

5.6 Social Impact Analysis

5.6.1 Social and Community Impacts

5.6.1.1 Introduction and Background

This social impact assessment characterizes the magnitude and extent of the social impacts likely to result from the alternatives considered in Amendment 13 to the Northeast Multispecies FMP as compared to the no action alternative. To the extent possible, the following assessment provides a comparison of alternatives under consideration to support the Council's decision-making process.

This assessment was prepared in accordance with NEPA and the Magnuson-Stevens Fishery Conservation and Management Act, as well as other applicable laws. NEPA requires that economic and social impacts of regulatory actions be considered and evaluated through a decision-making process that involves the public. National Standard 8 of the Magnuson-Stevens Act states that:

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.

It is important to note that the current interpretation of National Standard 8 requires the Council to consider the importance of fishery resources to affected communities and provide those communities with continuing access to fishery resources, but it does not allow the Council to compromise the conservation objectives of the management measures. *Sustained participation* is interpreted as continued access to the fishery within the constraints of the condition of the resource. The long-term conservation and rebuilding of stocks often require that limits be placed on particular gears and/or the harvest of specific stocks. Thus, the law interprets National Standard 8 only as a consideration of continued overall access to fishery resources and not as a guarantee that fishermen will be able to use a particular gear type, harvest a particular species of fish, fish in a particular area, or fish during a certain time of the year.

A fundamental difficulty exists in attributing social change to specific factors such as management regulations when communities or other societal groups are constantly evolving in response to numerous additional external factors, such as market conditions and technology. Increasingly important influences in coastal communities include demands for recreational uses of the waterfront and tourism (these influences are referred to as *gentrification* in the MARFIN Report). Certainly, management regulations influence the direction and magnitude of social change, but attribution is difficult with the tools and data available. Attribution is particularly difficult considering the dynamic and fluid nature of fishing communities. As a result, while this assessment focuses generally on the social impacts of the proposed fishing regulations, it is recognized that external factors are also influencing change, both positive and negative, in the affected communities. In many cases, these factors contribute to a community's *vulnerability* and ability to adapt to new or different fishing regulations.

5.6.1.1.1 Scale of Assessment – Fishing Communities

Section 316 of Magnuson-Stevens Act defines a fishing community as:

a community which is substantially dependent on or substantially engaged in the harvesting or processing of fishery resources to meet social and economic needs, and includes fishing vessel owners, operators, and crew and United States fish processors that are based in such community.

As discussed in the Affected Human Environment (section 9.4), there are a number of issues involved in whether a port meets National Standard 8's legal definition of a fishing community. But fishery impact statements, such as the social impact analysis, must examine the impacts to all the participants, including all communities and other groups that participate in the fishery. Thus for the purposes of this social and community impact assessment, the primary and secondary port groups identified and described in the Affected Human Environment (section 9.4.5) will serve as the primary scale of measurement. **Primary groups** are those communities that are currently most substantially engaged in the groundfish fishery (see the Affected Human Environment for a discussion of the distinction between substantially engaged and substantially dependent in National Standard 8). For the most part, primary groups are fishing communities that are likely to be the most significantly and directly impacted by Amendment 13 management measures, and the analysis of impacts on them speaks to the analytical requirements of National Standard 8. However, the impacts of Amendment 13 are predicted to be large in scale, affecting most ports engaged in the groundfish fishery. This assessment, therefore, has sought to gain a wide perspective on the magnitude and extent of the impacts of the alternatives under consideration. Thus the analysis also considers **Secondary groups**, which are those ports that currently may not be substantially involved in or dependent on the groundfish fishery but have demonstrated some participation in the groundfish fishery since the 1994 fishing year (FY94). They also may consist of places that were historically more involved in the groundfish fishery, but are not recently for many reasons (loss of nearshore fishery, concentration of fishery in larger ports, external factors, etc.).

Current guidance on National Standard 8 defines a community as a town or city, a geographic unit which might fit the Census Bureau's definition of a "place." But it is important to note that fishing communities are not bounded or separated from the commerce and institutional apparatus of the larger cities and towns in which they are located. In fact, most fishing communities rely on a rather complicated network of business and social ties that extend well beyond their geographic boundaries and often into other communities in the region. The grouping of communities in this assessment and the socioeconomic context provided by the IMPLAN model allows for some consideration of the interconnected nature of ports and communities when predicting the impacts of Amendment 13. Moreover, because the size and diversity of the groundfish fishery makes it impractical to consider impacts on each secondary port individually, their grouping with other secondary ports in the same county or geographically adjacent counties has been done consistently with the regions analyzed using the IMPLAN model (see section 5.4.6), so that it can be used to better characterize the impacts on these community groups.

When predicting social impacts of management measures, it is important to consider impacts on the following, which will be discussed to the extent possible in the following sections:

- the fishing fleet (vessels grouped by fishery, primary gear type, and/or size);
- boat owners and captains;
- crew;
- fish buyers (dealers);
- seafood markets;
- community cooperatives;
- fishing industry associations;
- cultural components of the community;
- fishing families.

5.6.1.2 SIA Information Sources

An updated and comprehensive description of the affected human environment (multispecies fishermen and fishing communities) is presented in section 9.4. Additional fishery and community information as well as an assessment of the social impacts of the multispecies rebuilding program are presented in Amendments 5,

7, and 9 to the Northeast Multispecies FMP. Frameworks 25, 26, 27, 30, 31, and 33 also contain useful information on affected fishing vessels and communities as well as predictions about the social impacts of recent groundfish management measures. The information in these documents supplements this social impact assessment and provides background information to help assess the impacts of the Amendment 13 management alternatives.

New information is available for use in assessing the social and community impacts of the Amendment 13 alternatives. Recent studies, inventories, and other important publications containing social, economic, and community information are summarized in section 9.4.5. New information includes the recently-published MARFIN Report, other community profiles, the ME DMR Groundfish Regulation Impact Survey, and Council staff initiatives including the Social Impact Informational Meeting Report. While it is not practical to include all of the information in this document, readers and reviewers should reference these additional sources of information to gain a more complete perspective on the issues. Where appropriate, key findings and important information from these documents are summarized to support the conclusions drawn in this impact assessment. These additional materials can be obtained by contacting the Council office. The Social Impact Informational Meeting Report serves as Appendix I to the document.

5.6.1.2.1 Background

Amendment 7

This EIS is the first since Amendment 7 to the Northeast Multispecies FMP in 1996 (Framework 36 was never submitted). Amendment 7 was the most comprehensive program in a ten-year long sequence of management actions designed to rebuild and manage the Northeast multispecies fishery. It built on the management system implemented in Amendment 5 with controls on the number and size of vessels that may fish for regulated multispecies, the number of days-at-sea a vessel may fish for those species, and the size of the fish that can be caught. Specifically, Amendment 7 contained the following measures:

- modifications to the limited access and open access permit categories in the permit moratorium;
- target Total Allowable Catch (TAC) levels to provide a basis for evaluating the effectiveness of the rebuilding program;
- continuation of Regulated Large Mesh Areas (minimum mesh size for **all** fishing activities);
- a certification process for fisheries using mesh smaller than the minimum mesh with less than 5% regulated species bycatch;
- adjustments to the Days-At-Sea (DAS) Effort Reduction Program (an accelerated timeline for reducing available DAS);
- gear restrictions (minimum mesh size, restrictions on the number of nets);
- year-round and seasonal area closures;
- possession limits for some stocks (for example, the haddock possession limit was 1,000 pounds);
- additions to the measures that can be implemented through the framework adjustment process; and
- mandatory data reporting requirements for vessel operators and dealers.

When the Council implemented the multispecies stock rebuilding program in Amendment 7, it recognized that the measures required to achieve the plan objectives would have significant social and community impacts. It stated that the breadth and scope of those measures would likely cause social change proportional to the individual or community dependence on the affected stocks. The Council also noted that the social impacts of the management measures are largely related to their economic impacts, and as such would be severely negative in the short-term and positive in the long-term, although some fundamental changes would occur for which a value cannot be assessed.

The “Social Impacts” section of Amendment 7 was framed by six guiding precepts:

- Will standards, style, or pace of living change?
- Will cooperation and interaction patterns change?
- Will change be sudden or gradual?
- How does the proposed action fit with historical trends and participation in the fishery?
- Does the change fit with cultural or normative expectations of behavior in the fishery or community?
- How do fishermen and the community members view the alternatives?

Significant social impacts predicted in Amendment 7 are summarized below, categorized by the management measure they were associated with in the analysis.

Modifications to limited access and open access categories: Amendment 7 proposed modifications to the previously instituted permit moratorium, including the elimination of two open access categories (possession-limit-only and hook-gear-only); transfer of vessels permitted in these categories to similar, limited access categories; creation of one additional small-scale or subsistence open access category (handline/rod-and-reel); and creation of a charter/party permit class. The social impacts of these permit modifications as predicted by Amendment 7 were mixed. For example, some open access permit holders would likely not qualify for limited access permits in the short-term, resulting in a potential loss of revenues; however, creation of the handline/rod-and-reel category (with its accompanying 300-pound trip limit) was seen as a way to mitigate the resulting impacts of this by not completely shutting out the previously open-access fleet. An additional positive impact associated with the modifications was the potential incentive they would provide for smaller vessels to remain flexible in gears used and species fished, which could help compensate for a projected loss of revenues from groundfish harvesting.

Implementation of target Total Allowable Catch (TAC) levels to provide an evaluative basis for rebuilding efforts: The potential social impacts of this management decision as outlined in Amendment 7 were all positive in nature. Amendment 7 characterized target TAC levels as tools for assuring long-term compliance with rebuilding goals and considered important for rebuilding the resource and the fishery in its entirety.

Certification of bycatch fisheries: This provision of Amendment 7 outlined a certification process for the exemption of certain fisheries using mesh smaller than the minimum standard, but with less than 5% regulated species (groundfish) bycatch. Predicted impacts of this measure were again largely characterized as positive, by providing fishermen options for diversification into other fisheries (dogfish, silver hake, herring, fisheries west of 72°30’).

Accelerated effort reduction program (Days-at-Sea): This proposed action reduced Days-At-Sea (DAS) for affected vessels at an accelerated rate of 50% over two years, while simultaneously adding hook and gillnet vessels to the DAS requirements. Amendment 7 clearly anticipated significant social impacts resulting from these enhanced reductions in allowable groundfish DAS, primarily that some vessels, particularly those already in a financially uncertain position, would not be able to survive the reductions. The amendment supported this assessment with a presentation of the findings of an analysis that evaluated the “break-even” (operating costs equal to revenues) levels of DAS for a variety of vessel types and ports of landing. The analysis predicted a significant failure of both large and small vessels across ports, particularly in Year 2 of the program which would see allowable DAS reduced to 88 for Fleet DAS vessels and by 50% for Individual DAS vessels. Another predicted impact arising from DAS reductions was an increase in conflict in inshore fisheries between vessels fishing with different gear types, driven to those fisheries by the desire to avoid losing DAS to steaming time.

