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FEDERAL AMERICAN LOBSTER MANAGEMENT
In The
EXCLUSIVE ECONOMIC ZONE
Based Upon
MANAGEMENT MEASURES SPECIFIED IN
ADDENDUM X and ADDENDUM XI to AMENDMENT 3
Of The
INTERSTATE FISHERY MANAGEMENT PLAN
FOR AMERICAN LOBSTER

**Draft Environmental Assessment
Initial Regulatory Impact Review and Initial Regulatory Flexibility
Analysis of Mandatory Federal Lobster Dealer Reporting
and Broodstock Protection Measures**



National Marine Fisheries Service
Northeast Region
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DRAFT Mandatory Lobster Dealer Reporting and Broodstock Measures EA
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EXECUTIVE SUMMARY

The National Marine Fisheries Service (NMFS) proposes to revise Federal American lobster regulations in response to recommendations by the Atlantic States Marine Fisheries Commission (Commission). Specifically, NMFS proposes three independent regulatory actions:

- 1) Requiring all Federal lobster dealers to electronically report trip-level lobster landings to NMFS on a weekly basis;
- 2) Implementing a maximum carapace length restriction for lobster in Area 2, Area 3, Area 6, and the Outer Cape Management Area and revising the maximum carapace length requirements for Areas 4 and 5; and
- 3) Revising the Federal definition of a standard v-notched lobster, applicable to lobster in all areas, with the exception of Area 1.

All of the proposed regulations have as their genesis in recommendations made by the Commission in Addenda X and XI to the Commission's Interstate Fishery Management Plan for American Lobster (ISFMP). The addenda were themselves a response, at least in part, to conclusions contained in the most recent lobster stock assessment. More specifically, the 2005 stock assessment and peer review process identified the dearth of landings data in the American lobster fishery as an inhibitor to the effective evaluation of the status of the lobster resource, that available data are woefully inadequate to fulfill the management needs of the resource, and that a mandatory catch reporting system is needed. Such conclusions provided the impetus for Addendum X's mandatory reporting requirements, which has spawned the proposed Federal dealer reporting requirement analyzed in this draft Environmental Assessment (EA).

This same assessment and peer review process concluded that the southern New England (SNE) lobster stock is suffering from depleted stock abundance and recruitment with high dependence on new recruits. The SNE stock component is in poor shape with respect to spawning, recruit and full-recruit abundance indices. The assessment results also indicated that the Georges Bank (GBK) lobster stock, although in a stable state with respect to abundance and recruitment, is also dependent on new entrants to the fishery – a cause for concern that the fishery is too reliant on newly recruited lobster. Accordingly, the Commission adopted Addendum XI, which sought to protect SNE and GBK broodstock by creating new maximum carapace lengths and implementing a more restrictive definition of a v-notch in certain Lobster Management Areas, and which, in turn, has resulted in the two proposed Federal broodstock regulatory action outlined above and analyzed in the draft EA.

SUMMARY OF EXPECTED IMPACTS

Preliminary analysis in the draft EA suggests that the impacts of the three presently proposed Federal actions will not be significant. This finding is based in part on the fact that most impacted entities are already required to conform to such requirements by virtue of existing laws and regulations. For example, analysis suggests

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that most Federal lobster dealers (71 percent) are already reporting electronically to NMFS, and 61 percent of Federal lobster harvesters are already reporting their catch – a number far greater than the 10 percent called for in Addendum X. Further, given that most Federal lobster permit holders also hold a state lobster license, these individuals must abide by Addendum X and XI's measures by virtue of their state license irrespective of the presently proposed measures.

Preliminary analysis indicated, however, that certain impacts would result from this proposed action. As discussed in more detail later in this draft EA, NMFS proposed mandatory dealer reporting alternative would impact all Federal lobster dealers who are not currently required to report lobster purchases to NMFS. The affected dealers comprise 29 percent of all Federal lobster dealers.

Further, Federal vessels fishing in the Outer Cape Management Area would be impacted by the preferred alternatives for the v-notch and maximum size requirement since the Commission's Addendum XI since state regulations do not extend to this management area. The trap and non-trap commercial lobster fishery is expected to be impacted by these proposed measures which would implement a maximum carapace length restriction and revised v-notch definition for the Outer Cape Area, consistent with those proposed for Area 3. This action could potentially impact somewhere between 24 and 184 Federal lobster vessels designated for trap fishing in the Outer Cape Area as well as 133 Federal non-trap vessels with reported lobster landings from NMFS statistical area 521, used as a proxy for the Outer Cape Area¹. Outer Cape landings of lobster in excess of the terminal 6 ¾ inch maximum size proposed herein could impact approximately 0.5 percent of the trap fishery harvest and about 5.7 percent of the non-trap harvest. Some level of revenue reduction could also occur due to the proposed implementation of a more restrictive v-notch definition for harvesters in the Outer Cape Area. On balance, these impacts are not considered to be significant and could allow for some uncertain, albeit positive, effects to protect lobster broodstock known to transit through the Outer Cape Area from other management and stock areas. This action, therefore, is expected to support the broodstock protection efforts in other management areas and mitigate shifts in fishing effort to the Outer Cape Area that could occur if lobster broodstock in this management area are not further protected the proposed measures.

Finally, the so-called trophy lobster exemption for lobster taken by SCUBA would no longer exist in Areas 4 and 5. However, the proposed Federal regulations for these areas are already part of the Commission's plan and assumed to be enforced by affected states. Therefore, implementation of Federal regulations for the maximum sizes in Areas 4 and 5 will not result in additional impacts to this sector of the fishery. The proposed Federal action does offer an option to implement a maximum size restriction for the Outer Cape Area, beyond what has been recommended by the Commission, however, this is not a popular area for recreational lobster fishing by the SCUBA sector and,

¹ These are vessels that reported landings in Statistical Area 521, which includes the Outer Cape Area as well as other management areas. Therefore, some of these vessels may not have fished in the Outer Cape Area. Additionally, an unknown number of these 133 non-trap vessels may also be a subset of the 184 affected trap vessels that may fish with non-trap gear.

therefore, this action is not expected to impact recreational SCUBA fishers in any of the affected lobster management areas.

The preferred alternatives are not expected to jeopardize the sustainability of any non-target species that may be affected by the action. The dealer reporting action is an administrative action that will not influence bycatch, impact the marine environment, habitat or protected species. The maximum size and v-notch provisions are not expected to have an adverse impact on protected species or critical habitat. These actions could potentially shift some unknown or minimal level of trap fishing effort from Federal to state waters. However, such alterations in fishing effort are expected to be negligible and are not expected to adversely impact endangered or threatened species, marine mammals, or their critical habitat. On balance, it may reduce some uncertain level of fishing effort in the Outer Cape Area that may be currently occurring due to less stringent broodstock protection measures in this area. The preferred broodstock protection measures would potentially provide some positive biological effects by protecting lobster broodstock and enhancing egg production. Some relatively small economic impacts could affect trap and non-trap lobster harvesters who would have their catch restricted by the maximum carapace length and revised v-notch regulations. However, the dependence of the Outer Cape fishermen on lobster that would be protected under these measures is relatively small. Therefore, on balance, the biological benefits may outweigh the potential economic impacts.

The preferred alternatives are not expected to be highly controversial. As a preliminary matter, the science upon which this action is based, such as the most recent lobster stock assessment, has been peer reviewed, accepted by the lobster management board, and is straight-forward and non-controversial.

The results of the analyses of the impacts of the preferred alternatives to biological resources, habitat, protected species and socioeconomic factors in this draft EA indicate that the preferred management measures, as described in Section 2, would, on balance, positively benefit the lobster resource and that the potential impacts of this proposed action would not be significant. Thus, a “Finding of No Significant Impact” is justified based on the preliminary analyses presented in this draft EA.

1.0 INTRODUCTION

American lobster (*Homarus americanus*) is a trust resource of both the Federal Government and the Atlantic coastal states. NMFS manages lobster for the Federal Government and has primary jurisdiction over the species in waters 3 to 200 nautical miles from the shoreline (also known as the Exclusive Economic Zone, or EEZ). The states with lobster fisheries (*i.e.*, the states of Maine southward to North Carolina) manage lobster within the waters of their individual states, 0 to 3 nautical miles from shore. NMFS and the states manage lobster within the framework of the Atlantic States Marine Fisheries Commission (Commission). The Commission is a deliberative body comprised of representatives from the states and the Federal Government. The

Commission serves to develop fishery conservation and management strategies for various coastal species, including lobster, and coordinates the efforts of the states and Federal Government toward concerted sustainable ends.

Any potential Federal lobster management action is bound by three categories of considerations: 1) resource objectives; 2) legal mandates; and 3) practical/managerial considerations. The three categories relate to one another similar to the way that circles interact in a Venn diagram (Figure 1). That is, each category contains measures, some of which overlap with measures in other categories. It is, however, those measures common to all categories (*e.g.*, the shaded area in the Venn diagram) where the Federal Government strives to focus its resources.

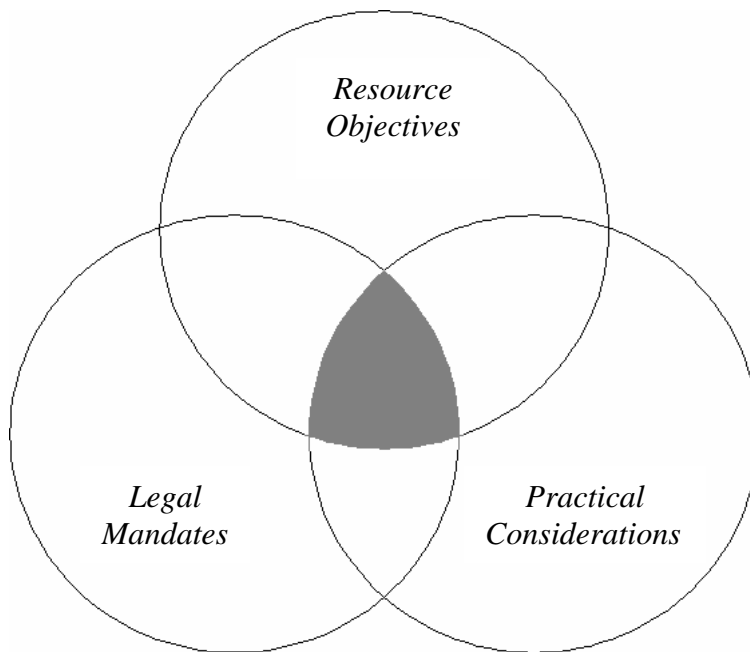


Figure 1. Venn Diagram of Lobster Management Considerations

The first consideration, which is illustrated in the top circle in the Venn diagram schematic, involves resource objectives. Generally, NMFS and the states seek to end overfishing of lobster and restore the fishery to sustainable levels. The Commission set forth its resource objectives more specifically in its ISFMP.²

² The plan's overall objectives were set forth in Amendment 3. They are as follows:

- (1) Protect, increase or maintain, as appropriate the brood stock abundance at levels that would minimize risk of stock depletion and recruitment failure;
- (2) Develop flexible regional programs to control fishing effort and regulate fishing mortality rates;
- (3) Implement uniform collection, analysis and dissemination of biological and economic information and improve understanding of the economics of harvest;
- (4) Maintain existing social and cultural features of the industry wherever possible;

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The second category, which is shown as the left circle in the Venn diagram, involves legal mandates. Specifically, the Atlantic Coastal Fisheries Cooperative Management Act (Atlantic Coastal Act) mandates that NMFS support the management efforts of the Commission. The Atlantic Coastal Act also requires that NMFS regulations, to the extent that it issues regulations, must not only be compatible with the Commission lobster ISFMP but also must be consistent with the ten National Standards articulated in the Magnuson-Stevens Fishery Conservation and Management Act.³ Additionally, any potential Federal lobster management action must not violate other NMFS trust responsibilities, such as for other species managed under other statutory mandates, including the Endangered Species Act, Marine Mammal Protection Act and Magnuson-Stevens Act.

The third general category, which is depicted as the right circle in the Venn diagram, involves practical/managerial considerations. Specifically, the potential Federal lobster management action must be feasible. In other words, it is impractical to consider taking actions that are unrealistic, even if those actions might hypothetically achieve resource goals without violating legal mandates. Such actions might include those which

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- (5) Promote economic efficiency in harvesting and use of the resource;
 - (6) Minimize lobster injury and discard mortality associated with fishing;
 - (7) Increase understanding of biology of American lobster, improve data, improve stock assessment models; improve cooperation between fishermen and scientists;
 - (8) Evaluate contributions of current management measures in achieving objectives of the lobster plan;
 - (9) Ensure that changes in geographic exploitation patterns do not undermine success of Commission management program;
 - (10) Optimize yield from the fishery while maintaining harvest at a sustainable level; and
 - (11) Maintain stewardship relationship between fishermen and the resource.

³ The 10 National Standards are:

- (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.
- (2) Conservation and management measures shall be based upon the best scientific information available.
- (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.
- (4) Conservation and management measures shall not discriminate between residents of different States. If it becomes necessary to allocate or assign fishing privileges among various United States fishermen, such allocation shall be: (A) fair and equitable to all such fishermen; (B) reasonably calculated to promote conservation; and (C) carried out in such manner that no particular individual, corporation, or other entity acquires an excessive share of such privileges.
- (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.
- (6) Conservation and management measures shall take into account and allow for variations among, and contingencies in, fisheries, fishery resources, and catches.
- (7) Conservation and management measures shall, where practicable, minimize costs and avoid unnecessary duplication.
- (8) Conservation and management measures shall, consistent with the conservation requirements of this Act (including the prevention of overfishing and rebuilding of overfished stocks), take into account the importance of fishery resources to fishing communities in order to: (A) provide for the sustained participation of such communities, and (B) to the extent practicable, minimize adverse economic impacts on such communities.
- (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.
- (10) Conservation and management measures shall, to the extent practicable, promote the safety of human life at sea.

are deemed unenforceable or irreconcilably constrained by administrative or budgetary restrictions.

1.1 Legal and Historical Context

American lobsters are managed within the framework of the Commission. The Commission serves to develop fishery conservation and management strategies for certain coastal species and coordinates the efforts of the states and Federal Government toward concerted sustainable ends. The Commission, under the provisions of the Atlantic Coastal Act, decides upon a management strategy as a collective and then forwards that strategy to the states and Federal government, along with a recommendation that the states and Federal Government take action (*e.g.*, enact regulations) in furtherance of this strategy.

The Commission's American lobster management strategy is neither predicated upon a single measure nor is it contained within a single document. Rather, the structure is based on facilitating ongoing adaptive management with necessary elements implemented over time. The Commission set forth the foundation of its American Lobster fishery management plan in Amendment 3 in December 1997. Amendment 3 established measures to directly address overfishing, including inshore trap limits of 800 traps per vessel and offshore trap limits of 1,800 traps per vessel. Amendment 3 also included a trap tagging requirement and created seven lobster conservation management areas (LCMAs/Areas), with respective industry-led lobster management teams that make recommendations for future measures to end overfishing based on the status of the stock. NMFS issued compatible regulations that complemented Amendment 3 in December 1999. A framework of more specific measures was built through the adoption of subsequent Amendment 3 addenda (I-XI), which serve to address various issues including stock rebuilding, effort control, and other needs (See the Commission's website for more details at www.asmf.org).

1.2 Purpose and Need

One purpose of this action is to improve the availability and utility of fishery-dependent lobster data to meet the need for a more comprehensive baseline for assessing the status of lobster stocks coastwide. Additionally, this proposed action would bolster lobster broodstock protection for the SNE lobster stock and facilitate enforcement of lobster measures by revising maximum size and v-notch requirements, consistent with the recommendations of the Commission in the ISFMP. Finally, this proposed action would expand the curtain of protection on broodstock lobster traveling among lobster management areas by extending the revised maximum size and v-notch requirements to the Outer Cape Management Area. The need for action is rooted in the most recent American lobster stock assessment and in recommendations in a subsequent peer review panel report.

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In 2005, the Commission completed an updated assessment of the three U.S. lobster stock assessment units. The stock areas, as specified in the assessment and the Commission ISFMP, are: the Gulf of Maine stock unit (GOM); the Georges Bank stock unit (GBK); and the Southern New England stock unit (SNE). The assessment indicated that there is stable abundance for the GBK stock and much of the GOM stock, and there is decreased abundance and recruitment, yet continued high fishing mortality, for the SNE stock and in Statistical Area 514 (Massachusetts Bay and Stellwagen Bank) in the GOM stock. (See section 3.1 – Status of the Stock for more in depth information or the Commission Stock Assessment Report No. 06-03, dated January 2006 (ASMFC 2006a) at www.asmfc.org.)

A panel of stock assessment experts, convened in August 2005 as the American Lobster Stock Assessment Review Panel (Panel), provided a report to the Commission on the 2005 American lobster stock assessment and results of the external peer-review of that assessment. Within this report titled, the Terms of Reference and Advisory Report to the American Lobster Stock Assessment Peer Review (Stock Assessment Report No. 06-03 of the Atlantic States Marine Fisheries Commission, 2005), the Panel provided several recommendations for improving the management of the American lobster resource. Specifically, the Panel indicated that "...the lack of complete reported catch (landings and discards) data is a serious flaw in the stock assessment and leads to mis-estimates of lobster abundance and fishing mortality." Further, the Panel concluded that the data available are "woefully inadequate" for the purposes of lobster fishery management, negatively impacting fishery management capabilities. Additionally, the Panel noted the incomplete and inconsistent manner in which commercial landings are reported by both dealers and harvesters and indicated that "procurement of complete and unbiased catch information" would provide the best means of improving future stock assessments.

1.3 Commission Actions

The Commission has adopted procedures and management measures for improving the quality and quantity of fisheries data and addressing the depressed status of the SNE lobster stock with two Addenda as described below (See the full text of both Addenda X and XI as APPENDICES 1 and 2, respectively). The management measures in these addenda were recommended to NMFS for compatible implementation, and Commission recommendations are the basis for this Federal action.

The ISFMP, drawing from previous stock assessments, stresses the importance of both fisheries-dependent and fisheries-independent data in understanding the lobster resource and in maximizing the ability of scientists, managers and the industry to sustainably manage the fishery. Fishery-dependent data are harvest data that come from the fishing industry. Examples of fishery dependent data include: landings, port sampling and sea sampling (observer) data. Such data provide critical information to assess the impact of the fishery on the lobster stocks. According to the Stock Assessment Report (Stock Assessment Report No. 06-03, ASMFC, 2006, APPENDIX 3), current landings data for the fishery is both spatially and temporally deficient. These terms likely

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refer to the inconsistent and untimely manner in which lobster fishery data are collected (or not collected) by states and NMFS across jurisdictions, stock areas and LCMAs. Within the report, it was recommended that a standardized, mandatory coastwide landings program be developed to help improve the quality of future stock assessments. Further, enhanced sea and port sampling was recommended to provide a more complete picture of the biological characteristics of the fishery.

Fishery-independent data are data acquired from sources outside of the fishery itself, such as from scientific collection. Fishery-independent data provide an additional means to both augment and reconcile harvest data obtained from fishery-dependent data sources. In the case of lobster, fishery-independent data comes almost exclusively from NMFS and state trawl surveys, although other methods, such as ventless lobster trap surveys and settlement surveys, are under consideration for inclusion to limit sampling bias presented by trawl gear that cannot effectively cover all habitat types.

To address the need for additional fishery-dependent and fishery-independent data as recommended by the Panel, the Commission, in February 2007, revised the coast-wide lobster data collection requirements in its adoption of Addendum X to Amendment 3 of the ISFMP.

Addendum X- Expanded Coastwide Mandatory Reporting and Data Collection Program

Approved by the Commission in February 2007 and known as the Expanded Coastwide Mandatory Reporting and Data Collection Program, Addendum X's data collection initiatives are directed at both the fishery-dependent and independent levels. At the fishery-dependent level, expanded reporting requirements are detailed for lobster dealers and harvesters, as well as expanded sea sampling and port sampling protocols. Fishery-independent collection criteria are also provided in the Addendum.

Addendum X's dealer reporting program includes the following elements:

- 100 percent mandatory dealer reporting on a trip-level basis. A dealer report is generally a report from the lobster dealer that documents how much the dealer is buying. It must include a unique trip identifier to link it with the associated harvester report, species purchased in pounds, state and port of landing, market grade and category, areas fished (NMFS Statistical Area), and price per pound.
- A two-ticket verification system wherein harvesters report trip-level data and catch estimates in pounds and dealers report trip level landings in pounds⁴.
- Dealers must submit their trip-level purchases on a monthly basis.

⁴ The two-ticket system may be substituted with a one-ticket system with both dealer and harvester reporting on a single form. A two-ticket system involves separate harvester and dealer reports for the same trip that are linked together by a common trip identification number. With respect to Federal reporting, a dealer report is linked to a Federal Vessel Trip Report (Harvester Report) by the Trip Report ID number.

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- All data will be stored through the Atlantic Coastal Cooperative Statistics Program (ACCSP) system.

SAFIS and State and Federal Electronic Dealer Reporting

Both NMFS and the states acquire dealer and harvester data, although the frequency and reporting requirements vary across state and Federal jurisdictions. In an effort to achieve a common forum for collecting and assessing coastwide fishery data, NMFS and its Atlantic states partners developed the Atlantic Coastal Cooperative Statistics Program (ACCSP). ACCSP is a state and Federal fisheries statistical data collection program. The data are compiled into a common management system to facilitate fishery management and meet the needs of fishery managers, scientists and the fishing industry.

To more specifically address the need for real-time landings data to assist in fisheries management, the ACCSP established the Standard Atlantic Fisheries Information System (SAFIS). Since 2003, SAFIS has evolved to handle the fisheries data from state-permitted dealers from participating states along the Atlantic coast. Since May 2004, SAFIS has incorporated Federal seafood dealer data. To input the data, dealers access an online form via SAFIS that satisfies state and Federal reporting requirements. Dealers also have the option to enter their data on a PC-based software system and then upload electronic files to a website rather than enter the data online.

Although SAFIS was intended to be the overall entry point and warehouse for state and Federal dealer data, NMFS relies on its Commercial Fisheries Database System (CFDBS), managed by the Northeast Fisheries Science Center, as the official warehouse for Federal dealer data even though all Federal and state data are, ultimately, available on the SAFIS database.

Previous Data Collection Elements of the ISFMP

Prior to the development and approval of Addendum X, other measures were established within the ISFMP to bolster coastwide data collection and catch reporting requirements. In Amendment 3, the Commission adopted a suite of measures intended to stop the expansion of effort in the lobster fishery and to rebuild egg production to recommended levels. Amendment 3 also recommended that NMFS adopt all the measures set forth in the amendment and continue current monitoring and reporting programs regarding the collection of data pertinent to the lobster fishery. As such, NMFS continued its requirements for dealer and vessel reporting in place at that time.

Based on the findings of the 2005 American Lobster Stock Assessment and accompanying Peer Review Report, Addendum VIII to Amendment 3 was adopted. In addition to the establishment of new biological reference points to facilitate lobster management, this addendum replaced the monitoring and reporting requirements set forth in Section 4.0 of Amendment 3 to address concerns in the Peer Review Report that insufficient catch data is available for lobster fishery management purposes. Addendum

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VIII required states to collect catch and effort data from each harvester, summarized by month and submitted in an annual recall log format. Additionally, each state was mandated to require 10 percent of all lobster harvesters to provide trip-level catch and effort reports. Lobster dealers were also required to provide trip-level purchase data. Addendum VIII included standards for sea and port sampling as well. This program called for reporting that would capture 100 percent of all harvesters – 90 percent reporting in an annual recall survey with monthly catch and effort data and 10% reporting on a trip by trip basis.

Within several months of Addendum VIII's approval, the Board approved Addendum X to allow for a more "rigorous data collection program...to assess and manage the valuable lobster resource" and to address concerns that Addendum VIII's measures did not meet the ACCSP standards or all the recommendations of the 2005 stock assessment peer-review. Ultimately, Addendum X's requirements revised those initially adopted in Addendum VIII. Rather than capturing 100 percent of all harvesters, Addendum X required that 10 percent of harvesters report on a trip-level basis with the expectation that 100 percent would report at that level in the future. It also established a means of linking dealer and vessel reports through either a one ticket or two ticket system wherein a unique harvester trip identification code would be included on the dealer report. Ultimately, the new program is intended to improve data collection over what was in place prior to Addendum VIII and precludes states with more rigorous reporting standards from relaxing those requirements already in place.

Initially, Addendum X included measures for 100 percent trip-level reporting for harvesters but this was ultimately reduced to 10 percent, with an added requirement that dealers provide the area fished from the harvesters and include the area on the dealer reports. This additional data element required by dealers prompted Maine and Massachusetts to lobby the Lobster Management Board for conservation equivalency (see APPENDIX 4 for more information on conservation equivalency). Massachusetts requested that its current harvester reporting requirement be conservationally-equivalent to the new measures. This way, the area fished information would continue to come from the harvesters on their monthly entry in the annual fishing recall log rather than from the dealers as required in the addendum. Maine requested that rather than require dealers to provide information regarding where harvesters fished, that dealers attribute the NMFS statistical area adjacent to the port of landing. Both states were granted conservation equivalency for the Area reporting requirements in Addendum X by the Board in February 2007.

Addendum XI – Broodstock Protection Measures

In response to the 2005 stock assessment, Addendum XI establishes measures to rebuild the SNE lobster stock. The assessment found that this stock unit has depleted abundance, low recruitment and high fishing mortality rates. The addendum added several management measures to the ISFMP including an increase in the minimum carapace size in offshore Area 3 to 3 ½ inches; a maximum carapace size of 5 ¼ inches for all lobster harvested in Areas 2, 4, 5 and 6, and 6 ¾ inches for Area 3 (beginning at 7

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inches and decreasing incrementally over two years to 6 ¾ inches); additional trap reductions for Area 3 vessels; a more restrictive v-notch definition and an increase in the Area 3 lobster trap escape vent size effective in 2010.

Additionally, Addendum X includes the expanded lobster data collection program. Under the Commission's compliance schedule, the expanded data collection program was mandated for state implementation in January 2008, and the Addendum XI measures were to be in effect under state regulations by July 1, 2008.

1.4 Federal Process

Relevant Rulemaking Actions

Portions of Addendum XI and the dealer reporting requirement in Addendum X form the basis for the proposed alternatives analyzed in this draft EA and rulemaking. NMFS began the process of analyzing these measures for Federal implementation by publishing an Advance Notice of Proposed Rulemaking (ANPR) in the Federal Register on September 21, 2007 (72 FR 53978, APPENDIX 5). The purpose of the ANPR was to inform the public that NMFS was considering and seeking public comment on the measures included in the two Addenda.

In support of the Commission's plan, NMFS has enacted regulations to implement many of Addendum XI's measures. In a Final Rule published in the Federal Register (72 FR 56935, October 5, 2007), NMFS implemented the increase to the minimum carapace length for lobster harvested in Area 3, the additional trap reductions for Area 3, and the Area 3 lobster trap escape vent size revision and implementation delay until 2010.

Measures proposed in this draft EA would address the remaining provisions of Addendum XI and would implement changes to the maximum carapace size regulations for Areas 2, 4, 5 and 6, would implement a 7-inch decreasing to a 6 ¾ inch maximum size in Area 3 and would adopt the more restrictive 1/8 inch v-notch requirement for all areas except for Area 1 (Area 1 currently has a zero tolerance v-notch definition). Although not included in the Commission's ISFMP, NMFS proposes to extend the 1/8 inch v-notch and the 6 ¾ inch maximum carapace length requirements to the Outer Cape Lobster Management Area. Extension of these requirements to Federal vessels fishing in the Outer Cape Area may allow for additional conservation benefits for lobster migrating through this area from the other stock areas.

The Commission's Expanded Coastwide Data Collection Program set forth in Addendum X is intended to increase the quality and quantity of fisheries dependent and independent data collected at the state and Federal levels. With approximately 61 percent of Federal lobster vessels currently providing Federal Vessel Trip Reports (VTRs), NMFS currently meets the harvester reporting requirements in place in the ISFMP and would continue to maintain the current level of harvester reporting. Federal fishery-independent data collection programs are longstanding and underway, and contribute

substantially to the pool of information used for lobster stock assessments. NMFS would also maintain the current scope of port and sea sampling protocols in place along the Atlantic coast. Consequently, the harvester reporting and fishery-independent elements of Addendum X are currently being met or exceeded and are not part of this rulemaking action (see also Section 2.4 Alternatives Considered but Rejected).

2.0 MANAGEMENT MEASURES AND ALTERNATIVES

Introduction

The management measures analyzed in this draft EA have their origins in two addenda in the ISFMP and, to an extent, are mutually exclusive, with little overlap in their impacts. Therefore, each management measure is analyzed as a separate action, each with its own suite of alternatives. The origins of the measures analyzed in this assessment are summarized in the subsections below, and the alternatives for each management issue are explained in Sections 2.1-2.3 and more fully analyzed in Chapter 4. Those measures considered for Federal implementation but rejected are described in Section 2.4.

The Commission-recommended management measures (issues) include a mandatory Federal lobster dealer reporting requirement, and implementation of a new or revised maximum carapace length requirement for lobster harvested in all LCMAs except LCMA 1 and the Outer Cape LCMA. Area 1 currently has a 5-inch maximum size requirement while the Outer Cape LCMA has no maximum size requirement. The Commission also recommended a revision to the v-notch definition for all LCMAs except LCMA 1 and the Outer Cape LCMA to allow for greater protection of egg-bearing female lobster. Area 1 currently has a zero tolerance v-notch requirement, and the Outer Cape has a ¼ inch v-notch requirement.

In addition to the Commission recommended management measures, in this draft EA, NMFS proposes to extend the 1/8 inch v-notch and the 6 ¾ inch maximum carapace length requirement to the Outer Cape Lobster Management Area. Since the Commission's Addendum XI and state regulations do not apply to participants in the Outer Cape management area, Federal permit holders would not be bound under more restrictive state regulations.

2.1 Management Measures Considered

2.1.1 Issue 1: Mandatory Federal Lobster Dealer Reporting

Issue Overview

Three proposed alternatives are analyzed under this issue, which stems from the Commission's recommendations for implementation of a coastwide data collection program approved in Addendum X. By virtue of the NMFS VTR requirement, Federal lobster harvesters already report to a degree (61 percent) in excess of the Addendum X's

10 percent harvester reporting rate requirement. Accordingly, NMFS is addressing only the mandatory lobster dealer reporting requirement within the scope of this draft EA and rulemaking. The alternatives below include: the No Action/Status Quo alternative (draft Alternative A) would continue the current level of Federal lobster dealer reporting, with about 71 percent of all Federal lobster dealers reporting; the Commission’s alternative (draft Alternative B) proposes to implement the dealer reporting component of Addendum X, which would require approximately 29 percent of current Federal lobster dealers that currently have no dealer reporting requirements to report trip-level lobster purchases; and the third modified alternative (draft Alternative C) proposes to allow a one-year delay in the requirement for the current Federal lobster dealers that currently have no dealer reporting requirements to comply with the reporting requirement. The Commission’s option (draft Alternative B) is the agency preferred option. However, NMFS proposes to require impacted dealers to report on an electronic basis, which is consistent with the current dealer reporting requirements in place for Federal seafood dealers that do currently have mandatory dealer reporting requirements. The three draft alternatives for mandatory dealer reporting are summarized in Table 2.1, and the estimated number of impacted dealers for each alternative is provided in Table 2.2.

Table 2.1 Summary of Dealer Reporting Alternatives.

Current Federal Requirements	<u>Alternative A</u> <i>No Action</i>	<u>Alternative B</u> <i>Modified Commission Recommendations - Preferred</i>	<u>Alternative C</u> <i>Modified with One Year Delay</i>
71% of Federal lobster dealers electronically submit trip-level purchases on a weekly basis.	No change	All Federal lobster dealers would report trip-level purchases electronically and on a weekly basis, which is consistent with current Federal reporting protocols and exceeds Commission recommendations ⁵ .	Mandatory lobster dealer electronic reporting, but those not currently reporting (n=148) would have one year to comply.

Mandatory Dealer Reporting Alternatives Considered

Alternative A: No Action – Maintain the current Federal reporting requirements for federally-permitted dealers. Those dealers with only a Federal lobster dealer permit would remain exempt from the Federal dealer reporting requirements. Only those Federal dealers already required to report lobster purchases by virtue of reporting

⁵ Addendum X requires mandatory (100%) dealer reporting for trip-level purchases but allows data submission in a paper format and on a monthly basis. The preferred alternative differs in that it mandates electronic reporting and trip-level reports submitted on a weekly basis.

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requirements mandated by regulations for other federally-managed fisheries would need to submit dealer reports for all species purchased, including lobster.

Alternative B: *Modified Commission Recommendations – Preferred* - Implement regulations to extend mandatory reporting coverage to all Federal lobster dealers, including those lobster dealers with only a Federal lobster dealer permit not currently required to report lobster sales based on reporting requirements mandated by other federally-managed fisheries. All trip-level reports would be submitted electronically, consistent with current Federal dealer reporting requirements. This alternative differs from the Commission’s requirements specified in Addendum X, because it would require electronic reporting under Commercial Fisheries Database System (CFDBS) procedures and would collect the data in a timelier manner (weekly versus monthly).

Alternative C: *Modified Commission Recommendations with One Year Delay* – This proposed alternative would extend mandatory reporting coverage to all Federal lobster dealers on an electronic basis, including those lobster dealers with only a Federal lobster dealer permit and not currently required to report lobster sales based on reporting requirements mandated by other federally-managed fisheries. This proposed alternative would allow a one-year delay in implementation. The intent of the delay in the reporting requirement would be to mitigate the impact on Federal dealers who currently are not required to report lobster purchases under other Federal regulations and provide them with additional time to become better informed with CFDBS requirements, acquire the equipment and capabilities to electronically report trip-level purchases on a weekly basis, and benefit from NMFS outreach and assistance programs associated with the requirement.

Table 2.2 Summary of Impacted Federal Lobster Dealers for each Alternative

<i>Alternative</i>	<i>A. No Action</i>	<i>B. Commission- Implement Reporting - Preferred</i>	<i>C. Delay Reporting by 1 Year</i>
# of Dealers Impacted	0	148	148

2.1.2 Issue 2: Lobster Maximum Carapace Length Requirement for Nearshore Areas and Offshore Area 3

Issue Overview

A 5-inch maximum size for Area 1 was approved with the implementation of Amendment 3 to the ISFMP in 1997. NMFS promulgated complementary regulations for this management measure through publication of a Final Rule in December 1999 (64 FR 68228). Maximum sizes for Areas 4 and 5 were implemented by NMFS into the Federal lobster regulations in 2006 (71 FR 13038) based on recommendations for Federal action by the Commission in Addendum III. Currently, the maximum size restriction for Area 1 applies to all American lobsters (male and females) in that management area. The

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maximum size regulations for Areas 4 and 5 restrict harvest only on female lobster over the designated maximum sizes in these areas, with the exception that individuals engaged in recreational fishing may possess one female lobster per fishing trip in excess of the maximum carapace length. The current maximum carapace length for female lobster harvested in Area 4 is 5 ¼ inches. In Area 5, female lobster with a carapace greater than 5 ½ inches are prohibited (Table 2.3).

Three draft alternatives are provided for this issue: a status quo alternative (draft Alternative A); an alternative that proposes to implement the maximum carapace size measure as specified in Addendum XI (draft Alternative B); and a proposal to expand the maximum size requirement to include the Outer Cape management area. The approval of Addendum XI established a maximum carapace size of 5 ¼ inches for all lobster harvested in Areas 2, 4, 5 and 6, and 6 ¾ inches for Area 3 (beginning at 7 inches and decreasing incrementally over two years to 6 ¾ inches). With the maximum size restrictions for lobster established in Addendum XI, the ISFMP has a maximum size limitation on lobster harvested from all lobster conservation management areas, with the exception of the Outer Cape Area. NMFS is considering a proposed maximum size for the Outer Cape Area in this analysis (draft Alternative C) based in part on recommendations of the 2004 Terms of Reference and Panel Report regarding the need for a more spatially consistent suite of management measures across management areas to facilitate stock assessments.

Table 2.3. Summary of Issue 2 Alternatives – Maximum Carapace Length Measures.

