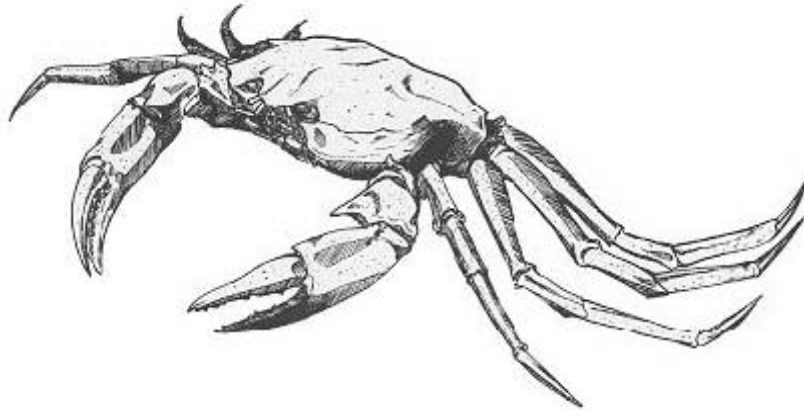


Amendment 3
to the
Fishery Management Plan for Deep-Sea Red Crab
Incorporating
Specifications for Fishing Years 2011 through 2013 (March 1, 2011 – February 28, 2014)
and
Including an Environmental Assessment (EA), Regulatory Impact Review (RIR), and
Initial Regulatory Flexibility Analysis (IRFA)



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

MAY 2011

NEFMC Approval Date: 9/30/2010

NEFMC Submission Date: 5/5/2011

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LIST OF ACRONYMS

ABC	Allowable Biological Catch
ACL	Annual Catch Limit
ACT	Annual Catch Target
ALWTRP	Atlantic Large Whale Take Reduction Plan
AM	Accountability Measure
BRP	Biological Reference Point
DAS	Days-at-Sea
DCAC	Depletion-Correction Average Catch
EA	Environmental Assessment
EFH	Essential Fish Habitat
EIS	Environmental Impact Statement
ESA	Endangered Species Act of 1973
F	Fishing Mortality Rate
FMP	Fishery Management Plan
FW	Framework Adjustment
FY	Fishing Year
M	Natural Mortality Rate
MFMT	Maximum Fishing Mortality Threshold
MMPA	Marine Mammal Protection Act
MSA	Magnuson-Stevens Fishery Conservation and Management Act
MSST	Minimum Stock Size Threshold
MSY	Maximum Sustainable Yield
NAO	NOAA Administrative Order
NEFMC	New England Fishery Management Council
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NS	National Standard
OFL	Overfishing Limit
OY	Optimum Yield
PRA	Paperwork Reduction Act
RFA	Regulatory Flexibility Act
RIR	Regulatory Impact Review
SAFE	Stock Assessment and Fishery Evaluation
SDC	Status Determination Criteria
SSC	Science and Statistical Committee
TAC	Total Allowable Catch
TAL	Total Allowable Landings
VECs	Valued Ecosystem Components

1.0 EXECUTIVE SUMMARY

This document was prepared by the New England Fishery Management Council and its Red Crab Plan Development Team (PDT) in consultation with the National Marine Fisheries Service (NMFS, NOAA Fisheries). Amendment 3 was developed in accordance with the Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA) and the National Environmental Policy Act (NEPA). The MSFCMA is the primary domestic legislation governing fisheries management in the U.S. Exclusive Economic Zone (EEZ). This document also addresses the requirements of other applicable laws.

The purpose of this amendment is to set appropriate specifications for FY 2010 through FY 2013 and to ensure that landings do not exceed sustainable levels, including the ABC recommended by the SSC and an ACL set by the Council. This action also responds to changing conditions in the fishery and opportunities to improve economic efficiency. This amendment is needed to ensure that the FMP is consistent with the annual catch limit (ACL) and accountability measure (AM) requirements of the MSA. This action also is needed to implement specifications for FY 2011 through FY 2013 based on the best scientific information available.

The primary geographic area affected by the red crab fishery includes Northeast and Mid-Atlantic waters as described in the FMP (Section 8.7; NEFMC 2002). The Atlantic Deep-Sea Red Crab (*Chaceon quinque-dens*) Fishery Management Plan (FMP) was developed by the New England Fishery Management Council (Council) and implemented by NOAA's National Marine Fisheries Service (NMFS) in October of 2002, bringing this fishery under regulation for the first time. Framework Adjustment (FW) 1 changed the schedule for setting specifications for the fishery from every year to every three years. Amendment 1 incorporated the Standardized Bycatch Reporting Methodology Omnibus Amendment into the FMP and was implemented on February 27, 2008. Amendment 2 is under development and will incorporate the Essential Fish Habitat Omnibus Amendment into the FMP. The proposed action will be Amendment 3 to the Red Crab FMP and will meet two separate and distinct needs. As explained in Section 3.0, this amendment is needed to ensure that the FMP is consistent with the annual catch limit (ACL) and accountability measure (AM) requirements of the MSA. This action is also needed to implement specifications for FY 2011 through FY 2013 that are based on the best scientific information available. This action introduces new terms that relate to new requirements of the MSA and the National Standard Guidelines. Section 5.0 will establish specifications for FY2011-2013. This document provides the Environmental Assessment required by the National Environmental Policy Act (NEPA), together with the Regulatory Impact Review (RIR) and Initial Regulatory Flexibility Analysis (IRFA).

The Council considered alternatives to the measures proposed in both Section 4.0 and Section 5.0, including a "no action," or "status quo" alternative for both the management measures and the specifications. The no action alternative is intended to provide a point of comparison between the proposed alternatives and the regulations in place for fishing year (FY) 2010.

The proposed action would replace the target total allowable catch (TAC) and days-at-sea (DAS) allocation to the red crab fleet with a total allowable landings (TAL) limit. The proposed action includes both pro-active and reactive AMs. The pro-active AM would close the fishery during the fishing season when the landings were projected to equal the TAL. The reactive AM would

require a catch overage in one year to be deducted from the next year's TAL. The proposed action would also eliminate the trip limits that are currently in place and would modify the regulatory language that is currently in place pertaining to trap limits but would keep the trap limit in place. The proposed action would create a framework for how female landings could potentially be incorporated into the FMP, should sufficient scientific information become available regarding the sustainability of such a change. Section 5.0 of this action describes the proposed specifications for the 2011-2013 fishing years. This action is needed to put new specifications in place for FY 2011, beginning on March 1, 2011. Table 1 provides a brief description of the components of the proposed action.

Table 1- Proposed Action (described more fully in Section 4.0).

SECTION		PROPOSED ACTION	OPTIONS
4.1	Effort Control		
4.1.1		Hard TAL without DAS	
4.2	Trip Limit		
4.2.1		Eliminate Trip Limits	
4.3	Trap Limit Language Alternatives		
4.3.1		Modify Trap Limit Regulatory Language	
4.4	Accountability Measures		
4.4.1		Proactive AMs	
4.4.1.1			In-season closure authority
4.4.2		Reactive Accountability Measures	
4.4.2.1			Next Year In-Season Adjustment Option
4.4.3		Combinations of both Proactive and Reactive AMs	
4.5	Modifications to the Specification-Setting Process		
4.5.1		Modify the Specification-Setting Process to Include the SSC	
4.5.3		Modify Specification Components	
4.6	Measures to Control the Landing of Female Crabs		
4.6.1		Remove the prohibition on landing more than one standard tote of female crabs and bring female crabs into the procedure for setting ABC and ACL, separate from that for males.	

The specification alternatives proposed in this action are shown in Table 2. The TAL applies to landings by the limited access fleet only. The rationale for excluding the incidental catch from the TAL is based on the likelihood that incidental landings (and some directed fishery landings) of red crab were not included in the reported landings that were used to establish the long-term average landings that the SSC used to set the ABC. With the implementation of the 500-lb per trip limit on incidental landings in 2002 it is unlikely that incidental landings will exceed the average annual unrecorded landings that probably accompanied the recorded landings over the course of the fishery.

The incidental catch permit landings in recent years were examined to determine whether they were significant in relation to the TAL. In FY 2009 (from March 1, 2009 through Feb 29, 2010), there were three fishing vessels with incidental permits that had red crab landings in the dealer database. Their activity represents a total of 11 trips and 1,724 live pounds, as compared to 2.73 million pounds of landings by the limited access fleet. The average weight in live pounds per trip for the incidental trips in FY 09 was 157 pounds.

In the past 6 fishing years (FY2004-2009), there have been 12 different vessels that show incidental trip landings in the dealer database. Their average catch for all 6 years was only 331 pounds per vessel. It appears that the incidental landings are small enough to be considered insignificant and not charged against the TAL.

Table 2- Red crab specification alternatives for fishing year 2011-2013 described in Section 5.0 with the Status Quo for comparison.

	Hard TAL with No DAS (Proposed Action)	No Action/ Status Quo
MSY (mt)	Undetermined	2,830
OFL (mt)	Undetermined	Undetermined
OY (mt)	Undetermined	2,688
ABC (mt)	1,775	1,775
ACL (mt)	1,775	n/a
Target TAC (mt)	n/a	1,775
Fleet DAS	n/a	665*
TAL (mt)	1,775	n/a

*Using the most recent calculation of average landings-per-DAS charged (5,882 lb/DAS (2,668 kg/DAS) charged from FY 2005–2009)

The impacts of the proposed action and those of the other alternatives are described in subsequent sections of this document.

The proposed ACL for male crab will allow landings that are higher than the most recent landings and equal to the long-term average level of landings that was determined to be sustainable by the SSC. The SSC determined that long-term average landings and the discards associated with those landings were sustainable. However, the SSC was unable to quantify the level of dead discards and so the ABC is in terms of landings only. It is presumed that the

discarding practices of the fleet have not changed significantly over the time period for which long-term average landings were calculated (1974-2008). The SSC did not recommend an ABC that included female crab because the basis for the ABC was based on landings, and the fishery has been male crab only over that time period. The SSC reported to the Council that: “Including female landings of red crab in catch limits requires an evaluation of sustainability of a male and female fishery and a more explicit decision on management strategy.” In the absence of a proposed change in the management strategy, or an explicit request by the Council to evaluate such a change in management strategy, the SSC has no reason to undertake the scientific evaluation necessary to establish an ABC for female red crab. This document includes an alternative that would create a procedure to bring female crab under a similar but separate procedure for setting an ABC, ACL, and TAL for female crab. In the event that the Council received the required scientific recommendation for an ABC for females and accepted that recommendation, the prohibition on landing more than one standard tote of females per trip would be lifted.

The impacts of the proposed alternatives on valued ecosystem components has been divided into two sections, one that applies to the management alternatives presented in Section 0 of this document and one that applies to the specification alternatives presented in Section 5.0 of this document. The sum of the effects from the implementation of all fishing and non-fishing actions is expected to be negligible for biological valued ecosystem components (VECs) and positive for human communities. The qualitative effects of the proposed management actions are shown in Table 3.

Table 3 – Summary of qualitative impacts of the proposed action on valued ecosystem components. Negligible means “little or no” impact. See text for a more complete explanation.

Management Measure Options		Valued Ecosystem Component (VEC)				
		Managed Resource (Red Crab)	Non-target/Bycatch Species	Habitat (including EFH)	Protected Resources	Human Communities
Catch Control Options	Hard TAL without DAS (Proposed Action)	Positive	Negligible	Negligible	Negligible	Positive
	Status Quo/No Action (Maintain Target TAC and DAS)	Negative	Negligible	Negligible	Negligible	Negative
Trip Limit Options	Eliminate Trip Limits (Proposed Action)	Negligible	Negligible	Negligible	Negligible	Positive
	Status Quo/No Action (Maintain Trip Limits)	Negligible	Negligible	Negligible	Negligible	Negative
Trap Limit Regulatory Language Options	Modify Trap Limit Regulatory Language (Proposed Action)	Negligible	Negligible	Negligible	Negligible	Positive
	Status Quo/No Action (Maintain Existing Trap Limit Regulatory Language)	Negligible	Negligible	Negligible	Negligible	Negative
Accountability Measure Options	Proactive - In-season Closure Authority Granted to Regional Administrator (Proposed Action)	Positive	Negligible	Negligible	Negligible	Negligible short-term; Slightly positive long-term
	Reactive Accountability Measures - Next Year In-Season Adjustment Option (Proposed Action)	Positive	Negligible	Negligible	Negligible	Positive

	"Leap Frog" Specifications Adjustment Option	Slightly Negative	Negligible	Negligible	Negligible	Slightly Positive
	Combinations of both Proactive and Reactive AMs (Proposed Action)	Positive	Negligible	Negligible	Negligible	Positive
	Status Quo/No Action (In-season adjustment to DAS)	Potentially negative	Negligible	Negligible	Negligible	Negative
Modifications to the Specification-Setting Process	Modify the specification-setting process to include a recommendation from SSC or other Peer Review on the ABC (Proposed Action)	Positive	Negligible	Negligible	Negligible	Positive
	Status Quo/No Action (Would maintain the existing language that does not mention the SSC.)	Potentially Negative	Negligible	Negligible	Negligible	Potentially Negative
Measures to Control the Landing of Female Crabs	Add landing of female crabs to measures that can be implemented through a framework adjustment if recommended by SSC (Proposed Action)	Negligible	Negligible	Negligible	Negligible	Positive
	Status Quo/No Action (Prohibit landing more than one standard tote of females per trip)	Negligible	Negligible	Negligible	Negligible	Negative

Hard TAL with No DAS (Proposed Action)	MSY = Undetermined	Negligible in the short- term, Positive in the long-term	Negligible	Negligible	Negligible	Positive
	ABC = 1,775 mt (3.91 million lb)					
	ACL = 1,775 mt (3.91 million lb)					
	TAL* = 1,775 mt (3.91 mill lb)					
	DAS = N/A					
Status Quo or No Action	MSY = Undetermined	Negligible in the short- term, Potentially negative in the Long-term	Negligible	Negligible	Negligible	Negative
	ABC = N/A					
	Target TAC = 1,775 mt (3.91 mill lb)					
	DAS = 665**					

*TAL - Total Allowable Landings refers to the portion of the ACL that can be landed.

** Based on average landings-per-DAS charged (5,882 lb/DAS (2,668 kg/DAS)) from FY 2005-2009.

2.0 BACKGROUND

The reauthorized MSA requires the Council to establish ACLs and AMs to assure that catches do not exceed the biologically sustainable levels. The National Standard 1 Guidelines expand upon the requirements in the law. The proposed modifications to the Red Crab FMP are intended to make the FMP consistent with the MSA. This document also proposes specifications for red crab for FY 2011-2013, as required by the FMP. It also contains the supporting analysis required by the National Environmental Policy Act (NEPA) in an Environmental Assessment (EA), the Regulatory Flexibility Act (RFA) in an Initial Regulatory Flexibility Analysis (IRFA), and Executive Order (E.O.) 12866 in a Regulatory Impact Review (RIR), and other applicable laws. NEPA requires the analysis of the “no action” alternative even if the “no action” alternative is not allowed under the law. The “no action” alternative provides a benchmark, enabling decision-makers to compare the magnitude of environmental effects of the action alternatives. Inclusion of such an analysis is necessary to inform the Congress, the public, and the President as intended by NEPA (Section 1500.1(a)).

2.1 Summary of items to include in FMPs related to NS1

The Councils must evaluate and describe the following items in their FMPs and amend the FMPs, if necessary, to align their management objectives to end or prevent overfishing (as specified at 50 CFR 600.310, National Standard 1 Guidelines):

- (1) Maximum sustainable yield (MSY), the overfishing level (OFL), and status determination criteria (SDC).
- (2) Optimum yield (OY) at the stock, stock complex, or fishery level and provide the OY specification analysis.
- (3) ABC control rule.
- (4) Mechanisms for specifying ACLs in relationship to the ABC.
- (5) AMs.
- (6) Stocks and stock complexes that have statutory exceptions from ACL. (Note: red crab does not have a statutory exception, so this part does not apply.)

2.1.1 *Maximum Sustainable Yield (MSY)*

The MSA establishes MSY as the basis for fishery management and requires that: The fishing mortality rate does not jeopardize the capacity of a stock or stock complex to produce MSY; the abundance of an overfished stock or stock complex shall be rebuilt to a level that is capable of producing MSY; and, OY must not exceed MSY. MSY is the largest long-term average catch or yield that can be taken from a stock or stock complex under prevailing ecological, environmental conditions and fishery technological characteristics (e.g. gear selectivity). F_{MSY} is the fishing mortality rate that, if applied over the long term, would result in MSY. B_{MSY} means the long-

term average size of the stock or stock complex that would be achieved by fishing at F_{MSY} . Because MSY is a long-term average, it need not be estimated annually, but it must be based on the best scientific information available. When data are insufficient to estimate MSY directly, Councils should adopt other measures of reproductive potential that can serve as reasonable proxies for MSY, F_{MSY} and B_{MSY} , to the extent possible.

The SSC has determined that “the information available for red crab is insufficient to estimate MSY or OFL.” Therefore, no MSY is established at this time.

2.1.2 Overfishing Limit (OFL)

OFL means the annual amount of catch that corresponds to the estimate of the maximum fishing mortality threshold (MFMT) applied to a stock’s abundance and is expressed in terms of numbers or weight of fish. OFL is an estimate of the catch level above which overfishing is occurring, and corresponds to the level that jeopardizes the capacity of a stock to produce MSY on a continuing basis. In contrast to MSY, which is a long-term average catch that does not vary with normal fluctuations in stock size, OFL goes up and down with variations in stock size. As such, OFL becomes the operational reference point that takes the place of MSY in setting annual specifications. OFL may be higher or lower than MSY, depending on whether a stock is above or below B_{MSY} .

The SSC has determined that “the information available for red crab is insufficient to estimate MSY or OFL.” In its report to the Council on April 28, 2010, the SSC concluded that “an interim ABC based on long-term average landings is safely below an overfishing threshold and adequately accounts for scientific uncertainty.”

2.1.3 Status Determination Criteria (SDC)

SDC mean the quantifiable factors, namely the maximum fishing mortality threshold (MFMT), OFL, and minimum stock size threshold (MSST), or their proxies that are used to determine if overfishing has occurred, or if the stock or stock complex is overfished. “Overfishing” pertains to a rate or level of removal of fish from a stock above the threshold rate, while “overfished” relates to biomass size below the threshold biomass. Overfishing is expected to lead to a stock being overfished. Overfishing may be occurring when a stock is not overfished and a stock may be overfished but not subject to overfishing. SDC must be expressed in a way that enables the Council to monitor each stock, and determine annually, if possible, whether overfishing is occurring and whether the stock is overfished. In specifying SDC, a Council must provide an analysis of how the SDC were chosen and how they relate to reproductive potential. Each FMP must specify, to the extent possible, objective and measurable SDC.

The NS1 Guidelines and the FMP take into consideration the data availability for different fisheries and leaves the decision on which data to use to the assessment scientists. The FMP defines overfishing as follows:

Definition of Overfishing: Overfishing 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 actual measure of exploitation used will be determined by the availability of suitable data (CPUE data, landings, etc.).

The most readily available SDC for red crab is landings. The FMP defines overfishing as landings that exceed MSY. In the case of red crab, MSY and OFL are undetermined. Therefore, no changes to the SDC for red crab are proposed in this action.

OY is a long-term average amount of desired yield from a stock, stock complex or fishery. The MSA defines optimum, with respect to the yield from a fishery, as the amount of fish which “will provide the greatest overall benefit to the Nation, particularly with respect to food production and recreational opportunities, and taking into account the protection of marine ecosystems” and which “is prescribed as such on the basis of the maximum sustainable yield from the fishery, as reduced by any relevant economic, social, or ecological factor.” OY must also provide for the rebuilding of overfished stocks to a level consistent with the production of maximum sustainable yield. The NS1 Guidelines state that “Conservation and management measures shall prevent overfishing while achieving, on a continuing basis, the optimum yield (OY) from each fishery for the U.S. fishing industry.” For red crab, MSY is undefined, therefore, so is OY.

When an estimate of OFL is available, ABC results from a reduction applied to OFL to account for scientific uncertainty in the estimate of OFL. In other words, the OFL may be overestimated, which would result in overfishing if the OFL were caught. Conversely, the OFL may be underestimated, which would result in foregone potential yield if the catch were limited to the OFL. Some sources of scientific uncertainty would result in an estimate of OFL that was high in some years and low in others, while other sources of scientific uncertainty might have a consistent bias that would result in a similarly consistent high or low estimate of OFL. Whereas the precautionary principle stresses the fact that overfishing is likely to have more deleterious long-term effects than would underfishing, the NS1 Guidelines require the Council and its SSC to reduce the risk of overfishing that is associated with an uncertain OFL. The risk of overfishing is reduced by applying a buffer between OFL and ABC. ABC should be expressed in terms of catch, but may be expressed in terms of landings as long as bycatch and any other fishing mortality not accounted for in the landings are treated consistently in the determination of ABC and remain constant during the period of time covered by the specifications, as specified in 50 CFR 600.310(f)(3)(i). For stocks with low scientific uncertainty, ABC may equal, but may not exceed OFL. In the case of red crab, the SSC concluded that an ABC based on long-term average landings is safely below an undetermined OFL, and adequately accounts for scientific uncertainty, including an uncalculated level of dead discards, provided that the fishing operations regarding discarding do not change significantly. Specifically, the SSC reported to the Council that:

Historical landings of male red crab and historical discarding practices appear to be sustainable. Sustainability of future catches at or below the recommended ABC is conditional on not exceeding past discard rates.

The ABC control rule means a specified approach to setting the ABC in response to changes in stock status. Control rules are policies that define limits and set target fishing levels. Control rules are established by fishery managers in consultation with fisheries scientists, particularly the SSC. The determination of ABC should be based, when possible, on a probability of 50 percent or less, that a catch equal to ABC would result in overfishing. The ABC control rule must articulate how ABC will be set compared to the OFL based on the scientific knowledge about the

stock, the scientific uncertainty in the estimate of OFL, and any other scientific uncertainty. An SSC may recommend an ABC that differs from the result of the ABC control rule calculation, based on factors such as data uncertainty, recruitment variability, declining trends in population variables, and other factors, but must explain why. The SSC was unable to recommend an ABC control rule for red crab; therefore, no control rule is established. The ABC for red crab should be considered an interim ABC, until otherwise modified by the SSC and the Council. .

ACL may equal but cannot exceed the ABC, and may be set annually or on a multiyear basis. The buffer between ABC and ACL represents the expectation that the management system will be unable to constrain the catch to the ACL. If ACL were set equal to ABC and that expectation proved correct, the catch would exceed the ABC. ACL rather than ABC is the level of annual catch of a stock that serves as the basis for invoking AMs. In the case of red crab, the unique characteristics of the fishery reduce the likelihood that data concerning the actual landings will be wrong or delayed and that the management system will be unable to stop fishing when the desired catch is achieved. The relevant characteristics of the fishery include the small fleet size, the location of the resource beyond the depth range of most potential sources of bycatch, and reporting requirements for vessels and dealers. Therefore, for red crab, this action proposes to set the ACL equal to the ABC, as the management uncertainty is very low.

The TAL is the level of landings that the commercial red crab fleet would be permitted to land in a given year. It is a “hard” limit, in that the directed fishery would be closed for the year when the limit is projected to have been landed. For red crab, the total amount of catch (landings plus discards) is undetermined; therefore, this action proposes to monitor and manage the fishery based on landings supplemented by data provided through sea sampling, port sampling, and ongoing research. The SSC’s use of landings, rather than the usual catch, as the basis for setting ABC, and the Council’s similar decision on ACL, considers landings a proxy value representative of the level of fishing effort for which total catch is expected to be safely below the OFL, based on the expectation that the ratio of landings to catch will remain comparable to that which prevailed during the historical fishing period that was considered to be sustainable by the SSC.

In addition to the fleet of limited access permit vessels, the FMP also includes provisions for an open access permit that allows a fishing vessel to possess and land up to 500 lb of whole weight equivalent red crab per fishing trip. Although several hundred fishing vessels initially requested and obtained this open access permit, total landings of red crab by vessels with an open access permit remain negligible relative to the landings by the limited access fleet.

2.1.3.1 Accountability Measures (AMs)

AMs are management controls that are intended to prevent the catch from exceeding ACLs, and to correct or mitigate overages of the ACL, if they occur. NMFS identifies two categories of AMs, in-season AMS that take effect before an ACL is exceeded, and AMs that take effect after an ACL has been exceeded. [Note: for purposes of this amendment, the two categories are referred to as “**proactive**” and “**reactive**” AMs, respectively].

In-season or Proactive AMs

FMPs should include in-season monitoring and management measures to prevent catch from exceeding ACLs. In-season AMs could include, but are not limited to: Triggers that bring about the closure of a fishery; triggers that bring about closure of specific areas; triggers that bring about changes in gear; triggers that bring about changes in trip size or bag limits; triggers that bring about reductions in effort; or, other appropriate management controls. FMPs should contain in-season closure authority, giving NMFS the ability to close fisheries if it determines, based on data that are deemed sufficiently reliable, that an ACL is projected to be reached, and that closure of the fishery is necessary to prevent overfishing (note that it is the probability of overfishing that increases as the ABC is approached or exceeded).

This action proposes to give the NMFS Regional Administrator authority to prohibit the landing of red crab by limited access vessels when the Regional Administrator projects that the TAL will be reached.

Reactive AMs

On an annual basis, the NMFS must determine as soon as possible after the fishing year if an ACL was exceeded. If an ACL was exceeded, AMs must be implemented as soon as possible to correct the operational issue that caused the overage, as well as any biological consequences to the stock resulting from the overage when it is known (note that the risk of biological consequences increases as the catch exceeds ABC and approaches OFL, which is unknown in the case of red crab). These AMs could include, among other things, modifications of in-season AMs or overage adjustments. NS1 Guidelines require that if catch exceeds the ACL for a given stock more than once in the last four years, the system of ACLs and AMs should be re-evaluated, and modified if necessary to improve its performance and effectiveness. The Council considered two options for reactive AMs. The first option, which is the proposed action, would require a reduction in the TAL for the limited access vessels in the year following any year when the landings of that fleet exceeded the ACL. The second option would require a reduction in the ACL for the limited access vessels in the second year following any year when the landings of that fleet exceeded the ACL. For catches in excess of the ABC resulting from a cause other than an excess of commercial, limited access landings beyond the ACL (e.g. unforeseen increase in bycatch in other fisheries), the Council would institute a framework action to address the source of the excess catch.

2.2 Status of the Stock

The management unit specified in the Red Crab FMP includes red crab (*Chaceon quinque-dens*) in U.S. waters of the Atlantic Ocean from 35° 15.3' N. lat. (the latitude of Cape Hatteras Light, North Carolina) northward to the U.S./Canada border. The most recent peer-reviewed scientific advice that is applicable to the red crab fishery was produced by the Data Poor Species Working Group (DPSWG) and the associated Peer Review Panel, which met in December 2008 and issued its report on January 20, 2009. The DPSWG was tasked with recommending biological reference points (BRPs), measurable BRPs and MSY proxies for several species, as well as advising on the scientific uncertainty and risks for the SSC to consider when recommending catch limits. The DPSWG was also asked to comment on what can be done to improve the information and assessments of the species involved in the review.

Red crab is considered a data poor stock in part because regularly scheduled research cruises do not sample the depths at which red crabs live. For that reason, there is a deficiency in fishery independent data. The primary sources of fishery independent data for the red crab resource consist of one combination camera and trawl survey that was done in 1974 and another that was done in 2003-2005. Fishery dependent data for red crab are influenced by more than just biological factors because the fishery is small and changes in individual vessel operations and market availability have a large influence on the fleet performance. Fishery dependent data are also influenced by the interpretation of VTR requirements by vessel captains, making it difficult to interpret VTR data at present. Additionally, there is uncertainty concerning discard rates, discard mortality, and biological trends in growth and recruitment. For these reasons, the DPSWG explored alternative methods of estimating sustainable yield for red crab.

The methods used by the DPSWG are explained in a working paper that is available at <http://www.nefsc.noaa.gov/publications/crd/crd0902>. The DPSWG produced estimates of sustainable yield that approximated recent and long-term average annual landings, leading the DPSWG to “recommend a catch limit that mimics both recent and long term mean annual landings.” Although the methods used by the DPSWG estimated sustainable yield, rather than *maximum* sustainable yield, the Review Panel recommended that MSY be set between 3.75 and 4.19 million lb (1,700 – 1,900 mt) based primarily on the congruence between long-term average landings and the results of sustainable yield estimates from the Depletion Corrected Average Catch Model (DCAC). This is a nearly 40% reduction from the MSY estimate of 6.24 million lb (2,830 mt) that guided the fishery between 2002 and 2008.

The PDT further analyzed the methodology employed by the DPSWG and determined that estimates of sustainable yield from the DCAC model are likely to be less than MSY. In its report to the Council on April 28, 2010, the SSC agreed that “the PDT demonstrated that the DCAC model developed by the DPSWG provides an estimate of sustainable yield that underestimates maximum sustainable yield (MSY).” The SSC, therefore, concluded that “the information available for red crab is insufficient to estimate MSY or OFL.” In lieu of an estimate of OFL, the SSC recommended an interim ABC based on the long-term average landings of male red crab. The SSC noted that the two survey estimates of abundance and their variance do not provide evidence of significant depletion from 1974 to 2003-2005. The SSC, therefore, concluded that the historical landings of male red crab and historical discarding practices appear to be sustainable and that an interim ABC based on long-term average landings (1,775 mt) is safely below an undetermined overfishing threshold and adequately accounts for scientific uncertainty.

The SSC further reported to the Council that “a research plan is needed to improve the scientific basis of management. Specifically, estimates of MSY and OFL are needed to replace the interim ABC recommendation so that an ABC control rule can be based on OFL, its uncertainty and the Council’s desired risk tolerance.”

In most fisheries the ABC would include dead discards. In the red crab fishery the SSC determined that there is insufficient data to determine the historic level of discards and discard mortality that accompanied the historic landings that were used to establish the ABC. The proposed action presumes that discards will not increase compared to historical practices. Rather, the adoption of escape vents in traps and increasing knowledge of resource distribution

can be expected to decrease discards. Similarly, whereas trip limits are a known incentive for discarding lower value catch in favor of filling the limit with higher value product, the elimination of the trip limit may reduce discards. If the landing of female crab is allowed under an experimental fishing permit or if females are incorporated into the TAL in the future, discards of females would be expected to decrease. Improved handling practices, informed by cooperative research, have the potential to reduce discard mortality (Tallack 2007). The red crab industry recently received funding to develop and field-test an enhanced electronic catch recording system that promises to provide improved data on catch and effort by depth and location. The red crab industry has supported continuing research on all aspects of the fishery and the resource since the implementation of the FMP in 2002.

2.3 Current Management Measures

NMFS issued regulations on October 10, 2002, implementing measures contained in the Red Crab FMP effective October 21, 2002 (67 FR 63222). Included in the measures was a limited access program for the directed fishery with a target TAC of 5.928 million lb and a DAS allocation of 780 fleet DAS. The target TAC was set at 95% of MSY, which was intended to achieve OY by approximating the maximum economic yield. The regulations also require the Council to review the status of the deep-sea red crab stock and the fishery every year, and to prepare a Stock Assessment and Fishery Evaluation (SAFE) Report every three years, and specifications for MSY, OY, TAC, and DAS allocations at least every third year. Framework Adjustment (FW) 1 (August 31, 2005, 70 FR 44066) established a multi-year specifications process and established the specifications through FY 2007. The specifications established for FY 2007 were continued without action into FY 2008, as allowed under the regulations, because there was no new information that indicated a change to the specifications was required.

On April 6, 2009, NOAA's National Marine Fisheries Service (NMFS) implemented an emergency action for the red crab fishery that adjusted the target TAC and, as a result, the DAS allocations. The emergency rule was needed for the FMP to be consistent with National Standard 2 of the MSA by using the best available scientific information for this fishery, i.e., the results of the DPSWG that were released in January 2009. The emergency action reduced the MSY for red crab from 6.24 million lb established by the FMP to 3.75 million lb. The emergency action also established a new target TAC of 3.56 million lb and reduced the fleet DAS from 780 to 582. On August 24, 2009 the emergency rule was extended through February 28, 2010.

On May 14, 2010, NMFS published specifications for the red crab fishery for FY 2010 that had been developed by the Council based on recommendations received from the SSC on September 23, 2009. These regulations put in place a target TAC of 3.56 million lb (1,615 mt) and 582 fleet DAS, divided equally among the vessels that have not declared out of the fishery.

At the request of the Council, the SSC reconsidered its ABC recommendation for red crab at its March 16-17, 2010, meeting. On April 28, 2010, the SSC reported to the Council that it had concluded that "an interim ABC based on long-term average landings is safely below an overfishing threshold and adequately accounts for scientific uncertainty." The SSC recommended an interim ABC for male red crab landings of 3.91 million lb (1,775 mt). On August 13, 2010, NMFS published a final rule to implement the SSC's revised recommended

catch level as the adjusted target TAC for the FY 2010 red crab fishery. This rule included a target TAC of 3.91 million pounds (1,775 mt) with a corresponding fleet DAS allocation of 665.

Other management measures that were not affected by the emergency action or the specifications for FY 2010, include: trip limits, trap/pot restrictions, a prohibition on landing more than an incidental level of female crabs (an experimental fishing permit currently in effect provides for limited harvesting of female crabs to support research on growth and fecundity), and restrictions on at-sea processing and mutilation. In addition, the specific permitting and reporting requirements that were implemented by the FMP, including an Interactive Voice Response (IVR) system for limited access vessels and Vessel Trip Reports (VTRs) that must be filled out by all vessels with a red crab permit were unchanged under the most recent rulemakings. A dealer reporting requirement also remains in effect. The regulations also provide for allocation of the fleet DAS equally among the limited access permit holders. Incidental catch trip limits remained at 500 lb per trip for non-limited access vessels. All of these management measures were intended either to prevent overfishing in the red crab fishery or to avoid the “race for fish” that can be stimulated by unrestricted competitive fishing for a quota.

The management specifications for the target TAC and DAS that are expected to be effective in FY 2010 are shown under the no action option in Table 2 in the Summary. The environmental impacts of the current measures, including the current management specifications, were previously analyzed in accordance with the National Environmental Policy Act (NEPA) and National Oceanic and Atmospheric Administration Administrative Order (NAO) 216-6, “Environmental Review Procedures for Implementing the National Environmental Policy Act.”

2.4 Alternatives Considered

The red crab fishery has undergone significant changes since the development and implementation of the FMP in 2002. One of the five limited access permits has been declared out of the fishery in each year since 2004. All of the permits are signatory to a cooperative harvesting agreement through which the permit holders endeavor to harvest the target TAC in the most economically beneficial manner consistent with the regulations. All permit holders share in the profits that accrue from the cooperative approach. The cooperative harvesting agreement reportedly requires member vessels to stop fishing when the target TAC has been landed. If the vessels abide by the harvesting agreement, the uncertainty that would normally surround a target TAC that is implemented through controls on DAS would be reduced. However, this cooperative agreement is not regulated or codified by NMFS and can only be enforced by the parties to the agreement through private contractual procedures.

This Amendment includes measures to make the FMP consistent with the requirements of the reauthorized MSA. The Amendment therefore modifies the specification-setting process to incorporate the SSC role in recommending an ABC to the Council. The Amendment includes a provision that would establish a TAL that would be implemented as a hard landings limit. The Amendment also includes alternatives for proactive and reactive accountability measures. The Amendment also includes alternatives that would eliminate measures that regulate fishing strategy, such as DAS and trip limits. This action also proposed an alternative that would replace the prohibition on landing more than one tote of females with a procedure through which the harvest of females would be determined on the basis of scientific information and a

recommendation from the SSC and a vote by the Council, as is the case with male red crab. All of the proposed actions were analyzed and considered in comparison with the No Action or Status Quo alternatives that would leave the current provisions of the FMP and prevailing specifications in place.

3.0 PURPOSE AND NEED OF ACTION

The purpose of this amendment is to set appropriate specifications for FY 2010 through FY 2013 and to ensure that landings do not exceed sustainable levels, including the ABC recommended by the SSC and an ACL set by the Council. This action also responds to changing conditions in the fishery and opportunities to improve economic efficiency.

This amendment is needed to ensure that the FMP is consistent with the annual catch limit (ACL) and accountability measure (AM) requirements of the MSA. This action also is needed to implement specifications for FY 2011 through FY 2013 based on the best scientific information available.

4.0 COMPARISON OF ALTERNATIVES

The proposed action (preferred alternative) and other alternatives considered by the Council including the No Action/Status Quo Alternative are identified in Table 4 below and described more fully in other parts of this section.