Gear Restrictions: Both minimum mesh sizes and square mesh requirements were unchanged by Amendment 7; minimal impacts were predicted for gillnetters, as the majority of gillnet vessels were

already operating with mesh larger than that required by existing regulatory minimums at the time Amendment 7 was implemented.

Area Closures: Closed Areas I and II and the Nantucket Lightship Area would remain closed on a year-round basis as earlier mandated by Framework Adjustment 9, generating a prediction of no additional impacts.

A process for establishing seasonal spawning closures was provided for in Amendment 7, but impacts were considered beyond the scope of the Amendment's analysis prior to specification of the specific closure area(s). The amendment did note that large area closures lead to crowding of the remaining fishing grounds and conflicts between those fishing with different gear types. It also briefly discussed the possible impacts on family and social cohesion from disruption of the traditional routine of fishermen, and from the possibility that small-vessel fishermen could be converted to laboring on larger vessels, with accompanying longer hours at sea.

Possession Limits: The decision to raise the possession limit for haddock from 500 to 1,000 pounds was seen as having a substantial positive impact on large otter trawls operating from Gloucester, New Bedford, and Portland. This impact was largely characterized in the amendment as an opportunity for large vessels landing haddock at these ports to increase revenues generated by haddock, particularly as a proportion of all revenues received from groundfish harvesting.

Mandatory Data Reporting: Amendment 7 categorizes the Northeast groundfish fishery as heterogeneous and highly competitive, which therefore heightens the importance of monitoring and data reporting by vessel operators and dealers to successful management of the resource. This provision was added as a means of assessing actual activity and ensuring that enforcement actions are taken when the requirements of the FMP are violated. One positive social impact implied here is a reduction in perceptions among fishermen that voluntary compliance with regulations puts them at a disadvantage to other resource users who do not similarly comply.

Framework Adjustments: The amendment states that "leaving open the possibility of adjusting any measures, as needed, to meet rebuilding goals greatly increases the long-term effectiveness of this amendment." The perceived flexibility associated with adjustments – particularly in the case of the DAS limitations – is projected as something which ultimately will benefit the entire fishing industry by allowing the Council to respond to updated information about the evolving condition of the stocks.

A complete discussion of the social and community impacts predicted from the Amendment 7 management measures can be found in the Amendment 7 EIS.

Cumulative Impacts

Much has happened in New England fisheries management since the implementation of Amendment 7. The Magnuson-Stevens Act was reauthorized in 1996, and the SFA amendments to the MSFCMA added three new National Standards, including one relating to fishing communities, safety at sea, and bycatch. The reauthorized MSFCMA also emphasized the need to conserve and manage fisheries resources and rebuild each stock to levels that can sustain MSY on a long-term basis. The New England Council has responded to the requirements of the new law with modifications to groundfish regulations almost on an annual basis since Amendment 7 was implemented.

The Council's response to the mandates of the MSFCMA has resulted in the implementation of management measures through the framework adjustment process, the impacts of some of which were not fully considered or predicted in Amendment 7. Framework 25 was considered a multispecies annual adjustment but was actually the first in a series of framework adjustments implemented to address concerns about Gulf of Maine cod (Frameworks 20 and 24 also included measures to reduce fishing mortality on Gulf of Maine cod, but they were not as comprehensive as the effort that was initiated with Framework 25).

Framework 25 became effective at the beginning of the 1998 fishing year (May 1, 1998). The purpose of Framework 25 was to significantly reduce fishing effort on Gulf of Maine cod through a combination of direct and indirect measures. Direct measures included area closures and Gulf of Maine cod trip limits, and indirect measures included an incentive for vessels to shift fishing effort from the Gulf of Maine to Georges Bank with an increase in the Georges Bank haddock trip limit. Since Framework 25 and over the past 3-1/2 years, ten additional framework adjustments have been implemented, and all but three included measures to protect and rebuild Gulf of Maine cod (two were for whiting management, and one addressed marine mammal issues).

One example of social impacts that were not predicted in Amendment 7 is what resulted from increased regulatory discarding of Gulf of Maine cod due to low trip limits. When Amendment 7 was implemented, there was no Gulf of Maine cod trip limit, nor were there any proposals in Amendment 7 to establish a trip limit for Gulf of Maine cod. The first Gulf of Maine cod trip limit was implemented as part of Framework 20 on May 1, 1997 (1,000 pounds per DAS up to four days, 1,500 pounds per day greater than four days). It was reduced again in Framework 24 to 700 pounds, and then reduced to 400 pounds in an interim action on June 12, 1998. Framework 27 reduced the trip limit to 200 pounds and gave authority to the Regional Administrator of NMFS to again reduce the trip limit to 5-100 pounds when 51 percent of the target TAC was projected to be reached. Less than one month after the start of the 1999 fishing year, the Regional Administrator, based on NMFS' calculations, lowered the Gulf of Maine cod trip limit to just 30 pounds. Large-scale public outcry ensued. Fishermen claimed that they were being forced to throw overboard hundreds, sometimes thousands of pounds of cod. They were disgusted about wasting valuable fisheries resources, and they reported experiencing stress, loss of morale, and loss of job satisfaction as a result of regulatory discarding (see Social Impact Meeting Report in Appendix I). The Council attempted to address this discard situation and eventually increased the trip limit back to 400 pounds in Framework 33.

In addition to increased groundfish restrictions since the reauthorization of the MSFCMA, regulations in other fisheries have increased considerably, thereby reducing opportunities for groundfish vessels to pursue many of the alternative fisheries that were identified in Amendment 7. For example, the federal dogfish fishery has all but disappeared. The annual quota for dogfish is around 4 million pounds, and the trip limits have been reduced to 600 and 300 pounds, eliminating this fishery as a viable alternative to groundfishing and generating a significant amount of regulatory discards. More recently, skate resources have been identified as management concerns, and the Council is currently developing a Fishery Management Plan for the northeast region's skate complex, a resource that was once promoted as an underutilized species. Management of the shrimp, monkfish, squid, scup, and other fisheries has become increasingly restrictive, making it more difficult for groundfish vessels to effectively shift their effort from groundfish to other species.

2002 in particular has been a difficult year full of uncertainty, confusion, and change. The outcome of the recent lawsuit on Framework 33 and the resulting court order implementing additional reductions in the 2002 fishing year and establishing a timeline for Amendment 13 have disrupted fishing activity throughout the region, the social and community impacts of which have not yet been fully realized. Two major adjustments to groundfish measures occurred through the court-ordered NMFS Interim Action (settlement agreement) on May 1, 2002 and August 1, 2002. These actions followed a reversal of a court decision to implement a much more restrictive baseline for allocating DAS for the 2002 fishing year. Changes occurred quickly and numerous in the groundfish fishery during the 2002 fishing year, leaving most affected entities with little opportunity to plan their businesses and/or adapt to the new restrictions. The most significant component of these restrictions included a new baseline for DAS allocations followed by a 20% reduction in allocated DAS. Many vessels remained uncertain about their new DAS allocations right through the beginning of the 2002 fishing year and were disadvantaged in terms of their ability to try to plan their business strategy and maximize what remaining DAS they had. The social impacts of the recent DAS reductions as well as many of the other measures recently implemented in the court order are discussed throughout this assessment.

Another development that is important to consider in the context of this assessment is the recent discovery that an error was made in the measurement of the trawl warps on the NEFSC's Research Vessel Albatross. This error has apparently affected surveys for 2000-2002, which are used in part to assess the status of groundfish stocks. While the impacts of this error are not yet fully understood, the Council is under a court order to move forward with the development of Amendment 13. The trawl survey error has shaken the confidence of fishermen in the scientific and management process and has further compromised the credibility of NMFS and the NEFSC in the eyes of the industry and other sectors of the public. Fishermen feel that scientists must finally acknowledge their longstanding claims that many fishery resources are in better condition than recent scientific information indicates and that major problems exist with the trawl survey. At the time of this writing, scientists remain equivocal about the impacts of the trawl survey error on the current status of the groundfish resources and Amendment 13. Both NEFSC(2002b) and Payne et al. (2003) concluded that the information was suitable for use in making management decisions, but these conclusions did not allay the concerns of fishermen. Resolution of this issue could result in additional social impacts, depending on perceptions about the transparency of the scientific process and the formation of attitudes towards the resolution.

The Council recognizes that a byproduct of continuous incremental plan modifications combined with other factors that have caused disruption and uncertainty in recent time is that cumulative impacts may not be adequately assessed. Even as the individual adjustments themselves are determined to have no significant social impacts beyond those predicted in Amendment 7, they may have generated additive or synergistic effects contributing to a change in the overall magnitude and intensity of social impacts affecting participants in the fishery. Cumulative impact assessment is a process that attempts to provide a broader perspective on these types of changes by characterizing the impacts on a system across time and space occurring in an additive or synergistic manner. To the extent possible, this assessment considers the cumulative impacts of recent fishery management actions as well as the potential impacts of foreseeable future actions not only in the groundfish fishery, but also in other associated fisheries. Many cumulative social impacts since Amendments 5 and 7 are discussed in detail in the Social Impact Informational Meeting Report contained in Appendix I to this amendment.

5.6.1.3 SIA Communities of Interest

The communities that are likely to experience significant impacts from the alternatives under consideration include those with at least one of the following characteristics:

- an active and large multispecies fishing fleet,
- vessels and shoreside facilities that currently depend on groundfish for a substantial portion of their business,
- geographically close to areas proposed for additional seasonal or year-round closure, and
- vessels that hold a substantial amount of latent effort (inactive DAS).

The above criteria qualify almost every one of the 40 primary community and secondary port groups described in the Affected Human Environment, except for the "other" categories and some of the most southern states. Because it is not practical to identify all of these groups as *communities of interest* for this assessment, the following groups have been chosen to represent the diversity, scale, and extent of those involved in the groundfish fishery. Inferences can be drawn about social impacts on other port groups based on the information presented in the Affected Human Environment and the likely distribution of other predicted impacts. All primary community groups have been identified as *communities of interest* for this assessment.

Primary Community Groups

1. Portland, Maine
2. Portsmouth, New Hampshire
3. Gloucester, Massachusetts

4. Boston, Massachusetts
5. Chatham/Harwichport, Massachusetts
6. New Bedford/Fairhaven, Massachusetts
7. Point Judith, Rhode Island
8. Eastern Long Island, New York

Secondary Community Groups

9. Upper Mid-Coast 1, Maine
10. Lower Mid-Coast 1, Maine
11. NH Seacoast
12. South Shore, Massachusetts
13. Provincetown, Massachusetts
14. Eastern Rhode Island
15. Northern Coastal New Jersey

It is important, however, to consider the impacts of the proposed alternatives across all communities. Social impacts can be defined as the changes that a fisheries management action may create in people's way of life (how they live, work, play, and interact), people's cultural traditions (shared beliefs, customs, and values), and people's community (population structure, cohesion, stability, and character). As such, social impacts may result from changes in flexibility, opportunity, stability, certainty, safety, and other factors that are not specific to any community, but oftentimes to any individual or entity experiencing changes resulting from a fishing regulation.

