management action is necessary, the Council could develop a new FMP amendment or framework adjustment.

5.2.3 Decision 2: Specifications for Fishing Years 2006 and 2007

5.2.3.1 Alternative 2.3

The TAC would be 5.928 million pounds for fishing years 2006 and 2007. Since there is no new scientific information to suggest that the TAC should be modified, this alternative would continue a TAC of 5.928 million pounds. This alternative would allocate a total fleet DAS allocation 5% less than the DAS allocation proposed for FY2005. This allocation would be the same for FY2006 and FY2007. Therefore, the DAS allocation for both fishing years would be 741.

6.0 ALTERNATIVES CONSIDERED BUT REJECTED DURING DEVELOPMENT OF ENVIRONMENTAL ASSESSMENT DOCUMENT

6.1 Rollover specification process with 3-year SAFE Report

This alternative would allow for the rollover of specifications from year to year; however, the PDT would still be required to meet annually. Rolling over specifications would still require regulatory analyses in accordance with applicable law and regulations; therefore, completion of an Environmental Assessment document would still be required.

Rationale for rejection: It was determined that this alternative would have the same administrative burden as the current review and specification process. The preparation of regulatory analyses required by applicable law that NOAA Fisheries Service must complete in order to roll over specifications would still apply. Therefore, this alternative does not meet the need of this action, which is to improve the administrative processes required under the Red Crab FMP, and reduce inefficiencies associated with the current annual specifications process.

6.2 NMFS sets annual specifications with 3-year SAFE Report

This alternative would take the burden of setting annual specifications from the Council and give it to the Regional Office. The Red Crab PDT would meet annually to develop at total allowable catch, and a SAFE Report would be completed every 3 years. The Council would recommend the TAC each year, but the Regional Administrator would be responsible for determining the appropriate number of DAS needed to harvest the TAC each year.

Rationale for rejection: It was determined that this alternative would have the same administrative burdens as the current review and specification process, it would simply shift some of the burden from the Red Crab PDT to the Regional Office. Therefore, this alternative does not meet the need of this action, which is to improve the administrative processes required under the Red Crab FMP, and reduce inefficiencies associated with the current annual specifications process.

7.0 ENVIRONMENTAL CONSEQUENCES AND ASSESSMENT OF IMPACTS

The following section is based on and refers to information contained in the Red Crab FMP/EIS as well as Section 8.0 of this document, *Regulatory Impact Review and Initial Regulatory Flexibility Analysis*.

7.1 Biological Impacts

7.1.1 Proposed Action

7.1.1.1 Decision 1 (modification of the annual review and specification process)

This action is primarily administrative in terms of setting specifications, and is not expected to have any substantial direct or indirect impacts on the biological and ecological resources involved in the red crab fishery. All potential impacts on the biological and ecological resources associated with this fishery would derive from the additional level of risk to these resources that may occur if the specifications are set at too high a level. If specifications are set too high, then there may be a greater risk of overfishing, which could lead to long-term negative biological and economic impacts. However, the proposed action sets specifications every 3 years, with an annual review (Alternative 1.1, Option 2), thus the risk of specifications being set at a non-optimal level may be reduced. The proposed action, as well as the No Action alternative, may reduce the risk of negative impacts if the specifications were set at an inappropriate level because specifications would be reviewed annually. The No Action alternative is expected to reduce administrative efficiency as compared to the proposed action (Alternative 1.1, Option 2), due to the fact that regulatory analyses would have to be conducted each year even if specifications are unchanged.

7.1.1.2 Decision 2 (Specifications for Fishing Years 2006 and 2007)

When considering a multi-year action, it is necessary to consider the impacts on the resource several years into the future, at least the length of time the specifications have been set. Predicting future impacts is difficult without accurate information on the trends of the resource and how the industry responds to changes in stock size; therefore the analyses of Decision 2 will be qualitative in nature. Because the Council decided to recommend maintaining the status quo

specifications for fishing year 2005, Alternative 2.1 and Alternative 2.2 became the same value and would maintain the same TAC and DAS allocation as implemented in FY2003 and FY2004. Alternative 2.3 considered the same TAC as the other alternatives for Decision 2, but the DAS allocation was less, a total of 741 DAS. To date, the fleet has not harvested the TAC or used all allocated DAS, thus the impact of maintaining these specifications is not expected to negatively impact the resource in FY2006 and FY2007, provided there are no major unforeseen environmental changes that cause the red crab resource to dramatically decrease or increase. Further, the direct and indirect effects of the FMP were expected to protect the resource from overexploitation and maintain a sustainable fishery. Since this alternative proposes to maintain the status quo, it is expected to have the same effect.

The only measure being evaluated in this action that may vary from the impacts already assessed in the FMP is DAS limits. The FMP describes that alone, DAS allocation is unlikely to have any direct effects on the red crab resource. However, since there are only a certain number of vessels that participate in the directed red crab fishery, the amount of red crab harvested is constrained. Therefore, the DAS program is the principle fishing effort control mechanism by limiting the amount of time a red crab vessel may harvest red crab.

Since this FMP is managed under a target TAC, rather than a hard TAC, there is no guarantee that the fishery will not exceed the quota; however, the DAS management program implemented under the FMP was designed to manage the red crab resource at a level that produces the maximum sustainable yield, while harvesting the target TAC. Therefore, if DAS are adjusted, the level of red crab harvest will adjust accordingly, assuming a constant harvest rate. For example, under Alternative 2.1 and 2.2 780 DAS would be allocated compared to 741 as considered under Alternative 2.3. If you assume a constant harvest rate, then Alternative 2.3 would result in an approximate 5% decrease in red crab landings, relative to the No Action/Status Quo alternative (780 fleet DAS as considered under Alternative 2.1 and 2.2). Therefore, the difference between the alternatives in terms of biological impacts is very small.

In terms of the biological impacts on other non-target species and the ecosystem, based on analysis in the FMP/EIS, it is not likely that any of the alternatives in this document will have an impact. There is very little known about the interactions of the deep-sea red crab with other species and their associated communities. The FMP explains that initial reports from industry members indicate that there is very little, if any, bycatch of other species in the directed red crab fishery. According to the recent SAFE Report (October 2004) there are no records of observed red crab trips in the observer database, and the trips that are recorded in the VTR database have very little bycatch information. The FMP did identify that the bycatch of red crab in other fisheries may be a more significant issue. Section 3.1.2.1 of the SAFE Report describes the bycatch of red crab in other fisheries from the data available. There is some anecdotal information that there may be considerable bycatch of red crab in the offshore monkfish fishery, but there are not sufficient data to conclude that red crab bycatch is a significant concern for that fishery at this time. More research through observers is needed to determine the level of red crab bycatch in other fisheries, as well as the level of bycatch of other fisheries in the red crab fishery.

The biological impacts on protected species and EFH is not expected to change as a result of this action, since the proposed action recommends to allocate the same DAS as the No Action

Alternative, and the other alternative under consideration (Alternative 2.3) considered an allocation of fewer DAS than the No Action alternative.

7.1.2 Other alternatives under consideration

7.1.2.1 Decision 1 (modification of the annual review and specification process)

A 3-year review and specifications process without an annual review by the PDT (Alternative 1.1, Option 1) could increase the risk that harvest levels are not set at the optimum biological level. However, this risk is mitigated by the Council's ability to take appropriate action through an FMP amendment or framework adjustment if new information becomes available during the intervening years, which suggests the stock and/or fishery needs additional action. Furthermore, under Alternative 1.2 (specifications set after a formal stock assessment), the Council could set specifications for an undetermined number of years, thus run the risk of setting specifications at an inappropriate level without annual review. Note, the red crab resource is currently not assessed on a regular schedule; the last assessment was in 1977, based on data from a 1974 survey. However, this alternative does permit the Council to request a review at any time. Alternative 1.1, Option 1, and Alternative 1.2 may have greater risks of negative impacts to the fishery and resource if the specifications are set too high, but they are more administratively efficient than the proposed action and the No Action alternative.

7.1.2.2 Decision 2 (Specifications for Fishing Years 2006 and 2007)

In terms of alternatives considered for specifications in future fishing years not selected for this action, Alternative 2.3 would implement 5% less DAS to the fleet for FY2006 and FY2007. The FMP describes that alone, DAS allocation is unlikely to have any direct effects on the red crab resource. See Section 7.1.1.2 for a summary of the expected impacts from Alternative 2.3.

In terms of the biological impacts on other non-target species and the ecosystem, based on analysis in the FMP/EIS, it is not likely that Alternative 2.3 would have an impact. There is very little known about the interactions of the deep-sea red crab with other species and their associated communities. See Section 7.1.1.2 for a discussion of the differential impacts of Alternative 2.3 versus the No Action Alternative in terms of impacts on non-target species, EFH and protected species.

7.2 Social and Economic Impacts

This section examines the social and economic impacts associated with the Framework. Since Framework 1 has a dual purpose, it may be clearer to distinguish the impacts that are associated with each decision. Decision 1 allows for a multi-year process, while decision 2 will establish the specifications for fishing years 2006 and 2007, if the multi-year process is approved.

7.2.1 Proposed Action

This action is primarily administrative in terms of setting specifications, and is not expected to have any substantial direct or indirect impacts on the social and economic climate in the red crab fishery. There are some considerations that support setting specs every 3 years with a PDT annual review, as well as keeping the fleet DAS at the current level. Since an annual review is recommended, there will be the ability to respond to changing environmental, economic, or

social conditions. Further impacts of the proposed action are discussed in the following section under decisions 1 and 2.

7.2.1.1 Decision 1 (modification of the annual review and specification process)

Since Decision 1 deals primarily with the administrative process for setting specifications, it is not expected to have many direct or indirect economic or social impacts on the red crab fleet and/or associated businesses and port communities.

Decision 1 allows for different options in the timing of the spec process and include, setting specs every 3 years without an annual review or with a PDT annual review, and the specification process following a formal assessment. The common thought among all of these is that the spec process would not occur every year. As well as reducing administrative costs for the agency and Council, it also has benefits for the fishing industry.

Multiyear specifications may improve business planning for the red crab industry. For example, vessel owners and processors can plan better when they know their minimum individual DAS allocation several years in advance. The single red crab processor involved in the red crab industry explained that multi-year specifications could improve their ability to sell red crab. Since there is only one processor in this fishery, if the TAC and fleet DAS are specified for several years, versus one, buyers could have more confidence in the supply of this product. Red crab vessels in general have lower crew turnover than average. The improved business planning that may occur under multiyear specifications may have indirect benefits to crew members as well, offering more confidence in the future of the industry.

The frequency of review may affect the accuracy of the spec process. Frequent reviews, such as on an annual basis, would ensure that current information is explored in a timely manner without the burden of heavy administrative costs. Alternative 1.1, Option 2 (three year specifications with annual review) and the No Action Alternative may reduce the risk of negative social and economic impacts as a result of suboptimal specifications, since specifications would be reviewed annually. The additional administrative costs of an annual review would not have economic or social impacts on the red crab industry and port communities. It would also provide some benefits to the red crab industry, since they are a distinctive group, which is very interested in the resource and any new findings that may influence their livelihood. They participate and encourage the PDT process. The various administrative costs of the alternatives are described in Section 8.0, the *Regulatory Impact Review and Initial Regulatory Flexibility Analysis.*

7.2.1.2 Decision 2 (Specifications for Fishing Years 2006 and 2007)

Decision 2 determines the specifications for FY06 and FY07. The alternatives for specifications in future years (Alternatives 2.1, 2.2 and 2.3) are either the same or within the same range in terms of DAS allocations per vessel. Therefore, the economic and social impacts are virtually the same. Since the proposed action recommends that the specifications remain the same for FY2006 and FY2007, there are no additional impacts from this action.

One factor which would have economic implications is the regulation which states that a vessel must declare its intent to participate in the fishery 6 months prior to the start of the next fishing year. The small number of vessels in the fishery means that each vessel's participation has a

large impact on the appropriate number of DAS that the fleet will utilize in catching the target TAC. The advance knowledge and planning for efficient harvest will have economic benefits from harvesting to processing to marketing.

Given the proposed action of 780 fleet DAS for FY2006 and FY2007, the economic impacts are not expected to change from the FMP or the specification package for FY2005. If one vessel continues to opt out of the fishery, as one did in FY2004 and FY2005, the four remaining vessels will receive more individual DAS than assessed under the FMP. Therefore, the economic impacts of this action are expected to be positive for the vessels declaring their intent to remain in the fishery, assuming they utilize the additional individual DAS awarded, as compared to the DAS allocated to each vessel under the FMP.

There would be no adverse impacts associated with a fleet allocation of 780 DAS.
Since the implementation of the FMP, the fleet has not utilized their full allocation, so that no barriers have existed to prevent vessels from increasing their landings and revenue. The potential exists for vessels to increase their profitability over and above that which existed under the FMP.

Aside from the number of DAS that each vessel is allocated, there are other changes that might alter the efficiency of the industry. Since all vessels started to land in Fall River during 2004, the processor reported that it is more convenient for them, although overall costs are probably the same. Generally, the processor sends one or two trucks to Fall River to pick up the red crab product after each trip. Since implementation of the FMP, the processor has worked with the industry and their clients to reduce costs. For example, they have developed a creative way to change the packing of red crab, which has reduced costs and enabled the processor to pay the vessels approximately ten cents more a pound.

Under the FMP, five vessels were granted limited access red crab permits, and only four of those vessels have reported landings since 2002. Since implementation of the FMP, vessel owners still report red crab as the primary fishery that supports their annual income. Overall, there have been some changes in terms of ownership and ports, but the vessels and primary participants involved in this fishery have not changed since implementation of the FMP

During the development of the FMP the fleet reported that on average vessels landed 63,000 pounds of red crab per trip and received an average of approximately $42,000 per trip in gross revenue. The weighout data for 2003 report that average pounds per trip ranged from about 43,000 to 77,000. Gross revenues per trip averaged between $34,000 and $71,000.

Industry reported that fishing costs have increased. Fuel and oil based products are more expensive, and insurance rates have increased by about 50% in the last year. These increases have been somewhat offset by an increase in price per pound paid for red crab. The average price per pound is about ten cents higher this fishing year than in 2003. Vessel owners reported that they are receiving about 94-cents per pound for red crab (whole and butchered product). The price is consistent throughout the year.

7.2.2 Other alternatives under consideration

7.2.2.1 Decision 1 (modification of the annual review and specification process)

Multi-year specifications may improve business planning, but if the TAC and DAS are not set at the optimum level, and specifications cannot be changed to adjust annually, as in Alternatives 1.1 Option 1, and Alternative 1.2, then the flexibility for the industry may be reduced. For example, if population projections underestimate the red crab stock size for several years, then the industry would not be permitted to harvest at optimal levels until the multi-year specifications are adjusted (every three years under Alternative 1.1, Option 1, and only after a formal stock assessment under Alternative 1.2). On the other hand, if the stock size is actually smaller than anticipated, than the multiyear TAC and fleet DAS allocation would be set too high, and then DAS may need to be cut more drastically in the future, which could have greater economic impacts on the fishery.

7.2.2.2 Decision 2 (Specifications for Fishing Years 2006 and 2007)

In terms of the alternatives under consideration for specifications in future years, Alternative 2.3 (5% less than FY2005 specifications) may have the greatest short-term economic and social costs for the fleet since that alternative proposes to allocate the fewest number of total fleet DAS for FY2006 and FY2007. However, since the fleet has not used their full allocations of DAS since the FMP was implemented, this alternative is not expected to have considerable impacts.

Alternative 2.3 would allocate 39 less fleet DAS than under the proposed alternative (No Action). If five vessels participate in FY2006 and FY2007, then each vessel will receive 8 less DAS then under the No Action, but if only four vessels participate, then each vessel will receive 10 less DAS than under the No Action alternative. This alternative is arguably more risk-averse than the No Action alternative because it would allocate fewer days. However, no matter how many vessels participate, the difference between this alternative and the proposed action is barely one trip per year for each active vessel.

7.3 Impacts on Protected Species and Essential Fish Habitat

7.3.1 Proposed Action

Impacts of this action on habitat and protected species are not expected to be different than those discussed in the FMP/EIS. Since this framework action is primarily administrative in nature, there are no significant changes from the impacts assessed under the FMP. Section 5.0 of the FMP/EIS should be referenced for an assessment of the impacts of the proposed action on protected species, and Section 8.7 of the FMP/EIS describes all the marine mammals and other protected species that may be found in the management area of the red crab resource. Furthermore, Section 5.3.10.6 of the FMP/EIS, evaluates the impacts of DAS limits on protected species more specifically. In summary, the TAC of 5.928 million pounds will cut landings back to 1999 levels (a 25% reduction from 2001), thus the existing entanglement threat to protected species would not likely increase. Section 4.4 contains information about why the red crab fishery is not expected to have significant interactions with protected species; for example, the fishery is limited to the shelf edge and the vessels are required to use weak links.

The EFH Assessment of this action (Section 7.3.1.1) concludes that this fishery does not have adverse impacts on EFH because it is a small fishery that is now limited, the gear used by the limited access fleet does not have adverse impacts on EFH, and the amount of fishing gear is limited to 600 traps per limited access vessel. Therefore, because this action is primarily administrative and does not change the level of effort or TAC, additional impacts will not occur to red crab EFH or protected species as a result of this action. Alternative 2.1 and 2.2 (780 fleet DAS) proposes to allocate more DAS than Alternative 2.2 and 2.3; however, all three alternatives propose the same DAS or less DAS than the FMP, which concluded that this DAS effort level and TAC will have little or no impacts on EFH and protected species in the region. Other fishery management actions in the region may have the potential to impact red crab EFH, but those impacts are being addressed in other FMPs.

7.3.1.1 Essential Fish Habitat (EFH) Assessment

The EFH Assessment is provided pursuant to 50 CFR 600.929 of the EFH Final Rule to initiate EFH consultation with the National Marine Fisheries Service.

Description of the proposed action:
See Section 5.1 of this document for a description of the proposed action. The activity described by this proposed action occurs in a limited area and narrow depth range (400 to 800 meters) along the continental slope of the United States, from the southern flank of Georges Bank south to Cape Hatteras, North Carolina. The range of this activity occurs across designated EFH for a number of species managed by the New England, Mid-Atlantic, or the South Atlantic Fishery Management Councils. The list of species with EFH that potentially overlap with the primary red crab fishing are halibut, redfish, witch flounder, spiny dogfish, golden crab, white hake, whiting, tilefish, monkfish, offshore hake, red hake and most skate species.