Table 4- Management alternatives considered by the Council

SECTION		ALTERNATIVES	OPTIONS
4.1	Catch control alternatives	Hard TAL without DAS (Proposed Action)	
4.1.1		Status Quo/No Action Alternative (Target TAC with DAS)	
4.1.2			
4.2	Trip Limit Alternatives	Eliminate Trip Limits (Proposed Action)	
4.2.1		Status Quo/No Action Alternative (Maintain trip limits)	
4.2.2			
4.3	Trap Limit Language Alternatives	Modify Trap Limit Regulatory Language (Proposed Action)	
4.3.1		Status Quo/No Action Alternative (Maintain existing trap limit language)	
4.3.2			
4.4	Accountability Measures	Proactive AMs (Proposed Action)	In-season closure authority (Proposed action)
4.4.1		Reactive Accountability Measures (Proposed Action)	Next Year In-Season Adjustment Option (Proposed action)
4.4.1.1			
4.4.2		"Leap-frog" Specifications Adjustment Option	
4.4.2.1			
4.4.2.2		Combinations of both Proactive and Reactive AMs (Proposed Action)	
4.4.3			
4.4.4			Status Quo/No Action (No Payback, Adjust DAS to Achieve Target TAC)
4.5	Modifications to the Specification-Setting Process	Modify the Specification-Setting Process to Include the SSC (Proposed Action)	
4.5.1		Status Quo/No Action (Does not mention the SSC)	
4.5.2			
4.5.3		Modify Specification Components (Proposed Action)	
4.5.4		Status Quo/No Action (Not appropriate for ABC, ACL, TAL)	

4.6	Measures to Control the Landing of Female Crabs	Remove the prohibition on landing more than one standard tote of female crabs and bring female crabs into the procedure for setting ABC and ACL, separate from that for males. (Proposed Action)	
4.6.1			
4.6.2		Status Quo/No Action This option would maintain the prohibition on landing more than one standard tote of female crabs.	

4.1 Catch Control Alternatives

4.1.1 *Hard TAL without DAS Alternative (Proposed Action)*

This alternative was chosen by the Council to eliminate the target TAC and DAS controls that are currently in the FMP and replace them with a TAL in the form of a landings limit. The hard TAL alternative responds to industry concerns about the problematic nature of DAS controls in terms of business planning, flexibility, operational safety, and capability to allow the fleet to catch the ACL/TAL without exceeding it. The ACL and TAL would be set by the specifications. The Council intended for this alternative to operate in conjunction with the alternative for the in-season closure under paragraph 4.4.1.1.

4.1.2 *Status Quo/No Action Alternative*

This alternative would maintain the combination of a target TAC and controls on fleet and vessel DAS that is currently in the FMP. Under this alternative the most recent catch rate is used to calculate the DAS allocations for the fleet vessel. Annual allocations of DAS for individual vessels are determined by dividing the total DAS allocation by the number of vessels that declare their intention to fish in the upcoming year. The total DAS allocation would continue to be 665 DAS that was set under the 2010 specifications. This alternative would be allowable under the revised MSA requirements as long as the effort controls would not consistently result in catches that exceed the ABC.

4.2 Trip Limit Alternatives

4.2.1 *Eliminate Trip Limits (Proposed Action)*

This alternative was adopted by the Council and would eliminate the trip limits that are currently in the FMP.

The FMP currently includes a trip limit that was based on a need “to minimize the potential for a derby fishery that may be associated with the setting of a TAC.” The FMP noted that trip limits help to control fishing effort and fishing mortality when combined with DAS limits and that trip limits would not be necessary if the number of DAS could be set to precisely result in the target catch. However, the FMP also points out that “trip limits would contribute to inefficiency in the red crab fleet” and they have disproportionate effects by vessel size class, creating more inefficiency for larger vessels than for smaller vessels. Higher productivity vessels are more constrained by trip limits compared to vessels with lower LPUE and that trip limits are likely to make trip costs higher than necessary for more productive vessels. With the adoption of the hard TAL alternative, trip limits are no longer necessary to control fishing mortality and therefore they can be eliminated to improve vessels’ economic efficiency.

When the Red Crab FMP was first developed, red crab vessel owners and the Council were concerned about increases in fishing capacity stimulated by competitive fishing. This situation has changed because the fishery has stabilized at 3-4 active vessels that harvest red crab in close coordination with each other. At present, all of the vessels participate in a cooperative harvesting agreement through which all permit holders share in any increased profits from savings in harvesting costs. The vessels still are subject to a 600-trap limit that would mitigate derby-style fishing should it become a problem. In addition, it is unlikely that a derby fishery would develop because the sole processing plant needs a steady supply of live crabs and cannot take excessively large deliveries. There currently are no other ex-vessel markets for red crab and all the boats have long-term relationships with the processing plant. If conditions in the fishery were to change in the future, the Council could re-impose trips limits through a framework action.

4.2.2 Status Quo/No Action

The Status Quo/No Action alternative would maintain the trip limits that are currently in the FMP. The trip limit currently is set at 75,000 pounds for three limited access vessels and 125,000 pounds for one limited access vessel. This alternative would be allowable under the revised MSA requirements.

4.3 Trap Limit Regulatory Language Alternatives

The Red Crab FMP established a trap limit of 600 traps per boat. The FMP also included a prohibition on the use of parlor traps and established a maximum size for traps. The rationale given for the trap limit in the FMP was to make fishing effort equivalent among vessels and to prevent an expansion of fishing effort. Since 2002, control over the number of traps in the ocean has also been seen as desirable from the perspective of other ocean uses and protected resource concerns. Red crab industry advisors report that the 600-trap limit is appropriate for the fishery.

Although the industry supports trap limit, they report that the implementing regulations were written in such a way that combination lobster/red crab boats have been forced to operate inefficiently. The red crab regulations currently state that, “No vessel may haul or harvest red crab from any fishing gear other than red crab traps/pots, marked as specified by paragraph (a)(5) of this section, when on a red crab DAS.” The apparent intent of this provision was to prevent red crab vessels from getting around the trap limit and other gear restrictions by harvesting red crabs with other gear. The prohibition on hauling gear other than specifically marked red crab

traps is the part of this regulation that increases costs for combination lobster/red crab boats because it forces them to make separate trips to harvest red crab and lobster.

The regulations further state that: “A vessel owner or operator of a vessel that holds a valid limited access red crab permit may fish with, deploy, possess, haul, harvest red crab from, or carry on board a vessel, up to a total of 600 traps/pots when fishing for, catching, or landing red crab.” This regulation is troublesome for vessels that fish for both red crab and lobster because they are prohibited from fishing lobster traps in excess of their 600 crab traps when they are on a red crab DAS, or have red crabs on board. Prior to the FMP, a red crab vessel could haul red crab traps on the same trip that it hauled lobster traps, increasing efficiency and saving costs during the switchover from one fishing activity to the other.

The regulations further state that: “No person may haul or remove lobster, red crab, or fish from parlor traps/pots when fishing under a red crab DAS.” Although this amendment may eliminate DAS as a component of the red crab regulatory system, replacement language may have the same effect on combination boats that are currently prohibited from hauling lobster traps if a similar type of prohibition on using parlor traps is written as part of change from DAS limits to a hard quota system.

4.3.1 Modify the Regulatory Language Pertaining to Trap Limits (Proposed Action)

For the reasons mentioned above, the Council is proposing this alternative to improve the efficiency of combination lobster/red crab boats by allowing vessels with both a limited access red crab permit and a limited access lobster trap permit to resume the fishing strategy that was employed before the implementation of the Red Crab FMP. The 600 crab trap limit for limited access red crab vessels still would remain in effect under this alternative.

National Standard 5 requires that “conservation and management measures shall, where practicable, consider efficiency in the utilization of fishery resources.” The National Standard 5 Guidelines state that: “Given a set of objectives for the fishery, an FMP should contain management measures that result in as efficient a fishery as is practical or desirable.” Efficiency is defined in National Standard 5 as “the minimum use of economic inputs such as labor, capital, interest, and fuel.” The National Standard 5 Guidelines consider conservation to include the “wise use of all resources involved in the fishery, not just fish stocks.” The current wording of the trap limit regulations requires combination lobster/red crab boats to return to shore and offload all of one species before hauling traps for the other species. This requirement to return to shore to offload one species before returning to the offshore fishing grounds to haul traps for another species wastes fuel, labor, and capital. The proposed hard quota eliminates the need for trap limits as an effort control measure. However, the industry supported the retention of the trap limit to avoid raising concerns about protected resource and habitat impacts that might arise from the elimination of the trap limit.

The following proposed language would eliminate the problem facing combination boats and would maintain the intent of the red crab gear restrictions:

1) No limited access red crab vessel may harvest red crab from any fishing gear other than red crab traps/pots, marked as specified by paragraph (a)(5) of this section.

2) A vessel owner or operator of a vessel that holds a valid limited access red crab permit may not deploy more than 600 traps/pots in water depths greater than 400 meters (219 fathoms) and may not harvest red crab in water depths less than 400 meters.

3) No limited access red crab vessel may deploy parlor traps/pots in water depths greater than 400 meters (219 fathoms).

4.3.2 Status Quo/No Action Alternative

This alternative would maintain the existing regulatory language for the 600 crab trap limit that prevents combination red crab/offshore lobster fishing trips. The red crab regulations currently state that, “No vessel may haul or harvest red crab from any fishing gear other than red crab traps/pots, marked as specified by paragraph (a)(5) of this section, when on a red crab DAS.” The current regulations also state that: “A vessel owner or operator of a vessel that holds a valid limited access red crab permit may fish with, deploy, possess, haul, harvest red crab from, or carry on board a vessel, up to a total of 600 traps/pots when fishing for, catching, or landing red crab.” The regulations further state that: “No person may haul or remove lobster, red crab, or fish from parlor traps/pots when fishing under a red crab DAS.” The references to “fishing under a red crab DAS” would no longer be appropriate under the proposed action, requiring some change in the regulatory language whether or not the Council specified the changes proposed in this action. This alternative would be allowable under the revised MSA requirements.

4.4 Accountability Measures

4.4.1 Proactive Accountability Measures (Proposed Action)

4.4.1.1 In-season Closure Authority Granted to the Regional Administrator. (Proposed Action)

The Council adopted this alternative to give the Regional Administrator the authority to close the landing of red crab by the limited access fleet when landings were projected to reach the TAL. Landings at the incidental level will be allowed to continue after the in-season closure of the directed fishery. The Council believes that NMFS has the ability to closely monitor and to project landings with sufficient accuracy to close the fishery in time to avoid landings in excess of the TAL. The Council also believes that the procedures for closing the fishery can be streamlined by allowing the Regional Administrator to close the fishery by direct notice to the fishery participants. Vessels at sea when the closure is announced will be allowed to complete a started trip. The Council also believes that the subsequent closure announcement to the public via publication in the *Federal Register* should not impede prompt closure of the fishery, but should be accomplished on as timely a basis as practicable. Vessel trip reports provide data on catch rates by fishing area and provide an additional source of data on total landings. These multiple data sources reduce uncertainty regarding the ability of the management system to prevent landings from exceeding the TAL.

This alternative proposes prompt closure of the fishery by authorizing the Regional Administrator to 1) determine, on the basis of information received from VTRs and federally-permitted dealers when the TAL will be reached, 2) notify all limited access permit holders of the specific date after which fishing for red crab above the incidental limit would be prohibited,

and 3) make the closure notice announcement not less than 24 hours prior to the effective date of the closure.

4.4.2 Reactive Accountability Measures (Proposed Action)

4.4.2.1 Next Year In-Season Adjustment Option (Proposed Action)

Under this option, after the end of the fishing year, NMFS would determine whether the limited access red crab fleet had exceeded the ACL. If the ACL had been exceeded, NMFS would use the appropriate rule-making procedure to adjust the specifications for the year following the overage to pay back the overage on a pound for pound basis.

4.4.2.2 “Leap Frog” Specifications Adjustment Option

Under this option, which was not adopted by the Council, an overage in one year would have to be paid back on a pound for pound basis by adjusting the specifications for the second year following the overage.

4.4.3 Combinations of both Proactive and Reactive AMs (Proposed Action)

The Council adopted a combination of proactive and reactive AMs that provide both in-season closure authority and payback of any overage in the year following the overage.

4.4.4 Status Quo/No Action Alternative

This alternative would leave in place the provisions in the FMP that give the Regional Administrator the authority to adjust fishing days to achieve the target TAC and to make in-season adjustments to the specifications for purposes that are consistent with the Atlantic Deep-Sea Red Crab FMP objectives and other FMP provisions. No payback for overages would occur under the status quo alternative. This alternative would be allowable under the revised MSA requirements but would not be needed if the preferred “hard-TAL” alternative is implemented.

4.5 Specification Setting Process and Components Alternatives

4.5.1 Modify Process for Setting Specifications (Proposed Action)

The current regulations define the “Process for setting specifications” in 50 CFR 648.260. This process requires minor modifications to be consistent with the new requirements of the MSA that specify that the Council must “develop annual catch limits for each of its managed fisheries that may not exceed the fishing level recommendations of its scientific and statistical committee or the peer review process established under subsection [302] (g).” The alternative adopted by the Council would require the SAFE Report prepared by the PDT every three years, together with recommended specifications, to be presented to the Council’s SSC or other peer review process prior to presentation to the Council. Any recommended changes to the specifications resulting from the PDT’s annual review of the status of the stock and the fishery shall also be submitted to the SSC or the peer review process.

4.5.2 Status Quo/No Action Alternative

The Status Quo/No Action Alternative for the specification setting process would leave in place the current process, which does not require the SSC to recommend an ABC to the Council. This alternative would not be allowable under the revised MSA requirements.

4.5.3 Modified Specification Components Alternative (Proposed Action)

This proposed action would add ABC, ACL, and TAL to the specification components, following from the alternative adopted for controlling the catch.

4.5.4 Status Quo/No Action Alternative

The Status Quo/No Action Alternative for the Specification Components would leave in place the current components of the specifications, which do not include ABC, ACL, and TAL. This alternative would not be allowable under the revised MSA requirements.

4.6 Measures to Control the Landing of Female Crabs

4.6.1 Remove the Prohibition on Landing More than One Tote of Female Crab Conditional on a Scientific Recommendation from the SSC (Proposed Action)

This proposed action would eliminate the prohibition on landing female crab in excess of one standard tote, conditional upon a scientific recommendation for an ABC that includes females and the Council's adoption of specifications that include female crabs in the ACL. The process would include the evaluation of a female harvest strategy by the PDT, which would then provide information to the SSC that the SSC would use to recommend an ABC that included female crabs if the SSC determined that such a harvest strategy was sustainable. If the PDT and the SSC determined that the harvest of female crabs was not desirable in any year, or for any specification period, they could recommend to the Council that the harvest be male-only for that time period. In any time period in which the specifications were for a male-only harvest, the landing of female crabs would be limited to one standard tote per trip to allow for inadvertent retention of an incidental number of females.

If this alternative is approved, a future female quota would have to undergo additional NEPA analysis when setting specifications.

4.6.2 No Action/Status Quo Alternative

The no action alternative would maintain the current prohibition on landing females in excess of one standard tote. This alternative would be allowable under the revised MSA requirements.

4.7 Rationale for Proposed Management Measures

Goal 2 of the Red Crab FMP is to "create a management system so that fleet capacity will be commensurate with resource status so as to achieve the dual goals of economic efficiency and biological conservation." Economic efficiency is enhanced by the ability of businesses to adjust the production process to obtain the combination of inputs that produces the highest value of

production for the least cost. With a stable fishery that is driven largely by market demand and a change to a “hard” TAL control, DAS as effort controls are no longer necessary.

With the adoption of the hard TAL alternative, trip limits are no longer necessary to control fishing mortality and therefore they can be eliminated to improve vessels’ economic efficiency.

The existing regulatory language pertaining to the 600-trap limit for limited access red crab vessels is written in a way that precludes combination vessels from hauling both lobster and red crab traps on the same trip. The effect of this regulatory language has been to reduce the efficiency of vessels that would combine lobster and red crab fishing on the same trip prior to the implementation of the Red Crab FMP in 2002. The current regulatory language requires the combination boats to use more fuel than necessary and to waste crew and vessel time. The red crab industry has requested a modification of the trap limit language in the regulations. The intent of the industry request is not to increase the number of crab traps that a red crab vessel can fish, but to allow vessels with both a limited access red crab permit and a limited access lobster trap permit to resume the fishing strategy that was employed before the implementation of the Red Crab FMP. The red crab regulation made that strategy illegal.

The apparent purpose of the regulatory language was to prevent red crab fishermen from getting around the limit on red crab traps by claiming to be fishing for lobsters when in fact they were fishing for red crabs. That strategy would not be practical for a number of reasons. Lobster traps have side-entry funnels made of mesh. They also have internal, “parlor” funnels made of mesh. Red crab traps have top-entry funnels made of solid plastic. Red crab traps do not have internal parlor funnels, leaving the inside of the trap free of obstructions, which facilitates the emptying of the trap. Red crab traps have significantly higher internal volume than lobster traps.

Offshore lobster permit holders have individual trap limits and must attach a sequentially numbered tag on each trap. A combination boat would not gain any advantage in the red crab fishery by setting lobster traps for red crabs in addition to the 600 red crab traps that it is allowed. Under the proposed regulation, a boarding party would cite a limited access red crab vessel if parlor traps were being hauled in depths greater than 219 fathoms or red crabs were being harvested from parlor traps.

If the proposed hard TAL is implemented, the trap limit would no longer be necessary as a component of the effort control system for the purpose of limiting the total catch. However, removal of the trap limit would raise concerns about the implications for protected species. The red crab industry has therefore requested modifications to the trap limit regulatory language, rather than the elimination of the trap limit. With trap limits in place for both the red crab and the offshore lobster fishery, no additional concerns arise with regard to protected species.

The red crab fishery currently operates under a depth-defined exemption to the large whale take-reduction regulations that prohibit floating groundlines in water depths less than 280 fathoms. For enforcement purposes the Coast Guard translates the depth contour into geographic coordinates on the relevant nautical charts. The depth criteria proposed to define the trap limit for red crab traps is shallower than the depth used for the floating groundline exemption, meaning that the depth specified in the floating groundline exemption will remain the effective shallow depth limit for red crab traps.

Female red crabs are an unavoidable and potentially valuable part of the catch. Until recently, there was no market for female red crab because the average size of females is below that which makes them attractive for processing for meat. Under the current regulations, females that are caught in the normal course of fishing for male crab are discarded. There is now interest in female crab for specialty markets. NMFS approved an exempted fishing permit that will allow the red crab fleet to land up to one million pounds of female crab for the purpose of testing the market and supporting scientific information on the resource.

The biomass of both male and female red crabs increased between the 1974 and 2003-2005 surveys. Some harvest of female crab may be sustainable. This amendment includes an alternative that would indicate the Council's intent to change the harvest strategy to allow a female harvest if the PDT and the SSC recommend such a harvest. The PDT and the SSC would evaluate the sustainability of a female harvest and if such a harvest was supported by that evaluation, would include female crab in the specification-setting process. The SSC discussion and report to the Council dated June 23, 2010 included the following response to the term of reference regarding female harvest: **"Including female landings of red crab in catch limits requires an evaluation of the sustainability of a male and female fishery and a more explicit decision on management strategy."** This alternative provides the explicit decision on management strategy that was referred to by the SSC.

The accountability measures adopted by the Council provide an effective combination of in-season closure authority given to the Regional Administrator and offsetting adjustments to the next year's TAL if an overage were to occur. The Council believes that NMFS has the ability to closely monitor and to project landings with sufficient accuracy to close the fishery in time to avoid landings in excess of the TAL.

4.8 The ABC Control Rule

Fishery independent data on the red crab resource is lacking because most surveys do not extend into the depths at which red crab are found. On April 28, 2010, the SSC reported to the Council that "the best scientific information available for red crab is insufficient to advise on an ABC control rule." Therefore, no ABC control rule will be implemented for red crab at this time. Until such time as sufficient scientific information becomes available, an interim ABC will be used for red crab.

5.0 PROPOSED 2011-2013 SPECIFICATIONS

The proposed action would specify ABC, ACL, and a TAL for FY2011-2013. The specifications follow from the selection of the hard TAL with no DAS as the proposed effort control measure.

5.1 Specifications under the "Hard TAL with No DAS" Alternative (Proposed Action)

The "Hard TAL with No DAS" alternative recognizes that the SSC could not determine MSY and OFL. ACL and TAL are set equal to ABC because there is virtually no management uncertainty in this fishery. This alternative sets ABC, ACL, and TAL at 3.91 million lb (1,775 mt) of male crab landings. According to the National Standard 1 Guidelines, ABC is intended to account for scientific uncertainty in the estimation of a risk-neutral OFL by providing a

precautionary buffer between OFL and ABC. In the case of red crab, the SSC was unable to estimate OFL, but concluded that “an interim ABC based on long-term average landings is safely below an overfishing threshold and adequately accounts for scientific uncertainty.” The National Standard 1 Guidelines also require that the Council consider management uncertainty when setting the ACL. Management uncertainty refers to the ability of the management system to actually limit the catch (in this case, landings) to the prescribed ABC. If there is uncertainty regarding the ability of the management system to keep the landings within the prescribed limit, the Council is expected to establish a buffer between ABC and ACL. In the case of red crab, the Council expects the management system to keep the landings at the prescribed level because the fishery is monitored with multiple data sources, including VTRs and weekly dealer reports. Because of the high degree of certainty associated with the control of the red crab landings, the Council set the ACL equal to ABC. To be clear that the red crab fishery would use landings as the control mechanism, the Council established a total allowable landings (TAL) limit equal to the ACL and ABC.

The Council’s expectation that landings can be effectively limited to the prescribed limit is based on conditions in the red crab fishery. Based on experience since 2002, no more than four of the five permits are likely to be active in any one year and fewer than four boats are generally active at any one time. The red crab fishery was previously managed with a hard TAC and in-season closures under Emergency Rules that governed the fishery prior to the implementation of the FMP. Since that time, all sources of reporting have been improved and multiple streams of landings data make it possible to project landings in the short-term with a high degree of accuracy. Landings data is reported on a weekly basis by the single dealer that buys all of the landings from the limited access red crab fleet.

Table 5 – Specifications under the proposed “Hard TAL with No DAS” alternative (specifications apply to landings of male crabs).

	Hard TAL, No DAS Specifications
MSY (mt)	Undetermined
OFL (mt)	Undetermined
OY (mt)	Undetermined
ABC (mt)	1,775
ACL (mt)	1,775
Target TAC (mt)	n/a
Fleet DAS	n/a
TAL (mt)	1,775

5.2 Specifications under the No Action/Status Quo Alternative

The No Action/Status Quo alternative would leave in place the MSY and OY values in the FMP and would continue the target TAC and DAS values specified for FY2010 as shown in Table 6. This alternative would be allowable under the revised MSA requirements.

Table 6 - Specifications under the No Action/Status Quo Alternative (specifications apply to landings of male crabs).

	No Action/ Status Quo
MSY (mt)	2,830
OFL (mt)	Undetermined
OY (mt)	2,688
ABC (mt)	1,775
ACL (mt)	n/a
Target TAC (mt)	1,775
Fleet DAS	665
TAL (mt)	n/a

5.3 Rationale for Proposed Specification Alternative

The proposed specification alternative follows from the proposed catch control alternative and the recommendation of the SSC regarding ABC.

6.0 DESCRIPTION OF AFFECTED ENVIRONMENT

This section is a description of the Affected Environment supporting this action. A complete description of the affected environment was part of the Red Crab FMP and Environmental Impact Statement (EIS) (NEFMC, March 2002: Section 8.0). Any new information collected about the status of the stock that has undergone peer review, or the economic and social changes that have occurred since the implementation of the FMP, are described in this section. There is little new biological information that would suggest that red crab distribution has changed since the FMP was implemented.

The Valued Ecosystem Components (VECs) potentially affected by the alternatives include the target species (red crab), non-target/bycatch species, habitat including EFH, protected resources, and human communities, all of which are described below.

6.1 Biological Factors

6.1.1 Target Species

In general, the Atlantic deep-sea red crab (*Chaceon quinquedens*) is a slow-growing crustacean. Serchuk and Wigley (1982) estimated a life span of fifteen years or more, implying a natural mortality rate of 0.2. Recent assumptions concerning natural mortality suggest that red crabs may live considerably longer than fifteen years.

The red crab is patchily distributed along the continental shelf edge and slope of the western Atlantic, primarily at depths of 400-1800 meters. A genetically distinct stock of *Chaceon quinquedens* exists in the Gulf of Mexico (Weinberg et al., 2003). A closely related species, *Geryon maritae*, is also commonly referred to as red crab and supports a fishery off the west coast of Africa (Melville-Smith 1989). Juvenile red crab live in deeper waters than adult red crab, and for the majority of the year, males are generally distributed in deeper waters than females.

Since implementation of the FMP in 2002, the biological and economic information about the red crab resource and fishery has been updated in the 2004 SAFE Report, through the 2006 Stock Assessment Workshop, and through the January 2009 DPSWG and Review Panel Report. These reports provide additional data to supplement the red crab assessment completed over 30 years ago (Wigley et al, 1975). 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 large male red crabs (larger than 114 mm carapace width (CW)) is less than the 1974 survey (Wahle et al., 2004). Whereas the 1974 survey represented an unexploited stock, a reduction in size composition of males subject to fishing would be expected with any level of exploitation. The apparent market-shift down to smaller male red crabs (90+ mm CW) indicates that the market as it existed in prior years is unlikely to serve as an appropriate constraint on the minimum size of landed red crabs. The red crab fishery obtained Marine Stewardship Council Certification in September 2009. The concern for the decline in the proportion of large males was reflected in the conditions placed on Marine Stewardship Certification for the red crab fishery, including a requirement that the red crab industry increase the average size of male red crab in the landings.

Landings in the red crab fishery have fluctuated widely since the 1970s, when the fishery began. From 1978 through 1990 the predominant red crab fleet operated out of Fall River, MA and was responsible for most of the landings during those years.

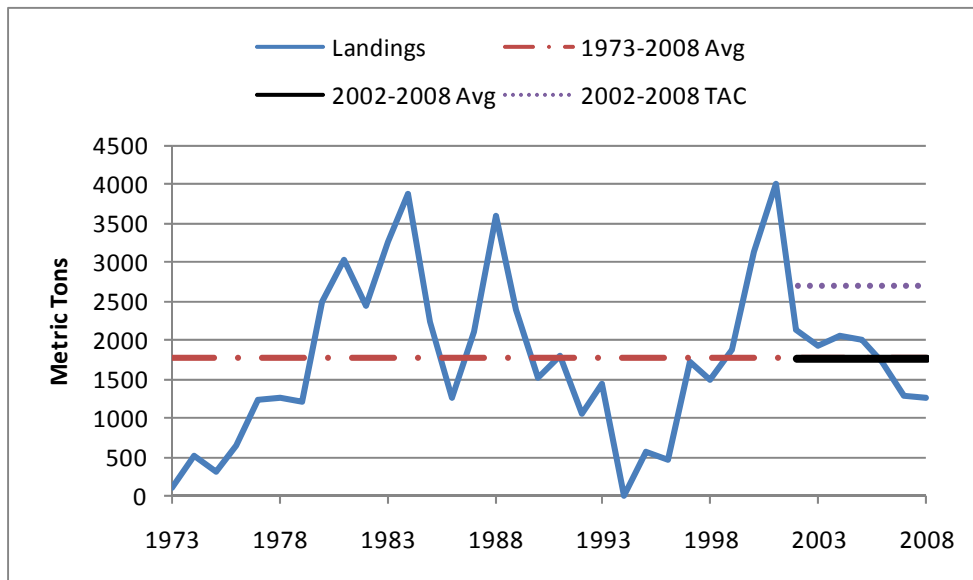


Figure 1- Live weight red crab landings 1973-2008 showing multi-year average landings and the target TAC that was in effect from 2002 through 2008

In recent years, landings have decreased from over 4 million lb in 2005 to less than 3 million lb in 2007 and 2008. Members of the Red Crab Advisory Panel report that the decline in landings is the result of reduced market demand, rather than lower availability of marketable red crabs. The trend in DAS matches the trend in landings, supporting the industry explanation for the

decline in landings (Figure 2). Note that red crab DAS are charged on a calendar day basis. That is, for any day or portion of a day fished, DAS are charged as a whole day.

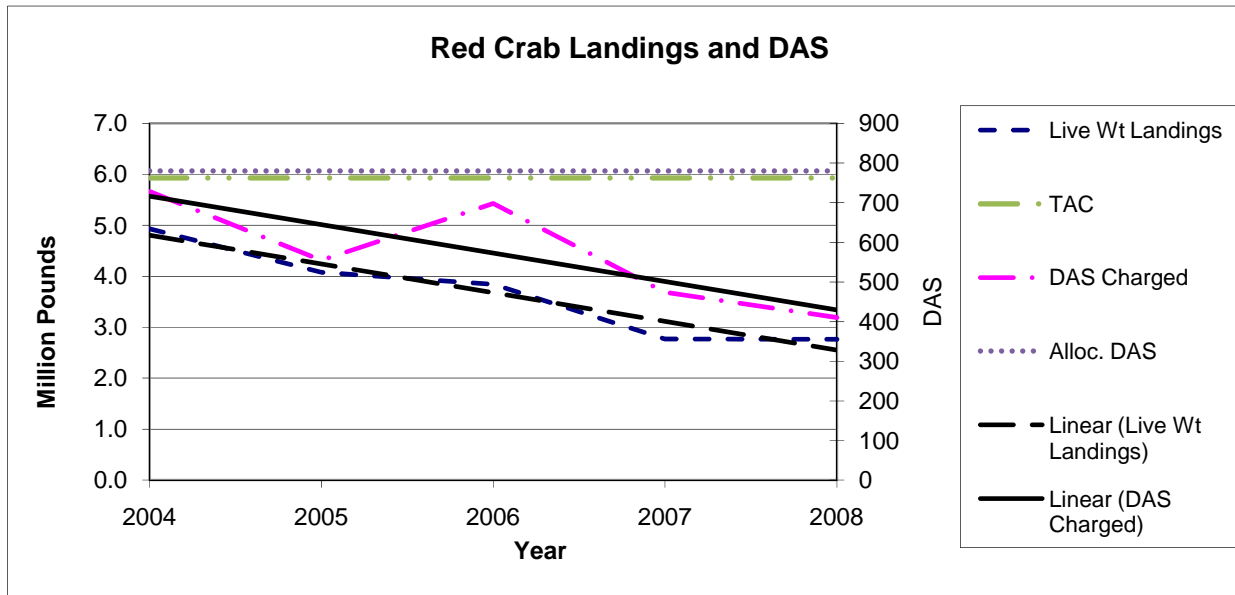


Figure 2 – Red crab landings and DAS charged 2004-2008.

The linear regression lines are fit to the indicated data points and show the overall trend of the landings and DAS charged over the time period on the chart. The linear regression lines allow a better comparison of landings with DAS and show that the trends are virtually identical. The identical slope on the linear trends implies that landings declined at the same rate as fishing effort. If landings had declined at a greater rate than fishing effort, the implication would be that red crab abundance had declined.

Section 3.1.2.1 of the 2004 SAFE Report describes the bycatch of red crab in other fisheries from the data available. As mentioned in the FMP, there may be considerable potential for bycatch of red crab in the offshore monkfish fishery, but the program under which monkfish trawl vessels would be allowed to fish in the primary red crab fishing area qualified zero vessels, significantly reducing the likelihood that monkfish vessels would impact the red crab resource.

More recently, Amendment 1 to the tilefish FMP prohibited bottom-tending mobile gear from four submarine canyons along the edge of the continental shelf off New England. These closures reduce the likelihood that monkfish or other deep-water trawl fisheries would catch significant quantities of red crab. If other fisheries extend their operations into red crab habitat, more research through observers will be needed to determine the level of red crab bycatch in other fisheries. At present the bycatch of red crab in other fisheries is minimal and insignificant.

Additional information on red crab bycatch in other fisheries and estimated discard mortality was compiled for the purpose of including dead discards in the estimate of ABC. The SSC deemed this information to be insufficient to determine the magnitude of discards and discard mortality but concluded that the historical level of discards was sustainable in combination with the long-term average landings.

6.1.1.1 Overfishing Definition

The Red Crab FMP/EIS established criteria to determine whether the red crab stock was either in an overfished condition, subject to overfishing, or both. The previously approved overfishing and overfished definitions are as follows:

Definition of Overfishing: Overfishing 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 actual measure of exploitation used will be determined by the availability of suitable data (CPUE data, landings, etc.).

Definition of Overfished: The red crab stock will be considered to be in an overfished condition if one of the following three conditions is met:

Condition 1 – The current biomass of red crab is below $\frac{1}{2} B_{MSY}$ in the New England Council's management area.

Condition 2 – The annual fleet average CPUE, measured as marketable crabs landed per trap haul, continues to decline below a baseline level ($\frac{1}{2} CPUE_0$) for three or more consecutive years.

Condition 3 – The annual fleet average CPUE, measured as marketable crabs landed per trap haul, falls below a minimum threshold level ($\frac{1}{4} CPUE_0$) in any single year.

The current status of red crab with respect to the definition of overfishing and the definition of overfished is shown in Table 7. Application of both of these definitions is dependent upon the availability of suitable data on which to determine whether overfishing is occurring or the stock is overfished. The FMP/EIS established two types of proxies that could be used to assess whether overfishing is occurring. The first, in its simplest form, relies upon a comparison of current landings, adjusted for current fleet average CPUE, with MSY, adjusted for the expected CPUE under MSY conditions. If CPUE data are not available, the second proxy allows for a straightforward comparison of current landings to MSY (i.e., if the ratio $L:MSY > 1.0$, then overfishing is considered to be occurring; otherwise, overfishing is not considered to be occurring). Using this proxy, it is possible to make at least a crude assessment of whether overfishing is occurring in the red crab fishery, as landings are always known and the FMP developed an estimate of MSY.

In order to make an assessment as to whether the red crab stock is overfished, either an estimate of current biomass or fleet average per trap haul CPUE is required. Red crab vessels fill out VTRs that include information on catch and fishing effort, but that information is not easy to analyze and is not regularly used to determine trends in CPUE. At the time the FMP/EIS was developed, it was expected that NMFS and the industry would implement a voluntary sub-sampling protocol to collect trap-level data for a representative sample of trap hauls on each red crab fishing trip. The purpose of this sub-sampling was to collect data on per trap CPUE, derived from the number and size of all crabs (male, female, and juvenile) brought up in the sampled trap, and the composition of any bycatch also brought up in the sampled trap. Averaged across all trips by all participating vessels, the intent was to be able to estimate an annual fleet-wide per trap CPUE, which could be used in assessing the status of the red crab stock. Unfortunately, this sub-sampling program has yet to be initiated, although progress is being made in the development of an appropriate protocol through a study currently in progress by Dr. Richard

Wahle of the University of Maine, in collaboration with Dr. Yong Chen and Jon Williams (New England Red Crab Harvesters' Association.)

Table 7- Current Overfishing Definition Reference Points and Status for Red Crab

Definition	Criteria	Reference Point	Proxy	Value	Status
Overfishing	F	F:FMSY > 1	CPUE MSY: CPUE L	Not Available	Overfishing Not Occurring
			L* : MSY	0.67-.74	
Overfished	B	B < ½ BMSY	None	Not Available	Unknown
	CPUE	CPUE < ½ CPUE0	N/A	Not Available	
		CPUE < ¼ CPUE0	N/A	Not Available	

*Landings

6.1.1.2 Current Stock Status

6.1.1.3 Description of Resource and Current Data Collection Efforts

The stock of red crabs is patchily distributed along the continental shelf edge and slope of the western Atlantic at depths of 400-1800 meters between Emerald Bank, Nova Scotia and the Gulf of Mexico, as well as parts of the Gulf of Maine. The physical environment is described in more detail in Section 8.2.1 of the Red Crab FMP. Overall, the continental slope north of Cape Hatteras contains many submarine canyons and small gullies.

The biological environment is described in more detail in Section 8.1 of the Red Crab FMP. Early reports indicated that red crabs may live for fifteen years or more and they are slow growing (Serchuk and Wigley, 1982). More recent scientific opinion seems to favor a longer life span and a lower natural mortality rate. Since 2001, almost 11,000 red crabs have been sampled dockside. These port samples are used to monitor the size and sex distribution of catch. Based on a comparison of information from the late 1970s with current port sampling data, size at recruitment appears to have decreased from 114 mm CW (Serchuk, 1977) in 1977, thought to be a minimum landed size, to a mean width very close to 102 mm CW (Table 8). The proportion of male red crabs landed that are smaller than 102 mm CW, the recruit size stated in the FMP, increased steadily from 2001 through 2007 and then declined in 2008. These results may suggest that the availability of large males for harvest may be down, or the selectivity practiced by the industry has changed and the boats have been landing smaller red crabs than the FMP anticipated. Either way the size and sex distribution of the catch is important to monitor. NMFS (2006) calculated fishery selectivity for red crab during 2004-2005 and determined that selectivity was near 0% at sizes less than 80 mm CW and increased rapidly to nearly 100% by 120 mm CW. The size at 50% selectivity was determined to be about 90-94 mm CW.

A small percentage of the total landings sampled were female; the FMP prohibits the landing of female red crabs in more than incidental levels (no more than 1 standard tote, or 100 lb, per trip.)

Table 8– Summary of red crab carapace width (mm) from port sampling measurements of landed crabs. (Source: NMFS Commercial Fish Data, 2009)

Year	Male	Female	Unknown	%female	Total samples	Mean width	%<102mm
2001			243		243	108.4	17.3
2002	362	5	883	0.40	1250	106.4	27.4
2003	1477	7		0.47	1484	104.9	34.4
2004	1228	8		0.65	1236	107.2	26.3
2005	1729	12		0.69	1741	104.0	38.7
2006	1671	15	100	0.85	1786	102.1	52.5
2007	1431	6	207	0.37	1644	101.0	54.9
2008	1307	1	185	0.07	1493	111.4	27.9

The red crab industry has supported research efforts aimed at improving data availability for red crab. In 2003-2005, data were collected to update the first red crab assessment completed in 1977. Dr. Richard Wahle (Bigelow Laboratories), Dr. Yong Chen (University of Maine) and Jon Williams (F/V Krystle James) received funding from several sources to gather demographic information on the red crab resource in order to develop an updated stock assessment of the resource. The researchers 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. The findings suggest that the overall population density estimates of red crab are higher than the previous survey, but the proportion of males larger than 114 mm CW is less than the 1974 survey.