It is possible that the social impacts of some measures under consideration will not be experienced solely by one community group or another; rather, it is likely that some impacts will be experienced across communities, gear sectors, and vessel size classes. An example of this would be a reduction in allocated DAS if it is applied to all multispecies permit holders. Another example would be a mesh restriction for otter trawl vessels. While extra consideration is given to the *communities of interest* for this framework, the potential social impacts of the measures under consideration are discussed generally in this assessment so that their impacts across communities can be understood more clearly.

The following paragraphs summarize recent fishing activity in the *communities of interest*. More information about these and other communities is presented in the Affected Human Environment.

Portland, Maine: In FY99 and FY00, Portland averaged 13,770,600 pounds of groundfish landings and \$15,620,900 in groundfish revenues, establishing it as an important port of landing for groundfish vessels and a primary port for the multispecies fishery. The community of Portland is also substantially dependent on groundfish for a significant portion of its total fisheries revenues. In FY99 and FY00, 46 active multispecies vessels homeported in Portland earned more than \$10,800,000 in revenues from groundfish. More than 64% of Portland's total fisheries revenues from federally-permitted vessels came from groundfish from FY99 – FY00. While these data reflect the community's relative dependence on the groundfish fishery, it is important to remember that at least some of the individual groundfish vessels in Portland are even more than 64% dependent on the multispecies fishery. Vessel-level impacts of the Amendment 13 measures, therefore, will vary.

At the social impact informational meeting in Portland, residents of Portland reported having experienced the most significant social impacts from the Amendment 5/7 DAS reductions (Appendix I). Many of Portland's active groundfish vessels possess Individual DAS permits and have experienced a 50% reduction in their Individual DAS. Moreover, most Individual DAS vessels use the majority of their allocated DAS. The measures proposed in Amendment 13 that are likely to impact this community the most are those that

modify or further reduce DAS allocations. However, because Portland is such a large and important groundfish port, and because of its location, it is likely that most measures proposed in Amendment 13 will affect this community. The EA for the settlement agreement estimated that 84.9% of groundfish activity in Portland could be affected by the recently-implemented Interim Action.

Portsmouth, New Hampshire: In FY99 and FY00, Portsmouth averaged 2,265,300 pounds of groundfish landings and \$2,199,500 in groundfish revenues. The increasing number of multispecies vessels landing in Portsmouth as well as activity at the Portsmouth Co-op indicate that Portsmouth is an important port of landing for groundfish vessels. The community of Portsmouth is also dependent on the groundfish fishery for a significant portion of its total fisheries revenues. In FY99 and FY00, Portsmouth's dependence on groundfish for its total fisheries revenues from federally-permitted vessels averaged about 55%. While these data reflect the community's relative dependence on the groundfish fishery, it is important to remember that at least some of the individual groundfish vessels in Portsmouth are even more than 55% dependent on the multispecies fishery. Vessel-level impacts of the Amendment 13 measures, therefore, will vary.

At the social impact informational meeting in Portsmouth, residents of Portsmouth and the NH Seacoast reported that they have experienced the most significant social impacts from the Gulf of Maine inshore area closures and the low Gulf of Maine cod trip limits (Appendix I). The measures proposed in Amendment 13 that are likely to impact this community the most, either positively or negatively, are those that modify inshore Gulf of Maine area closures and the Gulf of Maine cod trip limit. However, depending on the alternative selected, other measures have the potential to significantly affect this community (for example, large-scale DAS reductions).

The EA for the settlement agreement estimated that 77.2% of groundfish activity in Portsmouth could be affected by the recently-implemented Interim Action. In addition, business at the Portsmouth Co-op has been affected by the recent reductions. The Co-op even closed temporarily as a result of the measures that were implemented on May 1, 2002.

Gloucester, Massachusetts: In FY99 and FY00, Gloucester averaged 13,670,200 pounds of groundfish landings and \$15,553,450 in groundfish revenues. The significant amount of landings and revenues as well as the importance of the Gloucester Seafood Display Auction and other shoreside facilities indicate that Gloucester is an important port of landing for multispecies vessels and a primary port for the multispecies fishery. In FY99 and FY00, an average of 133 vessels homeported in Gloucester generated about \$12,207,750 in revenues from groundfish. Since FY94 and probably prior to then, more than 60% of Gloucester's total fisheries revenues from federally-permitted vessels have been generated from groundfish, illustrating Gloucester's substantial dependence on the groundfish fishery. While these data reflect the community's relative dependence on the groundfish fishery, it is important to remember that at least some of the individual groundfish vessels in Gloucester are even more than 60% dependent on the multispecies fishery. Vessel-level impacts of the Amendment 13 measures, therefore, will vary.

At the social impact informational meeting in Gloucester, residents of Gloucester reported that they have experienced the most significant social impacts from the Gulf of Maine area closures, both year-round and seasonal (Appendix I). Therefore, the measures proposed in Amendment 13 that are likely to impact this community the most, either positively or negatively, are those that modify the Gulf of Maine rolling closures. However, because Gloucester is such an important groundfish port and because of its location, it is likely that most measures in Amendment 13 will impact this community. Large-scale DAS reductions will undoubtedly have significant impacts on this port. The EA for the settlement agreement estimated that 84.5% of groundfish activity in Gloucester could be affected by the recently-implemented Interim Action.

Boston, Massachusetts: In FY99 and FY00, Boston averaged 3,983,150 pounds of groundfish landings and \$5,118,750 in groundfish revenues. These landings as well as the historical importance of Boston as a provider of fishing-related support services for smaller communities indicate that Boston is an important primary community. In FY99 and FY00, almost all active vessels homeported in Boston fished for

groundfish during some or all of the year. These vessels averaged \$4,440,750 in groundfish revenues for Boston. The community of Boston was dependent on the multispecies fishery for almost 56% of its total fisheries revenues from federally-permitted vessels from FY99 – FY00. While these data reflect the community's relative dependence on the groundfish fishery, it is important to remember that at least some of the individual groundfish vessels in Boston are even more than 56% dependent on the multispecies fishery. Vessel-level impacts of the Amendment 13 measures, therefore, will vary.

At the social impact informational meeting in Boston, participants reported that they have experienced the most significant social impacts from the Amendment 5/7 DAS reductions (Appendix I). Many of Boston's active groundfish vessels possess Individual DAS permits and have experienced a 50% reduction in their Individual DAS. Moreover, most Individual DAS vessels use the majority of their allocated DAS. The measures proposed in Amendment 13 that are likely to impact this community the most are those that modify or reduce DAS allocations and those that change the ways that DAS are counted. The EA for the settlement agreement estimated that 83.2% of groundfish activity in Boston could be affected by the recently-implemented Interim Action.

Chatham/Harwichport, Massachusetts: In FY99 and FY00, Chatham and Harwichport averaged 5,980,850 pounds of groundfish landings and \$7,254,100 in groundfish revenues, establishing it as an important port of landing for groundfish vessels and a primary port for the multispecies fishery. Chatham and Harwichport also serve as homeports for a significant number of multispecies vessels. In FY99 and FY00, an average of 95 multispecies vessels homeported in Chatham/Harwichport generated \$6,844,500 in revenues from multispecies. Chatham's overall community dependence on multispecies as a percentage of total fisheries revenues from federally-permitted vessels averaged about 71% from FY99 – FY00. It is likely that at least some of the active groundfish vessels in Chatham and Harwichport are even more than 71% dependent on the multispecies fishery.

At the social impact informational meeting in Chatham, a few residents of Chatham and Harwichport submitted comments reporting that they have experienced the most significant social impacts from the May closure on Georges Bank to protect cod (Appendix I). The majority of multispecies vessels from Chatham/Harwichport fish for Georges Bank cod and not Gulf of Maine cod. The measures proposed in Amendment 13 that are likely to impact this community group the most are those that modify or add nearshore area closures on Georges Bank and those that modify the Georges Bank cod trip limit. The EA for the settlement agreement estimated that an average of 46.5% of groundfish activity in Chatham and Harwichport could be affected by the recently-implemented Interim Action.

New Bedford/Fairhaven, Massachusetts: In FY99 and FY00, New Bedford and Fairhaven averaged 26,995,750 pounds of groundfish landings and \$30,005,500 in groundfish revenues, establishing it as an important port of landing for groundfish vessels and a primary port for the multispecies fishery. New Bedford/Fairhaven is also an important port of landing for scallop vessels, and its dependence on the scallop fishery for revenues reduces its overall dependence on the multispecies fishery, although many individual vessels may be more dependent on groundfish. In FY99 and FY00, an average of 165 multispecies vessels homeported in New Bedford/Fairhaven generated \$24,821,550 in multispecies revenues. Despite these high numbers, New Bedford/Fairhaven's community dependence on groundfish is relatively low compared to other communities of interest, averaging 22% for FY99 and FY00. It is likely, however, that at least some of the active groundfish vessels in New Bedford and Fairhaven are more than 22% dependent on the multispecies fishery. The data suggest that from a community-impact perspective, impacts from the measures in Amendment 13 may be less significant in New Bedford/Fairhaven because the community is less dependent on groundfish for its overall fisheries revenues and because some impacted vessels may have the ability to offset losses in groundfish revenues with revenues from other fisheries. In addition, the multispecies vessels in New Bedford/Fairhaven are significantly larger than multispecies vessels in many other communities, so they may be more suited to adapt to some measures (for example, area closures) by shifting to different fishing areas or changing their fishing practices. However, because they tend to fish

offshore on multi-day trips, they could be more impacted by trip limits and DAS reductions. The vessel-level impacts of the Amendment 13 measures will vary.

At the social impact informational meeting in New Bedford, residents of New Bedford and Fairhaven indicated that they have experienced the most significant social impacts from the Amendment 5/7 DAS reductions (Appendix I). Many of New Bedford's active groundfish vessels possess Individual DAS permits and have experienced a 50% reduction in their Individual DAS. Moreover, most Individual DAS vessels use the majority of their allocated DAS. The measures proposed in Amendment 13 that are likely to impact this community the most are those that modify or further reduce DAS allocations and those that change the ways that DAS are counted. The EA for the settlement agreement estimated that 73.3% of groundfish activity in New Bedford could be affected by the recently-implemented Interim Action.