Analysis of the effects of the proposed action:
This action proposes to modify the annual review and specification process to a multi-year specification process, as well as set specifications for FY2006 and FY2007 (target TAC of 5.928 million pounds and 780 fleet DAS). All other measures under the FMP will remain in effect. The EFH Assessment in the Red Crab FMP/EIS determined that there are no adverse impacts to the EFH of any species in the region for the following reasons: 1) this fishery has a small number of limited access vessels (five or less), 2) the gear for the limited access fleet is restricted to pots (which do not have adverse impacts on EFH), and 3) the number of pots per vessel is limited. Since this action will not change the amount of overall fishing effort in the region, this action is not expected to cause additional adverse impacts on the EFH of any managed species relative to the baseline conditions presented in the Red Crab FMP/EIS.

Conclusions:
Habitat impacts generated from these alternatives are minor and no more than temporary in nature. As such, the need to implement management measures to minimize the impacts of the Deep-sea red crab fishery on essential fish habitat does not exist and does not increase adverse effects on essential fish habitat beyond the baseline condition under the FMP. Therefore, only an abbreviated EFH consultation is required.

Proposed mitigation: None required.

7.3.2 Other alternatives under consideration

The other alternatives under consideration in this document, in terms of multi-year specifications, are not expected to cause additional impacts on protected species or EFH in the region, since they are primarily administrative in nature. Furthermore, the DAS alternative considered but not selected in this framework (Alternative 2.3) proposes to allocate less DAS than the No Action and proposed action of 780 fleet DAS; therefore, there are no additional impacts expected from this alternative either. Overall, this fishery does not have significant impacts on EFH or protected species, and the other alternatives under consideration not selected for the proposed action are not expected to have additional impacts on EFH or protected species either.

7.4 Cumulative Impacts

7.4.1 Introduction

Cumulative effects result from the proposed action's incremental impacts when these impacts are added to the impacts of other past, present, and reasonable foreseeable future actions. These impacts can result from individually minor but collectively significant actions taking place over a period of time. The Red Crab FMP/EIS has already assessed the cumulative impacts of the management plan using the eight principles of cumulative effects analysis from the Council on Environmental Quality's (CEQ) 1997 handbook (See Section 12.10.7.2 of the FMP/EIS). Since the FMP was implemented several fishery actions have been implemented in this region, but none have cumulative impacts on this resource, because they do not overlap with the red crab fishery or affect individuals involved in this fishery. The cumulative impacts of this action are assessed using several valued ecological components "VEC's", which include the red crab resource and non-target species, non-fishing impacts, economic and social impacts, and EFH and protected resources. NOAA Fisheries staff determined that these five VECs are appropriate for the purpose of evaluating cumulative effects of the proposed action based on the environmental components that have historically been impacted by fishing, and statutory requirements to complete assessments of these factors under the Magnuson-Stevens Act, Endangered Species Act, Marine Mammal Protection Act, Regulatory Flexibility Act, and several Executive Orders.

In terms of past actions for fisheries, habitat and economic and social impacts, the temporal scope of this analysis is primarily focused on actions that have taken place since implementation of the Red Crab FMP in 2002. For endangered and other protected species, the context is largely focused on the 1980s and 1990s, when NMFS began generating stock assessments for marine mammals and turtles that inhabit waters of the U.S. EEZ. In terms of future actions, the analysis examines the period between implementation of this framework (expected in spring or summer of 2005) until the next SAFE Report and specification package is prepared (likely in 2007). The geographic scope of the analysis of impacts to fish species and habitat for this action is the range of the red crab resource in the Western Atlantic Ocean, as described in the Affected Environment and Environmental Consequences sections of this document (Sections 4.0and 7.0). For endangered and protected species the geographic range is the total range of each species (**Appendix II**). The geographic range for the human environment is defined as those fishing communities bordering the range of the red crab fishery (Section 4.2).

7.4.2 Past, Present and Reasonable Foreseeable Future Actions

Since the FMP there has only been one specification package for FY2004, and that action allocated the same number of fleet DAS as the FMP. Recently the Council submitted the specifications for FY2005, and that package recommended maintaining the same TAC and DAS allocation as in FY2004. Therefore, there are no other actions in the past or present that need to be assessed from the perspective of the red crab management plan. The only present fishery action being proposed that may overlap with the red crab fishery is Monkfish Amendment 2 (impacts discussed in more detail in Section 7.4.6). The Council is not aware of any non-fishery actions currently being proposed in another fishery that could have cumulative impacts on the red crab resource or fishery. Overall, this framework action is primarily administrative, and it is not expected to have any cumulative impacts on the red crab resource.

In terms of future actions in the Red Crab FMP, the Council is not planning to adjust the red crab management plan for several years, but will review the status and of the stock and fishery annually. The Council has initiated a five-year review of the EFH designations in this region. The updated EFH Omnibus Amendment may have indirect cumulative impacts on the red crab resource if red crab EFH designations change, the gear impact determination of red crab gear changes, or new information suggests that red crab EFH is more vulnerable to fishing impacts than previously thought.

The only other future fishery related action that may have cumulative impacts on the red crab resource and fishery is a process that NOAA Fisheries recently initiated. NOAA Fisheries is considering modifying the measures that regulate fishing impacts on right whales. Regulations to the Atlantic Large Whale Take Reduction Plan (ALWTRP) are proposed to be implemented to address the number of observed Atlantic large whale entanglements. A Notice of Availability for the DEIS for the ALWTRP published in the Federal Register on February 25, 2005. The purpose of the proposed action is to further reduce the risk of entanglement to Atlantic large whales in fishing gear. The proposed action includes broad-based gear modifications in lieu of seasonal and/or area management requirements. In addition to the currently regulated lobster trap/pot fishery, other trap/pot fisheries such red crab could be included. All cumulative impacts of that action will be assessed in that EIS, including the impacts on the red crab fishery and resource. Overall, the cumulative impacts assessed under the Red Crab FMP/EIS are summarized in the following paragraphs and the cumulative impacts of this action are not expected to be different since this action does not implement anything new as compared to the FMP.

7.4.3 Direct and indirect impacts on the red crab resource and non-target species

The Red Crab FMP/EIS assessed all the principles identified by the CEQ guidance including the direct and indirect impacts on the natural and human environment, the cause and effect relationships of the measures being proposed, the synergistic interactions, the spatial and temporal boundaries of the action, and the capacity of the resource to accumulate additional effects. Below is a summary of the cumulative impacts assessment from the FMP/EIS (See Section 12.10.7 of the FMP/EIS for more details). The FMP determined that the long-term results of the FMP would have a positive effect on the red crab resource and ecosystem, it's environment, and the directed red crab fishery because the FMP was implemented to prevent overfishing, prevent overcapitalization and stabilize the fishery, as well as prevent or minimize

the likelihood of adverse impacts to the ecosystem associated with the red crab fishery. Likewise the direct and indirect effects of the FMP were expected to protect the resource from overexploitation and maintain a sustainable fishery. In addition to the direct and indirect effects, there are sometimes synergistic interactions with other species and management plans that have cumulative impacts, but the red crab fishery is a single-species fishery with very little interaction with other fisheries, thus the majority of the participants are only affected by the regulations in the Red Crab FMP. The spatial and temporal boundaries of the red crab fishery are within federal waters of the United States Exclusive Economic Zone, primarily in deep waters (400-800 meters) on the continental shelf. There is not sufficient research on the red crab resource, more specifically the capacity and resilience of the stock to fishing impacts, but researchers in the region believe that the stock is sensitive to overfishing, and its capacity to absorb cumulative effects may be lower than other species in the ecosystem. Therefore, the cumulative impacts of other fisheries and other sources of mortality need to be monitored closely.

There are other sources of mortality on red crab that should be kept in mind when evaluating this action. Bycatch of red crab in the red crab fishery as well as other fisheries may be an issue, and Section 4.1.2 of the FY2005 specifications document describes the potential level of red crab bycatch in more detail. In summary, more data is needed to assess the level of red crab bycatch in other fisheries, but there is some evidence that there may be more red crab bycatch on monkfish directed trips than on other directed fishing trips in this region, based on recent data from the NMFS observer database. However, the mortality rate of red crabs released as bycatch in other fisheries, as well as the red crab fishery is unknown. The FMP describes red crabs as relatively fragile and describes them as “bleeders”, which means that if they get injured during handling and lose a limb, they bleed to death. Some of these issues are taken into account in the definition of OY (95% of MSY), but it is important to keep these other sources of mortality in mind when managing this resource until more data is available to accurately assess the resource. The FMP set OY at 95% of MSY to account for uncertainties about the status of the resource, its vulnerability to overfishing, and the levels of fishing effort in the fishery.

7.4.4 Non-fishing impacts on red crab

The Council is not aware of any non-fishery actions currently being proposed that could have cumulative impacts on the red crab resource or fishery. In Section 8.2.3 of the Red Crab FMP, the primary threats to the chemical, physical, and biological ecosystem of the red crab resource was described. In summary, there are several chemical threats identified to have detrimental impacts on offshore habitats including oil, heavy metals, pesticides, and suspended particles. Biological threats include invasion of nonindigenous species, increased levels of nutrients, and pathogens that could cause shell disease. Several physical threats identified in the FMP are sand and gravel mining, oil exploration, offshore discharging, and disposal of dredged materials. Despite all these threats to offshore habitats, red crab live very deep in the water column, so there are very few, if any, direct impacts to the red crab resource. The only non-fishing activities identified in the FMP as having potential significant concerns are offshore oil and mineral exploration, the installation of fiber optic and electrical cables, and contamination by toxic chemicals. At this time, there are no known proposals for any of these activities. On a case-by-case basis, one of these projects may not have a significant effect, but there may be cumulative effects to the red crab resource if multiple projects are approved.

7.4.5 Social and economic impacts

The cumulative social and economic impacts of this action are not expected to be different than those described in the FMP in conjunction with specifications set for FY2005, since this action proposes to implement the same TAC and number of fleet DAS for FY2006 and FY2007. There is no difference between the cumulative effects of the DAS alternatives considered (Decision 2). In addition, this action proposes to allow the Council to set specifications for 3 years, which may have potential benefits for the industry since it could improve business planning. Therefore, it is possible that the social and economic impacts from this action will be slightly positive if anything, because the harvestors and processors involved in this industry have reported that multi-year specifications may improve business planning and market stability.

7.4.6 EFH and protected species impacts

Only a handful of fisheries occur in deep waters that potentially overlap with the red crab fishery, specifically tilefish, monkfish, and offshore lobster fisheries. All of these fisheries are under management plans that assess the impacts of that fishery on the red crab resource and EFH for red crab. Furthermore, only about half a dozen species have EFH defined in deep, benthic waters that potentially overlap with the red crab fishery, including halibut, redfish, witch flounder, spiny dogfish, golden crab, and several skate species. The Red Crab FMP is the primary past action that has had indirect impacts on EFH because the FMP described and identified EFH for red crab. One present action that may impact the red crab resource and EFH is Monkfish Amendment 2. This Amendment is proposing to restore offshore monkfish trawl effort in the Southern Management Area. Only a handful of vessels will qualify for this offshore fishery, but it is possible that effort in deeper waters may increase. Whether this effort will overlap with red crab EFH is uncertain. Amendment 2 is also proposing offshore closures in two submarine canyons to all vessels on a monkfish DAS to protect deep-water corals. Portions of the closures overlap with red crab EFH; therefore, red crab EFH in these areas will directly benefit from monkfish fishing not being permitted in these areas. It is important to note that once these closures are implemented in the Monkfish FMP/EIS, it is possible that these areas will also be recommended as closures in the future for the Red Crab FMP as well, in order to maximize benefits to deep-water corals in the region, which could have cumulative impacts on the red crab fishery.

The red crab regulations implemented a limited access fishery, eliminating the threat of expanding effort in this fishery. As a result, the potential impacts on protected species from additional red crab effort was also reduced. This action does not propose to change the primary measures implemented under the FMP; therefore, there are no cumulative impacts of this action on protected species. When considering the impacts on protected species, it is important to keep in mind that this fishery is small (four active vessels) as compared to other fisheries in the region; furthermore, the fleet is limited by DAS controls (maximum of 780 for the entire fleet) as well as trap limits (maximum of 600 per vessel).

7.4.7 Summary

Based on the assessment of past, present and reasonable foreseeable future actions and the analysis of direct and indirect impacts contained in the Environmental Consequences section of this EA, there are no significant cumulative impacts of this fishery action on the red crab resource, non target species, social/economical resources, EFH or protected species. Since the

Red Crab FMP was implemented, any potential impacts on the red crab resource, non-target species, socio/economic resources, EFH and protected species are expected to decrease as a result of implementing a limited access directed fishery. The number of vessels that participate in this fishery is small, the amount of gear is limited, and the impacts on the ecosystem are not significant. Overall, this action is not considered a "significant regulatory action" since it impacts a small sector of the economy, with less than $6.0 million revenues (See Section 8.0 *Regulatory Impact Review and Initial Regulatory Flexibility Analysis* for more details on the economic impacts of the proposed action).

7.5 Finding of No Significant Impacts

Based on guidance in Section 6.01(b) of NOAA Administrative Order NAO 216-6, May 20, 1999, and the analysis of impacts and alternatives in this document and the Red Crab FMP/EIS. This framework action is not deemed to be significant. The proposed action is primarily administrative in nature and does not increase the total DAS allocated to vessels, is a constraint on the amount of red crab that fishing vessels may harvest, thus this action will not likely impact the target species, non-target species, or the ecosystem biota. This action would not impact physical structures or the habitat of any endangered species. It does not threaten or violate a Federal, State, or local law or requirements imposed for the protection of the environment. Based on public comments the Council received when considering the framework, the action is also not deemed to be controversial.

NOAA Administrative Order 216-6 provides guidance for the determination of significance of the impacts resulting from the management measures contained in fishery management plans, their amendments, and framework adjustments. The nine criteria to be considered are addressed below:

1. *Can the proposed action be reasonably expected to jeopardize the sustainability of any target species that may be affected by the action?*

The proposed action is not expected to jeopardize the sustainability of the target species affected by this action – red crab. The intent of this action is to reduce administrative burden by establishing a multi-year specification process. The specifications recommended by the proposed action are expected to maintain a sustainable fishery. The impacts of the proposed action on the red crab resource are discussed in Section 7.1.1 of this document. In addition, the Red Crab FMP/EIS contains additional biological assessment information on days-at-sea limits (Section 5.3.8 of the FMP/EIS).

2. *Can the proposed action be reasonably expected to jeopardize the sustainability of any non-target species?*

The proposed action is not expected to jeopardize the sustainability of any non-target species. The red crab fishery is a single species fishery that does not have significant bycatch levels of non-target species (Section 7.4.3 of this document and Section 5.1.3 of the Red Crab FMP/EIS). Since this action proposes to maintain the status quo in 2006 and 2007, the expected impacts on non-target species have not changed.

3. *Can the proposed action be reasonably expected to allow substantial damage to the ocean and coastal habitats and/or EFH as defined under the Magnuson-Stevens Fishery Conservation and Management Act and identified in FMPs?*

Impacts of this action on ocean and coastal habitats and/or EFH were assessed in Section 7.3.1.1 of this document. Section 5.0 of the Red Crab FMP/EIS assessed the overall impacts of this management plan on EFH and those impacts apply to this action as well. This action is not expected to allow substantial damage to the ocean and coastal habitats and/or EFH as defined under the Magnuson-Stevens Fishery Conservation and Management Act and identified in the FMP. In general, this fishery takes place in very deep waters of the continental shelf, which do not overlap with a significant number of EFH designations for the regions. Furthermore, pots are the only gear type utilized to harvest red crab by the limited access fleet, and this gear type does not have adverse impacts on EFH.

4. *Can the proposed action be reasonably expected to have a substantial adverse impact on public health or safety?*

When developing management measures, the Council usually receives extensive comments from affected members of the public regarding the safety implications of measures under consideration. This action is not expected to have substantial adverse impacts on public health or safety. The Council has received no comments suggesting that such impacts could be expected from the modification to the annual review and specification process as well as maintaining the status quo for both FY2006 and FY2007.

5. *Can the proposed action be reasonably expected to adversely affect endangered or threatened species, marine mammals, or critical habitat of these species?*

Impacts of this action on endangered and threatened species and marine mammals were assessed in Section 7.3 of this document. In addition, the overall impacts of the red crab fishery on endangered and threatened species and marine mammals were assessed in Section 5.0 of the FMP/EIS for each management measure. Section 5.3.10.6 of the FMP/EIS explains that the DAS limits under the FMP will not likely increase the existing entanglement threat to endangered species, and the same applies for this action, which maintains the same DAS limits as the FMP. The activities to be conducted under the proposed action are within the scope of the FMP and do not change the basis for the determinations made in previous consultations.

6. *Can the proposed action be reasonably expected to result in cumulative adverse effects that could have a substantial effect on the target species or non-target species?*

Cumulative effects related to the proposed action are discussed in Section 7.4 of this document. Because this action is primarily administrative and it maintains the status quo for the red crab fishery through the 2007 fishing year, cumulative effects are not expected to be significant, and there is no change from the original analysis of cumulative impacts as assessed in Section 12.10.7 of the Red Crab FMP/EIS.

7. *Can the proposed action be expected to have a substantial impact on biodiversity and ecosystem function within the affected area (e.g., benthic productivity, predator-prey relationships)?*

The proposed action is not expected to have a substantial impact on biodiversity and ecosystem function within the affected area. There is insufficient information available on the ecosystem function of the red crab resource, and how it impacts other aspects of the environment. There is little indication that red crab constitutes a major prey item for any species in the region (Steimle et al., 2001). Red crabs are most likely opportunistic omnivores due to the limited availability of food at the water depths where red crabs live (Gray, 1969). The proposed action will likely continue to ensure biodiversity and ecosystem stability over the long-term.

8. *Are significant social or economic impacts interrelated with significant natural or physical environmental effects?*

A discussion of the impacts of the proposed action is presented in Section 7.2.1 and Section 8.0 of this document, as well as Section 5.0 of the Red Crab FMP/EIS. There are no significant social or economic impacts, nor are there any significant natural or physical environmental effects expected to result from the proposed action. The industry members present at the Red Crab Committee meeting when this document was reviewed did not indicate that any of the measures proposed in this document, or the FMP had negative economic or social impacts.

9. *To what degree are the effects on the quality of human environment expected to be highly controversial?*

The proposed action is not expected to be highly controversial. The Red Crab PDT, the Red Crab Advisory Panel, the Red Crab Oversight Committee, and the New England Council approved the proposed action unanimously. According to the Advisory Panel, all limited access permit holders support this action.

FONSI Statement

In view of the analysis presented in this document, the EA/RIR/IRFA for Framework 1, and in the EIS for the Red Crab Fishery Management Plan, Framework 1 will not have a significant effect on the human environment, with specific reference to the criteria contained in Section 6.02 of NOAA Administrative Order NAO 216-6, Environmental Review Procedures for Implementing the National Environmental Policy Act, May 20, 1999. The impacts and alternatives in this document were analyzed with regard to both context and intensity and are deemed not to be significant. Accordingly, the preparation of a Supplemental Environmental Impact Statement for the proposed action is not necessary.