In addition, this research team has tagged approximately 8,000 red crabs since 2003. The tag return rate has been very low so far, but based on the crabs with tags that have been returned, there is very little evidence of growth (Wahle et al, 2004). Size distribution, growth data, and fishing mortality rates are important to monitor in order to prevent recruitment overfishing.

In July 2009, NMFS approved an exempted fishing permit for up to four red crab vessels. The permit allows the taking of a limited number of female red crabs (no more than 1 million lb, over two years) and is intended support additional data collection that meets the following objectives:

- 1) Characterize regional variability in the reproductive characteristics of the red crab population along the geographic range of the fishery on the New England and mid-Atlantic shelf break;
- 2) Conduct tagging to evaluate growth rates that will facilitate the development of growth and yield and egg production models for the fishery; and
- 3) Develop yield and egg per recruit models to identify potential biological reference points for red crab stock assessment and to evaluate impacts of fishing on the female red crab resource.

The genetic subdivisions of red crabs in the North Atlantic and the Gulf of Mexico have been assessed (Weinberg et al., 2003). Genetic differences between red crabs in the Gulf of Mexico

and southern New England were large enough to conclude that they are different fishery stocks. More locations need to be sampled from the Gulf of Mexico to the Gulf of Maine to get a better understanding of the pattern of divergence.

6.1.2 *Incidental Landings and Bycatch*

6.1.2.1 *Incidental landings of red crab in other fisheries*

Red crab inhabit water depths of 400-800 meters. This depth range is beyond that in which most fishing activity with the potential for red crab bycatch takes place. The incidental catch permit landings in recent years were examined to determine whether they were significant in relation to the TAL. In FY 2009 (from March 1, 2009 through Feb 29, 2010), there were three fishing vessels with incidental permits that had red crab landings in the dealer database. Their activity represents a total of 11 trips and 1,724 live pounds, as compared to 2.73 million pounds of landings by the limited access fleet. The average catch rate in live pounds for the incidental trips in FY 09 was 157 pounds per trip.

In the past 6 fishing years (FY2004-2009), there have been 12 different vessels that show incidental trip landings in the dealer database. Their average catch for all 6 years was only 331 pounds per vessel.

6.1.2.2 *Bycatch of red crab in other fisheries*

In order to assess the potential bycatch of red crab in other fisheries the entire observer database was queried to determine where, when, and by what gear types red crab was reported as bycatch. The observer database records are widely distributed throughout the region. The database was then queried to separate discard from kept records. The statistical areas with discard records from 2001 through July 2008 are identified in Figure 4.

Prior to 2007, the majority of red crab discards was reported in statistical areas 521 and 522, east of Cape Cod along the northern edge of Georges Bank (Figure 5). This area does not overlap with where the red crab fleet currently fishes. The FMP describes the red crab abundance in the Gulf of Maine as not dense enough for a directed fishery. Red crabs are more densely distributed along the continental shelf in depths of 400-800 meters. Red crab discard data from observed trips show a shift to southern New England in 2007 and to the Mid-Atlantic in 2008. Observed trips are not chosen randomly over time. Trends in data from observed trips may be an artifact of the process for choosing which trips to observe. Different target species and different areas may be emphasized differently in different years, causing the appearance of changes that may not be real.

Table 9- Red crab bycatch from observed trips for 2001-2008, showing main statistical area and main target species. The main statistical area shifted from the Gulf of Maine to southern New England and the Mid-Atlantic during 2007 and 2008.

	Total observed trips	# trips with red crab bycatch	Percentage of observed trips with red crab bycatch	Total lbs red crab bycatch for all observed trips	Mean lbs red crab bycatch per trip	Main statistical area	Main target species
2001	1,380	27	2%	16,067	595	521	Haddock
2002	1,226	35	3%	15,923	455	522	Groundfish NK
2003	1,669	103	6%	10,288	100	522	Monkfish
2004	3,358	159	5%	16,562	104	522	Monkfish
2005	4,337	380	9%	45,209	119	522	Monkfish
2006	2,292	190	8%	48,031	253	522	Monkfish
2007	2,634	179	7%	78,279	437	616	Silver hake
2008	2,429	240	10%	147,044	613	537	Monkfish

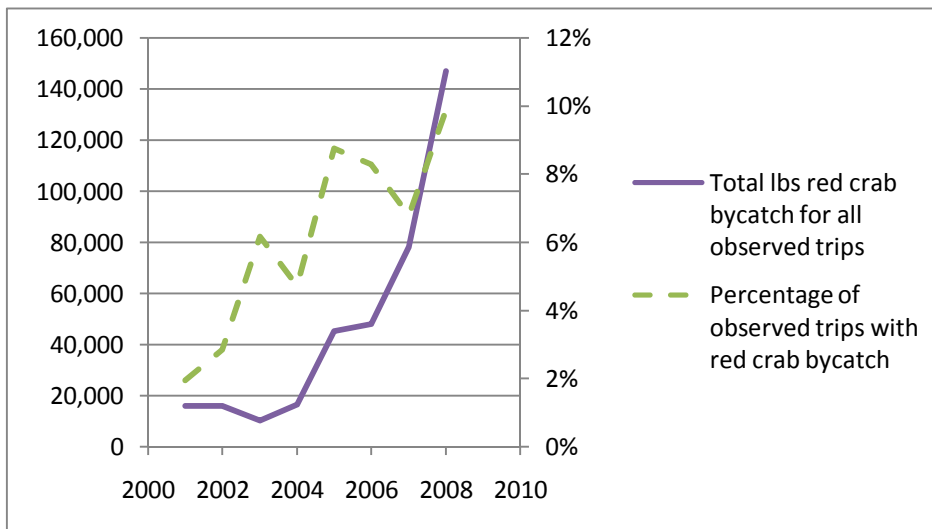


Figure 3- Total pounds of red crab bycatch for all observed trips and percentage of observed trips with red crab bycatch from 2001 through 2008. Observed trips are not chosen randomly, which means that the proportion of observed trips by target species may vary from year to year, causing the appearance of trends that may not be real.

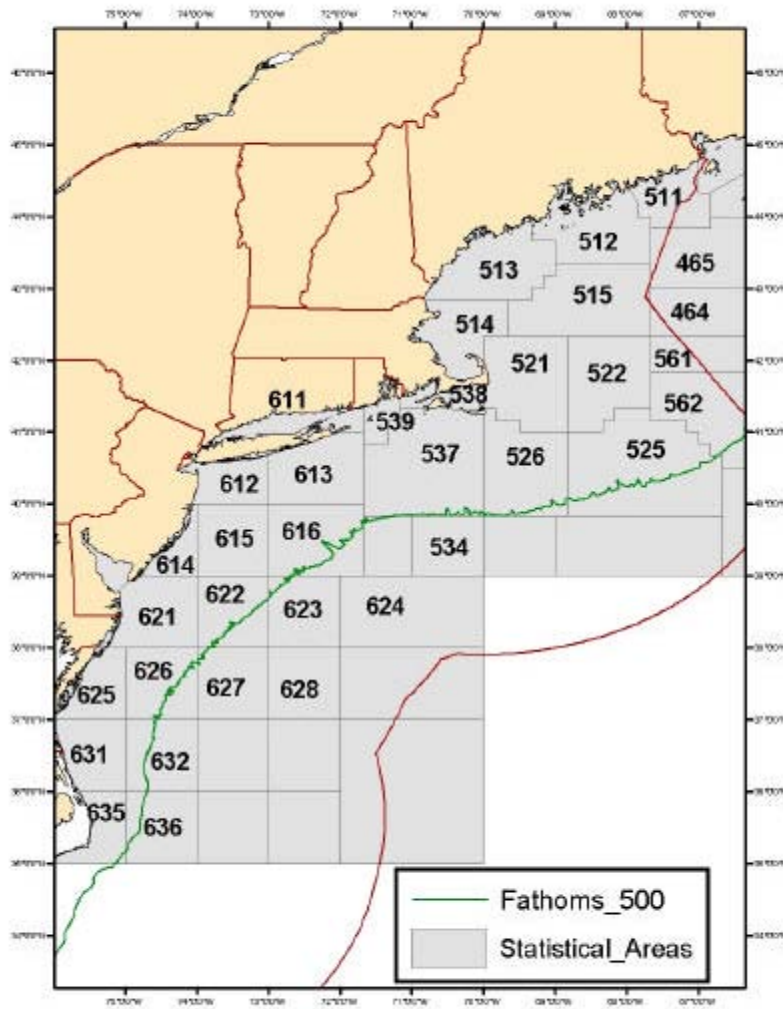


Figure 4– Statistical areas where discards were reported to the NMFS Observer Database from 2001 through July 2004

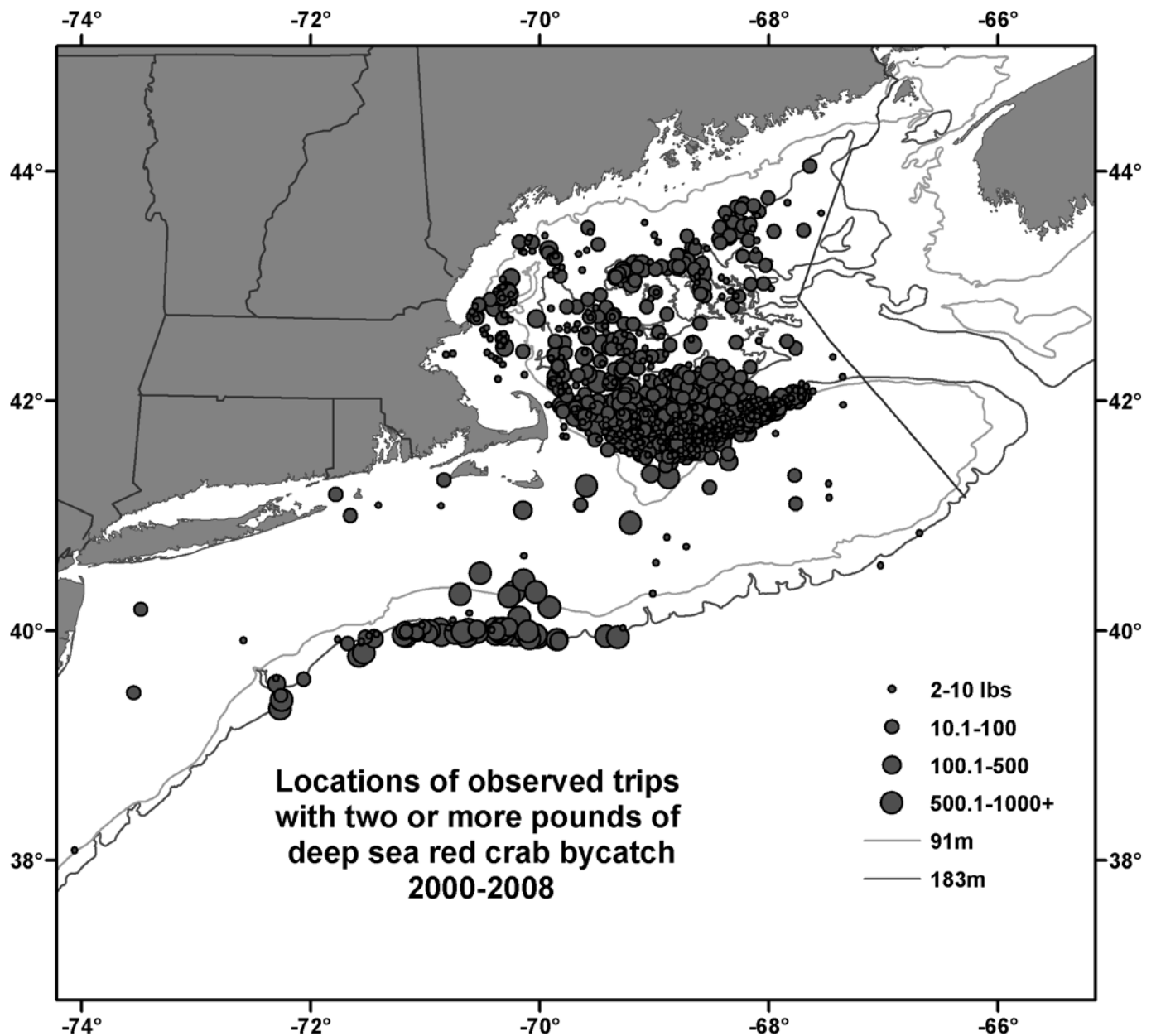


Figure 5– Location of observed trips with two or more pounds of red crab bycatch, recorded in the NMFS Observer Database for 2000-2008. (91 meters equals approximately 50 fathoms.)

When interpreting these bycatch results it is very important to keep in mind that some areas, fisheries and gear types are observed more than others. Therefore, it would require more investigation before a region-wide bycatch estimate could be made. In the meantime, the following tables and figures are intended to describe the spatial distribution of red crab bycatch from the data available. Table 10 is a summary of all the reported discards in the observer database from 2001 through July 2004 by gear type, as compared to the total red crab discards. Almost all of the red crab discards reported to the observer database were from bottom otter

trawl gear. Only a few tows with sink gillnet gear reported red crab discards. The majority of red crab discards were reported in statistical areas 521 and 522 (Table 11). However, in terms of catch per tow reported with red crab bycatch, statistical areas 525 and 526 had more red crab discards per record reported for those areas. The majority of the statistical areas with reported discards in the observer database did *not* have red crab discards, according to the tows that were observed during this time period.

Table 10- Comparison of discard records by gear type for the entire NMFS Observer Database versus records of red crab discards only for the years 2001-2004.

Gear Types	Total # of Records	Pounds of Total Discards	# of Records with RC discards	Pounds of Red Crab Discards
Bottom Longline	447	40,048		
Hand Line, Other	1	15		
Bottom Otter Trawl (fish)	131,804	10,298,099	1,512	48,716
Bottom Otter Trawl (scallop)	75	2,688		
Bottom Otter Trawl (shrimp)	953	5,987		
Sink Gillnet	18,156	757,787	4	18
Anchored-Floating Gillnet	10	2,099		
Drift-Floating Gillnet	34	587		
Drift-Sink Gillnet	1,092	56,126		
Scallop Dredge	63,266	2,823,292	1	1
Paired Midwater Otter Trawl	2	3,100		
Scottish Seine	519	22,717		
Midwater Otter Trawl	184	41,126		
TOTAL	216,543	14,053,671	1,517	48,735

Table 11– Comparison of discard records by statistical area for the entire NMFS Observer Database versus records of red crab discards only for the years 2001-2004.

Stat. Area	Total # of Records	Pounds of Total Discards	# of Records with RC discards	Pounds of Red Crab Discards	Stat. Area	Total # of Records	Pounds of Total Discards	# of Records with RC discards	Pounds of Red Crab Discards
464	103	10,181	2	3	614	315	13,112		
465	546	15,769			615	12,322	509,540		
511	77	3,631			616	9,638	628,423	2	8
512	2,437	78,967	61	225	621	15,560	873,335	1	1
513	5,706	196,746	72	612	622	6,448	463,046		
514	25,411	1,023,083	55	792	623	169	32,409		
515	7,110	269,312	154	903	624	7	1,199		
521	39,844	2,328,788	442	20,410	625	1,574	77,376		
522	27,006	1,931,371	669	24,513	626	12,101	501,323		
525	7,454	1,414,968	2	260	627	32	6,355		
526	9,657	491,354	6	425	628	7	136		
534	10	130	1	25	631	1,306	82,877		
537	4,702	512,529	11	237	632	431	39,473		
538	1,306	57,237			635	335	10,120		
539	2,810	183,106			636	25	967		
561	9,289	655,215	38	311	640	12	193	1	5
562	7,102	1,216,091			700	42	333		
611	434	30,809			701	37	177		
612	2,150	167,852			703	37	1,758		
613	3,981	227,038			707	10	345		

The observer database was queried further to determine if particular fisheries have higher red crab discard rates. Every tow in the observer database has a field that identifies the primary targeted species of that tow. Since the observer database does not sample all fisheries equally, it would take more time and data to determine the expected discard rates from each fishery. Table 12 summarizes the red crab discards by the species identified as the primary target species from observed tows currently analyzed. The majority of red crab discards reported to the observer database are from tows that were primarily targeting groundfish. (Groundfish trips are generally observed more often than other fisheries.) According to this dataset, directed monkfish tows have the second highest total of red crab discards.

Table 12 – Summary of red crab discards by targeted species per tow from the NMFS Observer Database from 2001 through July 2004.

Primary Target Species per Tow	# of Records with RC discards	Pounds of Red Crab Bycatch	Percent of total red crab discards for each directed species	RC Catch per tow for each targeted species
Cod	102	1,378	2.8%	13.5
Winter Flounder	31	354	0.7%	11.4
Summer Flounder	1	0.1	0.0%	0.1
Witch Flounder	67	1,471	3.0%	22.0
Yellowtail Flounder	4	16	0.0%	4.0
American Plaice	82	1,131	2.3%	13.8
Flounders (NK)	214	4,971	10.2%	23.2
Haddock	45	635	1.3%	14.1
White Hake	15	113	0.2%	7.5
Pollock	5	118	0.2%	23.6
Weakfish	1	60	0.1%	60.0
Skates	4	18	0.0%	4.5
Winter Skate	1	5	0.0%	5.0
Whiting	1	2	0.0%	2.0
Groundfish (unclassified)	534	27,591	56.6%	51.7
Other Fish	1	10	0.0%	10.0
Lobster	7	118	0.2%	16.9
Scallop	1	1	0.0%	1.0
Squid	2	2	0.0%	1.0
Monkfish	400	10,738	22.0%	26.8
Total	1,517	48,735		32.1

In addition to the red crab bycatch information from the observer database and the monkfish industry-based surveys, some anecdotal reports suggest that there may be a considerable level of red crab bycatch in the offshore monkfish fishery. Preliminary results suggest that observed directed monkfish tows did have higher red crab discard rates than tows that did not direct on monkfish in 2003 and 2004 (Figure 6). These two years are the only years with a considerable number of observed directed monkfish tows in the observer database. Figure 7 spatially compares the directed monkfish tows with red crab discards from tows that did not target monkfish. There are directed monkfish tows offshore as well as within the Gulf of Maine that caught red crab as bycatch. One tow in particular in the Gulf of Maine caught almost 800 lb of red crab discards. The level of observer coverage on tows that directed on monkfish has changed over time. Figure 8 displays the directed monkfish observed tows with reported red crab discards, by year. Tows offshore were not observed until 2004, and the level of observer coverage increased in 2003 and 2004.

Discards of Red Crab per Haul (mean & 95% CI) (source: NMFS Observer database)

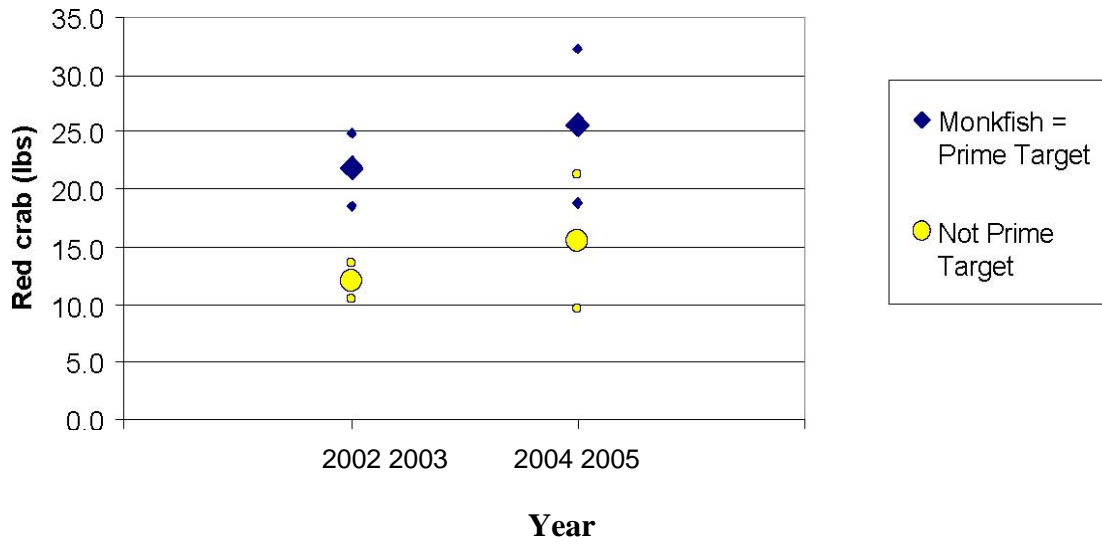


Figure 6– Discards of red crab per haul on directed monkfish tows versus tows that did not direct on monkfish from the NMFS Observer Database for 2003 and 2004.

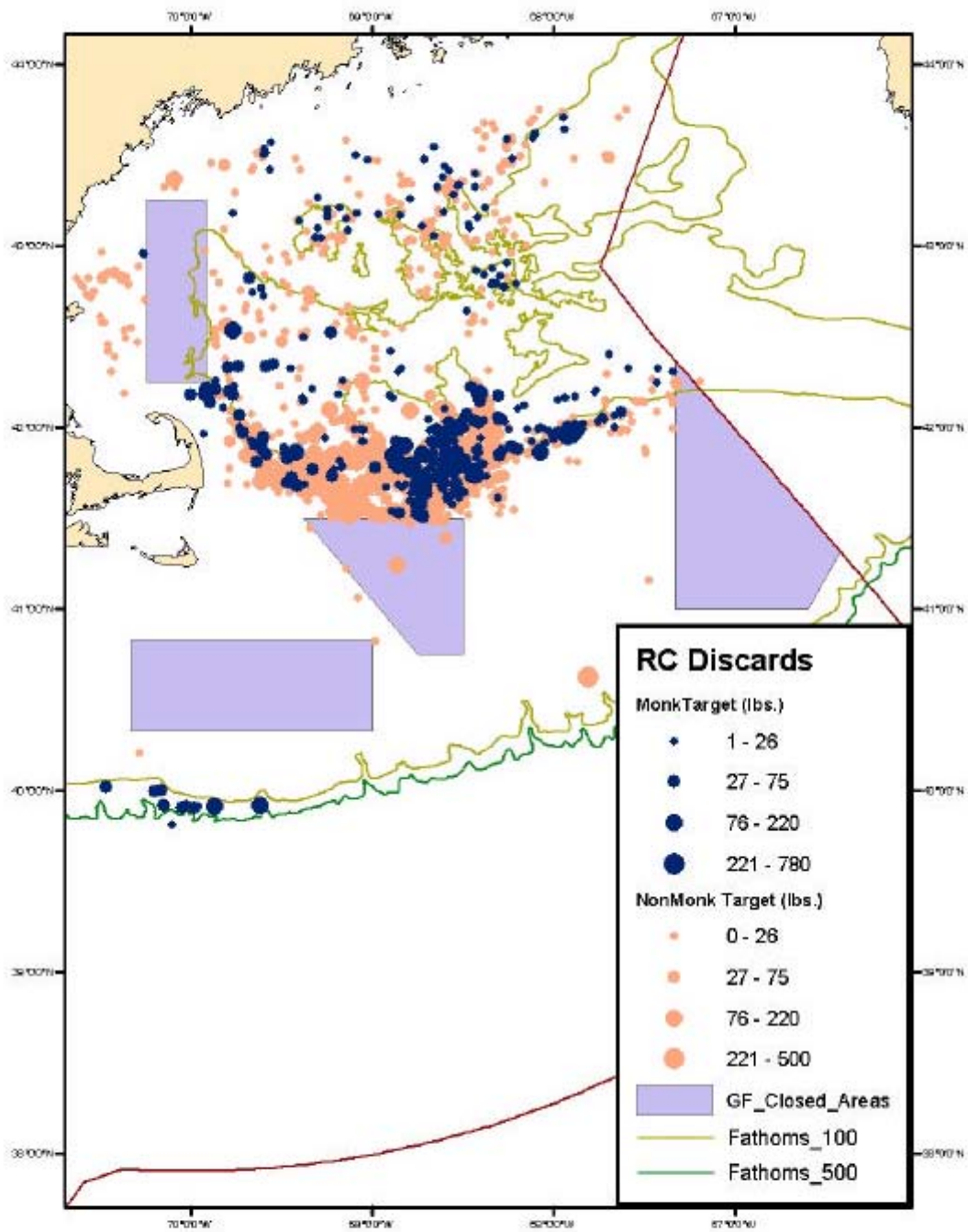


Figure 7– Red crab discards on tows that targeted monkfish, as compared to all other tows that reported red crab discards in the NMFS Observer Database (2001-July 2004)

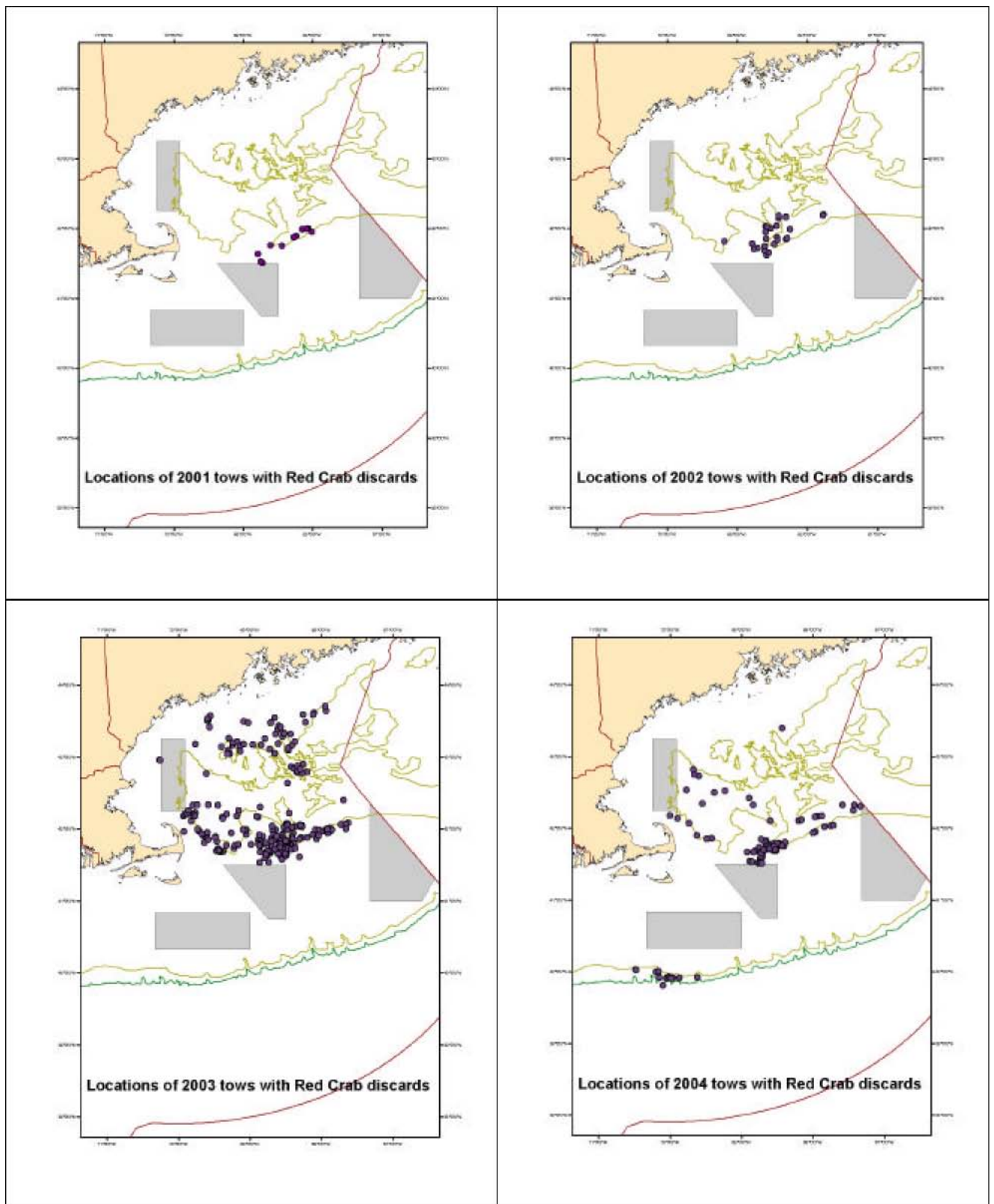


Figure 8 – Observed tows targeting monkfish from the NMFS Observer Database (2001-July 2004) that reported red crab discards.

As shown in Table 13, the number of observed monkfish tows with red crab discards has increased in recent years. The total pounds of red crab discards from observed monkfish tows was about 5,725 lb in 2003; however, the catch per observed tow is lower in 2003 and 2004 than in 2002 (Table 13). In 2002, only 27 directed monkfish tows with red crab discards were observed, but a substantial amount of red crab discards were observed on those tows. Red crab discards do seem to vary by area. The number of directed monkfish observed tows with red crab discards was highest in statistical area 522. However, the statistical areas with the highest red crab discards per tow were 526 and 514 (Table 14).

Table 13– Red crab discards on monkfish directed tows by year from the NMFS observer database.

	# of Directed MF tows with RC discards	Pounds of Red Crab Discards	RC Catch per tow
2001	12	243	20.25
2002	27	2,208	81.78
2003	261	5,725	21.93
2004	100	2,562	25.62
TOTAL	400	10,738	26.85

Table 14 - Red crab discards on monkfish directed tows by area from the NMFS observer database for the years 2001-2004.

Statistical Area	# of Directed MF tows with RC discards	Pounds of Red Crab Discards	RC Catch per tow by area
512	14	39	2.79
513	20	89	4.45
514	4	230	57.50
515	39	283	7.26
521	77	2,326	30.21
522	223	6,956	31.19
526	5	425	85.00
534	1	25	25.00
537	9	235	26.11
561	8	130	16.25
TOTAL	400	10,738	26.85

As compared to other crab species in the observer database, red crab discards are higher than most crab species, except for Jonah and rock crab (Table 15). However, the average catch per tow of red crab discards was higher than both Jonah and rock crab discards per tow.

Table 15– Discards of all crab species reported to the NMFS Observer Database for the years 2001-2004.

Species of Crab	# of Records	Lbs. of Crab Reported as Discards	Catch per tow
Jonah Crab	8,506	241,272	28.4
Rock Crab	5,537	78,457	14.2
Unknown Crab	1,902	82,830	43.5
Red Crab	1,518	48,728	32.1
Horseshoe Crab	1,045	40,157	38.4
Spider Crab	925	16,316	17.6
Queen Snow Crab	153	720	4.7
Blue Crab	84	195	2.3
Green Crab	66	1,193	18.1
Cancer Crab	9	144	16.0

6.1.2.3 Bycatch of other species in the red crab fishery

Tallack (2007) investigated bycatch in the red crab fishery and reported that: “From 450 gear trial trap hauls, a total of 16 non-target organisms were recorded; this equates to 0.001% of the total catch of target species ($n = 11\ 257$). The organisms captured included golden crab (*C. fenneri*, $n = 2$), Jonah crab (*Cancer borealis*, $n = 8$), unidentified whelk spp. ($n = 3$), ocean pout (*Macrozoarces americanus*, $n = 1$), and wrymouth (*Cryptacanthodes maculatus*, $n = 1$).”¹

Therefore, there is very little bycatch of other species in the red crab fishery. In general, the red crab fishery has little interaction with non-target species and does not have significant levels of bycatch, if any. The 2005 SAFE report (Section 4.1.2.2) 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. The VTR database indicates that lobster and jonah crab are rare bycatch species. The FMP did identify that the bycatch of red crab in other fisheries may be a more significant issue.

6.1.3 Canadian Red Crab Fishery

The northern edge of red crab distribution is in deep waters off Nova Scotia; therefore, it is important to also monitor the Canadian red crab fishery and trends in stock status within Canadian waters. The fishery in Canada began in the late 1960s, but has been sporadic over the years. In 1998, there were five exploratory licenses for red crab in Canada. The fishery is managed with size and effort controls with a TAC, and there is 100% dockside monitoring. The fishing grounds were considered fully exploited with evidence of stock depletion in 2005. According to the Canadian Department of Fisheries and Oceans (DFO), landings and effort (number of trips) increased slightly in 2001, 2002 and 2003, but the fishery is described as prone to short periods of abundance followed by periods of low abundance. The Council’s Red Crab

¹ The discrepancy between the 16 non-target organisms indicated and the 15 listed is noted.

Advisory Panel reports that the Canadian red crab license holders have not been active in recent years. Table 16 describes the landings of red crab by the limited number of license holders in Canada. Most of the reported effort is from NAFO areas 4X, 5ze and 4W (Figure 9).

Table 16– Annual Landings in the Canadian Red Crab Fishery (Source: DFO)

Year	Landings
1996	683.2 mt (1,506,198 lb.)
1997	343.7 mt (757,729 lb.)
1998	25.7 mt (56,659 lb.)
1999	32.0 mt (70,548 lb.)
2000	54.6 mt (120,372 lb.)
2001	123.5 mt (272,271 lb.)
2002	66.5 mt (146,607 lb.)
2003 (PRELIMINARY DATA)	74.9 mt (165,126 lb.)

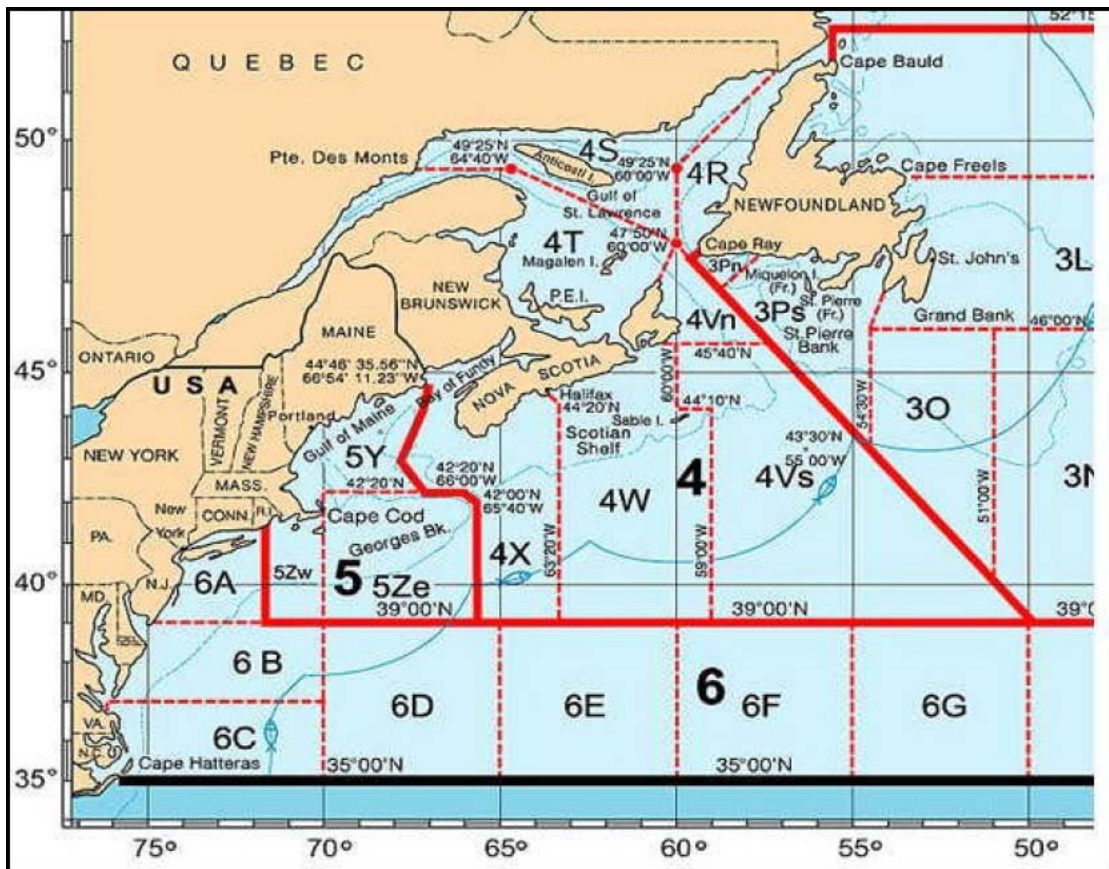


Figure 9 – NAFO Statistical Areas

Source: NAFO website <http://www.nafo.ca/About/FRAMES/AbFrMand.html>

6.2 Ecological Factors

6.2.1 *Essential Fish Habitat (EFH)*

6.2.1.1 *Red Crab*

The EFH designation for red crab has not changed since implementation of the FMP; however, the designations for red crab EFH are being reevaluated 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 yet implemented. The proposed Omnibus Habitat Amendment prepared by the NEFMC does recommend some additions to red crab EFH.

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.

Since development of the Red Crab FMP, there is some additional information about red crab habitat from the camera sled that Wahle et al. (2004) have developed. The camera images document 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. 1975). In a comparison of surveys conducted in July and again in August 2003 at the same sites, Wahle et al. observed a significant upslope movement of small crabs.

The red crab fishery is entirely a pot/trap fishery, and, as stated in the FMP (Section 8.2.3), pots have relatively little impact on the habitats and communities where they are fished. There is, however, little information regarding the impacts of deep-water pots on benthic habitats. Further, because the fishery is limited to 5 vessels (with only 4 active at present) and a maximum pot limit of 600 per vessel, the impact of the red crab fishery on habitat is minimal.

6.2.1.2 *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. Table 1 in Appendix 1 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.

6.2.2 *Protected Resources*

The most recent analysis of the protected species and marine mammals that may be found in the environment utilized by the red crab fishery is provided by the 2002 Biological Opinion on the Red Crab FMP. The list of species protected by either the Endangered Species Act or the Marine Mammal Protection Act is provided below.