Point Judith, Rhode Island: In FY99 and FY00, Point Judith averaged 2,830,900 pounds of groundfish landings and \$2,847,150 in groundfish revenues. Groundfish landings and revenues in this community have increased considerably since the 1994 fishing year, suggesting that Point Judith is becoming a more important port of landing for multispecies vessels. Point Judith's dependence on groundfish for its total fisheries revenues from federally-permitted vessels has also increased significantly in recent years. In FY99 and FY00, an average of 66 multispecies vessels homeported in Point Judith generated \$4,868,050 in multispecies revenues for the community. This represented about 18% of Point Judith's total fisheries revenues from federally-permitted vessels (versus 5.5% in FY94). Similar to New Bedford, the data suggest that from a community-impact perspective, the impacts of the measures in Amendment 13 may be less significant in Point Judith because the community is less dependent on groundfish for its overall fisheries revenues and because impacted vessels may have the ability to offset losses in groundfish revenues with revenues from other fisheries. Many of Point Judith's vessels are actively involved in fisheries in the Mid-Atlantic region (squid, fluke, etc.). However, increasing reliance on groundfish in recent years suggests that vessels may have more difficulty shifting effort as restrictions in these other fisheries increase and opportunities decrease. In addition, on an individual-vessel basis, impacts may be more severe. It is likely that at least some of the active groundfish vessels in Point Judith are more than 18% dependent on the multispecies fishery.

At the social impact informational meeting in Point Judith, residents reported that they have experienced the most significant social impacts from gear restrictions and DAS reductions (Appendix I). Gear restrictions were cited compromising the ability to plan a business and ultimately costing everyone affected by the regulation more money. The measures proposed in Amendment 13 that are likely to impact this community the most are gear restrictions and modifications to and/or further reductions in DAS. DAS reductions may affect Point Judith vessels the most by compromising their ability to fish for groundfish as an alternative for other fisheries. The EA for the settlement agreement estimated that 82.7% of groundfish activity in Point Judith could be affected by the recently-implemented Interim Action.

Eastern Long Island, New York: In FY99 and FY00, Eastern Long Island averaged 1,486,600 pounds of groundfish landings and \$1,577,500 in groundfish revenues. Groundfish landings and revenues in this community group have increased considerably since the 1994 fishing year, suggesting that Eastern Long Island communities are becoming more important ports of landing for multispecies vessels. Eastern Long Island's dependence on multispecies revenues for its total fisheries revenues from federally-permitted vessels has also increased considerably since the 1994 fishing year. On average, from FY99 to FY00, this community group depended on groundfish for almost 17% of its total fisheries revenues from federally-permitted vessels (versus 2.4% in FY94). It is likely that at least some of the active groundfish vessels in Eastern Long Island are more than 17% dependent on the multispecies fishery. Similar to New Bedford and Point Judith, however, from a community-impact perspective, impacts from the measures in Amendment 13 may be less significant in Eastern Long Island than in other communities because this area is less dependent on groundfish for its total fisheries revenues and because impacted vessels may have the ability to offset losses in groundfish revenues with revenues from other fisheries. Also, most of the multispecies vessels homeported in Eastern Long Island are not using all of their DAS. However, increasing reliance on

groundfish in recent years suggests that vessels in Eastern Long Island may have more difficulty shifting effort as restrictions in other fisheries increase and opportunities decrease.

At the social impact informational meeting in Riverhead, residents of Eastern Long Island communities reported that they have experienced the most significant social impacts from increased restrictions in fisheries other than groundfish. DAS were cited as providing flexibility and opportunities for groundfishing when quotas for other fisheries closed or became too restrictive. This is apparent in the increased landings for this community group as well as its increased reliance on groundfish for its total fisheries revenues. Therefore, the measures proposed in Amendment 13 that are likely to impact this community group the most are those that modify or further reduce DAS allocations and those that change the ways that DAS are counted. In addition, the alternatives to address capacity have the potential to significantly impact this community group. The impacts of Amendment 13 will be significant to the extent that DAS changes constrain vessels in Eastern Long Island from shifting effort onto groundfish and increasing their DAS usage in response to regulations in other fisheries. The EA for the settlement agreement estimated that an average of 84.5% of groundfish activity in Eastern Long Island ports could be affected by the recently-implemented Interim Action.

Upper Mid-Coast 1, Maine: This community group includes Rockland, Port Clyde, and surrounding communities. In FY99 and FY00, this group averaged 1,100,250 pounds of groundfish landings and \$1,106,300 in groundfish revenues. These values have significantly increased since the 1994 fishing year, suggesting that ports in this community group are becoming more important ports of landing for multispecies vessels. Rockland was historically a very important multispecies port, so increased multispecies activity in this area in recent years may somewhat reflect a return towards historical patterns and/or a re-emergence of groundfish activity lost due to stock declines. In contrast, this community group has become less dependent on multispecies in recent years. The 16 vessels homeported in this area earned an average of \$1,192,400 in groundfish revenues from FY99 – FY00. The community group's dependence on groundfish for its total fisheries revenues from federally-permitted vessels averaged 23.1% for this time period (versus 46.1% in FY94). While these data reflect the community's relative dependence on the groundfish fishery, it is important to remember that at least some of the individual groundfish vessels in Upper Mid-Coast 1 are more than 23% dependent on the multispecies fishery. Individual vessel impacts, therefore, will vary.

During the social impact informational meetings, some comments were received from Upper Mid-Coast 1 community residents suggesting that DAS reductions since Amendment 5 have had the most significant social impacts on them and their communities (Appendix I). It is difficult to predict which Amendment 13 measures will most significantly impact this community group. Because of its location and multispecies activity, it is likely to experience impacts from most of the Amendment 13 measures that address Gulf of Maine cod, including gear restrictions and modifications to area closures. The alternatives to address capacity are also likely to significantly impact this community group. The EA for the settlement agreement estimated that an average of 86% of groundfish activity in Upper Mid-Coast 1 ports could be affected by the recently-implemented Interim Action.

Lower Mid-Coast 1, Maine: This community group includes Bristol, Boothbay, and surrounding communities. In FY99 and FY00, groundfish landings in Lower Mid-Coast 1 averaged 680,650 pounds and \$665,700. These values have significantly declined since the 1994 fishing year, along with landings and revenues from other fisheries, suggesting an overall decline in (federal) fishing activity in the area. Vessels that are homeported in Lower Mid-Coast 1 have become somewhat less dependent on multispecies in recent years. The decline in this community group's dependence on the multispecies fishery is not as significant as the overall decline in fishing activity in this area. The 18 active multispecies vessels homeported in this area earned an average of \$1,228,000 in groundfish revenues from FY99 – FY00. This group's dependence on groundfish for its total fisheries revenues from federally-permitted vessels averaged 34% from FY99-00 (versus 46.3% in FY94). While these data reflect the community's declining relative dependence on the groundfish fishery, it is important to remember that at least some of the individual groundfish vessels in

Lower Mid-Coast 1 are more than 34% dependent on the multispecies fishery. Individual vessel impacts, therefore, will vary.

It is difficult to predict which Amendment 13 measures will most significantly impact this community group. Because of its location and multispecies activity, it is likely to experience impacts from most of the Amendment 13 measures that address Gulf of Maine cod, including gear restrictions and modifications to area closures. The alternatives to address capacity are also likely to significantly impact this community group. The EA for the settlement agreement estimated that an average of 88% of groundfish activity in Lower Mid-Coast 1 ports could be affected by the recently-implemented Interim Action.

NH Seacoast: This community group includes Hampton, Rye, and Seabrook NH. In FY99 and FY00, the NH Seacoast averaged 970,600 pounds of groundfish landings and \$1,066,850 in groundfish revenues. For these two fishing years, an average of 40 multispecies vessels homeported in the NH Seacoast earned \$1,542,750 in groundfish revenues for the community group. This community group has become somewhat more dependent on groundfish revenues for its total fisheries revenues from federally-permitted vessels. In FY99 and FY00, community dependence averaged 44%, compared to 37.8% in the 1994 fishing year. While these data reflect the community's relative dependence on the groundfish fishery, it is important to remember that at least some of the individual groundfish vessels in the NH Seacoast group are more than 44% dependent on the multispecies fishery. Individual vessel impacts of the Amendment 13 measures, therefore, will vary.

At the social impact informational meeting in Portsmouth, residents of Portsmouth and the NH Seacoast reported that they have experienced the most significant social impacts from the Gulf of Maine inshore area closures and the low Gulf of Maine cod trip limits (Appendix I). The measures proposed in Amendment 13 that are likely to impact this community the most, either positively or negatively, are those that modify inshore Gulf of Maine area closures and the Gulf of Maine cod trip limit. However, depending on the alternative selected, other measures will significantly affect this community group (for example, large-scale DAS reductions). The EA for the settlement agreement estimated that an average of 58.7% of groundfish activity in NH Seacoast ports could be affected by the recently-implemented Interim Action.

South Shore, Massachusetts: This community group includes Scituate, Plymouth, and Marshfield, Massachusetts. In FY99 and FY00, the South Shore of Massachusetts averaged 1,499,450 pounds of groundfish landings and \$1,619,900 in groundfish revenues. This community group is substantially dependent on groundfish revenues for its total fisheries revenues from federally-permitted vessels. In FY99 and FY00, an average of 50 multispecies vessels homeported in the South Shore group generated \$1,582,800 in revenues from multispecies. The South Shore group depended on groundfish for about 48% of its total fisheries revenues in the 1999 and 2000 fishing years, similar to the level of dependence in FY94 (50.2%). Groundfish landings in FY00 were significantly higher than in FY94. While these data reflect the community's relative dependence on the groundfish fishery, it is important to remember that at least some of the individual groundfish vessels in the South Shore group are more than 48% dependent on the multispecies fishery. Individual vessel impacts of the Amendment 13 measures, therefore, will vary.

At the social impact informational meeting in Scituate, residents of South Shore communities reported that they have experienced the most significant social impacts from the Gulf of Maine inshore rolling closures (Appendix I). Currently, waters adjacent to the South Shore are closed for groundfishing four months of the year, which significantly precludes fishing opportunities and reduces flexibility for the relatively small-sized multispecies vessels in this area. Prior to the Interim Action, these areas were closed for six months. The measures proposed in Amendment 13 that are likely to impact this community group the most, either positively or negatively, are those that modify inshore Gulf of Maine area closures and the Gulf of Maine cod trip limit. However, depending on the alternative selected, other measures will significantly affect this community group (for example, large-scale DAS reductions). The EA for the settlement agreement estimated that an average of 42% of groundfish activity in South Shore ports could be affected by the recently-implemented Interim Action.