_____ _____

Assistant Administrator for Fisheries, NOAA Date

8.0 REGULATORY IMPACT REVIEW AND INITIAL REGULATORY FLEXIBILITY ANALYSIS

This framework action to consider modification of the annual review and specifications process, as well as proposed specifications for FY2006 and FY2007 has been prepared primarily in

response to the requirements of the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act). This chapter addresses the components of the Regulatory Impact Review (RIR) and Initial Regulatory Flexibility Act Analysis (IRFAA).

An RIR is required by NMFS for all regulatory actions, which are part of the "public interest." The RIR is a required component of the process of preparing and reviewing proposed regulatory actions and provides a comprehensive review of the economic impacts associated with proposed actions. The RIR addresses many concerns posed by the regulatory philosophy and principles of Executive Order (E.O.) 12866. The RIR serves as the basis for assessing whether or not any proposed regulation is a "significant regulatory action" under criteria specified by E.O. 12866.

The RIR must provide the following information: (1) a comprehensive review of the level and incidence of economic impacts associated with a proposed regulatory action or actions; (2) a review of the problems and policy objectives prompting the regulatory proposals; and (3) an evaluation of the major alternatives which could be used to meet these objectives. In addition, an RIR must ensure that the regulatory agency systematically and comprehensively considers all available alternatives such that the public welfare can be enhanced in the most efficient and cost effective manner.

The RIR includes a description of each alternative, including the "no action" alternative, and an economic analysis of the expected effects of each selected alternative relative to the baseline.

8.1 Executive Order 12866 (Regulatory Planning and Review)

The purpose of E.O. 12866 is to enhance planning and coordination with respect to new and existing regulations. E.O. 12866 requires that the Office of Management and Budget (OMB) review proposed regulatory programs that are considered to be significant. A "significant regulatory action" is one that is likely to: (1) have an annual effect on the economy of $100 million or more or adversely affect in a material way the economy, a sector of the economy, productivity, 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; (3) materially alter the budgetary impact of entitlements, grants, user fees, or loan programs, or the rights and obligations of recipients thereof; or (4) raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in this Executive Order. ."

A regulatory program is "economically significant" if it is likely to result in the effects described above. The RIR is designed to provide information to determine whether the proposed regulation is likely to be "economically significant." The discussion below is confined to the first criteria of a "significant regulatory action".

The proposed action would implement a change to the current annual to a three-year specification process and would set these specifications for fishing years 2006 and 2007. The economic impacts of these measures were discussed in detail in Section 7.2.1. Moving from an annual to a three-year specification process will reduce the costs of administering the Red Crab FMP and is expected to have a small, but beneficial impact on business planning for both red crab fishing businesses and the lone processor. Further, since the proposed quota, trip limit, and DAS allocations for 2006 and 2007 are no different than that of current allowances there would

be no change to existing business opportunities. This action impacts a small sector of the economy, one that generates less than $6.0 million in revenues. This action will not affect the day to day operation or the profitability of any of the participants in the fishery. Therefore, the proposed action would not have an effect on the economy that exceeds $100 million or more. Nor does it adversely affect in a material way the economy, a sector of the economy, productivity, safety, or state, local or tribal governments or communities and is not a "significant regulatory action" for the purposes of E.O. 12866.

8.2 Regulatory Flexibility Act (RFA)

The Regulatory Flexibility Act requires agencies to assess the impacts of their proposed regulations on small entities. The Regulatory Flexibility Act Analysis (RFFA) determines whether the proposed action would have a significant economic impact on a substantial number of small entities. The Small Business Administration (SBA) size standards define whether a business entity is small and, thus, eligible for Government programs and preferences reserved for "small business" concerns. Size standards have been established for all for-profit economic activities or industries in the North American Industry Classification System (NAICS). The SBA defines a small business in the commercial fishing and recreational fishing sector, as a firm with receipts (gross revenues) of up to $3.5 million

The following section provides an assessment and discussion of the potential economic impacts, as required of an RIR and the RFA, of various proposed management and regulatory actions and alternatives. The objective of the Regulatory Flexibility Act is to require consideration of the capacity of those affected by regulations to bear the direct and indirect costs of regulation. The IRFA must identify the number and types of businesses that will be regulated, indicate how many of these entities are small businesses, explain the expected economic impact of the regulation on small businesses, and describe any feasible alternatives that would minimize the economic impacts. The number of regulated entities for this action is 4 vessels, each of which would be considered a small entity, based on the definition as stated above.

The economic impact resulting from this action on these small entities is close to zero, since this action is not expected to alter the fishing practices of the 4 vessels participating in the fishery. Thus, this action would have no significant economic impact on a substantial number of small entities.

8.2.1 Problems and Objectives

The problems which should be resolved or addressed by the proposed management action are covered in Section 3.0.

8.2.2 Description of the alternatives

A complete description of the alternatives is presented in Section 5.0.

8.2.3 Impacts of the Alternatives

The administrative costs of Alternative 1.1, Option 2, are likely higher than the administrative costs of Alternative 1.1, Option 1, and Alternative 1.2. The No Action alternative is expected to have the highest administrative costs, as compared to the other alternatives under consideration, particularly in terms of implementing annual specifications through proposed rule making.

Given the minor cost difference, the benefits of Alternative 1.1, Option 2 are considered great enough to warrant the additional cost difference. Even more important are the non-quantitative benefits of open communication, and the ability to plan fishing behavior over an extended time period.

Additional impacts of decisions 1 and 2 are discussed in Section 7.2 of this document.

No Action alternative
If the Council determines that no change to the annual review and specifications process is necessary, then there would be no need to submit this framework document. The No Action alternative is expected to have the highest administrative costs, as compared to the other alternatives under consideration. There are no obvious benefits to the No Action alternative.

8.2.4 Decision 1 of the proposed action

- **Alternative 1.1 – Option 1**

  Three-year review and specification process with NO annual review by the PDT

Any cost savings from bypassing an annual review would not be worthwhile in terms of the loss of timely information that would be communicated between members of the PDT and industry. The open lines of communication in this industry are beneficial to the management of the fishery and are one of the reasons it operates in an efficient manner.

- **Alternative 1.1 –Option 2**

  Three-year review and specification process with annual review by the PDT

The administrative costs of Alternative 1.1, Option 2, are likely higher than the administrative costs of Alternative 1.1, Option 1, and Alternative 1.2.

However, as stated above, the annual review is beneficial to the management of the resource. An annual review is also considered necessary by the PDT in an effort to ensure any new information is considered and shared among interested parties, whether it be other members, or industry. The costs to the agency are minor, considering that new information would be welcomed, in an industry where current data are considered somewhat outdated.

- **Alternative 1.2**

  Stock status review and specification conducted after completion of a new stock assessment

There are additional considerations for management of the red crab resource other than stock assessments. Social and economic factors may change and need to be addressed at a time that does not correspond to the timing of stock assessments. The entry and exit of vessels and/or processors may be one factor that would change the behavior of the industry and warrant discussion or review by the PDT.

8.2.5 Decision 2: Specifications for Fishing Years 2006 and 2007

There are 3 alternatives listed, but since Alternative 2.1 and 2.2 are the same, only Alternative 2.1 and 2.3 are considered in this section.

It is not possible to quantify the net benefits of each of the alternatives, but it is possible to determine the comparable net benefits of these two alternatives. The most important question to evaluate the alternatives, becomes, what is the number of DAS that limited access vessels need in the red crab fishery, to be profitable? Public comments in the development of the FMP indicated that industry could remain profitable with 183 DAS per vessel. The higher number of DAS of 780 (Alternative 2.1) would allow the industry the potential to generate greater benefits than the alternative of 741 DAS (Alternative 2.3).

Costs are expected to continue to increase in FY2006 and FY2007, as this has been the pattern in the past. The industry has been able to adjust to changing cost conditions in the past, and we expect adjustments to continue. The close relationship between the harvest sector and the processing sector contributes to their ability to adjust to changing price structures. Employment is not expected to be affected by the alternative selected.

9.0 CONSISTENCY WITH APPLICABLE LAWS

This document has been prepared primarily to modify a requirement of the Red Crab FMP implemented under the Magnuson-Stevens Fishery Conservation and Management Act. This document also addresses the requirements of other applicable laws, namely the Administrative Procedure Act (APA), the Marine Mammal Protection Act (MMPA), the Endangered Species Act (ESA), the National Environmental Policy Act (NEPA), the Regulatory Flexibility Act (RFA), the Paperwork Reduction Act (PRA), the Coastal Zone Management Act (CZMA), Data Quality Act (DQA) and Executive Orders 12612 (Federalism) and 12866 (Regulatory Planning). These other applicable laws and administrative orders help ensure that the Council considers the full range of alternative actions and their expected impacts on the marine environment, living marine resources, and the human communities that could be affected. Since this action is not expected to change any of the impacts already assessed in the Red Crab FMP/EIS, and the proposed DAS allocation for FY2006 and FY2007 specified as 780 in this document is the same DAS that were allocated under the FMP and for FY2004 and FY2005, this document is in compliance with all applicable laws defined above. Section 12.0 of the Red Crab FMP/EIS specifies in detail how the requirements and guidelines of each law have been addressed in this fishery management program. The sections below briefly summarize what each law is and how this action is in compliance with the requirements of each law or executive order.

9.1 Magnuson-Stevens Fishery Conservation and Management Act (MSA)

Section 301 of the Magnuson-Stevens Fishery Conservation and Management Act requires that fishery management plans contain conservation and management measures that are consistent with the ten National Standards. Since this action is proposing to change the annual review and specification process under the FMP, this section specifies how the management plan is still in compliance with each national standard individually, as well as other required provisions of the Magnuson-Stevens Fishery Conservation and Management Act.

9.1.1 Compliance with the National Standards

Section 301 of the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) requires that fishery management plans (FMPs) contain conservation and management measures that are consistent with the ten National Standards.

> **National Standards [16 U.S.C. 1851 § 301]**
> (a) 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.

The following section summarizes, in the context of the National Standards, the analyses and discussion of the proposed action that appear in various sections of this document.

National Standard 1 -- Optimum Yield

> *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 proposed action does not change the measures implemented under the FMP intended to prevent overfishing in the directed red crab fishery and achieve OY on a continuing basis. In fact, this action proposes to maintain the same OY as implemented under the FMP through fishing year 2007. As defined in the FMP, OY is specified such that it cannot exceed MSY and will account, to the highest degree possible, for the relevant economic, social, and ecological factors.

National Standard 2 -- Scientific Information

> *Conservation and management measures shall be based upon the best scientific information available.*

As expressed in the FMP, there is limited information on the biology, ecology, and population dynamics of the red crab resource. However, since implementation of the FMP, fishery-dependent data have increased, and there are preliminary results available from several specific red crab research projects occurring in the area. Despite the limited data available, the management measures proposed in this action are based on the best *available* scientific information.

National Standard 3 -- Management Unit

> *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.*

Section 3.2 of the Red Crab FMP describes the management unit implemented by the FMP. The boundaries reflect the traditional boundaries of the fishery, and are not defined by stock boundaries. The management unit includes all waters in the EEZ from the Hague Line south the Cape Hatteras, NC.

National Standard 4 -- Allocations

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.

The measures proposed in this action do not discriminate between residents of different states. Since implementation of the FMP all limited access vessels now fish out of Fall River, MA.

National Standard 5 -- Efficiency

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.

This Red Crab FMP proposed to promote overall efficiency in the red crab fishery by constraining fishing effort to long term sustainable levels and preventing an increase in capitalization in the directed red crab fishery above the levels that existed prior to the control date. This action does not change that intent, in fact, this action allows the Council to set specifications for up to three years, which could actually increase efficiency for the industry by improving business planning.

National Standard 6 -- Variations and Contingencies

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

During development of the FMP, the Council accounted for variations in fisheries, fishery resources, and catches by developing a variety of management alternatives, measures, and options considered in the FMP (see Section 4.0 of FMP). None of these measures are proposed to change as a result of this action.

National Standard 7 -- Costs and Benefits

Conservation and management measures shall, where practicable, minimize costs and avoid unnecessary duplication.

The Council considered the costs and benefits of a range of alternatives to achieve the purpose and need of this action. Overall, the costs to the industry are similar for the various alternatives considered. However, the Council also considered administrative costs associated with the management alternatives and chose what it believes to be the least complex alternative that achieves the objectives of the management plan with minimal costs to administration or enforcement. This proposed action is expected to reduce administrative costs as compared to the review and specification process implemented under the FMP.

National Standard 8 -- Communities

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.

Due to the small size of the red crab fishery, there are a limited number of participants that have been involved in this fishery, and consequently a limited number of communities that may be affected. This action is not expected to change the individuals or communities affected by this fishery. The small size of the harvesting sector of this fishery is carried over to the processing sector which is also small. The is now only one processor involved with the red crab fishery. There is no information available directly on any fishery-dependent service industries that may be involved with the red crab fishery. The types of service industries used by the red crab fishery and their general locations were reported by some vessel owners and operators. The types of services used include fuel, ice, food and groceries, bait, gear, oil/lubrication, water, hull maintenance, engine maintenance, electronics, insurance, accounting, legal advice, and dockage.

National Standard 9 -- Bycatch

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.

Based on reports from members of the fishing industry, there is little bycatch of other species in the directed red crab fishery due to the nature of the fishing gear and operations of the directed fishery. The fishery operates in very deep water, distinct from the fishing grounds of most other managed species, is prosecuted using only selective red crab pots (these traps have the opening on the top and do not provide any barriers to egress by animals that enter the trap), and the catch is quickly sorted on the deck of the vessel, with all unwanted catch immediately returned to the sea with minimal handling. The Council intends to monitor any bycatch associated with the directed red crab fishery and will consider management action to address bycatch if, at any time in the future, available information indicates that such action is warranted. The Council also intends to monitor the bycatch of red crabs in other fisheries, most notably the deep-water monkfish fishery. The bycatch of red crab in other fisheries was examined in the 2005 Specifications Package and SAFE Report. Overall, there are some fisheries that have reported red crab bycatch, but more information is necessary before a region wide bycatch estimate could be made. This action does not change any of the measures or intents of the Council to minimize bycatch.

National Standard 10 -- Safety of Life at Sea

Conservation and management measures shall, to the extent practicable, promote the safety of human life at sea.

To the extent possible, the Red Crab FMP intended to minimize the dangers to human life at sea while achieving the conservation and management objectives of the plan. Fishing is an inherently dangerous occupation; participants must constantly balance the risks imposed by weather and other natural conditions against the potential economic benefits. This management action does not change any of the measures designed to promote the safety of human life at sea.

9.1.2 Other Required Provisions

Section 303 of the Magnuson-Stevens Act contains 14 additional required provisions for FMPs, which are discussed below. Any FMP prepared by any Council, or by the Secretary, with respect to any fishery, must comply with these provisions.

(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.

For a description of the measures and management alternatives implemented by the Red Crab FMP intended to conserve and manage the red crab fishery, including the prevention of overfishing, please see Section 4.0 of the FMP. In summary, the FMP implemented a limited access fishery to a handful of vessels with effort, gear and other restrictions to prevent overfishing. Because this resource is not considered overfished, the FMP did not include a rebuilding plan or schedule. For a discussion of consistency with the National Standards, please see Section 9.1.1 of this document and for a discussion of the consistency of this action with other applicable law, please see Section 9.0.

(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.

For a description of the fishery, including the number and type of fishing vessels involved in the fishery, the type and quantity of fishing gear used, the resource species and its location and environment, and the other relevant issues, please see Section 8.3 of the Red Crab FMP. That information has been supplemented by a SAFE Report completed in October 2004. In summary, there are four limited access vessels that direct on red crab using traps along a relatively narrow depth band of 400-800 meters on the edge of the continental shelf.

(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.

For a discussion of the maximum sustainable yield and optimum yield for this fishery, please see Sections 3.4 and 3.6 of the FMP. MSY is estimated to be 6.24 million pounds. For a discussion of the probable future condition of the fishery, please see Section 8.1.5 of the FMP. The level of fishing effort implemented by the FMP (only 5 limited access permits) is expected to stabilize at a sustainable level and the stock would be less likely to be overfished or subject to overfishing.

(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.

For a discussion of the capacity and extent to which U.S. fishing vessels are likely to harvest the annual optimum yield, the potential for foreign fishing to harvest a portion of OY, and the capacity of U.S. fishing processors to process OY, please see Section 8.3.3 of the FMP. In general, the US fleet is expected to be capable of harvesting all of the optimum yield because there was a need to control access to this fishery in order to match the capacity of the domestic fleet.

(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.

For a discussion of the reporting requirements proposed in the FMP, see Section 3.8 of the FMP. Vessels are required to report to the Interactive Voice Reporting (IVR) System as well as complete Vessel Trip Reports (VTR). The IVR system is a toll-free call-in program that enables NMFS and the Council to track landings on a near-real time basis. VTRs provide a record of fishing location, time fished, fishing effort, bycatch information, as well as economic data such as variable costs. Dealers are required to report weekly to a system that is now electronic.

(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.

The framework adjustment process approved under the FMP is intended to allow for temporary and/or real-time adjustments to management measures to address these issues as they arise. Section 3.10 of the FMP describes the approved framework adjustment process and identifies the types of management measures that may be implemented through a framework adjustment to the Red Crab FMP.

(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 3.7 of the FMP describes the alternatives considered by the Council to identify essential fish habitat (EFH) for the red crab fishery. Section 8.2.3 of the FMP describes the effects of the red crab fishery on EFH and the effects of other fisheries on the EFH of deep-sea red crab. Section 8.2.4 of the FMP identifies red crab habitat conservation recommendations suggested by the Council. The Council did not developed management alternatives in the FMP specifically to minimize any adverse effects of fishing on red crab EFH primarily because there were no known adverse effects at that time, and also because at least two of the management measures selected as part of the preferred alternative (trap limits and prohibitions on non-trap gear in the directed red crab fishery) were chosen in part because they minimize the potential for adverse effects in

the future. Section 7.3 describes the impacts of this framework action on EFH. In general, because this action is primarily administrative and does not change the level of effort or TAC, it was concluded that this fishery does not have adverse impacts on EFH because it is a small, limited fishery, the gear used by the limited access fleet does not have adverse impacts on EFH, and the amount of fishing gear is limited to 600 traps per limited access vessel. If additional information is obtained in the future that suggests there are adverse effects on any EFH from the red crab fishery, then the Council will develop and consider management alternatives for minimizing, mitigating, or avoiding these adverse effects.

(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.