List of Species under NMFS Jurisdiction Protected by Endangered Species Act or Marine Mammal Protection Act

There are numerous species that inhabit the environment within the red crab management unit and are afforded protection under the Endangered Species Act of 1973 (ESA; i.e., for those designated as threatened or endangered) and/or the Marine Mammal Protection Act of 1972 (MMPA). Fifteen are classified as endangered or threatened under the ESA, while the others are protected by the provisions of the MMPA. The following species protected either by the ESA and the MMPA may be found in the environment inhabited by red crab:

Cetaceans

<u>Species</u>	<u>Status</u>
North Atlantic right whale (<i>Eubalaena glacialis</i>)	Endangered
Humpback whale (<i>Megaptera novaeangliae</i>)	Endangered
Fin whale (<i>Balaenoptera physalus</i>)	Endangered
Blue whale (<i>Balaenoptera musculus</i>)	Endangered
Sei whale (<i>Balaenoptera borealis</i>)	Endangered
Sperm whale (<i>Physeter macrocephalus</i>)	Endangered
Minke whale (<i>Balaenoptera acutorostrata</i>)	Protected
Beaked whales (<i>Ziphius</i> and <i>Mesoplodon</i> spp.)	Protected
Risso's dolphin (<i>Grampus griseus</i>)	Protected
Pilot whales (<i>Globicephala</i> spp.)	Protected
Atlantic white-sided dolphin (<i>Lagenorhynchus acutus</i>)	Protected
Common dolphin (<i>Delphinus delphis</i>)	Protected
Spotted and striped dolphins (<i>Stenella</i> spp.)	Protected
Bottlenose dolphin (<i>Tursiops truncatus</i>)	Protected
Harbor porpoise (<i>Phocoena phocoena</i>)	Protected

Pinnipeds

<u>Species</u>	<u>Status</u>
Harbor seal (<i>Phoca vitulina</i>)	Protected
Gray seal (<i>Halichoerus grypus</i>)	Protected
Hooded seal (<i>Cystophora cristata</i>)	Protected

Harp seal (*Phoca groenlandicus*) Protected

Sea Turtles

<u>Species</u>	<u>Status</u>
Leatherback sea turtle (<i>Dermochelys coriacea</i>)	Endangered
Kemp's ridley sea turtle (<i>Lepidochelys kempii</i>)	Endangered
Green sea turtle (<i>Chelonia mydas</i>)	Endangered ²
Hawksbill sea turtle (<i>Eretmochelys imbricata</i>)	Endangered
Loggerhead sea turtle (<i>Caretta caretta</i>)	Threatened

Fish

<u>Species</u>	<u>Status</u>
Shortnose sturgeon (<i>Acipenser brevirostrum</i>)	Endangered
Atlantic salmon – Gulf of Maine DPS (<i>Salmo salar</i>)	Endangered
Cusk (<i>Brosme brosme</i>)	Endangered
Atlantic sturgeon (<i>Acipenser oxyrinchus</i>)	Proposed
Atlantic Bluefin Tuna (<i>Thunnus thynnus</i>)	Candidate

Critical Habitat Designations

<u>Species</u>	<u>Area</u>
North Atlantic right whale	CCB/GSC ³

Species of Concern

Atlantic Sturgeon (<i>Acipenser oxyrinchus oxyrinchus</i>)	Proposed ⁴
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However, since the red crab fishery is limited to the narrow shelf edge of the continental shelf and only a few (3-4) vessels currently participate in the fishery, the extent of interactions between the fishery and protected species is not expected to be significant. NMFS's 2002 Biological Opinion concludes that the operation of the fishery under the Red Crab FMP may adversely affect, but is not likely to jeopardize the continued existence of right whales, humpback whales, fin whales, sei whales, sperm whales, or loggerhead and leatherback turtles. An Incidental Take Statement (ITS) along with non-discretionary Reasonable and Prudent

² Green sea turtles in U.S. waters are listed as threatened except for the Florida breeding population, which is listed as endangered. Due to the inability to distinguish between these populations away from the nesting beach, green sea turtles are considered endangered wherever they occur in U.S. waters.

³ Designated critical habitat for North Atlantic right whales in Cape Cod Bay/Great South Channel is also protected under the ESA.

⁴ Atlantic sturgeon are proposed to be listed as separate DPSs with distinct statuses under the ESA in the near future. See <http://www.nmfs.noaa.gov/pr/species/fish/atlanticsturgeon.htm> for more information.

Measures (RPMs) to minimize the impacts of incidental take of sea turtles was provided in the Opinion, which exempted the incidental take of up to one loggerhead and/or one leatherback sea turtle annually in the fishery due to entanglement in pot/trap gear. In regard to other protected species, NMFS has determined that the red crab fishery is not expected to affect roseate terns, piping plovers, blue whales, green, Kemp's ridley, and hawksbill sea turtles, shortnose sturgeon, or Atlantic salmon, nor will it destroy or adversely modify designated critical habitat for right whales.

The Atlantic Large Whale Take Reduction Plan (ALWTRP) is a program to reduce the risk of serious injury to or mortality of large whales due to incidental entanglement in U.S. commercial fishing gear. The plan is required by the MMPA and has been developed by NMFS. The ALWTRP focuses on the critically endangered North Atlantic right whale, but is also intended to reduce entanglements of endangered humpback and fin whales and to benefit non-endangered minke whales. For the purposes of ALWTRP, the red crab fishery is considered part of the Atlantic Mixed Species Trap/Pot fishery, and takes place primarily in the Offshore Trap/Pot Area. Regulations pertaining to this area, in addition to the universal requirements, include gear marking and weak links, which are designed to reduce injury should an interaction occur. The red crab fishery is considered a Category II fishery under the MMPA, which means occasional incidental interactions and serious injury may occur, however, given the small scale of the fleet and the management measures that restrict the number of traps a vessel may use, interaction with protected species is rare.

NMFS is currently working on revisions to critical habitat for right whales and proposals have been made to list Atlantic sturgeon and re-list loggerhead sea turtles as DPSs with separate statuses under the ESA. NMFS does not anticipate the red crab fishery will adversely affect Atlantic sturgeon.

6.3 Economic and Social Factors

The red crab resource has been commercially exploited since the 1970s. During the 1960s and 1970s, the resource was considered an underutilized species, and several U.S. vessels began experimenting in the early 1970s to develop a red crab fishery. Interest in the red crab resource coincided with the introduction of the hydraulic trap hauler and the development of the offshore lobster trap fishery. The directed red crab fishery is entirely a trap fishery that takes place at the edge of the continental shelf, beyond the depths in which almost all other U.S. Atlantic coast fisheries are prosecuted. The fishery has fluctuated widely over the years in terms of the number of vessels pursuing red crab and the annual landings (Figure 10).

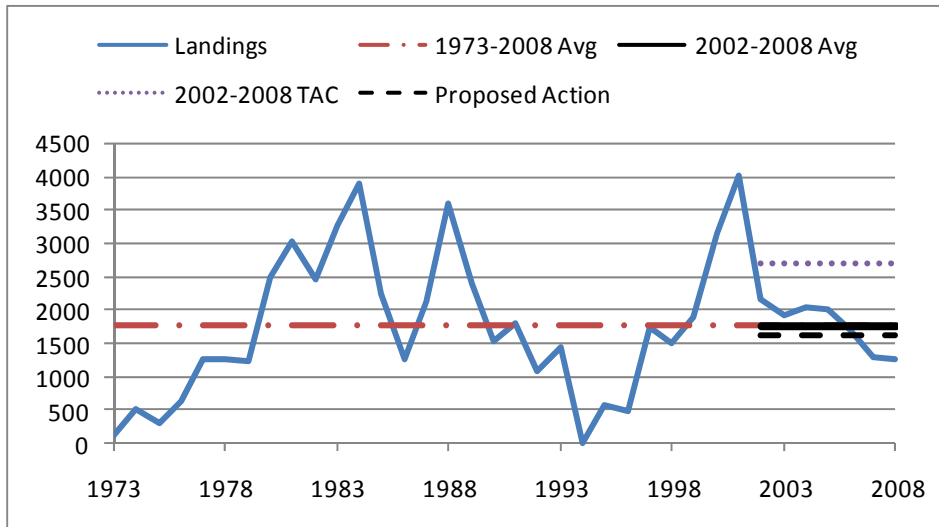


Figure 10- Annual landings of red crab in metric tons, 1973-2008 with average landings for 1973-2008 and average landings for 2002-2008, the TAC for 2002-2008, and the TAC specified in the proposed action.

Landings in the 1980s and in 2000 and 2001 exceeded the ABC recommended by the SSC. Red crab is marketed as picked meat and, until recently, red crab meat competed in an undifferentiated worldwide commodity market for crab meat. Demand and price for red crab was determined by the supply of crab meat from other fisheries and by general economic conditions as they affected demand for restaurant meals and upscale foods like picked crab meat. Landings averaged 3.92 million lb (1,776 mt) from 1973 through 2007. Average landings for different time periods are shown in Table 17.

Table 17- Average landings of red crab in metric tons and million pounds

	Metric Tons	Million Pounds
Average '73 – '07	1,776	3,915,667
Average '00 – '07	2,281	5,027,352
Average '02 – '07	1,853	4,083,277
Average '74--'08	1,810	3,990,214
Average '00 – '08	2,175	4,795,525
Average '02 – '08	1,778	3,919,472

On March 1, 2000, a control date was established to discourage speculative entry into the fishery while the FMP was under development. During 2000 and 2001, two large catcher-processing vessels entered the red crab fishery and increased landings. The FMP was implemented on October 21, 2002. Five vessels were granted limited access red crab permits, but only four of those vessels have reported landings since 2002.

For the current fishing year, five vessels were once again granted directed red crab permits, and about 1,100 incidental red crab permits were issued. One of the five limited access vessels has opted out of the fishery each year since 2004; allowing the fleet DAS to be equally divided

among the four active vessels. Further, in response to the reduced target TAC and DAS implemented by the Emergency Action on April 6, 2009, a second permit opted out for FY 2009, leaving three active boats during that year. Four vessels have fished to date in FY 2010.

6.3.1 Update of Commercial Landings and DAS Usage

Because one vessel has opted out of the fishery each year since 2004, the four active vessels received an equal portion of the total 780 fleet DAS allocated (195 DAS per vessel) in each year from 2004 through 2008. Table 19 describes the DAS usage and total landings for the fleet from 2004 to 2008. In recent years, landings have decreased as the result of depressed market conditions. Landings declined from over 5 million lb in 2004 to less than 3 million lb in 2007 and 2008. DAS usage showed the same declining trend, as shown in Figure 2. Table 18 lists both DAS used and DAS charged, by quarter. DAS used are calculated by subtracting the date and time that the vessel left the dock from the date and time that the vessel returned. DAS used are actual time at sea. DAS charged count any portion of a day as a full day. As a result of low market demand, the last year in which the landings exceeded the TAL proposed in this action was 2005. If the market conditions that prevailed in 2006-2008 prevail in the future, the AMs proposed in this action are unlikely to be needed to keep the landings below the TAL or to pay back an overage.

In addition to the limited access directed fishery red crab permits, the FMP provided for open-access incidental catch red crab permits that allow a vessel to land 500 lbs. of whole red crab per trip. According to the VTR and dealer weigh out database, landings by vessels with incidental red crab permits are insignificant.

Table 18- DAS used and charged by quarter and year from 2004-2008.

Qtr	Fishing Year	Used	Charged	Live Wt Lbs
MAM		136	149	4,930,204
JJA		184	206	
SON		165	187	
DJF		169	186	
	2004	654	728	
MAM		91	101	4,079,670
JJA		110	120	
SON		161	181	
DJF		139	153	
	2005	501	555	
MAM		56	62	3,841,577
JJA		136	150	
SON		246	277	
DJF		189	209	
	2006	626	698	
MAM		44	48	2,771,501
JJA		65	73	
SON		208	232	
DJF		109	121	
	2007	426	474	
MAM		34	39	2,762,239
JJA		81	94	
SON		195	219	
DJF		52	58	
	2008	362	410	

Table 19- DAS usage, total landings, and landings per DAS charged 2004-2008.

Fishing Year	Allocated DAS	DAS Charged	Live wt landings (lbs) from weighout database	Total RC landings per DAS charged for the entire fleet
2004	780	728	4,930,204	6,772
2005	780	555	4,079,670	7,351
2006	780	698	3,841,577	5,504
2007	780	474	2,771,501	5,847
2008	780	410	2,762,239	6,737

The total landings and DAS used by quarter and month are described in Table 18 as well as Figure 11 and Figure 12. The average landings per DAS used varies by quarter, apparently as the result of both seasonal catch rates and processing availability. Members of the Red Crab Advisory Panel report that new marketing arrangements require a more stable year-around supply to be processed and distributed fresh to supermarkets. This change in processing and marketing may also require a change in fishing strategy that would change the average catch per DAS and monthly and quarterly distribution of landings. The industry has reported that catch per unit of effort increases in the summer and fall, and that is also when average landings per DAS are highest according to these data. Average landings per DAS are 10,227 lb/DAS on trips in September through November, and drop to 4,697 lb/DAS on trips in December through

February. However, further analysis is needed to evaluate the effects of seasonality on the CPUE of individual vessels by area in this fishery.

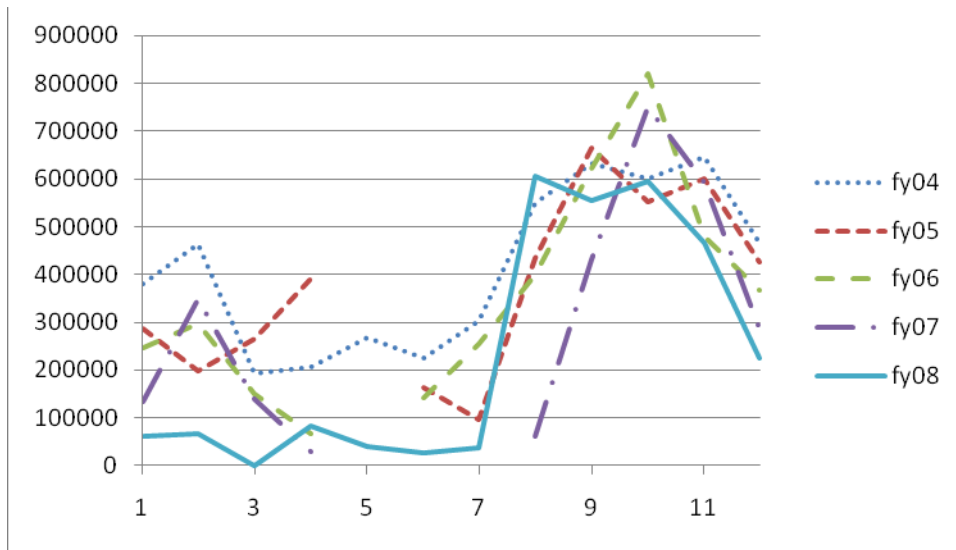


Figure 11- Landings by month for fishing years 2004-2008.

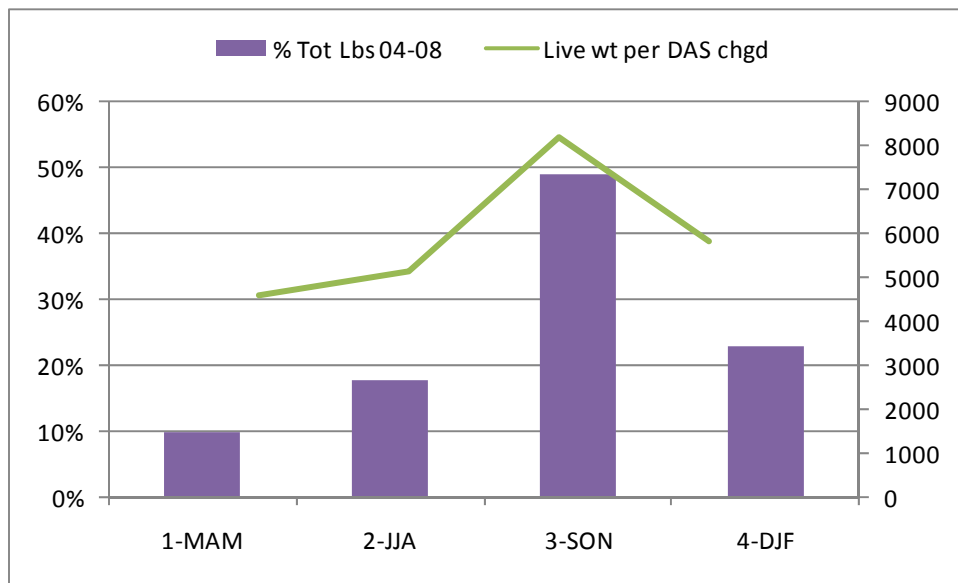


Figure 12- Relative landings by quarter from 2004-2008 (shown in bars), along with the average pounds of red crab landed per DAS charged per quarter (shown in line).

Source: NMFS DAS database and Dealer Weigh Out database

In addition to reporting to the IVR database, each vessel also submits a vessel trip report (VTR) to NMFS after each fishing trip. The VTR database is useful to help determine where vessels are generally fishing. Captains are required to fill in a location for each trip. Figure 13 displays the

vessel locations for all red crab trips reported to the VTR database from 2002 through October 19, 2009. According to these data, effort is primarily concentrated along the continental shelf between depths of 200 to 500 fathoms.

6.3.2 Description of the Fishery since Implementation of the FMP

A report on the social and economic baseline information for the red crab fishery was completed in 2001 during the development of the Red Crab FMP (Appendix B within the FMP). A detailed survey was completed, and the Red Crab Advisory Panel supplied information such as demographics of the fleet, dependence on the fishery, community infrastructure, and crew information. The character of the fishery has not changed significantly since 2002. The most significant changes have been the establishment of a new processing plant in New Bedford in August of 2009 and the retirement of the largest boat and only semi-processing vessel in the red crab fleet, also in 2009.

6.3.2.1 Harvesting Sector

Since implementation of the FMP, four vessels have harvested the total red crab landings. However, in early 2009 the largest of the four vessels suffered significant mechanical damage and has been replaced by a smaller vessel. Although this is a small fishery in terms of the number of vessels that participate, the individuals that are involved in this fishery have a very high dependence on the red crab resource. The handful of vessels that received limited access permits were surveyed during the development of the FMP, and the majority of harvesters reported that revenues from the red crab fishery make up the vast majority of their annual income. Since implementation of the FMP, vessel owners still report red crab as the primary fishery that supports their annual income. In 2008, all of the red crab permits joined together in an informal harvesting cooperative. The cooperative harvesting agreement allows the permits and boats to be allocated in the most efficient manner within the constraints of the regulations. The cooperative harvesting agreement provides for the distribution of profits from the fishery among all of the permitted vessels. Under the terms of the cooperative harvesting agreement, the vessels agree to stop fishing when the target TAC has been landed, regardless of whether they have DAS remaining. Whereas the TAC has never been reached since the cooperative harvesting agreement has been in existence, this provision in the agreement has never been utilized.

One of the red crab vessels that was involved in the offshore lobster fishery in 2002 was not involved in the red crab fishery in 2008 and 2009, but has fished for red crab again in FY 2010. One vessel has participated in the hagfish fishery, but has no plans to engage in that fishery in the near future. Currency exchange rates have not been favorable for hagfish in recent months and the fishery is unlikely to provide a profitable alternative for a boat that freezes at sea. There have been some changes in terms of vessel replacement, vessel participation, vessel ownership and landing ports since the FMP was adopted.

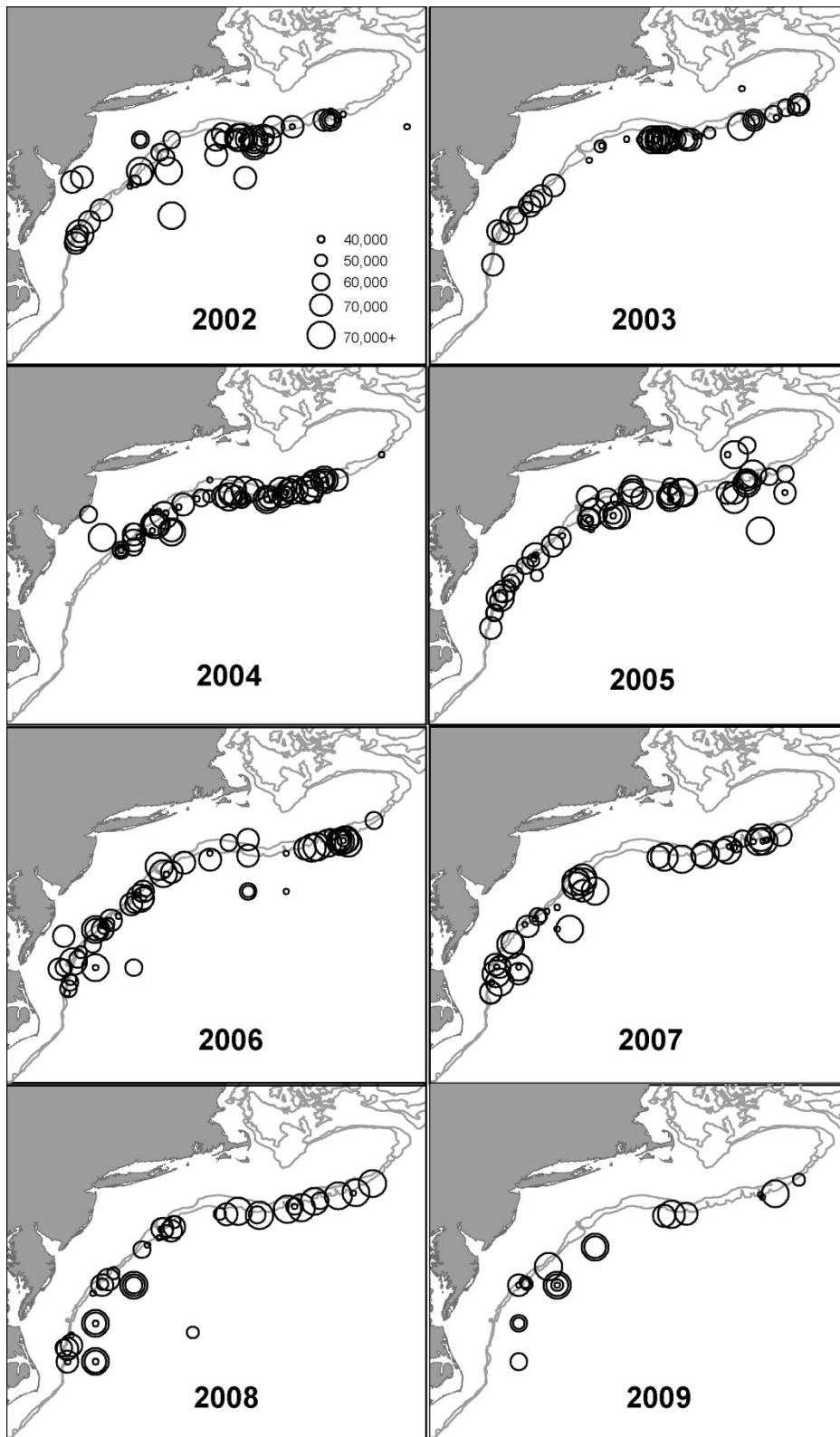


Figure 13- Locations of reported red crab trips 2002-2009 (partial). *Note: some reported trip locations overlap and some reported trip locations are obviously incorrect.*

Six ports were identified in the FMP as primary ports of vessel operations and mooring including: Fall River, Gloucester, and New Bedford, MA; Bristol, ME; and Portsmouth and Tiverton, RI. According to the industry, all limited access vessels landed exclusively in Fall River, MA from 2004 through 2006. During 2007 and 2008, some crabs were landed in Hampton, VA in response to high fuel costs. In August of 2009, a new red crab processing plant opened in New Bedford, MA and all of the active red crab boats now land their catch in New Bedford and are expected to continue to do so in the future.

The average number of crew per vessel has not changed since implementation of the FMP, and some of the crew members are the same. Advisors report that crew turnover is increasing. Crew income is no longer attractive enough to keep the same crew on a continuing basis. Most crew in this fleet are from New England, but there are some crew members from Seattle, WA.

The average length of vessels prior to the FMP was 105', ranging from 72' to 150'. Since implementation of the FMP, one of the vessels has been replaced and the largest boat has been retired, leaving the average length slightly lower, at about 98'. During the development of the FMP the fleet reported that, on average, vessels landed 63,000 lb of red crab per trip and received an average of approximately \$42,000 per trip in gross revenue. The weigh out data for 2008 indicate that average pounds per trip was 52,732 lb (ignoring trips of less than 1,000 lb). Gross revenues per trip averaged \$53,371. Average annual revenue from red crab for the red crab fleet for the years 2004-2008 was \$3.44 million. The gear used by the limited access fleet did not change from 2002 through 2008. The vessel that retired in 2009 used a rectangular wooden trap, and the other three vessels use a conical trap. In general, the overall capacity represented by limited access permits is the same as before the FMP was implemented. The major change in capacity since implementation of the FMP is that vessels that were not granted a limited access permit are no longer harvesting red crab in this region. Active capacity in the red crab fishery was initially reduced when one permit was declared out of the fishery in 2004. A second permit was declared out of the fishery in 2009, but has since been replaced, and four vessels are active in FY 2010. The active vessels are also limited by the processing capacity of the new processing plant in New Bedford. The fleet and the plant are now focused on maintaining a steady, year-round supply of fresh crab meat to supermarkets, rather than supplying a bulk, frozen, food-service market as was the case between 2002 and 2009. The industry members still involved in the red crab fishery believe that this resource could not have withstood the level of effort working in this region prior to implementation of the FMP. Recent estimates of sustainable yield are substantially lower than the landings that took place in the two years prior to the FMP, which averaged 7.86 million lb (3,566 mt).

Industry reports that fishing costs have increased. The prices for fuel and oil based products have increased dramatically since the FMP was implemented. Fuel prices peaked in 2008 at approximately \$4.00 per gallon, but have declined to approximately \$2.30 per gallon in 2009. Insurance rates increased by about 50% from 2002 to 2005, but have since stabilized. The price for red crab increased between 2002 and 2005, but has since stabilized at approximately \$.95-\$1.00 per pound, depending on meat yield.

6.3.2.2 Processing Sector

The processing sector for red crabs was relatively small prior to the FMP, and all crabs were processed at one facility in Nova Scotia, Canada from 2004 through 2007. The Canadian processor sold the picked crab meat to one large restaurant chain. The crab was sold primarily as generic crabmeat and cocktail claws. This processor is also involved in lobster, snow crab, and mussels.

On average, the Canadian processor experienced about a 2% dead loss of the live crabs during transport from Fall River to Nova Scotia. Once the red crab were at the plant, about 100 individuals were employed to process the crab; 25-30 individuals killed and butchered the crab, and about 60 more cooked and packed the crab. Since implementation of the FMP, the processor worked with the industry and their clients to reduce costs. For example, they developed a creative way to change the packing of red crab to reduce costs, which enabled the processor to pay the vessels approximately ten cents more a pound than was previously the case. The demand for red crab meat by the primary buyer has declined in recent years as the result of menu changes and alternative supplies, primarily from the Centolla crab fishery in Chile.

The red crab industry has always been limited by the market. Until recently, red crab meat has competed in an undifferentiated world-wide commodity market for picked crab meat. During the last six years the red crab industry has invested substantial amounts of time and money in an effort to improve the status of red crab in the market and to find new markets.

One result of that effort was the certification of the red crab fishery as sustainable by the Marine Stewardship Council. Red crab is the first fishery on the Atlantic coast of the U.S. to be certified and only the second crab fishery in the world, the first being a small snow crab fishery in Japan. The red crab industry has also put into operation a new, state-of-the-art crab processing plant in New Bedford, MA. This plant has the potential to improve the quality and quantity of red crab that can be sold into upscale markets. This plant began production in August 2009, and is expected to employ approximately 65 workers when fully operational. The Canadian processor has provided assistance in the development of this additional processing capacity and broader markets. The new processing plant has entered into a marketing contract with a major seafood distributor and red crab are expected to be marketed as fresh crab meat through supermarkets, and will carry the MSC logo, informing consumers that the fishery has been certified as sustainable by the Marine Stewardship Council. The seafood distributor has made a commitment to take all of the red crab that the plant can produce. Prior to April 6, 2009, the maximum sustainable yield for red crab was set at 6.24 million pounds and the target TAC was 5.928 million lb. This action would maintain the reduced target TAC as a TAL of 3.91 million pounds, as recommended by the SSC, based on average annual long-term landings.

6.3.3 Economic Description of the Red Crab Fishery

During the 1960s and 1970s, the red crab 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. According to the Stock Assessment Workshop 43 (SAW 43, 2006) report, red crab landings are primarily from specially designed crab traps, although some landings occur as incidental catch in offshore lobster traps. 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° 15.3' N lat. (Cape Hatteras, NC) and south of the Hague Line. Prior to implementation of the FMP, the fishery fluctuated widely both in terms of the number of vessels pursuing red crab and in terms of the annual landings. Until September of 2009, red crab was sold in a commodity market for picked crab meat. Demand for red crab fluctuated with economic conditions and with the supply of crab meat from other sources. Fluctuations in red crab fishery participation from 1973 through 2002 reflected the profitability of the fishery because the fishery was open access during that time. Fluctuations in landings after 2002 continued to reflect market demand because all of the landings were processed into crab meat and the market dictated how much crab would be purchased by the processor. In August 2009 a new red crab processing plant went into operation with state-of-the-art processing techniques that are expected to produce a higher quality product. Beginning in 2009, red crab products will be distributed by a major seafood wholesaler and sold through retail outlets.

The FMP was implemented on October 21, 2002, and included limited access permit criteria intended to constrain the number of vessels that could harvest red crab in a directed fishery. Based on the landings history-based criteria in the FMP, five fishing vessels qualified for a limited access permit. The Red Crab FMP regulations established a limited access permit program for the directed fishery with a target TAC of 5.93 million lb (2,689 mt) and a DAS allocation of 780 fleet days to harvest the TAC. Management measures include 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 have ranged from \$2.43-4.22 million dollars a year since 2004 (Table 20). 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, although some vessels have participated in the offshore lobster fishery and, in recent years, red crab vessels have participated in the hagfish fishery on a sporadic basis. Vessel owners still report red crab as the primary fishery that supports their annual income. There have been some changes in terms of vessels, ownership and ports since implementation of the FMP.

Table 20- Live weight landings, revenue, average price per pound, DAS charged, and dollars per DAS charged by fishing year for the limited access red crab fleet for fishing years 2004 through 2008.

Year	Live wt landed	Revenue	Price/lb	DAS Chg	\$/DAS Chg
FY 04	4,930,204	\$ 4,218,888	\$ 0.86	728	\$ 5,795
FY 05	4,079,670	\$ 3,376,211	\$ 0.83	555	\$ 6,083
FY 06	3,841,577	\$ 3,581,651	\$ 0.93	698	\$ 5,131
FY 07	2,771,501	\$ 2,527,576	\$ 0.91	474	\$ 5,332
FY 08	2,857,162	\$ 2,429,309	\$ 0.85	410	\$ 5,925
Average	3,696,023	\$ 3,226,727	\$ 0.88	573	\$ 5,653

All limited access vessels are now docked out of New Bedford, MA in response to the opening of a new red crab processing plant in August 2009. Prior to that, all of the red crab vessels had operated from Fall River, MA, but some also landed in Newport News, VA when high fuel costs made it more economical to truck landed crabs the extra distance rather than running the boats back to their home port. The processing sector for red crabs was relatively small and sporadic prior to the FMP. From 2002 through July 2009 almost all crabs were processed at one facility

in Nova Scotia, Canada. This processor then sold the entire red crab product to one large restaurant chain in the U.S. During that time, the red crab product was primarily sold as frozen, generic crabmeat and cocktail claws. A new crab processing plant began operations in New Bedford, MA in August 2009. The new processing plant is expecting to take advantage of the fact that the Atlantic deep sea red crab fishery received MSC certification in September 2009. The Atlantic Red Crab Company has recently contracted with a major seafood distribution company to market fresh picked crab meat to retail customers through supermarkets.

During the development of the FMP, the fleet reported that on average vessels landed 63,000 lb of red crab per trip and received an average of approximately \$42,000 per trip in gross revenue. The dealer weigh-out data for 2003 report that average pounds per trip ranged from about 43,000 to 77,000 lb. Gross revenues per trip averaged between \$34,000 and \$71,000. Landings in 2003-2005 were between 4.2 and 4.5 million lb (1,905 – 2,041 mt). In 2008, landings totaled 2.86 million lb (1,296 mt) worth \$2.43 million. The NMFS dealer data for 2008 indicate that average pounds per trip were 52,732 lb (ignoring trips of less than 1,000 lb). Gross revenues per trip averaged \$53,371. Ex-vessel prices reported by the industry have risen from \$0.44-0.57 per lb in 1982-1999 to \$0.90 per lb in 2005 (\$0.45 when adjusted for inflation since 1982) and to \$0.95-\$1.00 per lb depending on meat yield in 2009 (\$0.43-0.45 in 1982 dollars).

Since implementation of the FMP in October 2002, reporting of red crab landings has improved, and all vessels that have red crab permits are now required to report total landings by trip. Gross revenues to the fleet from red crab exclusively were approximately \$3.23 million annually for FY2004-FY2008. Some of the red crab vessels have also participated in the hagfish fishery. Hagfish revenue was substantial during the period March 2007 to January 2008, but is unlikely to contribute to fleet revenue in FYs 2009 and 2010 because of market and exchange rate conditions.

There is a provision in the Red Crab FMP that if one or more limited access permit holders formally declares out of the directed red crab fishery for an entire fishing year, the DAS that would otherwise be allocated to that permit are to be distributed equally to the remaining permit holders. As has occurred each year since 2003, one of the limited access permits has been declared out of the fishery for the 2010 fishing year.

In addition to the fleet of limited access permit vessels, the FMP also includes provisions for an open access, incidental catch red crab permit. This permit allows a fishing vessel to possess and land up to 500 lb of whole weight equivalent red crab per fishing trip. Although several hundred fishing vessels initially requested and obtained this open access permit, total landings of red crab by vessels with an open access permit remain negligible relative to the landings by the limited access fleet. That's because the fishing grounds used by other fisheries do not overlap with areas of significant red crab densities. Vessels with an open access, incidental catch red crab permit are unaffected by this action.

6.3.4 Fishing Communities

As mentioned in the section above, all limited access red crab vessels now fish out of New Bedford, MA in response to the opening of a new red crab processing plant in August 2009. Before that, all of the red crab vessels had operated from Fall River, MA, but some also landed

in Newport News, VA when high fuel costs made it more economical to truck landed crabs the extra distance rather than running the boats back to their home port. The processing sector for red crabs was relatively small and sporadic prior to the FMP. From 2002 through July 2009 almost all crabs were processed at one facility in Nova Scotia, Canada. A community profile of the city of New Bedford is provided in Attachment C.

7.0 ENVIRONMENTAL CONSEQUENCES AND ASSESSMENT OF IMPACTS

This document contains two distinct action categories: Section 4.0 describes the alternative management measures that are under consideration. Section 5.0 describes the alternative specifications that are being considered for FY2011-2013. The discussion of the environmental consequences and assessments of the impacts are specific to each proposed action and any alternatives that were considered.

Table 21 (next page) defines the impact categories and qualifiers that are used in the narrative and tables of this EA to describe the direct and indirect impacts of the various alternatives on the valued ecosystem components (VECs) described in Section 6.0 - Affected Environment

Table 21 – Valued Ecosystem Component impact categories and qualifiers.

Impact Definition			
VEC	Direction		
	Positive (+)	Negative (-)	Negligible – little or no impacts (NEGL)
Habitat	Actions that improve the quality or reduce disturbance to habitat	Actions that degrade the quality or increase disturbance of habitat	Actions that have little to no positive or negative impact on habitat quality
Target Species, Non-Target Species, Bycatch, Protected Resources	Actions that increase stock/population size	Actions that decrease stock/population size	Actions that have little or no positive or negative impact on stocks/populations
Human Communities	Actions that increase revenue and social well-being of fishermen and/or associated businesses	Actions that decrease revenue and social well-being of fishermen and/or associated businesses	Actions that have little to no positive or negative impact on revenue and social well-being of fishermen and/or associated businesses.
Impact Qualifiers:			
Low (L; as in low positive or low negative):	To a lesser degree		
High (H; as in high positive or high negative):	To a substantial degree		
Likely	Some degree of uncertainty associated with the impact		
ND	Impacts could not be determined at time of this writing		

NEGL = Negligible

7.1 Catch Control Alternatives

7.1.1 *Hard TAL with No DAS Alternative (Proposed Action)*

The Hard TAL with No DAS Alternative is described in Section 4.1.1. It would replace the current target TAC with DAS controls and trips limits.

7.1.1.1 *Impacts on the Red Crab Stock*

This alternative would have positive impacts on the red crab resource because it would provide additional assurance that landings would stay within the recommended limits, particularly in combination with the proactive and reactive accountability measures described in Section 4.4.

7.1.1.2 *Impacts on Bycatch/Non-target Species, Habitat, Protected Resources*

Impacts on Bycatch/Non-target Species

As discussed in Section 4.1.2.2, there is little, if any, bycatch of other species in the red crab fishery. The Hard TAL with No DAS Alternative is not expected to result in a different level of bycatch or catch of non-target species caught compared to the no action alternative because the target level of landings is the same in either case. Therefore this measure is expected to have a negligible impact on bycatch and non-target species.