Provincetown, Massachusetts: In FY99 and FY00, Provincetown averaged 988,000 pounds of groundfish landings and \$989,250 in groundfish revenues. Groundfish activity in Provincetown increased significantly in FY00 and was higher in FY00 than when Amendment 5 was implemented in the 1994 fishing year. In FY99 and FY00, 22 multispecies vessels homeported in Provincetown earned an average of \$1,169,700 in multispecies revenues for the community. For these two fishing years, Provincetown's dependence on multispecies for its total fisheries revenues from federally-permitted vessels averaged 45.4% (versus 52.7% in FY94). Provincetown's activity in the whiting fishery has increased since FY94, contributing in part to decreased dependence on large-mesh groundfish. While these data reflect the community's relative dependence on the groundfish fishery, it is important to remember that at least some of the individual groundfish vessels in Provincetown are more than 45% dependent on the multispecies fishery. Individual vessel impacts of the Amendment 13 measures, therefore, will vary.

Although no social impact informational meeting was held in Provincetown, it can be assumed that impacts in P-town have been somewhat similar to those experienced by residents of South Shore communities. The measures proposed in Amendment 13 that are likely to impact this community the most, either positively or negatively, are those that modify inshore Gulf of Maine area closures and the Gulf of Maine cod trip limit. However, depending on the alternative selected, other measures will significantly affect this community (for example, large-scale DAS reductions). The EA for the settlement agreement estimated that 77% of groundfish activity in Provincetown could be affected by the recently-implemented Interim Action.

Eastern Rhode Island: This community group includes Newport, Tiverton, Portsmouth, and surrounding communities. In FY99 and FY00, Eastern RI averaged 1,320,750 pounds of groundfish landings and \$1,321,000 in groundfish revenues. Relative to other communities of interest, this community group is not as dependent on the groundfish fishery. In FY99 and FY00, an average of 25 multispecies vessels homeported in Eastern RI communities generated \$1,049,300 in revenues from multispecies. The Eastern RI group depended on groundfish for about 11.5% of its total fisheries revenues in the 1999 and 2000 fishing years, similar to the level of dependence in FY94 (10.5%). While these data reflect the community's relative dependence on the groundfish fishery, it is important to remember that at least some of the individual groundfish vessels in the Eastern RI group are more than 11% dependent on the multispecies fishery. Individual vessel impacts of the Amendment 13 measures, therefore, will vary.

It is difficult to predict which Amendment 13 measures will most significantly impact this community group. Because of its location and multispecies activity, it is likely to experience impacts from most of the Amendment 13 measures that address Southern New England stocks, including gear restrictions, trip limits, and further DAS reductions. The alternatives to address capacity are also likely to significantly impact this community group. The EA for the settlement agreement estimated that an average of 52% of groundfish activity in Eastern RI ports could be affected by the recently-implemented Interim Action.

Northern Coastal New Jersey: This community group includes Point Pleasant, Belford, Barnegat Light, and surrounding communities. In FY99 and FY00, Northern Coastal NJ averaged 783,750 pounds of groundfish landings and \$735,150 in groundfish revenues. Relative to other communities of interest, this community group is not dependent on the groundfish fishery despite the large number of active multispecies vessels in the area. In FY99 and FY00, an average of 62 multispecies vessels homeported in Northern Coastal NJ communities generated \$766,700 in revenues from multispecies. Yet the Northern Coastal NJ group depended on groundfish for only 3% of its total fisheries revenues in the 1999 and 2000 fishing years, similar to the level of dependence in FY94 (3.1%). These vessels are generating much higher revenues from other fisheries. While these data reflect the community's relative dependence on the groundfish fishery, it is important to remember that at least some of the individual groundfish vessels in the Northern Coastal New Jersey group are more than 3% dependent on the multispecies fishery. Individual vessel impacts of the Amendment 13 measures, therefore, will vary.

It is difficult to predict which Amendment 13 measures will most significantly impact this community group. Because of its location and multispecies activity, it is likely to experience impacts from most of the Amendment 13 measures that address Southern New England stocks, including gear restrictions, trip limits, and further DAS reductions. Its low dependence on groundfish suggests that there is a substantial amount of latent effort in the area, so the alternatives to address capacity are likely to significantly impact this community group. The EA for the settlement agreement estimated that an average of 81% of groundfish activity in Northern Coastal NJ ports could be affected by the recently-implemented Interim Action.

5.6.2 Dependence Rankings for Communities of Interest

Both dependence on fisheries in general and dependence on the multispecies fishery are important to consider for the communities that are involved in groundfish harvesting that are most likely to be impacted by the proposed management measures. The MARFIN Report focuses on overall community dependence on fisheries; the additional information presented in this amendment focuses on dependence on the multispecies fishery in particular. Both measures of dependence are summarized below.

In the MARFIN Report, *fishing dependence* was assessed based on three indices: 1) the percentage of labor force involved in fishing, 2) the percentage of related occupations within the Bureau of Labor Statistics category of fisheries/forestry/farming, and 3) a summary measure of a series of dependence ratios that compare the number of fishermen per hundred community residents to various alternative occupational roles that fishermen could enter with their particular skill profiles. The last of the indices described above, the occupational alternative index, is the most useful tool for comparison across different communities in the region (MARFIN 2001).

The MARFIN Report divides the New England region into eleven sub-regions, which are also consistent with the sub-regions analyzed for this amendment using the IMPLAN model, and then ranks these sub-regions from highest to lowest, based on fishing dependence. Table 333 below is from the MARFIN report and provides the fishing dependence indices for each sub-region. The MARFIN report explains that the three sub-regions with the highest dependence (Downeast Maine, Upper Midcoast Maine, Cape and Islands) share some characteristics that make these communities significantly more dependent on fishing resources than other regions of New England. These three regions are all relatively isolated from other parts of New England and have small islands and harbors, which give fishermen easy access to nearby fish and shellfish grounds. MARFIN suggests that the occupational alternative index is significantly lower for the Cape and Islands as compared to the two sub-regions in Maine because the Cape has experienced intense pressures from tourism and gentrification. However, there is variation among ports within these sub-regions. For example, Chatham is one town on Cape Cod that has remained an active fishing port over the years and has supported a successful fishing industry despite low biomass levels, increased regulations, and pressures from the recreational fishing and tourism industries.

MARFIN SUB-REGION	% Related Occupations	% of Total Employed	Alternative Occupation Ratio Summary
Downeast Maine	45	3.6	255.54
Upper Midcoast Maine	36	2.0	171.05
Cape and Islands	27	0.79	104.43
Lower Midcoast Maine	23	0.46	51.32
New Bedford/South Shore	27	0.40	38.95
Southern Maine	23	0.39	36.94
Rhode Island	24	0.31	30.86
Gloucester/North Shore	20	0.21	24.91
New Hampshire Coast	8	0.09	9.46
Boston Area	7	0.05	6.39
Connecticut Coast	2	0.01	2.61

Table 333 Comparative Fishing Dependence Indices for the Eleven Sub-regions of New England (MARFIN 2001)

**The MARFIN Report did not examine communities south of Connecticut.*

For the purposes of this assessment, groundfish revenues expressed as the percentage of total fisheries revenues from federally-permitted vessels homeported in a particular community group represents the community group's current dependence on the groundfish fishery. Information about dependence for all community groups can be found in the Affected Human Environment. Table 334 ranks average dependence on multispecies from FY99 and FY00 for the *communities of interest*. (Note that there may be other community groups that rank higher than some of the following groups. See the Affected Human Environment for more information.)

RANK	COMMUNITY GROUP	AVERAGE GROUND FISH DEPENDENCE FY99-FY00
1	Chatham/Harwichport, MA	71.1%
2	Portland, ME	64.3%
3	Gloucester, MA	61.7%
4	Boston, MA	55.7%
5	Portsmouth, NH	54.7%
6	South Shore, MA	47.7%
7	Provincetown, MA	45.4%
8	NH Seacoast	44%
9	Lower Mid-Coast 1, ME	34%
10	Upper Mid-Coast 1, ME	23.1%
11	New Bedford/Fairhaven, MA	22.3%
12	Point Judith, RI	18.3%
13	Eastern Long Island, NY	16.9%
14	Eastern RI	11.5%
15	Northern Coastal NJ	3%

Table 334 – Ranking of Dependence on Groundfish for Communities of Interest

5.6.2.1 SIA Factors

To the extent possible, the social impact factors described in the following subsections will be considered relative to the management alternatives under consideration and will be used as a basis for comparison between alternatives. Use of these kinds of factors in social impact assessment is discussed in Burdige's *Conceptual Approach to Social Impact Assessment* (Burdige 1998).

A significant amount of information relating to the factors described below was collected during the Council's Social Impact Informational Meetings and can be found in the Report from those meetings (Appendix I). The information collected at these meetings formed the basis for selecting the following SIA factors. While this assessment does not quantify the impacts of the management measures relative to the individual factors, qualitative discussion of the potential changes to the factors characterizes the likely direction and magnitude of the impacts. Assessment of the potential changes to the social impact assessment factors also should be considered in the following context:

1. *Size and demographic characteristics of the fishery workforce in the community* – changes in these factors reflect demographic, income, and employment impacts in relation to the community's available fishery workforce
2. *Cultural issues* – attitudes, beliefs, values of fishermen, their families, and their communities
3. *Social structure and organization* – the ability of communities to provide necessary social support and services to families
4. *Non-economic social aspects* – lifestyle, health, and safety issues
5. *Historical dependence on fishery* – reflected in the structure of fishing practices and income distribution

The following five social impact factors are described below: regulatory discarding; safety; disruption in daily living; changes in occupational opportunities and community infrastructure; and formation of attitudes. Discussion of these factors below also includes important information related to cumulative impacts and the social impacts of the alternatives under consideration in this amendment.

5.6.2.1.1 Regulatory Discarding

Description: forced discarding of marketable and oftentimes dead fish as a direct result of management measures; usually a byproduct of trip limits, quotas, and minimum fish sizes

Regulatory discarding is an important social problem, just as it is an ecological problem. Low trip limits resulting in excessive discarding leave fishermen feeling demoralized and disgusted with fishing, which is more than just a job to most fishermen. Fishermen recognize that discarding marketable and oftentimes dead fish does nothing to benefit them or their families, the health of the resource, their disappearing hold on local fresh fish markets, or seafood consumers. Fishing is a family business, so the impacts of this are felt throughout the entire family and the entire community involved in groundfish harvesting.

Discussion: Although regulatory discarding has been identified as a social problem in most communities involved in groundfishing throughout the region, the inshore Gulf of Maine groundfish fleet in particular has struggled with the low Gulf of Maine cod daily trip limit and the negative social impacts of regulatory discarding since the 1999 fishing year. At the groundfish Social Impact Informational Meetings, many residents of Portsmouth NH, the NH Seacoast, Gloucester, and South Shore MA communities cited low Gulf of Maine cod trip limits as having resulted in the most significant social impacts for their respective communities since the implementation of Amendment 5. Fishing fleets in these communities consist primarily of smaller and mid-size vessels that fish short trips (<2 days) in inshore areas. Many of these vessels do not have the capability to travel safely to other areas to fish. They are therefore limited to areas that unfortunately contain concentrations of codfish, so they sometimes encounter significant amounts of cod even when fishing for other species.