Section 2.4 of the FMP identifies several important management issues related to the need for scientific data with which to effectively implement and monitor the effectiveness of the FMP. Section 9.0 of the FMP identifies several specific research and information needs, which would improve the Council's and NMFS' ability to effectively manage the red crab fishery and ensure the sustainability of the resource. Each year the data on this fishery improves.

(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.

The analyses contained in this document assess the potential biological impacts of the proposed management measures as well as the potential economic and social impacts on the human environment. This includes impacts on current fishery participants, impacts participants in other fisheries, impacts on small commercial fishing entities, impacts on seafood dealers, and impacts on relevant fishing ports. The fishery impact statement is included in Section 7.0 of this document.

(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.

For a discussion of the proposed overfishing definitions and the criteria for identifying when the red crab fishery is overfished, see Section 3.5 of the FMP. Overfished is defined as any rate of exploitation such that the ratio of current exploitation to an idealized exploitation under MSY conditions exceeds a value of 1.0. The red crab stock will be considered to be in an overfished condition if current biomass is below ½ B_{msy}, annual fleet average CPUE continues to decline

below a baseline level for three or more consecutive years, or annual fleet average CPUE falls below a minimum threshold level in any single year.

(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.

For a discussion of the reporting requirements approved in the FMP, including requirements to report bycatch using the VTR forms and a proposed subsampling program, see Section 3.8 of the FMP. Bycatch information of red crab in other fisheries as well as bycatch of other species in the red crab fishery was updated in the 2005 specifications package. In general, there is very little if no bycatch of other species in the red crab fishery. There is some red crab bycatch in other fisheries in this region, but more information is necessary before a region wide bycatch estimate could be made.

(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.

There is no recreational fishery for deep-sea red crabs due to the depth of the water (greater than 320 meters) where red crabs occur and the gear necessary to harvest red crabs (e.g., red crab pots and large hydraulic pot haulers).

(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.

Sections 8.3 and 8.4 of the FMP describe the various sectors that participate in the red crab fishery. Where possible, these sections also identify any trends evident in the landings of red crab by the fishery. A SAFE Report recently submitted in October 2004 updates information on trends in landings for fishing year 2003, and Section 4.2 of this document summarizes landings to date.

(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.

There are no known recreational or charter fishing enterprises involved in the red crab fishery. The commercial sector is the only sector involved in this fishery; therefore, all allocations, restrictions, and/or benefits are anticipated to be borne solely by the commercial sector. If it becomes necessary in the future, the Council may develop management measures to address the recreational and/or charter fishing sectors of the fishery, should these sectors develop

9.2 National Environmental Policy Act (NEPA)

NEPA is the national charter for environmental responsibility; it is a procedural statute that establishes a process by which federal agencies must evaluate the environmental effects of their actions (Bass et al, 2001). NEPA requires that all Federal agencies consider all reasonable

foreseeable environmental effects of their proposed actions and to involve and inform the public in the decision-making process. Section 12.10 of the Red Crab FMP identifies how the FMP was developed in compliance with the requirements of NEPA. This framework action is also in compliance with NEPA requirements; it describes and analyzes the impacts on the affected environment and human participants that may be impacted by this action, it assesses the cumulative impacts of this action in Section 7.4, and during the development of this action, there was opportunity for public review and input.

9.3 Marine Mammal Protection Act (MMPA)

The Marine Mammal Protection Act establishes a moratorium on the taking of important marine mammals and marine mammal products, with some exceptions. If a fishery has the potential to affect marine mammal populations, the potential impacts must be assessed. Section 5.0 of the Red Crab FMP/EIS should be referenced for the assessment of the impacts of the fishery management plan on protected species, and Section 8.7 of the FMP/EIS describes all the marine mammals and other protected species that may be found in the management area of the red crab resource. Section 7.3 of this document evaluates whether marine mammals may be jeopardized as a result of this action. Since this action does not propose to change any of the measures substantially implemented under the FMP, and no impacts were identified under the FMP that jeopardize marine mammals, this action is in compliance with all the requirements of the MMPA.

9.4 Endangered Species Act (ESA)

The Endangered Species Act provides for the protection and conservation of endangered and threatened species of fish, wildlife, and plants. Section 7(a)(2) of the ESA requires Federal agencies to insure that any action carried out by that agency is not likely to jeopardize or adversely modify critical habitats for endangered species. Section 12.3 of the Red Crab FMP concludes that the Red Crab FMP is not likely to result in jeopardy to any ESA-listed species under NMFS jurisdiction, or alter or modify any critical habitat. Since this action does not propose to change any of the measures substantially implemented under the FMP, and no impacts were identified under the FMP that jeopardize endangered species, this action is in compliance with all the requirements of the ESA.

9.5 Administrative Procedure Act (APA)

Sections 551-553 of the Administrative Procedure Act established procedural requirements applicable to informal rulemaking by federal agencies. The purpose is to ensure public access to the federal rulemaking process, and to give public notice and opportunity for comment. The Council did not request relief from notice and comment rule making for this action, and the Council expects that NOAA Fisheries will publish proposed and final rule making for this action.

9.6 Paperwork Reduction Act (PRA)

The purpose of the Paperwork Reduction Act is to minimize paperwork burden for individuals, small businesses, nonprofit institutions, and other persons resulting from the collection of information by or for the Federal Government. It also ensures that the Government is not overly burdening the public with requests for information. This action has not added any additional paperwork burden for interested parties; therefore, PRA does not apply.

9.7 Coastal Zone Management Act (CZMA)

Section 307 of the Coastal Zone Management Act (CZMA) is known as the federal consistency provision. Federal Consistency review requires that "federal actions, occurring inside or outside of a state's coastal zone, that have a reasonable potential to affect the coastal resources or uses of that state's coastal zone, to be consistent with that state's enforceable coastal policies, to the maximum extent practicable". The Council previously made determinations that the FMP was consistent with each states coastal zone management plan and policies, and each coastal state concurred in these consistency determinations (Section 12.2 of the Red Crab FMP). Since the proposed action does not propose any substantive changes from the FMP, the Council has determined that this action is consistent with the coastal zone management plan and policies of the coastal states in this region. A copy of this framework action was sent to each coastal zone management office from Maine to North Carolina when the final submission document was submitted to NMFS (February 18, 2005). A list of the specific contacts and a copy of the letter are available upon request.

9.8 Data Quality Act (DQA)

Pursuant to NOAA Fisheries guidelines implementing Section 515 of Public Law 106-554 (the Data Quality Act), all information products released to the public must first undergo a Pre-Dissemination Review to ensure and maximize the quality, objectivity, utility, and integrity of information (including statistical information) disseminated by Federal agencies. The following section addresses these requirements.

Utility

Utility means that disseminated information is useful to its intended users. "Useful" means that the content of the information is helpful, beneficial, or serviceable to its intended users, or that the information supports the usefulness of other disseminated information by making it more accessible or easier to read, see, understand, obtain or use. The intended users of the information contained in this document are vessels participating in the direct red crab fishery. However, federally permitted red crab dealers and members of the general public may also benefit from this information. The information contained in this document will be helpful and beneficial to owners of vessels holding a limited access or incidental red crab permit since it will notify these individuals of changes in management measures for the fishery. This information will enable these individuals to adjust their fishing practices, and make appropriate business decisions based on the new management measures and corresponding regulations.

The information being provided in this specifications package concerning the status of the red crab fishery is updated information based on landings and effort information as of August 19, 2004. Information concerning changes to red crab management measures is new information that has been developed through a multi-stage process that involved members of the public. Therefore, the information pertaining to management measures contained in this document has been improved based on comments from the public, fishing industry, members of the Council, and NOAA Fisheries.

The media being used in the dissemination of the information contained in this document will be contained in a Federal Register notice announcing the proposed and final rules for this action.

This information will be made available through printed publication and on the Internet website for the Northeast Regional Office (NERO) of NOAA Fisheries.

Integrity
Integrity refers to security--the protection of information from unauthorized access or revision, to ensure that the information is not compromised through corruption or falsification. Prior to dissemination, NOAA information, independent of the specific intended distribution mechanism, is safeguarded from improper access, modification, or destruction, to a degree commensurate with the risk and magnitude of harm that could result from the loss, misuse, or unauthorized access to or modification of such information.

Objectivity
Objective information is presented in an accurate, clear, complete, and unbiased manner, and in proper context. The substance of the information is accurate, reliable, and unbiased; in the scientific, financial, or statistical context, original and supporting data are generated and the analytical results are developed using sound, commonly accepted scientific and research methods. "Accurate" means that information is within an acceptable degree of imprecision or error appropriate to the particular kind of information at issue and otherwise meets commonly accepted scientific, financial, and statistical standards.

Several sources of data were used in the development of this document, including the analysis of impacts. These data sources include, but are not limited to, landings data from vessel trip reports, landings data from individual voice reports, information concerning DAS usage from the DAS call-in system, data from the dealer weighouts purchase reports, data from a voluntary survey from the Council's industry advisors conducted prior to the FMP, and ex-vessel price information. Although there are some limitations to 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.

The policy choices (i.e., management measures) to be contained in this specifications package are supported by the best available scientific information. Qualitative discussion is provided in cases where quantitative information was unavailable, utilizing appropriate proxies and reference points as necessary.

The review process for any action under an FMP involves the Northeast Regional Office (NERO) of NOAA Fisheries, the Northeast Fisheries Science Center (Center), and NOAA Fisheries Headquarters (Headquarters). The Council review process involves public meetings at which affected stakeholders have the opportunity to provide comments on the proposed changes to the FMP. Reviews by staff at NERO are conducted by those with expertise in fisheries management and policy, habitat conservation, protected species, and compliance with the applicable law. 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. Final approval of this specification package and clearance of the proposed and final rules is conducted by staff at NOAA Fisheries Headquarters, the Department of Commerce, and the U.S. Office of Management and Budget. This review process is standard for any action under an FMP, and provides input from individuals having various

expertises that were not directly involved in the development of the action. Thus, the review process for any FMP amendment, including the red crab annual specifications for fishing year 2004, is performed by technically qualified individuals to ensure the action is valid, complete, unbiased, objective and relevant.

9.9 Executive Order 13132 (Federalism)

The E.O. on federalism establishes nine fundamental federalism principles for Federal agencies to follow when developing and implementing actions with federalism implications. Section 12.4 of the Red Crab FMP describes how the management plan is in compliance with this order. Furthermore, this action does not contain policies with Federalism implications, thus preparation of an assessment under E.O. 13132 is not warranted.

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11.0 LIST OF PREPARERS AND AGENCIES CONSULTED

New England Fishery Management Council Staff
Deirdre V. Boelke
50 Water Street, Mill Number 2
Newburyport, MA 01950
Phone: (978) 465-0492

Red Crab Plan Development Team
Deirdre V. Boelke, Chair
Jennifer Anderson, NOAA Fisheries, Northeast Region
Steve Correia, Massachusetts Division of Marine Fisheries
Robert Glenn, Massachusetts Division of Marine Fisheries
Martin Jaffe, NOAA Fisheries, Northeast Region
Barbara Roundtree, NMFS Northeast Fisheries Science Center
Richard Wahle, Bigelow Laboratory, Boothbay, ME
Jim Weinberg, NMFS Northeast Fisheries Science Center

APPENDIX I

EFH text descriptions for all benthic (demersal) life stages
for federally-managed species in the Northeast region

Table 1 - EFH text descriptions for all demersal life stages of federally-managed species in the Northeast region.

Species with EFH that potentially overlaps with red crab fishing activity are in bold face (based on depth).

Species	Life Stage	Geographic Area of EFH	Depth (meters)	Seasonal Occurrence	EFH Description
American plaice	juvenile	GOME and estuaries from Passamaquoddy Bay to Saco Bay, ME and from Mass. Bay to Cape Cod Bay, MA	45 - 150		Bottom habitats with fine grained sediments or a substrate of sand or gravel
American plaice	adult	GOME and estuaries from Passamaquoddy Bay to Saco Bay, ME and from Mass. Bay to Cape Cod Bay, MA	45 - 175		Bottom habitats with fine grained sediments or a substrate of sand or gravel
Atlantic cod	juvenile	GOME, GB, eastern portion of continental shelf off southern NE and following estuaries: Passamaquoddy Bay to Saco Bay; Mass. Bay, Boston Harbor, Cape Cod Bay, Buzzards Bay	25 - 75		Bottom habitats with a substrate of cobble or gravel
Atlantic cod	adult	GOME, GB, eastern portion of continental shelf off southern NE and following estuaries: Passamaquoddy Bay to Saco Bay; Mass. Bay, Boston Harbor, Cape Cod Bay, Buzzards Bay	10 - 150		Bottom habitats with a substrate of rocks, pebbles, or gravel
Atlantic halibut	juvenile	GOME, GB	20 - 60		Bottom habitats with a substrate of sand, gravel, or clay
Atlantic halibut	**adult**	**GOME, GB**	**100 - 700**		**Bottom habitats with a substrate of sand, gravel, or clay**
Atlantic salmon	juvenile	Rivers from CT to Maine: Connecticut, Pawcatuck, Merrimack, Cocheco, Saco, Androscoggin, Presumpscot, Kennebec, Sheepscot, Ducktrap, Union, Penobscot, Narraguagus, Machias, East Machias, Pleasant, St. Croix, Denny's, Passagassawaukeag, Aroostook, Lamprey, Boyden, Orland Rivers, and the Turk, Hobart and Patten Streams; and the following estuaries for juveniles and adults: Passamaquoddy Bay to Muscongus Bay; Casco Bay to Wells Harbor; Mass. Bay, Long Island Sound, Gardiners Bay to Great South Bay. All aquatic habitats in the watersheds of the above listed rivers, including all tributaries to the extent that they are currently or were historically accessible for salmon migration.	10 - 61		Bottom habitats of shallow gravel/cobble riffles interspersed with deeper riffles and pools in rivers and estuaries, water velocities between 30 - 92 cm/s

Species	Life Stage	Geographic Area of EFH	Depth (meters)	Seasonal Occurrence	EFH Description
Atlantic sea scallop	juvenile	GOME, GB, southern NE and middle Atlantic south to Virginia-North Carolina border and following estuaries: Passamaquoddy Bay to Sheepscot R.; Casco Bay, Great Bay, Mass Bay, and Cape Cod Bay	18 - 110		Bottom habitats with a substrate of cobble, shells, and silt
Atlantic sea scallop	adult	GOME, GB, southern NE and middle Atlantic south to Virginia-North Carolina border and following estuaries: Passamaquoddy Bay to Sheepscot R.; Casco Bay, Great Bay, Mass Bay, and Cape Cod Bay	18 - 110		Bottom habitats with a substrate of cobble, shells, coarse/gravelly sand, and sand
Haddock	juvenile	GB, GOME, middle Atlantic south to Delaware Bay	35 - 100		Bottom habitats with a substrate of pebble and gravel
Haddock	adult	GB and eastern side of Nantucket Shoals, throughout GOME, *additional area of Nantucket Shoals, and Great South Channel	40 - 150		Bottom habitats with a substrate of broken ground, pebbles, smooth hard sand, and smooth areas between rocky patches
Goosefish	juvenile	Outer continental shelf in the middle Atlantic, mid-shelf off southern NE, all areas of GOME	25 - 200		Bottom habitats with substrates of a sandshell mix, algae covered rocks, hard sand, pebbly gravel, or mud
Goosefish	adult	Outer continental shelf in the middle Atlantic, mid-shelf off southern NE, outer perimeter of GB, all areas of GOME	25 - 200		Bottom habitats with substrates of a sandshell mix, algae covered rocks, hard sand, pebbly gravel, or mud
Ocean pout	juvenile	GOME, GB, southern NE, middle Atlantic south to Delaware Bay and the following estuaries: Passamaquoddy Bay to Saco Bay; Mass. Bay, and Cape Cod Bay	< 50	Late fall to spring	Bottom habitats in close proximity to hard bottom nesting areas
Ocean pout	adult	GOME, GB, southern NE, middle Atlantic south to Delaware Bay and the following estuaries: Passamaquoddy Bay to Saco Bay; Mass. Bay, Boston Harbor, and Cape Cod Bay	< 80		Bottom habitats, often smooth bottom near rocks or algae
Offshore hake	juvenile	Outer continental shelf of GB and southern NE south to Cape Hatteras, NC	170 - 350		Bottom habitats
Offshore hake	adult	Outer continental shelf of GB and southern NE south to Cape Hatteras, NC	150 - 380		Bottom habitats
Pollock	juvenile	GOME, GB, and the following estuaries: Passamaquoddy Bay to Saco Bay; Great Bay to Waquoit Bay; Long Island Sound, Great South Bay	0 – 250		Bottom habitats with aquatic vegetation or a substrate of sand, mud, or rocks

Species	Life Stage	Geographic Area of EFH	Depth (meters)	Seasonal Occurrence	EFH Description
Pollock	adult	GOME, GB, southern NE, and middle Atlantic south to New Jersey and the following estuaries: Passamaquoddy Bay, Damariscotta R., Mass Bay, Cape Cod Bay, Long Island Sound	15 – 365		Hard bottom habitats including artificial reefs
Red hake	juvenile	GOME, GB, continental shelf off southern NE, and middle Atlantic south to Cape Hatteras and the following estuaries: Passamaquoddy Bay to Saco Bay; Great Bay, Mass. Bay to Cape Cod Bay; Buzzards Bay to Conn. R.; Hudson R./ Raritan Bay, and Chesapeake Bay	< 100		Bottom habitats with substrate of shell fragments, including areas with an abundance of live scallops
Red hake	adult	GOME, GB, continental shelf off southern NE, and middle Atlantic south to Cape Hatteras and the following estuaries: Passamaquoddy Bay to Saco Bay; Great Bay, Mass. Bay to Cape Cod Bay; Buzzards Bay to Conn. R.; Hudson R./ Raritan Bay, Delaware Bay, and Chesapeake Bay	10 - 130		Bottom habitats in depressions with a substrate of sand and mud
Redfish	**juvenile**	**GOME, southern edge of GB**	**25 - 400**		**Bottom habitats with a substrate of silt, mud, or hard bottom**
Redfish	adult	GOME, southern edge of GB	50 - 350		Bottom habitats with a substrate of silt, mud, or hard bottom
White hake	adult	GOME, southern edge of GB, southern NE to middle Atlantic and the following estuaries: Passamaquoddy Bay to Great Bay; Mass. Bay to Cape Cod Bay	5 - 325		Bottom habitats with substrate of mud or fine grained sand
Silver hake	juvenile	GOME, GB, continental shelf off southern NE, middle Atlantic south to Cape Hatteras and the following estuaries: Passamaquoddy Bay to Casco Bay, Mass. Bay to Cape Cod Bay	20 – 270		Bottom habitats of all substrate types
Silver hake	adult	GOME, GB, continental shelf off southern NE, middle Atlantic south to Cape Hatteras and the following estuaries: Passamaquoddy Bay to Casco Bay, Mass. Bay to Cape Cod Bay	30 – 325		Bottom habitats of all substrate types
Windowpane flounder	juvenile	GOME, GB, southern NE, middle Atlantic south to Cape Hatteras and the following estuaries: Passamaquoddy Bay to Great Bay; Mass. Bay to Chesapeake Bay	1 - 100		Bottom habitats with substrate of mud or fine grained sand
Windowpane flounder	adult	GOME, GB, southern NE, middle Atlantic south to Virginia - NC border and the following estuaries: Passamaquoddy Bay to Great Bay; Mass. Bay to Chesapeake Bay	1 - 75		Bottom habitats with substrate of mud or fine grained sand