LCMA	Current Federal Regulations	<u>Alternative A</u> <i>No Action</i>	<u>Alternative B</u> <i>Commission</i>	<u>Alternative C</u> <i>Modified Commission - Preferred</i>
1	5" max, all lobster	No change	No change	No change
2	No max size		5 ¼" all lobster	5 ¼" all lobster
3	No max size		6 7/8" 2009; 6 ¾" 2010, all lobster	6 7/8" 2009; 6 ¾" 2010, all lobster
4	5 ¼ " females only, 1 oversized female per recreational diver per day		5 ¼" all lobster	5 ¼" all lobster
5	5 ½" females, 1 oversized female per recreational diver per day		5 ¼" all lobster	5 ¼" all lobster
6	No max size		5 ¼" all lobster	5 ¼" all lobster
OCC	No max size		No change	6 7/8" 2009; 6 ¾" 2010, all lobster

Maximum Carapace Length Alternatives Considered

Alternative A: No Action – The No Action alternative proposes to maintain the maximum size requirements already in place in the Federal lobster management program. No changes to any current maximum size requirements would be

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implemented for Areas 1, 4 and 5. New maximum size restrictions would not be implemented in Area 2, Area 3, Area 6 or the Outer Cape Area. Current regulations would continue, including: a 5-inch maximum size for Area 1, the maximum size restriction for Area 1 applies to all American lobsters (male and females) in that management area; a maximum carapace length for female lobster harvested in Area 4 is 5 ¼ inches; and in Area 5, female lobster with a carapace greater than 5 ½ inches are prohibited. The maximum size regulations for Areas 4 and 5 restrict harvest only on female lobster over the designated maximum sizes in these areas, with the exception that individuals engaged in recreational fishing may possess one female lobster per fishing trip in excess of the maximum carapace length (Table 2.3).

Alternative B: *Commission Recommendations – Revision or Implementation of Maximum Carapace Length Requirements in All Areas Except Area 1 and the Outer Cape Area* - This proposed alternative would implement a maximum size of 5 ¼ inches on all (male and female) lobsters in Area 2, wherein there is currently no maximum size requirement in the Federal regulations. In Area 4, the current requirement of 5 ¼ inches pertains to female lobster only. This alternative would broaden the scope of the maximum size to include all lobsters (male and female). In Area 5, the current Federal requirement is 5 ½ inches, applicable only to female lobster. This alternative would reduce the maximum size to 5 ¼ inches, consistent with the ISFMP, for male and female lobster. The Federal trophy lobster allowance for recreational divers would be eliminated⁶. In Area 6, this alternative would establish a maximum size of 5 ¼ inches for all lobster harvested by Federal vessels in this area.

Additionally, this alternative (B) would establish a maximum size in Area 3. The Commission's plan requires the states to implement a lobster maximum carapace length of 7 inches by July 1, 2008, reduced by 1/8 inch during each of two successive subsequent years until a terminal maximum size of 6 ¾ inches is obtained in July 2010. Given the timing associated with Federal rulemaking on this action, the earliest NMFS could establish a 7 inch maximum size is July 1, 2009. Therefore, to be consistent with the Commission's recommended time frame for implementation and fully complement state regulations, this alternative would begin the maximum size during the second year of the three-year implementation schedule and begin with the 6 7/8 inch maximum size in July 2009. Consistent with the ISFMP, the terminal maximum size of 6 ¾ inches would take effect on July 1, 2010.

Alternative C: *Modified Commission Recommendations – Preferred* – Similar to measures proposed in draft Alternative B above, this proposed alternative would adopt the Commission's maximum size requirement for Area 3 consistent with the maximum size schedule in the ISFMP and, in addition, implement an identical maximum size requirement for the Outer Cape Area, which is an option not included in the

⁶ Regardless of Federal action, recreational divers are not allowed to harvest oversized lobster due to more restrictive state regulations. Nevertheless, a 5 ¼ inch lobster is still an exceedingly large lobster, particularly since much of the overall harvest is reliant on minimally legal newly-recruited lobster (see Section 3.1.2 Status of the Stocks). Whether large lobsters measuring less than 5 ¼ inches are considered "trophy" lobsters is subjective and would depend on individual preferences.

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Commission's ISFMP. The Commission's Plan would begin the maximum size requirement at 7 inches, effective in July 2008, subsequently dropping the maximum size 1/8 inch to 6 7/8 inches in July 2009 and to 6 3/4 inches in July 2010. Since federal rules associated with these management measures would not likely publish until 2009, Alternative C would implement the maximum size in Area 3 and the Outer Cape Area consistent with that set forth in the ISFMP schedule for Area 3 in 2009, which is 6 7/8 inches. Under this alternative, NMFS would subsequently reduce the maximum size in Area 3 and the Outer Cape Area to 6 3/4 inches in July 2010. This alternative would also implement the maximum sizes set forth in the ISFMP for Areas 2, 4, 5 and 6 as described in Alternative B.

2.1.3 Issue 3: Revision of V-Notch Definition

Issue Overview

Addendum XI included a revision to the standard v-notch definition as part of the SNE rebuilding management program (Areas 2, 3, 4, 5, and 6) wherein the definition of v-notch in the ISFMP was revised to mean "...any female lobster that bears a notch or indentation in the base of the flipper that is at least as deep as 1/8 inch, with or without setal hairs. V-notched female lobster also means any female which is mutilated in a manner which could hide, obscure, or obliterate such a mark⁷."

The v-notch is a conservation practice that has been conducted in the Gulf of Maine for an extensive period and has been more recently employed in southern New England. Applying a v-notch to egg-bearing lobster is a means of delaying fishing mortality of reproductive female lobster (DeAngelis et al, unpublished). Gulf of Maine fishermen, under both state and Federal regulations, have been subject to a mandatory v-notching measure that requires each lobsterman to actively notch each egg-bearing female lobster encountered during fishing in Area 1 and in the portion of Area 3 that lies north of 42 degrees 30 minutes north latitude. In addition, there is a zero-tolerance v-notch⁸ provision in the Commission's plan, and included in the Federal regulations, in effect for Area 1. Under the Federal regulations, fishermen in all other management areas are prohibited from harvesting lobster with a standard v-notch which is defined as 1/4 inch deep or greater, without setal hair. The current Federal requirements for this measure by area, along with the changes resulting from each alternative, are shown in Table 2.4.

As a means of providing further protections for lobster, the Commission included a more restrictive v-notch definition into the ISFMP via Addendum XI to assist in rebuilding depressed lobster stocks. Although fishermen would continue to notch lobster with a 1/4 inch v-notch, the enforceable standard for legal harvest of a notched lobster in the affected management areas would allow only those lobsters with a notch smaller than

⁷ Addendum XI to Amendment 3 of the ISFMP, Section 2.1.3.2.4

⁸ The Federal lobster regulations at 50 CFR part 697.2 define a zero-tolerance v-notch as a v-shaped notch of any size, with or without straight sides, with or without setal hairs.

1/8 inch to be harvested. The more restrictive 1/8 inch v-notch would delay mortality on reproductive female lobster for an additional molt compared to the current standard ¼ inch v-notch requirement currently specified in Federal regulations. The measure, in accordance with recommendations in Addendum XI, would be required in all nearshore management areas with the exception of the Outer Cape management area.

Table 2.4 Summary of Alternatives for Issue 3 – Revision of V-notch Definition.

LCMA	Current Federal Regulations	<u>Alternative A</u> <i>No Action</i>	<u>Alternative B</u> <i>Commission</i>	<u>Alternative C</u> <i>Modified Commission - Preferred</i>
1	Zero tolerance v-notch	No change	No change	No change
2	Straight-sided triangular cut without setal hair, at least ¼ inch in depth.		Straight-sided triangular cut, with or without setal hair, at least 1/8 inch in depth.	Straight-sided triangular cut, with or without setal hair, at least 1/8 inch in depth.
3				
4				
5				
6				
OCMA		No change		

V-Notch Alternatives Considered

Alternative A: *No Action* - Maintain the current Federal definition of the standard v-notch as a straight-sided triangular cut, without setal hairs, measuring at least ¼ inch (0.64 cm) in depth for Areas 2, 3, 4, 5, 6 and the Outer Cape Management Area. Maintain zero tolerance definition in Area 1.

Alternative B: *Commission Recommendations* – As approved by the Commission in Section 2.1.3.2.4 of Addendum XI, this proposed measure would revise the v-notch definition in Areas 2, 3, 4, 5 and 6 to apply to any female lobster that bears a notch or indentation in the base of the flipper that is at least as deep as 1/8 inches, with or without setal hairs. Thus, any female lobster with a v-notch measuring 1/8 inch or greater must be returned to the sea. In the revised definition, v-notch lobster also pertains to any female which is mutilated in a manner which could hide, obscure, or obliterate such a mark. The zero tolerance v-notch definition for Area 1 would remain unchanged. The Outer Cape management area would maintain the current Federal definition of a v-notch (at least ¼ inch in depth, without setal hair).

Alternative C: *Modified Commission Recommendations – Preferred* - This proposed alternative would revise the v-notch definition, consistent with Alternative B, in Areas 2, 3, 4, 5 and 6 as set forth in the ISFMP, and would also extend this definition to include the Outer Cape Area.

2.2 Considered but Rejected Alternatives

2.2.1 Expansion of Federal Lobster Harvester Reporting Requirements

Addendum X's expanded coastwide mandatory reporting and data collection program includes a requirement that at least 10 percent of active harvesters report their landings and other fishery-dependent data. Currently, approximately 61 percent of Federal lobster vessels are already required to submit mandatory lobster landings data through the VTR process, because these vessels also possess other Federal fisheries permits, such as a Federal limited access multi-species permit, that require submission of a VTR. Therefore, the number of Federal lobster harvesters required to submit VTRs already exceeds the ISFMP Addendum X standard. Thus, NMFS would maintain the current level of reporting for Federal lobster permit holders at this time. Several pilot programs have been completed or are ongoing at this time to evaluate a more effective reporting platform tailored specifically to lobster harvesters. NMFS may choose to pursue a more comprehensive harvester reporting requirement when a coastwide electronic reporting platform is available to facilitate the reporting and processing of the data.

2.2.2 Expansion of Sea and Port Sampling Requirements

The Stock Assessment Panel's Terms of Reference and Advisory Report indicates that size frequency data may not be sufficient for use in the stock assessment model since the sample sizes for the offshore fishery are relatively small compared to those in the inshore fishery. Consequently, the report recommends extended sampling in the offshore component of the fishery to assist with assessment of the GBK stock unit. The report also states that the inshore assessment of the GOM stock is insufficient. In general, the Panel recommends that a survey be designed to capture all facets of the GOM fishery to assist in stock assessment.

NMFS has considered the Panel's comments regarding the improvements to trawl surveys, but the statistical integrity of such sampling designs lies in their consistency over time. Further, changes in the prosecution of trawl surveys are derived from policy decisions from the Northeast Fisheries Science Center and are not initiated through the rulemaking process. Extended state-based sea sampling programs also have increased the quality and quantity of offshore lobster data and represent another viable way to obtain the needed information on a more consistent basis. NMFS acknowledges the Panel's concerns with sea sampling and port sampling protocols, and NMFS intends to maintain these long-standing programs.

2.2.3 Mandatory Dealer Reporting Allowing Non-Electronic Reporting Methods

Currently, Federal seafood dealer mandatory reporting requirements are set forth in 50 CFR 648 under the authority of the Magnuson-Stevens Act and do not pertain to

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Federal lobster dealers holding only a Federal lobster permit. In 2007, NMFS issued 511 Federal lobster dealer permits. Of this total universe of Federal lobster dealers, 148 held only a Federal lobster dealer permit and no other dealer permits. Therefore, these 148 dealers, or about 29 percent of all Federal lobster dealers, are not required under current Federal regulations to report lobster receipts or purchases. The current Federal dealer regulations identify several species managed under the authority of the Magnuson-Stevens Act for which permitted dealers must report purchases⁹. Any dealer issued a Federal dealer permit for one or more of these identified species must provide electronic trip-level reports, for all species purchased, to NMFS on a weekly basis. Reports must be received by midnight of the first Tuesday following the end of the reporting week which runs from Sunday through Saturday. Dealers must provide the electronic reports by submitting them directly on the SAFIS¹⁰ web site or by file upload using an existing software application via the Internet.

NMFS currently collects all Federal dealer data electronically, and it is ultimately accessible through the SAFIS system along with dealer data collected by the states for state-licensed dealers. However, some state dealer data are not collected on a weekly basis as required at the Federal level and may be loaded onto the SAFIS system only on a monthly basis (NERO FSO Staff, personal communication, March 2008). States, under the ISFMP, are collecting trip-level data in both paper and electronic formats from their respective dealers on a monthly basis, as opposed to the weekly electronic reporting required by NMFS. The data elements collected by the states and NMFS may vary, resulting in an incomplete real-time coastwide landings data set. The Federal infrastructure currently in place is established to handle all dealer reports strictly on an electronic basis with continued movement to facilitate the integration of that data into the SAFIS infrastructure and the Commercial Fisheries Dealer Electronic Reporting Database (CFDER), managed by the Northeast Fisheries Science Center as the official warehouse for Federal dealer data.

Given this long-term electronic dealer data strategy, NMFS believes that any short-term benefits of allowing the affected dealers to report by non-electronic means would be outweighed by the additional personnel and operational costs associated with data entry, integration and error-checking. Specifically, if a paper-based reporting requirement was implemented, the subset of affected dealers without computers or Internet service would not experience the start-up and maintenance costs associated with these technological requirements¹¹. On the receiving end, NMFS would need to dedicate staff time to receive and enter the data into the appropriated database and then load it into

⁹ The purchases and receipts by Federal dealers of following species managed under the Magnuson-Stevens Act must be electronically reported to NMFS: Atlantic bluefish; Atlantic deep-sea red crab; Atlantic hagfish; Atlantic herring; Atlantic mackerel; Atlantic sea scallop; black sea bass; butterfly; monkfish; Northeast multi-species; ocean quahog; scup; skate; spiny dogfish; squid; summer flounder; surfclam; and tilefish.

¹⁰ The Standard Atlantic Fisheries Information System (SAFIS) was identified and discussed previously in Section 1.3 of this EA.

¹¹ As explained in Table 4.5, dealers who would need to purchase a computer and Internet service to comply with the electronic reporting requirements would endure costs of about \$580 for a computer and approximately \$652 annually for Internet service.

SAFIS. Fishery management would be compromised because these non-electronic data collections would not be integrated contemporaneously with the electronic data – a fundamental issue that is driving the need for mandatory electronic reporting overall.

2.2.4 Provision of Area Fished on Dealer Reports

The Commission's plan requires dealers to provide trip-level reports on lobster purchases and receipts. One of the data elements required in the Commission's plan includes a requirement to furnish the statistical area fished for each fishing trip documented in a dealer report. The Commission included this data element in the dealer report, in the absence of 100 percent harvester reporting, to assist in future stock assessments. The rationale is that the provision of the statistical area information would increase the accuracy and utility of landings data by allowing the Lobster Technical Committee to attribute landings to the specific stock areas for use in stock assessments.

Under current Federal dealer reporting requirements, 61 percent of all Federal lobster vessels already submit a VTR indicating each statistical area fished (Table 4.3). When these vessels sell lobster to a Federal lobster dealer who is required to submit a Federal dealer report to NMFS (71 percent of Federal lobster dealers fall under this reporting requirement), the VTR is linked to the dealer report by a VTR identification number which is documented on the dealer report. In this way, the statistical area where the lobster was harvested can be accessed via the dealer report by obtaining the VTR identification number. If NMFS implements the preferred electronic mandatory dealer reporting program (Alternative B), the remaining 29 percent of Federal lobster dealers would be required to submit dealer reports. At least some would report purchases from Federal lobster vessels not required to submit a VTR (39 percent of vessels are not required to submit a VTR). In such cases, the Federal dealer report would not include a VTR identification number. Consequently, the dealer report will not be linked to a trip report that includes the area fished as reported by the harvester. As is the current practice in this situation, NMFS would not require that the dealer provide the statistical area fished on the dealer report form.

NMFS believes that practical fishing information, such as the fishing area, should come from the harvester. Relying upon the dealer to provide this information could impact data quality. Further, the current dealer reporting format is not designed to obtain these data, and NMFS is hesitant to make structural changes to the dealer reporting infrastructure to accommodate a data element that is best captured by harvesters.

With respect to provision of reporting fishing area by dealers, the Commission recently granted conservation equivalency to the states of Maine and Massachusetts, allowing for each state to adapt the manner in which these data are collected. This determination came after each state voiced its concerns over the potential impact on data quality if fishing area data were collected by dealers. Specifically, the decision allows Maine dealers to assign the statistical area adjacent to the port of landing as the assumed fishing area. Since all Maine waters fall within the GOM stock area, this method is

considered sufficient by the Technical Committee. In Massachusetts, the Commission allows the Commonwealth to rely on its annual recall log harvester survey, which collects the statistical area fished by month as reported by the harvester.

NMFS believes that requiring the dealer to provide data that should be collected by the harvester could compromise the integrity of the data collected in the Federal dealer database and any bias would be passed on to the data quality in SAFIS. Therefore, NMFS has considered but rejected the practice of requiring dealers to provide the fishing area data on the dealer report. Templates for an electronic harvester reporting program have been researched and may be developed in the future as the basis for a more comprehensive harvester reporting program. At such time, the inclusion of the fishing area by the harvester in such a format could be the most practical and reliable means for addressing the fishing area data needs for lobster assessments.

3.0 AFFECTED ENVIRONMENT

The Chapter 3 sub-sections that follow describe the valued ecosystem components (VECs) that represent the scope of the proposed alternatives. These include the three American lobster stocks and the associated biological, physical, and socioeconomic environment and the protected resources inhabiting both nearshore and offshore LCMAs. The impacts of the proposed alternatives on the VECs are discussed in detail in Section 4.4 Cumulative Effects.

3.1 Status of Lobster Resource

3.1.1 Range

The American lobster, *Homarus americanus*, is distributed throughout the Northwest Atlantic from the Strait of Belle Isle, Newfoundland to Cape Hatteras, North Carolina from mean low water to depths of 700 meters (Cooper and Uzmann 1980; Lawton and Lavalli 1995). In the U.S., the American lobster resource occurs in continental shelf waters from Maine to North Carolina, and they are most abundant in relatively shallow coastal zones. Population densities ranging from one to ten per square meter have been reported in Maine for some areas west of Penobscot Bay in boulder and cobble substrates (Wahle and Steneck 1991; Steneck and Wilson 1998; Palma et al. 1999). Lobster densities are lower east of Penobscot Bay and in the far southwestern Gulf of Maine. Inshore landings have increased steadily since the early 1970s. Fishing effort is intense and increasing throughout much of the range of the species. The majority of the landings are reportedly harvested from state waters (within 3 miles of shore). However, as fishing effort has increased, the traditional inshore trap fishery has expanded to nearshore Federal waters (3-30 miles from shore) inside of Area 3.

The Area 3 trap fishery is primarily a deepwater fishery for lobster that occurs farther from shore (approximately 25-200 miles out) and includes the canyon areas along

the edge of the continental shelf. In areas south of the Gulf of Maine, catch rates of legal-sized lobsters were higher in inshore southern New England, and lowest on Georges Bank and the offshore southern New England waters. Cooper, Shepard, Valentine, Uzmann, and Hulber (1987) reported that deep water population densities were one to two orders of magnitude less than those found in coastal zones. Lobsters are known to aggregate in offshore canyons on the southern edge of the continental shelf in much greater concentrations than in the surrounding deep water areas, where they can not easily be caught in bottom trawls; thus, catch rates on Georges Bank and the outer continental shelf that are based primarily on trawl survey data may not reflect the actual population densities. Research has shown concentrations of adolescents and adult lobsters are substantially greater in deep sea canyons than in nearby areas that are occupied mostly by adults (Cooper et al. 1987).

3.1.2 Status of the Stocks

Since the early 1990s, the status of the American lobster resource in each of the three identified U.S. lobster stock areas has been assessed approximately once every four or five years to provide information for management decisions. Up until 1997, American lobster stock assessments were peer-reviewed through the Federal NMFS Stock Assessment Workshop/Stock Assessment Review Committee process. During the period from 1997 to 2000, management of American lobster transitioned from the Federal New England Fishery Management Council (NEFMC) to the ASMFC. As a result, the ASMFC assumed primary responsibility for stock assessment updates for American lobster. (For additional information on the transition from the NEFMC to the ASMFC see Section 1.1 – Legal and Historical Context).

The two primary computer models used to assess lobster during each of the last three assessments (1996, 2000, and 2005) have included: the Collie-Sissenwine model, also known as the modified DeLury model, to estimate mortality and abundance of male and female lobsters in individual areas; and the life history model, also known as the egg-per-recruit model (EPR), to estimate egg production per recruit and other per-recruit reference points for male and female lobsters in each stock assessment region. The yield and egg-per-recruit model (Fogarty and Idoine 1988) established biological reference points used to evaluate the effectiveness of LCMA management plans to meet the egg production per recruit objective of 10% or more of a non-fished population. In the 1996 and 2000 stock assessments, using the EPR reference point of $F = 10\%$, the American lobster resource was defined as overfished when the fishing mortality rate (F) resulted in a reduction in estimated egg production per harvestable lobster of 10% ($F10\%$) or less of a non-fished population. (Growth overfishing means that the maximum yield is not produced because of high fishing mortality rates on smaller lobsters). In other words, lobsters were considered overfished when harvest reduced the amount of lobsters in the water so that the remaining lobsters can produce no more than 10% of the eggs that an unfished population would produce.

Using the $F10\%$ EPR reference point, the peer-reviewed stock assessment conducted by state and Federal scientists concluded that American lobster was growth

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overfished, overfishing was continuing, and there was a large risk of a sharp decline in abundance throughout the species' range. In the Commission's updated and peer-reviewed stock assessment in 2000 (ASMFC 2000a), the results supported previous assessments in 1993 and 1996, *i.e.*, fishing effort is intense and increasing throughout the range of the resource. The 2000 stock assessment noted that all three stock areas were growth overfished, overfishing is occurring, and the resource is overfished according to the EPR-F10% overfishing definition in the Interstate Fisheries Management Plan (ISFMP). The stock assessment did, however, report that all three stocks are not recruitment overfished. (Recruitment overfishing means that the number of new lobsters available to the fishery each year is reduced by high fishing mortality rates).

Based on an extensive independent review of the stock assessment modeling tools used to assess the American lobster resource by a Lobster Stock Assessment Model Review Panel in 2004 (ASMFC 2004), enhanced versions of the stock assessment models were recommended to estimate mortality (F), abundance (N), and egg production per recruit reference points for male and female lobsters in each stock assessment region. The Lobster Stock Assessment Model Review Panel found that the scale of fishing mortality and abundance estimates (F and N) used in the previous stock assessment models was sensitive to uncertain parameters and modeling conventions (Chen and Wilson 2002). The overfishing definition relied on in previous assessments using the EPR model (EPR-F10%) was found to be insufficient from a technical point of view because it does not distinguish between a depleted stock at low abundance and a stock where overfishing is occurring and fishing mortality rates are too high (ASMFC 2006a). The Lobster Stock Assessment Model Review Panel recommended that management advice in the 2005 assessment be based on estimated trends in abundance (N) and fishing mortality (F).

The modeling tools used in the 2005 stock assessment were similar to models used in previous assessments. An enhanced version of the Collie-Sissenwine model (modified DeLury model) was used to estimate mortality and abundance of male and female lobsters in individual areas. The EPR model was updated with new growth parameters and current management measures and used to estimate egg production per recruit and other per-recruit reference points for male and female lobsters in each stock assessment region used in previous assessments. However, in the 2005 stock assessment, new overfishing reference points were established as part of the updated assessment. In place of the EPR-F10% overfishing reference point used in previous assessments, the new overfishing reference points used the median abundance level and fishing mortality rate values over a twenty-five year period to establish a "threshold" for each stock area, corresponding to the level requiring management intervention. The idea is that lobster abundance in a particular stock area should be above the median threshold value, while fishing mortality should be below the median F threshold. The stock assessment process also established "target" reference points, which are more accurate levels to use to gauge the overall health of a particular stock. The 2005 assessment also evaluated a variety of indicators, including exploitation rates, total mortality, recruitment, abundance, and fishing effort to confirm model results and provide additional information about the overall health of each lobster stock. The assessment report stated that the use of equal

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weighting of multiple stock indicators would minimize bias and uncertainty in the assessment.

The 2005 assessment made adjustments to the boundaries of the three U.S. stock assessment units. Revisions to the three U.S. American lobster stock units were based primarily on regional differences in life history parameters (see APPENDIX 6 for chart of Stock Areas and APPENDIX 9 for Management Areas). The adjusted stock areas as specified in the assessment and the Commission ISFMP are: the Gulf of Maine stock unit (GOM), the Georges Bank stock unit (GBK), and the Southern New England stock unit (SNE). Relative to the status of each stock, the updated and peer-reviewed lobster stock assessment in 2005 showed that the American lobster resource presents a mixed picture. The assessment indicated that there is stable abundance for the GBK stock and much of the GOM stock and decreased abundance and recruitment, yet continued high fishing mortality rates, for the SNE stock and in Statistical Area 514 (Massachusetts Bay and Stellwagen Bank) in the GOM stock. Echoing recommendations from the 2000 stock assessment, the report stated that the scientific and statistical data available for lobster assessments are woefully inadequate for the management needs of the fishery and that the primary limitation on the ability to manage lobster is limited data. The assessment report called for implementation of a standardized mandatory reporting system for American lobster fishermen (ASMFC 2006b), and those recommendations were incorporated in Addendum X, approved in January 2007.

Of particular concern in the 2005 peer-reviewed stock assessment report is the SNE stock, where depleted stock abundance and recruitment coupled with high fishing mortality rates over the past few years led the stock assessment and peer review panel to recommend additional harvest restrictions. The SNE stock encompasses all of Areas 2, 4, 5, and 6, and part of Areas 2 and 3. In SNE, 61-72% of the fishable stock is made up of new entrants into the legal fishery, and the report noted concern that the fishery is too dependent on new recruits.

Overall, stock abundance in the GOM is relatively large with recent fishing mortality comparable to the past. The GOM stock encompasses all of Area 1, and part of Area 3 and the Outer Cape Management Area. There has been a long-term trend of increasing recruitment and spawning stock through 2002. On average, the fishable stock is about 60% new entrants (recruits) into the fishery. However, the report noted future poor recruitment may jeopardize the sustainability of the fishery. Currently, high effort levels in GOM match high stock abundance, although high effort levels are not likely to be supportable if abundance returns to long-term median levels. One area of concern within the GOM is in Massachusetts Bay and Stellwagen Bank, which has exhibited persistent low recruitment in recent years and high levels of fishing mortality since 1999. The majority of the fishable lobsters in Massachusetts Bay and Stellwagen Bank is new entrants into the fishery. The management measures proposed for this action would be applicable to the resource in the offshore region of the GOM stock, and proposals include options to increase the lobster minimum gauge size, the trap escape vent size, and reduce traps in Area 3.

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The GBK stock seems stable, with current abundance and fishing mortality similar to the 20-year average. The GBK stock encompasses part of Areas 2, 3, and the Outer Cape Management Area. Forty percent of the fishable stock is new entrants into the fishery, raising concern for the GBK stock's dependence on new recruits. While the report noted the female proportion of the stock is increasing slightly, it also cautioned that further increases in effort are not advisable. The management measures proposed for this action include trap reductions and would be applicable to the resource in the GBK stock. See the Commission Stock Assessment Report No. 06-03, dated January 2006 (ASMFC 2006a), for complete information on the stock assessment.

Primarily in response to recommendations in the 2005 peer-reviewed stock assessment, the Commission is in the process of holding public hearings on a public information document for an amendment to the ISFMP, and the Commission is beginning development of one or more addenda to the ISFMP. For additional information on current and pending Commission ISFMP activities associated with the stock assessment recommendations, visit the Commission's website at www.asmfc.org.

3.1.3 Life History and Reproductive Success

The information contained in this section is a summary of the life history and reproductive success of the American lobster. For a more extensive review of the status of American lobster, see the Commission Stock Assessment Report No. 06-03, dated January 2006 (ASMFC 2006a) located at the Commission's website at www.asmfc.org.

The American lobster is a long-lived species known to reach more than 40 pounds (18 kg) in body weight (Wolff 1978). The American lobster is a bottom-dwelling, marine crustacean characterized by a shrimp-like body and ten legs, two of which are enlarged to serve as crushing and gripping appendages. Lobsters are encased in a hard external skeleton that provides body support and protection. Periodically, this skeleton is cast off to allow body size to increase and mating to take place. Lobster growth and reproduction are linked to the molting cycle. The age of lobsters is unknown because all hard parts are shed and replaced at molting, leaving no accreting material for age determinations. Traditionally, scientists estimate the age of lobsters based on size, per-molt growth increments and molt frequencies. Based on this kind of information, Cooper and Uzmann (1980) estimated that the American lobster may live to be 100 years old.

Recent information from European lobster, *H. gammarus* (Addison 1999), indicated a large variation in age at size with seven year classes making up the 85-95 mm size class. Research on aging of lobsters using lipofusion was conducted in the UK on measurements from the eyestalk ganglia (Sheehy and Bannister 2002). Molting was so erratic and protracted that European lobster between 70 and 80 mm CL required at least five years to fully-recruit to legal size (81 mm) in the trap fishery off the UK (Sheehy et al. 1996). These researchers have concluded that changes in lobster body length explained less than 5 percent of the variation in true age in European lobster. Predicted

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sizes at age were significantly below those estimated from tagging studies, and large animals approached 54 years in age using lipofusion data.

Water temperatures exert significant influence on reproductive and developmental processes of lobster. Huntsman (1923, 1924) found that larvae hatched in water less than 15° C developed much more slowly than those hatched in warmer water. Size at maturity is related to summer water temperatures, *e.g.*, high temperatures enhance maturation at small sizes, and the frequency of molting increases with water temperature (Aiken 1977). Within the range of lobster, water temperatures tend to increase from north to south and tend to range higher inshore than offshore. However, the size increase per molt was shown to be smaller in blue crabs raised in warmer waters (Leffler 1972); and adult lobsters exhibited a smaller size increase per molt in warmer areas (NUSCO 1999) compared to those measured in the U.S. offshore waters (Uzmann et al. 1977, Fogarty and Idoine 1988). Early maturity occurs in relatively warm water locations in the Gulf of St. Lawrence and inshore southern New England, while in the deeper offshore waters off the northeastern U.S. and in the Bay of Fundy, maturation occurs at larger sizes (Krouse 1973; Aiken and Waddy 1980; Van Engel 1980; Campbell and Robinson 1983; Fogarty and Idoine 1988; Estrella and McKiernan 1989).

Lobsters typically form a brief pair bond for mating. Female lobsters can mate at any molt stage, but their receptivity peaks immediately after molting (Dunham and Skinner-Jabobs 1978; Waddy and Aiken 1990). Mating takes place within 24 hours of molting and usually within 30 minutes (Talbot and Helluy 1995). Eggs (7,000 to 80,000) are extruded and carried under the female's abdomen during the 9 to 12 month incubation period. Hatching and release of larvae occur while eggs are still attached to the female (Talbot and Helluy 1995). Seasonal timing of egg extrusion and larval hatching is somewhat variable among areas and may also vary due to seasonal weather patterns. Overall, hatching tends to occur over a four month period from May through September, occurring earlier and over a longer period in the southern part of the range.

Smaller lobsters molt more often than larger ones; however, larger females (>120 mm carapace length) can spawn twice between molts, making their relative fecundity greater than females within one molt of legal size (Waddy et al. 1995). Larger lobsters produce eggs with greater energy content and thus, may produce larvae with higher survival rates (Attard and Hudon 1987). Measures relative to this action include options to increase the minimum legal gauge size and the escape vent size. Once the eggs mature, prelarvae are released by the female over the course of several days. For the first three molt stages (15-30 days), larvae remain planktonic. During settlement, fourth stage post larvae exhibit strong habitat selection behavior and seek small shelter-providing substrates, with the greatest abundance of newly settled lobsters occurring in cobble beds (Wahle and Steneck 1991; Cobb and Wahle 1994; Palma et al. 1999). (See section 3.2 – Description of Physical Environment for more information on lobster habitat selection behavior).

During their first year on the sea bottom, lobsters move little and can be found within a meter of where they settled (Wahle 1992; Palma et al. 1999). They do not

usually emerge from their shelters until reaching about 25 mm CL (Wahle 1992; Cobb and Wahle 1994). As they grow, their daily and annual ranges of movement increase. Adolescent phase lobsters are found on a variety of bottom types, usually characterized by an abundance of potential shelters. By the time lobsters reach sexual maturity, the annual range of lobster averages just over 20 miles (32 km) (Campbell and Stacko 1985; Campbell 1986). In general, mature legal lobsters are more abundant offshore and in deeper water (Harding and Trites 1989b). For the offshore trap fishery, the deep water canyons contain habitat with an abundance of favorable potential shelters. Clay and mud allow lobsters to excavate burrows up to 1.5 meters long with bowl-like depressions that may shelter several lobsters at a time. However, while gravel and rocky habitat provide ready made shelters, large sexually mature lobsters are capable of traversing great distances and show at least three different migration behaviors: those that do not migrate; those who migrate seasonally; and those who migrate long distances. Fogarty (1998) calculated that even a modest amount of offshore larvae supplied by larger sexually mature lobsters could add significantly to the resiliency of inshore areas.

Several studies have shown that lobster growth rates decline as food availability and quality decline (Castell and Budson 1974; Bordner and Conklin 1981; Capuzzo and Lancaster 1979). In laboratory studies, greater densities of lobster as well as limited space reduce growth rates (Stewart and Squires 1968; Hughes et al. 1972; Aiken and Waddy 1978; Van Olst et al. 1980; Ennis 1991). Growth rates of smaller lobster seem to be slower when they are in the presence of larger lobster (Cobb and Tamm 1974, 1975). All of these variables have been shown to influence the frequency of molting and/or the length of the molt increments.

The adult American lobster is the largest mobile benthic invertebrate in the North Atlantic. Estrella and Morrissey (1997) reference multiple tagging studies in the offshore (Saila and Flowers, 1968; Cooper and Uzmann, 1971, 1980; Uzmann et. al. 1977; Fogarty et al, 1980; Campbell et al, 1984¹²) and southern nearshore (Morrissey, 1971; Briggs and Muschacke, 1984¹³) areas supporting the movement of large, sexually mature lobster from offshore to inshore areas with the potential for individual lobster from different stocks becoming intermixed. A tagging study in the Outer Cape Area (Estrella and Morrissey, 1997) indicated that lobster recaptured within 200 days of tagging were capable of traveling a notable distance from the point of release. Larger, legal-sized, egg-bearing lobster were found to travel greater distances (an average of about 26 km) than sublegal individuals (Estrella and Morrissey, 1997).

Estrella and Morrissey (1997) also reference the research of Cooper and Uzmann (1971) and Uzmann et al. (1977) indicating that tagged lobster were observed to move to deep canyon areas in late fall and winter, migrating back to shoaler water in spring and summer. The recapture patterns in these experiments represent movement from Georges Bank and deepwater canyons to the south to areas east of Cape Cod. Estrella and Morrissey (1997) found in their tagging work that tagged lobster exhibited a northerly and westerly movement pattern along the eastern shore of Cape Cod, consistent with the

¹² All sources as referenced in Estrella and Morrissey, 1997.

¹³ Ibid.

findings of Morrissey (1971) where movements from eastern Cape Cod into Cape Cod Bay were observed. These studies support the movement and mixing of inshore and offshore lobster stocks. Consequently, this supports the theory that lobster move between stock areas and management areas.

The relatively large size of the American lobster in its niche and large claws make it an important predator. Adult lobsters are omnivorous, feeding largely on crabs, molluscs, polychaetes, sea urchins, and sea stars (Ennis 1973; Carter and Steele 1982a, b; Weiss 1970). Live fish and macroalgae are also part of the natural diet. Lobsters are opportunistic feeders, so their diet varies regionally. In areas where lobster traps are numerous, bait is a very important component of the diet. Lobster larvae and postlarvae eat zooplankton during their first year (Lavalli 1988). Copepods and decapod larvae are common prey items, but cladocerans, fish eggs, nematodes, and diatoms have been noted.