Impacts on Habitat

Red crab fishing activity 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. As described above in Section 4.3.1.1, there is relatively low impact on habitat in pot fisheries. There are little data regarding the impacts that deep-sea pots have on their environment. 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 red crab are halibut, redfish, witch flounder, spiny dogfish, golden crab, white hake, whiting, tilefish, monkfish, offshore hake, red hake and most skate species. The EFH Assessment in the Red Crab FMP/EIS determined that there are no adverse impacts on 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.

The Hard TAL with No DAS Alternative would have negligible impact on habitat compared to the No Action/Status Quo Alternative because the target level of landings is the same in either case.

Impacts on Protected Resources

As stated in the FMP (Section 8.7; NEFMC 2002), the primary geographic area affected by the red crab fishery includes Northeast and Mid-Atlantic waters, and, while the red crab pots are very similar to those used in the lobster fishery, the red crab fishery is limited to the narrow shelf

edge habitat. The Biological Opinion issued by NMFS in 2002 (available at http://www.nero.noaa.gov/prot_res/section7/NMFS-signedBOs/RedCrab2002signedBO.pdf) states that: “Given the limited overlap of right whales, humpback whales, and sei whales either the area where red crab gear occurs, the Deep-Sea Red crab FMP is not expected to result in takes of these ESA-listed species as a result of entanglement in trap gear.” The Biological Opinion goes on to state that: “To the extent that these species do occur in the area where red crab gear is set, the depth at which red crab gear is set, the relatively low concentration of gear in the action area (maximum 600 traps per vessel; up to 8 vessels in the fishery and trawl sizes of 90-120 traps per trawl), and the existing ALWTRP measures for trap gear should help to further reduce the likelihood that interactions between red crab gear and right, humpback, and sei whales will occur. For these reasons, the red crab fishery is not expected to adversely affect those populations in any way.

Regarding fin and sperm whales and loggerhead and leatherback sea turtles, the Biological Opinion states that: “Fin whale and sperm whale distribution overlaps with the distribution of red crab gear year round. Loggerhead and leatherback sea turtles may be found in the area where red crab gear is set throughout the year but are most likely to occur in the area during the summer and spring/fall, respectively. “

The overall conclusion of the NMFS Biological Opinion issued in 2002 was that: “ After reviewing the current status of right whales, humpback whales, fin whales, sei whales, sperm whales, loggerhead and leatherback sea turtles, the environmental baseline for the action area, and the effects of the proposed implementation of the Deep-Sea Red Crab FMP, it is the NMFS biological opinion that the red crab fishery, as currently proposed in the Proposed Action, is not likely to jeopardize the continued existence of these ESA-listed species. Critical habitat for right whales has been designated within the action area, but the action is not likely to affect that critical habitat. Therefore, the proposed action is not likely to destroy or adversely modify designated critical habitat.”

The Biological Opinion used 7-8 vessels with a maximum of 600 traps per vessel as the basis for its conclusions. In fact, only 5 vessels qualified for limited access red crab permits under the criteria established by the FMP. One vessel has been “declared out” of the fishery in each year since 2003. Four vessels have generally maintained their active status in recent years, but only three vessels have fished at any one time. That level of fishing activity is expected to continue in future years.

This alternative does not change the conclusions reached in the 2002 Biological Opinion. The impacts on protected resources from implementing the Hard TAL with No DAS Alternative would be negligible because compared to the no-action alternative the target level of landings is the same in either case.

7.1.1.3 Impacts on Human Communities

The hard TAL alternative responds to industry concerns about the problematic nature of DAS controls in terms of business planning, flexibility, operational safety, and capability to allow the fleet to catch the ACL/TAL without exceeding it. Under the current DAS control, fishing businesses must consider their DAS allocation as a constrained input to be combined with other

inputs in the most cost-efficient manner. Because DAS are constrained, other inputs may be used in ways that would not result in maximum efficiency if DAS were not constrained. In the absence of a detailed production function for red crab fishing, no quantitative estimates of the economic impact of the removal of the DAS constraint can be made. Qualitatively, the red crab fleet can be expected to adopt the least cost combination of inputs in the absence of a regulatory constraint on DAS. This would improve vessels profitability in both the short-term and long-term. The red crab fleet also would enjoy more certainty because they would not be subject a varying number of DAS allocated each year vary in response to daily catch rates in previous years. These economic benefits would contribute to increased social benefits in terms of improved economic well-being. Finally, this measure would contribute to increased social benefits because it enables the regulatory system to respond positively to industry comments about operational concerns and therefore reduces potential frustration with the regulatory process. Therefore this alternative is expected to have positive impacts on communities.

7.1.2 Status Quo or No Action Alternative – Maintain Target TAC and DAS

The Status Quo alternative would maintain a management system based on a target TAC with limited DAS designed to prevent the fleet from exceeding the target TAC. Under the status quo, the number of DAS allocated to the red crab fleet, and divided among the active vessels, is determined for each specification period based on the average catch per vessel per day during some recent time period. If the fleet exceeds the target TAC in any year, the Regional Administrator is authorized to adjust DAS in the succeeding year with the intent to keep landings within the target TAC. The Regional Administrator may also adjust DAS during the fishing year to achieve the target TAC. This alternative would be problematic in terms of consistency with the MSA and the National Standard Guidelines because the DAS controls are an imprecise way of controlling landings. Accountability measures based on DAS adjustments may not achieve the intended results.

7.1.2.1 Impacts on Red Crab Stock

The Status Quo/No Action Alternative would have negative impacts on the red crab resource because under the DAS system there would be some uncertainty that landings would stay within the recommended limits.

7.1.2.2 Impacts on By Catch/Non-target Species, Habitat, Protected Resources

Impacts on Bycatch/Non-Target Species

As discussed in Section 4.1.2.2, there is little, if any, bycatch of other species in the red crab fishery. Since there is little catch of non-target and bycatch species in the red crab fishery, the impact of the Status Quo/No Action Alternative on these species would remain negligible..

Impacts on Habitat

Red crab fishing activity 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. As described above in Section 4.3.1.1, there is relatively low impact on habitat in pot fisheries. There are little data regarding the impacts that deep-sea pots

have on their environment. 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 red crab are halibut, redfish, witch flounder, spiny dogfish, golden crab, white hake, whiting, tilefish, monkfish, offshore hake, red hake and most skate species. The EFH Assessment in the Red Crab FMP/EIS determined that there are no adverse impacts on 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 the Status Quo/No Action Alternative would maintain a limited DAS system that would be intended to harvest the same amount of crab as the no action alternative, and because pot fisheries have relatively low impact on habitat, this alternative would be expected to have negligible impacts on the EFH of any managed species.

Impacts on Protected Resources

This alternative does not change the conclusions reached in the 2002 Biological Opinion. Since the Status Quo/No Action Alternative would maintain a limited DAS system that would be intended to harvest the same amount of crab as the no action alternative, the biological impacts on protected species would not be expected to change. Therefore, the Status Quo/No Action would not be expected to change previously analyzed impacts on protected species, which were negligible.

7.1.2.3 Impacts on Human Communities

The Status Quo/No Action Alternative would maintain the uncertainty associated with a management system based on a target TAC with limited DAS. Under the no action alternative the fleet would not be able to take advantage of efficiencies that might be obtained under the proposed action. The number of DAS allocated each year would vary in response to daily catch rates in previous years and the expected catch rates might not match those actually experienced in the current year. Therefore, economic and social impacts associated with the Status Quo/No Action would be expected to be negative due to potentially lower revenues or profits from red crab.

7.2 Trip Limit Alternatives

7.2.1 Eliminate Trip Limits (Proposed Action)

7.2.1.1 Impacts on the Red Crab Stock

The elimination of trip limits would have a negligible impact on the red crab stock. Impacts on the red crab stock are determined by total removals from the stock. Total removals are controlled by the ACL and TAL.

7.2.1.2 Impacts on Bycatch/Non-target Species, Habitat, Protected Resources

Impacts on Bycatch/Non-target Species

As discussed in Section 4.1.2.2, there is little, if any, bycatch of other species in the red crab fishery. The elimination of trip limits would have negligible impacts on the amount of bycatch or non-target species caught because the target level of landings would not vary between alternatives. This alternative also is expected to result in less total annual trap immersion time because traps are left in the water between trips. If there are no trip limits total immersion time would be reduced because the ratio of productive days to steaming time would be higher with larger trips. The reduced time in the water of red crab traps is expected to result in lower accumulated bycatch; however, although this effect is expected to have a positive impact on bycatch there is no data to indicate that it will be more than minimal. Therefore, the elimination of trip limits would have negligible impacts on bycatch and non-target species.

Impacts on Habitat

Red crab fishing activity 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. As described above in Section 4.3.1.1, there is relatively low impact on habitat in pot fisheries. There are little data regarding the impacts that deep-sea pots have on their environment. 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 red crab are halibut, redfish, witch flounder, spiny dogfish, golden crab, white hake, whiting, tilefish, monkfish, offshore hake, red hake and most skate species. The EFH Assessment in the Red Crab FMP/EIS determined that there are no adverse impacts on 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.

The elimination of trip limits would have negligible impacts on habitat because the target level of landings and fishing effort would not vary between alternatives.

Impacts on Protected Resources

This alternative does not change the conclusions reached in the 2002 Biological Opinion. The elimination of trip limits would have negligible effect on the protected species impacts previously analyzed under the current specifications because the target level of landings would not vary between alternatives. This alternative is expected to result in fewer but longer trips. Vessels would still be subject to the same limit on the number of red crab pots they deploy so the maximum geographical footprint of the fishery at any one time would not increase. The elimination of the trip limit would allow vessels to take longer trips; however, trip length has not been a factor that has been identified as affecting protected species. The elimination of the trip limit also is expected to reduce total trap immersion time because the ratio of productive days to steaming time would be higher with larger trips as explained above in the discussion of habitat impacts from this alternative. The reduced time in the water of red crab traps is expected to result in potentially lower impacts on protected resources; however, there is no data to indicate that they will be more than minimal. Therefore, the reduced immersion time would have negligible impacts on protected resources.

Impacts on Human Communities

The red crab industry requested the removal of the trip limits to allow the fleet to adopt the most efficient harvesting strategy. Potential cost savings include reductions in fuel consumption per pound of crab landed and reduced steaming time for red crab crews and vessels. The trip limits originally addressed industry concerns about increases in fishing capacity stimulated by competitive fishing that existed when the FMP was initially developed and the potential for a derby fishery, but these concerns no longer exist. The fishery now has stabilized at 3-4 active vessels. The current requirements of the processing sector also make it unlikely that a derby fishery would develop. The processing plant in New Bedford is currently the only market for significant quantities of red crab. It requires a steady supply of live crab and cannot accept excessively large trips. All vessels in the fleet currently have a long-term relationship with the New Bedford plant. At present, all of the vessels participate in a cooperative harvesting agreement through which all permit holders share in any increased profits that result from savings in harvesting costs. Under current and reasonably foreseeable conditions in the red crab fishery, permit holders believe there are no longer any benefits from trip limits and that the increased costs associated with trip limits are not justifiable. The elimination of trip limits also will reduce enforcement costs simply because there would be one less measure that would require relatively expensive at-sea enforcement. Finally, if needed to prevent derby fishing in the future, a trip limit can be added through the framework process at any time.

There is no readily available evidence on which to evaluate the impacts of the proposed action on human communities; however, based on reasoning put forth in the FMP, the following impacts seem plausible. The elimination of trip limits would have a positive impact on human communities in both the short and long run because the fleet probably will become more efficient, with reduced costs, more profitability and less time at sea. The elimination of trip limits would also reduce enforcement costs because a trip limit is a regulation that requires significant time and at-sea enforcement resources to monitor for possible violations. If there is no trip limit, there is no need for that expenditure of enforcement resources. In terms of other social impacts, fewer trips would reduce crew time in travelling to and from the vessel and the sea time associated with more trips and therefore have positive, although minimal, social impacts.

7.2.2 Status Quo/No Action – Maintain Trip Limits

The Status Quo/No Action Alternative would maintain the trip limits currently in effect. This alternative is provided for comparison with the proposed action.

7.2.2.1 Impacts on the Red Crab Stock

The no action alternative would have a negligible impact on the red crab stock because the impact on the stock is determined by the total catch and is not affected by the catch per trip.

7.2.2.2 Impacts on Bycatch/Non-target Species, Habitat, Protected Resources

Impacts on Bycatch/Non-target Species

As discussed in Section 4.1.2.2, there is little, if any, bycatch of other species in the red crab fishery. The no action alternative would have negligible impacts on bycatch and non-target species impacts as was previously concluded in the Red Crab FMP (Section 5.3.8.2).

Impacts on Habitat

Red crab fishing activity 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. As described above in Section 4.3.1.1, there is relatively low impact on habitat in pot fisheries. There are little data regarding the impacts that deep-sea pots have on their environment. 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 red crab are halibut, redfish, witch flounder, spiny dogfish, golden crab, white hake, whiting, tilefish, monkfish, offshore hake, red hake and most skate species. The EFH Assessment in the Red Crab FMP/EIS determined that there are no adverse impacts on 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.

The No Action/Status Quo Alternative would cause no change in impacts on EFH as described in the Red Crab FMP (Section 5.3.8) which stated, “*Generally, the implementation of trip limits of any kind would not be expected to have a direct effect on the habitat of the region. Trip limits could have an indirect effect on the habitat of the Northeast by controlling the amount of fishing effort associated with the fishery, assuming that fishing effort ceases as soon as the trip limit is reached and does not continue with the intent of “high-grading.” However, this fishery is not considered to contribute any adverse impacts on the habitat of the region under any circumstances and this measure does nothing to alter this conclusion.*” Therefore, the elimination of trip limits would have negligible impacts on habitat.

Impacts on Protected Resources

This alternative does not change the conclusions reached in the 2002 Biological Opinion. The impacts on protected resources from implementing the no-action alternative would be negligible because the target level of landings is the same with either alternative. The continuation of the status quo would be expected to result in no change in the amount of crab pots fished on each trip at any one time because of the trap limit. The number of trips would expected to decrease and the length of trips is expected to increase; however, the number of trips or trip length were not identified as factors affecting protected species in the 2002 Biological Opinion. As a result this alternative is not expected to change the impacts on protected species previously analyzed under the FMP (Section 5.3.8.6) which concluded, “*... the overall effect of the proposed measure [the current trip limit] on marine mammals and other protected species can be stated as not likely to increase the existing entanglement threat to those species.*” Therefore, the elimination of trip limits would have negligible impacts on protected resources.

Impacts on Human Communities

The no action alternative would have a negative impact on human communities because the fleet would not be able to take advantage of efficiencies realized from reducing the number of fishing trips that might be obtained under the proposed action both short-term and long-term. Longer trips may reduce the cost per pound to harvest red crab, primarily because the ratio of steaming time to fishing time would be reduced and the costs associated with preparing for a trip, steaming to and from the fishing grounds, unloading, and securing the vessel after the trip would be reduced.

7.3 Trap Limit Regulatory Language Alternatives

7.3.1 Modify Trap Limit Regulatory Language (Proposed Action)

7.3.1.1 Impacts on the Red Crab Stock

This alternative would have negligible impacts on the red crab stock. The only change allowed by the proposed action would be to allow combination boats to fish red crab traps and lobster traps on the same trip. Red crab landings and fishing effort crab would not be changed by this alternative.

7.3.1.2 Impacts on Bycatch/Non-target Species, Habitat, Protected Resources

Impacts on Bycatch/Non-target Species

As discussed in Section 4.1.2.2, there is little, if any, bycatch of other species in the red crab fishery. This alternative would have negligible impact on bycatch and non-target species because the target level of landings or effort would not differ between alternatives.

Impacts on Habitat

Red crab fishing activity 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. As described above in Section 4.3.1.1, there is relatively low impact on habitat in pot fisheries. There are little data regarding the impacts that deep-sea pots have on their environment. 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 red crab are halibut, redfish, witch flounder, spiny dogfish, golden crab, white hake, whiting, tilefish, monkfish, offshore hake, red hake and most skate species. The EFH Assessment in the Red Crab FMP/EIS determined that there are no adverse impacts on 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.

This alternative would have negligible impacts on habitat because the target level of landings and red crab fishing effort would not differ under the alternatives.

Impacts on Protected Resources

This alternative would not change the conclusions reached in the 2002 Biological Opinion. This alternative would not change impacts on protected species previously analyzed under the current specifications because the target level of landings and the limit on red crab traps carried by each vessel would not change under this alternative. Therefore this alternative would have negligible impacts on protected resources.

7.3.1.3 Impacts on Human Communities

The proposed alternative would increase efficiency and reduce energy consumption by combination lobster/red crab vessels. This alternative would maintain the limit of 600 red crab traps that is currently in place for limited access red crab vessels, but also would allow vessels with both a limited access red crab permit and a limited access lobster trap permit to resume the fishing strategy that was employed before the implementation of the red crab FMP. Prior to the FMP, a red crab vessel could haul red crab traps on the same trip that it hauled lobster traps, increasing efficiency and saving costs during the switchover from one fishery to the other.

The proposed changes in the regulatory language pertaining to trap limits would have a positive impact on human communities in both the short and long run by allowing vessels that target both red crab and lobster to operate with less cost and greater efficiency.

7.3.2 Status Quo/No Action Alternative (Maintain Existing Trap Limit Language)

As explained in Section 4.3, this alternative would maintain language in the regulations that prohibits limited access red crab vessels from hauling lobster traps while on a red crab trip. The impacts of this alternative are provided as a basis for comparison with the proposed action.

7.3.2.1 Impacts on the Red Crab Stock

This alternative would have negligible impacts on the red crab stock because the target level of landings would be unlikely to vary significantly between alternatives.

7.3.2.2 Impacts on Bycatch/Non-target Species, Habitat, Protected Resources

Impacts on Bycatch/Non-target Species

As discussed in Section 4.1.2.2, there is little, if any, bycatch of other species in the red crab fishery. This alternative would have negligible impacts on the amount of bycatch or non-target species as previously concluded in the Red Crab FMP (Section 5.3.5.2).

Impacts on Habitat

Red crab fishing activity 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. As described above in Section 4.3.1.1, there is relatively low impact on habitat in pot fisheries. There are little data regarding the impacts that deep-sea pots have on their environment. 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 red crab are halibut, redfish, witch flounder, spiny dogfish, golden crab, white hake, whiting, tilefish, monkfish, offshore hake, red hake and most skate species. The EFH Assessment in the Red Crab FMP/EIS determined that there are no adverse impacts on 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.

This alternative would have negligible impacts on habitat as previously analyzed under the Red Crab FMP (Section 5.3.5.3) which concluded, *“It should be clearly recognized, however, that there is no information available to the Council that suggests the amount of fishing gear used in the red crab fishery should in any way be restricted in order to protect the EFH of any managed species.”*

Impacts on Protected Resources

The no-action alternative is included only as a basis for comparison and therefore would not change the conclusions reached in the 2002 Biological Opinion and is not expected to change the previously analyzed level of impacts, which were negligible, on protected resources.

7.3.2.3 *Impacts on Human Communities*

This alternative would have negative impact on human communities because it would require a continuation of the inefficiencies that result from the current regulations that prohibit combination boats from hauling red crab and lobster traps on the same trip.

7.4 Accountability Measures

7.4.1 *Proactive Accountability Measures (Proposed Action)*

7.4.1.1 *In-season Closure Authority Granted to the Regional Administrator.*

This alternative is described in Section 4.4.1. It would grant in-season closure authority to the Regional Administrator for the purpose of closing the directed fishery by limited access red crab vessels when the TAL was projected to be landed. Accountability measures are required by the MSA and the National Standard Guidelines.

7.4.1.2 *Impacts on the Red Crab Stock*

In-season closure authority would be positive for the red crab resource because it would provide additional assurance that landings would stay within the recommended limits.

7.4.1.3 *Impacts on Bycatch/Non-target Species, Habitat, Protected Resources*

Impacts on Bycatch/Non-target Species

As discussed in Section 4.1.2.2, there is little, if any, bycatch of other species in the red crab fishery. In-season closure authority would have negligible impacts on the amount of bycatch or non-target species caught because the target level of landings would be unlikely to vary significantly between alternatives. This alternative would assure that fishing stopped when the TAL had been caught, in contrast to DAS management.

Impacts on Habitat

Red crab fishing activity 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. As described above in Section 4.3.1.1, there is relatively low impact on habitat in pot fisheries. There are little data regarding the impacts that deep-sea pots have on their environment. 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 red crab are halibut, redfish, witch flounder, spiny dogfish, golden crab, white hake, whiting, tilefish, monkfish, offshore hake, red hake and most skate species. The EFH Assessment in the Red Crab FMP/EIS determined that there are no adverse impacts on 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.

In-season closure authority would have negligible impacts on habitat compared to the No Action/Status Quo Alternative because the target level of landings would be unlikely to vary significantly between alternatives.

Impacts on Protected Resources

This alternative would not change the conclusions reached in the 2002 Biological Opinion. The impacts on protected resources from implementing the in-season closure authority would not change the impacts on protected species previously analyzed under the current specifications because the target level of landings would be unlikely to change. Therefore, this alternative would have negligible impacts on protected resources.

7.4.1.4 Impacts on Human Communities

Based on experience in recent years (see Section 6.3.1), in-season closure authority would have a negligible short-term impact because market demand has been less than the proposed catch limits and in-season closures are unlikely to occur under those circumstances. Small long-term positive impacts on human communities are likely because the in-season closure authority reduces the potential for landings that exceed the TAL, triggering subsequent 'payback' of any overages.

7.4.2 Reactive Accountability Measures

7.4.2.1 Next Year In-Season Adjustment Option (Proposed Action)

This alternative would payback any TAL overage in the year following the overage.

7.4.2.2 Impacts on the Red Crab Stock

A reactive accountability measure that pays back any TAL overage in the year following the overage would be positive for the red crab resource because it would provide the quickest possible payback of an overage.

7.4.2.3 Impacts on Bycatch/Non-target Species, Habitat, Protected Resources

Impacts on Bycatch/Non-target Species

As discussed in Section 4.1.2.2, there is little, if any, bycatch of other species in the red crab fishery. A reactive accountability measure that pays back any TAL overage in the year following the overage would have negligible impacts on the amount of bycatch or non-target species caught because the target level of landings would be unlikely to vary significantly between alternatives.

Impacts on Habitat

Red crab fishing activity 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. As described above in Section 4.3.1.1, there is relatively low impact on habitat in pot fisheries. There are little data regarding the impacts that deep-sea pots have on their environment. 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 red crab are halibut, redfish, witch flounder, spiny dogfish, golden crab, white hake, whiting, tilefish, monkfish, offshore hake, red hake and most skate species. The EFH Assessment in the Red Crab FMP/EIS determined that there are no adverse impacts on 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.

A reactive accountability measure that pays back any TAL overage in the year following the overage would have negligible impact on habitat compared to the No Action/Status Quo Alternative because the target level of landings would be unlikely to vary significantly between alternatives.

Impacts on Protected Resources

This alternative would not change the conclusions reached in the 2002 Biological Opinion. The impacts on protected resources from implementing a reactive accountability measure that pays back any TAL overage in the year following the overage would be negligible because the target level of landings would be unlikely to vary significantly between alternatives and this alternative would help ensure that the landings target is not exceeded.

7.4.2.4 Impacts on Human Communities

A reactive accountability measure that pays back any TAL overage in the year following the overage would have positive impacts on human communities compared to the No Action/Status Quo Alternative because the current regulations include a provision for in-season adjustment of DAS to offset any TAC overage in the preceding year. In the case of a reduction in the TAL, rather than DAS, the fleet would know at the end of the fishing year that they had exceeded the TAL and that the TAL for the following year would be reduced by the same amount as the overage. In the case of the no action alternative, the fleet would face some uncertainty regarding the reduction in DAS that would be imposed during the year to prevent a re-occurrence of the overage, because the adjustment would be based on both recent daily catch rates in addition to the amount of the overage. If catch rates during the adjustment year were different than they were in the year in which the overage took place, the adjustment in DAS might result in a landings adjustment that would be either higher or lower than the overage.

7.4.2.5 “Leap Frog” Adjustment Option

This alternative would payback a TAL overage through an adjustment in the TAL in the second year following the overage.

7.4.2.6 Impacts on the Red Crab Stock

A reactive accountability measure that pays back any TAL overage in the second year following the overage would be slightly negative for the red crab resource because the No Action/Status Quo Alternative provides for an adjustment in the year following the overage.

7.4.2.7 Impacts on Bycatch/Non-target Species, Habitat, Protected Resources

Impacts on Bycatch/Non-target Species

As discussed in Section 4.1.2.2, there is little, if any, bycatch of other species in the red crab fishery. A reactive accountability measure that pays back any TAL overage in the second year following the overage would have negligible impacts on the amount of bycatch or non-target species caught because the target level of landings would be unlikely to vary significantly between alternatives.

Impacts on Habitat

Red crab fishing activity 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. As described above in Section 4.3.1.1, there is relatively low impact on habitat in pot fisheries. There are little data regarding the impacts that deep-sea pots have on their environment. 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 red crab are halibut, redfish, witch flounder, spiny dogfish, golden crab, white hake, whiting, tilefish, monkfish, offshore hake, red hake and most skate species. The EFH Assessment in the Red Crab FMP/EIS determined that there are no adverse impacts on 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.

A reactive accountability measure that pays back any TAL overage in the second year following the overage would have negligible impact on habitat compared to the No Action/Status Quo Alternative because the target level of landings would be unlikely to vary significantly between alternatives.

Impacts on Protected Resources

This alternative would not change the conclusions reached in the 2002 Biological Opinion. The impacts on protected resources from implementing a reactive accountability measure that pays back any TAL overage in the second year following the overage would be negligible in terms of both positive and negative impacts because the target level of landings would be unlikely to change significantly and this alternative would help ensure that landings do not exceed the ACL.

7.4.2.8 Impacts on Human Communities

A reactive accountability measure that pays back any TAL overage in the second year following the overage would have slightly positive impact on human communities in both the short and long run compared to the No Action/Status Quo Alternative because the red crab industry would not face a possible in-season adjustment to annual fishing plans that would occur under the no action alternative.

7.4.3 Combinations of both Proactive and Reactive Accountability Measures (Proposed Action)

This alternative would use a combination of in-season closures and next season payback of any TAL overage.

7.4.3.1 Impacts on the Red Crab Stock

A combination of proactive and reactive accountability measures would be positive for the red crab resource because it would provide the greatest assurance that landings would stay within the ABC and be paid back if they exceeded the ABC.

7.4.3.2 Impacts on Bycatch/Non-target Species, Habitat, Protected Resources

Impacts on Bycatch/Non-target Species

As discussed in Section 4.1.2.2, there is little, if any, bycatch of other species in the red crab fishery. A combination of proactive and reactive accountability measures would have negligible impacts on the amount of bycatch or non-target species caught because the target level of landings would be unlikely to vary significantly between alternatives.

Impacts on Habitat

Red crab fishing activity 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. As described above in Section 4.3.1.1, there is relatively low impact on habitat in pot fisheries. There are little data regarding the impacts that deep-sea pots have on their environment. 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 red crab are halibut, redfish, witch flounder, spiny dogfish, golden crab, white hake, whiting, tilefish, monkfish, offshore hake, red hake and most skate species. The EFH Assessment in the Red Crab FMP/EIS determined that there are no adverse impacts on 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.

A combination of proactive and reactive accountability measures would have negligible impact on habitat compared to the No Action/Status Quo Alternative because the target level of landings would be unlikely to vary significantly between alternatives.

Impacts on Protected Resources

This alternative would not change the conclusions reached in the 2002 Biological Opinion. The impacts on protected resources from implementing the in-season closure authority would be negligible in terms of both positive and negative impacts because the target level of landings would be unlikely to change and this alternative would help ensure that landings do not exceed the ACL.

7.4.3.3 Impacts on Human Communities

A combination of proactive and reactive accountability measures would have a positive impact on human communities in both the short and long run compared to the No Action/Status Quo Alternative because there would be less likelihood of an in-season adjustment of DAS that might not be appropriate for the year in which the adjustment took place.

7.4.3.4 Status Quo/No Action Alternative – Maintain TAC Overage Deduction for the Purpose of Calculating DAS

The Status Quo/No Action Alternative would maintain the procedure outlined in 50 CFR 648.260 a) 2), which states that: “*Adjustments to DAS allocation based on target TAC.* For purposes of determining the appropriate DAS allocation, any overage of the target TAC that occurs in a given fishing year will be subtracted from the target TAC in the following fishing year and, conversely, any underage of the target TAC that occurs in a given fishing year will be added to the target TAC in the following fishing year.” The status quo alternative is uncertain in intent with regard to whether it would provide a payback of an overage or would simply better target the TAC in the year in which the adjustment took place. If a payback is intended, then the language of the regulation implies that in the case of an underage the fleet would receive a carry-over of the underage. However, NMFS does not interpret the regulation in a way that allows for the carry-forward of an underage, leaving both the methodology and the result of the status quo

procedure uncertain in terms of a payback for an overage. This uncertainty calls into question the viability of this alternative in terms of consistency with the MSA. This alternative is provided for comparison with the proposed action.

7.4.3.5 Impacts on the Red Crab Stock

The no action alternative would continue an imprecise way of targeting the TAC through adjustments in DAS during the year following a TAC overage or underage. The relationship between any payback of a TAL overage and the TAL would be uncertain. The no action alternative would have potential negative impacts on the red crab stock because there would be no in-season closure authority and the adjustment mechanism may not provide an appropriate payback of an overage because the landings from the adjusted DAS would depend on the catch rate that prevailed during the fishing year may not be the same as the catch rate in previous years that would be used to calculate the adjusted DAS.

7.4.3.6 Impacts on Bycatch/Non-target Species, Habitat, Protected Resources

Impacts on Bycatch/Non-target Species

As discussed in Section 4.1.2.2, there is little, if any, bycatch of other species in the red crab fishery. The no action alternative would have negligible impact on bycatch and non-target species because the target level of landings would be unlikely to vary significantly between alternatives.

Impacts on Habitat

Red crab fishing activity 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. As described above in Section 4.3.1.1, there is relatively low impact on habitat in pot fisheries. There are little data regarding the impacts that deep-sea pots have on their environment. 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 red crab are halibut, redfish, witch flounder, spiny dogfish, golden crab, white hake, whiting, tilefish, monkfish, offshore hake, red hake and most skate species. The EFH Assessment in the Red Crab FMP/EIS determined that there are no adverse impacts on 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.

The No Action/Status Quo Alternative would have negligible impact on EFH as the proposed action because the target level of landings would be unlikely to vary significantly between alternatives.

Impacts on Protected Resources

This alternative does not change the conclusions reached in the 2002 Biological Opinion. The impacts on protected resources from implementing the no-action alternative would be the same

as previously analyzed under the current specifications and negligible compared to the proposed action because the target level of landings would be unlikely to vary significantly between alternatives.

7.4.3.7 Impacts on Human Communities

The no action alternative would have a negative impact on human communities because the red crab fleet would continue to be subject to uncertainty concerning the number of DAS that would be allocated through an in-season adjustment in the second year following a TAC overage. Because of uncertainties in the intent, methodology, and result from the procedure outlined in the FMP, the fleet might receive an allocation of DAS that would not be appropriate for the year in which the adjustment took place.

7.5 Modifications to the Specification-Setting Process (Proposed Action)

This alternative would modify the specification-setting process to include an ABC recommendation from the SSC or other Peer Review process. This alternative is necessary to make the FMP consistent with the MSA and the National Standard Guidelines.

7.5.1.1 Impacts on the Red Crab Stock

This alternative would be positive for the red crab resource because it would assure additional scientific input to the determination of ABC.

7.5.1.2 Impacts on Bycatch/Non-target Species, Habitat, Protected Resources

Impacts on Bycatch/Non-target Species

As discussed in Section 4.1.2.2, there is little, if any, bycatch of other species in the red crab fishery. This alternative would have negligible impacts on the amount of bycatch or non-target species caught because the target level of landings would be unlikely to vary significantly between alternatives.

Impacts on Habitat

Red crab fishing activity 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. As described above in Section 4.3.1.1, there is relatively low impact on habitat in pot fisheries. There are little data regarding the impacts that deep-sea pots have on their environment. 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 red crab are halibut, redfish, witch flounder, spiny dogfish, golden crab, white hake, whiting, tilefish, monkfish, offshore hake, red hake and most skate species. The EFH Assessment in the Red Crab FMP/EIS determined that there are no adverse impacts on 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.

This alternative would have negligible impact on habitat compared to the No Action/Status Quo Alternative because the target level of landings would be unlikely to vary significantly between alternatives.

Impacts on Protected Resources

This alternative is administrative in nature and would have no direct effect on protected resources and would not change the conclusions reached in the 2002 Biological Opinion. The alternative simply establishes a scientifically based process for setting ABC for red crab. Therefore, this alternative would have negligible impacts on protected resources.

7.5.1.3 Impacts on Human Communities

This alternative would have positive impacts on human communities compared to the No Action/Status Quo Alternative because the sustainability of the red crab resource and fishery would be more certain with more formal scientific input into the process for determining ABC.

7.5.1.4 Status Quo/No Action Alternative – Maintain the Current Procedure for Setting Specifications

The Status Quo/No Action Alternative would maintain the procedure outlined in the FMP for setting specifications. This procedure does not require an ABC recommendation from the SSC and would not be consistent with the MSA and the National Standard Guidelines.

7.5.1.5 Impacts on the Red Crab Stock

The no action alternative would have potentially negative impacts on the red crab resource because it would not require the level of scientific input to the ABC as would take place under the proposed action.

7.5.1.6 Impacts on Bycatch/Non-target Species, Habitat, Protected Resources

Impacts on Bycatch/Non-target Species

As discussed in Section 4.1.2.2, there is little, if any, bycatch of other species in the red crab fishery. The no action alternative would have negligible impact on bycatch and non-target species because the target level of landings is the same in either case.

Impacts on Habitat

Red crab fishing activity 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. As described above in Section 4.3.1.1, there is relatively low impact on habitat in pot fisheries. There are little data regarding the impacts that deep-sea pots have on their environment. 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 red crab are halibut, redfish, witch flounder, spiny dogfish, golden crab, white hake, whiting, tilefish,

monkfish, offshore hake, red hake and most skate species. The EFH Assessment in the Red Crab FMP/EIS determined that there are no adverse impacts on 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.

The No Action/Status Quo Alternative would have negligible impact on EFH because the target level of landings would be unlikely to vary significantly between alternatives.

Impacts on Protected Resources

This alternative does not change the conclusions reached in the Biological Opinion. The impacts on protected resources from implementing the no-action alternative would be negligible because the target level of landings would be unlikely to vary significantly between alternatives.

7.5.1.7 Impacts on Human Communities

The no action alternative would have potentially negative impacts on human communities because there might be less scientific input to the ABC and therefore less certainty regarding the sustainability of the resource and the fishery.

7.6 Landing of Female Crabs

This option proposes the elimination of the prohibition on landing female crab in excess of one standard tote, conditional upon a scientific recommendation for an ABC that includes females and the Council's adoption of specifications that include female crabs in the ACL. The process would include the evaluation of a female harvest strategy by the PDT, which would then provide information to the SSC that the SSC would use to recommend an ABC that included female crabs if the SSC determined that such a harvest strategy was sustainable. If the Council adopted an ACL/TAL for female crab, additional analysis of that action would be necessary in the specification document in which the female TAL was proposed. If the PDT and the SSC determined that the harvest of female crabs was not desirable in any time period, they would recommend a male-only fishery for that time period. In any year in which the fishery was male only, the landing of female crabs would be limited to one standard tote per trip to allow for inadvertent retention of an incidental number of females. Unless advised differently by the PDT and the SSC, the intent of this provision would be that any retention of female crab would occur in the normal course of fishing for male crab. This statement of intent follows the language in the Experimental Fishery Permit that has authorized the harvest of a limited volume of female red crab during FY 2010. In that case, the Federal Register (Vol. 74, No. 119 / Tuesday, June 23, 2009) notice states that: "The experimental design calls for normal commercial fishing operations, with the addition of retaining females."

7.6.1.1 Impacts on the Red Crab Stock

The short-term impact of this alternative on the red crab stock would be negligible because the alternative would not have any impact on the red crab stock until and unless the PDT, the SSC, and the Council evaluated the sustainability of a female harvest strategy and included females in the specifications of ABC, ACL, and TAL. These specifications would require analysis for their

impacts on the red crab stock, bycatch/non-target species, habitat, and human communities. Any impact on the red crab resource from female harvest specifications would only occur if a female harvest strategy were to be in a separate future action. The process by which the ABC and the specifications are established would assure that any female harvest would be considered sustainable by the SSC, but the Council, and by NMFS.

7.6.1.2 Impacts on Bycatch/Non-target Species, Habitat, Protected Resources

Impacts on Bycatch/Non-target Species

As discussed in Section 4.1.2.2, there is little, if any, bycatch of other species in the red crab fishery. The establishment of a procedure for including female crabs in the setting of ABC, ACL, and TAL would have negligible impacts on bycatch and non-target species because no change would take place on the fishing grounds until further analysis of the impacts of specifications including female harvest had been undertaken.

Impacts on Habitat

Red crab fishing activity 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. As described above in Section 4.3.1.1, there is relatively low impact on habitat in pot fisheries. There are little data regarding the impacts that deep-sea pots have on their environment. 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 red crab are halibut, redfish, witch flounder, spiny dogfish, golden crab, white hake, whiting, tilefish, monkfish, offshore hake, red hake and most skate species. The EFH Assessment in the Red Crab FMP/EIS determined that there are no adverse impacts on 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.