Species	Life Stage	Geographic Area of EFH	Depth (meters)	Seasonal Occurrence	EFH Description
Winter flounder	juvenile	GB, inshore areas of GOME, southern NE, middle Atlantic south to Delaware Bay and the following estuaries: Passamaquoddy Bay to Chincoteague Bay	0.1 – 10 (1 - 50, age 1+)		Bottom habitats with a substrate of mud or fine grained sand
Winter flounder	adult	GB, inshore areas of GOME, southern NE, middle Atlantic south to Delaware Bay and the following estuaries: Passamaquoddy Bay to Chincoteague Bay	1 - 100		Bottom habitats including estuaries with substrates of mud, sand, grave
Witch flounder	**juvenile**	**GOME, outer continental shelf from GB south to Cape Hatteras**	**50 - 450 to 1500**		**Bottom habitats with fine grained substrate**
Witch flounder	adult	GOME, outer continental shelf from GB south to Chesapeake Bay	25 - 300		Bottom habitats with fine grained substrate
Yellowtail flounder	juvenile	GB, GOME, southern NE continental shelf south to Delaware Bay and the following estuaries: Sheepscot R., Casco Bay, Mass. Bay to Cape Cod Bay	20 - 50		Bottom habitats with substrate of sand or sand and mud
Yellowtail flounder	adult	GB, GOME, southern NE continental shelf south to Delaware Bay and the following estuaries: Sheepscot R., Casco Bay, Mass. Bay to Cape Cod Bay	20 - 50		Bottom habitats with substrate of sand or sand and mud
Red crab	**juvenile**	**Southern flank of GB and south the Cape Hatteras, NC**	**700 - 1800**		**Bottom habitats of continental slope with a substrate of silts, clays, and all silt-clay-sand composites**
Red crab	**adult**	**Southern flank of GB and south the Cape Hatteras, NC**	**200 - 1300**		**Bottom habitats of continental slope with a substrate of silts, clays, and all silt-clay-sand composites**
Black sea bass	juvenile	Demersal waters over continental shelf from GOME to Cape Hatteras, NC, also includes estuaries from Buzzards Bay to Long Island Sound; Gardiners Bay, Barnegat Bay to Chesapeake Bay; Tangier/ Pocomoke Sound, and James River	1 - 38	Found in coastal areas (April to December, peak June to November) between VA and MA, but winter offshore from NJ and south; estuaries in summer and spring	Rough bottom, shellfish and eelgrass beds, manmade structures in sandy-shelly areas, offshore clam beds, and shell patches may be used during wintering
Black sea bass	adult	Demersal waters over continental shelf from GOME to Cape Hatteras, NC, also includes estuaries: Buzzards Bay, Narragansett Bay, Gardiners Bay, Great South Bay, Barnegat Bay to Chesapeake Bay; Tangier/ Pocomoke Sound, and James River	20 - 50	Wintering adults (November to April) offshore, south of NY to NC; inshore, estuaries from May to October	Structured habitats (natural and manmade), sand and shell substrates preferred

Species	Life Stage	Geographic Area of EFH	Depth (meters)	Seasonal Occurrence	EFH Description
Ocean quahog	juvenile	Eastern edge of GB and GOME throughout the Atlantic EEZ	8 - 245		Throughout substrate to a depth of 3 ft within federal waters, occurs progressively further offshore between Cape Cod and Cape Hatteras
Ocean quahog	adult	Eastern edge of GB and GOME throughout the Atlantic EEZ	8 - 245	Spawn May to December with several peaks	Throughout substrate to a depth of 3 ft within federal waters, occurs progressively further offshore between Cape Cod and Cape Hatteras
Atlantic surfclam	juvenile	Eastern edge of GB and the GOME throughout Atlantic EEZ	0 - 60, low density beyond 38		Throughout substrate to a depth of 3 ft within federal waters, burrow in medium to coarse sand and gravel substrates, also found in silty to fine sand, but not in mud
Atlantic surfclam	adult	Eastern edge of GB and the GOME throughout Atlantic EEZ	0 - 60, low density beyond 38	Spawn summer to fall	Throughout substrate to a depth of 3 ft within federal waters
Scup	juvenile	Continental shelf from GOME to Cape Hatteras, NC includes the following estuaries: Mass. Bay, Cape Cod Bay to Long Island Sound; Gardiners Bay to Delaware Inland Bays; and Chesapeake Bay	(0 - 38)	Spring and summer in estuaries and bays	Demersal waters north of Cape Hatteras and inshore on various sands, mud, mussel, and eelgrass bed type substrates
Scup	adult	Continental shelf from GOME to Cape Hatteras, NC includes the following estuaries: Cape Cod Bay to Long Island Sound; Gardiners Bay to Hudson R./ Raritan Bay; Delaware Bay and Inland Bays; and Chesapeake Bay	(2 -185)	Wintering adults (November to April) are usually offshore, south of NY to NC	Demersal waters north of Cape Hatteras and inshore estuaries (various substrate types)
Spiny dogfish	juvenile	GOME through Cape Hatteras, NC across the continental shelf; continental shelf waters south of Cape Hatteras, NC through Florida; also includes estuaries from Passamaquoddy Bay to Saco Bay; Mass. Bay and Cape Cod Bay	10 - 390		Continental shelf waters and estuaries
Spiny dogfish	**adult**	**GOME through Cape Hatteras, NC across the continental shelf; continental shelf waters south of Cape Hatteras, NC through Florida; also includes estuaries from Passamaquoddy Bay to Saco Bay; Mass. Bay and Cape Cod Bay**	**10 - 450**		**Continental shelf waters and estuaries**

Species	Life Stage	Geographic Area of EFH	Depth (meters)	Seasonal Occurrence	EFH Description
Summer flounder	juvenile	Over continental shelf from GOME to Cape Hatteras, NC; south of Cape Hatteras to Florida; also includes estuaries from Waquoit Bay to James R.; Albemarle Sound to Indian R.	0.5 – 5 in estuary		Demersal waters, on muddy substrate but prefer mostly sand; found in the lower estuaries in flats, channels, salt marsh creeks, and eelgrass beds
Summer flounder	adult	Over continental shelf from GOME to Cape Hatteras, NC; south of Cape Hatteras to Florida; also includes estuaries from Buzzards Bay, Narragansett Bay, Conn. R. to James R.; Albemarle Sound to Broad R.; St. Johns R., and Indian R.	0 - 25	Shallow coastal and estuarine waters during warmer months, move offshore on outer continental shelf at depths of 150 m in colder months	Demersal waters and estuaries
Tilefish	juvenile	US/Canadian boundary to VA/NC boundary (shelf break, submarine canyon walls, and flanks: GB to Cape Hatteras)	76 - 365	All year, may leave GB in winter	Rough bottom, small burrows, and sheltered areas; substrate rocky, stiff clay, human debris
Tilefish	adult	US/Canadian boundary to VA/NC boundary (shelf break, submarine canyon walls, and flanks: GB to Cape Hatteras)	76 - 365	All year, may leave GB in winter	Rough bottom, small burrows, and sheltered areas; substrate rocky, stiff clay, human debris
Red drum	juvenile	Along the Atlantic coast from Virginia through the Florida Keys	< 50	Found throughout Chesapeake Bay from September to November	Utilize shallow backwaters of estuaries as nursery areas and remain until they move to deeper water portions of the estuary associated with river mouths, oyster bars, and front beaches
Red drum	adult	Along the Atlantic coast from Virginia through the Florida Keys	< 50	Found in Chesapeake in spring and fall and also along eastern shore of VA	Concentrate around inlets, shoals, and capes along the Atlantic coast; shallow bay bottoms or oyster reef substrate preferred, also nearshore artificial reefs
Spanish mackerel, cobia, and king mackerel	juvenile	South Atlantic and Mid-Atlantic Bights			Sandy shoals of capes and offshore bars, high profile rock bottoms and barrier island oceanside waters from surf zone to shelf break, but from the Gulf Stream shoreward
Spanish mackerel, cobia, and king mackerel	adult	South Atlantic and Mid-Atlantic Bights			Sandy shoals of capes and offshore bars, high profile rock bottoms and barrier island oceanside waters from surf zone to shelf break, but from the Gulf Stream shoreward

Species	Life Stage	Geographic Area of EFH	Depth (meters)	Seasonal Occurrence	EFH Description
Golden crab	**juvenile**	**Chesapeake Bay to the south through the Florida Straight (and into the Gulf of Mexico)**	**290 - 570**		**Continental slope in flat areas of foraminifera ooze, on distinct mounds of dead coral, ripple habitat, dunes, black pebble habitat, low outcrop, and soft bioturbated habitat**
Golden crab	**adult**	**Chesapeake Bay to the south through the Florida Straight (and into the Gulf of Mexico)**	**290 - 570**		**Continental slope in flat areas of foraminifera ooze, on distinct mounds of dead coral, ripple habitat, dunes, black pebble habitat, low outcrop, and soft bioturbated habitat**
Barndoor skate	**juvenile**	**Eastern GOME, GB, Southern NE, Mid-Atlantic Bight to Hudson Canyon**	**l0 - 750, mostly < 150**		**Bottom habitats with mud, gravel, and sand substrates**
Barndoor skate	**adult**	**Eastern GOME, GB, Southern NE, Mid-Atlantic Bight to Hudson Canyon**	**l0 - 750, mostly < 150**		**Bottom habitats with mud, gravel, and sand substrates**
Clearnose skate	**juvenile**	**GOME, along shelf to Cape Hatteras, NC; includes the estuaries from Hudson River/Raritan Bay south to the Chesapeake Bay mainstem**	**0 – 500, mostly < 111**		**Bottom habitats with substrate of soft bottom along continental shelf and rocky or gravelly bottom**
Clearnose skate	**adult**	**GOME, along shelf to Cape Hatteras, NC; includes the estuaries from Hudson River/Raritan Bay south to the Chesapeake Bay mainstem**	**0 – 500, mostly < 111**		**Bottom habitats with substrate of soft bottom along continental shelf and rocky or gravelly bottom**
Little skate	juvenile	GB through Mid-Atlantic Bight to Cape Hatteras, NC; includes the estuaries from Buzzards Bay south to the Chesapeake Bay mainstem	0 - 137, mostly 73 - 91		Bottom habitats with sandy or gravelly substrate or mud
Little skate	adult	GB through Mid-Atlantic Bight to Cape Hatteras, NC; includes the estuaries from Buzzards Bay south to the Chesapeake Bay mainstem	0 - 137, mostly 73 - 91		Bottom habitats with sandy or gravelly substrate or mud
Rosette skate	**juvenile**	**Nantucket shoals and southern edge of GB to Cape Hatteras, NC**	**33 - 530, mostly 74 - 274**		**Bottom habitats with soft substrate, including sand/mud bottoms, mud with echinoid and ophiuroid fragments, and shell and pteropod ooze**
Rosette skate	**adult**	**Nantucket shoals and southern edge of GB to Cape Hatteras, NC**	**33 - 530, mostly 74 - 274**		**Bottom habitats with soft substrate, including sand/mud bottoms, mud with echinoid and ophiuroid fragments, and shell and pteropod ooze**

Species	Life Stage	Geographic Area of EFH	Depth (meters)	Seasonal Occurrence	EFH Description
Smooth skate	**juvenile**	**Offshore banks of GOME**	**31 – 874, mostly 110 - 457**		**Bottom habitats with a substrate of soft mud (silt and clay), sand, broken shells, gravel and pebbles**
Smooth skate	**adult**	**Offshore banks of GOME**	**31 – 874, mostly 110 - 457**		**Bottom habitats with a substrate of soft mud (silt and clay), sand, broken shells, gravel and pebbles**
Thorny skate	**juvenile**	**GOME and GB**	**18 - 2000, mostly 111 - 366**		**Bottom habitats with a substrate of sand, gravel, broken shell, pebbles, and soft mud**
Thorny skate	**adult**	**GOME and GB**	**18 - 2000, mostly 111 - 366**		**Bottom habitats with a substrate of sand, gravel, broken shell, pebbles, and soft mud**
Winter skate	juvenile	Cape Cod Bay, GB, southern NE shelf through Mid-Atlantic Bight to North Carolina; includes the estuaries from Buzzards Bay south to the Chesapeake Bay mainstem	0 - 371, mostly < 111		Bottom habitats with substrate of sand and gravel or mud
Winter skate	adult	Cape Cod Bay, GB southern NE shelf through Mid-Atlantic Bight to North Carolina; includes the estuaries from Buzzards Bay south to the Chesapeake Bay mainstem	0 - 371, mostly < 111		Bottom habitats with substrate of sand and gravel or mud

Mixed or Unknown Species

Species	Life Stage	Geographic Area of EFH	Depth	Seasonal Occurrence	EFH Description
White hake	juvenile	GOME, southern edge of GB, southern NE to middle Atlantic and the following estuaries: Passamaquoddy Bay to Great Bay; Mass. Bay to Cape Cod Bay	5 - 225	May to September	Pelagic stage - pelagic waters; demersal stage - bottom habitat with seagrass beds or substrate of mud or fine grained sand

APPENDIX II

List of Threatened, Endangered, and Other Protected Species

Identification of Protected Species

The Council has determined that the following list of species protected either by the Endangered Species Act of 1973 (ESA), or the Marine Mammal Protection Act of 1972 (MMPA) may be found in the environment utilized by the deep sea red crab fishery under the proposed FMP.

Cetaceans	
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	
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	
Shortnose sturgeon (*Acipenser brevirostrum*)	Endangered
Atlantic salmon (*Salmo salar*)	Endangered
Birds	
Roseate tern (*Sterna dougallii dougallii*)	Endangered
Piping plover (*Charadrius melodus*)	Endangered
Critical Habitat Designations	
Right whale	Cape Cod Bay Great South Channel

Protected Species Not Likely to Affected by this FMP or the Red Crab Fishery

The Council has reviewed the current information available on the distribution and habitat needs of the endangered, threatened, and otherwise protected species listed above in relation to the action being considered in the Red Crab FMP. Following this review, the Council has made an assessment that deep sea red crab fishing operations, as managed by the Red Crab FMP, are not

expected to affect the shortnose sturgeon *(Acipenser brevirostrum*), the Gulf of Maine distinct population segment (DPS) of Atlantic salmon (*Salmo salar*), the roseate tern (*Sterna dougallii dougallii*), the piping plover (*Charadrius melodus*) or the Kemp's ridley *(Lepidochelys kempii),* green (*Chelonia mydas*) and hawksbill sea turtles (*Eretmochelys imbricata*), all of which are listed species under the Endangered Species Act of 1973. In its 2002 Biological Opinion, NMFS also stated the red crab fishery was not likely to affect blue whales (*Balenoptera musculus*) or designated right whale critical habitat in Cape Cod Bay and the Great South Channel.

A number of cetacean species protected under the Marine Mammal Protection Act of 1972 (MMPA) are found in the waters fished by the deep-sea red crab fishery but, similarly, are not affected by the fishery. These include the minke whale (*Balaenoptera acutorostrata*), beaked whale species (*Ziphius* and *Mesoplodon* spp.), Risso's dolphin (*Grampus griseus*), pilot whale (*Globicephala* spp.), Atlantic white-sided dolphin (*Lagenorhynchus acutus*), common dolphin (*Delphinus delphis*), spotted and striped dolphins (*Stenella* spp.), and Atlantic bottlenose dolphin (*Tursiops truncatus*).

The red crab fishery is not expected to adversely affect these populations in any way that may compromise their ability to maintain optimum sustainable population levels, or cause their serious injury and mortality levels to exceed the potential biological removal (PBR) levels allowed for commercial fisheries. In addition, the Council believes that the red crab fishing operations will not adversely affect the right whale critical habitat areas listed above. More detailed information on this subject is found in the Council's Red Crab Fishery Management at http://www.nefmc.org/crab/index.html and the NMFS Biological 2002 Biological Opinion on the implementation of the Deep-Sea Red Crab Fishery Management Plan. References cited below are also found in these documents.

Status of Protected Species Potentially Affected by this FMP

The remainder of this section summarizes the status of the various species that inhabit the red crab fishing area and may be adversely affected by the fishing operations occurring under the Red Crab FMP. Additional background information on the range-wide status of these species and a description of the critical habitat can be found in a number of published documents, including sea turtle status reviews (NMFS and USFWS 1995, Marine Turtle Working Group - TEWG 1998, 2000) and biological reports (USFWS 1997), recovery plans for the humpback whale (NMFS 1991a), right whale (NMFS 1991b), loggerhead turtle (NMFS and USFWS 1991) and leatherback turtle (NMFS and USFWS 1992) and the Marine Mammal Stock Assessment Reports for the U.S. Atlantic and Gulf of Mexico (Waring et al. 2000, Waring et al. 2001, Waring et al. 2002, and Waring et al. 2003).

Right Whale

Right whales were found historically in all the world's oceans within the temperate to subarctic latitudes. There are three major subdivisions of right whales: North Pacific, North Atlantic, and Southern Hemisphere; with eastern and western subunits found in the North Atlantic (Perry et al. 1999). Because of our limited understanding of the genetic structure of the species, the conservative approach to conservation of this species has been to treat the subunits as separate groups whose survival and recovery is critical to the health of the species.

The northern right whale has the highest risk of extinction of all large whales. Scarcity of right whales is the result of an 800-year history of whaling that continued into the 1960s (Klumov 1962). Records indicate that right whales were subject to commercial whaling in the North Atlantic as early as 1059, with an estimated 25,000-40,000 right whales believed to have been taken between the 11th and 17th centuries. The size of the western North Atlantic right whale population at the termination of whaling is unknown. The stock was first recognized as seriously depleted as early as 1750. However, right whales continued to be taken in shore-based operations or opportunistically by whalers in search of other species as late as the 1920s. By the time the species was internationally protected in 1935 there may have been fewer than 100 North Atlantic right whales in the western North Atlantic (Hain 1975; Reeves et al. 1992; Kenney et al. 1995).