3.1.4 Factors Affecting Survival

The natural mortality rate in post settlement lobster is generally considered to be low because they are a long-lived species that produce fairly small egg clutches, carry their eggs for months until they hatch, and are not very vulnerable to predation, especially as they become larger. A low and stable natural mortality rate seems less certain for inshore lobster stocks south of Cape Cod (ASMFC 2006a). The dominant source of natural mortality includes predation, disease, and extreme environmental conditions. Predation pressures seem related to size and habitat. The presence of shelter greatly reduces predation mortality (Cobb et al., 1986; Richards, 1992). Mortality due to predation decreases as the lobster grows (Wahle 1992). The effects of disease can be as profound as predation or exploitation (Anderson and Hart, 1979; Hart 1990). A number of animals parasitize lobsters, including protozoa, helminths, and copepods. Aiken and Waddy (1986) and Sherburne and Bean (1991) reported a cyclical infestation of the ciliate *Mugardia* spp. in lobsters. Eggs are subject to high mortality rates by a nemertean worm, *Pseudocarcinonemertes homari*. A well-known disease that leads to the development of gaffkemia, which is a fatal infection (Stewart 1980), is caused by the bacteria *Aerococcus viridans*.

External bacteria that digest the minerals in a lobster's shell cause shell disease. Shell disease is believed to be the result of opportunistic bacteria exploiting an injury or poor physiological state of the lobster (Getchell 1989). Ovigerous female lobsters display the highest rate of infection and carapace damage because they molt less frequently and therefore, have older shells. There has been a recent increase in the incidence of shell disease in the southern New England area. The consequences of shell disease on natural mortality are not known. The recent increase in shell disease may also be an indication of stresses in the lobster populations. Laboratory studies have shown that lobster with shell disease can heal themselves by molting out of the diseased shell and replacing it with a new healthy one. However, if the disease-causing bacteria become thick enough to penetrate completely through a lobster's shell, internal lesions lead to a compromised immune system or death. Ecdysone, a hormone that controls the molting process in lobster, has been found at levels well above normal in shell-diseased

lobster, indicating that severe cases of the disease may interfere with normal molting and result in early molting (Laufer A 2004). Since the disease is most prevalent in egg-bearing females, early molting may cause declines in reproduction.

Lobster are preyed upon by a variety of bottom inhabiting species, including teleost fish, sharks, rays, skates, octopuses, and crabs (Phillips and Sastry, 1980). Larvae are subject to predation in the water column, and postlarvae are vulnerable to mud crabs, cunner, and an array of other bottom-feeding finfish species after settlement. However, once postlarvae are established in shelter, they are thought to be relatively safe from fish predators (Wahle and Steneck 1992) but not necessarily invertebrates, such as burrowing crabs (Lavalli and Barshaw 1986). Mud crabs are abundant throughout the northeast as are green crabs and rock crabs, which are also suspected predators on post-larvae. When not in their burrows, the foraging early benthic phase and larger juvenile lobsters are prey to sculpin, cunner, tautog, black sea bass, and sea raven (Cooper and Uzmann 1980). Atlantic cod, wolffish, goosefish, tilefish, and several species of shark consume lobsters up to 100 mm CL (Cooper and Uzmann 1977; Herrick 1909). With the recovery of the striped bass resource, substantial predation of sublegal lobster by striped bass has been reported. While settling lobsters suffer extraordinarily high predation rates, and pre-recruits and fully-recruited lobsters are subject to predation when foraging, larger lobsters (>100 mm CL) may be immune to predation.

Lobsters and crabs compete for space and food (Richards et al., 1983; Cobb et al., 1986; Richards and Cobb, 1986). These studies show competition between lobsters and crabs caused a redistribution of individuals. Lobsters that lost space to their competitors also showed an increased mortality. Intra-specific competition among lobsters is well known (O'Neill and Cobb, 1979). Large body size and claw size are particularly important in determining competitive dominance among lobsters selecting shelters. When local population densities increase, larger lobsters diffuse to habitats where total population densities are lower (Steneck 1989; Lawton and Lavalli 1995). Mortalities that result from aggression between lobsters may not represent predation but do represent an additional source of natural mortality.

3.1.5 Interactions with Non-target Species

Several marine fish and shellfish species are incidentally caught in the directed lobster trap fishery. These species vary depending on seasons and geographic area. Size of individuals caught in lobster traps is generally limited by the circular openings in the entrance of the trap as well as the escape vent size. This section discusses, on a qualitative level, some species that are most likely expected to be caught in lobster traps. This is not meant to be an exhaustive list of all the regulated and non-regulated species that may be caught in the traps.

The coastal lobster trap fishery in Massachusetts Bay and the Gulf of Maine is a seasonal one that directly targets lobster. Bycatch species include various species of crabs (*Cancer spp.*), and unregulated benthic finfish species such as sculpins (*Myoxocephalus spp.*), sea raven (*Hemitripterus americanus*), sea robins (*Prionotus*

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spp.), wrymouth eel (*Cryptacanthoides maculatus*), lumpfish (*Cyclopterus lumpus*), Atlantic tomcod (*Microgadus tomcod*), and windowpane flounder (*Scophthalmus aquosus*). Regulated species such as cod (*Gadus morhua*), haddock (*Melanogrammus aeglefinus*), pollock (*Pollachius virens*), and red hake (*Urophycis chuss*) may be encountered in lobster traps. Flatfish such as yellowtail flounder (*Limanda ferrugina*), winter flounder (*Pseudopleuronectes americanus*) and American plaice (*Hippoglossoides platessoides*) may also be encountered in the traps. Regulated species to a varying degree are sometimes harvested if the vessel has the associated permits necessary to do so, as required under 50 CFR part 648.

South of New England, the trap fishery remains directed on lobster although some vessels, with the appropriate permits, may seasonally focus their efforts on finfish such as tautog (*Tautoga onitis*), scup (*Stenotomus chrysops*) and black sea bass (*Centropristis striata*) in the coastal fisheries from Nantucket Sound south to North Carolina. Incidental catch of non-Federally regulated species such as crabs (*Cancer spp.*), four-spot flounder (*Paralichthys oblongus*), among others is likely. All vessels with a Federal lobster permit are required to comply with the lobster gear specifications set forth under the Federal lobster regulations at 50 CFR § 697.21 regardless of whether lobster is the target species. Concerned with the impacts on commercial fishing enterprises from differing management systems, the Mid-Atlantic Fishery Management Council (Mid-Atlantic Council) and the Commission requested that NMFS provide an exemption from the lobster gear requirements to black sea bass fishers in the Mid-Atlantic area, specifically in Lobster Management Area 5. Black sea bass fishermen typically use smaller escape vents in their traps than that required by the Federal lobster regulations and may use as many as 1,500 traps, compared to the maximum lobster trap limit of 1,440 in this management area. Area 5 has historically represented less than 2 percent of total coastwide lobster landings, and these dual permit holders tend to direct their fishing on black sea bass, with lobster as a marketable bycatch. The Mid-Atlantic Council and Commission recommended further that the incidental lobster allowance that applies to non-trap lobster fishermen be applied to exempted black sea bass fishers. In response to these recommendations and after several opportunities for public comment, NMFS published a final rule in the Federal Register on March 13, 2001 (66 FR 14500). This rule allows black sea bass fishers who concurrently hold limited access lobster and limited access black sea bass permits to temporarily request to enter into the Area 5 waiver program, which allows them to participate in a directed black sea bass trap fishery in Area 5 while exempt from the lobster trap gear specifications. While in the waiver program, the vessels are limited to the non-trap lobster possession limits.

In the offshore component of the fishery, Federal lobster vessels direct their trap fishing on lobster. Some bycatch of regulated and non-regulated finfish and shellfish species is known to occur. Specifically, the regulated species mentioned above as well as Atlantic wolf fish (*Anarhicas lupus*), white hake (*Urophycis tenuis*), cusk (*Brosme brosme*), and red fish (*Sebastes fasciatus*) may also be encountered. The red crab fishery is a directed trap fishery occurring in the deeper canyons along Georges Bank. Of the generally small number of participants in this fishery, some subset may hold Federal lobster permits and therefore may keep lobster as a bycatch for commercial purposes as

regulations allow. Due to the depths at which the red crab fishery is prosecuted, lobster are not as likely to be encountered in red crab directed trap fishing operations.

3.2 Description of the Physical/Biological Environment and Lobster Habitats

3.2.1 Lobster Habitats Strata

3.2.1.1 Inshore

The American lobster is distributed throughout the Northwest Atlantic Ocean from Newfoundland to Cape Hatteras, North Carolina. Juvenile and adult American lobsters occupy a wide variety of benthic habitats from the intertidal zone to depths of 700 meters. They are most abundant in relatively shallow coastal waters. Shelter is a critical habitat requirement for lobsters.

The following description of lobster habitats in the Northeast region of the U.S. (Maine to North Carolina) is based primarily on a report prepared by Lincoln (1998) from a variety of primary source documents. This information has been supplemented by the addition of some more recent research results. Table 3.1 summarizes information on lobster densities by habitat type. Unless otherwise noted, the information noted below was originally provided by Cooper and Uzmann (1980).

Estuaries

Mud base with burrows – These occur primarily in harbors and quiet estuaries with low current speeds. Lobster shelters are formed from excavations in soft substrate. This is an important habitat for juveniles, and densities can be very high, reaching 20 animals per square meter (m²).

Rock, cobble and gravel – Juveniles and adolescents have been reported on shallow bottom with gravel and gravely sand substrates in the Great Bay Estuary, NH, on gravel/cobble substrates in outer Penobscot Bay, ME (Steneck and Wilson 1998), and in rocky habitats in Narragansett Bay, RI (Lawton and Lavalli 1995). Densities in Penobscot Bay exceeded 0.5 juveniles and 0.75 adolescents/m². According to unpublished information cited by Lincoln (1998), juvenile lobsters in Great Bay prefer shallow bottoms with gravely sand substrates.

Rock/shell – Adult lobsters in the Great Bay Estuary utilize sand and gravel habitats in the channels but seem to prefer a rock/shell habitat more characteristic of the high temperature, low salinity regimes of the central bay.

Salt marshes/peat

Lobster shelters are formed from excavations cut into peat. Reefs form from blocks of salt marsh peat that break and fall into adjacent marsh creeks and channels and

seem to provide moderate protection for small lobsters from predators (Barshaw and Lavalli 1988). Densities are high (up to 5.7/m²).

Kelp beds

Kelp beds in New England consist primarily of *Laminaria longicruris* and *L. saccharina*. Lobsters were attracted to transplanted kelp beds at a nearshore study site in the mid-coast region of Maine, reaching densities that were almost ten times greater than in nearby control areas (Bologna and Steneck 1993). Lobsters did not burrow into the sediment but sought shelter beneath the kelp. Only large kelp (> 50 cm in length) was observed sheltering lobsters and was used in the transplant experiments.

Eelgrass

Lobsters have been associated with eelgrass beds in the lower portion of the Great Bay Estuary in New Hampshire (Short et al. 2001). Eighty percent of the lobsters collected from eelgrass beds were adolescents. Average density was 0.1/m², greater than reported by Barshaw and Lavalli (1988). In mesocosm experiments, Short et al. reported that lobsters showed a clear preference for eelgrass over bare mud. This research showed that adolescent lobsters burrow in eelgrass beds, utilize eelgrass as an overwintering habitat, and prefer eelgrass to bare mud.

Intertidal Zone

Research in Maine has demonstrated the presence of early settlement, postlarval, and juvenile lobsters in the lower intertidal zone (Cowan 1999). Two distinct size classes were consistently present: 3-15 mm CL and 16-40 mm CL. Monthly mean densities during a five-year period ranged from 0-8.6 individuals/m² at 0.4 m below mean low water. Preliminary results indicate that areas of the lower intertidal zone serve as nursery grounds for juvenile lobster.

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Table 3.1. American lobster habitats and densities

Habitat	Lobster Densities (no./square meter)	Lobster Sizes (carapace length = CL)	Source
ESTUARIES			
Mud base with burrows	Up to 20	Small juveniles	Cooper & Uzmann 1980
	< 0.01	Adults	Cooper & Uzmann 1980
Rock, cobble & gravel	> 0.5	Juveniles	Steneck & Wilson 1998
	> 0.75	Adolescents	Steneck & Wilson 1998
Rock/shell			
SALT MARSHES/PEAT	Up to 5.7		Barshaw & Lavalli 1988
KELP BEDS	1.2-1.68	Adolescents (51-61 mm)	Bologna & Steneck 1993
EEL GRASS	< 0.04	Juveniles and adolescents	Barshaw & Lavalli 1988
	0.1	80% adolescents	Short et al. 2001
INTERTIDAL ZONE	0-8.6	Juveniles and adolescents	D. Cowan 1999
INSHORE ROCK TYPES			
Sand base with rock	3.2	Avg 40 mm	Cooper & Uzmann 1980
Boulders overlaying sand	0.09-0.13		Cooper & Uzmann 1980
Cobbles	Up to 16		Cooper & Uzmann 1980
Bedrock base with rock and boulder overlay	0.1-0.3		Cooper & Uzmann 1980
Mud-shell/rock substrate	0.15		Cooper & Uzmann 1980
OFFSHORE			
Sand base with rock	Not available	Not available	
Clay base with burrows and depressions	Minimum 0.001		Cooper & Uzmann 1980
Mud-clay base with anemones	Minimum 0.001	50-80 mm in depressions	Cooper & Uzmann 1980
SUBMARINE CANYONS			
Canyon rim and walls	0-0.0002	Adolescents and adults	Cooper et al. 1987
Canyon walls	Up to 0.001	Adolescents and adults	Cooper et al. 1987
Rim and head of canyons and at base of walls	0.0005-0.126	Adolescents and adults	Cooper et al. 1987
Pueblo villages	0.0005-0.126	Adolescents and adults	Cooper et al. 1987

Note: For this table, juvenile lobsters are < 40 mm CL; adolescents 40-70 mm CL; adults >70 mm CL.

Inshore Rock Types

Sand base with rock – This is the most common inshore rock type in depths > 40 m. It consists of sandy substrate overlain by flattened rocks, cobbles, and boulders. Lobsters are associated with abundant sponges, Jonah and rock crabs. Shelters are formed by excavating sand under a rock to form U-shaped, shallow tunnels. Densities of sub-adult lobsters are fairly high (Table 3.1).

Boulders overlaying sand – This habitat type is relatively rare in inshore New England waters. Compared to other inshore rocky habitats, densities are low (Table 3.1).

Cobbles – Lobsters occupy shelters of varying size in the spaces among rocks, pebbles, and boulders. Densities as high as 16 lobsters/m² have been observed, making this the most densely populated inshore rock habitat for lobsters in New England (Table 3.1).

Bedrock base with rock and boulder overlay – This rock type is relatively common inshore from low tide to depths of 15-45 m. Shelters are formed by rock overhangs or crevices. Encrusting coralline algae and attached organisms such as anemones, sponges, and mollusks cover exposed surfaces. Green sea urchins and starfish are common. Cunner, tautog, sculpin, sea raven, and redfish are the most abundant fish. Lobster densities are low (Table 3.1).

Mud-shell/rock substrate – This habitat type is usually found where sediment discharge is low and shells make up the majority of the bottom. It is best described off Rhode Island. Densities are low (Table 3.1).

3.2.1.2 Continental Shelf

Sand base with rocks – Although common inshore (see above), this habitat is rather restricted in the offshore region except along the north flank of Georges Bank.

Clay base with burrows and depressions – This habitat is common on the outer continental shelf and slope. Lobsters excavate burrows up to 1.5 m long. There are also large, bowl-like depressions that range in size from 1 to 5 m in diameter and may shelter several lobsters at a time. Minimum densities of 0.001 lobsters/m² have been observed in summer (Table 3.1).

Mud-clay base with anemones – This is a common habitat for lobsters on the outer shelf or upper slope. Forests of mud anemones (*Cerianthus borealis*) may reach densities of 3 or 4 per square meter. Depressions serve as shelter for relatively small lobsters at minimum densities of 0.001/m² (Table 3.1).

Mud base with burrows – This habitat occurs offshore mainly in the deep basins, in depths up to 250 m. This environment is extremely common offshore. Lobsters occupy this habitat, but no density estimates are available.

3.2.1.3 Continental Slope

Submarine Canyons

There are more than 15 submarine canyons that cut into the shelf edge on the south side of Georges Bank. These canyons were first surveyed in the 1930s, but they were not fully explored until manned submersibles were used extensively in the 1980s. Detailed information on canyon habitats for American lobster are available primarily for Oceanographer Canyon but is generally applicable to other major canyons on Georges Bank. These canyons present a diverse group of habitat types. Concentrations of adolescents and adult lobsters are substantially greater in submarine canyons than in nearby areas that are occupied mostly by adults (Cooper et al. 1987). The following information on lobster habitats is extracted from Cooper and Uzmann (1980) and Cooper et al. (1987).

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Canyon rim and walls – Sediments consist of sand or semi-consolidated silt with less than 5% overlay of gravel. The bottom is relatively featureless. Burrowing mud anemones are common. Lobster densities are low (Table 3.1).

Canyon walls – Sediments consist of gravelly sand, sand, or semi-consolidated silt with more than 5% gravel. The bottom is relatively featureless. Burrowing mud anemones are common, as are Jonah crabs, ocean pout, starfish, rosefish, and squirrel hake. Lobster densities are a little greater than in substrates that contain less gravel (see above).

Rim and head of canyons at base of walls – Sand or semi-consolidated silt substrate is overlain by siltstone outcrops and talus up to boulder size. The bottom is very rough and is eroded by animals and current scouring. Lobsters are associated with rock anemones, Jonah crabs, ocean pout, tilefish, starfish, conger eels, and white hake. Densities are highly variable but reach up to 0.13 lobsters/m² (Table 3.1).

Pueblo villages – This habitat type exists in the clay canyon walls and extends from the heads of canyons to middle canyon walls. It is heavily burrowed and excavated. Slopes range from 5 to 70 degrees, but are generally >20 and <50 degrees. Juvenile and adult lobsters and associated fauna create borings up to 1.5 m in width, 1 m in height, and 2 m or more in depth. Lobsters are associated with Jonah crabs, tilefish, hermit crabs, ocean pout, starfish, and conger eels. This habitat may well contain the greatest densities of lobsters found offshore.

3.2.2 Description of Regional Habitat Types

3.2.2.1 Outer Cape

The area known as Nantucket Shoals is shallow, and the bottom is characterized by shoals and troughs, with sand dunes superimposed upon them. Currents in these areas are strongest where water depth is shallower than 50 m causing the dunes migrate at variable rates; the ridges may also move. Sediments in this region include gravel pavement and mounds, some scattered boulders, sand with storm generated ripples, and scattered shell and mussel beds. Tidal and storm currents range from moderate to strong, depending upon location and storm activity (Valentine, pers. comm.).

3.2.2.2 Southern New England

The northern portion of the Mid-Atlantic Bight is sometimes referred to as southern New England. Most of this area was discussed under Georges Bank; however, one other formation of this region deserves note. The mud patch is located just southwest of Nantucket Shoals and southeast of Long Island and Rhode Island. Tidal currents in this area slow significantly, which allows silts and clays to settle out. The mud is mixed with sand, and is occasionally resuspended by large storms. This habitat is an anomaly of the outer continental shelf.

3.2.2.3 Mid-Atlantic Bight

The Mid-Atlantic Bight includes the shelf and slope waters from Georges Bank south to Cape Hatteras, and east to the Gulf Stream. Like the rest of the continental shelf, the topography of the Mid-Atlantic Bight was shaped largely by sea level fluctuations caused by past ice ages. The shelf's basic morphology and sediments derive from the retreat of the last ice sheet, and the subsequent rise in sea level. Since that time, currents and waves have modified this basic structure.

The shelf slopes gently from shore out to between 100 and 200 km offshore where it transforms to the slope (100 - 200 m water depth) at the shelf break. In both the Mid-Atlantic and on Georges Bank, numerous canyons incise the slope, and some cut up onto the shelf itself (see the "Continental Slope" section, below). The primary morphological features of the shelf include shelf valleys and channels, shoal massifs, scarps, and sand ridges and swales.

Most of these structures are relic except for some sand ridges and smaller sand-formed features. Shelf valleys and slope canyons were formed by rivers of glacier outwash that deposited sediments on the outer shelf edge as they entered the ocean. Most valleys cut about 10 m into the shelf, with the exception of the Hudson Shelf Valley that is about 35 m deep. The valleys were partially filled as the glacier melted and retreated across the shelf. The glacier also left behind a lengthy scarp near the shelf break from Chesapeake Bay north to the eastern end of Long Island. Shoal retreat massifs were produced by extensive deposition at a cape or estuary mouth. Massifs were also formed as estuaries retreated across the shelf.

The sediment type covering most of the shelf in the Mid-Atlantic Bight is sand, with some relatively small, localized areas of sand-shell and sand-gravel. On the slope, silty sand, silt, and clay predominate.

Some sand ridges are more modern in origin than the shelf's glaciated morphology. Their formation is not well understood; however, they appear to develop from the sediments that erode from the shore face. They maintain their shape, so it is assumed that they are in equilibrium with modern current and storm regimes. They are usually grouped, with heights of about 10 m, lengths of 10 - 50 km and spacing of 2 km. Ridges are usually oriented at a slight angle towards shore, running in length from northeast to southwest. The seaward face usually has the steepest slope. Sand ridges are often covered with smaller similar forms such as sand waves, megaripples, and ripples. Swales occur between sand ridges. Since ridges are higher than the adjacent swales, they are exposed to more energy from water currents, and experience more sediment mobility than swales. Ridges tend to contain less fine sand, silt and clay while relatively sheltered swales contain more of the finer particles. Swales have greater benthic macrofaunal density, species richness and biomass, due in part to the increased abundance of detrital food and the physically less rigorous conditions.

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Sand waves are usually found in patches of 5 - 10 with heights of about 2 m, lengths of 50 - 100 m and 1 - 2 km between patches. Sand waves are primarily found on the inner shelf, and often observed on sides of sand ridges. They may remain intact over several seasons. Megaripples occur on sand waves or separately on the inner or central shelf. During the winter storm season, they may cover as much as 15% of the inner shelf. They tend to form in large patches and usually have lengths of 3 - 5 m with heights of 0.5 - 1 m. Megaripples tend to survive for less than a season. They can form during a storm and reshape the upper 50 - 100 cm of the sediments within a few hours. Ripples are also found everywhere on the shelf, and appear or disappear within hours or days, depending upon storms and currents. Ripples usually have lengths of about 1 - 150 cm and heights of a few centimeters.

Sediments are uniformly distributed over the shelf in this region. A sheet of sand and gravel varying in thickness from 0 - 10 m covers most of the shelf. The mean bottom flow from the constant southwesterly current is not fast enough to move sand, so sediment transport must be episodic. Net sediment movement is in the same southwesterly direction as the current. The sands are mostly medium to coarse grains, with finer sand in the Hudson Shelf Valley and on the outer shelf. Mud is rare over most of the shelf, but is common in the Hudson Shelf Valley. Occasionally relic estuarine mud deposits are re-exposed in the swales between sand ridges. Fine sediment content increases rapidly at the shelf break, which is sometimes called the “mud line,” and sediments are 70 – 100 percent fines on the slope.

Artificial reefs are another significant Mid-Atlantic habitat, formed much more recently on the geologic time scale than other regional habitat types. These localized areas of hard structure have been formed by shipwrecks, lost cargoes, disposed solid materials, shoreline jetties and groins, submerged pipelines, cables, and other materials (Steimle and Zetlin 2000). While some of materials have been deposited specifically for use as fish habitat, most have an alternative primary purpose; however, they have all become an integral part of the coastal and shelf ecosystem. It is expected that the increase in these materials has had an impact on living marine resources and fisheries, but these effects are not well known. In general, reefs are important for attachment sites, shelter, and food for many species, and fish predators such as tunas may be attracted by prey aggregations, or may be behaviorally attracted to the reef structure. The overview by Steimle and Zetlin (2000) used NOAA hydrographic surveys to plot rocks, wrecks, obstructions, and artificial reefs, which together were considered a fairly complete list of nonbiogenic reef habitat in the Mid-Atlantic estuarine and coastal areas.

3.3 Description of Socioeconomic Environment

3.3.0 Fishery Overview

The American lobster fishery retained the title of the most valuable fishery in the U.S. in 2006; the most recent year with complete statistical landings data. In 2006, total landings were 92.5 million lbs. valued at \$394.7 million. Landings increased by 4.5 million lbs. (5 percent) but decreased in value by \$21.9 million (5 percent) from 2005.

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Maine led all states with landings of 72.7 million lbs. followed by Massachusetts with landings totaling 10.9 million lbs. Combined landings for these two states account for about 90 percent of the total domestic American lobster harvest.

It was estimated in 2000 that the EEZ accounts for about 20 percent of all domestic landings of American lobster. Therefore, applying this to the total landings statistics, it is assumed that the 2006 EEZ lobster fishery accounts for approximately 18.5 million lbs. valued at nearly \$78.9 million although this figure could be higher. This may be underestimated since EEZ landings are comprised of larger, more valuable lobster. Lobster are landed throughout the year in New England, while landings are concentrated in the warmer months in the Mid-Atlantic region. The majority of the lobster harvest is sold to the live lobster market, and an extensive network of storage facilities, called lobster pounds, hold live lobsters so that markets can be regularly supplied.

There is an extensive cross-border trade with Canada to ensure a consistent domestic supply and to supply the export markets. In recent years, the development of new freezing processes has significantly improved consumer acceptance of whole frozen lobster. Demand for a shelf stable product by the restaurant trade represents a small but growing market that has allowed consumers in the interior of the country to have access to whole lobsters. While expansion of domestic production of whole frozen lobster continues to increase, Canadian supplies account for a majority. Imports of live lobster from Canada accounted for 49.4 million pounds (22,415 mt), valued at \$288 million (U.S.) in 2004. Total U.S. imports of fresh and frozen lobster totaled 67.2 million lbs in 2006 (30,491 mt) valued at \$579.1 million. This total import figure increased from the 2005 figures – 66.6 million lbs. (30,192 mt) valued at \$561.6 million.

U.S. exports of fresh and frozen lobster to Canada accounted for 37.7 million pounds (17.1 mt), valued at \$173 million (U.S.) in 2006. In 2004, the most important U.S. export markets outside of Canada for American lobsters were: Italy – 7.4 million lbs (3,369 mt) valued at \$54.2 million; Spain – 7.2 million lbs (3,275 mt) valued at \$51.3 million; France – 4.1 million lbs (1,865 mt) valued at \$29.8 million; Japan – 1.1 million lbs (508 mt) valued at \$9.4 million; and Afghanistan – 922 thousand lbs (418 mt) valued at \$7.5 million.

3.3.1 Community Overview

3.3.1.1 American Lobster Harvesters and Fishery

Gulf of Maine

Generally, community dependency on lobster fishing, and more specifically lobster trap fishing, decreases from north to south. While industry participants from Downeast (northern) and mid-coast Maine are largely dependent on lobster, lobstermen from southern Maine, Massachusetts and Rhode Island are proportionately less reliant on lobster compared to other fisheries. The community dependency on lobster fishing decreases dramatically south of Rhode Island, and landings of lobster from Connecticut

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to North Carolina accounted for less than three percent of coastwide landings in 2004. Table 3.2 indicates that of the approximately 3,295 Federal lobster vessels in 2007, 2,433, or about 74 percent hail from Maine and Massachusetts ports. Vessels from these two states also land about 90 percent of the total U.S. lobster harvest. Most of the lobster is harvested within state waters (0-3 miles from shore) with fishermen operating small coastal “day boats” which concentrate on the run of lobster that move shoreward in the spring and then to deeper water in the fall.

As Holland and Singer (2007) found in their survey of New England lobstermen, the lobster fishery and its communities vary geographically. In Downeast Maine, fishermen, and communities in general, are relatively more dependent upon the lobster fishery. Conversely, fishermen and communities in Massachusetts and Rhode Island have more varied occupational opportunities to turn to besides fishing. Those that fish are not as reliant on lobster due to the availability of other fishing options.

Table 3.2 Federal Lobster Vessels by State (2007)

State	Total Vessels	Trap	Trap Only	Non-Trap Commercial	Non-Trap Commercial Only	Party/Charter	Party/Charter Only
CT	32	19	10	22	6	4	0
MA	910	604	437	472	305	6	0
ME	1,523	1,455	1,385	138	67	1	0
NH	127	96	58	69	31	2	0
NJ	211	93	56	148	105	13	7
NY	120	71	41	79	48	3	0
RI	254	206	157	157	48	1	0
Other	118	38	22	95	80	1	0
Totals	3,295*	2,582	2,166	1,180	690	31	7

* Note: The total number of vessels is 3,295. A federal vessel permit may include one or more of the gear designation categories depicted in the table. Therefore, the total number of all categories combined is more than the total number of vessels and represents the combined designations of all Federal lobster vessels. The “trap only” figures are a subset of “trap,” the “non-trap only” figures are a subset of “non-trap,” and the “party/charter only” figures are a subset of “party/charter.”

Offshore Fishery

The offshore lobster fishery is conducted primarily on and around Georges Bank, the canyons to the south and west of the Bank, and in the basins and ledges to the north and west of the Bank in the Gulf of Maine. The majority of this area is found within the boundaries of LCMA 3, with participants fishing on the GBK, SNE and GOM lobster stocks. The majority of lobsters in LCMA 3 are harvested by trap fishermen, who accounted for 86 percent of all lobster landings in that LCMA.

The majority of lobster permit holders that elected LCMA 3 on their Federal permit in 2006 (Table 3.3) concentrate in a few locations in New Hampshire and southern New England. The majority of the owners of vessels that elect to fish with traps in

LCMA 3 live in the following ports: New Bedford, MA (including Westport and Fairhaven); Point Judith, RI; Newport, RI; and the Newington/Portsmouth, NH Area.¹⁴

Area 3 fishing operations tend to be larger than average, with almost 70,000 pounds of landed lobsters per permit holder in 2005, and far greater than the average for other Federal permit holders (see Table 3.5). Due to the geographical locations and distance from shore varying from 20-200 miles, vessels electing to fish in Area 3 are larger in length and horsepower than the industry average (see Table 3.6). These larger offshore vessels, on average, are more likely than the majority of Federal lobster vessels to possess other Federal limited access permits that require mandatory Vessel Trip Reports (VTR). Because of this higher than average VTR reporting rate for Area 3 vessels, landings of lobsters by Area 3 trap fishermen account for 44 percent of all landings of lobsters caught by traps as reported by VTRs. A typical lobster trap configuration for these larger offshore vessels consists of strings of approximately 40-50 traps called a “trawl.” Each trawl is routinely configured with two vertical lines, one at each end of the gear affixed with gear identification buoys and radar reflectors, as well as approximately 50 meters of groundline between each trap in the string. For more information on Federal lobster trap gear configuration requirements, see 50 CFR 697 and 50 CFR 229.

MAINE	21
NEW HAMPSHIRE	11
MASSACHUSETTS	40
RHODE ISLAND	46
CONNECTICUT	3
NEW YORK	5
NEW JERSEY	10
<i>De minimis</i>	3
TOTAL	139
Note: The <i>de minimis</i> states are Delaware, Maryland, Virginia, and North Carolina.	

Area 3 Trap Allocations & Reductions

NMFS implemented a history-based eligibility and trap allocation program on the Area 3 trap fishery in 2003, based on the recommendations in Addendum I to Amendment 3 of the ISFMP, which resulted in 139 total Federal lobster vessels eligible to fish with traps (68 FR 14902, March 27, 2003). Based on their historically documented fishing effort in Area 3, each qualified permit holder was allocated between 200 and 3,250 traps per vessel. The number of traps originally allocated was 211,408

¹⁴ The principal ports of commercial importance are described in detail in the most recent FSEIS (67 FR 68128, November 8, 2002), and only summary information is provided here. While there has been no systematic, comprehensive community-based survey of the American lobster fishery in the U.S., there have been a limited number of studies, most recently a report released by the Gulf of Maine Research Institute (GMRI).

traps (see Table 3.4). These individual trap allocations represent the maximum amount of fishing effort for traps that can occur in LCMA 3 at any given time.

A schedule of annual trap reductions through 2006 reduced all allocations to no more than 2,267 traps and brought the total potential number of allowable traps in Area 3 to 172,627 traps (see Table 3.4). A Final Rule in October 2007, (72 FR 56935) implemented an additional suite of trap reductions for the Area 3 fleet, based on the recommendations of the Commission in Addendum XI. This action reduced the overall potential trap fishing effort in this area by roughly 15 percent to 148,000 traps. The reductions occur annually to each vessel's allocation through 2010.

Year	Total Traps
Number of originally allocated traps	211,408
2003	187,377
2004	181,031
2005	175,922
2006	172,627
2007	163,996
2008	155,796
2009	151,901
2010	148,103

Source: NMFS Permit Data and NMFS Final Rule (72 FR 56935).

Fishing Effort with Traps

The analysis undertaken for this EA indicates, according to VTRs, that 71 Area 3 permit holders electing to fish with traps landed lobster from LCMA 3 in fishing year 2005 (May 1, 2005, to April 30, 2006). However, VTR reporting is not mandatory for permit holders who fish exclusively with traps for lobsters, and 19 permit holders did not have any VTR requirements in 2005. Assuming a simple ratio to estimate the potential number of trap vessels currently fishing in Area 3 using the ratio of reporting to non-reporting vessels (20/91) to the number of vessels that did not have to report (19/91), results in a best estimate that 16 of those fished in 2005, for a total of 87 vessels that actively fished in LCMA 3 out of a potential of 139 allocations (see Table 3.5).

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Table 3.5 – Fishing Activity of Federal Permit Holders Landing Lobsters in FY 2005			
	# of permits fishing*	Total landings for 2005 (lbs.)	Average landings per permit (lbs.)
Trap fishing in LCMA 3	87	6,029,225	69,301
Trap fishing in all areas by Fed permit holders*	662	14,163,930	21,493
Non-trap fishing in LCMA 3**	265	996,981	3,762
All LCMAs; Non-trap	497	1,299,055	2,614

* VTR reporting is not mandatory for permit holders who fish exclusively with traps for lobsters. Thus, "Trap fishing in all areas by Fed Permit holders" is likely to be substantially less than the actual number of trap fishermen in all LCMAs. VTR coverage in LCMA 3 is over 80% of active permit holders.
 Non-trap lobster permit holders have other Federal permits that require VTRs.
 ** Many of these landings occur with mobile gear types that can fish across Federal management and statistical areas in one trip. Total landings are estimated based on statistical areas.

In LCMA 3, vessels were larger than vessels fishing in either LCMA 1 or LCMA 2, with LCMA 3 vessels averaging 55' in length, compared to vessels fishing in LCMA 1 or LCMA 2 that averaged between 33' and 36' in length, respectively (see Table 3.6). In addition to larger vessels, LCMA 3 vessels have larger engines, averaging 469 horsepower (HP) versus between 283 – 293 HP for LCMA 1 and LCMA 2 vessels, respectively, and employ larger crews, with approximately 66 percent of LCMA 3 vessels employing 2 or more crew compared to only 6-7 percent of vessels fishing in LCMA 1 or 2.

Table 3.6 – Summary of Lobster Business Characteristics in LCMAs 1, 2, and 3						
	LCMA 1		LCMA 2		LCMA 3	
	Full-Time		Full-Time		Full-Time	
	Mean	+/-	Mean	+/-	Mean	+/-
Average Vessel Length (ft)	33	1.4	36	2.7	55	9.1
Average Vessel Horsepower	283	14	293	44.9	469	113
One Sternman	68%	4%	45%	12%	34%	22%
Two or More Sternmen/Crew	7%	2%	7%	6%	66%	22%

Notes: Bolded text denotes statistically significant difference.
 Source: Gulf of Maine Research Institute, 2006.

Area 3 Non-trap Fishery

In 2005, according to VTR data analyzed for this action, 265 Federal lobster permit holders landed lobster with non-trap gear from LCMA 3, which was approximately three times the number of permit holders that fished with traps¹⁵. However, the non-trap sector landed significantly fewer lobsters than were landed by the

¹⁵ This figure is based upon 2005 fishing year VTR data.

trap sector (see Table 3.5 above). The reason, in part, is the non-trap sector is limited to a daily possession limit, the 100/500 rule. Vessels electing to fish for lobsters with non-trap gear are allowed to possess, retain on board, or land and sell a maximum of 100 lobsters, for each lobster day-at-sea or part of a lobster day-at-sea, up to a maximum of 500 lobsters for any one fishing trip (also known as the 100/500 rule), as specified in Federal regulations at 50 CFR§ 697.7(c)(1)(xxiii). Accordingly, one would expect to find non-trap lobster landings to be greater in states and ports with large concentrations of dragger/trawler and gillnet vessels that direct on finfish species. Notably, Maine – the largest lobster producing state – prohibits the trawling for lobster in its state’s waters. Non-trap permit holders mostly use gillnet and trawl gear, and the majority of non-trap lobster vessels operate out of Massachusetts and Rhode Island.