The multispecies nature of the groundfish fishery and the physical limitations of the inshore fleet have exacerbated the problems associated with regulatory discarding in these areas. Some of the affected boats have reported that this problem is further worsened by the timing of the inshore rolling closures and the pulses of concentrated effort in the inshore areas during the limited opportunities in the spring and early summer for smaller vessels to fish. In addition, the cumulative effect of regulatory discarding resulting from management measures in other fisheries has increased related social impacts. For years, both commercial and recreational fishermen have testified that they are being forced to throw overboard thousands of pounds of spiny dogfish due to the very low trip limits and annual quota.

Alternatives that propose to increase the Gulf of Maine cod trip limit may reduce regulatory discarding and consequently, the negative social impacts resulting from regulatory discarding in the most affected Gulf of Maine communities involved in groundfish harvesting. Industry testimony from the inshore Gulf of Maine fleet suggests that a higher trip limit could convert at least some discards to landings and may result in even more positive impacts than can be predicted. By increasing the trip limit to a level that allows inshore boats to “make a day’s pay,” the industry maintains that the Council could indirectly encourage some vessels to end their trips without fishing through cod (and continuing to discard it) for other species. This could reduce regulatory discarding not only on Gulf of Maine cod, but also on other species that may be caught while fishing on a multispecies trip. While these impacts are difficult to predict, it is without question that the social impacts of an increased Gulf of Maine cod trip limit would be positive for the inshore groundfish fleet and their respective communities.

One caveat is that while short-term negative impacts may be reduced and short-term positive impacts may result from an increase in the Gulf of Maine cod trip limit, long-term negative impacts could be more severe if a higher trip limit increases fishing mortality on Gulf of Maine cod and consequently compromises the objectives of this amendment. Fishermen’s behavior cannot be predicted definitively, and there is some concern that increasing the trip limit could increase directed fishing on Gulf of Maine cod. There is a fine line that cannot be identified between allowing vessels to make a day’s pay and encouraging them to increase their directed trips on Gulf of Maine cod, especially in the inshore areas where the resource may be more easily accessible for short, directed trips. It must be acknowledged and understood that if an increased trip limit results in increased fishing mortality on Gulf of Maine cod, additional and perhaps more severe restrictions may be required in the future. Some sectors of the fleet that claim that they are not experiencing problems with regulatory discarding at this time are particularly concerned about this potential outcome. Most alternatives under consideration in this amendment address these concerns by proposing very modest increases in the trip limit, only seasonal increases in the trip limit, and/or additional measures to reduce Gulf of Maine cod fishing mortality.

Alternatives that propose new trip limits on species like Southern New England yellowtail flounder, Cape Cod yellowtail flounder, and Georges Bank cod affect regulatory discarding negatively for other communities south of the Gulf of Maine. To minimize this, trip limits should be set at the most reasonable level to affect behavior on the target stock without compromising the intent by simply converting landings to discards. The Council should consider past history with Gulf of Maine cod when selecting new trip limits for other groundfish species.

Hard TACs may also affect regulatory discarding if they are so low that discarding results in non-directed fisheries once the TAC is reached and the directed fishery is closed. This is very likely in the groundfish fishery, which is multispecies in nature. Most vessels catch 3-4 species of groundfish on any given trip, so they may continue to fish for some groundfish despite the TACs being reached for other species that they catch. This is even more likely if DAS are reduced to the point that vessels must maximize their remaining days in order to maintain their viability.

Measurement: The best tools for measuring this factor include surveys, focus groups, and key informant interviews to gain more perspective on individual perceptions about regulatory discarding and its effects on

stress, morale, job satisfaction, and quality of life. For this assessment, information about this factor was obtained primarily from the Social Impact Informational Meeting Report, summarizing a series of ten focus group meetings throughout the region. Additional information relative to this factor was gained from the Council's Advisory Panels, scoping meetings, public hearings, and discussions with other community groups and panels.

Assessment of this factor should address the following questions:

- Is the proposed action likely to force fishermen to throw marketable fish overboard?
- Is the level of regulatory discarding under the proposed action likely to be higher than that under the no action alternative?
- Is the difference between regulatory discarding under the proposed action and the no action alternative likely to be high enough to generate significant negative social impacts?

5.6.2.1.2 Safety

Description: the ability of fishermen to maintain safe operations at sea; this factor can be compromised by various adaptations to additional regulations and decreased fishing opportunities; usually a result of closed areas and DAS modifications

The safety of fishermen and fishing operations at sea is an extremely important social impact factor, as decreased safety often increases stress at the individual and family level, which can exacerbate many other family and societal problems. In addition, the impacts of fishing-related casualties can be felt throughout communities involved in fishing, many of which are close-knit groups with longstanding family and social networks.

Discussion: Updated safety information for the multispecies fishery is presented in the Affected Human Environment. In addition, safety was an important social issue discussed during the groundfish Social Impact Informational Meetings in many contexts:

- Many vessels are carrying reduced numbers of crew in order to adapt to decreased income from fishing. In Gloucester, meeting participants reported that larger vessels used to fish with numerous crew members; now, in order to offer their crew members an adequate share, these boats are fishing with far fewer crew. Many owner-operators on smaller vessels fish alone for some or all of the year. This problem is coupled with the fact that the regulations have made it difficult to offer crew members a reliable/consistent source of income from fishing, so even when carrying reduced numbers of crew, vessels are having trouble finding crew members at all.
- Vessels are traveling much farther from shore to fish for groundfish. This shift has resulted primarily from the Gulf of Maine area closures. There are many boats in the Gulf of Maine less than 50 feet in length that were not designed to fish far offshore, especially in adverse weather conditions.
- For boats that are traveling farther from shore to fish, the length of the workday has increased considerably. Today, it is common to see day trips lasting 18-24 hours, primarily because of added steam time to reach open fishing grounds. These fishermen are probably more exhausted than ever, and this can lead to more injuries and accidents, especially since many of these fishermen are now working alone.
- Overall, fishermen feel as though they must take more risks to fish when they have the opportunity to do so. Instead of staying home when the weather is bad, some fishermen are choosing to fish through the bad weather because of an impending area closure and/or because they fear that they may not be able to fish for some period of time in the future.

Measures implemented in this amendment may affect the safety of fishermen and fishing operations, and to the extent possible, the Council should strive to implement measures that maximize the safety of human life

at sea. To the extent that the Council can maximize safety at sea, negative social impacts resulting from the Amendment 13 management measures and related to concerns about safety can be minimized. For Amendment 13, changes to area closures have the potential to affect safety at sea to the extent that they force, directly or indirectly, small vessels to fish farther from shore.

Proposed DAS modifications also could affect safety. For example, counting DAS at a 2:1 rate during some portion of the year may indirectly encourage vessels to fish during the other times when their DAS are not counted at a higher rate. If these other times are during the winter, fishing effort could increase when weather is more extreme and less predictable, possibly reducing the ability of some vessels to remain safe at sea. In addition, since fishing for groundfish is currently quite limited for the dependent vessels (those that use most or all of their DAS), further reducing DAS could compromise safety if fishermen take more risks to maximize their diminishing opportunities. During the Social Impact Informational Meetings, these kinds of adaptations to DAS reductions were noted to have occurred throughout the region after Amendments 5 and 7. It is therefore likely that additional negative social impacts related to safety occurred as a result of the Interim Action and will occur in Amendment 13 if DAS are further reduced.

Hard TACs are also likely to negatively affect the safety of fishing operations at sea to the extent that they force a derby fishery or a race to fish. Sometimes, low quotas can encourage pulses of fishing effort, especially if the species is commercially valuable. This can be exacerbated by DAS reductions that create a need to maximize profits on remaining DAS. If the quota creates a derby during the winter, it could compromise safety at sea.

Measurement: The best tools for measuring this factor include surveys, focus groups, and key informant interviews to gain more perspective on individual perceptions about safety and its effects on stress, families, and overall quality of life. For measurement in this assessment, information was obtained primarily from the Social Impact Informational Meeting Report, the MARFIN Report, and McCay and Cieri 2000. Additional information relative to this factor was gained from the Council's Advisory Panels, scoping meetings, public hearings, and discussions with other community groups and panels. GIS-based technologies are also useful to assess the potential impacts on this factor by examining the for vessels to fish farther from shore as a result of the proposed management measures.

Assessment of this factor should address the following questions:

- Is the proposed action likely to compromise the safety of fishermen and/or fishing operations more than the no action alternative?
- Will fishermen need to travel to new fishing grounds or fishing grounds further away from their homes as a result of the proposed action?
- Is it likely that fishermen will make adaptations to the proposed management action that could compromise their safety (taking less crew, fishing in bad weather)?

5.6.2.1.3 Disruption in Daily Living

Description: changes in the routine living and work activities of affected fishery participants, including the potential for alteration in their regular social and work patterns to adapt to new management measures

Consideration of this factor includes vessel flexibility and the ability of fishermen to switch between fisheries, areas, and gears seasonally and/or in response to market conditions. Year-round and seasonal fishing opportunities are important to consider. These opportunities also relate to fishermen's chances to successfully adapt to new regulations. Impacts on this factor are associated with the ability of affected industry members to develop both short-term and long-term business plans. Another related impact can be experienced through the loss of crew and/or the inability to retain reliable crew members on a year-round basis.

Discussion: Changes in established daily patterns – patterns that, in the case of communities involved in fishing, are often internally-generated and regulated and highly-regimented – can provide a key component to social impact assessment. Although the existence, nature, and evolution of these patterns in communities involved in fishing is well-documented by marine anthropologists, the effects of changes to them have often been overlooked in conducting social impact assessments for fisheries management. Ideally, measurement of disruption in daily living should include an assessment of the outcomes of any periods of inactivity, including changes in social stress and stress-related health problems, job satisfaction, crime rates, and family cohesion.

The most obvious impacts related to this factor occur when fishermen lose the ability to fish for some period of time; negative impacts increase as the time during which the fishermen cannot fish increases. Periods of inactivity disrupt daily living patterns and increase stress that can affect the entire family. In addition, if these periods of inactivity are experienced by many residents within a community, negative social impacts can be experienced throughout the community. Shoreside businesses may find it difficult to maintain year-round income without a functional local fleet, so over the long-term, significant impacts can result from disruptions in daily living that ultimately change occupational opportunities and community infrastructure. Impacts related to these factors are discussed in more detail in following sections of this assessment.