The establishment of a procedure for including female crabs in the setting of ABC, ACL, and TAL would have negligible impacts on bycatch and non-target species because no change would take place on the fishing grounds until further analysis of the impacts of specifications including female harvest had been undertaken.

Impacts on Protected Resources

This alternative does not change the conclusions reached in the 2002 Biological Opinion. The establishment of a procedure for including female crabs in the setting of ABC, ACL, and TAL would have no impacts on protected species because no change would take place on the fishing grounds. Further analysis of the impacts of specifications including female harvest on protected species would have to be undertaken before any action were taken to increase the harvest of females. Therefore, this alternative would have negligible impacts on protected resources.

7.6.1.3 Impacts on Human Communities

The possible inclusion of female crabs in the setting of ABC, ACL, and TAL would have positive impact on human communities in both the short and long run compared to the No Action/Status Quo Alternative. The adoption of this alternative would make it more likely that the research and market developments currently being made by the industry and their academic partners under the Exempted Fisheries Permit would produce positive returns. The potential for harvesting females as soon as a female harvest strategy is determined to be sustainable holds promise for increased efficiency, lower costs, and a smaller carbon footprint per pound of red crab consumed. National Standard 5 requires that “conservation and management measures shall, where practicable, consider efficiency in the utilization of fishery resources...” Although this analysis of VECs is limited to marine resources, the National Standard 5 Guidelines state that “conservation” constitutes wise use of all resources involved in the fishery, not just fish stocks. The National Standard 5 Guidelines identify the “minimum use of economic inputs such as labor, capital, interest, and fuel” as contributing to the Nation’s benefit.

7.6.1.4 Status Quo/No Action Alternative – Maintain the Prohibition on Landing More than One Tote of Female Crab per Trip

The Status Quo/No Action Alternative would maintain the prohibition on landing more than one standard tote of female crab per trip.

7.6.1.5 Impacts on the Red Crab Stock

The no action alternative would have a negligible impact on the red crab resource because it would continue the current practice.

7.6.1.6 Impacts on Bycatch/Non-target Species, Habitat, Protected Resources

Impacts on Bycatch/Non-target Species

As discussed in Section 4.1.2.2, there is little, if any, bycatch of other species in the red crab fishery. The no action alternative would have negligible impacts on bycatch and non-target species because it would not change the amount of fishing or current fishing practices.

Impacts on Habitat

Red crab fishing activity 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. As described above in Section 4.3.1.1, there is relatively low impact on habitat in pot fisheries. There are little data regarding the impacts that deep-sea pots have on their environment. 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 red crab are halibut, redfish, witch flounder, spiny dogfish, golden crab, white hake, whiting, tilefish, monkfish, offshore hake, red hake and most skate species. The EFH Assessment in the Red Crab FMP/EIS determined that there are no adverse impacts on 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.

The No Action/Status Quo Alternative would have negligible impact on EFH because it would not change the amount of fishing or current fishing practices.

Impacts on Protected Resources

This alternative does not change the conclusions reached in the 2002 Biological Opinion. The No Action Alternative would not change the impacts on protected species previously analyzed under the current specifications because it would not change the amount of landings or current fishing practices. Therefore, this alternative would have negligible impacts on protected resources.

7.6.1.7 Impacts on Human Communities

The no action alternative would have a negative impact on human communities because it would reduce the potential for the red crab fleet and processing plant to take advantage of the ongoing research on harvesting and marketing female red crab. The red crab industry would be less likely to have higher revenues in the future from the landing of female crab if the no action alternative were adopted.

7.7 FY 2011-2013 Specifications

The proposed action would set ABC, ACL, and TAL for male landings only at 1,775 mt (3,913,165 lb.). The SSC recommended that an ABC at this level for male landings only “is safely below an overfishing threshold and adequately accounts for scientific uncertainty.” The Council concluded that the level of management uncertainty in the red crab fishery is low enough to set the ACL and TAL equal to the ABC. The specifications would be implemented as a “hard” TAL that would directly control landings, rather than trying to control the landings through the allocation of DAS to the vessels in the red crab fleet.

The No Action/ Status Quo alternative also would be to maintain a target total allowable catch (target TAC) at 1,775 mt; however, this is not a legally viable alternative because it the FMP currently does not include an annual catch limit or accountability measures. Therefore the No Action/ Status Quo alternative would not be consistent with the Magnuson-Stevens Act and is included only as a basis for comparison.

7.7.1.1 Impacts on the Red Crab Stock

The short-term impact of this alternative on the red crab stock would be negligible because the landings level specified in the proposed action is the same as the landings limit currently in place. This level of landings was determined to be sustainable by the DPSWG and was recommended as an interim ABC for the red crab resource by the SSC.

7.7.1.2 Impacts on Bycatch/Non-target Species, Habitat, Protected Resources

Impacts on Bycatch/Non-target Species

As discussed in Section 4.1.2.2, there is little, if any, bycatch of other species in the red crab fishery. The proposed action would have a negligible impact on bycatch and non-target species because the specified landings level is the same as the status quo/no action landings limit.

Impacts on Habitat

Red crab fishing activity 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. As described above in Section 4.3.1.1, there is relatively low impact on habitat in pot fisheries. There are little data regarding the impacts that deep-sea pots have on their environment. 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 red crab are halibut, redfish, witch flounder, spiny dogfish, golden crab, white hake, whiting, tilefish, monkfish, offshore hake, red hake and most skate species. The EFH Assessment in the Red Crab FMP/EIS determined that there are no adverse impacts on 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.

The proposed action would have a negligible impact on bycatch and non-target species because the specified landings level is the same as the status quo/no action target landings level.

Impacts on Protected Resources

This alternative would not change the conclusions reached in the 2002 Biological Opinion. The proposed action would have a negligible impact on protected species because the ACL and TAL are the same as the status quo/no action target landings level.

7.7.1.3 Impacts on Human Communities

The proposed action will have positive impacts on human communities by maintaining a sustainable red crab resource and by making it possible for the red crab fleet to increase efficiency and safety by not being pressured to maximize the productivity of each day at sea.

7.7.1.4 Status Quo/No Action Alternative – Maintain the current specifications

The Status Quo/No Action Alternative would set the target TAC at 1,775 mt (3,913,165 lb) and allocate 665 DAS to the red crab fleet to be divided among the limited access vessels that do not declare out of the fishery in a given fishing year. The specified number of DAS is based on average landings-per-DAS charged (5,882 lb/DAS, 2,668 kg/DAS) from FY 2005-2009. Technically there would be no ABC because the status quo does not include specification of an ABC.

7.7.1.5 Impacts on the Red Crab Stock

The no action alternative would have negligible short-term impacts on the red crab resource based on past experience. The no action alternative would maintain the current target TAC and the control over DAS that is intended to achieve the target TAC without exceeding it. The no action alternative for the specifications implies the continued use of an imprecise way of controlling red crab landings through DAS and trip limits. The no action alternative would have potentially negative long-term impacts on the red crab resource compared to the proposed action

because the proposed hard TAL would provide more assurance that landings will be controlled within the ABC/ACL/TAL.

7.7.1.6 Impacts on Bycatch/Non-target Species, Habitat, Protected Resources

Impacts on Bycatch/Non-target Species

As discussed in Section 4.1.2.2, there is little, if any, bycatch of other species in the red crab fishery. The no action alternative would have negligible impact on bycatch and non-target species as the proposed action because the target level of landings is the same in either case. The no action alternative might in higher bycatch and catch of non-target species because fishing could continue after the target TAC had been caught under DAS management.

Impacts on Habitat

Red crab fishing activity 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. As described above in Section 4.3.1.1, there is relatively low impact on habitat in pot fisheries. There are little data regarding the impacts that deep-sea pots have on their environment. 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 red crab are halibut, redfish, witch flounder, spiny dogfish, golden crab, white hake, whiting, tilefish, monkfish, offshore hake, red hake and most skate species. The EFH Assessment in the Red Crab FMP/EIS determined that there are no adverse impacts on 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.

The No Action/Status Quo Alternative would have negligible impact on EFH because the target level of landings would remain the same.

Impacts on Protected Resources

This alternative is not legally viable and is included only as a basis for comparison. Because it would continue the current management specifications it would not change the conclusions reached in the 2002 Biological Opinion and would not be expected to change impacts on protected species previously analyzed under the current specifications. These impacts were deemed negligible and therefore the proposed action also would have negligible impacts.

7.7.1.7 Impacts on Human Communities

The no action alternative would have a negative impact on human communities because it would continue the need to adjust fishing strategies to a limited number of DAS and the fleet would not be able to take advantage of efficiencies that might be obtained under the proposed action. The red crab fleet would continue to be subject to uncertainty because the number of DAS allocated each year would vary in response to daily catch rates in previous years and the expected catch rates might not match those actually experienced in the current year.

7.8 Qualitative summary of the expected impacts of alternatives for Amendment 3

The expected impacts described in the previous parts of Section 7.0 are summarized in Table 22 below.

Table 22- Qualitative summary of the expected impacts of various alternatives for Amendment 3

Management Measure Options		Valued Ecosystem Component (VEC)				
		Managed Resource (Red Crab)	Non-target/Bycatch Species	Habitat (including EFH)	Protected Resources	Human Communities
Effort Control Options	Hard TAL without DAS (Proposed Action)	Positive	Negligible	Negligible	Negligible	Positive
	Status Quo/No Action (Maintain Target TAC and DAS)	Negative	Negligible	Negligible	Negligible	Negative
Trip Limit Options	Eliminate Trip Limits (Proposed Action)	Negligible	Negligible	Negligible	Negligible	Positive
	Status Quo/No Action (Maintain Trip Limits)	Negligible	Negligible	Negligible	Negligible	Negative
Trap Limit Regulatory Language Options	Modify Trap Limit Regulatory Language (Proposed Action)	Negligible	Negligible	Negligible	Negligible	Positive
	Status Quo/No Action (Maintain Existing Trap Limit Regulatory Language)	Negligible	Negligible	Negligible	Negligible	Negative

Accountability Measure Options	Proactive - In-season Closure Authority Granted to Regional Administrator (Proposed Action)	Positive	Negligible	Negligible	Negligible	Negligible Short-term, Slightly Positive Long-term
	Reactive Accountability Measures - Next Year In-Season Adjustment Option (Proposed Action)	Positive	Negligible	Negligible	Negligible	Positive
	"Leap Frog" Specifications Adjustment Option	Slightly Negative	Negligible	Negligible	Negligible	Slightly Positive
	Combinations of both Proactive and Reactive AMs (Proposed Action)	Positive	Negligible	Negligible	Negligible	Positive
	Status Quo/No Action (In-season adjustment to DAS)	Potentially Negative	Negligible	Negligible	Negligible	Negative

Modifications to the Specification-Setting Process	Modify the specification-setting process to include ABC recommendation from SSC (Proposed Action)	Positive	Negligible	Negligible	Negligible	Positive
	Status Quo/No Action	Potentially Negative	Negligible	Negligible	Negligible	Potentially Negative
Measures to Control the Landing of Female Crabs	Add landing of female crabs to measures that can be implemented through a framework adjustment if recommended by SSC (Proposed Action)	Negligible	Negligible	Negligible	Negligible	Positive
	Status Quo/No Action (Prohibit landing more than one standard tote of females per trip)	Negligible	Negligible	Negligible	Negligible	Negative

Hard TAL with No DAS (Proposed Action)	MSY = Undetermined	Negligible in the Short- term, Positive in the Long-term	Negligible	Negligible	Negligible	Positive
	ABC = 1,775 mt (3.91 million lb)					
	ACL = 1,775 mt (3.91 million lb)					
	TAL* = 1,775 mt (3.91 mill lb)					
	DAS = N/A					
Status Quo or No Action	MSY = Undetermined	Negligible in the Short- term, Potentially Negative in the Long-term	Negligible	Negligible	Negligible	Negative
	ABC = N/A					
	Target TAC = 1,775 mt (3.91 mill lb)					
	DAS = 665**					

7.9 Cumulative Effects Analysis

7.9.1 Introduction

A cumulative effects assessment (CEA) is a required part of an EIS or EA according to the Council on Environmental Quality (CEQ) (40 CFR part 1508.7) and NOAA's agency policy and procedures for NEPA, found in NOAA Administrative Order 216-6. The purpose of the CEA is to integrate into the impact analyses, the combined effects of many actions over time that would be missed if each action were evaluated separately. CEQ guidelines recognize that it is not practical to analyze the cumulative effects of an action from every conceivable perspective but rather, the intent is to focus on those effects that are truly meaningful. This section serves to examine the potential direct and indirect effects of the alternatives in Amendment 3 together with past, present, and reasonably foreseeable future actions that affect the monkfish environment. It should also be noted that the predictions of potential synergistic effects from multiple actions, past, present and/or future will generally be qualitative in nature.

Valued Ecosystem Components (VEC)

As noted in Section 6.0 (Description of Affected Environment), the VECs that exist within the monkfish fishery are identified, and the basis for their selection is established. Those VECs were identified as follows:

- Target species (red crab)
- Non-target and bycatch species
- Habitat (including EFH)
- Protected resources/endangered species
- Human communities.

7.9.1.1 Temporal and Geographic Scope of the Analysis:

In terms of past, present, and reasonably foreseeable actions for fisheries, habitat and economic and social impacts, the temporal scope of this analysis is primarily focused on actions that have taken place from 2002, when the Red Crab FMP was implemented, to 2013, when the next specifications will be set. 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 action (expected implementation in October 2011) until 2013 when the next specifications would be implemented. The geographic scope of the analysis of impacts on fish species and habitat for this action is the geographical extent of the Management Unit defined in the Red Crab FMP (Section 3.2). For endangered and protected species the geographic range is the total range of each species. The geographic range for the human environment is defined as those fishing communities bordering the range of the red crab fishery from the southern flank of Georges Bank south to Cape Hatteras, North Carolina.

Analysis of Total Cumulative Effects

A cumulative effects assessment ideally makes effect determinations based on the culmination of the following: (1) impacts from past, present and reasonably foreseeable future actions; PLUS (2) the baseline condition for resources and human communities (note – the baseline condition consists of the present condition of the VECs plus the combined effects of past, present and reasonably foreseeable future actions); PLUS (3) impacts from the Proposed Action and alternatives.

A description of past, present and reasonably foreseeable future actions is presented immediately below in Section 7.9.2. The baseline conditions of the resources and human community are subsequently summarized although it is important to note that beyond the stocks managed under this FMP and protected species, quantitative metrics for the baseline conditions are not available. Finally, a brief summary of the impacts from the alternatives contained in this amendment is included. The culmination of all these factors is considered when making the cumulative effects assessment.

7.9.2 Past, Present and Reasonably Foreseeable Future Actions

Table 23 summarizes the combined effects of other past, present and reasonably foreseeable future actions that affect the VECs, i.e., actions other than those alternatives under development in this document.

Note that most of the actions affecting this Amendment 3 and considered in Table 23 come from fishery-related activities (e.g., Federal fishery management actions). As expected, these activities have fairly straightforward effects on environmental conditions, and were, are, or will be taken, in large part, to improve those conditions. The reason for this is the statutory basis for Federal fisheries management - the reauthorized Magnuson-Stevens Act. That legislation was enacted to promote long-term positive impacts on the environment in the context of fisheries activities. More specifically, the act stipulates that management comply with a set of National Standards that collectively serve to optimize the conditions of the human environment. Under this regulatory regime, the cumulative impacts of past, present, and future federal fishery management actions on the VECs should be expected to result in positive long-term outcomes. Nevertheless, these actions are often associated with offsetting impacts. For example, constraining fishing effort frequently results in negative short-term socio-economic impacts for fishery participants. However, these impacts are usually necessary to bring about long-term sustainability of a given resource and as such should, in the long-term, promote positive effects on human communities, especially those that are economically dependent upon the managed resource.

Non-fishing activities were also considered when determining the combined effects from past, present and reasonably foreseeable future actions. Activities that have meaningful effects on the VECs include the introduction of chemical pollutants, sewage, changes in water temperature, salinity, dissolved oxygen, and suspended sediment into the marine

environment. These activities pose a risk to the all of the identified VECs in the long term. Human induced non-fishing activities that affect the VECs under consideration in this document are those that tend to be concentrated in near shore areas. Examples of these activities include, but are not limited to agriculture, port maintenance, beach nourishment, coastal development, marine transportation, marine mining, dredging and the disposal of dredged material. Wherever these activities co-occur, they are likely to work additively or synergistically to decrease habitat quality and, as such, may indirectly constrain the sustainability of the managed resources, non-target species, and protected resources. Decreased habitat suitability would tend to reduce the tolerance of these VECs to the impacts of fishing effort. Mitigation of this outcome through regulations that would reduce fishing effort could then negatively impact human communities.

7.9.2.1 Red Crab

Red crab is a data-poor species for which there have been only two fishery-independent surveys, one in 1974 and another in 2003-2005. This lack of data makes it difficult to assess the impacts of the FMP, the specifications packages, FW 1 and the Emergency Action on the red crab resource, other than eliminating the potential for the continuation of high landings that occurred with unregulated fishing effort in 2000 and 2001. Whereas the FMP and subsequent actions first capped and then reduced fishing effort and landings, it is likely that they have had a positive effect on the resource.

Only a handful of fisheries occur in deep waters that potentially overlap with the red crab fishery, specifically tilefish, monkfish, and offshore lobster fisheries. As explained in the FMP (Section 6.6, NEFMC 2002), “due to the offshore, deep water nature of the fishery, there are very few known interactions between the fishery and other fisheries. All these fisheries are under management plans that assess the impacts of that fishery on the red crab resource for red crab. The Tilefish, Monkfish, and Lobster FMPs have all implemented new restrictions on entry and fishing effort since the Red Crab FMP was implemented in 2002. The Monkfish FMP had the effect of reducing directed monkfish fishing in areas where red crab might be a significant bycatch. As a result the effect of these management actions on the red crab resource and fishery has been and continues to be positive.

7.9.2.2 Non-Target/Bycatch Species

As discussed previously, 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 2004 SAFE report, the only species reported to the VTR database as bycatch by the limited access red crab fleet are red crab, and on rare occasion, lobster and blue [sic] crab. Tallack (2007) provides a more quantitative, if still limited, assessment of bycatch in the red crab fishery.

Since the catch of non-target and bycatch species is already very low in the red crab fishery, past, present and reasonably foreseeable actions under the Red Crab FMP probably have had, or are expected to have positive but minimal impact on other species.

On the other hand, management actions under the Lobster FMP that have constrained fishing effort have had a positive impact on the lobster resource.

7.9.2.3 Habitat

No past, present or reasonably foreseeable future red crab fishing action has had or is expected to have an adverse impact on red crab habitat. In terms of other fishery management actions, Tilefish Amendment 1 prohibited mobile gear fishing in certain tilefish EFH, which overlaps with red crab habitat. Also effort reduction under the Monkfish FMP, particularly in offshore areas fished with mobile gear probably has and will continue to limit possible adverse impacts on red crab habitat. Finally when the NEFMC's Omnibus Amendment EFH is expected to update, identify, and delineate information on the EFH for red crab. Because there is relatively little geographical overlap between red crab and these other fisheries and because red crab traps have only minimal impacts on habitat, the combined effect of these actions is positive but minimal for red crab habitat.

7.9.2.4 Protected Resources

As stated in the FMP (Section 8.7; NEFMC 2002), the primary geographic area affected by the red crab fishery includes Northeast and Mid-Atlantic waters, and, while the red crab pots are very similar to those used in the lobster fishery, the red crab fishery is limited to the narrow shelf edge habitat. The Biological Opinion issued by NMFS in 2002 (available at http://www.nero.noaa.gov/prot_res/section7/NMFS-signedBOs/RedCrab2002signedBO.pdf) states that: "Given the limited overlap of right whales, humpback whales, and sei whales either the area where red crab gear occurs, the Deep-Sea Red crab FMP is not expected to result in takes of these ESA-listed species as a result of entanglement in trap gear." The Biological Opinion goes on to state that: "To the extent that these species do occur in the area where red crab gear is set, the depth at which red crab gear is set, the relatively low concentration of gear in the action area (maximum 600 traps per vessel; up to 8 vessels in the fishery and trawl sizes of 90-120 traps per trawl), and the existing ALWTRP measures for trap gear should help to further reduce the likelihood that interactions between red crab gear and right, humpback, and sei whales will occur. Thus past and present actions to limit red crab fishing effort have had some positive impact on the protected species identified above. Also, the Red Crab FMP can be expected to continue to limit red crab fishing effort and consequently continue to maintain this positive impact on protected species. However, red crab gear has only minimal overlap with protected species, as noted above, the effects of controlling red crab catch and effort will be positive but minimal on protected species.

Additionally, actions taken under the ESA have had some positive impact on protected resources that overlap the red crab fishery. These positive impacts will extend throughout the period when the specifications are in effect.

7.9.2.5 Social/Economic Impacts on Human Communities

Past, present, and future actions implemented under the red crab fishery all have had or are expected to have a positive impact on human communities. The FMP prevented overcapitalization of the red crab fishery and likely depletion of the red crab resource that would have either diminished the output of the fishery or required more severe regulations than were necessary under the framework created by the FMP. The 2009, Emergency Action that reduced the target TAC and DAS allocations by 40% for the vessels involved in the red crab fishery did not directly impact the participants in the fishery because landings in the most recent years have been below the level specified in the Emergency Action. The Emergency Action and subsequent specifications for fishing year 2010 and specifications proposed in this action did require individuals who depend on the red crab fishery to adjust their expectations and plans that were based on the previous specifications. On the other hand it provided additional protection to the resource while there was some scientific uncertainty about appropriate harvest levels for the fishery. The specifications that were put in place by the Emergency Action affected the potential for the red crab industry to take full advantage of the marketing opportunities provided by MSC certification, which was awarded in September 2009. Although the annual landings did not approach the previous target TAC in FY 2007 and 2008, the red crab industry has made a substantial investment in processing capacity and marketing arrangements that were expected to allow for increased landings in future years. The reduction in the TAC improved the likelihood that the red crab fishery would remain sustainable, which will have positive impacts on human communities.

Other federal fishery management actions that affected human communities that depend on red crab have are lobster management measures implemented under the Lobster FMP. These actions helped to ensure the sustainability of the lobster resource which also is economically important to some of the participants in the red crab fishery. Past, present and future actions under the Lobster FMP, therefore, have and are expected to continue to have positive impacts on the human communities that depend on the red crab resource.

7.9.2.6 Non-Fishing Impacts: Past, Present, and Reasonably Foreseeable Future Actions on Red Crab

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 were described. In summary, there are several chemical threats identified to have detrimental impacts on offshore habitats including release of oil, heavy metals, pesticides, and excessive amounts of suspended particles in the water column. Biological threats include invasion of non-indigenous 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 on 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 the potential release of toxic chemicals from any activities described above. On December 1, 2010, the Obama administration announced that there would be at least a seven year moratorium on oil and natural gas exploration on the Atlantic Coast. Currently, there is

one proposal for an array of scientific equipment on the outer Continental Shelf that could potentially interact with the red crab fishery and with resources in the area where the red crab fishery takes place. Individually, any one of these types of projects may not have a significant effect, but there may be cumulative effects to the red crab resource if multiple projects are approved. At this time, no significant cumulative effects are expected from non-fishing actions due to the remote habitat and the lack of proposed projects (e.g., offshore oil and mineral exploration, the installation of fiber optic and electrical cables) in the area of the red crab resource.

The effects of past, present and reasonably foreseeable future actions on the VECs identified for this amendment are summarized in Table 23 below.

Table 23 – Summary effects of past, present and reasonably foreseeable future actions on the VECs identified for Amendment 3

VEC	Past Actions	Present Actions	Reasonably Foreseeable Future Actions	Combined Effects of Past, Present, Future Actions
Red Crab	Positive Combined effects of past actions have prevented potential overharvesting of the red crab resource.	Positive Current regulations continue to manage for sustainable stocks	Positive Future actions are anticipated to continue to maintain a stable red crab resource	Positive Stocks are being managed to achieve optimum yield and prevent overfishing
Non-target species	Positive, but minimal- Past actions prevented potential increases in red crab effort and therefore effort on direct and discard/bycatch species	Positive, but minimal- Current regulations continue to manage for sustainable stocks, thus controlling effort on direct and discard/bycatch species	Positive, but minimal- Future actions are anticipated to continue to control effort and minimize bycatch	Positive, but minimal- Continued management of directed stocks will also control incidental catch/bycatch
Endangered and Other Protected Species	Positive, but minimal- Combined effects of past actions have prevented potential increases in red crab effort and therefore potential interactions with protected resources	Positive, but minimal- Current regulations continue to control catch and fishing effort, thus preventing potential increases in interactions with protected resources	Positive, but minimal- Future regulations will control effort and probably will help stabilize or reduce protected species interactions	Positive, but minimal- Continued catch & effort controls along with protected species regulations probably will help stabilize or reduce protected species interactions
Habitat	Positive, but minimal- Combined effects of past actions have prevented potential increases fishing effort and therefore potential habitat impacts	Positive, but minimal- Current regulations continue to control catch and fishing effort, thus preventing potential increases in habitat impacts	Positive, but minimal- Future regulations will likely control effort and thus habitat	Positive, but minimal- Continued fisheries management will likely control effort and thus fishery related habitat impacts
Human Communities	Positive Establishing catch targets improved the likelihood that the red crab fishery will remain sustainable, which has positive impacts on human communities	Positive Current regulations continue to maintain a stable red crab fishery	Positive Future actions are anticipated to continue to maintain a stable red crab fishery	Positive A sustainable red crab fishery should support viable communities and economies

Impact Definitions:
- Red

crab, Non-target species, Endangered and Other Protected Species: positive=actions that increase stock size and negative=actions that decrease stock size

-Habitat: positive=actions that improve or reduce disturbance of habitat and negative=actions that degrade or increase disturbance of habitat

-Human Communities: positive=actions that increase revenue and well-being of fishermen and/or associated businesses and negative=actions that decrease revenue and well-being of fishermen and/or associated businesses

7.9.3 *Baseline Conditions for Resources and Human Communities*

For the purposes of a cumulative effects assessment, the baseline conditions for resources and human communities is considered the present condition of the VECs plus the combined effects of the past, present, and reasonably foreseeable future actions. The following table (Table 24) summarizes the added effects of the condition of the VECs and the sum effect of the past, present and reasonably foreseeable future actions (from Table 23 above). The resulting CEA baseline for each VEC is exhibited in the last column (shaded). In general, straightforward quantitative metrics of the baseline conditions are only available for the managed resources, non-target species, and protected resources. The conditions of the habitat and human communities VECs are complex and varied. As such, the reader should refer to the characterizations given in Sections 6.2.1 and 6.3.4, respectively. As mentioned above, this cumulative effects baseline is then used to assess cumulative effects of the proposed management actions below in Table 23.

Impact Definitions for Table 24 below:

Regulated Groundfish Stocks, Non-groundfish species, Endangered and Other Protected Species	Positive = actions that increase stock size Negative = actions that decrease stock size
Habitat	Positive = actions that improve or reduce disturbance of habitat Negative = actions that degrade or increase disturbance of habitat
Human Communities	Positive = actions that increase revenue and well-being of fishermen and/or associated businesses Negative = actions that decrease revenue and well-being of fishermen and/or associated businesses
All VECs	Mixed=both positive and negative

VEC		Status/Trends	Combined Effects of Past, Present Reasonably Foreseeable Future Actions (Table 23)	Combined CEA Baseline Conditions
Red crab resource		Not overfished (rebuilt) and overfishing is not occurring.	Positive –Stocks have achieved rebuilt status and are being managed at sustainable levels.	Positive – long term regulatory actions taken over time have ended overfishing and rebuilt stocks
Non-target species		Minimal or no impacts on other species	Positive, but minimal – Continued management of directed stocks will also control any incidental catch/bycatch.	Positive, but minimal - Effort reductions in the monkfish fishery have likely reduced impacts on non-target species.
Habitat		Fishing impacts are complex and variable and typically neutral or adverse;	Positive, but minimal – Future regulations will likely control effort including mobile gear in other fisheries and thus habitat impacts. To date non-fishing activities probably little effect on red crab habitat.	Positive, but minimal - reduced habitat disturbance by fishing gear
Protected Resources	Sea Turtles	Leatherback, Kemp’s ridley and green sea turtles are classified as endangered under the ESA and loggerhead sea turtles are classified as threatened.	Positive, but minimal – potential increases in red crab fishing effort have been limited by management actions although red crab fishing has had negligible impacts on protected resources. Management actions taken under the ESA and MMPA have had a positive impact	Positive, but minimal - reduced gear encounters through management actions to control effort taken under the FMP, as well as those the ESA and MMPA.
	Large Cetaceans	Of the baleen whales (right, humpback, fin, blue, sei and minke whales) and sperm whales, all are protected under the MSA and with the exception of minke whales, all are listed as endangered under the ESA.		
	Small Cetaceans	Pilot whales, dolphins and harbor porpoise are all protected under the MSA. The most recent stock assessment for harbor porpoise shows that takes are increasing and nearing PBR.		
	Pinnipeds	ESA classification: Endangered, number of nesting females below sustainable level;		
Human Communities		Positive - (see Section 6.3) Management at long-term sustainable levels should support viable communities and economies	Positive – Management at long-term sustainable levels should support viable communities and economies	Positive – Management at long-term sustainable levels should support viable communities and economies

Table 24 Cumulative effects assessment baseline conditions of the VECs

7.9.1 Cumulative Effects Summary including Summary Effects of Amendment 3 Actions

The regulatory atmosphere within which Federal fishery management operates requires that management actions be taken in a manner that will optimize the conditions of resources, habitat, and human communities. Consistent with NEPA, the Magnuson-Stevens Act requires that management actions be taken only after consideration of impacts on the biological, physical, economic, and social dimensions of the human environment. Given this regulatory environment, and because fishery management actions must strive to create and maintain sustainable resources, impacts on all VECs (except short-term impacts on human communities) from past, present and reasonably foreseeable future actions, when combined with baseline conditions, have generally been positive and are expected to continue in that manner for the foreseeable future. This is not to say that some aspects of the various VECs are not experiencing negative impacts, but rather that when taken as a whole and compared to the level of unsustainable effort that existed prior to and just after the fishery came under management control, the overall long-term trend is positive.

The resultant cumulative effect is the CEA baseline that, as described above in Table 24, represents the sum of the past, present, and reasonably foreseeable future (identified hereafter as "other") actions and conditions of each VEC. When an alternative has a positive effect on a VEC, for example, reduced fishing mortality on the red crab resource, it would have a positive cumulative effect on the stock size of the species when combined with the "other" actions that were also designed to increase stock size. In contrast, when an alternative has a negative effect on a VEC, such as increased mortality, the cumulative effect on the VEC would be negative and tend to reduce the positive effects of the "other" actions. The resultant positive and negative cumulative effects are described below for each VEC and are exhibited in Table 24.

Red Crab Resource

As noted in Table 23, past actions have successfully managed the red crab fishery with positive impacts on the resource compared to the unregulated fishery that existed prior to the implementation of the FMP. Present and reasonably foreseeable future actions should continue this trend. The proposed action should provide additional positive impacts on the red crab resource through the greater control over catch and landings provided by the hard TAL with in-season closure authority and payback for any overage of the TAL/ACL.

Non-target Species

As noted in Table 23, the combined effect of past, present or reasonably foreseeable future federal fishery management actions have had or will have positive effects on non-target/bycatch species because they have prevented potential, uncontrolled increases in fishing effort for red crab, lobster, monkfish and tilefish and therefore effort on non-target species in the management area. Amendment 3 is expected to maintain this level of control with respect to the red crab fishery and therefore will have a positive, but minimal effect on non-target species.

Protected Resources

As noted in Table 23, the combined effect of past, present or reasonably foreseeable future federal fishery management actions have had or will have positive effects on protected resources because they have prevented potential, uncontrolled increases in fishing effort for red crab, lobster, monkfish and tilefish and therefore effort on protected resources in the red crab management area. Amendment 3 is expected to maintain this level of control on fishing effort in the red crab fishery and therefore will have a positive, but minimal effect on protected resources.

Habitat

As noted in Table 23, the combined effect of past, present or reasonably foreseeable future federal fishery management actions have had or will have positive effects on habitat because they have prevented potential, uncontrolled increases in fishing effort for red crab, lobster, monkfish and tilefish and therefore adverse impacts of uncontrolled fishing on habitat. Amendment 3 is expected to maintain this level of control on fishing effort with respect to the red crab fishery and therefore will have a positive, but minimal effect on habitat.

Human Communities

As noted in Table 23 past and present federal fishery management actions have had and are having positive effects on the resource compared to the unregulated fishery that existed prior to the implementation of the FMP. This has improved the likelihood that the red crab fishery will remain sustainable which has positive effects on human communities.

Summary of expected cumulative effects on VECs

The expected cumulative effects are the combinations of the impacts of proposed action on the VECs with their baseline condition as determined by the CEA. Where the CEA baseline condition is positive and the impacts of the proposed action are positive, the expected cumulative effect is positive. Where the CEA baseline condition is positive and the proposed action is expected to have negligible impacts, the expected cumulative effect still is positive. The expected cumulative effects are summarized in Table 25 below. The rationales for the overall conclusions about impacts for specific measures are not included because they were included earlier in the text or tables for the summary of impacts of the proposed action (Table 22), past, present and reasonably foreseeable future actions (Table 23) and the combined CEA baseline conditions (Table 24).

Impacts are listed as no impact/neutral, positive, negative, or mixed. Impacts listed as no impact/neutral include those alternatives that have no impact or have a neutral impact (neither positive nor negative). Impacts listed as mixed contain both positive and negative impacts.

Organization of the Cumulative Effects Summary

The alternatives contained in Amendment 3 can be divided into three broad categories that similar in terms of the types of measures and their impacts on VECs. First, the amendment establishes processes to make the Red Crab FMP consistent with Magnuson-Stevens Act

including the process for determining management reference points. Second, the action proposes measures that would improve the fishing operations and management such as a change to total catch controls and the elimination of most input controls. Third the action proposes specifications for fishing years 2011-2013.

The first category of measures includes the Specification Process and Components (Section 4.5) which establishes the process for setting the ABC and ACL based on scientific recommendations of the Council's Scientific and Statistical Committee, Accountability Measures (Section 4.4) and the Process for the Possible Removal of Landings Restrictions on Female Red Crab (Section 4.6). The measures in this category are administrative in nature and do not directly change red crab specifications or fishing practices. As such, they have relatively small impacts on the VECs.

The second category consists measures that directly affect the management system and regulate how fishing is conducted. This category includes the proposed hard TAL without DAS restrictions, the elimination of the trip limit, and a revision to the rules for the current trap limits (Section 4.1). The impacts of these measures on VECs are described in Sections 7.1 – 7.4. Measures in this category have more direct impacts on the VECs.

The third category of measures includes the proposed specifications for the 2011-2013 fishing years (Section 5.0). These measures generally have the greatest impacts on non-target species and protected resources because they determine the overall level of catch and therefore the overall level of fishing effort.

The expected cumulative effects are summarized in Table 25 below for the above three general categories of management measures in the proposed action. The sum of the effects from implementation of the proposed action and other fishing and non-fishing actions is expected to be positive for the red crab resource and human communities and positive but minimal for non-target/bycatch, habitat/EFH, and protected resources. The sum of the long-term effects from implementation of the proposed action is expected to be positive for human communities through the maintenance of a sustainable resource that is expected to provide a reliable source of future income.

Table 25 – Summary of expected cumulative effects on VECs

Management Measure	VEC				
	Red Crab Resource	Non-target Species	Protected Resources	Habitat Including EFH	Human Communities
Specification Process & Components; Accountability Measures & Process for Possible Removal of Landings Restrictions on Female Red Crab	Positive – positive effects from past actions combined with positive effects from proposed action	Positive, but minimal – positive effects from past actions combined with negligible effect (positive or negative) from proposed action	Positive, but minimal – positive effects from past actions combined with negligible effect (positive or negative) from proposed action	Positive, but minimal – positive effects from past actions combined with negligible effect (positive or negative) from proposed action	Positive – positive effects from past actions combined with positive effects from proposed action
Measures to Improve Management & Fishing Operations: hard TAL without DAS restrictions; elimination of trip limit; revised trap limit rules	Positive – positive effects from past actions combined with positive effects from proposed action	Positive, but minimal – positive effects from past actions combined with negligible effect (positive or negative) from proposed action	Positive, but minimal – positive effects from past actions combined with negligible effect (positive or negative) from proposed action	Positive, but minimal – positive effects from past actions combined with negligible effect (positive or negative) from proposed action	Positive – positive effects from past actions combined with positive effects from proposed action
Specifications for Fishing Years 2011-2013	Positive – positive effects from past actions combined with positive effects from proposed action	Positive, but minimal – positive effects from past actions combined with negligible effect (positive or negative) from proposed action	Positive, but minimal – positive effects from past actions combined with negligible effect (positive or negative) from proposed action	Positive, but minimal – positive effects from past actions combined with negligible effect (positive or negative) from proposed action	Positive – positive effects from past actions combined with positive effects from proposed action

8.0 Economic Impact Summary

The economic impacts of each individual measure are described in Section 7.0 Environmental Consequences and Assessment of Impacts. This section discusses the economic consequences of the proposed action as a whole.