Intense whaling was also the cause of the critically endangered status of the North Pacific right whale. Currently, the North Pacific population is so small that no reliable estimate can be given. In the Atlantic, the eastern subpopulation of the North Atlantic population may already be extinct. The fact that the western North Atlantic subpopulation is the most numerous right whale population in the northern hemisphere, and is only estimated to number approximately 300 animals, is testimony to the severely depleted status of this species in the northern hemisphere. In contrast, the southern right whale is recovering with a growth rate of 7% in many areas.

Right whales appear to prefer shallow coastal waters, but their distribution is also strongly correlated to zooplankton prey distribution (Winn et al. 1986). In both northern and southern hemispheres, right whales are observed in the lower latitudes and more coastal waters during winter, where calving takes place, and then migrate to higher latitudes during the summer. In the western North Atlantic, they are found west of the Gulf Stream and are most commonly associated with cooler waters (<21º C). They are not found in the Caribbean and have been recorded only rarely in the Gulf of Mexico.

NMFS designated three right whale critical habitat areas on June 3, 1994 (59 FR 28793) to help protect important right whale foraging and calving areas within the U.S. These areas are: Cape Cod Bay; the Great South Channel (both off Massachusetts); and the waters adjacent to the southern Georgia and northern Florida coast. In 1993, Canada's Department of Fisheries declared two conservation areas for right whales; one in the Grand Manan Basin in the lower Bay of Fundy, and a second in Roseway Basin between Browns and Baccaro Banks (Canadian Recovery Plan for the North Atlantic Right Whale 2000).

Right whales feed on zooplankton through the water column, and in shallow waters may feed near the bottom. In the Gulf of Maine, they have been observed feeding primarily on copepods, by skimming at or below the water's surface with open mouths (NMFS 1991b; Kenney et al. 1986; Murison and Gaskin 1989; and Mayo and Marx 1990). Research suggests that right whales must locate and exploit extremely dense patches of zooplankton to feed efficiently (Waring et al. 2001). New England waters include important foraging habitat for right whales and at least some portion of the right whale population is present in these waters throughout most months of the year. They are most abundant in Cape Cod Bay between February and April (Hamilton and Mayo 1990; Schevill et al. 1986; Watkins and Schevill 1982) and in the Great South Channel in May and June (Kenney et al. 1986; Payne et al. 1990) where they have been observed feeding predominantly on copepods, largely of the genera *Calanus* and *Pseudocalanus*

(Waring et al. 2001). Right whales also frequent Stellwagen Bank and Jeffrey's Ledge, as well as Canadian waters including the Bay of Fundy and Browns and Baccaro Banks, in the spring and summer months. Mid-Atlantic waters are used as a migratory pathway from the spring and summer feeding/nursery areas to the winter calving grounds off the coast of Georgia and Florida. However, much about right whale movements and habitat use are still unknown. Approximately 85% of the population is unaccounted for during the winter (Waring et al. 2001). Radio and satellite tagging has been used to track right whales, and has shown lengthy and somewhat distant excursions into deep water off the continental shelf (Mate et al. 1997). In addition photographs of identified individuals have documented movements of the western North Atlantic right whales as far north as Newfoundland, the Labrador Basin and southeast of Greenland (Knowlton et al. 1992). Sixteen satellite tags were attached to right whales in the Bay of Fundy, Canada, during summer 2000 in an effort to further elucidate the movements and important habitat for North Atlantic right whales. The movements of these whales varied, with some remaining in the tagging area and others making periodic excursions to other areas before returning to the Bay of Fundy. Several individuals were observed to move along the coastal waters of Maine, while others traveled to the Scotian Shelf off Nova Scotia. One individual was successfully tracked throughout the fall, and was followed on her migration to the Georgia/Florida wintering area.

Recognizing the precarious status of the right whale, the continued threats present in its coastal habitat throughout its range, and the uncertainty surrounding attempts to characterize population trends, the International Whaling Commission (IWC) held a special meeting of its Scientific Committee from March 19-25, 1998, in Cape Town, South Africa, to conduct a comprehensive assessment of right whales worldwide. The workshop's participants reviewed available information on the North Atlantic right whale. The conclusions of Caswell et al. (1999) were particularly alarming. Using data on reproduction and survival through 1996, Caswell determined that the western North Atlantic right whale population was declining at a rate of 2.4% per year, with one model suggesting that the mortality rate of the right whale population had increased five-fold in less than one generation. According to Caswell, if the mortality rate as of 1996 does not decrease and the population's reproductive performance does not improve, extinction could occur in 191 years and would be certain within 400 years.

The IWC Workshop participants expressed "considerable concern" in general for the status of the western North Atlantic right whales. This concern was based on recent (1993-1995) observations of near-failure of calf production, the significantly high mortality rate, and an observed increase in the calving interval. It was suggested that the slow but steady recovery rate published in Knowlton et al. (1994) may not be continuing. Workshop participants urgently recommended increased efforts to reduce the human-caused mortality factors affecting this right whale population.

As stated in the IWC Workshop, there is been concern over the decline in birth rate. In the three calving seasons following Caswell's analysis, only 10 calves are known to have been born into the population, with only one known right whale birth in the 1999/2000 season. However, the 2000/2001 calving season had 31 right whale calves sighted, with 27 surviving. Although these births are encouraging, biologists recognize that there may be some additional natural mortality with the 2000/2001 calves and cautious optimism is necessary because of how close the species

is to extinction. In addition, efforts to reduce human-caused mortality must be accelerated if these individuals are to survive to sexual maturity and help reverse the population decline.

One question that has repeatedly arisen regarding the western North Atlantic population of right whales is the effect that "bottlenecking" may have played on the genetic integrity of right whales. Several genetics studies have attempted to examine the genetic diversity of right whales. Results from a study by Schaeff et al. (1997) indicate that North Atlantic right whales are less genetically diverse than southern right whales; a separate population that numbers at least four times as many animals with an annual growth rate of nearly seven percent. A recent study compared the genetic diversity of North Atlantic right whales with the genetic diversity of southern right whales. The researchers found only five distinct haplotypes (a maternal genetic marker) exist amongst 180 different North Atlantic right whales sampled, versus 10 haplotypes among just 16 southern right whales sampled. In addition, one of the five haplotypes found in the North Atlantic right whales was observed in only four animals; all males born prior to 1982 (Malik et al. 2000). Because this genetic marker can be passed only from female to offspring, there is an expectation that it will be lost from the population. Two interesting facts about this haplotype are: (1) the last known female with this type was the animal killed by the shore fishery at Amagansett, Long Island in 1907; and (2) this haplotype is basal to all others worldwide (i.e., it is the most ancient of all right whales).

Low genetic diversity is a general concern for wildlife populations. It has been suggested that North Atlantic right whales have been at a low population size for hundreds of years and, while the present population exhibits very low genetic diversity, the major effects of harmful genes are thought to have occurred well in the past, effectively eliminating those genes from the population (Kenney 2000). To determine how long North Atlantic right whales have exhibited such low genetic diversity, researchers have analyzed DNA extracted from museum specimens. Rosenbaum et al. (2000) found these samples represented four different haplotypes, all of which are still present in the current population, suggesting there has not been a significant loss of genetic diversity within the last 191 years. Although his sample size (n=6) was small, it supports the theory that significant reduction in genetic diversity likely occurred prior to the late 19th century.

The role of contaminants or biotoxins in reducing right whale reproduction has also been raised. Contaminant studies have confirmed that right whales are exposed to and accumulate contaminants, but the effect that such contaminants might be having on right whale reproduction or survivability is unknown.

Competition for food resources is another possible factor impacting right whale reproduction. Researchers have found that North Atlantic right whales appear to have thinner blubber than right whales from the South Atlantic (Kenney, 2000). It has also been suggested that oceanic conditions affecting the concentration of copepods may in turn have an effect on right whales since they rely on dense concentrations of copepods to feed efficiently (Kenney 2000). However, evidence is lacking to demonstrate either that a decline in birth rate is related to depleted food resources or that there is a relationship between oceanic conditions and copepod abundance to right whale fitness and reproduction rates.

General Human Impacts and Entanglement

Right whales may be adversely affected by habitat degradation, habitat exclusion, acoustic trauma, harassment, or reduction in prey resources due to trophic effects resulting from a variety of activities including the operation of commercial fisheries. However, the major known sources of anthropogenic mortality and injury of right whales clearly are ship strikes and entanglement in commercial fishing gear such as the sink gillnet gear used to catch multispecies.
Based on photographs of catalogued animals from 1959 and 1989, Kraus (1990) estimated that 57% of right whales exhibited scars from entanglement and 7% from ship strikes (propeller injuries). Hamilton et al. (1998) updated this work using data from 1935 through 1995. The new study estimated that 61.6% of right whales exhibit injuries caused by entanglement, and 6.4% exhibit signs of injury from vessel strikes. These data may be misleading, as a ship strike may be less of a "recoverable" event than entanglement in rope. It is also known that several whales have apparently been entangled on more than one occasion, and that some right whales that have been entangled were subsequently involved in ship strikes. Furthermore, these numbers are based on sightings of free-swimming animals that initially survive the entanglement or ship strike. Therefore, the actual number of interactions may be higher as some animals are likely drowned or killed immediately, and the carcass never recovered or observed.

The most recent data describing the observed entanglements of right whales is found in Table 2*. It should be noted that no information is currently available on the response of the right whale population to recent (1997-1999) efforts to mitigate the effects of entanglement and ship strikes. However, as noted above, both entanglements and ship strikes have continued to occur. Therefore, it is not possible to determine whether the trend through 1996, as reported by Caswell, is continuing. Furthermore, results reported by Caswell suggest that it is not possible to determine that anthropogenic mortalities alone are responsible for the decline in right whale survival. However, the IWC concluded that reduction of anthropogenic mortalities would significantly improve the species' survival probability.

The best available information makes it reasonable to conclude that the current death rate exceeds the birth rate in the western North Atlantic right whale population. The nearly complete reproductive failure in this population from 1993 to 1995 and again in 1998 and 1999 suggests that this pattern has continued for almost a decade. Because no population can sustain a high death rate and low birth rate indefinitely, this combination places the North Atlantic right whale population at high risk of extinction. The one bright spot is the 2000/2001 calving season that is the most promising in the past 5 years in terms of calves born. However, these young animals must be provided with protection so that they can mature and contribute to future generations in order to be a factor in stabilizing of the population.

*Data from NMFS entanglement reports where some gear was recovered and/or observed allowing experts to attempt to ID gear. Other entanglement records exist but gear was not recovered or observed.

Table 2 Large Whale Entanglements, 1997-2001*

SPECIES	Right		Humpback		Fin		Minke		TOTAL	
	Dead	Alive	Dead	Alive	Dead	Alive	Dead	Alive	Dead	Alive
1997										
Gillnet	**0**	1	0	0	0	2	0	0	0	3
Pot/Trap	0	2	0	1	0	1	0	2	0	6
UNK/Other	0	1	0	1	0	0	0	0	0	2
TOTAL	**0**	**4**	**0**	**2**	**0**	**3**	**0**	**2**	**0**	**11**
1998										
Gillnet	0	0	1	4	0	0	1	0	2	4
Pot/Trap	0	2	0	1	0	0	0	0	0	3
UNK/Other	0	1	0	0	0	0	0	1	0	2
TOTAL	**0**	**3**	**1**	**5**	**0**	**0**	**1**	**1**	**2**	**9**
1999										
Gillnet	1	0	0	2	0	0	0	0	1	2
Pot/Trap	0	2	0	1	0	1	0	1	0	5
UNK/Other	0	1	0	1	0	0	2	0	2	2
TOTAL	**1**	**3**	**0**	**4**	**0**	**1**	**2**	**1**	**3**	**9**
2000										
Gillnet	0	0	0	2	0	0	0	0	0	2
Pot/Trap	0	0	0	0	0	0	0	2	0	2
UNK/Other	0	2	0	1	0	0	0	0	0	3
TOTAL	**0**	**2**	**0**	**3**	**0**	**0**	**0**	**2**	**0**	**7**
2001										
Gillnet	0	0	1	1	0	0	0	0	1	1
Pot/Trap	0	1	0	1	0	0	0	0	0	2
UNK/Other	1	1	0	1	0	0	0	0	1	2
TOTAL	**1**	**2**	**1**	**3**	**0**	**0**	**0**	**0**	**2**	**5**
TOTAL ALL	**2**	**14**	**2**	**17**	**0**	**4**	**3**	**6**	**7**	**41**

Humpback Whale

Humpback whales calve and mate in the West Indies and migrate to feeding areas in the northwestern Atlantic during the summer months. Six separate feeding areas are utilized in northern waters (Waring et al. 2001). Only one of these feeding areas, the Gulf of Maine, lies within U.S. waters contained within the management unit of the FMP (Northeast Region). Most of the humpbacks that forage in the Gulf of Maine visit Stellwagen Bank and the waters of Massachusetts and Cape Cod Bays. Sightings are most frequent from mid-March through November between 41º N and 43º N, from the Great South Channel north along the outside of Cape Cod to Stellwagen Bank and Jeffreys Ledge (CeTAP 1982), and peak in May and August. However, small numbers of individuals may be present in this area year-round. They feed on a number of species of small schooling fishes, particularly sand lance and Atlantic herring, by filtering large amounts of water through their baleen to capture prey (Wynne and Schwartz 1999).

Data from a photographic identification catalogue of over 600 individual humpback whales have described the majority of the habitats used by this species (Barlow and Clapham 1997; Clapham et al. 1999). The photographic data have identified that reproductively mature western North

Atlantic humpbacks winter in tropical breeding grounds in the Antilles, primarily on Silver and Navidad Banks north of the Dominican Republic. The primary winter range where calving and copulation is believed to take place also includes the Virgin Islands and Puerto Rico (NMFS 1991a). Calves are born from December through March and are about 4 meters at birth. Sexually mature females give birth approximately every 2 to 3 years. Sexual maturity is reached between 4 and 6 years of age for females and between 7 and 15 years for males. Size at maturity is about 12 meters.

Humpback whales use the Mid-Atlantic as a migratory pathway. However, observations of juvenile humpbacks since 1989 in the mid-Atlantic have been increasing during the winter months, peaking January through March (Swingle et al. 1993). Biologists theorize that non-reproductive animals may be establishing a winter-feeding range in the mid-Atlantic since they are not participating in reproductive behavior in the Caribbean. The whales using this mid-Atlantic area were found to be residents of the Gulf of Maine and Atlantic Canada (Gulf of St. Lawrence and Newfoundland) feeding groups, suggesting a mixing of different feeding stocks in the mid-Atlantic region. Strandings and entanglements of humpback whales have increased between New Jersey and Florida during the same period (Wiley et al. 1995).

New information has become available on the status and trends of the humpback whale population in the North Atlantic that indicates the population is increasing. However, it has not yet been determined whether this increase is uniform across all six feeding stocks (Waring et al. 2001). For example, although the overall rate of increase has been estimated at 9.0% (CV=0.25) by Katona and Beard (1990), Barlow and Clapham (1997) reported a 6.5% rate through 1991 for the Gulf of Maine feeding group.

A variety of methods have been used to estimate the North Atlantic humpback whale population. However, the photographic mark-recapture analyses from the Years of the North Atlantic Humpback (YONAH) project gave a North Atlantic basin-wide estimate of 10,600 (95% c.i. = 9,300 - 12,100) is regarded as the best available estimate for that population.

General Human Impacts and Entanglement

The major known sources of anthropogenic mortality and injury of humpback whales include entanglement in commercial fishing gear such as the sink gillnet gear used to catch multispecies, and ship strikes. Based on photographs of the caudal peduncle of humpback whales, Robbins and Mattila (1999) estimated that between 48% and 78% of animals in the Gulf of Maine exhibit scarring caused by entanglement. Several whales have apparently been entangled on more than one occasion. These estimates are based on sightings of free-swimming animals that initially survive the encounter. The most recent data describing the observed entanglements of humpback whales is found in Table 64. Because some whales may drown immediately, the actual number of interactions may be higher. In addition, the actual number of species-gear interactions is contingent on the intensity of observations from aerial and ship surveys.

Humpback whales may also be adversely affected by habitat degradation, habitat exclusion, acoustic trauma, harassment, or reduction in prey resources due to trophic effects resulting from a variety of activities including the operation of commercial fisheries.

Fin Whale

Fin whales inhabit a wide range of latitudes between 20-75° N and 20-75° S (Perry et al. 1999). Fin whales spend the summer feeding in the relatively high latitudes of both hemispheres, particularly along the cold eastern boundary currents in the North Atlantic and North Pacific Oceans and in Antarctic waters (IWC 1992). Most migrate seasonally from relatively high-latitude Arctic and Antarctic feeding areas in the summer to relatively low-latitude breeding and calving areas in the winter (Perry et al. 1999).

As was the case for the right and humpback whales, fin whale populations were heavily affected by commercial whaling. However, commercial exploitation of fin whales occurred much later than for right and humpback whales. Wide-scale commercial exploitation of fin whales did not occur until the 20th century when the use of steam power and harpoon- gun technology made exploitation of this faster, more offshore species feasible. In the southern hemisphere, over 700,000 fin whales were landed in the 20th century. More than 48,000 fin whales were taken in the North Atlantic between 1860 and 1970 (Perry et al. 1999). Fisheries existed off of Newfoundland, Nova Scotia, Norway, Iceland, the Faroe Islands, Svalbard (Spitsbergen), the islands of the British coasts, Spain and Portugal. Fin whales were rarely taken in U.S. waters, except when they ventured near the shores of Provincetown, MA, during the late 1800's (Perry et al. 1999).

In the North Atlantic today, fin whales are widespread and occur from the Gulf of Mexico and Mediterranean Sea northward to the edges of the arctic pack ice (NMFS 1998b). A number of researchers have suggested the existence of fin whale subpopulations in the North Atlantic. Mizroch et al. (1984) suggested that local depletions resulting from commercial over harvesting supported the existence of North Atlantic fin whale subpopulations. Others have used genetic information to support the existence of multiple subpopulations of fin whales in the North Atlantic and Mediterranean (Bérubé et al. 1998). Although the IWC's Scientific Committee proposed seven stocks for North Atlantic fin whales, it is uncertain whether these stock boundaries define biologically isolated units (Waring et al. 2001). NMFS has designated one stock of fin whale for U.S. waters of the North Atlantic (Waring et al. 2001) where the species is commonly found from Cape Hatteras northward.

Various estimates have been provided to describe the current status of fin whales in western North Atlantic waters. Based on the history and trends of whaling catch, an estimate of 3,590 to 6,300 fin whales was obtained for the entire western North Atlantic (Perry et al. 1999). Hain et al. (1992) estimated that about 5,000 fin whales inhabit the Northeastern United States continental shelf waters. The latest published SAR (Waring et al. 2002) gives a best estimate of abundance for fin whales of 2,814 (CV = 0.21). However, this is considered an underestimate, as too little is known about population structure, and the estimate is derived from surveys over a limited portion of the western North Atlantic. There is also not enough information to estimate population trends.