The following summarizes some of the discussion relative to disruption in daily living patterns from the groundfish Social Impact Informational Meetings:

- Because of increased regulations in many fisheries, small vessels have lost much of their flexibility to move from one fishery to another. In Chatham, meeting participants felt that regulations have “boxed them in” to particular fisheries, making it difficult or impossible for them to maximize their opportunities and/or adjust to changing conditions. When combined with the inherent limitations of small vessels, the regulations have reduced fishing opportunities to the point that many fishermen cannot guarantee a year-round income from fishing for themselves or for their crew.
- Uncertainty about the regulations and the future of the groundfish fishery in New Bedford has made both business and family planning difficult, if not impossible. Uncertainty has contributed to the lack of new entrants in the fishery as well as family stresses associated with long-term finances and planning for the future.
- Some meeting participants in Portland discussed the loss of flexibility resulting from the groundfish regulations. They reported that historically, groundfishing used to be a fishery that the Portland fleet would use to “fill in” seasonally and/or with fluctuations in other fisheries. Ironically, groundfish regulations have limited some of these other fishing opportunities and made much of the fleet almost entirely dependent on groundfish.
- Increased regulations in many fisheries have limited the flexibility of the Long Island fishing fleet and made it more difficult to make a year-round income from fishing. Long Island vessels have depended on the diversity and flexibility of switching target species (squid, whiting, scup, and others including groundfish) as stocks fluctuate, the mix of species in an area changes, and/or market conditions change. Seasonal quotas and other management measures have decreased fishing opportunities and limited the flexibility of this fleet, particularly smaller vessels.
- The core of Boston’s fishing fleet has diminished significantly; in addition, fewer transient vessels are landing in Boston and taking advantage of the convenient services the pier has to offer (proximity to transportation, processing facilities, ice, etc.). Landings are down, and overall activity in the port has decreased. Meeting participants estimated that the number of vessels landing at the Boston Fish Pier fell from more than 30 in 1995 to less than 12 in the past year. Most of the remaining vessels maximize their DAS usage in the winter to capitalize on better prices and then tie-up for several months at a time. This adaptation has exacerbated financial and employment problems for shoreside support services.

The implementation of new or additional seasonal and year-round closed areas is likely to negatively affect this factor. Nearshore closed areas can induce significant periods of inactivity, especially for small vessels that cannot travel to other areas to fish. In the more extreme cases (closures for six months or more, for example), some fishermen may be forced to seek alternative employment opportunities to support their families. These fishermen often lose their crew members and face additional problems during the time when they can fish. They also encounter more difficulty maintaining their fishing operations due to the loss of a reliable income. For vessels that can travel to other areas to fish, the closed areas still result in disruption in daily living patterns and negative social impacts, as most of these vessels end up traveling farther from shore to fish, potentially compromising their safety and increasing stress at the family level because fishermen are forced to spend more time away from home and fish longer days.

DAS modifications, particularly reductions, and Hard TACs can also cause significant disruption in daily living and fishing patterns. In communities with vessels that rely on the groundfish fishery and use the majority of their DAS, additional DAS reductions can cause major alterations in fishing practices. Some larger boats will be forced to maximize their remaining groundfish opportunities by fishing only during times when market conditions are best, which can be during winter when weather is less predictable and more extreme. In order to reduce their fishing-related expenses, some vessels may fish their remaining DAS during one time of the year and tie up their vessels during another time. This causes disruptions for related shoreside businesses and can ultimately result in further social and economic dislocation. Hard TACs can produce similar impacts related to disruptions in daily living to the extent that they create a derby or a race to fish.

Measurement: The best tools for measuring this factor include surveys, focus groups, and key informant interviews to gain more information about daily living patterns and the impacts of changes to these patterns on stress, families, and overall quality of life. For measurement in this assessment, information was obtained primarily from the Social Impact Informational Meeting Report, the MARFIN Report, McCay and Cieri 2000, and the ME DMR Groundfish Regulation Impact Survey in 2002. Additional information relative to this factor was gained from the Council's Advisory Panels, scoping meetings, public hearings, and discussions with other community groups and panels.

Assessment of this factor should address the following questions:

- How could the proposed action alter the daily living and work patterns of fishing families in the affected communities?
- Will fishermen need to travel to new fishing grounds or fishing grounds farther away from their homes as a result of the proposed action? Will fishermen be spending more time away from home as a result of the proposed action?
- Will fishermen experience longer periods of inactivity as a result of the proposed action?
- Compared to the no action alternative, could the proposed action increase stress at the family level as a result of disruptions in daily living patterns?

5.6.2.1.4 Changes in Occupational Opportunities and Community Infrastructure

Description

Changes in Occupational Opportunities: the degree to which the implementation of the management measures in this amendment could alter the occupational profile of the affected communities.

Changes in occupational opportunities can lead to changes in household/family income, classes, and lifestyles. In assessing this variable, both the short- and long-term shifts in job opportunities should be considered. This includes changes to year-round and seasonal fishing opportunities, short-term and long-term dislocation from the fishery, employment opportunities, and the ability to find and keep crew.

Flexibility for the fishing fleet and the ability to plan business ventures over the short-term and long-term also are related factors. Changes in occupational opportunities are not only important to consider for the commercial fishing fleet, but also the recreational and party/charter fleet.

External forces (status of economy, community shifts away from fishing and towards tourism, etc.) can influence the magnitude and direction of changes in occupational opportunities. Emphasis should be placed on identifying potential changes in the unique social and family arrangements that characterize the communities under consideration, particularly on changes in household employment patterns, trends in family-run fishing businesses, and participation in job retraining programs. Special consideration should also be given to social and cultural values and norms that may be affected by changes in opportunity, such as long-term family involvement in the fishery, job satisfaction, and respect for fishing as an occupation and a way of life.

Changes in Community Infrastructure – the increase or decrease in the demand and supply of basic infrastructure services and facilities essential to fishing in the affected communities, including processors, seafood markets, boat and equipment repair shops, bait and ice providers, display auctions, cooperatives, creditors, legal services, etc.

The cost, quality, availability, and location of fishing-related services can affect community members' business practices, satisfaction with their community, and overall well-being. Additionally, these service industries provide alternative fishing-related employment opportunities in communities and can contribute significant revenues to the city and county in which the community involved in fishing is located. Impacts on this social impact factor are directly connected to disruptions in daily living patterns and other factors. They are also more long-term in nature.

Discussion

Changes in Occupational Opportunities: Over time, many groundfish regulations have affected occupational opportunities for communities involved in fishing throughout the region. The following summarizes some of the discussion relative to changes in occupational opportunities from the groundfish Social Impact Informational Meetings:

- In Gloucester, community residents feel that the rolling closures have severely reduced the flexibility of the fleet and have precluded fishermen from making a year-round income from fishing. Fishermen have difficulty taking advantage of seasonal fluctuations in stocks, markets, and/or fisheries and fishing accordingly. In addition, they report that the western Gulf of Maine closure has precluded many vessels from seeking viable alternative fisheries (pollock, some flatfish) and thus further limits their flexibility and ability to adapt to regulations.
- In Portsmouth, some people reported that they have had a very difficult time keeping up with the changing regulations, and it has become impossible to plan ahead and develop financial and other mechanisms to adapt to new or different regulations. In addition, meeting participants cited problems keeping year-round crew, loss of employment stability, and resultant increased stress at the individual and family level as direct consequences of the inshore Gulf of Maine rolling closures.
- In Portland, residents reported that with increasing regulations and uncertainty about the future, fishermen are more reluctant to invest in alternative fisheries. As a result, the fleet has adapted by relying less on the flexibility to switch between fisheries as they did historically, and more on maximizing their limited opportunities in the groundfish fishery. Vessel owners also are finding it increasingly difficult to employ reliable and experienced crew members on a year-round basis. Eighty eight groundfish days-at-sea alone does not offer enough opportunity to maintain an adequate crew on a large dragger, and some of these boats have few alternatives (some fish for shrimp and/or herring seasonally).

- DAS reductions were cited as having precluded year-round fishing opportunities in Boston; now, most vessels from Boston fish most or all of their DAS during the winter and tie-up their vessels for 3-5 months.
- Several meeting participants from the South Shore agreed that the six-month rolling closures (Blocks 124 and 125 in particular) represent a 100% groundfish closure for them. Currently, October, November, and January – April are closed to gear capable of catching multispecies; in December, 400 pounds of cod cannot cover trip expenses. The other five months (May – September) are historically when most of the South Shore fleet would shift their effort from groundfish to dogfish. Dogfish is no longer a viable fishery for federal permit holders, so many of these vessels are experiencing great difficulty maintaining occupational opportunities on a year-round basis.

Some measures under consideration may reduce opportunities for recreational and party/charter vessels that currently may be able to access offshore areas. Long-term occupational opportunities in some communities could be impacted by this action to the extent that these measures would reduce employment in the recreational sector and overall community revenues generated from recreational fishing.

Some measures implemented in this amendment could intensify negative social problems associated with changes in occupational opportunities over the long-term. Examples include changes to the inshore area closures that reduce flexibility and opportunities and modifications that reduce DAS and/or make DAS less efficient or productive. Depending on the economic costs, gear restrictions and new mesh regulations could also contribute to reductions in occupational opportunities to the extent that marginal vessels are not able to absorb the costs of the new gear. DAS reductions, however, are likely to be most responsible for the changes in occupational opportunities that may occur in communities involved in fishing over time as a direct result of fisheries management actions. Changes in occupational opportunities are important to consider in relation to the alternatives under consideration to address capacity.

Changes in Community Infrastructure: Increasing restrictions in groundfish and almost all fisheries are reducing opportunities throughout the industry and resulting in a significant downsizing of commercial fleets in most communities. For example, industry members in Boston estimated that the number of vessels landing at the Boston Fish Pier fell from more than 30 in 1995 to less than 12 in the past year. Some of these vessels relocated to other ports because of the regulations, while some exited the fishery altogether. Downeast Maine and other community groups in Maine also have experienced significant fleet downsizing as Maine's groundfish fleet has concentrated around Portland. A resident of Bar Harbor recalled that there were 20 groundfish vessels in his community during the 1980s. There were also groundfish fleets in Southwest Harbor and Stonington. This year (2000), three vessels in these communities landed fresh fish.

While groundfish regulations have contributed to difficulty finding and keeping experienced crew, the industry reports that it also is quickly losing its shoreside labor pool due to more attractive alternative employment opportunities. The fleet and industry have downsized, and so have remaining shoreside support services. The industry reported the loss of cutting houses, processing plants, and ice houses throughout coastal communities. This has eliminated job opportunities and caused qualified laborers who rely on year-round employment to seek jobs elsewhere. Many people worry that this trend is irreversible given uncertainty in the fishing industry and the benefits and stability that many other shoreside labor industries are able to offer their employees.

Competition for commercial and residential waterfront property has increased and resulted in higher real estate prices and taxes, as residents of most communities involved in fishing are witnessing a long-term shift towards recreational and tourist-oriented uses of the waterfront. Downeast Maine residents described transitions in their own communities, still very dependent on fisheries, as local tackle and supply businesses are replaced with art galleries and bookstores. The industry is finding it more difficult to afford to live in their communities and maintain the shoreside infrastructure necessary to support their fisheries. Many

people worry about whether their community will be able to support increased activity as stocks continue to recover and yields continue to increase.