8.1 Short-term Economic Impacts

The proposed action is comprised of several different elements; however, many of the measures such as the process for setting red crab specifications have no economic impacts. The only proposed measures that have some real potential economic consequences are the specification of the total allowable landings (TAL) for fishing years 2011-2013 and measures that affect fishing operations such as the removal of the trip limit and modification to the trap limit regulations. However, the economic impacts of these operational measures cannot be quantified due to the lack of economic data from vessel operations. In general the removal of constraints such as trip limits or fishing for lobster on a red crab trip allows vessels to increase profitability because they have more ways they can adjust operations to reduce costs or increase revenues. The removal of the trip limit is expected to have little or no immediate benefit because vessels have not been constrained by the trip limit since it was implemented. However, with the change to output controls and other changes to the economic environment, vessels might have the chance to improve profits by taking fewer, longer trips with higher landings per trip. The modification to the trap limit regulations would allow vessels that fish in both the directed lobster and red crab fishery to target both species on a single trip. This measure also has potentially positive but unquantifiable economic impacts because it can potentially increase the profitability of fishing operations; however, currently there is only one vessel with limited access permits in both fisheries. In the longer term, this measure might encourage other vessels to acquire permits in both fisheries.

The principal measure in the proposed action in terms of its economic impact is the specification of the total allowable level of landings of red crab for 2011-2013; however the “hard” TAL that is proposed is no different than the target TAL currently in place. There is a difference in how the TAL would be implemented. The current TAL is a target that is used as a basis for assigning vessels an equal number of DAS based on recent catch rates. Also trip limits and trap limits serve as additional measures to help ensure the target TAL will not be exceeded. The proposed action would replace the target TAL with a “hard” TAL, meaning the fishery would be closed when the TAL is reached. The different implementation methods for the TALs have potentially different economic impacts as described below.

No Action / Status Quo – target TAL with trap and trip limits

- Likely to underachieve TAL by greater amount because:
 - All vessels probably will not use all their allocated DAS while some vessels might use more DAS if they were available.

- DAS are allocated equally among vessels and therefore potential fishing effort is distributed evenly instead of to more efficient vessels. For some levels of ex-vessel prices, it will be not be profitable for all vessels to continue fishing whereas more efficient vessels might have been able to land more red crab at those price levels if they were allowed to.
- A potential economic benefit of this alternative is that it can prevent a derby-style fishery in the absence of IFQs or other type of catch share allocations.

Proposed Action – “hard” TAL without trip limits and modified trap limits:

- Likely to more fully utilize the TAL than the No Action / Status Quo Alternative (see above discussion under the No Action / Status Quo alternative)
- Likely to improve economic efficiency because low-cost producers would be able to land more of the TAL
- Potential for derby-style fishery with resulting negative economic consequences if industry cooperation / ownership structure changes

In terms of the economic impacts of the proposed 2011-2013 fishing year specifications for an ACL/TAL of 1,775 mt (3,913,205 pounds), this amount does not differ from the current target TAL. Furthermore no other measures in the proposed action are expected to change the seasonality of landings in any predictable way. As a result the proposed action is not expected to measurably change the current supply of red crab to the market or the ex-vessel price of red crab and therefore wholesale or retail prices. Consequently the proposed action is not expected to measurably or predictably change consumer surplus.

The proposed action may have some positive effect on profits for harvesting operations and consequently producer surplus. If vessels are able to reduce operating costs as a result of the elimination of the trip limit and/or if they can combine red crab fishing on the same trips as lobster fishing due to the proposed change in the regulation prohibiting the carrying of lobster traps together with red crab traps. However, the possible increase the profitability of harvesting operations cannot be estimated because of the lack of cost information about vessel operations and because of the uncertainty about how vessels might change operations as a result of implementing the proposed action. Similarly, it is not possible to predict impacts on employment or crew member income. No other measures in the proposed action would directly and immediately affect vessel operations.

Although the proposed change in DAS limits to a hard TAL could potentially cause a “race to fish”, this is not expected in the period 2011-2013 under the proposed action because the few boats with limited access permits have overlapping ownership although they are individually incorporated and operate as a voluntary cooperative. The cooperative relationship fosters a strong incentive to harvest red crab in a way that maximizes profits for the fleet as a whole. As a result, the vessels are not expected to compete to harvest largest possible amount of red crab per vessel as quickly as possible before the allowable landings level is reached. Also because market conditions and not target allowable landings constrain the catch of red crab there is no incentive for boats to land as much as they can before the TAL would be reached. From Table 26 below it is evident that since 2006 landings have been lower than the proposed TAL of 1,775 mt despite higher target

TALs in these years. The single U.S. processor also is able to negotiate with vessels about how when to land red crab to meet market demand and production constraints throughout the year.

Table 26 Red Crab Total Annual Landings & Revenues for Limited Access Permit Holders

Fishing Year	Landings		Revenues
	Pounds	Metric Tons	Dollars
2004	4,930,204	2,236	\$ 4,218,888
2005	4,079,670	1,851	\$ 3,376,211
2006	3,841,577	1,743	\$ 3,581,651
2007	2,771,501	1,257	\$ 2,527,576
2008	2,762,239	1,253	\$ 2,429,309
2009	2,867,149	1,301	\$ 2,611,511
2010	2,658,085	1,206	\$ 2,667,976

It is not possible to determine the impacts of the proposed action on employment or on the income of crew members because of the lack of data; however, improvements in harvesting efficiency create the potential for increased income for crew members in two ways. First, in theory improved vessel profitability enables vessel owners to increase crew compensation. Second, if improved efficiency leads to a higher utilization of the TAL at a given ex-vessel price level an increase in landings increase employment and crew compensation.

8.2 Long-term Economic Impacts

Although they cannot be quantified, the proposed action can be expected to result in positive long-term economic impacts on both producer and consumer surplus. The proposed action can be expected to increase producer surplus and employment in both the harvesting, processing and other industries related to production and consumption of red crab because it will allow for a more efficient vessel operations and therefore higher utilization of the TAL as well as ensuring a sustainable catch from the red crab resource. The same factors, also will lead to a larger sustainable supply of red crab available for consumers and therefore increase consumer surplus in the long term.

8.3 Summary of Economic Impacts

The proposed action could be expected to have positive short-term and long-term impacts on vessel profits (producer surplus) because vessels would have greater operational flexibility to lower their costs and a greater proportion of the TAL could be landed by more efficient vessels.

Although it is not possible to determine impacts on employment or crew member compensation, the proposed action could have positive impacts on both of these. The proposed action is not expected to measurably or predictably change consumer surplus in the short-term; however it probably will lead to a greater utilization of the TAL in the long-term. On balance, the proposed therefore is expected to positive short-term economic impacts due to potential increase in vessel profits (producer surplus) and to have positive long-term economic impacts as the result of increases in both producer and consumer surplus.

9.0 SOCIAL IMPACT ANALYSIS

This section summarizes the social impacts previously identified in the evaluation of impacts of the proposed action (Section 7.0) and the Economic Impact Summary (Section 8.0). A description of the affected fishing communities is in Section 6.3.4 and Attachment C, which is a community profile of New Bedford, MA.

The primary social impacts of the proposed action result from 1) the economic impacts of the proposed action, and 2) measures that might improve the efficiency of vessel operations. As discussed in Section 8.0, the expected positive impacts on vessel profitability have the potential to increase overall crew compensation and the potential for higher utilization of the TAL through improved efficiency of vessel operations has the potential for increasing employment compared to the No Action/ Status Quo Alternative. Also, the proposed action would ensure the sustainability of the resource by making the Red Crab FMP consistent with the MSA requirements and therefore ensure economic benefits associated with a sustainable resource. These consequences would have both short-term and long term positive social impacts on fishing and coastal communities. In terms of improvements to vessel operations, the change from effort controls under the DAS management system to overall output controls under a “hard” TAC have the potential to reduce time spent at sea by captains and crew members. This also would reduce exposure to hazards at sea and therefore have positive impacts on crew safety and well-being in both the short and long term.

10.0 FISHERY IMPACT STATEMENT

Overview

The implementation of a new fishery management action and its associated regulations changes the environment for fishermen that target the regulated resource, but it can also result in changes for those in fisheries for other species. In many instances, the imposition of regulations to restrict effort and reduce fishing mortality forces fishing effort onto other species. In the complex fishing environment of the northeast region, where there are thousands of vessels participating in a wide variety of fisheries, the impacts of new regulations can have unexpected consequences that complicate fisheries management overall. This section takes a broad overview of fisheries in the region and attempts to gauge the interactions between red crab management and other fisheries.

Clearly, the vessels that will be most affected by the management measures in this plan are those vessels that have been fishing for red crab in recent years. Almost all reported landings in recent years have been by a small group of five or fewer vessels.

American Lobster Fishery

The Red Crab FMP (2002) identified fisheries for monkfish, tilefish, American lobster and golden crab as having possible interactions with the red crab fishery (Section 6.0). It found that the highest level of interaction with the red crab fishery was with the lobster fishery. Before the FMP was implemented some lobster vessels had occasionally targeted red crab and landed higher than “incidental catch” levels of red crab; however, under normal operating conditions, these two fisheries appeared to be segregated according to depth, with the lobster fishery occurring in more shallow water. The FMP further minimized the interaction between these fisheries by establishing limits on the incidental catch of red crab by any vessel not authorized to participate in the directed red crab fishery and thereby eliminating the incentive for any lobster vessels without a limited access crab permit to target red crab. Currently only one vessel with a limited access red crab permit participates in the lobster fishery.

The only measure in proposed the proposed action that might affect the lobster fishery is the proposed modification to the regulatory language pertaining to trap limits. The proposed measure would prohibit the use of red crab traps in water shallower than 400 meters where the lobster fishing is possible. This measure raises the possible concern that vessels fishing for both red crab and lobster could possibly increase their efficiency in the lobster fishery. However, this not a concern because primarily because the lobster fishery in the offshore are is controlled, among other measures, by limits on lobster trap (http://www.nmfs.noaa.gov/fishwatch/species/amer_lobster.htm). Additionally, because only a few vessels are needed to harvest the TAL in the red crab fishery, there is very limited potential for vessels to operate in both fisheries. Currently, based on the input of industry advisers, only one vessel with a limited access red crab permit also fishes for lobster.

Other Fisheries

In describing possible interactions with other fisheries, the Red Crab FMP (Section 6.6) concluded *“Due to the offshore, deep water nature of this fishery [red crab], there are very few known interactions between the fishery and other fisheries [lobster, monkfish, golden crab]. This also results in very few interactions expected between this FMP and other fisheries, with the exception of the specific cases identified above. None of these interactions, however, are expected to be significant.”*

Conclusion

The proposed action does not change the above conclusion and more recently, very little fishing for monkfish has taken place at the same depths as red crab fishing due to trip limits that have made offshore monkfish trips uneconomical. As a result, the earlier overlap between the monkfish and red crab fisheries is unlikely to occur during 2011-2013, the period covered by the proposed red crab specifications. Finally, under the proposed action, the ACL/TAL will not differ from the current target TAL, and therefore no changes in the total level of red crab effort and no impacts on other fisheries are expected.

11.0 CONSISTENCY WITH THE MSFCMA

11.1 Consistency with National Standards

Section 301 of the Magnuson-Stevens Fishery Conservation and Management Act requires that regulations implementing any fishery management plan or amendment be consistent with the ten national standards listed below.

National Standard 1

Conservation and management measures shall prevent overfishing while achieving, on a continuing basis, the optimum yield from each fishery for the United States fishing industry.

The proposed action will bring the Red Crab FMP into compliance with the MSA National Standard 1 requirements establishing an acceptable biological catch (ABC) and interim ABC control rule, an ACL, ACT and accountability measures (AMs). The proposed specifications for fishing year 2011-2013 are consistent with the ABC set through this process and will ensure that overfishing will not take place in the red crab fishery and that the red crab resource will not become overfished.

National Standard 2

Conservation and management measures shall be based on the best scientific information available.

The measures in this action are based on the best and most recent scientific information available including the Red Crab stock assessment from Northeast Regional Data Poor Stock Assessment Workshop 2008, which includes an independent peer review, and recommendations from the NEFMC Scientific and Statistical Committee for setting an interim Red Crab ABC.

National Standard 3

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

The red crab resource is managed as a single unit throughout its range in the U.S. EEZ.

National Standard 4

Conservation and management measures shall not discriminate between residents of different states. If it becomes necessary to allocate or assign fishing privileges among various United States fishermen, such allocation shall be (A) fair and equitable to all such fishermen; (B) reasonably calculated to promote conservation; and (C) carried out in such a manner that no particular individual, corporation, or other entity acquires an excessive share of such privileges.

The proposed measures are the same for all vessels in the red crab fishery regardless of the state of residence of the owner or operator of the vessels. Although any fishing mortality control (including possession limits and quotas) results in the allocation of fishery resources, the measures in the proposed action are reasonably expected to promote conservation by continuing to prevent overfishing and rebuild overfished stocks.

National Standard 5

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

The proposed action is expected to improve the efficiency of vessels operations by removing the input controls, namely limits on DAS and trip limits. The hard TAL alternative responds to industry concerns about the problematic nature of DAS controls in terms of business planning, flexibility, operational safety, and capability to allow the fleet to catch the ACL/TAL without exceeding it. None of the measures in this action directly allocates red crab and therefore none has economic allocation as its sole purpose.

National Standard 6

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

The proposed action, developed with the input of red crab fishermen and processors, is intended to allow fishermen would improve the flexibility of the red crab fleet particularly by eliminating DAS and red crab trip limits. Vessels could make longer trips landing more red crab if weather or economic conditions warranted.

National Standard 7

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

The proposed action would simplify management regulations and reduce operating costs in the red crab fishery by allowing vessels to make longer fishing trips and reduce total annual time spent steaming to and returning from fishing grounds for red crab.

The proposed action does not duplicate other fishing regulations or fishery management measures. The Red Crab FMP is the only management plan that sets harvest limits and fishing regulations for Atlantic deep-sea red crab.

National Standard 8

Conservation and management measures shall, consistent with the conservation requirements of this Act (including the prevention of overfishing and rebuilding of overfished stocks), take into account the importance of fishery resources to fishing communities in order to (A) provide for the sustained participation of such communities, and (B) to the extent practicable, minimize adverse impacts on such communities.

The proposed action was developed with the input of red crab vessels owners who stated at public meetings that the proposed measures would assist them economically by making harvesting operations more efficient. They stressed the importance of having the flexibility of making fewer, longer fishing trips particularly because the fishing grounds for red crab are so distant. This flexibility would make the red crab fishery more economically viable and therefore more economically sustainable. Also, it would allow red crab fishermen to reduce their time at sea. Time at sea takes fishermen away from their families and communities.

National Standard 9

Conservation and management measures shall, to the extent practicable, (A) minimize bycatch and (B) to the extent bycatch cannot be avoided, minimize the mortality of such bycatch.

The proposed action is not expected to have any impact on bycatch of red crab or other species (Section 7.1.2).

National Standard 10

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

The proposed action allow red crab vessels owners and operators to reduce total annual steaming time by making fewer longer trips if they choose to do so. Less sea time generally reduces exposure to safety hazards at sea, all other circumstances being equal. No measure in the proposed action reduces the flexibility of vessel operators to respond to hazardous conditions at sea.

11.2 Other MSA requirements

Section 303 (a) of FCMA contains 14 required provisions for FMPs that are listed below. The requirement applies to the FMP and in some cases, the FMP as amended and not the submission document for the proposed action meets the requirement.

- (1) *contain the conservation and management measures, applicable to foreign fishing and fishing by vessels of the United States*

Foreign fishing is not allowed under this management plan or this action, so specific measures are not included to specify and control allowable foreign catch.

- (2) *contain a description of the fishery*

An updated description of the fishery description is included in Section 6.0 of this document.

- (3) *assess and specify the present and probable future condition of, and the maximum sustainable yield and optimum yield from, the fishery, and include a summary of the information utilized in making such specification;*

The NEFMC Scientific and Statistical Committee determined that “the information available for red crab is insufficient to estimate MSY and OY. See sections 2.1.1.and 2.1.3.

- (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;*

Due to the lack of scientific data MSY and long-term OY have not been defined for the red crab fishery; However, U.S. fishing vessels are capable of, and expected to, harvest 100 percent of the ABC from this fishery as specified in Section 5.1. U.S. processors are also expected to process all landings from U.S. fishing vessels. Therefore there is no portion of the ABC from this fishery that can be made available to foreign fishing.

- (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,...*

Red Crab vessels currently must submit Interactive Voice Reports (IVRs) and Vessel Trip Reports (VTRs) for each fishing trip. Dealers are also required to submit reports on the purchases of red crab from permitted vessels. Current reporting requirements are detailed in 50 CFR 648.7.

- (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...*

The proposed action does not contain any measures that would penalize vessels that were prevented from harvesting red crab because of weather or other ocean conditions. The proposed will improve vessels flexibility to respond to adverse ocean conditions by enabling them to extend the length of their trips and fish fewer trips when they choose.

- (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;*

Essential fish habitat for red crab was defined in the Red Crab FMP which was implemented in 2003. This action does not change the essential fish habitat designations. The Council currently is updating EFH designations for all NEFMC managed species, including red crab, in an omnibus amendment that is expected to be implemented in 2012.

- (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;*

Scientific needs are continuously reviewed and revised by the Council's Research Steering Committee and the Northeast Stock Assessment Workshop which consult with NMFS, the Council and its Plan Development Teams, Scientific and Statistical Committee and species oversight committees about scientific data needs.

- (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;

Impacts on fishing communities affected by this action can be found in the Social Impact Analysis in Section 9.0. Impacts on other fisheries affected by this action can be found in the Fishery Impact Statement in Section 10.0.

- (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;*

The criteria for determining whether or not the red crab resource is overfished are explained in Section 6.1.1.1.

- (11) *establish a standardized reporting methodology to assess the amount and type of bycatch occurring in the fishery, and include conservation and management measures that, to the extent practicable and in the following priority-- (A) minimize bycatch; and (B) minimize the mortality of bycatch which cannot be avoided;*

This action does not include changes to the current Standardized Bycatch Reporting Methodology implemented under the Standardized Bycatch Reporting Methodology Omnibus Amendment (Amendment 1 to the Red Crab FMP) implemented in February 2008. This methodology is expected to assess the amount and type of bycatch in the red crab fishery and help identify ways the fishery can minimize bycatch and mortality of bycatch which cannot be avoided.

- (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 fishing for deep-sea Atlantic red crab.

- (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;*

As noted above, there is no recreational fishing for deep-sea Atlantic red crab.

- (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.*

The proposed action does not reduce the overall harvest to fishery participants.

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

The proposed action would implement an ABC, annual catch limit (ACL), annual catch target (ACT)/total allowable landings (TAL) and accountability measures (AMs) that would prevent overfishing and ensure accountability.

12.0 COMPLIANCE WITH APPLICABLE LAW

12.1 NEPA

This section evaluates the proposed action in the context of NEPA, for determining the significance of Federal actions, in this case the setting of annual red crab fishery specifications and other adjustments to the FMP.

12.1.1 Finding of No Significant Impact

National Oceanic and Atmospheric Administration Administrative Order 216-6 (NAO 216-6) (May 20, 1999) contains criteria for determining the significance of the impacts of a proposed action. In addition, the Council on Environmental Quality regulations at 40 C.F.R. '1508.27 state that the significance of an action should be analyzed both in terms of “context” and “intensity”. Each criterion listed below is relevant in making a finding of no significant impact and has been considered individually, as well as in combination with the others. The significance of this action is analyzed based on the NAO 216-6 criteria and CEQ’s context and intensity criteria. These include:

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 control the total amount of red crab that may be harvested at a level determined to be sustainable by the Council’s SSC (see Attachments A and B). The impacts of the proposed action on the red crab resource are discussed in Section 7.0 of this document.

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 6.1.2.3 of this document and Section 5.1.3 of the Red Crab FMP/EIS). Since this action maintains the reduced fishing level that was implemented subsequent to the adoption of the FMP, the impacts on non-target species are expected to be reduced compared to the impacts that existed under the landing levels analyzed and authorized in the FMP.

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 7.0 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 other species. Furthermore, pots are the only gear type utilized to harvest red crab by the limited access fleet, and this gear type has no known adverse impacts on EFH.

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

This action is not expected to have substantial adverse impacts on public health. This action may improve safety at sea by removing limits on days-at-sea and thereby removing pressures on captains to maximize the production from each limited day.

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 7.0 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. 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 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, due to the lack of effects on habitat and non-target species. There is insufficient information available on the ecosystem function of the red crab resource to determine how fishery removals impact 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 control the red crab harvest at a level lower than that authorized by the FMP and is likely to continue to ensure biodiversity and ecosystem stability over the long-term.

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

This EA documents that no significant natural or physical effects will result from implementation of the proposed action (Section 7.0). The proposed action is designed to maintain a sustainable population of red crab. Negligible (positive or negative) impacts on the physical and biological environment are expected to result from this action. The action's potential social and economic impacts are expected to be positive in both the short term and long term, as discussed in the EA (see Section 7.0 and in the Executive Order 12866 review (Section 12.10)).

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

The effects of the proposed action are not expected to be highly controversial. They are consistent with the effects determined in the original Red Crab FMP dated March 2002 and which have not been challenged.

9) Can the proposed action reasonably be expected to result in substantial impacts on unique areas, such as historic or cultural resources, park land, prime farmlands, wetlands, wild and scenic rivers or ecologically critical areas?

The red crab fishery is not known to take place in any unique areas such as historic or cultural resources, park land, prime farmlands, wetlands, wild and scenic rivers or ecologically critical areas. It occurs in deep water on the edge of the continental shelf. Therefore, the proposed action is not expected to have a substantial impact on any of these areas.

10) Are the effects on the human environment likely to be highly uncertain or involve unique or unknown risks?

The impacts of the proposed action on the human environment are described in Section 7.0 of the EA. This action is not expected to significantly alter fishing methods or activities that would have a significant impact on the human environment. The types of actions proposed in this amendment to the Red Crab FMP are consistent with previous actions and similar to types of management measures used widely in federally-managed fisheries. Therefore, the measures contained in this action are not expected to have highly uncertain, unique, or unknown risks on the human environment.

11. Is the proposed action related to other actions with individually insignificant, but cumulatively significant impacts?

The proposed action, together with past and future actions, is not expected to result in significant cumulative impacts on the biological and physical components of the environment or on human communities (See Cumulative Effects Summary in Section 7.9.1

12. Is the proposed action likely to adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural or historical resources?

The red crab fishery is not known to be take place in any areas that might affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic

Places or cause the loss or destruction of significant scientific, cultural or historical resources. Therefore, this action is not expected to affect any of these areas.

13. Can the proposed action reasonably be expected to result in the introduction or spread of a non-indigenous species?

There is no evidence or indication that the red crab fishery has ever resulted in the introduction or spread of non-indigenous species. The proposed action is not expected to significantly alter fishing methods or activities in a way that would be expected to result in the introduction or spread of a non-indigenous species.

14. Is the proposed action likely to establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration?

This action is not likely to establish any precedents for future actions with significant effects, nor does it represent a decision in principle about a future consideration.

15. Can the proposed action reasonably be expected to threaten a violation of Federal, State, or local law or requirements imposed for the protection of the environment?

This action is not expected to alter fishing methods or activities such that they threaten a violation of Federal, State, or local law or requirements imposed for the protection of the environment. This action is not expected to alter fishing methods in any way except to change the level of catch or landings that are permitted either on individual fishing trips or for the fishery as a whole.

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

The impacts of the proposed action on the biological, physical, and human environment are described in Section 7.0. The cumulative effects of this action on target and non-target species are detailed in Section 7.9. The proposed action is not expected to have substantial adverse effect on either the target or any non-target species.

DETERMINATION

In view of the information presented in this document and the analysis contained in the supporting Environmental Assessment, it is hereby determined that the proposed actions in this specification package will not significantly impact the quality of the human environment as described above and in the Environmental Assessment. In addition, all beneficial and adverse impacts of the proposed action have been addressed to reach the conclusion of no significant impacts. Accordingly, preparation of an Environmental Impact Statement for this action is not necessary.

Regional Administrator, Northeast Region, NMFS

Date

12.2 Marine Mammal Protection Act

The Agency has reviewed the impacts of the action on marine mammals and has concluded that the management actions are consistent with the provisions of the MMPA, and will not alter existing measures to protect the species likely to inhabit the red crab management unit. For further information on the potential impacts of the fishery and the proposed management action on marine mammals, see the relevant part of Section 7.0 of this document.

12.3 Endangered Species Act

Section 7 of the Endangered Species Act requires federal agencies conducting, authorizing, or funding activities that affect threatened or endangered species to ensure that those effects do not jeopardize the continued existence of listed species. The proposed action will not increase fishing effort for red crab because it will not increase the ABC or total allowable landings from the no action alternative. Also, it would not substantially change the way the fishery currently operates. The only operational change for the fishery would be the elimination of the trip limit. Vessels would still be subject to the same limit on the number of red crab pots they deploy so the maximum geographical footprint of the fishery at any one time would not increase. The elimination of the trip limit would allow vessels to take longer trips, but trip length is not a factor that has been identified as affecting protected species. Based on this information available at this time, the NEFMC believes that NMFS will concur that the action proposed for the red crab fishery would not be likely to jeopardize any ESA-listed species or alter or modify any critical habitat.

12.4 Coastal Zone Management Act

Section 307(c)(1) of the Coastal Zone Management Act (CZMA) of 1972, as amended, requires that all Federal activities that directly affect the coastal zone be consistent with approved state coastal zone management programs to the maximum extent practicable. The CZMA provides measures for ensuring stability of productive fishery habitat while striving to balance development pressures with social, economic, cultural, and other impacts on the coastal zone. It is recognized that responsible management of both coastal zones and fish stocks must involve mutually supportive goals. The Council has developed this amendment document and will submit it to NMFS; NMFS must determine whether this action is consistent to the maximum extent practicable with the CZM programs for each state (Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, Delaware, Maryland, Virginia, and North Carolina). Letters documenting NMFS' determination will be sent to the coastal zone management program offices of each state.

12.5 Administrative Procedure Act

Section 553 of the APA establishes procedural requirements applicable to informal rulemaking by Federal agencies. The purpose of these requirements is to ensure public access to the Federal rulemaking process, and to give the public adequate notice and opportunity for comment. At this time, the NEFMC is not requesting any abridgement of the rulemaking process for this action.

12.6 Data Quality Act

Utility of Information Product

The information presented in this document is helpful to the intended users (the affected public) by presenting a clear description of the purpose and need of the proposed action, the measures proposed, and the impacts of those measures. A discussion of the reasons for selecting the proposed action is included so that intended users may have a full understanding of the proposed action and its implications. The intended users of the information contained in this document include individuals involved in the red crab fishery, (e.g., fishing vessels, crab processors, fishery managers), and other individuals interested in the management of the red crab fishery. The information contained in this document will be helpful and beneficial to owners of vessels holding limited access red crab permits since it will notify these individuals of the measures contained in this amendment. This information will enable these individuals to adjust their management practices and make appropriate business decisions based upon this revision to the FMP. Until a proposed rule is prepared and published, this EA/RIR/IRFA is the principal means by which the information contained herein is available to the public. The information provided in this document is based on the most recent available information from the relevant data sources. The information contained in this document includes detailed and relatively recent information on the red crab resource and, therefore, represents an improvement over previously available information. This EA/RIR/IRFA will be subject to public comment through proposed rulemaking, as required under the Administrative Procedure Act and, therefore, may be improved based on comments received.

This document is available in several formats, including printed publication, and online through the NEFMC's web page (www.nefmc.org). The Federal Register notice that announces the proposed rule and the final rule and implementing regulations will be made available in printed publication, on the website for the Northeast Regional Office (www.nero.noaa.gov), and through the Regulations.gov website. The Federal Register documents will provide metric conversions for all measurements.

Integrity of Information Product

The information product meets the standards for integrity under the following types of documents:

Other/Discussion (e.g., Confidentiality of Statistics of the Magnuson-Stevens Fishery Conservation and Management Act; NOAA Administrative Order 216-100, Protection of Confidential Fisheries Statistics; 50 CFR 229.11, Confidentiality of information collected under the Marine Mammal Protection Act.)

Prior to dissemination, information associated with this action, 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. All electronic information disseminated by NMFS adheres to the standards set out in Appendix III, "Security of Automated Information Resources," of OMB Circular A-130; the Computer Security Act; and the Government Information Security Act. All confidential information (e.g., dealer purchase reports) is safeguarded pursuant to the Privacy Act; Titles 13, 15, and 22 of the U.S. Code (confidentiality of census, business, and financial information); the Confidentiality of Statistics provisions of the Magnuson-Stevens Act; and NOAA Administrative Order 216-100, Protection of Confidential Fisheries Statistics.

Objectivity of Information Product

For purposes of the Pre-Dissemination Review, this document is considered to be a “Natural Resource Plan.” Accordingly, the document adheres to the published standards of the Magnuson-Stevens Act; the Operational Guidelines, Fishery Management Plan Process; the Essential Fish Habitat Guidelines; the National Standard Guidelines; and NOAA Administrative Order 216-6, Environmental Review Procedures for Implementing the National Environmental Policy Act. This information product uses information of known quality from sources acceptable to the relevant scientific and technical communities. Several sources of data were used in the development of Amendment 3. These data sources included, but were not limited to, historical and current landings data from the Commercial Dealer database, vessel trip report (VTR) data, and fisheries independent data collected through the NMFS bottom trawl surveys. The analyses contained in this document were prepared using data from accepted sources. These analyses have been reviewed by members of the Red Crab Plan Development Team and by the SSC where appropriate.

Despite current data limitations, the conservation and management measures considered for this action were selected based upon the best scientific information available. The analyses important to this decision used information from the most recent complete calendar years, generally through 2008. The data used in the analyses provide the best available information on the number of permits, both active and inactive, in the fishery, the catch (including landings and discards) by those vessels, the revenue produced by the sale of those landings to dealers, and the number of DAS used by those vessels. Specialists (including professional members of plan development teams, technical teams, committees, and Council staff) who worked with these data are familiar with the most current analytical techniques and with the available data and information relevant to the red crab fishery. The policy choices are clearly articulated in section 4.0 of this document, those being the management alternatives considered in this action. The supporting science and analyses, upon which the policy choices are based, are summarized and described in sections 5.0 and 6.0 of this document. All supporting materials, information, data, and analyses within this document have been, to the maximum extent practicable, properly referenced according to commonly accepted standards for scientific literature to ensure transparency. The review process used in preparation of this document involves the responsible Council, the Northeast Fisheries Science Center, the Northeast Regional Office, and NOAA Fisheries Service Headquarters. The Center’s technical review is conducted by senior level scientists with specialties in population dynamics, stock assessment methods, population biology, and the social sciences. The Council review process involves public meetings at which affected stakeholders have opportunity to provide comments on the document. Review by staff at the Regional Office is conducted by those with expertise in fisheries management and policy, habitat conservation, protected species, and compliance with the applicable law. Final approval of the action proposed in this document and clearance of any rules prepared to implement resulting regulations is conducted by staff at NOAA Fisheries Service Headquarters, the Department of Commerce, and the U.S. Office of Management and Budget. In preparing this revision of the red crab FMP, NMFS must comply with the requirements of the Magnuson-Stevens Act, the National Environmental Policy Act, the Administrative Procedure Act, the Paperwork Reduction Act, the Coastal Zone Management Act, the Endangered Species Act, the Marine Mammal Protection Act, the Information Quality Act, and Executive Orders 12630 (Property Rights), 12866 (Regulatory Planning), 13132 (Federalism),

and 13158 (Marine Protected Areas). The Agency has determined that the proposed action is consistent with the National Standards of the Magnuson-Stevens Act and all other applicable laws.

12.7 Paperwork Reduction Act

The Paperwork Reduction Act (PRA) concerns the collection of information. The intent of the PRA is to minimize the Federal paperwork burden for individuals, small businesses, state and local governments, and other persons as well as to maximize the usefulness of information collected by the Federal government. There are no changes to the existing reporting requirements previously approved under this FMP for vessel permits, dealer reporting, or vessel logbooks. This action does not contain a collection-of-information requirement for purposes of the Paperwork Reduction Act.

12.8 Impacts Relative to Federalism/E.O. 13132

This E.O. established nine fundamental federalism principles for Federal agencies to follow when developing and implementing actions with federalism implications. The E.O. also lists a series of policy-making criteria to which Federal agencies must adhere when formulating and implementing policies that have federalism implications. However, no federalism issues or implications have been identified relative to the measures proposed in Amendment 3. This action does not contain policies with federalism implications sufficient to warrant preparation of an assessment under E.O. 13132. The affected states have been closely involved in the development of the proposed management measures through their representation on the Council. No comments were received from any state officials relative to any federalism implications that may be associated with this action.

12.9 Environmental Justice/E.O. 12898

This EO provides that “each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations.” EO 12898 directs each Federal agency to analyze the environmental effects, including human health, economic, and social effects of Federal actions on minority populations, low-income populations, and Indian tribes, when such analysis is required by NEPA. Agencies are further directed to “identify potential effects and mitigation measures in consultation with affected communities, and improve the accessibility of meetings, crucial documents, and notices.”

The action is not expected to affect participation in the red crab fishery because it will maintain the current landing limit. Fishing activity relative to the current fishing levels in this fishery is unlikely to be affected by this action. No significant economic or social effects are expected (section 7.0). This action is not expected to cause disproportionately high and adverse human health, environmental or economic effects on minority populations, low-income populations, or Indian tribes.

12.10 Regulatory Flexibility Act/E.O. 12866

12.10.1 Regulatory Impact Review

12.10.1.1 Background

In compliance with Executive Order (E.O.) 12866, NOAA's National Marine Fisheries Service (NMFS) requires the preparation of a Regulatory Impact Review (RIR) for all regulatory actions or for significant policy changes that are of public interest. E.O. 12866 was signed on September 30, 1993, and established guidelines for Federal agencies promulgating new regulations and reviewing existing regulations.

An RIR is a required component of the process of preparing and reviewing fishery management plans (FMPs) or amendments and provides a comprehensive review of the economic impacts associated with the proposed regulatory action. An RIR addresses many of the concerns posed by the regulatory philosophy and principles of E.O. 12866. An RIR also serves as the basis for assessing whether or not any proposed regulation is a "significant regulatory action" under criteria specified in E.O. 12866. According to the "Guidelines for Economic Analyses of Fishery Management Actions," published by NMFS in August 2000, an RIR must include the following elements: (1) A description of the management objectives of the regulatory action; (2) a description of the fishery affected by the regulatory action; (3) a statement of the problem the regulatory action is intended to address; (4) a description of each selected alternative, including the "no action" alternative; and (5) an economic analysis of the expected effects of each selected alternative relative to the baseline.

12.10.1.2 Statement of the Problem and Management Objectives of the Regulatory Action

See Section 3.0 – Purpose and need of action.

12.10.1.3 Description of the Affected Fishery

See Section 6.3.2- Description of the Fishery.

12.10.1.4 Description of the Management Measure Alternatives

See Section 4.0 for a complete description of the proposed management measures and the alternatives that were considered by the Council.

12.10.1.5 Expected Economic Effects of the Proposed Action

See Section 8.0 for an evaluation of the expected economic effects of the proposed action.

12.10.1.6 Determination of Significance under E.O. 12866

E.O. 12866 requires that the Office of Management and Budget 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 Council has determined that, based on the information presented above, this action is expected to have no material economic effect. Because none of the factors defining "significant regulatory action" are triggered by this action, the action has been determined to be not significant for the purposes of E.O. 12866. See detailed discussion below.

12.10.1.7 E.O. 12866 Criteria

NMFS Guidelines provide criteria to be used to evaluate whether a proposed action is significant. A significant regulatory action means any regulatory action that is likely to result in a rule that may:

1. *Have an annual effect on the economy of \$100 million or more, or adversely effect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or State, local or tribal governments or communities.*

This action is not expected to have either an annual effect on the economy of \$100 million, or adversely effect in a material way the economy, a sector of the economy, productivity, competition, the environment, public health or safety, or State, local, tribal governments or communities. During fishing years 2004 through 2008, gross red crab revenues averaged approximately \$3.23 million per fishing year. The value of the measures is not fully estimated, but the impact on the national economy, if any, is expected to be well below \$100 million. This action is not expected to result in forgone revenues from red crab landings relative to fishing year 2009 or 2010.

2. *Create a serious inconsistency or otherwise interfere with an action taken or planned by another agency.*

The proposed action does not create an inconsistency or otherwise interfere with an action taken or planned by another agency. The activity that would be allowed under this action involves commercial fishing for red crab in Federal waters of the EEZ, for which NMFS is the sole agency responsible for regulation. Therefore, there is no interference with actions taken by another agency. Furthermore, this action would create no inconsistencies in the management and regulation of commercial fisheries in the Northeast.

3. *Materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights and obligations of recipients thereof.*

This action will not materially alter the budgetary impact of entitlements, grants, user fees or loan programs, or the rights and obligations of recipients of these programs.

4. *Raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in the Executive Order.*

This action does not raise novel legal or policy issues arising out of the President's priorities, or the principles set forth in E.O. 12866. All fishery management measures in the Red Crab FMP and the proposed action are commonly used in FMPs for federally-managed fisheries.

12.10.2 Initial Regulatory Flexibility Analysis (IRFA) - Determination of Significance

The purpose of the Regulatory Flexibility Act (RFA) is to provide opportunities for small entities to participate in the development of proposed regulations and to identify ways to reduce the regulatory burden and record-keeping requirements on small businesses. To achieve this goal, the RFA requires government agencies to describe and analyze the effects of regulations and possible alternatives on small business entities. Based on this information, the Regulatory Flexibility Analysis determines whether the proposed action would have a "significant economic impact on a substantial number of small entities."

The problem statement and objectives, the management alternatives and the rationale are referenced in the Background section above.