Non-trap lobster permit holders are not bound geographically to Lobster Management Areas like their counterparts who fish with traps; however, vessels may be geographically restricted or otherwise impacted by other Federal regulations. Since Federal permit holders are bound to the most restrictive of state or Federal regulations, vessels that fish exclusively with non-trap gear are subject to potentially more restrictive landings or possession laws according to the state where they land lobster. Non-trap vessels could fish for and retain lobster in the EEZ greater than 3 3/8 inches under current Federal regulations, but those vessels could not land lobster smaller than the current ISFMP specified minimum gauge size of 3 7/16 inches in any state that currently has regulations in place or an enforceable reference to the Commission’s ISFMP regarding that measure.

Bycatch with Non-Trap Gear

As noted earlier, non-trap vessels have daily possession limits, i.e. the 100/500 rule, and tend to have a low percentage of their income derived from lobster landings. However, recent data show that for some permit holders this may be changing. It is possible that a decline in the finfish catch by vessels that had previously relied on finfish for the majority of their revenue has caused these vessels to now rely on their lobster catch for 20 percent-50 percent of their trip revenue (Table 4.5 and/or GMRI 2006). Relative to this action, there are alternatives described in Chapter 2 and analyzed further throughout this document that propose to increase the minimum carapace size for permit holders electing to fish in LCMA 3. However, as further evaluated in Chapter 4, lobsters caught with non-trap gear tend to be larger, on average, with a greater percentage of the catch having a carapace length in excess of the 3-3/8 inch (8.57 cm) gauge size, so the impact on this gear sector, while currently unquantifiable, is expected to be relatively minor.

Landing State	Value of All Species (\$)	Lobster Value (\$)
Connecticut	1,384	0
Maine	10,188,286	0
Maryland	476,382	196
Massachusetts	142,428,955	2,609,076
New Hampshire	1,516,139	7,973
New Jersey	38,086,737	6,883
New York	7,975,711	15,444
North Carolina	4,185,206	0
Rhode Island	17,226,008	372,438
Virginia	37,164,789	0
Total	259,249,597	3,012,010

Source: NMFS Federal Dealer Data, Fishing Year 2003.

Outer Cape Fishery

The Outer Cape Cod area is a triangular fishing zone lying east of Cape Cod and includes the jurisdictional waters of the Commonwealth of Massachusetts from the beaches of the backside of Cape Cod, east to include the Federal waters out to the 13700 LORAN line. The area in the north includes the entire tip of Cape Cod around Provincetown in Cape Cod Bay and extends south and east to Nantucket shoals and west to the eastern part of Nantucket Island. Harvesters in this area are mainly those fishing out of Cape Cod ports. The Commonwealth of Massachusetts implemented a history-based trap eligibility program to qualify a limited number of vessels for trap fishing in the Outer Cape Area. These include 47 vessels licensed for state waters only and 26 vessels with both state and federal lobster permits. Up to 184 Federally permitted vessels, including the 26 qualified for the state fishery under Massachusetts law, are currently designated for lobster fishing with either trap only or trap and non-trap gear in the Outer Cape Area (Table 3.8).

Table 3.8 Federal Lobster Trap Permits by Federal Management Area

Federal Lobster Vessels by Area*	Fishing Year				
	2003	2004	2005	2006	2007
A1 – Gulf of Maine	2,071	2,120	2,088	2,136	2,037
A2 – Southern New England	614	575	553	509	472
A3 – Offshore/George’s Bank	681	150	121	117	108
A4 – North Mid-Atlantic	268	87	77	74	72
A5 – South Mid-Atlantic	203	73	58	27	28
OC – Outer Cape Cod	235	225	202	189	184

*Includes those permits that have selected these areas when renewing the permit and may not include the entire set of permits that are eligible to select these areas. Since vessels can choose multiple areas, a single permit may be included in the tally for more than one area for a given fishing year. **Note that Area 6 vessels are tallied under “Long Island Sound” in Table 3.9.**

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A query of the NMFS VTR database indicated that between calendar years (CY) 2005 and 2007, 133 Federal vessels fishing with non-trap gear landed lobster from statistical area 521. If it is assumed that those 114 vessels that chose trap and non-trap gear as shown in Table 4.6, also are included in those that reported landings in Statistical Area 521 during the 2005-2007 period, there are 19 additional non-trap vessels that would not be reflected in the analysis of those vessels which had trap gear, selected the Outer Cape, and also selected non-trap gear in Table 4.6 which is based on permit data. Therefore, adding the remaining 19 vessels to the 184 that selected trap gear (or trap gear and non-trap gear) the total number of impacted trap and non-trap vessels would be approximately 203 vessels affected by the maximum size requirement in the Outer Cape Area. However, this number is variable since some trap vessels may not have fished in the Outer Cape even though the permit is designated for that area. Also, all non-trap vessels that reported landings in Statistical Area 521 may not have actually fished in the Outer Cape portion of Statistical Area 521.

In a worst-case scenario, all of the non-trap vessels that reported lobster catches from statistical area 521 may not be included with the tally of vessels that elected trap and non-trap gear in Table 4.6. This could potentially add another 133 non-trap vessels to the 184 trap and non-trap vessels for a maximum range of between 184 and 317 vessels. However, this is unlikely. For example, Massachusetts requires dually-permitted state and Federal non-trap vessels to designate a trap area even if fishing with non-trap gear. So, those vessels are likely captured in the total number of Federal vessels from Massachusetts (131 vessels) that chose the Outer Cape area on their Federal permit as shown in Table 4.7, assuming dual state and Federal permit holders designate areas consistently on both the state and Federal permit applications. On balance, however, it is also expected that some unknown number of the additional vessels that designated the Outer Cape on their Federal permit from other states are also fishing in the Federal portion of the Outer Cape area as well as some unquantifiable number of Federal vessels that designated only non-trap gear on the Federal permit and cannot be identified in NMFS permit data and are quantified through VTR data. Therefore, from a conservative perspective, the expected range of impacted trap and non-trap vessels could be between 184 and 203 vessels, although it is likely to be much lower.

Southern New England

Vessels hailing from ports in southern Massachusetts, Rhode Island, and Connecticut are generally day boats that fish in the state (MA and RI) and Federal waters of LCMA 2, a fishery reliant on the health of the SNE lobster stock, which is in a period of depleted stock abundance and recruitment coupled with high fishing mortality rates. These poor stock conditions are part of the rationale for this action as the Stock Assessment Peer Review Panel has called for additional harvest restrictions, including the maximum size and revised v-notch measures evaluated herein. Fishing communities in Massachusetts and Rhode Island that prosecute the Area 2 fishery were recently impacted by a limited entry program that reduced the number of participants allowed to fish in the

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state waters of Area 2. NMFS is considering this program for Federal implementation in a separate rulemaking action.

Long Island Sound

Long Island Sound, also known as Area 6, is comprised entirely of the state waters of New York and Connecticut. Federal jurisdiction is relevant only in that NMFS regulates Federal vessels that designate Area 6 on the vessel’s Federal permit. However, to fish in Area 6, individuals must have a state license issued by either New York or Connecticut. To support the Commission’ plan, NMFS promulgates regulations for Federal lobster vessels authorized to fish in Area 6 by virtue of their state licences and Federal vessels, as in all areas, are subject to the most restrictive of state and Federal regulations.

As shown in Table 3.9, 87 Federal lobster vessels designated Area 6 on the 2007 Federal lobster permit. However, only those vessels with a valid state license in either New York or Connecticut may fish in Area 6. Trap tags, in the majority of cases, are issued by the state. Other vessels may declare this area on their Federal permit since there is no prohibition in doing so under the current federal regulations, although NMFS acknowledges that the affected states of New York and Connecticut are the gatekeepers authorizing fishing activity in Long Island Sound. Federal regulations promulgated for Area 6 are done to complement the state actions as they apply to Federal lobster vessels.

Table 3.9 Federal Lobster Vessels with Area 6 Designation for Fishing Year 2007

VESSEL PERMITS	STATE
46	NY
12	CT
9	MA
6	NJ
5	ME
4	RI
2	NH
1	FL
1	VA
1	WV
87	TOTAL

The Long Island Sound lobster fishery has suffered from the lobster die off in 1999 as well as a prevalence of shell disease (See Section 4.4.4, Cumulative Effects, for a more detailed discussion of these events).

Mid-Atlantic

Areas 4 and 5 and the southern portion of Area 3 comprise the lobster fishing grounds for most of the Federal lobster vessels hailing from Mid-Atlantic ports from New

York to North Carolina, with the majority of the vessels originating from New York and New Jersey ports. In 2003, NMFS conducted a qualification and allocation process of the LCMAs based on historical participation. Only those vessels that qualified under this process are eligible to fish in these areas. In Areas 4 and 5, each vessel has an individual history-based allocation, but no vessel may fish in excess of 1,440 traps.

Lobster trap vessels working out of New York and northern New Jersey ports prosecute a directed lobster fishery in Area 4 with some seasonal involvement in other fisheries. Conversely, many lobster vessels in Area 5, working out of southern New Jersey, Delaware and ports to the south, may target lobster directly during the summer months and then shift focus to more coastal species such as black sea bass. To accommodate this sector of the industry which only seasonally targets on lobster, NMFS published a Final Rule in 2001 (66 FR 14502) known as the Area 5 waiver option. This rule allows those harvesters holding a valid Area 5 lobster trap permit to waive out of the directed lobster fishery at any time during the fishing year, upon notification to the NMFS permit office. Once designated for the Area 5 waiver program, the traps fished for black sea bass are considered non-trap gear, allowing the vessel to fish an unlimited number of untagged, unbaited black sea bass traps. Accordingly, the vessel is restricted to harvesting up to the non-trap possession limit of 100 lobster per day and up to 500 lobster per trip of five days or more. NMFS made this exception since this portion of the fishery is prosecuted at the far southern end of the range of the lobster resource and accommodates the seasonal and somewhat mixed nature of the lobster and black sea bass fisheries in this area that accounts for a negligible percentage of coastwide lobster harvest.

3.3.1.2 Lobster Dealers

Figure 3.10 Summary of Federal Dealers 2007.

Permit Year	# of Dealer Permits	# of Dealers with a Lobster permit	# of Dealers with a Lobster permit and another permit	# of Dealers with only a Lobster permit	% of Total Dealers with only a Lobster Permit
2007	767	511	363	148	19%

In 2007 there were 767 Federally-permitted seafood dealers (Figure 3.11). The majority of these dealers provide weekly reports of all species purchased through the SAFIS electronic reporting system based on regulations in place in 50 CFR 648.6 and 648.7 under the authority of the Magnuson-Stevens Act. Of the total universe of dealers, 511 have a Federal lobster permit, 363 of which have a permit that requires all species be reported through SAFIS. The remaining 148 Federal dealers hold only a Federal lobster dealer permit and are not currently required to report lobster purchases or receipts to NMFS, although those whom also hold a state dealer permit may be reporting purchases

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to their state. All federally-permitted harvesters are required to sell their catch to a Federally-permitted seafood dealer.

As shown in Table 3.11, the majority of Federal lobster permits are held by individuals or businesses operating out of New England and Mid-Atlantic states. The major component of lobster dealers operate out of Massachusetts, Maine, New Jersey, New York and Rhode Island.

Table 3.11. Federal Lobster Dealers by State, Fishing Year 2007.

LOBSTER DEALER PERMITS*	STATE
139	MA
126	ME
71	NJ
65	NY
45	RI
18	VA
15	NC
12	NH
9	CT
8	MD
5	DE
2	PA
2	PR
1	FL
1	GA

* The analysis in this EA assumes that there are 511 Federal lobster dealers as indicated in Table 3.10. The number of dealers in Table 3.11 totals 519, however, these additional dealers in this query may be due to new dealer permits issued since the original query of 511 was made. The purpose of Table 3.11 is to give the reader an idea of the general breakdown of dealers by state.

3.4 Description of Protected Resources

There are numerous species which inhabit the environment within the management unit of American lobster that 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). Twelve are classified as endangered or threatened under the ESA, while the remainder are protected by the provisions of the MMPA. The following list of species, protected either by the ESA, the MMPA, or the Migratory Bird Act of 1918, may be found in the environment utilized by American lobster:

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
Sei whale (<i>Balaenoptera borealis</i>)	Endangered
Blue whale (<i>Balaenoptera musculus</i>)	Endangered
Sperm whale (<i>Physeter macrocephalus</i>)	Endangered
Minke whale (<i>Balaenoptera acutorostrata</i>)	Protected
Beaked whale (<i>Ziphius and Mesoplodon spp.</i>)	Protected
Risso's dolphin (<i>Grampus griseus</i>)	Protected
Pilot whale (<i>Globicephala spp.</i>)	Protected
White-sided dolphin (<i>Lagenorhynchus acutus</i>)	Protected
Common dolphin (<i>Delphinus delphis</i>)	Protected
Spotted and striped dolphins (<i>Stenella spp.</i>)	Protected
Bottlenose dolphin (<i>Tursiops truncatus</i>)	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 ¹⁶
Loggerhead sea turtle (<i>Caretta caretta</i>)	Threatened

Fish

<u>Species</u>	<u>Status</u>
Shortnose sturgeon (<i>Acipenser brevirostrum</i>)	Endangered
Atlantic salmon (<i>Salmo salar</i>)	Endangered

Pinnipeds

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

¹⁶ Green 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 turtles are considered endangered wherever they occur in U.S. waters.

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There have been documented entanglements of right whales, humpback whales, and minke whales in lobster trap gear (Waring et al. 1998; Waring et al. 2003; Johnson et al. 2005). Records kept by the Sea Turtle Stranding and Salvage Network (STSSN) include reports of loggerhead and leatherback sea turtle entanglements with lobster trap gear as well. Although there have been no known entanglements of fin whales, sei whales, or sperm whales with lobster trap gear, these endangered species are also included here given: (1) that they occur where the lobster trap/pot fishery operates and (2) that there are some similarities in life history characteristics with humpback and right whales to suggest that entanglements are reasonably likely to occur.

3.4.1 Summary of Species Likely to Be Affected

Background information on the range-wide status of marine mammal and sea turtle species that occur in the area and are known or suspected of interacting with lobster trap gear can be found in a number of published documents. These include sea turtle status reviews and biological reports (NMFS and USFWS 1995; Marine Turtle Expert Working Group (TEWG) 1998 & 2000; NMFS and USFWS 2007a; 2007b; Leatherback TEWG 2007), recovery plans for ESA-listed cetaceans and sea turtles (NMFS 1991; 2005; NMFS and USFWS 1991; NMFS and USFWS 1992), the marine mammal stock assessment reports (*e.g.*, Waring et al. 2005; 2007), and other publications (*e.g.*, Clapham et al. 1999; Perry et al. 1999; Best et al. 2001; Perrin et al. 2002).

3.4.1.1 Sea Turtles

Loggerhead and leatherback sea turtles occur seasonally in southern New England and Mid-Atlantic continental shelf waters north of Cape Hatteras. In general, turtles move up the coast from southern wintering areas as water temperatures warm in the spring (James et al. 2005; Morreale and Standora 2005; Braun-McNeill and Epperly 2004; Morreale and Standora 1998; Musick and Limpus 1997; Shoop and Kenney 1992; Keinath et al. 1987). The trend is reversed in the fall as water temperatures cool. By December, turtles have passed Cape Hatteras, returning to more southern waters for the winter (James et al. 2005; Morreale and Standora 2005; Braun-McNeill and Epperly 2004; Morreale and Standora 1998; Musick and Limpus 1997; Shoop and Kenney 1992; Keinath et al. 1987). Loggerheads are typically observed as far north as Cape Cod, whereas the more cold-tolerant leatherbacks are observed in more northern Gulf of Maine waters in the summer and fall (Shoop and Kenney 1992; STSSN database).

Loggerheads are a long-lived species and reach sexual maturity relatively late; 20-38 years (NMFS SEFSC 2001). Loggerhead sea turtles are injured and killed by numerous human activities (NRC 1990; NMFS and USFWS 2007a). There are no population estimates for loggerhead sea turtles in any of the ocean basins in which they occur. Based on the most recent information, a decline in the annual nest counts has been measured or suggested for four of five western Atlantic loggerhead nesting groups. These include the south Florida nesting group which is the largest (in terms of number of nests laid) in the Atlantic. While nest counts alone provide no insight into the

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trend/abundance of sexually mature males or immature age classes of either sex (Meylan 1982; Ross 1996; Zurita et al. 2003; Hawkes et al. 2005; Loggerhead TEWG 2007), nest count data are a valuable source of information for each loggerhead nesting group and for loggerheads as a species since the number of nests laid reflect the reproductive output of the nesting group each year and also provide insight on the contribution of each nesting group to the species. NMFS has convened a new loggerhead TEWG to review all available information on Atlantic loggerheads to determine what can be said about the status of this species in the Atlantic.

Leatherback sea turtles are frequently thought of as an oceanic species that feed on jellyfish (*i.e.*, *Stomolophus*, *Chryaora*, and *Aurelia* (Rebel 1974)), and tunicates (salps, pyrosomas) in oceanic habitat. However, leatherbacks are also known to use coastal waters of the U.S. continental shelf (James et al. 2005b; Eckert et al. 2006; Murphy et al. 2006) as well as the European continental shelf on a seasonal basis (Witt et al. 2007).

A 1979 aerial survey of the outer Continental Shelf from Cape Hatteras, North Carolina to Cape Sable, Nova Scotia showed leatherbacks to be present throughout the area with the most numerous sightings made from the Gulf of Maine south to Long Island. Leatherbacks were sighted in water depths ranging from 1-4,151m, but 84.4% of sightings were in waters less than 180 m (Shoop and Kenney 1992). This aerial survey estimated the leatherback population for the northeastern U.S. at approximately 300-600 animals (from near Nova Scotia, Canada to Cape Hatteras, North Carolina). However, the estimate was based on turtles visible at the surface and does not include those that were below the surface out of view. Therefore, it likely underestimates the leatherback population for the northeastern U.S. Estimates of leatherback abundance of 1,052 turtles (C.V.= 0.38) and 1,174 turtles (C.V.= 0.52) were obtained from surveys conducted from Virginia to the Gulf of St. Lawrence in 1995 and 1998, respectively (Palka 2000). However, since these estimates were also based on sightings of leatherbacks at the surface, the author considered the estimates to be negatively biased, and the true abundance of leatherbacks may be 4.27 times the estimates (Palka 2000).

Like loggerhead sea turtles, leatherbacks are a long lived species (> 30 years). They mature at a younger age than loggerhead turtles, with an estimated age at sexual maturity of about 13-14 years for females with 9 years reported as a likely minimum (Zug and Parham 1996) and 19 years as a likely maximum (NMFS SEFSC 2001). Nest counts in many areas of the Atlantic show increasing trends, including for beaches in Suriname and French Guiana which support the majority of leatherback nesting (NMFS and USFWS 2007b). However, the species as a whole continues to face numerous threats at nesting and marine habitats. The long term recovery potential of this species may be further threatened by observed low genetic diversity, even in the largest nesting groups like French Guiana and Suriname (NMFS and USFWS 2007b).

3.4.1.2 Cetaceans (Baleen Whales and Sperm Whale)

The western North Atlantic baleen whale species (North Atlantic right, humpback, fin, sei, and minke) follow a general annual pattern of migration from high

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latitude summer foraging grounds, including the Gulf and Maine and Georges Bank, and low latitude winter calving grounds (Perry et al. 1999; Kenney 2002). However, this is an oversimplification of species movements, and the complete winter distribution of most species is unclear (Perry et al. 1999; Waring et al. 2005). Studies of some of the large baleen whales (right, humpback, and fin) have demonstrated the presence of each species in higher latitude waters even in the winter (Swingle et al. 1993; Wiley et al. 1995; Perry et al. 1999; Brown et al. 2002).

In comparison to the baleen whales, sperm whale distribution occurs more on the continental shelf edge, over the continental slope, and into mid-ocean regions (Waring et al. 2005). However, sperm whales distribution in U.S. EEZ waters also occurs in a distinct seasonal cycle (Waring et al. 2005). Typically, sperm whale distribution is concentrated east-northeast of Cape Hatteras in winter and shifts northward in spring when whales are found throughout the Mid-Atlantic Bight (Waring et al. 2005). Distribution extends farther northward to areas north of Georges Bank and the Northeast Channel region in summer and then south of New England in fall, back to the Mid-Atlantic Bight (Waring et al. 1999).

The most recent Marine Mammal Stock Assessment Report (SAR) (Waring et al. 2008) reviewed the current population trend for each of these cetacean species within U.S. Exclusive Economic Zone (EEZ) waters, as well as provided information on the estimated annual human-caused mortality and serious injury, and a description of the commercial fisheries that interact with each stock in the U.S. Atlantic. Information from the SAR is summarized below.

For North Atlantic right whales, the available information continues to indicate a decline in the population trend (Waring et al. 2008). While calf production in recent years has been higher than recorded in the late 1990s, the minimum rate of annual human-caused mortality and serious injury to right whales averaged 3.2 per year (Waring et al. 2008). Recent mortalities included 6 female right whales, including three that were pregnant at the time of death (Kraus et al. 2005). The total number of North Atlantic right whales is estimated to be less than 400 animals.

The North Atlantic population of humpback whales is estimated to be 11,570, although the estimate is considered to be negatively biased (Waring et al. 2008). The best estimate for the Gulf of Maine stock of humpback whales is 847 whales (Waring et al. 2008). Current data suggest that the trend for the Gulf of Maine stock is increasing. The best estimate available for the western North Atlantic fin whale stock is 2,269 whales but is considered a very conservative estimate (Waring et al. 2008). The population trend was considered positive for the SAR, although the current productivity rate is unknown. Total numbers of sei whales, sperm whales, and minke whales in the North Atlantic or in U.S. waters are unknown, and there are insufficient data to determine population trends for these cetacean species (Waring et al. 2008). Based on data available for selected areas and time periods, the minimum population estimate for each species is 128, 3,539, and 3,312 for sei whales, sperm whales, and minke whales, respectively (Waring et al. 2008).

As described above, there have been no known interactions of fin, sei, and sperm whales with lobster trap gear. However, fin and sperm whale entanglement in other types of fishing gear or in gear of unknown origin have been recorded (Waring et al. 2008). Entanglements of right whales, humpback whales, and minke whales in lobster trap gear have been recorded (Waring et al. 2008). The Atlantic Large Whale Take Reduction Plan (ALWTRP) was recently revised with publication of a new final rule (72 FR 57104, October 5, 2007) that is intended to continue to address entanglement of large whales (right, humpback, fin, and minke) in commercial fishing gear and to reduce the risk of death and serious injury from entanglements that do occur.

4.0 ENVIRONMENTAL CONSEQUENCES – ANALYSIS OF IMPACTS

4.1 Issue 1: Mandatory Federal Lobster Dealer Reporting

The scope of the three proposed alternatives analyzed under this issue consider the implementation of mandatory dealer reporting for Federal lobster dealers that possess only a Federal lobster dealer permit, and are currently not bound by mandatory reporting requirements applicable to other federally managed fisheries. The first draft alternative is a no action alternative, Alternative A. The second Alternative, Alternative B, is the preferred alternative and is based on recommendations in Addendum X to the ISFMP. This alternative proposes to extend mandatory dealer reporting to all Federal lobster dealers, and would specifically impact dealers that possess only a Federal lobster dealer permit. This alternative differs from the Commission's recommendations in that it mandates reporting strictly on an electronic basis. The third alternative, Alternative C, would implement the electronic dealer reporting requirements in an identical manner to that outlined in Alternative B, however, Alternative C would allow a one-year delay in implementation of the reporting requirements.

4.1.1 Alternative A. No Action - Status Quo

If this proposed status quo alternative were selected, the current extent to which Federal lobster dealers would be required to report lobster purchases to NMFS would remain unchanged. Consequently, 19 percent of all Federal seafood dealers (29 percent of all Federal lobster dealers) would still not need to report lobster purchases to NMFS (Table 4.1). However, it is expected that due to the mandates of the Commission's ISFMP, which requires mandatory dealer reporting at the state level, these dealers, likely all of whom have state dealer permits, would be required to report their lobster purchases to their state agency even if a Federal dealer mandatory reporting requirement would not be imposed upon them.

Table 4.1. Summary of Federal Dealers 2003-2007.

Permit Year	# of Dealer Permits	# of Dealers with a Lobster permit	# of Dealers with a Lobster permit and another permit	# of Dealers with only a Lobster permit	% of Total Dealers with only a Lobster Permit
2003	878	548	433	115	13%
2004	829	533	411	122	15%
2005	784	515	354	161	21%
2006	758	510	361	149	20%
2007	767	511	363	148	19%

The majority of the Federal lobster dealers not currently impacted by mandatory reporting requirements (total n=148) are from Maine (n=88, 59 percent) and Massachusetts (n=23; 16 percent. See Table 4.2). Purchases made by these Federal dealers would likely be captured by their respective state reporting requirements. However, while the data collected by the states, ultimately, would be available through the SAFIS program, state requirements associated with the frequency of dealer reporting vary considerably. NMFS believes that the optimal situation from a fishery monitoring and data management perspective would be one wherein all Federal dealers report electronically to NMFS, making this trip-level data available in a single format on a weekly basis, across all federally-managed species.

Conversely, under the no action alternative, state and Federal fishery regulatory agencies would continue to access the data as reported to the state via the SAFIS database. Often, this state data is reported from the dealers and subsequently loaded onto the system on a monthly basis, and potentially up to six weeks after the product was landed. Although the no action alternative would still capture these dealers (those Federal dealers that would remain without a Federal reporting requirement) at the state level, and the data would ultimately be available for stock assessments and interjurisdictional cooperative management, state and Federal regulators would have less flexibility to monitor and analyze landings, and diminished flexibility to develop regulatory policy. Further, no action would impede availability of an up to date, comprehensive data set of trip-level lobster landings on a coastwide basis as submitted by Federal lobster dealers on a weekly basis.

Table 4.2. Federal Dealers by State with Only a Federal Lobster Dealer Permit, 2007.

Federal lobster dealers without a Federal reporting requirement comprise about 29 percent of all Federal lobster dealers. However, their collective lobster purchases may represent a much higher, albeit unknown, proportion of the total coastwide lobster harvest, since the majority of these dealers are from the two premier lobster producing states. These two states, Maine and Massachusetts, are responsible for about 90 percent of the total lobster harvest (Fisheries of the US, 2006) and are the base of operations for 75 percent of the Federal lobster dealers that are currently not required to report lobster purchases to NMFS. Additionally, 91 percent of all vessels not subject to VTR requirements are from these two states. So, in the absence of a mandatory vessel reporting system, dealer reports from these additional 148 lobster dealers without mandatory dealer reporting requirements would provide a considerable amount of added information to enhance state and Federal management of this fishery.

2007 Lobster Dealer Permits Affected by Federal Dealer Mandatory Reporting		
Number	Percent	STATE
2	1%	Other
3	2%	CT
3	2%	NY
7	5%	NH
10	7%	RI
12	8%	NJ
23	16%	MA
88	59%	ME
148	100%	TOTAL

Approximately 39 percent of all Federal lobster vessels are not required to report their lobster landings to NMFS by submitting a VTR (Table 4.3). Seventy-seven percent of these vessels without VTR requirements are from Maine (Table 4.4). Under Addendum X, the Maine Department of Marine Resources is required to collect trip-level data from only 10 percent of the vessels licensed to fish or land lobster in state waters, including some with Federal lobster permits. NMFS is not extending its harvester reporting requirements in the near future and the highest lobster producing state – Maine – has the highest percentage of Federal lobster dealers who do not have mandatory reporting requirements. Since Maine is only required to capture 10 percent of its lobster vessels (which may be state only or state and Federal vessels) with trip-level harvester reporting, dealer reporting could represent an effective means to capture the landings of the majority of vessel landings from this state. Although the states are now required under the Commission’s plan to implement mandatory dealer reporting, under the Commission’s plan, dealers reporting to the state are only required to provide the data on a monthly basis. Tying all Federal dealers in Maine, and other states, into the current Federal dealer reporting requirements would yield trip-level data in an electronic format on a weekly basis. This data would be readily available on the SAFIS system to all management partners, and NMFS will have a complete accounting of the purchases from Federal dealers coastwide.

Table 4.3 Summary of Lobster Vessels with VTR - 2007		
Federal Lobster Permits 2007	Number	Percent
total lobster vessels	3,294	100%
lobster vessels - VTR Required	2,008	61%
lobster vessels - VTR Not Required	1,286	39%

Overall, the no action alternative would allow those Federal dealers without Federal dealer reporting requirements to report only to their state. However, the data would not be available for management purposes in a timely or consistent manner which could compromise the management of the resource. Consequently, continuation of the current level of reporting for Federal dealers may not adequately address the concerns for enhanced fisheries dependent data collection as recommended in by the Stock Assessment Peer Review Panel. Therefore, NMFS proposes to reject the no action alternative in favor of a mandatory electronic Federal lobster dealer reporting requirement.

Figure 4.4 Federal lobster vessels with no VTR requirement by homeport state, 2007.

Home Port State	Number of Vessels	Percent of Total
CT	7	0%
FL	1	0%
MA	190	14%
MD	1	0%
ME	1,054	77%
NH	26	2%
NJ	5	0%
NY	10	1%
RI	75	6%
Total	1,369 ¹⁷	100%

4.1.1.1 Biological Impacts

This proposed no action alternative may have indirect impacts on the lobster resource. The lack of consistent and comprehensive lobster landings data has long been identified as a detriment to lobster stock assessments and fishery management and was most recently identified as an issue for resolution by the 2005 Lobster Stock Assessment Peer Review Panel. Implementing the No Action alternative would continue and potentially exacerbate the data void that exists. Although trip-level landings data would likely be collected from the states, since Federal dealers with state dealer permits are subject to state reporting requirements, the data collected at the state level are not consistent with Federal schedules, and all participating regulatory agencies would not have access to real-time lobster landings at any given time. Overall, this lag in the timeliness of data availability could compromise the effective management of the resource.

¹⁷ This number does not reflect the total number of individual permits since it includes transfers of a permit to a different vessel during the fishing year, resulting in a change of the vessel permit number which adds to this count. This is the best way to show the number of vessels on a state by state basis, and it is likely correct on a percentage basis as shown. The actual number of vessels is 1,286 as shown in Table 4.3.

4.1.1.2 Habitat Impacts

There are no perceived impacts to the habitat for American lobster or any other species associated with the No Action/Status Quo alternative. This issue is related to an administrative reporting requirement that would not impact fishery habitat or the marine environment.

4.1.1.3 Bycatch

Lobster bycatch rates would not be impacted if this administrative requirement is not implemented. Further, this action would neither impact the bycatch rates of other species incidentally caught in the lobster fishery nor would it adversely affect the associated marine environment.

4.1.1.4 Socio-economic Impacts

Participants in the lobster fishery and Federal lobster dealers would not be directly impacted by the No Action alternative. There may, however, be an indirect correlation between a mandatory dealer reporting requirement and the effectiveness of lobster management actions. The peer review panel indicated that lobster management is compromised by lack of a full collection of landings data for the fishery. Therefore, some unquantifiable economic impacts may befall lobster harvesters, dealers and others with economic ties to the industry who may be disadvantaged by ineffective management due to lack of sufficient data for stock assessment purposes. Insufficient data may compromise management and curtail the rebuilding of depressed lobster stocks, which may result in more drastic regulatory measures or further decline in lobster abundance. Such circumstances could translate to long-term negative impacts to fishing communities through decreased catch rates and economic impacts for harvesters and dealers alike.

Conversely, the 148 dealers that would not be impacted by a reporting requirement if this status quo alternative is selected would not be subject to the start-up and maintenance costs associated with submitting electronic dealer reports.

4.1.1.5 Protected Resources Impacts

There would be no perceived impacts to protected resources from the No Action/Status Quo alternative. This action is related to reporting of lobster purchases. It would not alter fishing practices or impact protected species.

4.1.2 Alternative B. Modified Commission Recommendations – Preferred

4.1.2.1 Biological Impacts

There would be no direct biological impacts associated with this alternative. However, in the long-term, this measure may provide regulatory agencies with greater flexibility in the management of the lobster resource by providing a more comprehensive and consistent measure of lobster harvest by area. This proposed alternative would be consistent with the recommendations of the Commission subsequent to the recommendations of the peer review panel which urged state and federal agencies to garner better data on lobster harvest to augment the data available for stock assessments.

4.1.2.2 Habitat Impacts

There would be no direct impacts to the marine environment with the proposed implementation of a mandatory federal lobster dealer reporting requirement for those Federal lobster dealers not currently required to report. This proposed action is an administrative reporting requirement, and would not alter fishing practices or affect marine habitat.

4.1.2.3 Bycatch

There would be no direct benefits or negative impacts to lobster or other species bycatch associated with the proposed implementation of this administrative requirement.

4.1.2.4 Socio-economic Impacts

Dealers – This action would require 148 Federal lobster dealers to submit electronic dealer reports who are not currently required to do so. In 2007, the most recent year for which complete numbers are available, there were 511 Federal lobster dealers. Seventy-one percent (n=363) of all Federal lobster dealers are currently reporting trip-level landings to NMFS based on the reporting requirements for Federally regulated species (see Table 4.1.) The affected subset of Federal dealers, those 148 with only a Federal lobster dealer permit, represent about 19 percent of the total universe of Federal seafood dealers.

The majority of the dealers (75 percent) who would be impacted by implementation of draft Alternative B, are located in either Massachusetts (15.5 percent) or Maine (59.6 percent). In New Hampshire, 7 dealers would be affected by this alternative, representing 4.7 percent of impacted federal lobster dealers, as would 17 dealers in the mid-Atlantic region (New York, New Jersey, Delaware) and 13 dealers combined in Connecticut and Rhode Island (see Figure 4.2).

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If draft Alternative B were implemented, the affected dealers would need a personal computer and Internet access to upload the required trip-level reports as specified under current Federal dealer reporting requirements. Dealers who do not currently have access to a computer would, therefore, have additional start-up and maintenance costs associated with implementation of the proposed dealer electronic reporting requirement. It is not known how many of the 148 affected dealers do not currently own or have access to a computer. It is estimated that the average start-up costs for those lobster dealers who do not have a computer would be about \$580.00¹⁸ to purchase a personal computer and monitor that would meet or exceed the specifications needed to participate in the electronic dealer reporting program. Preliminary estimates of additional costs of about \$652 per year for Internet access would bring the total start-up costs to approximately \$1,232.00, with annual costs for internet access continuing annually. The unknown number of dealers impacted by the proposed dealer reporting program, whom already own a computer but are not connected to the Internet, would assume the estimated annual fees for this service at about \$652 annually. Those whom already have Internet access and a computer would not have any specific costs associated with this new reporting requirement.

NMFS acknowledges that some unknown number of potentially affected lobster dealers may elect to drop their Federal lobster dealer permit to avoid the proposed mandatory dealer reporting requirements. However, under current Federal regulations, vessels possessing a Federal lobster permit are required to sell their lobster only to Federally-permitted dealers. And, in general, vessels in possession of a Federal lobster permit tend to fish a higher number of traps on a year-round basis, and tend to have higher average landings of lobster than non-Federally permitted vessels. Therefore, dealers would be more likely to experience some unknown level of adverse economic impact (lost revenue) and reduced lobster inventory, if these dealers elected to drop or not renew their Federal lobster dealer permit to avoid proposed Federal reporting requirements.