Despite our broad knowledge of fin whales, less is known about their life history as compared to right and humpback whales. Age at sexual maturity for both sexes ranges from 5-15 years. Physical maturity is reached at 20-30 years. Conception occurs during a 5 month winter period

in either hemisphere. After a 12-month gestation, a single calf is born. The calf is weaned between 6 and 11 months after birth. The mean calving interval is 2.7 years, with a range of between 2 and 3 years (Agler et al. 1993). Like right and humpback whales, fin whales are believed to use western North Atlantic waters primarily for feeding and migrate to more southern waters for calving. However, the overall pattern of fin whale movement consists of a less obvious north-south pattern of migration than that of right and humpback whales.

Based on acoustic recordings from hydrophone arrays, Clark (1995) reported the fin whale as the most acoustically common whale species heard in the North Atlantic and described a general pattern of fin whale movements in the fall from the Labrador/Newfoundland region, south past Bermuda, and into the West Indies. However, evidence regarding where the majority of fin whales winter, calve, and mate is still scarce.

The overall distribution of fin whales may be based on prey availability. This species preys opportunistically on both zooplankton and fish (Watkins et al. 1984). The predominant prey of fin whales varies greatly in different geographical areas depending on what is locally available. In the western North Atlantic fin whales feed on a variety of small schooling fish (i.e., herring, capelin, sand lance) as well as squid and planktonic crustaceans (Wynne and Schwartz 1999). As with humpback whales, fin whales feed by filtering large volumes of water for their prey through their baleen plates. Photo identification studies in western North Atlantic feeding areas, particularly in Massachusetts Bay, have shown a high rate of annual return by fin whales, both within years and between years (Seipt et al. 1990).

As discussed above, fin whales were the focus of commercial whaling, primarily in the 20th century. The IWC did not begin to manage commercial whaling of fin whales in the North Atlantic until 1976 and were not given total protection until 1987, with the exception of a subsistence whaling hunt for Greenland. In total, there have been 239 reported kills of fin whales from the North Atlantic from 1988 to 1995.

General Human Impacts and Entanglement

The major known sources of anthropogenic mortality and injury of fin whales include ship strikes and entanglement in commercial fishing gear such as the sink gillnet gear used to catch multispecies. However, many of the reports of mortality cannot be attributed to a particular source. Of 18 fin whale mortality records collected between 1991 and 1995, four were associated with vessel interactions, although the true cause of mortality was not known. Although several fin whales have been observed entangled in fishing gear, (see Table 64) with some being disentangled, no mortalities have been attributed to gear entanglement.

In general, known mortalities of fin whales are less than those recorded for right and humpback whales. This may be due in part to the more offshore distribution of fin whales where they are either less likely to encounter entangling gear, or are less likely to be noticed when gear entanglements or vessel strikes do occur. Fin whales may also be adversely affected by habitat degradation, habitat exclusion, acoustic trauma, harassment, or reduction in prey resources due to trophic effects resulting from a variety of activities including the operation of commercial fisheries.

Sei Whale

Sei whales are a widespread species in the world's temperate, subpolar and subtropical and even tropical marine waters. However, they appear to be more restricted to temperate waters than other balaenopterids (Perry et al. 1999). Mitchell and Chapman (1977) suggested that the sei whale population in the western North Atlantic consists of two stocks, a Nova Scotian Shelf stock and a Labrador Sea stock. The Nova Scotian Shelf stock includes the continental shelf waters of the northeastern United States, and extends northeastward to south of Newfoundland. The IWC boundaries for this stock are from the U.S. east coast to Cape Breton, Nova Scotia and east to longitude 42° (Waring et al. 2000). This is the only sei whale stock within the red crab management area.

Sei whales became the target of modern commercial whalers primarily in the late 19th and early 20th century after stocks of other whales, including right, humpback, fin and blues, had already been depleted. Sei whales were taken in large numbers by Norway and Scotland from the beginning of modern whaling (NMFS 1998a). In the western North Atlantic, sei whales were originally hunted off of Norway and Iceland, but from 1967-1972, sei whales were also taken off of Nova Scotia (Perry et al. 1999). A total of 825 sei whales were taken on the Scotian Shelf between 1966-1972, and an additional 16 were taken from the same area during the same time by a shore based Newfoundland whaling station (Perry et al. 1999). There is no estimate for the abundance of sei whales prior to commercial whaling. Based on whaling records, approximately14,295 sei whales were taken in the entire North Atlantic from 1885 to 1984 (Perry et al. 1999).

Sei whales winter in warm temperate or subtropical waters and summer in more northern latitudes. In the northern Atlantic, most births occur in November and December when the whales are on the wintering grounds. Conception is believed to occur in December and January. Gestation lasts for 12 months and the calf is weaned at 6-9 months when the whales are on the summer feeding grounds (Draft Recovery Plan, NMFS 1998a). Sei whales reach sexual maturity at 5-15 years of age. The calving interval is believed to be 2-3 years (Perry et al. 1999).

Sei whales occur in deep water throughout their range, typically over the continental slope or in basins situated between banks (Draft Recovery Plan, NMFS 1998a). In the northwest Atlantic, the whales travel along the eastern Canadian coast in autumn, June and July on their way to and from the Gulf of Maine and Georges Bank where they occur in winter and spring. The sei whale is most common on Georges Bank and into the Gulf of Maine/Bay of Fundy region during spring and summer, primarily in deeper waters. Individuals may range as far south as North Carolina. It is important to note that sei whales are known for inhabiting an area for weeks at a time then disappearing for year or even decades; this has been observed all over the world, including in the southwestern GOM in 1986. The basis for this phenomenon is not clear.

Although sei whales may prey upon small schooling fish and squid in the action area, available information suggests that calanoid copepods and euphausiids are the primary prey of this species. There are occasional influxes of sei whales further into Gulf of Maine waters, presumably in conjunction with years of high copepod abundance inshore. Sei whales are occasionally seen feeding in association with right whales in the southern Gulf of Maine and in the Bay of Fundy. However, there is no evidence to demonstrate interspecific competition between these species for food resources. There is very little information on natural mortality factors for sei whales.

Possible causes of natural mortality, particularly for young, old or otherwise compromised individuals are shark attacks, killer whale attacks, and parasites.

There are insufficient data to determine trends of the sei whale population. Because there are no abundance estimates within the last 10 years, a minimum population estimate cannot be determined for NMFS management purposes (Waring et al. 2000). Abundance surveys are problematic not only because this species is difficult to distinguish from the fin whale but more significant is that too little is known of the sei whale's distribution, population structure and patterns of movement; thus survey design and data interpretation are very difficult.

General human impacts and entanglement

Few instances of injury or mortality of sei whales due to entanglement or vessel strikes have been recorded in U.S. waters. Entanglement is not known to impact this species in the U.S. Atlantic, possibly because sei whales typically inhabit waters further offshore than most commercial fishing operations, or perhaps entanglements do occur but are less likely to be observed. A small number of ship strikes of this species have been recorded. The most recent documented incident occurred in 1994 when a carcass was brought in on the bow of a container ship in Charlestown, Massachusetts. Other impacts noted above for other baleen whales may also occur. Due to the deep-water distribution of this species, interactions that do occur are less likely to be observed or reported than those involving right, humpback, and fin whales that often frequent areas within the continental shelf.

Sperm Whale

Sperm whales inhabit all ocean basins, from equatorial waters to the polar regions (Perry et al. 1999). In the western North Atlantic they range from Greenland to the Gulf of Mexico and the Caribbean. The sperm whales that occur in the western North Atlantic are believed to represent only a portion of the total stock (Blaylock et al. 1995). Total numbers of sperm whales off the U.S or Canadian Atlantic coast are unknown, although eight estimates from selected regions of the habitat do exist for select time periods. The best estimate of abundance for the North Atlantic stock of sperm whales is 4,702 (CV=0.36) (Waring et al. 2000). The minimum population estimate for the western North Atlantic sperm whale is 3,505 (CV=0.36).

The IWC estimates that nearly a quarter-million sperm whales were killed worldwide in whaling activities between 1800 and 1900 (IWC 1971). With the advent of modern whaling the larger rorqual whales were targeted. However as their numbers decreased, greater attention was paid to smaller rorquals and sperm whales. From 1910 to 1982 there were nearly 700,000 sperm whales killed worldwide from whaling activities (Clarke 1954).

Sperm whales were hunted in America from the 17th century through the early 20th century. In the North Atlantic, hunting occurred off of Iceland, Norway, the Faroe Islands, coastal Britain, West Greenland, Nova Scotia, Newfoundland/Labrador, New England, the Azores, Madeira, Spain, and Spanish Morocco (Waring et al. 1998). Some whales were also taken off the U.S. Mid-Atlantic coast (Reeves and Mitchell 1988; Perry et al. 1999), and in the northern Gulf of Mexico (Perry et al. 1999). There are no catch estimates available for the number of sperm whales caught during U.S. operations (Perry et al. 1999). Recorded North Atlantic sperm whale catch numbers for Canada and Norway from 1904 to 1972 total 1,995. All killing of sperm whales was banned by the IWC in 1988.

Sperm whales generally occur in waters greater than 180 meters in depth. While they may be encountered almost anywhere on the high seas, their distribution shows a preference for continental margins, sea mounts, and areas of upwelling, where food is abundant (Leatherwood and Reeves 1983). Sperm whales in both hemispheres migrate to higher latitudes in the summer for feeding and return to lower latitude waters in the winter where mating and calving occur. Mature males typically range to much higher latitudes than mature females and immature animals but return to the lower latitudes in the winter to breed (Perry et al. 1999). Waring et al. (1993) suggest sperm whale distribution is closely correlated with the Gulf Stream edge.

In the U.S. EEZ, sperm whales occur on the continental shelf edge, over the continental slope, and into the mid-ocean regions (Waring et al. 1993), and are distributed in a distinct seasonal cycle; concentrated east-northeast of Cape Hatteras in winter and shifting northward in spring when whales are found throughout the mid-Atlantic Bight. Distribution extends further northward to areas north of Georges Bank and the Northeast Channel region in summer and then south of New England in fall, back to the mid-Atlantic Bight (Waring et al. 2000). Sperm whale distribution may be linked to their social structure as well as distribution of their prey (Waring et al. 2000). Sperm whale populations are organized into two types of groupings: breeding schools and bachelor schools. Older males are often solitary (Best 1979). Breeding schools consist of females of all ages, calves and juvenile males.

In the Northern Hemisphere, mature females ovulate from April through August. During this season one or more large mature bulls temporarily join each breeding school. A single calf is born after a 15-month gestation. A mature female will produce a calf every 4-6 years. Females attain sexual maturity at a mean age of nine years, while males have a prolonged puberty and attain sexual maturity at about age 20 (Waring et al. 2000). Bachelor schools consist of maturing males who leave the breeding school and aggregate in loose groups of about 40 animals. As the males grow older they separate from the bachelor schools and remain solitary most of the year (Best 1979). Male sperm whales may not reach physical maturity until they are 45 years old (Waring et al. 2000). The sperm whales prey consists of larger mesopelagic squid and fish species (Perry et al. 1999). Sperm whales, especially mature males in higher latitude waters, have been observed to take significant quantities of large demersal and mesopelagic sharks, skates, and bony fishes (Clarke 1962, 1980).

General human impacts and entanglement

Few instances of injury or mortality of sperm whales due to human impacts have been recorded in U.S. waters. Because of their generally more offshore distribution and their benthic feeding habits, sperm whales are less subject to entanglement than are right or humpback whales. Documented takes primarily involve offshore fisheries such as the offshore lobster pot fishery and pelagic driftnet and pelagic longline fisheries. The NMFS Sea Sampling program recorded three entanglements (in 1989, 1990, and 1995) of sperm whales in the swordfish drift gillnet fishery prior to permanent closure of the fishery in January 1999. All three animals were injured, found alive, and released. However, at least one was still carrying gear. Opportunistic reports of sperm whale entanglements for the years 1993-1997 include three records involving offshore lobster pot gear, heavy monofilament line, and fine mesh gillnet from an unknown source. Sperm whales may also interact opportunistically with fishing gear. Observers aboard Alaska sablefish and Pacific halibut longline vessels have documented sperm whales feeding on longline

caught fish in the Gulf of Alaska (Perry et al. 1999). Behavior similar to that observed in the Alaskan longline fishery has also been documented during longline operations off South America where sperm whales have become entangled in longline gear, have been observed feeding on fish caught in the gear, and have been reported following longline vessels for days (Perry et al. 1999).

Sperm whales are also struck by ships. In May 1994 a ship struck sperm whale was observed south of Nova Scotia (Waring et al. 2000). A sperm whale was also seriously injured as a result of a ship strike in May 2000 in the western Atlantic. Due to the offshore distribution of this species, interactions that do occur are less likely to be reported than those involving right, humpback, and fin whales that more often occur in nearshore areas. Preliminary data for 2000 indicate that of ten sperm whales reported to the stranding network (nine dead and one injured) there was one possible fishery interaction, one ship strike (wounded with bleeding gash on side) and eight animals for which no signs of entanglement or injury were sighted or reported.

Loggerhead Sea Turtle

Loggerhead sea turtles occur throughout the temperate and tropical regions of the Atlantic, Pacific, and Indian Oceans in a wide range of habitats. These include open ocean, continental shelves, bays, lagoons, and estuaries (NMFS and USFWS 1995). Loggerhead sea turtles are primarily benthic feeders, opportunistically foraging on crustaceans and mollusks (Wynne and Schwartz 1999). Under certain conditions they may also scavenge fish (NMFS and USFWS 1991b). Horseshoe crabs are known to be a favorite prey item in the Chesapeake Bay area (Lutcavage and Musick 1985).

Status and Trends of Loggerhead Sea Turtles

The loggerhead sea turtle was listed as threatened under the ESA on July 28, 1978. The species was considered to be a single population in the North Atlantic at the time of listing. However, further genetic analyses conducted at nesting sites indicate the existence of five distinct subpopulations ranging from North Carolina, south along the Florida east coast and around the keys into the Gulf of Mexico, to nesting sites in the Yucatan peninsula and Dry Tortugas (TEWG 2000 and NMFS SEFSC 2001). Natal homing to those nesting beaches is believed to provide the genetic barrier between these nesting aggregations, preventing recolonization from turtles from other nesting beaches.

The threatened loggerhead sea turtle is the most abundant of the sea turtles listed as threatened or endangered in the U.S. waters. In the western North Atlantic, most loggerhead sea turtles nest from North Carolina to Florida and along the gulf coast of Florida. The southeastern U.S. nesting aggregation is the second largest and represents about 35 % of the nests of this species. The total number of nests along the U.S. Atlantic and Gulf coasts between 1989 and 1998, ranged from 53,014 to 92,182 annually, with a mean of 73,751. Since a female often lays multiple nests in any one season, the average adult female population was estimated to be 44,780 (Murphy and Hopkins 1984).

However, the status of the northern loggerhead subpopulation is of particular concern. Based on the above, there are only an estimated 3,800 nesting females in the northern loggerhead subpopulation, and the status of this northern population based on number of loggerhead nests, has been classified declining or stable (TEWG 2000). Another factor that may add to the

vulnerability of the northern subpopulation is that genetics data show that the northern subpopulation produces predominantly males (65%). In contrast, the much larger south Florida subpopulation produces predominantly females (80%) (NMFS SEFSC 2001).

The activity of the loggerhead is limited by temperature. Loggerheads commonly occur throughout the inner continental shelf from Florida through Cape Cod, Massachusetts. Loggerheads may also occur as far north as Nova Scotia when oceanographic and prey conditions are favorable. Surveys conducted offshore as well as sea turtle stranding data collected during November and December off North Carolina suggest that sea turtles emigrating from northern waters in fall and winter months may concentrate in nearshore and southerly areas influenced by warmer Gulf Stream waters (Epperly et al. 1995). This is supported by the collected work of Morreale and Standora (1998) who tracked 12 loggerheads and 3 Kemp's ridleys by satellite. All of the turtles followed similar spatial and temporal corridors, migrating south from Long Island Sound, New York, during October through December. The turtles traveled within a narrow band along the continental shelf and became sedentary for one or two months south of Cape Hatteras.

Loggerhead sea turtles do not usually appear on the most northern summer foraging grounds in the Gulf of Maine until June, but are found in Virginia as early as April. They remain in the mid-Atlantic and northeast areas until as late as November and December in some cases, but the majority leaves the Gulf of Maine by mid-September. Aerial surveys of loggerhead turtles north of Cape Hatteras indicate that they are most common in waters from 22 to 49 meters deep, although they range from the beach to waters beyond the continental shelf (Shoop and Kenney 1992).

All five loggerhead subpopulations are subject to natural phenomena that cause annual fluctuations in the number of young produced. For example, there is a significant overlap between hurricane seasons in the Caribbean Sea and northwest Atlantic Ocean (June to November), and the loggerhead sea turtle nesting season (March to November). Sand accretion and rainfall that result from these storms as well as wave action can appreciably reduce hatchling success. In 1992, Hurricane Andrew affected turtle nests over a 90-mile length of coastal Florida; all of the eggs were destroyed by storm surges on beaches that were closest to the eye of this hurricane (Milton et al. 1994). Other sources of natural mortality include cold stunning and biotoxin exposure.

General Human Impacts and Entanglement

The diversity of the sea turtles life history leaves them susceptible to many human impacts, including impacts on land, in the benthic environment, and in the pelagic environment. Anthropogenic factors that impact the success of nesting and hatching include: beach erosion, beach armoring and nourishment; artificial lighting; beach cleaning; increased human presence; recreational beach equipment; beach driving; coastal construction and fishing piers; exotic dune and beach vegetation; and poaching. An increased human presence at some nesting beaches or close to nesting beaches has led to secondary threats such as the introduction of exotic fire ants, and an increased presence of native species (e.g., raccoons, armadillos, and opossums) which raid and feed on turtle eggs.

Loggerhead sea turtles originating from the western Atlantic nesting aggregations are believed to lead a pelagic existence in the North Atlantic gyre for as long as 7-12 years before settling into benthic environments. Loggerhead sea turtles are impacted by a completely different set of threats from human activity once they migrate to the ocean. During that period, they are exposed to a series of long-line fisheries that include the U.S. Atlantic tuna and swordfish longline fisheries, an Azorean long-line fleet, a Spanish long-line fleet, and various fleets in the Mediterranean Sea (Aguilar et al. 1995, Bolten et al. 1994, Crouse 1999). Observer records indicate that, of the 6,544 loggerheads estimated to be captured by the U.S. Atlantic tuna and swordfish longline fleet between 1992-1998, an estimated 43 were dead (Yeung 1999). For 1998, alone, an estimated 510 loggerheads (225-1250) were captured in the longline fishery. Aguilar et al. (1995) estimated that the Spanish swordfish longline fleet, which is only one of the many fleets operating in the region, captures more than 20,000 juvenile loggerheads annually (killing as many as 10,700).