12.10.2.1 Description and Number of Small Entities to which the Rule Applies

The RFA recognizes three kinds of small entities: small businesses, small organizations, and small governmental jurisdictions. The proposed action would only affect small businesses engaged in the harvesting fish. The small business size standard for businesses engaged in any fish-harvesting or hatchery business that is independently owned and operated and not dominant in its field of operation, with receipts of up to \$4 million annually.

Although some firms own more than one vessel, available data make it difficult to reliably identify ownership control over more than one vessel. For this analysis, the number of permitted vessels is considered to be a maximum estimate of the number of small business entities. However, the total value of landings in the red crab fishery averaged \$3.44 million (Section 6.3.2.1), so it is safe to assume that all business entities in the harvesting sector can be categorized as small businesses for purpose of the RFA, even if the assumption overstates the number of business entities.

For the reasons above, all vessels with limited access permits would be considered small business entities that would be affected by the proposed action. As of December 2011, there were four vessels with limited access red crab permits operating in the red crab fishery.

12.10.2.2 Reporting, recordkeeping and other compliance requirements

This action does not introduce any new reporting, recordkeeping, or other compliance requirements.

12.10.2.3 Duplication, overlap or conflict with other Federal rules

The proposed rule does not duplicate, overlap or conflict with other Federal rules.

12.10.2.4 Economic impacts on small entities resulting from the proposed action

The proposed action will affect all four vessels in the directed red crab fishery, but it is not expected to have any impact on the gross or average revenues for the fishery because it does not change the total allowable landings level, which is 3.913 million pounds (1,775 mt) from the no action alternative. Also, this level also is substantially higher than recent the landings in recent years (Table 26), but is not expected to constrain landings unless markets for red crab substantially improve or major new markets develop.

Table 27 Red Crab Landings for 2007 – 2009

	<i>Landings (million pounds)</i>
<i>2007</i>	<i>2.772</i>
<i>2008</i>	<i>2.762</i>
<i>2009</i>	<i>2.230</i>

(Source: NMFS Annual Commercial Landings Statistics)

These landings were low due to market conditions and were not constrained by the total catch limit during 2007 - 2009. For the 4 participating vessels in 2009, average total sales were \$534,602 per vessel (Table 28).

Table 28 Average Red Crab Revenues per Vessel

<i>Number of Vessels</i>	4
<i>Total annual revenue from red crab</i>	\$ 2,318,408
<i>Average revenue from red crab</i>	\$ 534,602

(source: NMFS Annual Commercial Landings Statistics)

Because the proposed action would not directly constrain the gross revenues per vessel it would not directly affect the profits of individual vessels, and therefore it is not necessary to analyze impacts according to the dependence of each vessel in the red crab fishery. Consequently, the proposed action would not have a significant economic impact on a substantial number of small business entities.

13.0 LIST OF PREPARERS AND PERSONS/AGENCIES CONSULTED

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The following persons/agencies were consulted in the preparation of this document:

NEFMC Red Crab Plan Development Team
NEFMC Red Crab Advisory Panel

Copies of this document may be obtained from Moirra Kelly, Fishery Policy Analyst, Northeast Regional Office, National Marine Fisheries Service, (978) 281-9218. The document is also accessible via the Internet at <http://www.nefmc.org>.

Framework Adjustment 1 was prepared and evaluated in consultation with the National Marine Fisheries Service. Members of the NEFMC Staff and the NMFS Regional Office prepared and reviewed portions of analyses and provided technical advice during the development of the Environmental Assessment.

13.1.1 Agencies consulted

The following agencies were consulted in the preparation of this document:

New England Fishery Management Council
National Marine Fisheries Service, NOAA, Department of Commerce
United States Coast Guard, Department of Homeland Security

13.1.2 Opportunity for public comment

The proposed action was developed during the period November 2009 through September 2010 and was discussed at the meetings listed in Table 29, below. Opportunities for public comment were provided at each of these meetings.

Table 29 Summary of meetings with opportunity for public comment for Amendment 3

Meeting	Location	Date
Council Meeting	Newport, RI	September 30, 2010
Public Hearing	Mansfield, MA	September 9, 2010
Red Crab Committee Meeting	Revere, MA	August 12, 2010
Council Meeting	Portland, ME	June 24, 2010
SSC Meeting	Boston, MA	March 11, 2010
Red Crab PDT /AP Meeting	Warwick, RI	March 5, 2010
Council Meeting	Portsmouth, NH	January 28, 2010
Red Crab PDT /AP Meeting	Newburyport, MA	January 20, 2010
Council Meeting	Plymouth, MA	September 23, 2009
SSC Meeting	Warwick, RI	September 16, 2009
SSC Meeting	Warwick, RI	August 11, 2009

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16.0 ATTACHMENTS

ATTACHMENT A:

NEW ENGLAND FISHERY MANAGEMENT COUNCIL SSC REPORT ON ABC FOR RED CRAB - April 28, 2010



New England Fishery Management Council

50 WATER STREET | NEWBURYPORT, MASSACHUSETTS 01850 | PHONE 978 485 0482 | FAX 978 485 3118
John Pappalardo, Chairman | Paul J. Howard, Executive Director

To: Paul J. Howard, Executive Director
From: Dr. Steve Cadrin, Chairman, Scientific and Statistical Committee
Date: April 28, 2010
Subject: **Review of Red Crab PDT MSY Proxy Reevaluation and Development of ABC Recommendations to Council**

The Scientific and Statistical Committee (SSC) was asked to: 1) Review the Plan Development Team's (PDT) MSY Proxy Reevaluation; 2) Provide the Council with the overfishing limit (OFL) and Acceptable Biological Catch (ABC) alternatives for red crab, together with guidance on the risk associated with each ABC alternative; and 3) Recommend an ABC control rule for inclusion in Amendment 3 to the Fishery Management Plan for Red Crab.

On September 23, 2009 the SSC provided the following recommendations to the Council:

1. *The overfishing limit (OFL) for red crab is approximated as 1,700-1,900 mt based on long-term average landings and depletion-adjusted average catch analyses from the 2008 Data Poor Stocks Working Group; however, both approaches to deriving OFL have technical problems that should be addressed to improve the basis of catch advice;*
2. *The interim Acceptable Biological Catch (ABC) for red crab for 2010 is 1,284 mt based on 2007 landings; until the OFL estimate is reevaluated; and*
3. *The improvement of fishery and resource monitoring information is needed to derive estimates of MSY reference points and an ABC control rule.*

On March 16, 2010 the SSC reviewed information and associated presentations developed by the Red Crab PDT:

1. PDT MSY Reevaluation;
2. Report on Deep Sea Red Crab prepared for the Northeast Data Poor Stocks Working Group Meeting, Woods Hole, MA, December 8-12, 2008. (Chute A., Jacobson L. and Rago P.); and
3. Report by the Peer Review Panel for the Northeast Data Poor Stocks Working Group, Woods Hole, MA, January 20, 2009. (Thomas Miller, Chair, Robert Muller, Bob O'Boyle and Andrew Rosenberg)

The PDT demonstrated that the Depletion-Adjusted Average Catch model developed by the Data Poor Stocks Working Group provides an estimate of sustainable yield that underestimates maximum sustainable yield (MSY). Therefore, the information available for red crab is insufficient to estimate MSY or OFL. In lieu of an estimate of OFL, the SSC recommendation for an interim ABC is based on the long-term average landings of males, which is the same result as provided by Depletion Adjusted Average Catch model that assumes no depletion. The two survey estimates of abundance and their variance do not provide evidence of significant depletion from 1974 to 2003-2005. The SSC concludes that an interim ABC based on long-term average landings is safely below an overfishing threshold and adequately accounts for scientific uncertainty.

~~Historical landings of male red crab and historical discarding practices appear to be sustainable. Sustainability of future catches at or below the recommended ABC is conditional on not exceeding past discard rates. Estimates of discards would be needed to provide advice on total catch. If the ABC is intended to include total catch, it would have to be increased to include discards.~~

A research plan is needed to improve the scientific basis of management. Specifically, estimates of MSY and OFL are needed to replace the interim ABC recommendation so that an ABC control rule can be based on OFL, its uncertainty and the Council's desired risk tolerance.

The SSC's response to each Term of Reference is as follows:

- 1) *Review the PDT MSY Proxy Reevaluation* - The SSC agrees with the PDT that Depletion-Adjusted Average Catch model underestimates Maximum Sustainable Yield (MSY), and MSY is unknown.
- 2) *Provide the Council with the overfishing limit (OFL) and Acceptable Biological Catch (ABC) alternatives for red crab together with guidance on the risk that is associated with each ABC alternative* – In lieu of an OFL estimate, the interim ABC recommendation is based on a data-poor approximation of sustainable catch. There is no apparent depletion from the observed exploitation history and long-term average landings.
- 3) *Recommend an ABC control rule for inclusion in Amendment 3 to the Fishery Management Plan for Red Crab* – The best scientific information available for red crab is insufficient to advise on an ABC control rule.
- 4) *Advise the Council on an appropriate way to include female red crabs in the calculation of ABC* – No information was provided to the SSC on the female red crab catch.

The SSC recommends that:

1. **Given the data-poor condition of the assessment of the red crab fishery, OFL cannot be estimated;**
2. **Landings of male red crabs should be limited to an interim ABC of 1775 mt;**
3. **Sustainability of future landings at or below the recommended ABC is conditional on not exceeding past discard rates; and**
4. **Estimates of discards will be needed to provide advice on total catch.**

ATTACHMENT B:

NEW ENGLAND FISHERY MANAGEMENT COUNCIL SSC REPORT ON ABC FOR RED CRAB - June 23, 2010



New England Fishery Management Council

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John Pappalardo, *Chairman* | Paul J. Howard, *Executive Director*

To: Paul J. Howard, Executive Director

From: Steve Cadrin, Chairman, Scientific and Statistical Committee

Date: June 23, 2010

Subject: Acceptable Biological Catch of Red Crab, including Discards and Females

The Scientific and Statistical Committee (SSC) was asked to: 1) Review the information provided by the Red Crab Plan Development Team on historical dead discards of red crab in the directed trap fishery and in bycatch fisheries and recommend an ABC that includes both landings and dead discards; and 2) Review the information provided by the Red Crab PDT and develop recommendations concerning the potential inclusion of female red crab landings in the Acceptable Biological Catch (ABC).

On April 28, 2010 the SSC provided the following recommendations to the Council:

- 1 *Given the data-poor condition of the assessment of the red crab fishery, OFL cannot be estimated;*
- 2 *Landings of male red crabs should be limited to an interim ABC of 1775 mt;*
- 3 *Sustainability of future landings at or below the recommended ABC is conditional on not exceeding past discard rates; and*
- 4 *Estimates of discards will be needed to provide advice on total catch.*

On June 22, 2010 the SSC reviewed information and associated presentations developed by the Red Crab PDT:

- 1 PDT discussion paper titled: "Options for Potential Female Red Crab Harvest for Inclusion in the ABC and ACL."
- 2 PDT discussion paper titled: "Estimates of Historical Discards and Discard Mortality Rates in Fisheries for which Red Crab is Caught Incidentally."
- 3 PDT discussion paper titled: "PDT Analysis of Dead Discards and Potential Female Allowable Landings to be added to the Interim ABC for Red Crab."
- 4 "Escape ring selectivity, bycatch, and discard survivability in the New England fishery for deep-water red crab, *Chaceon quinqueiden*", S. M. L. Tallack

National Standard 1 Guidelines indicate that ABC should include removals from all sources: "*Catch includes fish that are retained for any purpose, as well as mortality of fish that are discarded.*"

Therefore, conformance with NS1 guidelines would require that the ABC for red crab be increased to include the volume of dead discards and female landings.

Term of Reference #1 – Dead Discards The PDT reviewed data concerning discards and discard mortality from a variety of sources. Those sources include the 2006 stock assessment, the Report of the Data Poor Stocks Working Group, the 2009 SAFE Report, and data from observed trips in both the directed red crab fishery and for fisheries for which red crab discards have been recorded. The SSC concludes that the available monitoring data on magnitude of discards and research on discard mortality are inadequate for reliably estimating the magnitude of dead discards. Therefore, despite guidance on including dead discards in catch limits, the best scientific information available for deriving ABC is the time series of landings.

Term of Reference #2 Female Landings In response to a request from the red crab industry and from red crab researchers, the National Marine Fisheries Service approved an exempted fishery permit (EFP) that exempts four vessels from the prohibition on landing more than one standard tote of female crab per trip. The EFP allows for landing of no more than 1 million lb of female red crab over two years. The long-term purpose of the EFP is sustainable female landings, but it is not clear whether the experimental fishery will support an evaluation of sustainable female landings.

The basis of the SSC's previous recommendation on ABC is that there is no evidence of population depletion since the beginning of the fishery, and the time series of male landings provides an estimate of sustainable yield of males only. This inference of sustainability is conditional on the male-only fishing strategy that existed during the observed time series. If the Council desires that the ABC include landings of females, the SSC would need to reconsider the inference of sustainability and derive a new scientific basis for the ABC recommendation. For example, results from the experimental female fishery, current cooperative research projects, and the monitoring required as a condition of the Marine Stewardship Council certification should be examined.

The Fishery Management Plan for deep sea red crab prohibits the landings of females, and the Council has not explicitly decided to revise that management strategy. Allowing the landing of females is being considered through an experimental fishery. Therefore, results of the experiment and other research should be evaluated in comparison to the performance of the male-only harvest strategy.

The SSC repeats its previous recommendations:

- 1 Landings of male red crabs should be limited to an interim ABC of 1775 mt; and
- 2 Sustainability of future landings at or below the recommended ABC is conditional on not exceeding past discard rates;

In response to the terms of reference, the SSC recommends that:

- 1 Inclusion of dead discards in red crab catch limits requires improved monitoring of the magnitude of discards and research on discard mortality.
- 2 Including female landings of red crab in catch limits requires an evaluation of sustainability of a male and female fishery and a more explicit decision on management strategy.

ATTACHMENT C:

COMMUNITY PROFILE FOR NEW BEDFORD, MA

NEW BEDFORD, MA

Community Profile

People and Places

Regional Orientation

New Bedford is the fourth largest city in the Commonwealth of Massachusetts. It is situated on Buzzard Bay, located in the southeastern section of the state. New Bedford is bordered by Dartmouth on the west, Freetown on the north, Acushnet on the east, and Buzzards Bay on the south. It is 54 miles south of Boston, 33 miles southeast of Providence, Rhode Island, and approximately 208 miles from New York City.⁵

Historical/Background Information

New Bedford, originally part of Dartmouth, was settled by Plymouth colonists in 1652. Fishermen established a community in 1760 and developed it into a small whaling port and shipbuilding center within the next five years. By the early 1800s New Bedford had become one of the world's leading whaling ports. Over one half of the U.S. whaling fleet, which totaled more than 700 vessels, was registered in New Bedford by the mid-1800s.

The discovery of petroleum greatly decreased the demand for sperm oil, bringing economic devastation to New Bedford and all other whaling ports in New England. The last whale ship sailed out of New Bedford in 1925.⁶ In attempts to diversify the economy, the town manufactured textiles until the southeast cotton boom in the 1920s. Since then, New Bedford has continued to diversify its economy, but the commercial fishery is very dominant.⁷

Demographics

According to Census 2000 data⁸, New Bedford has a total population of 93,768, down from the reported population of 99,922 in 1990.⁹ Of this population 47.1% are males and 52.9% are females. The median age is 35.9 years and 71.2 % of the population is 21 years or older while 18.9% are 62 or older.

⁵ <http://www.usgennet.org/usa/ma/county/bristol/newbedford/greatnewbed.htm>, <http://www.ci.newbedford.ma.us/ECONOMIC/CD/commprofile.html>

⁶ <http://travel.lycos.com/Destinations/location.asp?pid=243839>

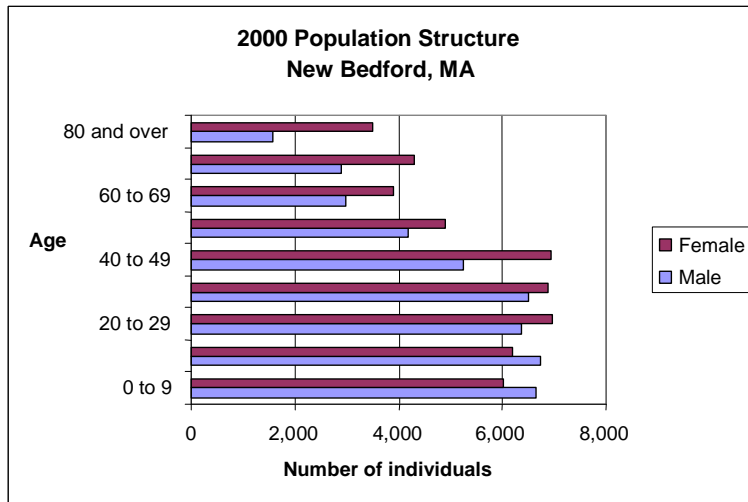
⁷ <http://www.usgennet.org/usa/ma/county/bristol/newbedford/greatnewbed.htm>

⁸ U.S. Census: American Factfinder 2000 http://factfinder.census.gov/servlet/SAFFacts?_sse=on

⁹ U.S. Census: 1990 Decennial Census (STF 1, Table DP-1): http://factfinder.census.gov/servlet/QTGeoSearchByListServlet?ds_name=DEC_1990_STF1_&lang=en&ts=126539286370

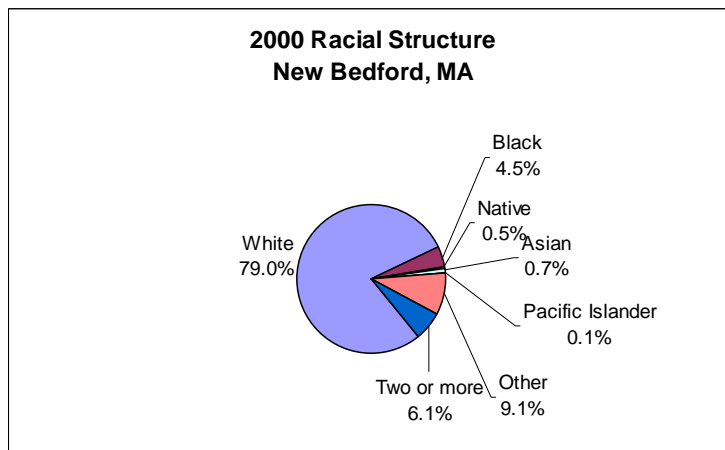
New Bedford's age structure by sex shows a higher number of females in each age group between 20 and over 80 years. There is no drop in the 20-29 age group (as occurs in many smaller fishing communities), which could be due to New Bedford's proximity to Boston (several universities) and the local sailing school, the Northeast Maritime Institute.

Figure 14 New Bedford's Population Structure by Sex in 2000 (U.S. Census 2000)³



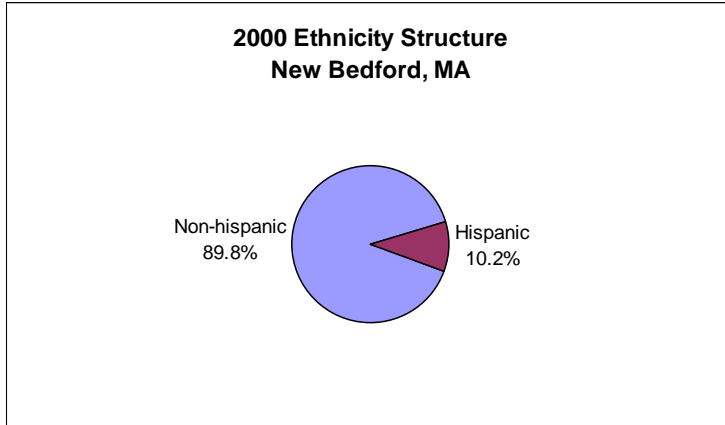
New Bedford's racial composition holds at 79% white, 9.1% other, 6.1% claiming two or more races, and 4.5% Black or African American. In addition, Hispanic/Latinos make up 10.2% of the population. In terms of ancestry, the residents of New Bedford trace their backgrounds to several countries, but most of all to Portugal. The ethnic breakdown is such that the Portuguese background holds 41.2% of the population, with 9.1%, Sub-Saharan African and 8.9% Cape Verdean (also Portuguese speakers) following closely behind each other.

Figure 15 New Bedford's Racial Structure in 2000 (U.S. Census 2000)



³ U.S. Census : 200 Decennial Census (STF1, Table QT-P1): http://factfinder.census.gov/servlet/DatasetMainPageServlet?_lang=en&_ts=126785307368&_ds_name=DEC_2000_SF1_U&_program=

Figure 16 New Bedford's Ethnicity Structure in 2000 (U.S. Census 2000)



In 62.2% of homes, only English is spoken, leaving 37.8% of homes bi-lingual or multilingual. Of those people who speak other languages, 17.3% of them speak English less than 'very well' according to the 2000 Census.

Of the population 25 years and over, 57.6% are high school graduates or higher and 10.7% have a bachelor's degree or higher. Again of the population 25 years and over, 24.3% did not reach ninth grade, 18.1% attended some high school but did not graduate, 27.7% completed high school, 13.9% had some college

Although religious percentages are not available through U.S. Census data, according to the American Religious Data Archive, in 2000 the religion with the highest number of congregations and adherents in the Bristol County was Catholic with 85 congregations and 268,434 adherents. Other prominent congregations in the county were United Methodist (17 with 3,583 adherents), United Church of Christ (19 with 5,728) and Episcopal (18 with 5,100). The total number of adherents to any religion was up 9.4% from 1990.¹⁰

Issues/Processes

New Bedford struggles with a highly contaminated harbor and harbor sediment. New Bedford Harbor is contaminated with metals and organic compounds, including polychlorinated biphenyls (PCBs).¹¹ Because of the high concentrations of PCBs in the sediment, New Bedford Harbor was listed by the U.S. Environmental Protection Agency (EPA) as a Superfund site in 1982 and cleanup is underway. Significant levels of these pollutants have accumulated in sediments, water, fish, lobsters, and shellfish in the Harbor and adjacent areas. Lobsters in the Harbor typically have PCB concentrations of 1.0 to 4.9 parts per million (ppm) in their bodies, with some lobsters containing up to 23.8 ppm (Hillman et al., 1990; Schwartz, 1987).¹² New Bedford is also the only major municipality in the Buzzards Bay area to discharge significant amounts of untreated combined sewage, industrial waste, and storm water from combined sewer overflows.¹³

¹⁰ ARDA (American Religion Data Archive 2000), Interactive Maps and Reports, Counties: <http://www.thearda.com/>

¹¹ http://www.brownfields.noaa.gov/htmls/portfields/pilot_newbed.html

¹² <http://www.buzzardsbay.org/nbprobs.htm>

¹³ <http://www.buzzardsbay.org/nbprobs.htm>

The pollution problem not only affects health and the ecosystem but has a large impact on New Bedford's economy. For example, closures of fishing areas in the harbor have caused economic losses in the millions for the quahog landings alone.¹⁴ Closure of the lobster fishery has resulted in an estimated loss of \$250,000 per year and the finfish industry and recreational fishing have been negatively affected as well.¹⁵ In addition to contaminated harbor sediments, numerous brownfield properties are located in proximity to the port, especially on the New Bedford side.¹⁶

Fishing vessel owners complain of a shortage of crewmen. They attribute this scarcity to low unemployment rates that have kept laborers from the docks. Many choose to bypass work that government statistics place among the most dangerous jobs in the country. Many crewmembers are either inexperienced or come from foreign countries. Both present safety issues, according to one fisherman, because inexperienced crew get hurt more often and foreign crew have significant language barriers that impede communication. Additionally, those willing to work sometimes struggle with alcohol and drug dependency. Ship captains routinely have applicants roll up their shirt sleeves to check for traces of heroin use.¹⁷

Cultural Attributes

The New Bedford community celebrates its maritime history with a culmination of activities in the New Bedford Summerfest. The Summerfest is held annually in July in conjunction with the New Bedford State Pier and the New Bedford National Whaling Historical Park. The Blessing of the Fleet is held annually on the Fourth of July weekend. This event is the traditional blessing of the vessels of the fishing fleet and other boats that take part. Summerfest also includes the Cape Verdean Recognition Day Parade and the Cape Verdean American Family Festival.¹⁸

The community has taken an active role in the remembrance of its maritime heritage. The Azorean Maritime Heritage Society in conjunction with the New Bedford Whaling Museum and the New Bedford Whaling National Historical Park plans to construct two Azorean whaleboats to raise awareness of the maritime history of the Azorean community on both sides of the Atlantic.

The New Bedford Whaling museum was established by the Old Dartmouth Historical Society in 1907 to tell the story of American whaling and to describe the role that New Bedford played as the whaling capital of the world in the nineteenth century. Today the whaling Museum is the largest museum in America devoted to the history of the American whaling industry and its greatest port.¹⁹

The New Bedford Whaling National Historical Park, created in 1996, commemorates the heritage of city as a whaling port. The park is spread over 13 city blocks and includes a visitor center, the New Bedford Whaling Museum, and the Rotch-Jones-Duff House and Garden Museum.²⁰

¹⁴ *Id.*

¹⁵ *Id.*

¹⁶ http://www.brownfields.noaa.gov/htmls/portfields/pilot_newbed.html

¹⁷ <http://www.csmonitor.com/2002/0429/p15s03-wmwo.html>

¹⁸ <http://www.rixsan.com/nbvisit/events/blesflet.htm>

¹⁹ www.whalingmuseum.org

²⁰ www.nps.gov/nebe

Infrastructure

Current Economy

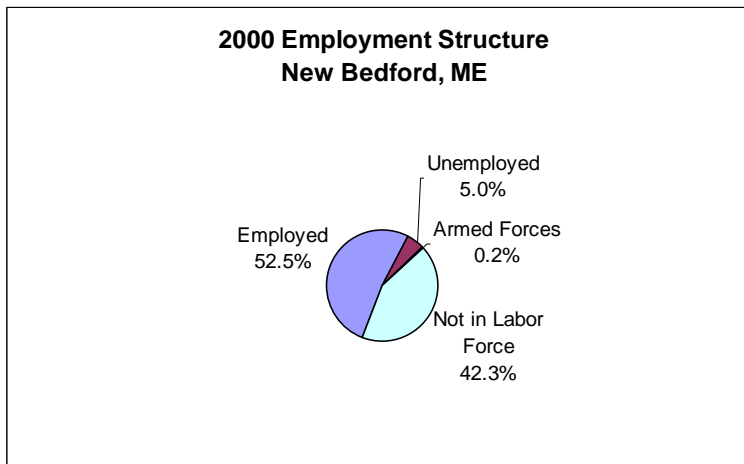
The fishing community of New Bedford is amply supported by the infrastructure of the city. There are several choices for the marine industry to take part in. The New Bedford Economic Development Council (NBEDC), Inc. was established in 1998 to improve the city's economic development by helping to attract business and job opportunities to the city. The NBEDC also provides small business funds and offers financial support (in loans) for new businesses or those who want to expand. The NBEDC has substantially assisted the economy of New Bedford, creating more than 850 jobs and providing assistance to over 1,600.²¹

With a federal grant and local funds, the city and the Harbor Development Council (HDC) will in 2005 begin construction on a \$1 million, 8,500-square foot passenger terminal at State Pier to support passenger ferry service. The HDC received a federal grant for more than \$700,000 to construct the passenger terminal and to improve berthing at the New Bedford Ferry Terminal.

The Community Economic Development Center is a non-profit organization vested in the economic development of the local community. The organization is unique in that it is involved with fisheries management. The center is currently engaged in a research project to better understand the employment status in the fishing industry. The center is a liaison for migrant workers and other newcomers to the community to have access to the benefits provided by the city. In the past the center at one time had a re-training program for displaced fishermen to move into aquaculture.

According to the U.S. Census 2000, 57.7% (42,308 individuals) of the total population 16 years of age and over are in the labor force, of which 5.0% are unemployed and 0.2% are in the Armed Forces.²²

Figure 17 New Bedford's Employment Structure in 2000 (U.S. Census website)



According to Census 2000 data, jobs with agriculture, forestry, fishing and hunting accounted for 407 or 1.1% of all jobs. Self-employed workers, a category where fishermen might be found, accounts for 1,485 or 3.9% of the labor force. Educational, health and social services (20.9%), manufacturing (20.7%), retail trade (12.1%), entertainment, recreation, accommodation and food

²¹ <http://www.ci.new-bedford.ma.us/ECONOMIC/CD/commprofile.html#D>

²² U.S. Census: American Factfinder 2000 http://factfinder.census.gov/servlet/SAFFacts?_sse=on

services (7.4%), and construction (7.1%) were the primary industries. Major employers that provide over 100 jobs in New Bedford include the following businesses with the number of employees in parentheses: Acushnet Company (1,600), Cliftex (1,400), Aerovox (800), Calish Clothing (750), and Polaroid (465).²³

Median household income in Eastport was \$27,569 (which increased since 1990 when the median household income was \$22,647²⁴) and median per capita income was \$15,602. For full-time year round workers, males made approximately \$9,110 more per year than females.

The average family in New Bedford consists of 3.01 persons. With respect to poverty, 17.3% of families (up slightly from 16.8% in 1990²⁵) and 20.2% of individuals earn below the official US Government poverty line, and 48.8% of families in 2000 earned less than \$35,000 per year.

In 2000, New Bedford had a total of 41,511 housing units of which 92.0% were occupied and 30.2% were detached one unit homes. Approximately half (49.9%) of these homes were built before 1940. Mobile homes in this area accounted for 0.3% of the total housing units; 95.0% of detached units have between 2 and 9 rooms. In 2000, the median cost for a home in this area was \$113,500.²⁶ Of housing units 0.3% were used for seasonal, recreational, or occasional use while 56.2% were renter occupied.²⁷

Governmental

New Bedford was incorporated as a town in 1787 and as a city in 1847. The city of New Bedford is run on a Mayor and City Council basis. Of the 38,025 registered voters, 62.9% (23,913) are Democrats; 7.9% (3,021) are Republicans and 29.2% (11,091) are un-enrolled.²⁸ The Harbor Planning Commission includes representatives from the fish-processing and harvest sectors of the industry.

Institutional

Fishing Associations

There are several fishing associations which aid the fishing industry in New Bedford, such as the American Dogfish Association, the American Scallop Association and the Commercial Anglers Association. New Bedford also is home to a Fishermen's Wives Association which began in the

²³ www.ci.new-bedford.ma.us/economic/economic/deomgraf.htm

²⁴ U.S. Census: 1990 Decennial Census, (STF 3, Table DP-4):
http://factfinder.census.gov/servlet/DatasetMainPageServlet?_lang=en&_ts=126625731620&_ds_name=DEC_1990_STF1_&_program=

²⁵ U.S. Census: 1990 Decennial Census, (STF 3, Table DP-4):
http://factfinder.census.gov/servlet/DatasetMainPageServlet?_lang=en&_ts=126625731620&_ds_name=DEC_1990_STF1_&_program=

²⁶ U.S. Census: American Factfinder 2000 http://factfinder.census.gov/servlet/SAFFFacts?_sse=on

²⁷ U.S. Census 2000 (SF 1, Table QT-H1):
http://factfinder.census.gov/servlet/DatasetMainPageServlet?_ds_name=DEC_2000_SF1_U&_program=DEC_2000_SF1_U&_lang=en

²⁸ <http://www.mass.gov/dhcd/iprofile/205.pdf>

early 1960s. Additionally, New Bedford has the Offshore Mariner's Wives Association which includes a handful of participants that organize the "Blessing of the Fleet."

Fishing Assistance Centers

Shore Support has been the primary fishing assistance center in New Bedford since 2000,²⁹ though the New Bedford Fishermen and Families Assistance Centers are also available as is the Trawlers Survival Fund

Other Fish-Related Organizations

There are several other fishing related organizations and associations that are vital to the fishing industry such as the Fisheries' Survival Fund (Fairhaven), the New Bedford Fishermen's Union, the New Bedford Seafood Coalition, the New Bedford Seafood Council and the Offshore Mariner's Association.

Physical

The New Bedford Municipal Airport is located 2 miles NW of the city. Interstate 195 and State routes 24 and 140 provide access to the airports, ports, and facilities of Providence and Boston. The Consolidated Rail Corporation (Conrail) provides services into New Bedford.³⁰

Involvement in Northeast Fisheries

Commercial

The fishing industry in New Bedford has consistently experienced decadal change. In the 1980s fishermen reaped high landings and bought new boats. Then in the 1990s they experienced a dramatic decrease in groundfish catches, a vessel buyback program, and strict federal regulations in attempts to rebuild the depleted fish stocks. A new decade brought more changes for the fishing industry.³¹ By 2000 and 2001 New Bedford was the highest value port in the U.S. (generating \$150.5 million in dockside revenue).³² According to the federal commercial landings data, New Bedford's most successful fishery in the past seven years has been scallops, followed by groundfish.

New Bedford contains approximately 44 fish wholesale companies,³³ 75 seafood processors and some 200 shore side industries.³⁴ Maritime International is also located in New Bedford which has one of the largest U.S. Department of Agriculture-approved cold treatment centers on the East Coast. The terminal receives approximately 25 vessels a year. Each vessel carries about 1,000 tons of fish.³⁵

²⁹ Hall-Arber et al. 2001. New England Fishing Communities. Available at: <http://web.mit.edu/seagrant/aqua/cmss/marfin/index.html>

³⁰ <http://www.mass.gov/seaports/newbed.htm>, <http://www.mass.gov/dhcd/iprofile/205.pdf>

³¹ http://www.fishresearch.org/Articles/2001/07/New_Bedford.asp

³² <http://www.fishresearch.org/Articles/2002/09/landings.asp>

³³ <http://www.ci.new-bedford.ma.us/ECONOMIC/HDC/Directory2.asp>

³⁴ Hall-Arbor et. al. 2001.

³⁵ <http://www.ci.new-bedford.ma.us/ECONOMIC/HDC/wtrgeneral.htm>

Landings by Species – State Only Permits

Table 30 Landings in Pounds for State-Only Permits

Species	Pounds landed
Cod**	6,311,413
Haddock**	5,949,880
Lobster***	1,168,884
Scup**	593,394
Fluke**	480,165
Crab***	315,395
Loligo Squid**	207,769
Striped Bass**	189,055
Quahog (littleneck)*	147,249
Monkfish	137,300
Conch*	136,276
Skate	121,522
Quahog (cherrystone)	113,341
Black Sea Bass**	113,071
Pollock	65,500
Quahog (Chowder)*	64,999
Bluefish**	44,045
Quahog (mixed)*	11,513
Red Hake	10,100
Cusk	1,880
Illex Squid**	1,305
Soft Shell Clam*	985
Dab (Plaice)	870
Dogfish**	537
Winter Flounder	500
Yellowtail Flounder	383
Gray Sole (Witch flounder)	200

Asterisks indicate data sources: Zero: MA DMF has 2 gear-specific catch reports: Gillnet & Fish Weirs. All state-permitted fish-weir and gillnet fishermen report landings of all species via annual catch reports. NOTE: Data for these species do not include landings from other gear types (trawls, hook & line, etc.) and therefore should be considered as a subset of the total landings. (Massachusetts Division Marine Fisheries).

Table 31 Dollar Value by Species Landed in New Bedford

Catch	2002	1997-2003 Average
Scallops	96,577,150	73,417,859
Large mesh	40,950,557	31,843,231
Monkfish	6,545,695	10,869,869
SURFOQ	6,772,070	6,127,514
Other	5,285,072	4,860,982
Lobster	6,395,289	4,462,808
Skates	1,420,409	1,631,358
SFSCUPBSB	1,040,050	1,222,400
Red crab	1,948,522	1,047,162
BUTMACSQ	782,113	1,010,204
Small mesh	871,565	628,075
Herring	738	453,111
Dogfish	9,415	123,622
Bluefish	13,361	10,527
Tilefish	0	460
Salmon	0	0

Vessels by Year

Table 32 Vessel Permits/Landings Value between 1997 and 2003

Year	# Vessels home ported	# vessels (owner's city)	Home port value (\$)	Landed port value(\$)
1997	244	162	80,472,279	103,723,261
1998	213	137	74,686,581	94,880,103
1999	204	140	89,092,544	129,880,525
2000	211	148	101,633,975	148,806,074
2001	226	153	111,508,249	151,382,187
2002	237	164	120,426,514	168,612,006
2003	245	181	125,788,011	166,680,126

Recreational

A number of companies in New Bedford offer the public recreational fishing excursions including boat charters.³⁶

Subsistence

Information on subsistence fishing in New Bedford is either unavailable through secondary data collection or the practice does not exist.

³⁶ <http://www.maine harbors.com>

Deep Sea Red Crab Fishery

A new red crab processing plant opened in New Bedford in August 2009. All of the limited access red crab vessels have been landing all of their trips in New Bedford since the new plant opened and are expected to continue landing in New Bedford for the foreseeable future.

Future

Plans for the future – infrastructure development, foreseeable changes

In 2004, New Bedford is in the process of building the New Bedford Aquarium that will include exhibits on New Bedford's history as a whaling and fishing port.

People's perception of the future, expectations

Many fishermen believe that based on the quantity and ages of the specimens they catch – the fish are coming back faster than studies indicate. While most admit that regulations have worked, they believe further restrictions are unnecessary and could effectively wipe out the industry.³⁷ "If they push these regs too hard, the whole infrastructure of fishing here could collapse," according to a New Bedford fishermen.³⁸

³⁷ <http://www.csmonitor.com/2002/0429/p15s03-wmwo.html>

³⁸ *Id.*