Figure 4.5 summarizes the estimated costs to lobster dealers with respect to each reporting mode. These figures assume the dealer does not have a computer or Internet access. In the Total column, an estimated cost range is provided to account for those dealers whom already may have either a computer and or internet service and therefore, would experience either no additional costs or only partial costs to meet the reporting requirements. The computer and software costs would be one-time costs while Internet service charges would be a recurring annual cost. Some dealers electing to use stand-alone software, could avoid additional costs since NMFS can provide the software free of charge to a limited number of dealers. Impacted lobster dealers without a computer would also have access to computers with Internet access located in NMFS Statistical Field Offices (Port Agent Offices) located in major seafood landing ports throughout the

¹⁸ This figure is based on the estimated costs in a Paperwork Reduction Act Analysis completed by NMFS when mandatory electronic dealer reporting was initiated for Federal species managed under the authority of the Magnuson-Stevens Act as OMB# 0648-0229, 2004. However, information from current sources on retail prices of baseline-level home personal computers is consistent with this estimate.

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Northeast Region (see the NMFS website for field office locations and contact information at www.nero.noaa.gov/nero/).

Figure 4.5 Summary of Per Dealer Costs to Dealers for Mandatory Reporting

Reporting Mode*	Computer	Internet Access	Dealer Software	Total
1	\$580	\$652	\$0	\$0 - \$1,232
2	\$580	\$652	\$100	\$0 - \$1,332
3	\$580	\$652	\$0	\$0 - \$1,232

<p>*Reporting Modes for Dealers:</p> <ol style="list-style-type: none"> 1. SAFIS internet download. 2. PC based special dealer software (may be acquired free from NMFS) 3. Alternative File download. Dealer creates own form and loads to SAFIS web site.
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Federal dealers can submit electronic reports to NMFS by selecting one of three methods: direct real-time, online data entry into the SAFIS; off-line data entry using software provided by NMFS, followed by file upload to SAFIS; or proprietary record-keeping software which could be uploaded to SAFIS. Those entering the data directly into the SAFIS system will be able to do so with a personal computer and Internet access. Those who choose to enter the data using a file upload system would also need a computer and Internet access. However, these respondents may be eligible to obtain the file upload software for free through a NMFS contractor. This could mitigate some costs to Federal lobster dealers that would be subject to mandatory dealer reporting. However, they would still be required to maintain a personal computer and internet connection to upload the data to NMFS.

The potential impact that the cost of acquiring a computer and maintaining internet access would have on affected Federal dealer business income is uncertain. However, potential impacts to lobster dealers with no other Federal permits could be similar to Federal dealers that are subject to mandatory reporting whose business is solely or primarily comprised of lobster sales. Under this assumption, the estimated first year cost of purchasing equipment and internet access would represent 0.47 percent of gross net sales assuming a 40 percent markup and median purchases of 134,000 pounds with net gross sales valued at \$245,000 during 2007. These estimates are based on dealer reports for all Federal lobster permit holders that were subject to mandatory reporting during 2007. At these values, the annual cost of maintaining internet access would be 0.27 percent of net gross sales. As noted above, this cost would be lower for any dealer that already has internet access and a computer that meets the minimum specifications.

Put another way, based on the assumed markup of 40 percent, dealers would receive \$1.83 per pound over the cost of purchasing lobster from harvesters. This translates into sales of 673 pounds of lobster to cover the cost of purchasing equipment and internet access in year 1 and 356 pounds of lobster sales to cover the cost of internet access on an ongoing basis.

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Harvesting Sector – Trap and non-trap lobster harvesters are not expected to be impacted by the implementation of a mandatory federal lobster dealer reporting requirement. According to 2007 NMFS Northeast Region Permit data, 1,286 Federal lobster vessels (39 percent of the total) are not required under the Federal regulations to report lobster landings. Many of these harvesters sell to dealers in Maine and Massachusetts, where the majority of Federal lobster dealers not currently reporting to NMFS conduct their lobster business. Therefore, in some cases, this data is not being captured by NMFS at the harvester level, since vessels with only a federal lobster permit are not required to report landings to NMFS, or at the dealer level. Thus, requiring these dealers to report to NMFS would allow for a more accurate accounting of lobster harvest without imposing an additional reporting requirement on the 1,286 vessels that are not reporting landings to NMFS. Approximately 1,000 of these vessels hail from Maine ports. Maine has not required a mandatory vessel reporting program and would be subject to the 10 percent reporting requirement mandated by the Commission's plan in Addendum X. It is expected that some of these Federal vessels would be captured in that state reporting requirement. However, implementing the Federal mandatory dealer reporting requirement will allow for the timely acquisition of trip by trip dealer purchases directly into the Federal data system, which will facilitate the use of the complete coastwide data for management and policy actions by NMFS as well as for the Commission and states through the timely inclusion of the data into the SAFIS program.

4.1.2.5 Protected Resources Impacts

No impacts to protected resources are expected to result from requiring an additional 148 Federal lobster dealers to submit electronic trip level reports on a routine basis. This action relates specifically to administrative fishery reporting requirements by dealers. It would not alter fishing practices or affect protected species.

4.1.3 Alternative C. Modified Commission Recommendation with One-Year Delay

The rationale for this third draft alternative is to consider a delay in the reporting requirements for those dealers affected by a mandatory Federal lobster dealer requirement. NMFS, consistent with current Federal dealer reporting requirements, is not considering a paper-based reporting requirement; therefore, dealers would need access to a computer and the internet on a routine basis. Since the majority of the dealers affected by this action are from Maine and may potentially operate from rural areas, this option delay the implementation of the electronic dealer reporting requirement by one year to provide dealers who may not already have access to the internet or a computer, with additional time to become familiar with Federal dealer reporting requirements, acquire the means to report electronically, and work with NMFS outreach staff to facilitate the implementation of reporting requirements.

4.1.3.1 Biological/Resource Impacts

Delaying the proposed mandatory dealer reporting requirement for a year will likely have negligible impacts on the lobster resource. However, delaying the data submission for dealers may compromise the ability of scientists and managers to evaluate and manage the lobster fishery and resource in the short term. These dealers would still be mandated to report to their states in the interim, albeit not necessarily on an electronic basis. The Commission's plan requires dealers to report landings to states on a trip by trip basis but submit on a monthly basis. Under the NMFS dealer reporting process, dealers provide trip level purchases on a weekly basis.

Having all Federal dealers report under a single federal process would be a positive step in many respects. Primarily, it would maintain a single database for all Federal lobster dealer data. This would facilitate in-house utility of the data for fishery policy analysis and would mitigate any potential void in the overall ability for the agency to calculate total federal lobster landings resulting from the absence of a mandatory vessel reporting requirement. It would allow for ease in checking for errors in the data, reporting compliance, and would likely benefit interjurisdictional management of the resource by providing a steady stream of data to the SAFIS system on a more timely basis than state-entered data. Overall, an electronic dealer reporting requirement would provide a timelier and more comprehensive platform for collecting dealer data and would provide a more reliable database for use in stock assessments. If delayed, the data may be available through the states but not as readily as it would be if collected electronically by NMFS.

4.1.3.2 Habitat Impacts

There would be no impacts to the marine environment or lobster habitat due to a delay in the implementation of this administrative requirement. This proposed action would not alter fishing practices or affect the marine environment.

4.1.3.3 Bycatch

No negative impacts to lobster bycatch or the bycatch of other species encountered in the American lobster fishery are expected if this administrative dealer reporting requirement is delayed for a year.

4.1.3.4 Socio-economic Impacts

A one-year delay in implementing the electronic dealer reporting requirement may provide some interim relief to Federal dealers who are not current reporting with respect to potential start-up costs. In the meantime, these dealers, if not already required to do so, would be subject to state dealer reporting programs which would allow the data to be submitted by the dealer in either an electronic or paper format. Potentially, they could be subject to an electronic reporting requirement at the state level, dependent upon

state requirements, in the absence of a Federal dealer reporting program. The delay may provide some interim financial relief to dealers without computers by deferring the costs of purchasing a computer, and saving the one-year equivalent of the costs for internet access and any software requirements needed for the use of the file upload data submission method. As shown in Table 4.5, a one year delay could postpone the start-up and maintenance costs associated with the purchase of a computer (\$580) and internet access (\$652 per year). Theoretically, it would nullify the costs of internet use for the year during the delay.

4.1.3.5 Protected Resources Impacts

There are no impacts to protected resources expected if the proposed mandatory dealer reporting requirement is delayed for one year. This alternative relates specifically to administrative reporting requirements for Federal dealers. It would not alter fishing practices or affect protected resources.

4.2 Issue 2: Lobster Maximum Carapace Length Requirement for Selected Nearshore Areas and Offshore Area 3

The scope of the three alternatives analyzed under this issue will consider the implementation of a maximum carapace length requirement for the offshore Area 3 and all the nearshore areas with the exception of Area 1. Area 1 currently has a 5 inch maximum carapace length requirement. The first draft alternative, draft Alternative A, is a no action alternative. The second draft alternative, draft Alternative B, is the Commission's alternative, which would implement the maximum size requirements for the sizes and areas detailed in Addendum XI (see draft Alternative B, Table 2.3). The third draft alternative, draft Alternative C, is the preferred option. With the preferred option, NMFS would implement the maximum sizes consistent with the Commission's recommendations and include a maximum size requirement for the Outer Cape Area, identical to that for Area 3 in the Commission's option, draft Alternative B. The objectives of each draft alternative are compared to the current Federal regulations for each lobster conservation management area in Table 2.3.

Obligation of States to Implement Addendum XI Broodstock Protection Measures

Within the framework of the Commission, the Lobster Management Board (Board) appoints staff from member states and NMFS to serve as a Lobster Plan Review Team (PRT). In accordance with the Commission's Charter, the PRT is obligated to review the ISFMP as needed, or at least annually, to ensure that the states are in compliance with the implementation schedules for the previous year as set forth in the various addenda and amendments of the plan. The May 2008 PRT report (APPENDIX 7) details the findings of the PRT's April 2008 meeting, which determined that all states were in compliance, through the end of 2007, with the compliance measures adopted into the ISFMP from Amendment 3 and Addenda I – XI. Although the maximum size requirements and v-notch provisions set forth in Addendum XI were not required to be in

effect, the PRT recommended in that report that the *de minimis* lobster states also incorporate the v-notch and maximum size provisions of Addendum XI to ensure consistency of regulations within each management area. The PRT's findings were presented to the Board at their May 2008 meeting, at which time the Board moved to require the *de minimis* states to incorporate the management measures as suggested by the PRT to be effective on July 1, 2008. At the time of the ISFMP review in April 2008, states were not yet required to have implemented these measures. However, each state is obligated to notify the Commission if the state fails to meet the compliance implementation schedule. As such, the Commission has not been informed of any state's failure to meet the July 1, 2008 implementation deadline. Consequently, as specified in the Commission's ISFMP, NMFS assumes all states have incorporated the maximum carapace size and v-notch requirements at this time. Therefore, Federal lobster vessels would be subject to these more restrictive requirements upon landing in state waters despite the potential for inaction by the Federal government should the no action broodstock draft alternatives be selected.

4.2.1 Alternative A. No Action – Status Quo

If no action is taken, NMFS would not implement any new, or revise any existing, maximum carapace length regulations for the Federal waters of any lobster management areas. The current maximum size regulations would remain in place in Federal waters, including: a 5-inch maximum size for Area 1; 5 ¼ inch maximum carapace length for female lobster harvested in Area 4; and a 5 ½ inch maximum carapace length for female lobster harvested in Area 5. Currently, under Federal regulations, the maximum size restriction for Area 1 applies to all American lobster (male and female) in that management area. The maximum size regulations for Areas 4 and 5 restrict harvest only on female lobster over the respective maximum sizes for these areas (referred to as a “trophy” or “trophy-sized” lobster), with the exception that individuals engaged in recreational fishing may possess one female lobster per fishing trip in excess of the maximum carapace length (see Table 2.3). The no action alternative would, under Federal regulations, continue to allow one trophy-sized lobster (a female exceeding the Federal maximum size limit) for recreational divers in Area 4 or Area 5 not engaging in commercial sale of such lobster.

4.2.1.1 Biological/Resource Impacts

Under Alternative A, the no action alternative, there would be no additional broodstock protection measures implemented under Federal regulations to protect large lobsters. Under current Federal regulations, all large lobster over 5 inches would continue to be protected in Area 1, and larger female lobster would be protected in Areas 4 and 5 (greater than 5 ¼ inches and 5 ½ inches, respectively). However, Federal regulations to protect lobster broodstock through a maximum carapace length regulation would not extend beyond Areas 1, 4 and 5. At the same time, Federal regulations require Federal lobster permit holders to abide by the most restrictive measures (Federal or State) no matter where they fish. Therefore, taking no action on the regulatory measures listed

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above would still leave Federal lobster vessels subject to more restrictive measures than the current Federal regulations require. Thus, under the more restrictive state regulations specified in the ISFMP, effective July 1, 2008, the harvest of oversized lobster, even for recreational divers in Areas 4 and 5, would violate state maximum size regulations. Unlike current Federal regulations applicable to Areas 4 and 5, the ISFMP does not include an allowance for possession of one female trophy lobster above the legal maximum size in the recreational fishery.

The biological impacts of no action and implementation of the Commission's alternative (Alternative B, described later in this document) would, on balance, be the same. Overall, existing state regulations would continue to benefit the rebuilding of the lobster resource to meet the ISFMP objective with minimal impact to the resource if compatible Federal regulations are promulgated. However, this alternative would result in inconsistencies between state and Federal regulations that would create impediments to the effective State-Federal enforcement of measures deemed necessary for the rebuilding of the lobster resource under the IFMP. In addition, the lack of consistent regulations by state and Federal management authorities may result in some unknown level of confusion on the part of participants and regulatory agencies. Therefore, the lack of additional Federal measures as proposed in Alternative A may have a small, negative, yet unquantifiable impact on the status of the stock overall.

4.2.1.2 Habitat Impacts

There would be no expected impacts to lobster habitat associated with no Federal action in further regulating the maximum carapace length for lobster in the specified lobster management areas. Federal lobster vessels would be held to the Commission's maximum size requirements as enforced by the states. This draft alternative is not expected to alter fishing practices, beyond current practices, in a manner that would be detrimental to marine habitat.

4.2.1.3 Bycatch

There would be no direct negative impacts associated with the bycatch of lobster or other species encountered in the prosecution of the lobster fishery. However, differential state and Federal regulations in multiple management areas coastwide, as a result of Federal inaction, may cause confusion among harvesters, enforcement officials and managers. This potential lack of consistency may result in some unintended or unnoticed violation of the maximum size requirements in place and enforceable at the state level for lobster harvested in both state and Federal waters, undermining the biological benefits associated with the more restrictive maximum sizes recommended in the ISFMP.

4.2.1.4 Socio-economic Impacts

Essentially all Federal permit holders possess either a landing permit or lobster fishing license from a state of landing. Under the Federal lobster regulations (50 CFR

part 697), Federal lobster vessels are subject to the most restrictive of either state or Federal regulations, regardless of where the vessels fish. Therefore, in the absence of Federal rules that mirror revised state regulations based on the Commission's plan, Federal vessels will be held to the new state regulations for the respective lobster management areas, even if fishing in Federal waters. So, the impact is, theoretically, the same to Federal vessels and to the resource, regardless of whether Alternative A (no action) or Alternative B (The Commission's Alternative) is selected, assuming that states remain in compliance with the ISFMP. However, in choosing the no action alternative, differences in the state and Federal regulations across multiple management areas could cause some confusion within the industry and for managers and may inhibit effective enforcement of fisheries regulations.

4.2.1.5 Protected Resources Impacts

There are no impacts to protected resources associated with no Federal action in modifying the maximum lobster carapace length restrictions in the specified lobster management areas. This alternative is not expected to alter fishing practices, beyond current activities, in a manner that would be detrimental to protected resources.

4.2.2 Alternative B. Commission Recommendations

This alternative would result in the revision of existing, or the implementation of new, maximum carapace length requirements in all Areas except Area 1 and the Outer Cape Area. A maximum size of 5 ¼ inches on all (male and female) lobsters would be established in Area 2, wherein there is currently no maximum size requirement in the Federal regulations. In Area 4, the current requirement of 5 ¼ inches pertains to female lobster only. Alternative B would broaden the scope of the maximum size to include both male and female lobsters. In Area 5, the current Federal requirement is 5 ½ inches, applicable only to female lobster. Alternative B would reduce the maximum size consistent with the ISFMP. The measure would apply to both male and female lobster, and it would eliminate the trophy lobster allowance for recreational divers. In Area 6, this alternative would establish a maximum size of 5 ¼ inches for all lobster harvested by Federal vessels in this area. Finally, in Area 3, the Commission's plan calls for a 7-inch maximum size effective on July 1, 2008. The maximum size becomes more restrictive over the next two years through annual reductions of the maximum size by 1/8 inch. Consequently, the maximum size would decrease to 6 7/8 inches in 2009 and then to a final maximum size of 6 ¾ inches in 2010. Due to the timing of this rulemaking, NMFS proposes to implement the maximum size in Area 3 at 6 7/8 inches on July 1, 2009, to remain consistent with the states as mandated under the ISFMP, should this alternative be chosen. Again, consistent with the Commission's recommendations, the terminal maximum size for Area 3 of 6 ¾ inches would be implemented on July 1, 2010.

4.2.2.1 Biological/Resource Impacts

Compared to draft Alternative A, the status quo alternative, draft Alternative B would implement compatible Federal maximum carapace size measures to complement state measures specified in Addendum XI, and recommended to NMFS by the Commission. However, unlike draft Alternative A, this alternative would remove any inconsistencies between state and Federal regulations that may have occurred under the no action alternative, and address potential impediments to effective State-Federal enforcement of measures deemed necessary for the rebuilding of the lobster resource under the ISFMP. In addition, implementation of consistent regulations by state and Federal management authorities would eliminate any confusion on the part of participants and regulatory agencies that may have resulted from inconsistent regulations. Therefore, Alternative B would more likely resolve the potential for some small negative, yet unquantifiable, adverse impact on the status of the stock overall, than if draft Alternative A were selected.

There is a substantial amount of scientific data to indicate larger lobsters are necessary for the long-term sustainability of the resource. Larger lobsters appear to be more productive also. While smaller lobsters molt more often than larger ones, larger females (>120 mm carapace length) can spawn twice between molts, making their relative fecundity greater than females within one molt of legal size (Waddy et al. 1995). Larger lobsters produce eggs with greater energy content and thus, may produce larvae with higher survival rates (Attard and Hudon 1987). While the natural mortality rate in post settlement lobster is generally considered to be low because they are a long-lived species that produce fairly small egg clutches, and carry their eggs for months until they hatch, as lobsters grow in size they become increasingly less vulnerable to natural mortality. Fogarty (1998) calculated that even a modest amount of offshore larval supplied by larger sexually mature lobsters could add significantly to the resiliency of inshore areas.

This information on the importance of large lobster supports the resource benefits of maximum size regulations. Complementary Federal regulations as offered in this alternative would not likely increase the overall biological benefits to the lobster resource because harvest is already governed by existing state regulations in this regard. However, consistent Federal regulations would reduce confusion and facilitate enforcement. Thus, implementation of Federal measures consistent with the Commission's recommendations would support the efforts of the states through the ISFMP to enhance stock conditions through broodstock conservation.

4.2.2.2 Habitat Impacts

There would be no impacts to habitat relative to the selection of the Commission's alternative. If such action were to occur, Federal lobster regulations would be consistent with those implemented by the states regarding maximum carapace length restrictions on lobster. Therefore, this proposed action would not alter fishing practices or impact marine habitat.

4.2.2.3 Bycatch

Implementation of the measures in draft Alternative B would not influence bycatch rates of lobster or other non-targeted species. Therefore, under the Commission's draft Alternative B, Federal implementation of the maximum sizes in the Commission's Plan would be unlikely to increase or impact bycatch in any quantifiable way.

4.2.2.4 Socio-economic Impacts

The consequences associated with the Federal implementation of the maximum carapace lengths as recommended by the Commission and set forth in the respective state regulations are the same, in most respects, as no Federal action, Alternative A. As described in Alternative A, the measures adopted by the states would impact the Federal permit holders since they are more restrictive than the current Federal regulations. Implementing these measures at the Federal level would not subject Federal lobster vessels to any further economic burden since they would already be subject to these restrictions by standing state laws in the absence of Federal action. However, there are benefits to Federal action with draft Alternative B compared to the no action Alternative A because consistent state and Federal regulations would limit confusion as to the enforceable standards among jurisdictions and management areas and would facilitate the enforcement of these measures and foster their utility in augmenting egg production through broodstock protection. Therefore, on balance, draft Alternative B would provide additional benefits to industry participants and would allow for more effective enforcement than draft Alternative A.

4.2.2.5 Impacts to Protected Resources

There would be no protected resources impacts or benefits associated with selection of draft Alternative B.

4.2.3 Alternative C. Modified Commission Recommendations – Preferred

Draft Alternative C would implement the maximum sizes set forth in the ISFMP for Areas 2, 4, 5 and 6 as described in draft Alternative B effective July 1, 2009. This preferred draft alternative also would establish a maximum size in Area 3 as recommended by the Commission. The Commission's plan requires the states to implement a lobster maximum carapace length of 7 inches by July 1, 2008, reduced by 1/8 inch during each of two successive subsequent years until a terminal maximum size of 6 ¾ inches is obtained in July 2010. Given the timing associated with Federal rulemaking on this action, the earliest NMFS could establish a 7-inch maximum size would be July 1, 2009. Therefore, to be consistent with the Commission's recommended time frame for implementation and to fully complement state regulations for Area 3, this alternative would begin the maximum size during the second year of the three-year

implementation schedule and start with the 6 7/8 inch maximum size in July 2009. Consistent with the ISFMP, the terminal maximum size of 6 3/4 inches would take effect on July 1, 2010. Additionally, draft Alternative C would have a broader impact since it would impose a maximum size restriction for the Outer Cape management area, in addition to the maximum size restrictions recommended for adoption by the Commission. The maximum size implementation schedule for the Outer Cape Area would mirror that proposed for Area 3.

4.2.3.1 Biological/Resource Impacts

As described in greater detail in draft Alternative B, Section 4.2.2.1 and in Section 3.1.3 Life History and Reproductive Success, there is considerable scientific documentation to indicate that positive biological outcomes may result from broodstock protection measures such as a maximum size limit, since female lobster egg production increases exponentially with increasing female size (Rowe, 2001, from Elliott, 2006). Additionally, the Outer Cape Cod Area is known as a migratory route for larger migrating offshore lobster, with unsuitable habitat for resident lobster populations (Estrella and Morrissey, 1997). McKiernan and Estrella (1989) indicate that the area east of Cape Cod exhibits the smallest percentage of sub-legal sized lobster in the commercial catch compared to other coastal areas in Massachusetts. Specifically, it was noted that 10 percent of the catch in the area east of Cape Cod was comprised of sub-legal lobster compared to 89 percent in the waters off of Boston, MA ¹⁹(Estrella and McKiernan, 1989, from Estrella and Morrissey, 1997).

Given the relatively large size and transient nature of the lobster encountered in the Outer Cape Area, a maximum size requirement for lobster caught in the Outer Cape Area could provide some biological benefits through broodstock protection. Since Area 1 in the GOM stock area and Area 3 in the GBK stock area each have maximum size limitations in place, it is reasonable to consider the implementation of a comparable requirement in the Outer Cape Area to protect lobster moving into the Outer Cape Area from these other areas. Therefore, NMFS sees this analysis as a timely opportunity to evaluate the positive and negative effects of a maximum size requirement in the Outer Cape Area, consistent with the maximum size recommended for Area 3, since both these management areas lie within the GBK stock area.

This draft Alternative C would support the Commission's measures coastwide by establishing maximum size requirements that are consistent with the ISFMP – facilitating enforcement of broodstock protection measures throughout the range of the resource. However, to further support the maximum size broodstock protection measures, this draft alternative would extend the maximum size beyond the Commission's requirements, to the Outer Cape Area. Federal implementation of this preferred draft alternative would likely provide additional benefits to the lobster resource by establishing a maximum size in the Outer Cape area to support the stock wide broodstock protection measures in Area 3 and all other nearshore management areas.

¹⁹ These percentages represent lobster catches in 1995. From Estrella, B.T. 1997. Massachusetts Division of Marine Fisheries, 50 A Portside Drive, Pocasset, MA 02559. Unpubl. data

4.2.3.2 Habitat Impacts

There are no direct impacts to habitat associated with the implementation of the broodstock protection measures proposed in the preferred alternative. If some Federal permit holders from Massachusetts drop their Federal permits to avoid the maximum size restriction, an unquantifiable level of trap migration could occur from Federal to state waters with unknown impacts to habitat. However, on balance, this alternative could prevent lobster vessels from more directly targeting fishing effort in the Outer Cape Area in the event that such protective measures were not extended there. Overall, any potential changes in fishing effort are expected to be negligible and would not likely result in any additional impacts to marine habitat.

4.2.3.3 Bycatch

This measure will establish a maximum size limitation in the Outer Cape Area. It may lead to a higher discard rate for lobster, with lobster discard mortality rates likely variable dependent upon gear type. A maximum size may reduce the tendency for “high-grading” in the non-trap sector. The non-trap fishery is subject to possession limits of 100 individual lobster (in count) per day or a maximum of 500 lobster per trip of five days or more. Current practices can lead fishermen to upgrade or high grade lobster that have been kept onboard with those from subsequent tows that are larger and may bring a higher price due to the increase in weight or a market that pays a higher per-pound price for an oversized lobster. This measure will mitigate the impacts of high-grading by limiting the size of lobster that can be harvested and may reduce any bycatch mortality due to stress or predation associated with lobster that are discarded due to current industry practices. Implementation of this preferred option is not expected to increase the bycatch of species other than lobster.

4.2.3.4 Socio-economic Impacts

Estimate of Impacted Federal Trap and Non-Trap Lobster Vessels

The economic impacts of the preferred alternative are uncertain and the total number of impacted vessels is not specifically known. To assess the potential number of impacted trap and non-trap vessels, data from the NMFS permit database and the Vessel Trip Report database were queried.

Essentially, it is expected that the vessels impacted by the preferred alternative would be those trap and non-trap gear Federal vessels that fish in the Outer Cape Area. There are 184 Federal trap vessels that selected the Outer Cape Area on their Federal lobster trap permit for 2007, based on the NMFS Northeast Region permit database. A subset of these, totaling 114 vessels, also designated a non-trap gear type (including party/charter) on their Federal vessel permits (Table 4.6). However, given this data set, it is unclear how many of these vessels actually fished in the Outer Cape Area with either trap gear, non-trap gear or both.

Table 4.6 Federal Lobster Trap Vessels in the Outer Cape by Gear Type

Total Trap Vessels = 184* (all other categories are a subset of the 184 total trap vessels)			
Area	Total Trap	Trap Only	Trap and Non-Trap***
AOC	184	70	114
<small>* This data is based on NMFS Northeast Region permit data for fishing year 2007 **Non-trap gear including trawl, gillnet, dredge, and party –charter vessels. Not including vessels that elected only non-trap gear that may fish in the Outer Cape.</small>			

Although a total of 184 trap vessels have designated Outer Cape Area on their permits in 2007, only a subset of these vessels fish in this area, since any Federal lobster trap vessel permit holder is allowed to designate this area on the Federal permit, whether the vessel fishes there or not. It is suspected that in the wake of increased limited access to certain management areas and the potential for limited entry in the Outer Cape in the future, many permit holders will designate all areas that are open for designation even though they may not plan to fish in those areas. The Commonwealth of Massachusetts has implemented a limited entry program for the Outer Cape Area that affects those Federal permit holders fishing with traps who have state licenses. The state qualified 74 vessels to this trap program and 27 of these have Federal permits. Therefore, it is expected that at least the 27 trap vessels that qualified under the Massachusetts program would be impacted by a Federal implementation of the maximum size in the Outer Cape. However, the analysis of impacted vessels must also consider those additional vessels that may be fishing in the Outer Cape with non-trap gear. NMFS permit data show that 114 Federal trap vessels also selected non-trap gear and therefore, may be fishing with that gear type in the Federal waters of the Outer Cape area, within the total number of trap vessels with the Outer Cape designated on the vessel’s Federal permit (Table 4.6).

Since Federal regulations do not require non-trap vessels to designate a trap area, these 114 Outer Cape Area trap vessels that also designated non-trap gear on the permit may not represent the total number of Federal vessels that may fish in the Outer Cape Area. Therefore, to fully gauge the potential participation of Federal non-trap vessels in the Outer Cape Area, it is helpful to query the Federal Vessel Trip Report (VTR) data base since the majority of non-trap vessels with Federal lobster permits are required to report their landings via the VTR program and indicate the statistical areas fished on each trip.

Using VTR data, the impact of the preferred alternative on non-trap vessels was assessed by identifying the number of non-trap permit holders that reported landing lobsters in statistical area 521 for calendar years 2005 to 2007. Although this area does not directly correspond to the boundaries of the Outer Cape Area (statistical area 521 is much larger than the Outer Cape Management Area and includes other lobster management areas) it is in close proximity and was, therefore, used as a proxy for the Outer Cape Area for purpose of analysis. A query of the NMFS VTR database indicated that between calendar years (CY) 2005 and 2007, 133 Federal vessels fishing with non-trap gear landed lobster from statistical area 521. If it is assumed that those 114 vessels

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that chose trap and non-trap gear as shown in Table 4.6, also are included in those that reported landings in Statistical Area 521 during the 2005-2007 period, there are 19 additional non-trap vessels that would not be reflected in the analysis of those vessels which had trap gear, selected the Outer Cape, and also selected non-trap gear in Table 4.6 which is based on permit data. Therefore, adding the remaining 19 vessels to the 184 that selected trap gear (or trap gear and non-trap gear) the total number of impacted trap and non-trap vessels would be approximately 203 vessels affected by the maximum size requirement in the Outer Cape Area. However, this number is variable since some trap vessels may not have fished in the Outer Cape even though the permit is designated for that area. Also, all non-trap vessels that reported landings in Statistical Area 521 may not have actually fished in the Outer Cape portion of Statistical Area 521.

Conversely, in a worst-case scenario, all of the non-trap vessels that reported lobster catches from statistical area 521 may not be included with the tally of vessels that elected trap and non-trap gear in Table 4.6. This could potentially add another 133 non-trap vessels to the 184 trap and non-trap vessels for a maximum range of between 184 and 317 vessels, assuming there is no overlap between the non-trap vessels that chose the Outer Cape as trap area, and those non-trap vessels that showed landings in Statistical area 521. However, this is unlikely, and some overlap of the non-trap vessels from both data sets is expected. For example, Massachusetts requires dually-permitted state and Federal non-trap vessels to designate a trap area even if fishing with non-trap gear. So, those vessels are likely captured in the total number of Federal vessels from Massachusetts (131 vessels) that chose the Outer Cape area on their Federal permit as shown in Table 4.7, assuming dual state and Federal permit holders designate areas consistently on both the state and Federal permit applications. On balance, however, it is also expected that some unknown number of the additional vessels that designated the Outer Cape on their Federal permit from other states are also fishing in the Federal portion of the Outer Cape area as well as some unquantifiable number of Federal vessels that designated only non-trap gear on the Federal permit and cannot be identified in NMFS permit data and are quantified through VTR data. Therefore, from a conservative perspective, the expected range of impacted trap and non-trap vessels could be between 184 and 203 vessels, although it is likely to be much lower.

Table 4.7. Federal trap vessels that designated Outer Cape on their 2007 Federal lobster permit.

Outer Cape Area Trap Vessels by State	
STATE	AOC
CT	4
MA	131
ME	7
NH	3
NJ	9
NY	6
RI	20
Other States	4
Total	184

Table 4.8 Summary of Affected Federal Lobster Vessels for Maximum Size Alternatives (2007 Northeast Region Permit Data).

LCMA	1. Status Quo	2. Commission	3. Preferred
1	None	None	None
2	None	None	None
3	None	None	None
4	None	None	None
5	None	None	None
6	None	None	None
OCC	None	None	184-203

Impacts to Party and Charter Vessels

Available information suggests that the maximum size in the Outer Cape Area would have little or no effect on the recreational fishery since logbook records for vessels subject to mandatory reporting indicate that all but one party/charter trip where lobsters were kept occurred in the Gulf of Maine (statistical areas 514 and 513) or in the Mid-Atlantic during 2005 to 2007. Only one of 430 reported recreational trips in these three years occurred in close proximity (statistical area 521) to the OCA. The impact of Federal action on potential catch by paid passengers is expected to be very low and is not likely to affect the decision to take a party/charter dive trip. Thus the proposed action is expected to have minimal economic impact on the recreational party/charter industry.

Estimated Economic Impact to Affected Federal Vessels

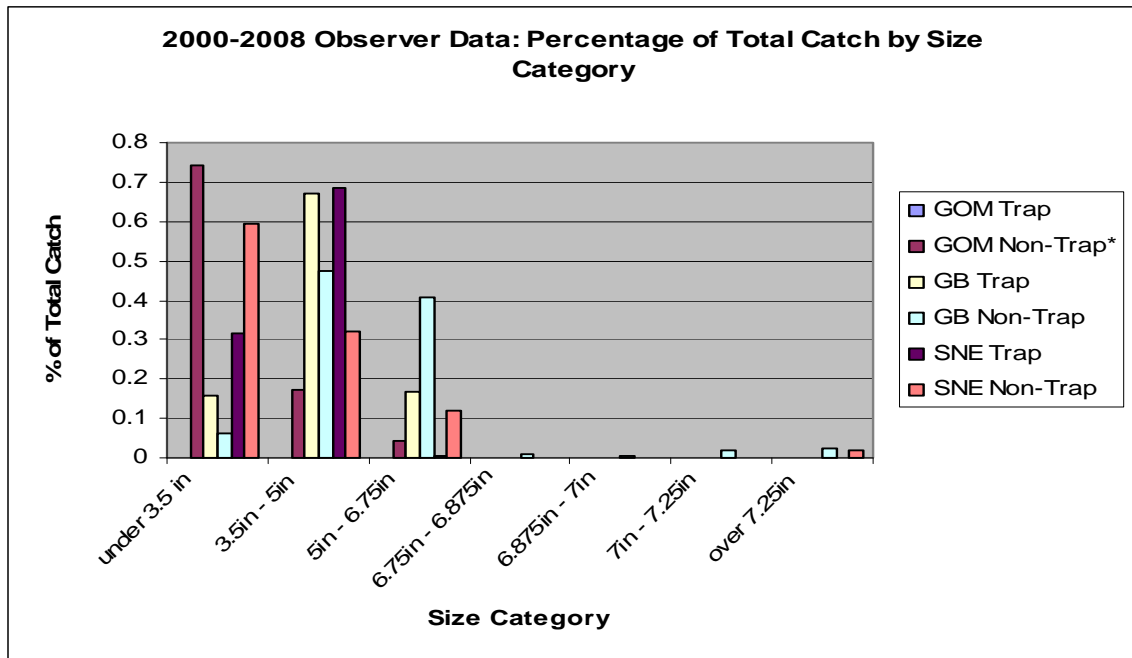
NMFS has proposed the implementation of an Outer Cape maximum size consistent with Area 3 as opposed to Area 1. This proposal is based on the balance of potential economic impacts to the industry and biological benefits to the resource. Additionally, aligning the maximum size in the Outer Cape with the maximum size in Area 3 may be more practical since the majority of both management areas occur within the GBK stock unit. About 6 percent of the lobster catch recorded by observers in statistical areas within the GBK stock area, all of which are large lobster broodstock, would be legal quarry in the Outer Cape area if either Alternative A or B is selected. As Table 4.9 and Figure 4.10 present, a substantial percentage of lobster is taken above the 5-inch size in the GBK area. Specifically, 17.24 percent of the trap fishery harvest exceeds 5 inches. In the non-trap fishery, the impact is higher, likely due to high grading, at 46.4 percent. Therefore, establishing a maximum size consistent with Area 1 (5 inches) may be too economically restrictive on the participants in the Outer Cape lobster fishery, which relies relatively strongly upon large lobster.

Table 4.9 Lobster Landings by Size Category by Trap and Non-Trap Gear from Observer Data, GBK Stock Area (includes most of Area 3 and all of Outer Cape Area).