Once loggerheads enter the benthic environment in waters off the coastal U.S., they are exposed to a suite of fisheries in federal and State waters including trawl, purse seine, hook and line, gillnet, pound net, longline, and trap fisheries. Loggerhead sea turtles are captured in fixed pound net gear in the Long Island Sound, in pound net gear and trawls in summer flounder and other finfish fisheries in the Mid-Atlantic and Chesapeake Bay, in gillnet fisheries in the Mid-Atlantic and elsewhere, and in multispecies, monkfish, spiny dogfish, and northeast sink gillnet fisheries.

In addition to fishery interactions, loggerhead sea turtles also face other man-made threats in the marine environment. These include oil and gas exploration and coastal development, as well as marine pollution, underwater explosions, and hopper dredging. Offshore artificial lighting, power plant entrainment and/or impingement, and entanglement in debris or ingestion of marine debris are also seen as possible threats. Boat collisions and poaching are two direct impacts that affect loggerheads.

Leatherback Sea Turtle

Leatherback turtles are widely distributed throughout the oceans of the world, and are found in waters of the Atlantic, Pacific, Caribbean, and the Gulf of Mexico (Ernst and Barbour 1972). The leatherback sea turtle is the largest living turtle and ranges farther than any other sea turtle species, exhibiting broad thermal tolerances that allow it to forage into the colder Northeast Region waters (NMFS and USFWS, 1995). Evidence from tag returns and strandings in the western North Atlantic suggests that adults engage in routine migrations between boreal, temperate and tropical waters (NMFS and USFWS, 1992). In the U.S., leatherback turtles are found throughout the western North Atlantic during the warmer months along the continental shelf, and near the Gulf Stream edge. A 1979 aerial survey of the outer Continental Shelf from Cape Hatteras, North Carolina to Cape Sable, Nova Scotia showed leatherbacks to be present throughout the area with the most numerous sightings made from the Gulf of Maine south to Long Island (CeTAP 1982). Shoop and Kenney (1992) also observed concentrations of leatherbacks during the summer off the south shore of Long Island and New Jersey. Leatherbacks in these waters are thought to be following their preferred jellyfish prey.

Compared to the current knowledge regarding loggerhead populations, the genetic distinctness of leatherback populations is less clear. However, genetic analyses of leatherbacks to date indicate

female turtles nesting in St. Croix/Puerto Rico and those nesting in Trinidad differ from each other and from turtles nesting in Florida, French Guiana/Suriname and along the South African Indian Ocean coast. Since populations or subpopulations of leatherback sea turtles have not been formally recognized, the conservative approach is to treat leatherback nesting populations as distinct.

Leatherbacks are predominantly a pelagic species and feed on jellyfish and other soft-body prey. Time-depth-recorder data collected by Eckert et al. (1996) indicate that leatherbacks are night feeders and are deep divers, with recorded dives to depths in excess of 1,000 meters. However, leatherbacks may feed in shallow waters if there is an abundance of jellyfish near shore. For example, leatherbacks occur annually in shallow bays such as Cape Cod and Narragansett Bays during the fall.

Leatherbacks are a long lived species (> 30 years), with an estimated age at sexual maturity reported as about 13-14 years for females, and an estimated minimum age at sexual maturity of 5-6 years, with (Zug and Parham 1996 and NMFS 2001). Leatherbacks nest from March through July and produce 100 eggs or more in each clutch, or a total of 700 eggs or more per nesting season (Schultz 1975). The eggs will incubate for 55-75 days before hatching. The habitat requirements for post-hatchling leatherbacks that reach the ocean are virtually unknown (NMFS and USFWS 1992).

Status and Trends of Leatherback Sea Turtles

Estimated to number approximately 115,000 adult females globally in 1980 (Pritchard 1982) and only 34,500 by 1995 (Spotila et al. 1996), leatherback populations have been decimated worldwide, not only by fishery related mortality but, at least historically, primarily due to exploitation of eggs (Ross 1979). On some beaches nearly 100% of the eggs laid have been harvested (Eckert 1996).

Data collected in southeast Florida clearly indicate increasing numbers of nests over the past twenty years (9.1-11.5% increase), although it is critical to note that there was also an increase in the survey area in Florida over time (NOAA Fisheries SEFSC 2001). The largest leatherback rookery in the western Atlantic remains along the northern coast of South America in French Guiana and Suriname. More than half of the present world leatherback population is estimated to be nesting on the beaches in and close to the Marowijne River Estuary in Suriname and French Guiana (Hilterman and Goverse 2004). Nest numbers in Suriname have shown an increase and the long-term trend for the Suriname and French Guiana nesting group seems to show an increase. In 2001, the number of nests for Suriname and French Guiana combined was 60,000, one of the highest numbers observed for this region in 35 years. Studies by Girondot, et al. (in review) also suggest that the trend for the Suriname-French Guiana nesting population over the last 36 years is stable or slightly increasing.

General Human Impacts and Entanglement

Anthropogenic impacts to the leatherback population include fishery interactions as well as exploitation of the eggs (Ross 1979). Eckert (1996) and Spotila et al. (1996) record that adult mortality has also increased significantly, particularly as a result of driftnet and longline fisheries. Zug and Parham (1996) attribute the sharp decline in leatherback populations to the

combination of the loss of long-lived adults in fishery related mortality, and the lack of recruitment stemming from elimination of annual influxes of hatchlings because of egg harvesting.

Poaching is not known to be a problem for U.S. nesting populations. However, numerous fisheries that occur in both U.S. state and federal waters are known to negatively impact juvenile and adult leatherback sea turtles. These include incidental take in several commercial and recreational fisheries. Fisheries known or suspected to incidentally capture leatherbacks include those deploying bottom trawls, off-bottom trawls, purse seines, bottom longlines, hook and line, gill nets, drift nets, traps, haul seines, pound nets, beach seines, and surface longlines (NMFS and USFWS 1992).

Leatherback interactions with the southeast shrimp fishery, which operates from North Carolina through southeast Florida (NOAA Fisheries 2002), are also common. The National Research Council Committee on Sea Turtle Conservation identified incidental capture in shrimp trawls as the major anthropogenic cause of sea turtle mortality (NRC 1999). Leatherbacks are likely to encounter shrimp trawls working in the coastal waters off the Atlantic coast (from Cape Canaveral, Florida through North Carolina) as they make their annual spring migration north. For many years, TEDs that were required for use in the southeast shrimp fishery were less effective for leatherbacks, compared to the smaller, hard-shelled turtle species, because the TED openings were too small to allow leatherbacks to escape. To address this problem, on February 21, 2003, NOAA Fisheries issued a final rule to amend the TED regulations. Modifications to the design of TEDs are now required in order to exclude leatherbacks as well as large benthic immature and sexually mature loggerhead and green turtles.

Leatherbacks are also susceptible to entanglement in lobster and crab pot gear. The probable reasons may be: attraction to gelatinous organisms and algae that collect on buoys and buoy lines at or near the surface; attraction to the buoys which could appear as prey; or the gear configuration which may be more likely to wrap around flippers. The total number of leatherbacks reported entangled from New York through Maine from all sources for the years 1980 - 2000 is 119. Entanglements are also common in Canadian waters where Goff and Lien (1988) reported that 14 of 20 leatherbacks encountered off the coast of Newfoundland/Labrador were entangled in fishing gear including salmon net, herring net, gillnet, trawl line and crab pot line. Prescott (1988) reviewed stranding data for Cape Cod Bay and concluded that for those turtles where cause of death could be determined (the minority), entanglement in fishing gear is the leading cause of death followed by capture by dragger, cold stunning, or collision with boats.

As noted, there are many human-related sources of mortality to leatherbacks. A tally of all leatherback takes anticipated annually under current biological opinions was projected to be as many as 801 leatherback takes, although this sum includes many takes expected to be non-lethal.

Leatherbacks have a number of pressures on their populations, including injury or mortality in fisheries, other federal activities (e.g., military activities, oil and gas development, etc.), degradation of nesting habitats, direct harvest of eggs, juvenile and adult turtles, the effects of ocean pollutants and debris, lethal collisions, and natural disturbances such as hurricanes that are capable of destroying nesting beaches. Spotila et al. (1996) conclude, “stable leatherback populations could not withstand an increase in adult mortality above natural background levels

without decreasing the Atlantic population is the most robust, but it is being exploited at a rate that cannot be sustained and if this rate of mortality continues, these populations will also decline."

Protected Species Assessment

The current red crab fishery uses fixed trap gear that is slightly larger than traditional lobster traps, and is set in trawls of 90 to 120 traps per trawl. The configuration of the gear is very similar to the offshore sector of the American lobster fishery. The common method of red crab fishing is to set traps for a short time (<24 hours) to reduce the amount of crab mortality in the traps. The fixed trap gear used in the lobster fishery is known to cause serious injury and mortality to whales and certain species of sea turtles. Gear interactions may occur if gear is concentrated in high-use area/times for endangered whales or sea turtles. The common points of whale or sea turtle entanglement are in the pot warp gear that runs from the traps to the buoy at the surface and the groundline that connects the traps together along the ocean floor.

Because its operations are currently considered analogous to the American lobster fishery, the operations of the red crab fishery are currently subject to the rules of the Atlantic Large Whale Take Reduction Plan (ALWTRP). The ALWTRP contains a series of regulatory measures designed to reduce the likelihood of fishing gear entanglements of large whale species in the North Atlantic. The RPA's called for three key regulation changes: (1) new gear modifications; (2) implementation of a Dynamic Area Management system (DAM) of short-term closures to protect unexpected concentrations of right whales; and (3) establishment of a Seasonal Area Management system (SAM) of additional gear modifications to protect known seasonal concentrations of right whales. All of the above regulatory changes have now been implemented. The new gear modifications were published on January 10, 2002 (67 FR 1300), and were effective February 11, 2002. NMFS established the criteria for implementing the DAM restrictions in final form on January 9, 2002 (67 FR 1133) that became effective February 8, 2002. NMFS also published the interim final regulations for the SAM program on January 9, 2002 (67 FR 1142) that became effective on March 1, 2002, following a public comment period that ended on February 8, 2002.

Whereas lobster fishing effort is concentrated primarily in the Gulf of Maine, with 80% of the effort located within state waters, the deep sea red crab fishery is limited by the narrow shelf edge habitat of the red crab. Red crabs are primarily found on the continental shelf and slope seabed from the Scotian Shelf to Cape Hatteras in the Northeast, although their range extends at similar depths into the Gulf of Mexico. Depth preferences for red crab may be dictated by temperature and salinity and can range between 200 and 1,800 meters. Red crab size may be in inverse proportion to the depth, with larger crabs found in the shallower water (200-400m).

The majority of lobster fishing effort is concentrated in northeastern waters when right, humpback, minke and fin whales are present thus increasing the risk of gear interactions from traditional lobster gear during the summer and fall for these species. However, the physical location of red crab gear significantly lessens the likelihood of interaction for those species while increasing the risk for sei and sperm whales that frequent offshore waters. Therefore, adverse effects could occur because right, humpback, minke and fin whales are vulnerable to

entanglement in red crab trap gear, but they also are not known to concentrate in the red crab fishing areas along the continental shelf.

Right and humpback whales are known to move through the continental shelf region usually in the spring and fall as they enter and leave the Gulf of Maine feeding areas. Minke and fin whales are broadly distributed along the shelf waters where their primary prey (small schooling fish) are commonly found. They are not known to frequent the shelf edge waters where the red crab fishery takes place.

The preferred foraging areas for sei whales are unknown. However, the limited surveys that were conducted in those areas (by CeTAP surveys in 1979-81 and NMFS summer ship and aerial surveys conducted from 1990-98) did not locate significant sightings of these species in shelf edge waters. The known feeding behavior of sei whales suggest they focus on plankton/zooplankton resources that are found in the upper water column. This could limit the threat of entanglement in red crab gear to encounters with the pot warp line that comes from the traps on the seabed to the surface buoys. Although these species may be affected by the operations of the red crab fishery, mitigation should be provided by the ALWTRP, which is anticipated to benefit all species of large whales. Specifically, risks should be reduced as the result of gear modifications that require weak links to be installed at each buoy.

Sperm Whales

Sperm whales are frequently found along the shelf edge throughout red crab habitat. Sperm whale feeding habits involve deep dives to feed on squid and fish that inhabit these deep ocean regions, and are known to have become entangled in deep-sea cables at great depth. Because of these characteristics, sperm whale encounters with both the buoy line and groundline of red crab gear are more likely than with other large whale species, thus posing potential adverse effects. However, the following factors make it unlikely that the red crab fishery will cause significant adverse impacts to the sperm whale population that inhabits the U.S. east coast offshore waters:

- The Red Crab FMP will prevent the amount of red crab fishing effort from expanding significantly beyond present levels;
- The red crab fishery utilizes large trap trawl sizes (average – 107 per trawl/560 total) thus reducing the number of vertical lines in the water column;
- Red crab fishing strategy encourages short soak times (average 22.5 hours) to reduce crab mortality and injury in the trap, thus increasing the likelihood that an entangled whale will be seen in the gear and disentanglement efforts initiated;
- All red crab fishermen must comply with any current ALWTRP regulations;
- One of the future measures that may be implemented under the MMPA to meet the RPAs contained in the ESA consultation for the Lobster FMP involves the use of neutrally buoyant buoy lines and potential modifications to groundlines --- measures that may be effective to protect sperm whales; and
- The sperm whale population that extends along the entire shelf edge is fairly robust.

Right Whales

In view of the northern right whale's apparent decline and high probability of extinction, any entanglement that causes serious injury and mortality reduces appreciably the likelihood of survival and recovery of this species. Documented entanglements underestimate the extent of

the entanglement problem since not all entanglements are likely to be observed. Consequently, the total level of interaction between fisheries and right whales is unknown. However, recent studies have estimated that over 60% of right whales exhibit scars consistent with fishery interactions. The three key regulation changes to the ALWTRP mentioned above address this issue. New gear modifications will make the gear less of a threat to right whales. Implementation of the DAM program and SAM system provide further separation of fixed gear and known seasonal concentrations of right whales. Therefore, although the red crab fishery continues to pose a risk of entanglement to northern right whales, it is not expected to cause irreversible impacts.

Given the known anthropogenic sources of right whale mortality, their low population size, and their poor reproductive rate, the loss of even one northern right whale as a result of operation of the red crab fishery may reduce appreciably the likelihood of both survival and recovery of this species by reducing the number of right whales and their ability to reproduce. The following factors suggest that the red crab fishery could affect, but by itself, is not likely pose jeopardy to the continued existence of the Northern right whale:

- The Red Crab FMP will prevent the amount of red crab fishing effort from expanding significantly beyond present levels;
- The red crab fishery utilizes large trap trawl sizes (average 107 per trawl; 560 total) thus reducing the number of vertical lines in the water column;
- The depth of water fished (200m - 1,800m) is likely to eliminate the likelihood of right whale encounters with groundlines;
- Red crab fishing strategy encourages short soak times (average 22.5 hr) to reduce crab mortality and injury in the trap, thus increasing the likelihood that an entangled whale will be seen in the gear and disentanglement efforts initiated;
- The restricted red crab distribution along the continental shelf edge precludes any overlap with known right whale high use foraging area or critical habitat; and
- All red crab fishermen must comply with any current ALWTRP regulations, including recent measures implemented under the MMPA to further separate fixed gear from known right whale concentrations.

Sea Turtles

Red crab fishing effort occurs along the Northeast and Mid-Atlantic shelf edge waters in depths that generally preclude encounters with benthic feeding sea turtles such as loggerhead, green, hawksbill, or ridleys. Little information exists detailing the encounters of sea turtles in the similarly prosecuted offshore lobster fishery. Of the offshore lobster trips that the NEFSC has observed from May 1994 through December 2000, there have been no observed takes of marine turtles associated with the lobster fishery. However, there have been 119 reported entanglements of leatherback sea turtles (1980-2000) in coastal lobster pot gear from Maine to New York. Leatherbacks are known (from encounters in swordfish longline gear) to inhabit the shelf edge areas in the spring and early summer and may encounter the pot warp lines of red crab gear. Given that they may be affected, there are factors that may reduce the likelihood of significant injuries or mortalities to leatherback sea turtles:

- The Red Crab FMP will maintain the red crab effort at a low level;
- The average red crab trawl size minimizes the number of vertical lines;

- The short soak times significantly reduce the likelihood of entanglement from that observed in the inshore lobster fishery; and
- Entangled leatherbacks are likely to be found and released before serious injury or death.

Birds

The roseate tern and piping plover inhabit the coastal waters and nest along the coastal beaches along the Northeast continental shelf. Bottom-tending trap/pot gear set at the typical depths of the red crab habitat would appear to make it impossible for the red crab fishing operations to result in any injury to either of these species.

Other Marine Mammals

It is recognized that the red crab fishery will be prosecuted in the continental shelf waters frequented by several species of offshore odontocetes including beaked whales (Mesoplodon and Ziphius genus), pilot whales, Risso's dolphin, offshore bottlenose dolphin, white-sided, spotted and striped dolphins. It appears unlikely that the deep-water trap/pot gear used by the red crab fishery will affect these odontocetes, given they are too small to become entangled in the typical large diameter line used in the buoy lines. In addition, the depth of the gear would place the traps and groundlines below the diving range of these species with the exception of the beaked whales. The small mouth and streamlined shape of these species would minimize any threat from this gear.

Conclusion

The Council prepared this document with the intent that it serve as a Biological Assessment for the Red Crab FMP, associated actions and to meet the ESA mandates. The Council concludes that the Red Crab FMP will affect, but is not likely to jeopardize the continued existence of right whales, humpback whales, fin whales, sei whales, sperm whales or leatherback sea turtles. Furthermore, the Council has determined that the red crab fishery will not affect the endangered roseate tern, piping plover, loggerhead, ridley, and hawksbill sea turtles, shortnose sturgeon or Atlantic salmon.

Given the current critical status of the right whale population and the aggregate effects of human-caused mortality that has led to the species current status, the Council understands that the right whale population cannot sustain additional incidental mortality. The Council also understands that the red crab fishery uses a gear type, which has been known to cause serious injury and mortality to right whales. The Council's assessment of no jeopardy is based on an understanding that the Red Crab FMP will maintain satisfactory control over expanding effort in a fishery that is restricted by the distribution of the target species to the fringe of the right whale's range. In addition, the red crab fishing gear will continue to be subject to regulations implemented under the ALWTRP to meet the mandate for further reduction in entanglement threat called for under the Biological Opinion issued for the American Lobster FMP to remove the likelihood of jeopardy in that fishery.