NMFS Observer Data 2000-2008	Georges Bank Stock Area	
	Trap Gear	Non-Trap Gear
Total Lobsters Sampled	12,588	3,061
Average Size (in)	4.266	4.995
under 3.5 in	15.60%	6.40%
3.5in - 5in	67.20%	47.20%
5in - 6.75in	16.70%	40.70%
6.75in - 6.875in	0.09%	1.00%
6.875in - 7in	0.06%	0.60%
7in - 7.25in	0.23%	1.70%
over 7.25in	0.16%	2.40%

In contrast, expanding the Commission's Area 3 maximum size schedule to the Outer Cape area would provide some broodstock protection while softening the economic impact on the industry. Under the preferred alternative, when the full extent of the maximum sizes have been set forth at 6 $\frac{3}{4}$ inches, approximately 5.7 percent of the lobster harvested by non-trap vessels and 0.54 percent of lobster harvested in the trap sector would be lost to harvesters. This potential loss in catch may be relatively small but may act to establish measures that support the maximum sizes set forth for other GBK management areas. These benefits may impact not only the GBK stock but possibly GOM and SNE stocks due to the movement of lobster in and out of the Outer Cape Area. Those Federal vessels fishing with trap and non-trap gear in the Outer Cape Area would be impacted by this alternative since they would be restricted in the size of the lobster that could be harvested. However, the larger sized lobster that would be prohibited over time with this incremental maximum size restriction do not comprise a significant proportion of the catch (Table 4.9). Fluctuating markets may dictate and seasonally influence the financial opportunity costs associated with these size restrictions.

Figure 4.10 Percentage of Total Lobster Catch by Size Category, Gear Type and Stock Area.



Even though observer data suggest that the maximum size in the Outer Cape Area would affect only 0.5 percent of lobster catches in the area, a price premium is paid for larger lobsters such that the realized impact on lobster fishing businesses is likely to be proportionally larger than the expected change in catch. Available data suggest that profit margins in the lobster fishery are low and even small changes in revenue could affect marginal lobster businesses. For example, while all operations in Area 1 and Area 2 appear to have been able to cover operating costs in 2005, average net return for the majority of businesses was below median personal income for the New England regional population and fewer than 20 percent earned sufficient income to earn a positive return to invested capital (Thunberg, 2007). While the financial profile for lobster businesses in the Outer Cape Area was not developed it seems likely that the scale of operation is similar to that estimated for Areas 1 and 2. Since 2005, fuel prices have more than doubled and assuming all other revenues and costs were to remain the same, average net return would decline by about 30 percent and income to lobster business operators would fall further below region-wide median personal income. In the Outer Cape Area the added effect of reduced revenue potential would compound the economic stress on the financial viability of lobster businesses operating in the area.

Based on VTR data, estimates of revenue and relative dependence on lobsters taken from the Outer Cape Area were obtained by assigning an average price to all species reported in the VTR data, assuming a 5.7 percent reduction in landings of lobster from the Outer Cape Area based on the size percentage in the catch as calculated from NMFS observer data (Table 4.9)

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The number of non-trap permit holders reporting lobsters on at least one trip averaged 442 during CY 2005-2007 (Table 4.11). Of these participating vessels an average of 133 reported landing lobsters in statistical area 521. For these affected vessels dependence on lobster from all areas in terms of pounds ranged from 0.01 percent to 10.6 percent (data shown in rows 4-9 of Table 4.11 refer exclusively to vessels that fished lobster in statistical area 521) while dependence in terms of value ranged from 0.03 percent to 30.3 percent. These figures reinforce the effect noted above that the relative impact of a change in lobster fishing opportunity may be expected to be proportionally larger in revenue terms than the proportional change in landings. This effect may be particularly evident for trap vessels since they land little else other than lobster. By contrast, non-trap vessels earn income from many other species and may earn income from fishing lobsters in areas other than the Outer Cape Area. That is, dependence on the value of lobster landed from the Outer Cape Area (i.e. its proxy statistical area 521) alone ranged from 0.02 percent to 20.7 percent. Assuming that lobsters landed in statistical area 521 were to be reduced for each non-trap vessel by the estimated proportion (5.7 percent) of lobsters above 6 $\frac{3}{4}$ inches from observer data and multiplying by the average price of lobsters results in an estimate of the forgone value of lobster that would otherwise have been landed.

The three-year average value of reduced lobster landings for non-trap vessels fishing in the Outer Cape Area ranged from less than \$1 to almost \$1,000, annually. The annual median loss of forgone lobster landings was estimated to be \$117. In terms of impacts on total fishing revenue for affected non-trap vessels these values translate into losses ranging from less than 0.01 percent to 1.2 percent. That is, in the case of non-trap vessels, the relative change in total fishing income is much less than the expected change in Outer Cape Area landings only since non-trap vessels may fish for lobster elsewhere and because non-trap vessels earn the majority of fishing income from species other than lobster. Note that, as was the case for trap vessels, profit margins for non-trap vessels have also been reduced due to the rising cost of fuel. Thus, even small changes in expected revenue streams may have significant impacts on financial viability. However, the specific economic impacts of the maximum sizes in the Outer Cape would not be significant.

Over the longer term the increased escapement (assuming that effort does not increase on smaller lobsters) may be expected to enhance egg production which would result in increases in lobster abundance. However, there is a significant difference in the timing of when conservation benefits may be translated into economic benefits between a change in the minimum gauge and the proposed maximum gauge. That is, economic benefits of a change in the minimum gauge may be expected to be realized within 1-2 years as cohorts molt into the next size. The benefits of a change in the maximum size may be expected to be delayed since it truncates the upper end of the size distribution without affecting the standing stock available for harvest. That is, any benefits from increased egg production would not be realized for 5 to 10 years or at least as long as it takes for larvae to grow to a harvestable size. On balance, the maximum size would potentially offer some biological benefits which could enhance economic opportunities

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for lobster harvesters over time. Additionally, these measures would be consistent with, and complementary to, the broodstock protection measures occurring in adjacent areas.

Table 4.11. Summary of Calendar Year 2005 – 2007 Lobster Activity by Non-Trap Vessels and Estimated Impacts of the Preferred Alternative				
	2005	2006	2007	Three Year Average
Number Non-Trap Permits	1,105	1,115	1,119	1,113
Number Reporting Lobster in VTR	458	442	425	442
Number Reporting Lobster in Area 521	140	136	124	133
Dependence on Lobster Pounds – Min, Median, Max	0.02% 1.4% 12.0%	0.01% 1.4% 9.9%	0.01% 1.4% 10.0%	0.01% 1.4% 10.6%
Dependence on Lobster Value – Min, Median, Max	0.02% 4.5% 33.5%	0.04% 5.0% 29.6%	0.02% 5.5% 27.9%	0.03% 5.0% 30.3%
Dependence on Area 521 Lobster Pounds – Min, Median, Max	0.002% 0.4% 6.8%	0.002% 0.4% 5.5%	0.003% 0.4% 4.9%	0.002% 0.4% 5.7%
Dependence on Area 521 Lobster Value – Min, Median, Max	0.01% 1.2% 18.7%	0.01% 1.3% 18.8%	0.02% 1.7% 20.7%	0.01% 1.4% 19.4%
Reduced Area 521 Lobster Value – Min, Median, Max	\$1 \$59 \$1,150	\$1 \$64 \$1,188	\$1 \$117 \$653	\$1 \$80 \$997
Relative Reduction in Total Fishing Revenue – Min, Median, Max	< 0.01% 0.07% 1.1%	< 0.01% 0.07% 1.1%	<0.01% 0.1% 1.2%	<0.01% 0.08% 1.1%
Values in rows 4-9 refer only to vessels that fished lobster in statistical area 521.				

4.2.3.5 Protected Resources Impacts

There are no expected impacts or benefits to protected resources directly attributable to the maximum size requirements proposed in this alternative. Some Federal lobster permit holders may choose to drop their Federal permit to avoid this maximum size restriction and continue to fish under the Massachusetts state regulations that do not include a maximum size limitation in the Outer Cape Area. This could result in some unknown level of effort shift from offshore to nearshore portions of the Outer Cape Area. There are approximately 184 trap vessels that have selected the Outer Cape on their Federal permit in 2007. Twenty-seven of these are authorized to fish in state waters by the Commonwealth of Massachusetts. Although it is unlikely, if these permit holders drop their Federal permits in order to avoid a more restrictive maximum size in Federal waters, their trap allocations, as determined by the state, could be fished exclusively in state waters, although the extent to which this would occur and the impacts to protected resources, are not certain. However, on balance, expansion of the maximum size requirement into the Outer Cape Area may prevent some trap and non-trap vessels from shifting effort into this area to capitalize on larger lobster that would otherwise remain unprotected. Overall, no additional impacts to protected resources are expected beyond what current practices would allow.

4.3 Issue 3: Revision of V-Notch Definition

Addendum XI included a revision to the v-notch definition as part of the SNE rebuilding management program (Areas 2, 3, 4, 5, and 6) wherein the definition of v-notch in the ISFMP was revised to mean "...any female lobster that bears a notch or indentation in the base of the flipper that is at least as deep as 1/8 inch, with or without setal hairs. V-notched female lobster also means any female which is mutilated in a manner which could hide, obscure, or obliterate such a mark²⁰."

The v-notch is a conservation practice that has been conducted in the Gulf of Maine for an extensive period and has been more recently employed in southern New England. Applying a v-notch to egg-bearing lobster is a means of delaying fishing mortality of reproductive female lobster (DeAngelis et al, unpublished). Area 1 fishermen, and Area 3 fishermen in the GOM, under both state and Federal regulations, have been subject to a mandatory v-notching measure that requires each lobsterman to actively notch each egg-bearing female lobster encountered during fishing. In addition, there is a zero-tolerance²¹ v-notch provision in the Commission's plan for lobster harvested in Area 1. Consequently, the states and NMFS regulate this activity in Area 1 and in the portion of Area 3 north of 42 degrees 30 minutes north latitude, wherein lobstermen in Area 1 and the GOM component of Area 3 must abide by the mandatory v-

²⁰ Addendum XI to Amendment 3 of the ISFMP, Section 2.1.3.2.4

²¹ The Federal lobster regulations at 50 CFR part 697.2 define a zero-tolerance v-notch as a v-shaped notch of any size, with or without straight sides, with or without setal hairs.

notching restrictions. Further, Area 1 lobstermen are subject to the zero tolerance possession restrictions. Under the Federal regulations, fishermen in all other management areas are prohibited from harvesting lobster with a v-notch that is ¼ inch deep, without setal hair.

As a means of providing further protections for lobster, the Commission included a more restrictive v-notch definition into the ISFMP via Addendum XI to assist in rebuilding depressed lobster stocks. The more restrictive 1/8 inch v-notch would, theoretically, delay mortality on reproductive female lobster for an additional molt. Under the Commission's plan, the revised v-notch definition is required in all nearshore management areas with the exception of the Outer Cape management area (Alternative B, Commission Recommendations), while the zero tolerance definition of a v-notch would remain for Area 1. The Federal preferred alternative, however, proposes to accept the Commission's recommendations but extend the 1/8 inch v-notch requirement into the Outer Cape Area (Modified Commission Alternative C, Preferred Alternative).

4.3.1 Alternative A. No Action - Status Quo

With this alternative, NMFS would maintain the current Federal definition of the standard v-notch as a straight-sided triangular cut, without setal hairs, measuring at least ¼ inches (0.64 cm) in depth for Areas 2, 3, 4, 5, and 6.

4.3.1.1 Biological/Resource Impacts

Generally, no impacts or benefits to the lobster resource or other fishery resources are expected. By choosing the no action alternative, NMFS would maintain the current ¼ inch (without setal hair) definition of the v-notch for all areas except Area 1, (zero tolerance) while the states will enforce the more restrictive 1/8 inch notch (with or without setal hair) as they have since July 1, 2008. Inaction by NMFS would have no perceived impact because the Federal vessels are subject to the more restrictive 1/8 inch definition being enforced by the states. Some indirect negative impacts to the resource could occur with the selection of this alternative if confusion results from differing state and Federal regulations in six of the seven lobster management areas. Confusion could hamper enforcement and harvesters may not know the restrictions that they are held to. The combination of such factors could compromise the full benefit of the Commission's management measures in addressing the need for broodstock protection.

4.3.1.2 Habitat Impacts

There are no habitat impacts associated with maintaining the current v-notch definition. Federal lobster vessels would be required to adhere to the more restrictive state v-notching definitions. This alternative would not perceptibly alter fishing practices in a manner that would be detrimental to marine habitats.

4.3.1.3 Bycatch

The level of bycatch of lobster or other marine animals is not expected to change with no Federal action on v-notching requirements.

4.3.1.4 Socio-economic Impacts

Socio-economic impacts would not be expected if the no action alternative for v-the v-notch definition is selected. Federal vessels would be subject to the more restrictive v-notch measures in place at the state level even if NMFS maintains the status quo. Any impacts to Federal lobster harvesters would likely already be realized under existing, more restrictive, state regulations implemented in response to the mandates of the ISFMP.

4.3.1.5 Protected Resources Impacts

No impacts to protected resources are expected from maintaining the status quo for Federal regulations regarding the v-notch definition. Fishing practices are not expected to change, beyond current activities, as a result of no Federal action with respect to this alternative.

4.3.2 Alternative B: Commission Recommendations

Under Alternative B, Federal lobster regulations would be modified to adopt the v-notch provisions as approved by the Commission in Section 2.1.3.2.4 of Addendum XI. Thus, the Federal lobster regulations would be revised to mirror those in the Commission's plan as enforced by the states since July 1, 2008. Under this alternative, the Federal v-notch definition would apply to lobster harvested in Areas 2, 3, 4, 5, and 6 as "...any female lobster that bears a notch or indentation in the base of the flipper that is at least as deep as 1/8 inch, with or without setal hairs. V-notched female lobster also means any female which is mutilated in a manner which could hide, obscure, or obliterate such a mark²²."

4.3.2.1 Biological/Resource Impacts

Compared to draft Alternative A, the status quo alternative, draft Alternative B would implement compatible Federal v-notch measures to complement state measures specified in Addendum XI, and recommended to NMFS by the Commission. However, unlike draft Alternative A, this alternative would remove any inconsistencies between state and Federal regulations that may have occurred under the no action alternative, and address potential impediments to effective State-Federal enforcement of measures deemed necessary for the rebuilding of the lobster resource under the ISFMP. In addition, implementation of consistent regulations by state and Federal management

²² Addendum XI to Amendment 3 of the ISFMP, Section 2.1.3.2.4

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authorities would eliminate any confusion on the part of participants and regulatory agencies that may have resulted from inconsistent regulations. Therefore, Alternative B would more likely resolve the potential for some small negative, yet unquantifiable, adverse impact on the status of the stock overall, than if draft Alternative A were selected.

Selection of Alternative B and implementation of v-notch requirements that directly reflect those in the ISFMP would fully support the Commission's plan and state actions to address the broodstock protection measures in Addendum XI.

4.3.2.2 Habitat Impacts

There are no habitat impacts associated with adopting the Commission's v-notch provision, consistent with those in place at the state level. Federal lobster vessels are already required to adhere to these v-notching definitions under current state regulations. Complementary Federal action would not perceptibly alter fishing practices in a way that would be detrimental to marine habitats.

4.3.2.3 Bycatch

The level of bycatch of lobster or other marine animals is not expected to change if the Commission's alternative is selected. Federal lobster vessels would be held to the Commission's requirements which would be implemented consistently at both the state and Federal levels. No changes in fishing practices are expected beyond current activity governed under more restrictive state regulations.

4.3.2.4 Socio-economic Impacts

Socio-economic impacts would not be expected by choosing this alternative, which would implement the Commission's recommendations for Federal action with respect to revised v-notch restrictions. Federal vessels and others in the industry are already subject to these more restrictive v-notch requirements at the state level, and the promulgation of the more restrictive v-notching regulations at the Federal level will not hold Federal vessels to a more restrictive standard. However, Federal action with this alternative would support the Commission's plan by reducing confusion that may result with conflicting state and Federal regulations, and this would help with enforcement of the v-notch provisions within and across management areas and jurisdictional boundaries.

4.3.2.5 Protected Resources

No impacts to protected resources are expected if NMFS were to adopt v-notch definitions that mirror current state requirements. No changes in fishing patterns are expected, and the action would not affect protected species.

4.3.3 Alternative C. Modified Commission Recommendations

This alternative would revise the v-notch definition, consistent with Alternative B, in Areas 2, 3, 4, 5 and 6 as set forth in the ISFMP, and would also extend this definition to include the Outer Cape Area.

4.3.3.1 Biological/Resource Impacts

In selecting this alternative, NMFS would implement complementary v-notch regulations that mirror those recommended for Federal implementation by the Commission and currently in place at the state level. The exception is that NMFS would extend the more restrictive 1/8 inch (with or without setal hair) definition of a v-notch to the Outer Cape Area. Some unknown level of lobster broodstock protection may be realized if the more restrictive 1/8 inch v-notch provision is extended to the Outer Cape Area. This measure would not be consistent with the state requirements for the Outer Cape since the Commission's plan allows this area to maintain the less restrictive 1/4 inch v-notch standard. However, the measure still supports the ISFMP by complementing the broodstock protection in adjacent management areas, given the migratory habits of lobster in the Outer Cape Area.

Some general assumptions can be made when comparing the current v-notch standard (1/4 inch with no setal hair) to the proposed standard (1/8 inch with or without setal hair). DeAngelis et al. (unpublished) in an experiment in the waters off of Rhode Island found some interesting statistics when observing the notch depths after molting for lobsters notched with an industry-standard 1/4 inch v-notch. After one molt, the mean and median had a notch less than 1/4 inch (DeAngelis, et al, unpublished). These lobster, under the current definition of 1/4 inch, would be harvestable after one molt, due mostly to the presence of setal hair. All lobster in the study had a v-notch that was greater than 1/8 inch and would be illegal to harvest under the 1/8 inch v-notch standard. After two molts, all the lobster would be harvestable under the 1/4 inch standard, while only 25 percent would be legal under the 1/8 inch notch standard (DeAngelis et al, unpublished). Although this data is yet to be published and was not peer-reviewed, it represents an important data set on a subject which has little information. The study was conducted to monitor the restoration of the lost egg-production capacity due to the oil spill from the vessel *North Cape* in 1996 off Rhode Island. The spill killed about one million lobsters. Researchers estimated that about 1.25 million reproductive female lobster were needed to produce the eggs needed to restore the population, and in 2000, began notching female lobster destined for the market place and returning them to these waters. With a standard 1/4 inch notch, the researchers hoped to delay harvest by one molt to enhance the reproductive capacity of the notched lobsters (DeAngelis et al, unpublished).

Limited data are available regarding the number or percentage of lobster that may be conserved if the more restrictive v-notch were to expand into the Outer Cape Area. However, as discussed previously in this chapter, the Outer Cape is comprised of a

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relatively large and mobile lobster population (Estrella and Morrissey, 1997). Despite fishing pressure, the Outer Cape lobster population has maintained a diverse and balanced stock structure (Estrella and Morrissey, 1997). Unlike other surrounding areas, more than 90 percent of the total catch in the Outer Cape Area is comprised of individuals that are larger on average than the minimum legal size (Glenn et al, 2007; Estrella and Morrissey, 1997). In contrast to many locations that rely almost exclusively on newly recruited lobster for the majority of the marketable catch (up to 95 percent), this size category represents only about 55 percent of the legal catch in the Outer Cape Area (Glenn et al, 2007; Estrella and Morrissey, 1997). Sea sampling investigations conducted by Massachusetts Division of Marine Fisheries (MA DMF) observers revealed that between 1981 and 2004, the percentage of females bearing eggs in the Outer Cape Area has generally increased, with a time series high of 44 percent (percent of ovigerous females) in 2003, dropping by 16 percent in 2004 (Glenn et al, 2007).

With this information, it is evident that the Outer Cape lobster population is one that includes a high proportion of relatively large, mobile lobster with a high percentage of egg-bearing females. Data are not available to NMFS to determine the percentage of the catch that would be discarded as illegal with a 1/8 inch v-notch as compared to the current 1/4 inch v-notch. But based on the work by DeAngelis et al. (unpublished), there is evidence that lobster can survive up to two molts with a 1/8 inch v-notch standard that allows the presence of setal hair, as is proposed in this alternative. MA DMF sampling data show that from 2-4 percent of the females encountered in Outer Cape sea sampling trips were v-notched, noting that Outer Cape lobstermen are not required to v-notch egg-bearing females (Glenn et al, 2007). The Outer Cape Area has been characterized as fishing on a population of transient lobsters migrating between inshore and offshore areas. For this reason lobster fishing businesses operating in the area may not be expected to garner any economic benefit from the proposed change in v-notch protection because there is little assurance that the affected lobsters will remain available for later capture in the Outer Cape Area. This characteristic may provide a negative incentive to v-notch which would be enhanced if the v-notch provided protection for 2 molts instead of just one since there is little assurance that a v-notched lobster would remain available to either trap or non-trap harvesters in the Outer Cape Area. However, the expansion of the 1/8 inch v-notch definition to the Outer Cape Area as proposed in the preferred alternative, would complement the broodstock protection efforts occurring in adjacent areas, providing potential long-term biological benefits on a multi-area and perhaps on a multi-stock basis.

As noted for the maximum size change, broodstock measures like maximum size and v-notching take longer for economic benefits to be realized since the potential benefits from increased egg production may take several years before increases in harvestable abundance are realized. Further, broodstock measures have an inherent uncertainty since so many environmental factors affect larval survival and the resulting number of lobsters that will eventually recruit into the fishery. In the absence of rights-based management, these factors coupled with the nature of the Outer Cape fishery make it difficult to assure Outer Cape Area participants a stake in the economic benefits that would accrue to the proposed broodstock measures.

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On balance, given the transient nature of the lobster found in this area, the expansion of the 1/8 inch v-notch into the Outer Cape may provide some, albeit unquantified, broodstock protection. Further, the measure will support the v-notch efforts of fishermen in adjacent areas fishing on a common stock and abiding by the 1/8 inch standard.

4.3.3.2 Habitat Impacts

Adoption of this alternative and implementation of more restrictive v-notch measures in the associated lobster management areas is not expected to result in any detrimental impacts to marine habitat. Some Outer Cape fishermen may choose to drop their Federal lobster permits to avoid this more restrictive v-notch requirement that is not in effect in Massachusetts state waters in the Outer Cape area. This would likely have no impact on lobster habitat in Federal waters. It could result in more traps in state waters which would likely have negligible impact on habitat. Approximately 184 Federal vessels are designated to fish with trap gear. Twenty-seven of these hold state permits issued by the Commonwealth of Massachusetts and were declared eligible to fish in the state waters of the Outer Cape Area with trap gear. Should any number of these permit holders drop their Federal permits if this preferred alternative is selected, some potentially small, or likely no, impacts to habitat would occur since the traps fished by these dual permit holders could be fished in state waters by these vessels even if they did not elect to abandon their Federal permits. On balance, the preferred alternative could reduce some uncertain level of non-trap fishing effort in the Outer Cape Area that may be occurring since the Area is currently bound by a less restrictive v-notch definition under existing state and Federal regulations. With a more restrictive v-notch definition that is consistent with other areas, non-trap vessels may have less of an incentive to target the Outer Cape Area in favor of other areas.

4.3.3.3 Bycatch

With this alternative, some unknown amount of legal-sized female lobster would be discarded by Outer Cape lobstermen since the 1/8 inch standard would be implemented in this area, which would likely benefit the lobster resource. There is no data or evidence to indicate that bycatch of species other than lobster would result from this measure, beyond the current levels.

4.3.3.4 Socio-economic Impacts

Estimate of Federal Lobster Vessels Affected by this Alternative

The Massachusetts Division of Marine Fisheries proposed to extend this 1/8 inch v-notch standard and 7 inch maximum size (consistent with Area 3 and as proposed by NMFS in Issue 2, Alternative C) to the Commonwealth's territorial waters within the Outer Cape Area in 2007. The move was an attempt by the Commonwealth's fishery managers to keep management measures consistent and more enforceable throughout the

state. Public hearings held in August 2007 revealed the sentiments of the Outer Cape fishermen regarding this proposal. The industry was strongly opposed to the proposal due to potential economic impacts associated with restricting the v-notch requirement to 1/8 inch. Massachusetts subsequently did not implement the measures which it planned to implement to (“MA backs off on Outer Cape Maximum Size, Commercial Fisheries News, October, 2007). Therefore, this issue is expected to be controversial.

Discards of formerly harvestable v-notched lobster would have an unknown economic impact on the Outer Cape fishery. As evidenced in the analysis for the maximum size limit in Issue 2, it is estimated that between 184 and 203 Federal lobster vessels may be impacted by this measure (Table 4.4) although the actual number is likely quite less.

Economic Impact of Affected Vessels

The economic impact of the preferred alternative is uncertain. Available data indicate that 2-4 percent of females encountered in the Outer Cape by MA DMF sea samplers were v-notched. A substantial portion of the Outer Cape Area legal harvest is comprised of females (64 percent) an unknown proportion of which would be illegal under the preferred alternative. It is expected that the reduction in revenues would likely be quite small given the overall small percentage of v-notched lobster encountered in the sea sampling data. However, as discussed under Alternative C for the maximum size proposal, given the impacts of increased fuel prices in recent years, the added effect of reduced revenue potential could compound the economic stress on the financial viability of lobster businesses operating in the Outer Cape Area. Without additional data, it is expected that any impacts would be more prevalent in the trap fishery since trap vessels rely more on lobster for their income while non-trap gear vessel rely more on other species, and can choose to fish in other areas.

4.3.3.5 Protected Resources Impacts

Adoption of v-notch measures which complement the Commission’s plan and extend these restrictions to the Outer Cape Area in the interest of broodstock protection is not expected to result in any detrimental impacts to protected species. This more restrictive requirement may cause some Federal permit holders to drop their lobster permits to avoid this v-notch limitation resulting in potential shifts of effort from offshore to nearshore portions of the Outer Cape Area with unknown impacts to protected species. (see discussion of Massachusetts-based trap vessels in Section 4.3.3.2. Habitat Impacts). Additionally, the expansion of the more restrictive v-notch definition to the Outer Cape Area could reduce effort shift, most likely by non-trap gear, since lobster in the Outer Cape Area would be protected by the same v-notch provisions as all other areas, with the exception of Area 1 which is even more restrictive. Therefore, under this alternative, with a more restrictive v-notch definition that is consistent with other areas, lobster vessels may have less of an incentive to target the Outer Cape Area in favor of other areas.

4.4 Cumulative Effects Analysis

A cumulative effects analysis (CEA) is required by the Council on Environmental Quality (CEQ) (40 CFR part 1508.7). The purpose of CEA is to consider the combined effects of many actions on the human environment 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. The following remarks address the significance of the expected cumulative impacts as they relate to Federal permit holders in the American lobster fishery.

4.4.1 Consideration of the VECs

In section 3.0 (Description of the Affected Environment), the valued ecosystem components (VECs) that exist within the American lobster fishery environment are identified, and the basis for their selection is established. The significance of the cumulative effects will be discussed in relation to the VECs listed below and are summarized in Tables 4.12 – 4.14.

1. Managed resource (American lobster)
2. Non-target species
3. Habitat including EFH for the managed resource and non-target species
4. Endangered and protected species
5. Human communities (specifically Federally-permitted lobster harvesters and dealers).

Table 4.12 Impacts of Alternatives on Valued Ecosystem Components (VECs) –

Issue 1: Mandatory Dealer Reporting

VEC	Impact of No Action Alternative A. – (Non-preferred)	Impact of Modified Commission Alternative B. – Electronic Mandatory Dealer Reporting (Preferred)	Impact of Modified Commission with 1-Year Delay in Reporting Alternative C. – (Non-Preferred)
Managed Resource	Negative to Neutral	Positive	Short-term Negative to Positive
Non-target Species	Neutral	Neutral	Neutral
Habitat	Neutral	Neutral	Neutral
Protected Resources	Neutral	Neutral	Neutral
Human Communities	Short-term-Neutral; Long-term-Negative	Short-term-Neutral to Positive; Long-term-Positive	Short-term-Neutral; Long-term-Positive

Table 4.13 Impacts of Alternatives on Valued Ecosystem Components (VECs) –

Issue 2: Maximum Carapace Length Measures

VEC	Impact of No Action Alternative A. – (Non-preferred)	Impact of Commission Measures Alternative B. – (Non-preferred)	Impact of Modified Commission Measures Alternative C. – (Preferred)
Managed Resource	Neutral to Negative	Neutral to Positive	Positive
Non-target Species	Neutral	Neutral	Neutral
Habitat	Neutral	Neutral	Neutral
Protected Resources	Neutral	Neutral	Neutral
Human Communities	Short-term-Negative to Neutral; Long-term-Negative to Neutral	Neutral to Positive	Short-term-Negative to Positive; Long-term-Positive

Table 4.14 Impacts of Alternatives on Valued Ecosystem Components (VECs) – Issue 3: Revision of V-Notch Definition

VEC	Impact of No Action Alternative A. – (Non-preferred)	Impact of Commission Alternative B. – (Non-preferred)	Impact of Modified Commission Alternative C. – (Preferred)
Managed Resource	Neutral to Negative	Neutral to Positive	Positive
Non-target Species	Neutral	Neutral	Neutral
Habitat	Neutral	Neutral	Neutral
Protected Resources	Neutral	Neutral	Neutral
Human Communities	Short-term-Negative to Neutral; Long-term-Negative to Neutral	Neutral to Positive	Short-term-Negative to Positive; Long-term-Positive

4.4.2 Geographic Boundaries

The analysis of impacts focuses primarily on actions related to the harvest of lobster in the SNE and GBK stock areas. The core geographic scope for the managed resource, non-target species, habitat, and endangered and protected resources can be considered the overall range of these VECs in the LCMAs south of Area 1 to Cape Hatteras, North Carolina, out to the Hague Line. The geographic boundaries for human communities are the U.S. fishing communities in coastal areas in states from Maine to North Carolina (see section 3.3.1—Community Overview), which are directly involved in the harvest, purchase or processing of the American Lobster resource.

4.4.3 Temporal Boundaries

The temporal scope of past and present actions for the American lobster resource, non-target species, habitat and human communities is based on the actions since the establishment of a control date for the Federal American lobster fishery by the NEFMC. A notice published in the Federal Register on March 25, 1991 (56 FR 12366), subsequently established that date as a qualification date to determine eligibility for future access to the Federal lobster fishery. For endangered and other protected resources, the scope of past and present actions is on a species-by-species basis (section 3.4—Description of Protected Resources) and is largely focused on the 1980s and 1990s through the present, when NMFS began generating stock assessments for marine mammals and turtles that inhabit waters of the U.S. EEZ. The temporal scope of future actions for all five VECs, including the measures proposed by this amendment, extends five years into the future. This period was chosen because of the relatively high frequency of adoption of new addenda to the ISFMP by the Commission’s lobster

management board. Such action by the Board can have impacts on the VECs associated with the managed resource, making it difficult to predict the potential impacts beyond a five-year period.

4.4.4 Actions Other Than Those Proposed in this Action

Table 4.9 below provides a qualitative summary of the relevant past (P), present (Pr), or reasonably foreseeable future (RFF) actions that may or have affected the VECs identified in this assessment, not including those management measures considered in this environmental assessment.

Past and Present Actions

NMFS has worked with the states, the Commission and the NEFMC since 1978 to manage the lobster resource in Federal waters. Numerous actions have been taken over time to manage the commercial lobster fishery through the Council process until 1997, and through the Commission process after authority for Federal management of the resource was transferred from the MSA to the ACA (see section 1.2 Legal and Historical Context). The ACA gives the Secretary the authority to promulgate lobster regulations that are compatible with the Commission's recommendations for Federal action in the ISFMP and consistent with the National Standards included in the MSA. The 2005 American Lobster Stock Assessment and Peer Review raised concerns about the condition of the three lobster stocks. It found that despite high stock abundance in the GOM, this component of the fishery is based on new recruits which could jeopardize the sustainability of the fishery if the recruitment status changes. It also determined that the Area 514 component of the GOM stock is in poor condition with low recruitment and abundance and fishing mortality. The GBK stock has high abundance and recruitment, although high fishing effort is high and the fishery is highly dependent on new recruits. In SNE, the stock abundance and recruitment are depleted with high fishing mortality and dependence on newly recruited individuals. Despite the cautious findings of the Stock Assessment Report, the majority of the fishery does exhibit somewhat high abundance, particularly in the GOM and GBK stocks. Consequently, due to the proactive and cooperative approach of the interjurisdictional lobster management program, the cumulative impacts of past and present Federal lobster management actions have been mostly positive. To the degree with which this regulatory regime is complied, the cumulative impacts of past, present, and reasonably foreseeable future Federal fishery management actions on the VECs should generally be associated with positive long-term outcomes. Constraining fishing effort through regulatory actions can often have negative short-term socio-economic impacts. 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 on effects on human communities, especially those that are economically dependent upon the lobster resource.

Active industry participation in the Commission management process since 1997 has generally helped mitigate the adverse cumulative impacts of past, present and future state and Federal lobster management regulations. Prior to 1978, lobster management

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varied by state and was unregulated in Federal waters. The first Federal lobster fishery management plan (FMP) was developed in 1978 with industry, state and Federal participation. The FMP was then forwarded directly to the appropriate states, as well as to the New England Fishery Management Council (NEFMC) and Mid-Atlantic Fishery Management Council (MAFMC), newly created in 1976 by the Magnuson-Stevens Act. The Councils reviewed the FMP and, pursuant to the Magnuson-Stevens Act, formally referred the plan to the Federal government with a recommendation for adoption. The Federal Government adopted the FMP as a rule in 1983. Despite having a Federal FMP, uniformity of regulation remained a problem in the lobster fishery, and by 1983, some states still had not implemented the recommended minimum carapace length and others had not implemented the plan's recommended escape vent requirement. The NEFMC continued to manage lobster in the EEZ and amended the Federal FMP five times through the mid-1990s. Noteworthy during this period was the establishment of a 'control date' in the Federal lobster fishery by the NEFMC. A Federal Register notice was published on March 25, 1991, (56 FR 12366) that subsequently established that date as a qualification date to determine eligibility for future access to the Federal lobster fishery that limits the number of participants in the Federal lobster fishery (59 FR 31938).

In the meantime, Congress enacted the Atlantic Coastal Act in 1993. The Atlantic Coastal Act contemplated transition of lobster management from the more federally-oriented fishery management councils created under the Magnuson-Stevens Act to the state-oriented Commission. The logic of the decision is straightforward: since approximately 80 percent of the fishery for American lobster occurs in state waters, the Federal FMP objectives of maintaining a sustainable fishery and preventing overfishing of the resource could not be achieved effectively by Federal action alone. NMFS could no longer ensure that the Federal FMP, which covered only Federal waters, was consistent with National Standard 1 of the Magnuson-Stevens Act, which requires implementation of conservation and management measures to prevent overfishing. In December 1997, the Commission issued Amendment 3, and later, on December 6, 1999, when NMFS issued a Final Rule (64 FR 68228) that transferred its Federal lobster fishery regulations from the Magnuson-Stevens Act (50 CFR Part 649) to the Atlantic Coastal Act (50 CFR Part 697), implemented new regulations. These new regulations included: extension of the moratorium on new entrants into the EEZ fishery; designation of lobster management areas; near-shore and off-shore area trap limits; a 5-inch maximum carapace size in the Gulf of Maine; trap size restrictions; a trap escape vent size increase; trap tag requirements; and annual specification of additional management measures necessary to end overfishing and rebuild American lobster stocks. The regulations issued in that Federal Final Rule were designed in keeping with the new regulatory standard of state primacy as set forth in the Atlantic Coastal Act: 1) that the regulations be consistent with the National Standards set forth in the Magnuson-Stevens Act; and 2) that the regulations be compatible with the Commission's Lobster ISFMP.

Cumulative lobster regulatory impacts are mitigated under the Commission Lobster ISFMP most effectively through the LCMTs and Area-specific management programs. With active industry input in the development of local Area management programs through the Commission LCMT process, measures are more likely to be

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accepted and appropriate for the Area than a coastwide measure without local support. The flexibility of the Commission adaptive management program through the use of conservation equivalent measures by the Commission can be used to effectively implement resource conservation measures that most effectively mitigate the cumulative impacts on impacted participants. On February 11, 2000, the Commission addressed mitigation measures for dual permit holders under the ISFMP and also recommended that dual black sea bass and lobster permit holders fishing with black sea bass pots in Lobster Management Area 5 be exempted from Atlantic Coastal Act trap gear requirements. NMFS published a Final Rule, to complement Commission mitigation measures for dual Federal permit holders, in the Federal Register March 13, 2001 (66 FR 14500). This regulatory action exempts black sea bass fishers who concurrently hold limited access lobster and limited access black sea bass permits from the more restrictive gear requirements in the lobster regulations when fishing in LCMA 5 if they elect to be restricted to the non-trap lobster allowance while targeting black sea bass in LCMA 5. This regulation also clarified that lobster trap regulations do not affect trap gear requirements for fishermen who do not possess a Federal limited access American lobster permit. The intent of these regulations is to relieve restrictions on fishers that were unintended, without compromising lobster conservation goals.

NMFS published a lobster Final Rule in the Federal Register on March 27, 2003, (68 FR 14902) amending regulations, in response to the following recommendations made by the Commission: control fishing effort as determined by historical participation in the American lobster trap fisheries conducted in LCMAs 3, 4, and 5; implement conservation equivalency trap limits for owners of vessels in possession of a Federal lobster permit (permit holders) fishing in New Hampshire state waters; and clarify lobster management area boundaries in Massachusetts waters. NMFS included in this final rule a mechanism for Federal consideration of future Commission requests to implement conservation equivalent measures and a technical amendment to the regulations clarifying that Federal lobster permit holders must attach federally-approved lobster trap tags to all lobster traps fished in any portion of any management area (whether in state or Federal waters). Implementation of the LCMAs 3, 4, and 5 fishing effort control program reduced the eligible number of lobster permit holders and maximum trap allocations. Upon completion, this action substantially capped and reduced lobster trap fishing effort in these management areas and set the stage for future management measures to rebuild stocks that had previously been assessed as overfished. This program reduced the number of eligible lobster trap vessels in Area 3 to 139, authorized to fish an overall allocation of approximately 172,000 traps after a four-year trap reduction schedule that ended in 2006. Similarly, the number of Area 4 vessels was reduced to 81, with an overall allocation of about 80,000 traps. In Area 5, 42 vessels qualified to fish an overall allocation of about 32,000 traps.

In a final rule published in the Federal Register on March 14, 2006, (71 FR 13027) NMFS implemented several new lobster broodstock management measures in response to the recommendations of the Commission in the ISFMP. Specifically, this rule, in part, revised the egg-per-recruit overfishing target timeline and increased the minimum carapace limit from 3 ¼ inches (8.26 cm) to 3 3/8 inches (8.57 cm) in all

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LCMAs except Area 1, which remains at 3 ¼ inches. The rule also increased the rectangular and circular escape vent sizes in all LCMAs, with the exception of Area 1. It also established a Federal maximum size for female lobster in both Areas 4 and 5, required mandatory v-notching of female egg-bearing lobsters in Area 1, established an overlap zone between Area 5 and Area 3, and required a zero tolerance definition of v-notching in Area 1.

In 2007, NMFS implemented broodstock protection measures for the offshore Area 3 lobster fishery (72 FR 56935, October 5, 2007) that included trap reductions, an increase in the minimum legal carapace length for lobster to 3 ½ inches, and an increase in the escape vent size for lobster traps in this area. Despite the short-term impacts to the industry associated with these regulations, the majority of Federal lobster vessels were already subject to these requirements as implemented at the state level. Therefore, these measures, similar to the situation with the proposed actions in this assessment, directly impacted a relatively small component of the industry and resulted in a framework of reasonably consistent regulations at both the state and Federal levels. Ultimately, these measures are expected to enhance the condition of lobster broodstock and facilitate egg production to the long-term benefit of the industry and resource.

Overall, the past and present fishery management actions summarized in this section have had a generally positive impact on the managed resource and the associated VECs. The fishing industry has likely endured some short-term economic impacts due to potentially lost revenue from minimum and maximum size increases and the loss of access for some trap fishermen to Areas 3, 4 and 5 when that program capped the number of vessels that could fish in those areas. However, for the most part, Federal lobster permit holders were subject to such restrictions at the state level before compatible measures were implemented at the Federal level; a concept that has reduced the overall impact of Federal lobster regulations on Federal lobster permit holders over the temporal scope of this analysis.

Cumulative effects to the physical and biological dimensions of the environment may come from non-fishing activities. Non-fishing activities, in this sense, relate to habitat loss from human interaction and alteration or natural disturbances. These activities are widespread and may have localized impacts to habitat such as accretion of sediments from at-sea disposal areas, oil and mineral resource exploration, and significant storm events. NMFS reviews these types of effects during the review process required by Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act for certain activities that are regulated by Federal, state, and local authorities. The jurisdiction of these activities is the 'waters of the United States' and includes both riverine and marine habitats.

Certain non-fishing activities are known to impact the lobster fishery. Mineral exploration and beach sand replenishment activities are more frequent at the southern end of the range of the American lobster. Federal permit holders from the southern end of the range would be more likely to be impacted by these non-fishing sediment-based activities. Water quality issues are known to impact the lobster fishery throughout its

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range. Adverse resource impacts could result from such non-fishing activities as land-based runoff of toxic materials, petroleum products, or from pesticides or fertilizer after significant storm events. Water treatment plants, primarily near large urban areas, introduce variable levels of chlorine byproducts into the marine environment that may adversely impact lobster. However, most replenishment activities and water quality impacts occur within 3 nm of the beach, and lobster abundance at the southern end of the range is generally much farther offshore. While cumulative effects to the environment may come from non-fishing activities, a database which could facilitate physical and biological habitat covered by American lobster is not available at this time. The development of a habitat and effects database would accelerate the cumulative effects environmental review process and outline areas of increased disturbance.

There were significant impacts to the lobster fishery when large amounts of oil spilled from the vessel *North Cape* on January 19, 1996, and spread throughout many estuaries and inshore and offshore areas of RI. An estimated 2.92 million lobsters washed up on RI beaches and were collected from Point Judith to Charlestown Beach, RI, between January 21 and February 2, 1996. The majority of the stranded lobsters were under 40 millimeters in carapace length. Based on the best available data, approximately 9 million lobsters were killed by the spill. Roughly 82 percent of the lobsters were in their first or second year of life. As part of the oil spill mitigation settlement to address biological impacts on the lobster resource, several programs designed to enhance the lobster population in LCMA 2 are underway, including a broodstock enhancement program that involves compensation to lobstermen for restocking and v-notching an estimated 1.248 million adult legal female lobsters throughout LCMA 2 (NMFS et al. 1999).

There were significant impacts to the lobster fishery when a lobster resource disaster occurred in Long Island Sound in 1999. As described in the lobster SFEIS (67 FR 68128), dated November 8, 2002, a number of fishing operations in Long Island Sound (LIS) reported hauling traps containing a large number of American lobsters, which died soon after capture and transport to tanks or other holding areas. This event occurred entirely in New York and Connecticut state jurisdictional waters of Long Island Sound. There is no specific estimate of the actual lobster mortality levels during this event, although some have reported more than half of the lobsters hauled in commercial and state survey gear were affected. In late 1999, the Secretary of Commerce declared a fishery resource disaster, pursuant to Section 312 (a) of the Magnuson-Stevens Act. Congress approved an emergency appropriation, administered through NOAA, and on July 13, 2000, President Clinton signed the Military Construction Appropriations Act for FY 2001 (P.L. 106-246), which approved \$13.9 million to address the commercial failure of the Long Island Sound lobster fishery. An additional \$1 million in research funds were contributed by the State of Connecticut Bonding Commission to be administered through the Connecticut Department of Environmental Protection Long Island Sound Research Fund. The intent of the research program is to study the impacts and possible causes of the failure, which will provide information to not only understand the lobster resource disaster but also hopefully to prevent future failure of the LIS lobster fishery. Other less dramatic lobster die-offs have been reported off Long Island in recent years,

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sometimes attributed to Gaffkemia and shell disease. Given these various occurrences, a systematic environmental source of pollution cannot be eliminated as at least being a contributing factor to episodic lobster die-offs.

The Long Island Sound fishery resource disaster in 1999 resulted in significant financial loss in the bi-state commercial lobster fisheries of both New York and Connecticut. Using the emergency appropriation, NMFS has awarded \$7.3 million in grants (\$3.65 million each) to the States of CT and NY for the following purposes: (1) to pay compensation to individuals for reductions in the number of lobsters caught in the LIS lobster fishery; (2) to provide sustaining aid to affected fishermen; and (3) to provide assistance to communities that are dependent on the LIS lobster fishery and have suffered losses from the resource disaster. Specifically, these funds are being effectively utilized to support activities in the two states, including economic compensation for reductions in fishery income, subsidization of interest costs on existing debts in the LIS fishing community, job retraining, and a trap tag buyback program.

Non-fishing activities that introduce chemical pollutants, sewage, changes in water temperature (*e.g.*, global warming phenomenon), salinity, dissolved oxygen, and suspended sediment into the marine environment pose a risk to all of the identified VECs. As previously discussed in section 3.1.3, water temperatures exert significant influence on reproductive and developmental processes of lobster. Thus, a global change in sea water temperature related to anthropogenic increases in greenhouse gas emissions may have a direct impact on the lobster resource as well as other VECs. Human-induced non-fishing activities tend to be localized in nearshore areas and marine project areas where they occur. 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 resource, non-target species, and protected resources. Decreased habitat suitability would tend to reduce the tolerance of these VECs to the impacts of fishing effort. Mitigation of this outcome through regulations that would reduce fishing effort could then negatively impact human communities. The overall impact to the affected species and their habitats on a population level is unknown, but likely neutral, since a large portion of these species have a limited or minor exposure to these local non-fishing perturbations.

In addition to guidelines mandated by the ACA and MSFMCA, NMFS reviews these types of effects through the review process required by Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act for certain activities that are regulated by Federal, state, and local authorities. The jurisdiction of these activities is in "waters of the U.S." and includes both riverine and marine habitats.

Reasonably Foreseeable Future Actions

In terms of Reasonably Foreseeable Future (RFF) Actions that relate to the American lobster fishery (Table 4.9), several warrant additional discussion. Primarily

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another Federal rulemaking and associated environmental impact analysis is underway to address the fishing effort control measures associated with Addenda II through VI to Amendment 3 in the Commission's ISFMP. NMFS notified the public of its intent to conduct this rulemaking in a Federal Register notice published on May 10, 2005, (70 FR 24495) to request comments from the public on a variety of fishing effort control measures, including: limits on future access based on historical participation criteria; procedures to allow trap transfers among qualifiers and impose a trap reduction or conservation tax on any trap transfers; evaluation of trap reduction programs to meet the goals of the ISFMP; revision to "Most Restrictive" trap limits rule and other management area trap limits; and requirements to permanently designate each active Management Area. The extent of the impacts of this rulemaking on the resource and associated VECs are unknown and are currently being analyzed in an EIS. The extent to which these or related effort control measures are implemented at both the state and Federal level will affect the overall impacts of any relevant Federal action.

The Atlantic Large Whale Take Reduction Plan (ALWTRP) is designed to protect three endangered species – the western North Atlantic stock of right whales, the Gulf of Maine stock of humpback whales, and the western North Atlantic stock of fin whales – from the risk of serious injury and death associated with entanglement in commercial gillnet and trap/pot gear (e.g. American lobster). Since implementation of the ALWTRP in 1997, the National Marine Fisheries Service (NMFS) has modified the plan on several occasions to address the risk of entanglement in commercial fishing gear. The most recent amendments, finalized in October 2007, expanded the scope of the plan to regulate additional fisheries, established new gear modification and marking requirements, and implemented a number of other regulatory changes (72 FR 57104, October 1, 2007; 73 FR 19171, April 9, 2008). With one major exception, these modifications are now in effect. The exception is a requirement that fisheries subject to the plan employ sinking and/or neutrally buoyant groundline. This requirement is scheduled to take effect 12 months after publication of the final rule; i.e., October 5, 2008. The estimated increase in annualized ALWTRP compliance costs for the lobster trap/pot fishery based on these modifications is \$12,288,000 (NMFS, 2007). Vessels operating in Southern Nearshore waters (LCMAs 4, 5 and a portion of 6) would account for 64 percent of compliance costs; vessels operating in Offshore waters (LCMAs 3, 2/3 Overlap, 3/5 Overlap) would account for 21 percent; those in Northern Inshore waters (states waters from Maine through Rhode Island) would account for 10 percent; and those in Northern Nearshore waters (Federal waters of LCMAs 1, 2 and Outer Cape) would account for 6 percent.

NMFS issued a proposed rule which would provide an additional six months (to April 5, 2009) for trap/pot fishermen along the Atlantic coast to comply with the sinking groundline requirement (72 FR 57104, October 1, 2007; 73 FR 19171, April 9, 2008). Additionally, NMFS proposed to delete reference to "neutrally buoyant line" from the regulations, so that the rule specifically would require the use of sinking line. If approved, a six-month delay in the effective date of the sinking groundline standard would not eliminate the costs of complying with this requirement. However, those who have yet to complete the conversion would be able to extend the process for an additional six months. This would reduce compliance costs, since more line could be converted

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when it ordinarily would need to be replaced, avoiding the costs associated with accelerating gear replacement. Providing additional time would also reduce the possibility of a disruption in fishing effort during the summer and early fall of 2008, which would have an adverse impact on the catch and revenues of affected fishermen.

In order for many of the non-fishing actions proposed in Table 4.15 to be permitted under other Federal agencies (such as beach nourishment, offshore wind facilities, etc.), those agencies would conduct examinations of potential biological, socioeconomic, and habitat impacts. The MSFMCA (50 CFR 600.930) imposes an obligation on other Federal agencies to consult with the Secretary of Commerce on actions that may adversely affect EFH. The eight Fishery Management Councils are engaged in this review process by making comments and recommendations on any Federal or state action that may affect habitat, including EFH, for their managed species.

In addition, under the Fish and Wildlife Coordination Act (Section 662), “whenever the waters of any stream or other body of water are proposed or authorized to be impounded, diverted, the channel deepened, or the stream or other body of water otherwise controlled or modified for any purpose whatever, including navigation and drainage, by any department or agency of the United States, or by any public or private agency under Federal permit or license, such department or agency first shall consult with the United States Fish and Wildlife Service, Department of the Interior, and with the head of the agency exercising administration over the wildlife resources of the particular State wherein the” activity is taking place. This act provides another avenue for review of actions by other Federal and state agencies that may impact resources that NMFS manages in the reasonably foreseeable future.

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Table 4.15: Impacts of Past (P), Present (Pr), and Reasonably Foreseeable Future (RFF) Fishery Management Actions on the five VECs (not including those actions considered in this action).

Action	Description	Impacts on Managed Resource	Impacts on Non-target Species	Impacts on Habitat and EFH	Impacts on Protected Species	Impacts on Human Communities
P, Pr Original Lobster FMP; Commission ISFMP and subsequent Amendments and Addenda to the ISFMP (1991 to 2007)*	Established commercial management measures	Direct Positive Regulatory tool available to rebuild and manage stocks	Indirect Positive Limits bycatch through size and gear requirements.	Direct Positive Capped numbers of vessels and traps.	Direct Positive Capped numbers of vessels and traps consistent with ALWTRP measures.	Direct Positive Benefited domestic businesses.
P,Pr,RFF American lobster broodstock protection measures to address Addenda II and III to Amendment 3 of the ISFMP 2006	Increased minimum carapace length and escape vent size in all LCMAs except Area 1. Implemented maximum size in Areas 4 and 5. Established Area 3/5 overlap zone and clarified other regulations	Direct Positive Protects broodstock and benefits egg production by increasing minimum size and establishing maximum size limit.	Direct Positive Protects more smaller-sized lobster through minimum size and escape vent size increases.	Neutral	Neutral	Indirect positive Short-term costs due to size limitations and new gear requirements offset by increased egg production in the future. Area 5 fishermen benefit from Area 3/5 overlap area.

* More detailed information and analysis on the multiple actions and impacts associated with these comprehensive measures are available in the NEPA documents created to support these measures. Most recently, an EIS was completed in October 2002 and an EA in February 2006.

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Table 4.15 Continued: Impacts of Past (P), Present (Pr), and Reasonably Foreseeable Future (RFF) Fishery Management Actions on the five VECs (not including those actions considered in this amendment).

Action	Description	Impacts on Managed Resource	Impacts on Non-target Species	Impacts on Habitat and EFH	Impacts on Protected Species	Impacts on Human Communities
P,Pr,RFF Area 3 Lobster Broodstock Protection Measures and Trap Reductions – Final Rule 2007	Annual trap reductions through 2010; min. carapace size increase to 3 ½” by 2008; escape vent size increase in 2010	Neutral to Positive May increase egg production and abundance by protecting broodstock, with some potential conservation benefits from trap reductions.	Neutral Not likely to affect non-target species	Neutral Not likely to affect habitat	Neutral to Positive Trap reductions may decrease likelihood of incidental takes of cetaceans	Short-term Negative to Positive; Long-term positive
RFF Area 2 and Outer Cape Trap Fishery Eligibility Program	Considers ISFMP measure to cap and control trap fishing effort in Area 2 and the Outer Cape qualifying eligible vessels against yet unspecified criteria	Uncertain-Pending NMFS is in rulemaking and impact analysis is incomplete.	Uncertain NMFS is in rulemaking and impact analysis is incomplete.	Uncertain NMFS is in rulemaking and impact analysis is incomplete	Uncertain NMFS is in rulemaking and impact analysis is incomplete	Uncertain-Pending NMFS is in rulemaking and impact analysis is incomplete
RFF Intertransferable Trap Program for Area 2, Area 3 and the Outer Cape Area	Considers ISFMP measures to allow the full and partial transfer of trap allocations among permit holders.	Uncertain-Pending NMFS is in rulemaking and impact analysis is incomplete.	Uncertain-Pending NMFS is in rulemaking and impact analysis is incomplete.	Uncertain-Pending NMFS is in rulemaking and impact analysis is incomplete.	Uncertain-Pending NMFS is in rulemaking and impact analysis is incomplete.	Uncertain-Pending NMFS is in rulemaking and impact analysis is incomplete.

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Table 4.16: Impacts of Past (P), Present (Pr), and Reasonably Foreseeable Future (RFF) Non-fishing Actions on the five VECs (*not including those actions considered in this amendment*). **DISCLAIMER:** *The potential impact descriptions below are made on a conceptual level since most or all of these actions would likely require NMFS review and analysis on a case by case basis. To avoid any premature judgments on existing or future evaluations, the impacts described below are made in general terms and represent “Potential” positive, negative, neutral or uncertain impacts.*

Action	Description	Impacts on Managed Resource	Impacts on Non-target Species	Impacts on Habitat and EFH	Impacts on Protected Species	Impacts on Human Communities
P, Pr, RFF Port maintenance	Dredging of wetlands, coastal, port and harbor areas for port maintenance	Uncertain Dependent on mitigation effects	Uncertain Dependent on mitigation effects	Uncertain Dependent on mitigation effects	Uncertain Dependent on mitigation effects	Uncertain-Likely Positive Dependent on mitigation effects
P, Pr, RFF Offshore disposal of dredged materials	Disposal of dredged materials	Potentially Negative Reduced habitat quality	Potentially Indirect Negative Reduced habitat quality	Potentially Negative Reduced habitat quality	Potentially Negative Reduced habitat quality	Potentially Negative Reduced habitat quality negatively affects resource viability
P, Pr, RFF Beach nourishment	Offshore mining of sand for beaches	Potentially Indirect Negative Localized decreases in habitat quality	Potentially Indirect Negative Localized decreases in habitat quality	Potentially Direct Negative Reduced habitat quality	Potentially Indirect Negative Localized decreases in habitat quality	Potentially Mixed Positive for mining companies, possibly negative for fisheries
	Placement of sand to nourish beach shorelines	Potentially Indirect Negative Localized decreases in habitat quality	Potentially Indirect Negative Localized decreases in habitat quality	Potentially Direct Negative Reduced habitat quality	Potentially Indirect Negative Localized decreases in habitat quality	Potentially Positive Beachgoers generally like sand
P, Pr, RFF Marine transportation	Expansion of port facilities, vessel operations and recreational marinas	Potentially Indirect Negative Localized decreases in habitat quality	Potentially Indirect Negative Localized decreases in habitat quality	Potentially Direct Negative Reduced habitat quality	Potentially Indirect Negative Localized decreases in habitat quality	Potentially Mixed Positive for some, potential displacement for others
P, Pr, RFF Installation of pipelines, utility lines and cables	Transportation of oil, gas and energy through pipelines, utility lines and cables	Uncertain Dependent on mitigation effects	Uncertain Dependent on mitigation effects	Potentially Direct Negative Reduced habitat quality	Uncertain Dependent on mitigation effects	Uncertain Dependent on mitigation effects

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Table 4.16 Continued: Impacts of Past (P), Present (Pr), and Reasonably Foreseeable Future (RFF) Non-fishing Actions on the five VECs (not including those actions considered in this amendment).

Action	Description	Impacts on Managed Resource	Impacts on Non-target Species	Impacts on Habitat and EFH	Impacts on Protected Species	Impacts on Human Communities
RFF Offshore Wind Energy Facilities (within 5 years)	Construction of wind turbines to harness electrical power (Several facilities proposed from ME through NC, including off the coasts of MA, NY/NJ and VA)	Uncertain Dependent on mitigation effects	Uncertain Dependent on mitigation effects	Potentially Direct Negative Localized decreases in habitat quality possible	Uncertain Dependent on mitigation effects	Uncertain Dependent on mitigation effects
RFF Liquefied Natural Gas (LNG) terminals (within 5 years)	Transportation of natural gas via tanker to terminals located offshore and onshore (Several LNG terminals are proposed, including MA, RI, NY, NJ and DE)	Uncertain Dependent on mitigation effects	Uncertain Dependent on mitigation effects	Potentially Direct Negative Localized decreases in habitat quality possible, but potential no fishing zone could create refuge.	Uncertain Dependent on mitigation effects	Uncertain-Likely Positive Dependent on mitigation effects
P, Pr, RFF Atlantic Large Whale Take Reduction Measures	Gear and area restrictions on lobster fishing to reduce takes of whales in lobster gear.	Uncertain- Neutral Not likely to affect lobster resource	Uncertain- Neutral Not likely to affect bycatch of non-targeted species	Uncertain Sinking groundline may have some unknown impact on hard-bottom habitat	Potentially Positive Gear and area restrictions may decrease takes of cetaceans	Potentially Negative Some short and long-term economic impacts to industry may occur to comply with new gear requirements

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Table 4.16 Continued. Impacts of Past (P), Present (Pr), and Reasonably Foreseeable Future (RFF) Non-fishing Actions on the five VECs (not including those actions considered in this amendment).

Action	Description	Impacts on Managed Resources	Impacts on Non-target Species	Impacts on Habitat and EFH	Impacts on Protected Resources	Impacts on Human Communities
P, Pr, RFF 1999 Long Island Sound Lobster Die-off	Die-off of lobster due primarily to lobster parasite (<i>Paramoeba spp.</i>), brought on or exacerbated by other environmental stressors.	Direct Negative – Resulted in lobster mortality	Neutral - Uncertain	Neutral - Uncertain	Neutral - Uncertain	Direct Negative – Resulted in short-term and unquantifiable long-term economic losses
P, Pr, RFF Lobster Shell Disease	Bacterial infection of lobster chitin that can kill or seriously injure lobsters	Direct Negative Can kill lobster and impact egg production due to pre-mature shedding in females.	Neutral - Uncertain	Neutral - Uncertain	Neutral - Uncertain	Direct Negative Can impact marketability of whole live lobster.
P, Pr, RFF North Cape Oil Spill, Naragansett Bay, RI	Localized pollution due to oil spill.	Direct Negative Resulted in lobster mortality.	Direct Negative Resulted in mortality of finfish and shellfish.	Direct Negative Fouled beaches and polluted water and bottom substrate.	Negative - Unknown	Direct Negative – Resulted in short-term and unquantifiable long-term economic losses
P, Pr, RFF Agricultural runoff	Nutrients applied to agricultural land are introduced into aquatic systems	Indirect Negative Reduced habitat quality	Indirect Negative Reduced habitat quality	Direct Negative Reduced habitat quality	Indirect Negative Reduced habitat quality	Indirect Negative Reduced habitat quality negatively affects resource viability

4.4.5 Preferred Actions on all the VECS

Because this action would continue to support the goals of the ISFMP, direct and indirect impacts of the measures identified as the preferred alternatives in Chapter 4, when combined with other past, present, and reasonably foreseeable future actions, are expected to be positive on the American lobster resource, as summarized below. The cumulative effects of the range of actions considered in this document can be considered to make a determination if significant cumulative effects are anticipated from the preferred action.

Table 4.17 Magnitude and significance of the cumulative effects, the additive and synergistic effects of the proposed action, as well as past, present, and future actions.

VEC	Net Impact of P, Pr, and RFF Actions	Impact of the Proposed Actions (Preferred Alternatives)			Significant Cumulative Effects
		Dealer Reporting Sect. 4.1)	Max. Carapace Length (Sect. 4.2)	V-notch (Sect 4.3)	
Managed Resource	Positive (Section 4.4)	Positive	Positive	Positive	None
Non-target Species	Positive (Section 4.4)	Neutral	Neutral	Neutral	None
Habitat	Neutral to positive (Section 4.4)	Neutral	Neutral	Neutral	None
Protected Resources	Positive (Section 4.4)	Neutral	Neutral	Neutral	None
Human Communities	Positive (Section 4.4)	Short-term-Neutral to Positive; Long-term-Positive	Short-term-Negative to Positive; Long-term-Positive	Short-term-Negative to Positive; Long-term-Positive	None

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The impacts of this proposed action on the VECs are described in section 4.3. The magnitude and significance of the cumulative effects, the additive and synergistic effects of the proposed action, as well as past, present, and future actions, have been taken into account throughout this section (4.4). The action proposed in this document builds off action taken in with respect to the interjurisdictional management program for the American lobster resource. When this action is considered in conjunction with all the other pressures placed on fisheries by past, present, and reasonably foreseeable future actions, it is not expected to result in any significant impacts, positive or negative. Based on the information and analyses presented in these past Federal actions and this document, there are no significant cumulative effects associated with the action proposed in this document.

5.0 NATIONAL ENVIRONMENTAL POLICY ACT

The National Environmental Policy Act (NEPA) provides a mechanism for identifying and evaluating environmental issues associated with Federal actions and for considering a reasonable range of alternatives to avoid or minimize adverse environmental impacts. This document is designed to meet the requirements of NEPA.

5.1 Draft Environmental Assessment

The required elements of an Environmental Assessment are specified in 40 C.F.R. 1508.9(b) and are included in this document as indicated below:

Need for Action: Section 1.1

Alternatives Considered: Section 2.0

Environmental Impacts of Proposed Action: Section 4.0

Agencies and Persons Consulted on This Action: Section 9.0

5.2 Potential Finding of No Significant Impact (FONSI)

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 final fishery management 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 reasonably be expected to jeopardize the sustainability of any target species that may be affected by the action?

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The proposed actions, which are the preferred alternatives for each of three separate management measures, are not expected to jeopardize the sustainability of any target species that may be affected by the action. The intent of the proposed actions is two-fold. First, this rulemaking would require all Federal lobster dealers to submit electronic trip-level purchase reports on a weekly basis to address the need for enhanced fisheries dependent data for stock assessment purposes as recommended for Federal action by the Commission. This would provide managers with better data and thus may ultimately improve the sustainability of the target species. Additionally, the measures in the associated rulemaking are intended to enhance protection to American lobster broodstock in the SNE and GBK stock areas by implementing new or revising current maximum carapace lengths in several LCMA's and by implementing new or revising current v-notch regulations in multiple LCMA's. These measures are intended to support the recommendations of the ISFMP and could provide some extra level of broodstock protection by including the Outer Cape Area, beyond the scope of the ISFMP.

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

The preferred alternatives are not expected to jeopardize the sustainability of any non-target species that may be affected by the action. The dealer reporting action is an administrative action that will not influence bycatch or impact the marine environment. The broodstock protection measures will restrict lobster catches in the Outer Cape Area and support the Commission's ISFMP by implementing these broodstock measures in other areas consistent with the Commission's plan.

3) Can the proposed action reasonably be expected to cause substantial damage to the ocean and coastal habitats and/or essential fish habitat (EFH) as defined under the Magnuson-Stevens Act and identified in FMPs?

The proposed action is not expected to cause damage to the ocean, coastal habitats, and/or EFH. Proposed measures to require mandatory electronic dealer reporting will not affect the physical environment; nor are the broodstock protection measures expected to damage habitat or EFH. Specifically, habitat impacts in general could be caused by lobster trap and non-trap gear. However, the preferred alternatives are not expected to cause substantial damage to the ocean and coastal habitats or EFH.

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

This proposed American lobster action is not expected to impact adversely public health or safety. The proposed dealer reporting requirement is an administrative requirement that is not expected to adversely impact public safety. Further, the broodstock protection measures as proposed in the preferred alternative are not expected to alter fishing practices to the point where public health or safety would be adversely impacted.

5. Can the proposed action be reasonably expected to have an adverse impact on endangered or threatened species, marine mammals, or critical habitat of these species?

The proposed dealer reporting requirement is not expected to adversely impact protected species, marine mammals or critical habitat of such species. The dealer reporting requirement is an administrative requirement that will require the electronic submission of lobster purchases on a weekly basis. Overall, it will not impact protected species or their habitat.

The maximum size and v-notch provisions are not expected to have an adverse impact on protected species or critical habitat. These actions could potentially shift some unknown or minimal level of trap fishing effort from Federal to state waters. However, such alterations in fishing effort are expected to be negligible and are not expected to adversely impact endangered or threatened species, marine mammals, or their critical habitat. On balance, it may reduce some uncertain level of fishing effort in the Outer Cape Area that may be currently occurring due to less stringent broodstock protection measures in this area.

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

The proposed dealer reporting measure is an administrative measure and, therefore, would not have a substantial impact on biodiversity or ecosystem function within the affected area. The proposed broodstock protection measures may provide some additional egg production benefits and would augment similar practices in adjacent management areas. Lobster from those areas are thought to move in and out of the Outer Cape Area; thus, expanding the broodstock protection requirements into this area could support broodstock protection efforts on this same lobster stock occurring in adjacent areas. Therefore, any impacts to biodiversity or ecosystem function would likely be positive given the potential for some additional egg production benefits associated with the expansion of the broodstock measures to the Outer Cape Area.

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

The preferred broodstock protection measures would potentially provide some positive biological effects by protecting lobster broodstock and enhancing egg production. Some relatively small economic impacts could affect trap and non-trap lobster harvesters who would have their catch restricted by the maximum carapace length and revised v-notch regulations. However, the dependence of the Outer Cape fishermen on lobster that would be protected under these measures is relatively small. Therefore, on balance, the biological benefits may outweigh the potential economic impacts.

8) Are the effects on the quality of the human environment likely to be highly controversial?

The preferred alternatives are not expected to be highly controversial. As a preliminary matter, the science upon which this action is based, such as the most recent lobster stock assessment, has been peer reviewed, accepted by the lobster management board, and is straight-forward and non-controversial. Federal dealers who may be required to submit electronic trip reports on a weekly basis may object, since they may already be held to a state reporting requirement. However, the state-collected data are not necessarily collected electronically and are not available for fisheries monitoring and management decisions on a weekly basis, as would be under a Federal collection process. The broodstock measures in the Outer Cape may be controversial because lobster fishers in this area would be restricted in their catch of large lobster. A similar suite of measures was proposed at the state level and was withdrawn based on industry opposition. Regardless, NMFS sees this as an opportunity to expand broodstock protection to the resource that could complement similar efforts in other areas on the same lobster stock. Recreational divers in the mid-Atlantic area may object to the removal of the current allowance of a single oversized female lobster per trip in the current Federal regulations. However, this sector is already prohibited from retaining oversized lobster due to more restrictive state regulations already in place. Therefore, the recreational dive sector would not suffer any additional impacts should NMFS implement the Commission's recommended maximum sizes in the mid-Atlantic lobster management areas (Areas 4 and 5).

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

The proposed action is not expected to result in substantial impacts to unique areas. Implementation of these proposed measures is not expected to change industry fishing behavior in a manner that would encourage Federal permit holders to seek or utilize new and/or unique ecologically critical areas.

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

No; the proposed Federal regulations would primarily mirror similar, already existing state regulations. However, the Federal vessels in the Outer Cape Area would be impacted by the broodstock protection measures, but the impact is expected to be relatively small in comparison to the overall lobster harvest in this sector. Despite some small economic impacts, there are not likely to be highly uncertain or unique or unknown risks.

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

The proposed action is not expected to result in cumulatively significant impacts. As described in further detail in section 4.4 — Cumulative Impacts Assessment, the proposed broodstock management measures are not expected to result in a change in fishing activity or fishing effort, or to significantly impact lobster landings. Some affected Federal lobster permit holders from Massachusetts may opt to drop their Federal lobster permits and fish under less restrictive state regulations in this management area, which may lead to a negligible shift in fishing effort from Federal to state waters. However, these changes are not expected to be significant.

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?

No; the proposed lobster management measures are not likely to adversely affect sites, structures, districts, highways, or objects associated with the National Register of Historic Places, nor are they expected to cause loss or destruction of significant scientific, cultural or historic resources.

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

No. The proposed actions are not expected to result in the introduction or spread of 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?

The proposed action is not likely to establish a precedent for future actions with significant effects or represent a decision in principle about a future consideration. The majority of Federal permit holders are currently bound to abide by the proposed measures under their state lobster regulations. Federal implementation of these measures is not expected to result in a change to fishing practices or fishing effort, because the number of potentially impacted Federal permit holders is very limited.

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?

The proposed action is not expected to threaten a violation of Federal, State, or local law or requirements imposed for the protection of the environment. A review of existing state management measures indicates less than six percent of a total of

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approximately 3,200 Federal permit holders may be impacted. In addition, 29 percent of Federal lobster dealers would be impacted by the reporting requirement. Federal implementation of these measures is not expected to result in a significant change to fishing practices or fishing effort, because the number of potentially impacted Federal permit holders is very limited.

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 proposed action is not expected to result in cumulative adverse effects that could have a substantial effect on the target species or non-target species. The proposed measures would allow for a more comprehensive and timely set of lobster dealer data to facilitate fishery monitoring and stock assessments. Further, the broodstock measures will support the Commission's egg production efforts and provide long-term benefits to the resource.

DETERMINATION

In view of the information presented in this document and the analysis contained in the supporting Environmental Assessment prepared for this action, it is hereby determined that the proposed action will not significantly impact the quality of the human environment as described above and in the supporting 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 EIS or SEIS for this action is not necessary.

Regional Administrator, NMFS Northeast Region

Date

6.0 OTHER APPLICABLE LAW

6.1 Paperwork Reduction Act (PRA)

The purpose of the Paperwork Reduction Act is to reduce the paperwork burden on the public. The Director of the Office of Management and Budget (OMB) has the authority to manage information collection and record keeping requirements in order to reduce paperwork burdens. This authority encompasses the establishment of guidelines and policies and the approval of information collection requests. The selected management actions in this environmental assessment do contain new collection-of-information requirements subject to the PRA.

A paperwork reduction act analysis, including a revised Form 83i and supporting statement have been submitted to OMB along with the proposed rule for this action. The reporting requirements relate to one of the three proposed actions; the mandatory Federal lobster electronic dealer reporting requirements. This action revises a submission approved as 0648-0229 in 2005 and amended in 2007 which implemented a dealer reporting program on the majority of Federal seafood dealers. Until now, this requirement did not extend to the subset of Federal seafood dealers who hold only a Federal lobster dealer permit and no other Federal dealer permits. This action would require the remaining 148 Federal lobster dealers to submit trip-level electronic lobster purchase reports on a weekly basis, consistent with the requirements already in place for the current pool of affected dealers. This revision is expected to increase the public reporting burden by 539 annual response hours at an estimated annual cost to the public of \$10,171.

6.2 Coastal Zone Management Act (CZMA)

The principal objective of the CZMA is to encourage and assist states in developing coastal management programs, to coordinate state activities, and to safeguard regional and national interest in the coastal zone. Section 307(c) of the CZMA requires Federal activity affecting the land or water uses or natural resources of a state's coastal zone be consistent with that state's approved coastal management program, to the maximum extent practicable. NMFS provided a copy of this draft environmental assessment and a consistency determination to the state coastal management agency in every state with a federally-approved coastal management program whose coastal uses or resources are affected by these lobster management measures. Each state has sixty days in which to agree or disagree with the determination regarding consistency with that state's approved coastal management program. If a state fails to respond within sixty days, the state's agreement may be presumed.

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The regulatory actions in this document should, if anything, increase consistency between state and Federal regulations. This action was reviewed relative to CZM programs of Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, Delaware, Maryland, Virginia, and North Carolina. Letters and a copy of the draft EA were sent to all of the states listed on [DATE], indicating that NMFS concluded that the involved measures would not affect the state's coastal zone and are consistent to the maximum extent practicable with the state's CZM program as understood by NMFS. The majority of the states responded and concurred with the NMFS determination. Those that did not respond within 60 days, as indicated in the letter, were assumed to have concurred with NMFS' determination.

6.3 Section 515 Information Quality Determination

6.3.1 Utility of Information Product

The document includes a description of the alternatives considered and the reasons for selecting the proposed management measures. The proposed measures are intended to meet the conservation and management goals of the ISFMP, consistent with the Magnuson-Stevens Act national standards. This document utilizes the best available information to evaluate the potential impacts of the alternatives considered. The Federal Register notice that announces the final rule and the regulations that will accompany this EA will be made available in printed publication and on the website for the Northeast Regional Office. This document and the notice provide metric conversions for all measurements.

The intended users of the information are individuals involved in the American lobster fishery, such as fishermen, vessel owners and operators, lobster dealers, and processors. Both the final rule and the EA address measures for implementation in the American lobster fishery. The documents are based on the most current information available and were subject to public comment through proposed rulemaking as required under the Administrative Procedures Act.

The proposed rule was made available to the public as a publication in the Federal Register and the final EA and final rule will be available in hard copy format and on the NMFS Northeast Regional Office web site at www.nero.noaa.gov.

6.3.2 Integrity of Information Product

All electronic information disseminated by the NOAA adheres to the standards set out in Appendix III, "Security of Automated Information Resources" OMB Circular A-130; the Computer Security Act; and the Government Information Security Reform Act.

6.3.3 Objectivity of Information Product

The EA and final rule fall under the Natural Resource Plan category. In preparing the documents, NMFS must comply with the requirements of the Atlantic Coastal Act; the Regulatory Flexibility Act, the Paperwork Reduction Act, the Coastal Zone Management Act, the Endangered Species Act, the Marine Mammal Protection Act, the Data Quality Act, the National Standards of the Magnuson-Stevens Act, the National Environmental Policy Act (NEPA), Executive Order 13132 (Federalism), Executive Order 12866 (Regulatory Planning), and other applicable laws.

The document has been developed to comply with all applicable National Standards, including National Standard 2. National Standard 2 states that management measures shall be based upon the best scientific information available. Despite current data limitations as discussed in this document, the conservation and management measures proposed to be implemented are based upon the best scientific information available. This information includes NMFS dealer weighout and permit data, and the most current stock assessment available. The specialists who worked with these data are familiar with the most recent analytical techniques and with the available data and information relevant to the lobster fishery.

The policy choices (*i.e.*, management measures) to be implemented are supported by the available scientific information, and, in cases where information was unavailable, proxy reference points are based on observed trends in the survey data. The management measures are designed to meet the conservation goals and objectives of the ISFMP, to prevent overfishing, and to rebuild this growth overfished resource, while maintaining sustainable levels of fishing effort to ensure a minimal impact on fishing communities. The supporting materials and analyses used to develop the measures are contained in the document, and to some degree in previous environmental assessments as noted in this document.

The review process for this regulatory action involves the Northeast Fisheries Science Center, the Northeast Regional Office, and NMFS headquarters. The Centers technical review is conducted by senior level scientists with specialties in population dynamics, stock assessment methods, coastal migratory resources, population biology, and the social sciences. Review by Northeast Regional Office staff is conducted by those with expertise in fisheries management and policy, habitat protection, protected species, and compliance with applicable law. Final approval and clearance of the document is conducted by staff at NMFS headquarters and the Department of Commerce.

6.4 Magnuson-Stevens Fishery Conservation and Management Act

6.4.1 National Standards of the Magnuson Stevens Act

Compliance with National Standards - Atlantic Coastal Act requires that Federal regulations be consistent with the national standards of the Magnuson-Stevens Act.

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National Standard 1 requires that conservation and management measures shall prevent overfishing while achieving, on a continuing basis, the optimum yield from each fishery for the U.S. fishing industry. By itself, the selected management action will not end overfishing and restore stocks of American lobster, but is part of and will complement an ongoing long-term management strategy to achieve these purposes (NMFS 1999). The degree to which the selected management actions will limit fishing effort and associated lobster mortality is difficult to state with precision. Nevertheless, it is anticipated that the enhancement of American lobster broodstock associated with the selected management action when combined with other lobster management measures, will increase the overall effectiveness of those measures in achieving ISFMP objectives and ultimately end overfishing and rebuild stocks of American lobster under National Standard 1. Further, the dealer reporting requirements will provide a timelier and more comprehensive set of dealer data to assist in fishery monitoring and stock assessments. Additional lobster management measures in both state and Federal waters will be needed in the future in accordance with the resource management requirements addressed by the ISFMP to end resource overfishing. See Section 1.3 - Federal Process and 4.4 - Cumulative Impacts for additional discussion of future state and Federal lobster rulemaking.

National Standard 2 requires that management measures be based upon the best scientific information available. The information base for evaluation of the proposed measures in this action is based upon the best scientific information available and incorporates the scientific review and associated approval by state and Federal lobster scientists through the Commission's Lobster Technical Committee. For example, the March 2005 Commission Stock Assessment Report, provides the basic underpinnings of the proposed action. In addition, current NMFS vessel, permit, dealer and observer data is incorporated in the assessment of impacts for this action. Further, the proposed measures address the management and policy guidance provided by the scientists on the Lobster Stock Assessment Review Panel regarding the measures recommended for facilitating the assessment and sustainability of the lobster resource.

National Standard 3 requires, as practicable, that an individual stock be managed as a unit throughout its range, and that interrelated stocks be managed as a unit or in close coordination. NMFS believes that the proposed action illustrates the consistency and coordination sought by this National Standard. The three stock areas for American lobster are being managed, throughout the range of the population from Maine to North Carolina, through an area management approach in coordination with state jurisdictional management and Federal management through the Commission's ISFMP and complementary Federal regulations. The measures associated with this action support the coastwide management program for the American lobster resource.

National Standard 4 requires that conservation and management measures not discriminate between residents of different states. As a preliminary matter, the principle action is not state specific. That is, all Federal permit holders must adhere to the same regulations regardless of the state from which they hail. Further, the selected management actions for the EEZ were developed in consultation with the Commission

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and the lobster industry through its LCMT program, and take into account the social and economic distinction among the nearshore and offshore EEZ fisheries. NMFS gave great consideration to the expertise of the LCMTs, whose membership is appointed by the involved states, and who were presumed to have intimate knowledge of how their proposal would affect their state's fishery. Further, despite a dearth of information due to the lack of mandatory harvester reporting, NMFS examined the best available information to discern any unintended discriminatory effect and used its best efforts to create counter measures to guard against such unexpected eventualities. The dealer reporting requirements and broodstock measures may impact permit holders from Maine and Massachusetts more than from other states. However, with respect to dealer reporting, these requirements will bring the affected dealers to a level of Federal reporting consistent with the balance of Federal seafood dealers. Federal vessels from several states may be impacted by the preferred Outer Cape broodstock measures. However, due to the geographical location of this area and the historical context of its lobster fishery, it predominantly will impact those Federal lobstermen hailing from Massachusetts ports. These preferred measures are not consistent with state regulations in the Outer Cape Area but they do support the broodstock conservation efforts of lobster fishers in other areas and provide a consistent broodstock protection platform among all the management areas in the southern portion of the GBK stock area.

National Standard 5 requires that, where applicable, conservation and management measures promote efficiency in the utilization of fishery resources. The proposed action is consistent with such a standard. Dealer reporting will bring all Federal lobster dealers under a common reporting regime that requires all data to be submitted on a weekly basis with details on trip level purchases. It will facilitate efficiency by requiring electronic submission of the data to a common database. The broodstock measures in most lobster management areas will assist in the enforcement of lobster measures coastwide by implementing regulations that complement those in place by the states. In the Outer Cape where the preferred option would hold a small percentage (about 6 percent) of Federal permit holders to a higher standard than the state regulations, the measures are consistent with those in adjacent management areas that fish on the same transient stock of lobster. Thus these measures, although not a mirror-image of state regulations in the Outer Cape, do support the Commission's plan by applying a consistent management regime across a major portion of the GBK stock area.

National Standard 6 requires that conservation and management measures take into account and allow for variations among, and contingencies in, fisheries, fishery resources, and catches. The selected management actions takes into account the variations in fisheries, fishery resources, and catches, in consultation with the Commission and industry groups through coordination with LCMTs, and among the inshore and offshore EEZ fisheries. Industry involvement through the ISFMP process ensures flexibility in management of the fisheries, and fishery resource over seven management areas. Additionally, the proposed measures enact the recommendations of the scientists of the American Lobster Stock Assessment Peer Review Panel which advised that such measures be implemented to facilitate the management and sustainability of the lobster resource.

National Standard 7 requires that, where practicable, conservation and management measures minimize costs and avoid unnecessary duplication. The implementation of the proposed measures would ensure state and Federal regulations are compatible, minimize confusion by industry participants, enhance compliance, and avoid duplication.

The implementation of the mandatory lobster dealer reporting requirement is prompted by the Commission's intent to obtain a comprehensive set of landings data for fishery monitoring and assessment in the absence of a mandatory trip-level harvester reporting requirement. Thus, the Commission has mandated that the states implement the mandatory dealer reporting requirement via the SAFIS system. The Commission similarly has requested that NMFS do the same. Although the intent of this requirement is to ensure that all dealers report, a Federal reporting requirement could result in duplication of reporting by dealers who have both state and Federal reporting requirements.

NMFS believes the duplication to be minimal and necessary to ensure the success of the reporting program. As a preliminary matter, collection and assembly of the data, which is likely the greater task, is a singular and one-time action that need not be repeated regardless of the number of times the data is reported. Further, reporting electronically, while arguably duplicative, is far less onerous than reporting by hand on paper. On balance, the electronic reporting requirement is necessary because it is more timely, is consistent with the existing requirements of federal dealer reports, is easily checked for completeness and accuracy, facilitates enforcement of reporting, and requires less processing burden than paper reports. Once Federal electronic reporting requirements for the affected dealers are implemented, some states may alter their respective requirements for state dealers with Federal permits and accept the Federal electronic reports in lieu of a state report. This may be beneficial to all parties including the dealers, the state agencies, the Commission and NMFS since the electronic reports in such cases will ease the processing burden on state agencies and make the upload of the coast-wide dealer data into the SAFIS system more timely and accurate.

Additionally, the submission of paper reports to states is cumbersome and not always loaded by the states into the SAFIS system in a timely manner. In fact, some states, with potentially different priorities and training over which NMFS has no control, only require trip-level reports be submitted on a monthly basis at which time, state employees enter in the data. The NMFS reporting protocol, on the other hand, requires trip-level data be submitted on a weekly basis and once received, it is already in the system. A full complement of dealer data at the NMFS level will allow for ease in error-checking and compliance checks. It will also load the dealer data into the SAFIS system in a timely manner to the benefit of the states, NMFS, ACCSP clients and the industry.

National Standard 8 requires that, consistent with fishery conservation requirements, conservation and management measures take into account the importance of fishery resources to fishing communities. As a preliminary matter, the action is premised on broodstock enhancement to achieve overfishing objectives, which should, in the long

term, maintain the integrity of reliant fishing communities. NMFS examination of available data showed no incongruence with that expectation. Sustained participation of communities and consideration of economic impacts is facilitated through the ISFMP's area management provisions, which allow fishing communities to participate in, and provide public comment on, proposed management measures.

National Standard 9 requires that, to the extent practicable, conservation and management measures minimize bycatch, and to the extent bycatch cannot be avoided, minimize the mortality of such bycatch. In the Outer Cape area, the proposed measures would establish a maximum size limitation and more restrictive v-notch provision to protect broodstock. This may result in a minimal increase in regulatory discards in this small component of the fishery. However, the measures are intended to promote stock health and are not expected to affect fishing mortality.

National Standard 10 requires that, to the extent practicable, conservation and management measures promote the safety of human life at sea. The selected management actions will have no anticipated impact on safety at sea, because it would not result in any significant changes in fishing practices.

6.4.2 Essential Fish Habitat (EFH)

Section 305(b) of the Magnuson-Stevens Act requires all Federal agencies to consult with NMFS' Habitat Conservation Division on any future action that may adversely affect EFH. NMFS conducted an initial EFH consultation on May 28, 1999, in preparation of its FEIS (64 FR 29025) that analyzed promulgating regulatory recommendations from the Commission under the Atlantic Coastal Act rather than from the New England Fishery Management Council under the Magnuson-Stevens Act. At that time, it was concluded that the regulations would not adversely impact EFH for any federally-managed species (see below table).

The measures identified in this action are also not expected to adversely impact EFH. The proposed measures include: a mandatory electronic Federal lobster dealer reporting requirement; changes to existing and implementation of more restrictive maximum carapace length requirements in several management areas; and a revision to the definition of a v-notch lobster for several management areas to protect breeding female lobster. Any potential changes in fishing effort due to these measures would likely be negligible and may even reduce directed effort in the Outer Cape Area which is currently held to less restrictive broodstock protection measures under current state and Federal regulations.

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Council/Management Authority	FMPs
New England Fishery Management Council (NEFMC)	Multispecies; Sea Scallop; Monkfish, Red Crab
Mid-Atlantic Fishery Management Council	Summer Flounder, Scup, and Black Sea Bass; Squid, Atlantic Mackerel, and Butterfish; Surf Clam and Ocean Quahog
South Atlantic Fishery Management Council	Coastal Migratory Pelagics; Red Drum; Golden Crab
NMFS	Atlantic Highly Migratory Species; Atlantic Billfishes

6.5 Executive Order 12630

The action will not result in a regulatory taking. The chief components of this action would have the benefits in terms of egg production per recruit and yield per recruit that directly responds to the latest scientific data as described in the 2005 stock assessment summarized in Section 3.1 of this EA. As a preliminary matter, there is no physical taking of actual property. Additionally, there would be no taking of any intangible property -- for example, the "right" to fish -- because there is no general property right to harvest wildlife and because NMFS's Federal lobster permits lack the traditional hallmarks of property and are more akin to a revocable license. Further, the action is non-targeting and is not retroactive, and reasonable expectations should have been tempered, since the fishery has long been highly regulated and the action is consistent with past regulations. Finally, the action is not expected to substantially alter the fishing practices of Federal permit holders.

6.6 Executive Order 12866

Determination of Economic Significance for E.O. 12866

E.O. 12866 requires a review of proposed regulations to determine whether or not the expected effects would be significant, where a significant action is any regulatory action that may:

- 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, jobs, the environment, public health or safety, or State, local, or tribal governments or communities;

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- Create a serious inconsistency or otherwise interfere with an action taken or planned by another agency;
- Materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights and obligations of recipients thereof; or
- Raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in the Executive Order.

Additionally, revisions to E.O. 12866 made through E. O. 13422 require identification of the market failure that has created the need for Federal intervention. The following provides a discussion of the market failure in the American lobster fishery creating the need for proposed Federal action and provides an estimate of the expected magnitude of the economic impacts of the Proposed Action.

Efficient allocation of resource requires a set of property rights having four main characteristics: universality; exclusivity; transferability; and enforceability. These characteristics assure that property rights are completely specified, that all benefits and costs of actions taken by an individual accrue exclusively to that individual, that resources may be transferred from one owner to another, and that the property rights are secure. Instances in which any one or more of these characteristics are deficient give rise to externalities where the full benefits of action taken by one individual accrue to other individuals. That is, markets fail to allocate resources efficiently. The fishery is governed by the rule of capture where no one individual has the incentive to reduce fishing effort since there is no assurance that releasing a marketable lobster would not be taken by someone else. This situation has resulted in a series of regulatory approaches to the control the number of lobsters that fishermen may keep. These measures include, among other things, minimum sizes, prohibitions on taking egg bearing lobsters, and trap limits. The proposed action would increase the size of the lobster brood stock population by implementing a maximum size in selected nearshore and offshore areas.

At \$353 million the landed value of American lobster was the second highest valued species landed in the Northeast region. Although the relative contribution of the EEZ and state-waters component has varied over time, it has averaged between 20 percent and 15 percent of domestic landings. On average, lobsters landed in the EEZ tend to larger than lobsters landed in state waters. This means that in terms of value the EEZ share of value is likely higher than the landings share. The proposed action would implement a mandatory dealer reporting program as well as a set of maximum size and changes to the current v-notch definition designed to increase brood stock. In all areas except the Outer Cape Area these measures have already been implemented by individual states under the lobster ISFMP.

The mandatory dealer reporting program would require an estimated 148 Federal lobster dealers to purchase a personal if they did not already own one and maintain an Internet connection. Assuming no dealers have the necessary equipment the upper bound

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estimate of the cost to acquire the necessary equipment was estimated to be \$171 thousand (see Section 4.1.2.2 for a more detailed discussion). On-going costs for maintaining an internet connection were estimated to be \$96 thousand per year.

The change in maximum size and v-notch definition would affect both recreational and commercial lobster fisheries. Analysis of available information (See Sections 4.2 and 4.3) indicates that the recreational party/charter fishery offering lobster dive services operates predominately out of ports in Mid-Atlantic States. The impact of Federal action on potential catch by paid passengers is expected to be very low and is not likely to affect the decision to take a party/charter dive trip. Thus the proposed action is expected to have minimal economic impact on the recreational party/charter industry.

The economic impact of the maximum size is uncertain. According to observer data approximately 1.7 percent of all retained lobsters by both trap and non-trap gear in the EEZ would be above the proposed action maximum size in Area 2, Area 3, and the Outer Cape Area. Assuming the EEZ fishery comprised 20 percent of U.S. domestic landings of lobster the maximum size would affect approximately 260,000 pounds of lobsters based on calendar year 2007 total domestic landings of over 76 million pounds. At an annual average price of \$4.64 the potential annual impact of the proposed action would be \$1.2 million. Note that this may underestimate impacts since a price premium is paid for larger lobsters. Nevertheless, the combined estimated impact of proposed Federal action is expected to be far less than \$100 million on an annual basis and would not be considered a significant action for purposes of E.O. 12866.

6.7 Executive Order 13132

This rule does not contain policies with Federalism implications sufficient to warrant preparation of a Federalism assessment under E.O. 13132.

6.8 Executive Order 13211

Executive Order 13211, which became effective on May 18, 2001, addresses “actions concerning regulations that significantly affect Energy supply, distribution, or use”. To the extent permitted by law, an agency is obligated to prepare a Statement of Energy Effects for those matters identified as a significant energy action. According to E.O. 13211, “significant energy action” means “any action by an agency that promulgates or is expected to lead to the promulgation of a final rule or regulation: (1) that is a significant regulatory action under Executive Order 12866 or any successor order, and; (2) is likely to have a significant adverse effect on the supply, distribution, or use of energy. Based on these criteria, the proposed regulatory actions identified in this EA do not require a Statement of Energy Effects, since these regulatory actions are not likely to have a significant adverse effect on the supply, distribution, or use of energy.

6.9 Atlantic Coastal Act

Presently, American lobster regulations are issued under the Atlantic Coastal Fisheries Cooperative Management Act in Title 50 of the Code of Federal Regulations, Part 697. The lobster regulations under the Atlantic Coastal Act are in keeping with the regulatory standard set forth in the Atlantic Coastal Act: 1) that the regulations be consistent with the National Standards set forth in the Magnuson-Stevens Act and 2) that the regulations be compatible with the Commission's lobster ISFMP. The measures evaluated in this EA are in keeping with the Atlantic Coastal Act regulatory standard to develop compatible regulations to the Commission's lobster ISFMP, and, as stated in section 6.4.1, be consistent with the National Standards set forth in the Magnuson-Stevens Act.

7.0 LIST OF PREPARERS OF THE ENVIRONMENTAL ASSESSMENT

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8.0 INITIAL REGULATORY FLEXIBILITY ANALYSIS

Analysis of Impacts on Small Entities

The proposed action would affect small entities engaged in several different aspects of the lobster fishery. These activities include lobster dealers, party/charter operators, and commercial fishing using trap and non-trap gears. The proposed action would implement a mandatory electronic reporting program for dealers, would implement a maximum size in the Outer Cape Area (OCA), and would implement a change in the v-notch definition in the OCA. Since these actions would affect different regulated entities having different SBA size standards, the following provides an analysis of anticipated economic impacts for each activity type.

Party/Charter Operators (NAICS 487210) – Party/Charter operators are classified with businesses that offer sightseeing and excursion services where the vessel departs and returns to the same location within the same day. These businesses include party/charter recreational fishing, whale watch, harbor cruises and other similar passenger experiences. The SBA size standard for this sector is \$7 million in gross sales. Party/charter operators in the lobster fishery offer diver recreational opportunities to harvest lobsters for personal use. Although sales data are not available, party/charter operators in the lobster fishery tend to be small in size and do not carry a large number of passengers on any given trip. For these reasons it is expected that all regulated party/charter operators holding a Federal lobster permit would be classified as a small entity for purposes of the Regulatory Flexibility Act.

Of the proposed actions lobster party/charter businesses would be affected by a lowering of the maximum size in areas 4 and 5 as well as implementing a maximum size in area 2, 3, 6, and the OCA. In areas 4 and 5 the maximum size would be extended to both male and female lobsters (formerly the maximum size in these two areas had only applied to female lobsters) and in all areas the recreational exemption from the maximum size restriction for a trophy lobster would be eliminated. Of these actions all but the maximum size in the OCA are intended to bring Federal regulations in line with actions included in the lobster ISFMP which have already been implemented by the States.

Formally, all Federal lobster party/charter permit holders are already required to abide by all state regulations under the most restrictive rule of the ISFMP. This means that the proposed action would only affect party/charter operators that take passengers for hire in the OCA since this is the only action that was not included in the ISFMP and therefore, not implemented by any state. The following summarizes the expected impact of the proposed maximum size in the OCA. The potential effects of the change in maximum size in areas 2, 3, 4, 5, and 6 are summarized as well.

During 2007 there were a total of 31 Federal permit holders with a party/charter lobster permit. Of these vessels all but one held at least one other Federal party/charter permit, while the majority (24) held four or more other Federal party/charter permits in

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addition to the lobster permit. These data indicate nearly all lobster party/charter permit holders have at least one other Federal permit requiring mandatory reporting.

Available logbook data show that only 3 of the 31 lobster party/charter permits holders reported taking passengers for hire where lobster were kept during the 2007 fishing year. Of the trips that did report landing lobsters none took place within statistical area 521 used a proxy for the OCA. In fact, all for-hire recreational trips took place in statistical areas in the Mid-Atlantic. Although the number of participating for-hire vessels was larger in FY2005 (6) and FY2006 (7), these vessels also took recreational lobster fishing trips only within the Mid-Atlantic area. None took a for-hire trip in the OCA.

These data suggest that participating for-hire lobster permit holders would not be affected by the proposed action in the OCA although these permit holders may have been affected by action already taken by individual states. While the magnitude of any impact associated with state action is uncertain, it is likely to have been relatively small. In the areas where recreational lobster fishing was reported (corresponding to Area 4 and/or 5) a maximum size for female lobsters has already been in place for several years. While state action reduced the maximum size from 5 ½-inches to 5 ¼-inches and was expanded to provide additional protection for male lobsters the number of either male or females lobsters in the population is believed to be very low as Areas 4 and 5 are at the southern end of the lobster resource. This also means that eliminating the exemption for a trophy lobster would have little impact on the recreational fishery since the encounter rate with lobsters of that size is expected to be very low.

Lobster Dealers (NAICS 424460) – Lobster dealers are included in the NAICS industrial class of Fish and Seafood Wholesale Trade. The SBA size standard for this industry group is 100 employees. The NMFS does not collect employment data from permitted Northeast regional dealers. However, the number of establishments by employment size class is reported in the Census Bureau's County Business Patterns (CBP). The most recent year currently available is for calendar year 2006. These data indicate that there were only 3 or nearly 1000 total seafood wholesale establishments (one each in New York, New Jersey, and North Carolina) that employed 100 or more people. Due to the manner in which individual establishments are classified, the CBP is unlikely to capture all establishments that may engage in wholesale seafood activities. However, the CBP data strongly suggests that it is unlikely that any regulated lobster dealers would employ more than 100 people. Additionally, all establishments in New England states where the overwhelming majority of regulated lobster dealers are located were found to employ fewer than 100 people. Therefore, all regulated entities that specialize in lobster wholesale trade as well as those entities that may not specialize yet would still be required to comply with the proposed action are presumed to be small entities for purposes of the RFA.

The proposed action would require all lobster dealers issued a Federal permit to report all purchases of lobster through an electronic reporting system. This action would only affect regulated lobster dealers that are not already required to mandatory electronic reporting by virtue of holding at least one other Federal permit requiring mandatory

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reporting. During 2007 there were 511 lobster dealers issued a Federal permit to purchase lobster. Of these dealers the majority (71%) were already required to report leaving 148 regulated small entities that would be required to comply with the proposed action.

The required equipment and acquisition costs to comply with the proposed action were detailed in Section 4.1.2.2. The necessary equipment would include a personal computer and an internet connection. The required specifications for the personal computer are such that any recently purchased computer, and most, older computers would meet the minimum specifications. For this reason any dealer that currently owns a computer would be unlikely to be required to purchase new equipment. The number of regulated lobster dealers that do not now own a computer or have internet access is uncertain but is expected to be low. For those that would have to do so the initial purchase price to meet the minimum specifications was estimated to be \$511 and the annual cost of maintaining internet service was estimated to be \$652. Based on data from reporting dealers these costs were estimated to be 0.47% of gross net sales (i.e. sales less the cost of purchasing lobster) in the first year for the one-time cost of purchasing a computer and the first year of internet service. Ongoing costs were estimated to represent 0.27% of gross net sales.

The NMFS is considering a one-year delay in implementation of lobster dealer electronic reporting. This alternative would provide some temporary relief to affected regulated entities, but would only put off the cost of coming into compliance with the proposed action for one year.

Commercial Fishing (NAICS 1141) – The SBA size standard for commercial fishing businesses is \$4 million in gross sales. The proposed action would potentially affect any fishing vessels using either trap or non-trap gear that holds a Federal lobster permit. During 2007 a total of 3,287 Federal lobster permits were issued. Of these permits 699 were issued only a non-trap gear permit, 2,168 were issued only a trap-gear permit, and 420 held both a trap and a non-trap gear permit. According to dealer records no single lobster vessel would exceed \$4 million in gross sales. Some individuals own multiple operating units so it is possible that affiliated vessels would be classified as a large entity under the SBA size standard. However, the required ownership documentation submitted with the permit application is not adequate to reliably identify affiliated ownership. Therefore, all operating units in the commercial lobster fishery are considered small entities for purposes of analysis.

The proposed action would implement a change in the v-notch definition as well as the maximum size regulations recommended in the lobster ISFMP. Except for proposed action in the OCA these actions have already been implemented by all states. The proposed action would implement a change in the v-notch definition as well as maximum size in the OCA that would be consistent with the Area 3 maximum size. Since all vessels must be permitted within a given state, and all vessels must comply with the most restrictive measure rule under the ISFMP, the proposed Federal action would not have any added economic impact on lobster vessels fishing in Areas 3, 4, 5, and 6 beyond impacts that may be associated with state action. The proposed action economic impacts

on small entities would be limited to vessels that have elected to fish in the OCA. Nevertheless, the following provides some discussion of the potential economic impacts of the suite of maximum size changes that would be implemented in Federal waters through this action.

Non-Trap Vessels - The economic impact of the proposed Federal action in the OCA was described in Section 4.3.3. This analysis showed that 133 vessels using non-trap gear landed lobster from the OCA. Dependence on lobster from any source for these vessels ranged from 0.03% to 30.6% in terms of value. However, few vessels relied exclusively on the OCA for lobster fishing revenue so that the maximum expected economic impact was about \$1,000 while the median impact was estimated to be \$117. These values are reflective of the relatively low dependence on the OCA for lobster fishing revenue and the low encounter rate suggested by observer data of lobsters above the 6 ¾" proposed maximum size. In terms of total fishing revenue these estimated revenue impacts represent between 0.01% and 1.2% of total fishing revenue for participating regulated non-trap gear small entities.

Although not directly resulting from this proposed action small entities using non-trap gear to harvest lobster would be affected by state action already taken to implement maximum size changes in Areas 2, 3, 4, 5, and 6. These actions would have broader effects than Federal action taken to implement a maximum size in the OCA alone. During 2007, the most recent complete fishing year, 235 non-trap vessels reported landing lobster on at least one occasion through logbooks. Of these vessels 37 reported landing lobsters exclusively from the Gulf of Maine. The majority of landings was likely to have been within the boundary of Area 1 and which would be unaffected by Federal or state action since the maximum size did not change. A total of 156 vessels landed lobster either in the OCA, Area 3, or in Area 2. Note that the impact of the maximum size changes in Areas 4, 5, and 6 were not estimated because of uncertainties regarding the relative contribution and size distribution of males and females in these management areas and because the relative abundance of larger lobsters irrespective of gender in these areas is likely to be quite low. For these reasons while it is possible that the estimated impact of the broader impacts of all changes in maximum size may be a lower bound any underestimate of economic impacts is expected to be small. The estimated change in lobster revenue for the 156 affected vessels affected by all changes in maximum size ranged from less than \$10 to nearly \$6,000. In terms of total revenue these values represented between less than 0.01% and 1.6% of total fishing revenues. At the lower end of this range small entities may be expected to be able to absorb the reduced revenues associated with changing the maximum size. However, at the upper end even a seemingly small change in fishing revenue of less than 2% may place a fishing business at financial risk as fishing costs have increased significantly due to the rising cost of fuel.

Trap-Gear Vessels – The economic impact of the proposed Federal action was described in Section 4.3.3. As noted above, during fishing year 2007 there were 2,588 lobster permit holders with a trap gear endorsement. Note that these individuals include 420 permit holders with a trap and non-trap gear permit. The proposed Federal action

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would directly affect only those individuals that selected the OCA on their permit application which was 184 Federal lobster vessels during 2007.

The economic impacts on the affected regulated entities fishing in the OCA since lobster permits are not subject to mandatory reporting if they hold no other Federal permits that do require reporting which is the case for many trap gear permit holders. For this reason, the economic impact of the change in maximum size in the OCA is uncertain. Survey data collected during 2005 by researchers at the Gulf of Maine Research Institute (GMRI) made available to the NMFS included information on lobster business profitability for businesses operating in the Areas 1, 2, and 3. Operators in the OCA were not specifically sampled. However, it is likely that these entities are of similar scale to operators that were sampled and fish on a lobster stock that bear some similarities to operators in Area 1 although the size composition of catch tends to be larger than would be the case in Area 1. Subject to these caveats, it was assumed that the cost and earnings profile for Area 1 survey participants would be a suitable proxy for financial performance of OCA trap participants.

The survey data indicate that the majority of Area 1 lobster businesses were able to cover operating costs with gross sales. However, net earnings for the majority of businesses were below median personal income for the New England region and only about 20% of lobster businesses earned a positive return to invested capital. Since 2005, fuel costs have more than doubled cutting average net return by about 30%. This is before taking into account the opportunity cost of the owner's labor or capital. Thus, profit margins have shrunk significantly since 2005 and even small changes in revenue streams could place lobster businesses in financial risk. Observer data suggest that the maximum size in the OCA would affect 0.5% of lobsters in the OCA landed catch. However, since a price premium is paid for these larger lobsters it is likely that the impact on the value of sales would proportionally larger than the change in landings.

The NMFS considered adopting the Area 1 maximum size for the OCA but rejected this option due to its likely economic impact on OCA lobster fishery participants. That is, observer data indicate that 17% of the OCA trap gear catch would be above the Area 1 maximum size of 5-inches. Due to the large potential economic impact this alternative would have had on OCA trap gear vessels this alternative was not selected.

Although Federal action taken through this proposed action would only directly affect the OCA, this action would also implement complementary maximum size measures in Areas 2, 3, 4, 5 and 6 to match actions already taken by the states under the lobster ISFMP. Lobster businesses in Areas 4, 5, and 6 were not sampled as part of the GMRI survey. Further, the maximum size in Areas 4 and 5 was reduced by only ¼" and was expanded to include male lobsters. Insufficient data are available on the size and gender distribution in Areas 4 and 5 to provide a reliable estimate of small entity impacts on vessels fishing in these areas. The size distribution of catch in Area 6 is similarly unavailable although the proportion of the available lobsters in Area 6 that would be above the maximum size is likely to be substantially less than in other areas. For this

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reason the economic impact of a maximum size in Area 6 is expected to have comparatively small effect on small entities fishing in Area 6.

Lobster businesses operating in Area 2 that were surveyed in 2005 were found to be in similar financial position as that of Area 1 operators although, average gross sales tended to be lower. As was the case for Area 1, most Area 2 lobster businesses earned less than the region-wide median personal income and only about 15% earned a positive return to capital. Considering the increased cost of fuel since 2005, profit margins have become increasingly squeezed. Assuming other costs have not changed significantly, most vessels may still be earning a positive accounting profit, but income levels are falling further behind median personal income and fewer lobster businesses earn a positive return on invested capital. The extent to which a maximum size would put increased financial stress on operators in Area 2 is uncertain. The sample size in the observer data for Area 2 is not large enough to estimate the size distribution of the landed catch. However, overfishing in the stock area that includes Area 2 has been occurring so that the proportion of the stock above the maximum size is likely to be lower than in the Gulf of Maine or Georges Bank stock areas. For this reason, the impact of a maximum size on Area 2 lobster trap fishing businesses is likely to be less than it may be on small entities fishing in the OCA or Area 3.

The scale of lobster businesses operating in Area 3 is very different than in all other areas. Among other differences, based on 2005 survey data, active Area 3 vessels are larger, take multiple day trips, hire more crew, and fish more traps than lobster businesses operating elsewhere. The 2005 survey data also suggest that, on average, Area 3 lobster businesses are in better financial position than lobster businesses from either Area 1 or Area 3. Earnings were found to be 21% above operating costs and average net income was above median personal income for the New England region and 60% of businesses earned a positive return to capital. However, the cost of fuel averaged \$51 thousand in 2005. At current prices this cost has more than doubled such that the financial position of Area 3 operators has changed significantly. In 2005, the cost of fuel and bait represented 24% of gross revenue. Assuming the cost of bait has not changed the increased cost of fuel means that fuel and bait costs would represent at least 36% of gross receipts. This change would virtually eliminate economic profit as the average operation would be able to just cover the opportunity cost of owner labor, but would not leave any financial return to invested capital. In the absence of the escalating cost of fuel, Area 3 lobster fishing businesses may have been able to absorb the loss in lobster fishing revenue associated with a maximum size without placing the majority of operators at financial risk. Under contemporary economic conditions, however, even small changes in revenue streams would place Area 3 operators at increased financial stress. Whether the losses in revenue associated with lobsters above the maximum size rises to this level is uncertain.

The added economic impact of the change in v-notch definition across all areas is highly uncertain. Although this change would result in an unknown level of reduced opportunities to retain legal lobsters it seems likely that this additional impact would have less impact on non-trap than trap vessels since non-trap vessels earn only a portion of

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total fishing revenue from lobsters. The added effect on trap vessels is difficult to assess, but would reduce potential revenue in addition to that which may be associated with either changes in existing maximum size or implementation of new maximum size regulations.

9.0 AGENCIES AND PERSONS CONSULTED

The following agencies and organizations were consulted during the development of the proposed action: The Atlantic States Marine Fisheries Commission and its member states; the New England Fishery Management Council; and the Mid-Atlantic Fishery Management Council.

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11.0 APPENDICES

Appendix 1: Addendum X to Amendment 3 of the ISFMP

Appendix 2: Addendum XI to Amendment 3 of the ISFMP

Appendix 3: 2006 Stock Assessment, Exec. Summary

Appendix 4: ME/MA Conservation Equivalency Memo, ASMFC

Appendix 5: ANPR, 72 FR 53978, September 21, 2007

Appendix 6: American Lobster Stock Areas Chart

Appendix 7: ASMFC Lobster Compliance Report

Appendix 8: List of Acronyms

Appendix 9: American Lobster Conservation Management Areas Chart