Related to these problems is the loss of new and young entrants to the fishery. Uncertainty, instability, and loss of opportunity are discouraging the younger generation from pursuing fishing as a way of life. According to meeting participants, parents are no longer encouraging their children to carry on the family tradition of fishing; instead, they are encouraging them to seek higher education and enter a more promising and stable career. Unfortunately, this sometimes requires the children to leave the community because employment opportunities outside of fishing and similar industries are scarce.

The groundfish measures most likely to impact this factor over the long-term may be those that generate the most significant economic impacts, as economic impacts can affect business opportunities and the ability for the industry to diversify over the short-term. Some examples of the measures to consider in this framework adjustment include DAS reductions, mesh changes (if they are costly and affect a large number of groundfish-dependent vessels), and area closures.

Measurement

Measurement of this factor is the most complex and involves many sources of information. This factor relates most directly to economic aspects of the fishery; therefore, the analysis of economic impacts provided in this amendment helps most to predict changes to occupational opportunities and community infrastructure as well as resulting social impacts. Predictions about the impacts of the alternatives on gross revenues (section 5.4.4) and the results of the IMPLAN I-O model (section 5.4.8.3) are primary sources of information to measure this factor and provide a basis to quantify the social impacts related to this factor.

Social and demographic data including Census data and information from regional retraining centers is helpful to assess this factor. In addition, measurement tools like surveys, focus groups, and key informant interviews often provide information related to occupational opportunities for the fishing industry and specific aspects of community infrastructure. For this information, the Social Impact Informational Meeting Report, MARFIN Report, McCay and Cieri 2000, and the ME DMR Groundfish Regulation Impact Survey were referenced. Additional information relative to this factor was gained from the Council's Advisory Panels, scoping meetings, public hearings, and discussions with other community groups and panels.

Assessment of this factor should address the following questions:

- Could the proposed action change the structure and/or composition of New England's fishing fleets?
- Is the proposed action likely to result in a significant loss of employment opportunities within the affected communities?
- Will affected fishermen have alternative fishing opportunities under the proposed action?
- Compared to the no action alternative, will the proposed action significantly affect the ability of shoreside infrastructure to maintain year-round business opportunities?

5.6.2.1.5 Formation of Attitudes

Description: positive or negative feelings, beliefs, or positions expressed by impacted members of communities involved in fishing regarding the proposed action

This factor provides information about the community climate that prevails and can help to assess the potential for success with Amendment 13 and the need for mitigation in some circumstances. Consideration of this factor can provide for a better understanding of how changes induced by the proposed action could influence the affected communities. In addition, management measures that are more preferred or supported by the fishing industry generally encounter more success over the long-term than measures that are opposed or that the industry feels are forced upon them. Some support the notion that compliance with regulations is

directly related to the degree of support for the regulations or faith that they will be effective in achieving their objectives.

Discussion: It is difficult to predict which measures in Amendment 13 will affect this variable the most. On one hand, the formation of attitudes towards regulatory discarding in the recent past has been so negative that any measure reducing regulatory discarding should generate positive impacts. On the other hand, proposals to further reduce DAS or change the way that DAS are counted have already been met with strong opposition by fishermen throughout the region. While some measures may improve attitudes towards groundfish management measures (those that decrease regulatory discarding and improve safety at sea), others may worsen negative feelings (those that decrease occupational opportunities and flexibility).

In general, current industry perceptions about the effectiveness and direction of groundfish management are negative. Constantly changing groundfish regulations and layers of confusing management measures and their disproportional impacts have resulted in a loss of credibility for the Council and NMFS and a loss of faith in the federal fisheries management process. Some industry members are bitter because they feel that regulations are never given time to work before additional ones are implemented. In addition, analyses for numerous actions that the Council has taken since Amendment 5 projected that objectives would be met and that the industry would begin to reap the benefits of its sacrifices. Much of the industry feels that they are still waiting for the opportunity to reap these benefits, yet additional management measures continue to be proposed.

Another development that has affected the industry's faith in the management process is the new reference points proposed for all stocks. NEFSC 2002a adopted new modeling assumptions for assessing the resource and as a result, proposed increasing some biological reference points three-fold. This has created a general perception among the industry that scientists and managers are "moving the goal posts" just as the stocks were rebuilding to target levels and leaves the industry concerned that they will never have the opportunity to experience the benefits of a rebuilt resource. These negative perceptions are coupled with increases in fish abundance and catch rates that the industry reports to be experiencing in many areas and recent discoveries about errors associated with the NEFSC trawl survey.

Measurement: The best tools for measuring this factor include surveys, focus groups, and key informant interviews to gain more information about perceptions about the current management process, management regulations, and the entities involved in the management process. For measurement in this assessment, information was obtained primarily from the Social Impact Informational Meeting Report, the MARFIN Report, McCay and Cieri 2000, and the ME DMR Groundfish Regulation Impact Survey in 2002. Additional information relative to this factor was gained from the Council's Advisory Panels, scoping meetings, public hearings, Committee and Council meetings, and discussions with other community groups and panels.

Assessment of this factor should address the following questions:

- In comparison to the no action alternative, is the proposed action likely to result in the formation of negative attitudes by affected parties?
- If negative attitudes are predicted to result, are they likely to compromise the effectiveness of the proposed action?

5.6.2.2 Social and Community Impacts of Amendment 13 Alternatives

5.6.2.2.1 General Impacts of Measures Under Consideration

This section provides a discussion of the social impacts that are most likely to result from DAS modifications, area closures, trip limits, gear restrictions, hard total allowable catches (TACs), and special

access programs, six of the management tools that form the basis for most of the alternatives under consideration in this amendment. The unique aspects of each of the alternatives are discussed in subsequent sections of this assessment.

5.6.2.2.1.1 DAS Modifications

In comparison to the status quo alternative (Amendment 7 DAS, 88 Fleet DAS, Individual DAS), Alternatives 1A, 1B, 2A, 2B, 3 and 4 specifically propose modifications to DAS. Alternative 4A uses quota management to attain mortality reductions. Alternatives 2A, 2B, 3 and 4 incorporate the DAS baseline that was implemented in the Interim Action (settlement agreement), and freeze the baseline at settlement agreement levels. Alternatives 1A and 1B use the pre-settlement agreement average days at sea, and reduce total days at sea used to 28,400 and 41,050 days respectively. These translate into reductions of 55% and 35% respectively for each vessel. Coincidentally, 41,050 days is approximately what was used in fishing year 2002. The DAS modifications considered in this amendment also included changes in the way that DAS are counted in the Southern New England mid-Atlantic regulated mesh area under Alternative 1. There are also measures included which could be part of any of the alternatives chosen to address capacity and remove latent days at sea.

The EA for the Interim Action includes analysis of the settlement agreement DAS allocations (maximum DAS usage in one year from FY96-00; minimum 10 DAS allocation) and a 20% reduction from the allocation baseline. All of the EA measures were effective during the 2002 fishing year and are included in some of the alternatives under consideration in Amendment 13.

Reductions in DAS are proposed in the rebuilding alternatives and by the capacity alternatives. The proposed action will change the way DAS are allocated by using a baseline different than that used in the court settlement. In addition, the use of allocated DAS will be restricted, with only 60 percent available to fish on all stocks. The remaining 40 percent are limited to special access programs; half of those may be available in the future to target healthy stocks. Of the original alternatives, only Alternatives 1A and 1B require a days at sea reduction beyond what was implemented by the interim agreement. Further reductions in DAS beyond what was implemented in the settlement agreement would affect vessels and communities which are more active in the groundfish fishery as demonstrated by their percentage of allocated days at sea actually used. In other words, vessels which use close to 100% of their allocated days would be impacted more by a cut in allocated days at sea than vessels which only used 50% of their days at sea. Examples of communities where these highly dependent groundfish vessels reside include primary communities like Portland ME and New Bedford/Fairhaven MA. Communities where vessels reside that are not as dependent on groundfish include Upper Mid Coast 1 ME, Lower Mid Coast ME, Eastern RI, Northern Coastal NJ, and other similar groups.

Changes in the way that DAS are counted can sometimes equate to DAS reductions. This is not part of the proposed action. If DAS are counted at a 1.5:1 rate year-round in the inshore Southern New England/Mid-Atlantic regulated mesh area, for example, vessels that are able to fish only in that area effectively receive a further reduction in the DAS available for them to use. For vessels that may be able to access other areas to fish at a 1:1 DAS counting rate, it is likely that they will move to those areas where the regulation may not impact them. This could be farther from shore, possibly compromising their safety.

The proposed action implements restrictions on how DAS can be used. Sixty-percent of allocated DAS can be used to target any stock, while the remainder can only be used to target healthy stocks. In effect, the number of DAS that can be used to target any stock has been reduced from over 71,000 to about 41,000. This is expected to reduce the number of DAS used by forty to fifty percent compared to FY 2001. At the same time, however, the proposed action has created an opportunity to target healthy stocks under specific programs. The use of these Category B DAS can be expected to mitigate some of the impacts of the overall DAS reduction.

Social impacts of DAS reductions tend to be more far-reaching and long-term in nature than social impacts from other management measures like trip limits, gear restrictions, and seasonal area closures. They tend to have the most significant impacts on *disruption in daily living* and *changes in occupational opportunities and community infrastructure*, although they also can affect *safety*. They result from direct reductions in groundfishing opportunities and revenues for vessels that are most active in the fishery. Reductions in groundfishing opportunities through the loss of DAS also compromise vessels' flexibility and can have direct impacts on fishing activity within a port, consequently impacting the shoreside facilities that are dependent on the affected vessels. Other impacts of DAS reductions include increased uncertainty and instability in the fishery and/or community; problems finding and keeping crew members on a year-round basis; social impacts related to family and business financial problems; overall increased stress at the individual, family, and community level; and reductions in perceptions about job satisfaction.

At the social impact informational meeting in New Bedford, one large vessel crew member indicated that individual DAS reductions have complicated fishing schedules, eliminated predictability, and significantly limited income potential. As a crew member, he has sought employment on other vessels because his primary vessel is tied up at the dock for 50% of the year. A vessel owner commented that the DAS reductions converted year-round businesses that relied on groundfish in New Bedford to seasonal operations and that this has had significant impacts on the fishing families as well as other support businesses in the community. Another vessel owner's wife characterized the social impacts of the DAS reductions as "twice as much husband, half as much pay."

At the social impact informational meeting in Portland, one vessel owner remarked that DAS restrictions affected every sector of the Portland fleet: the big boats lost 50% or more of their groundfish opportunities, and gillnetters and smaller vessels were left with few alternatives except for the hope of a decent shrimp season for smaller draggers. Larger boats are trying to maximize returns from their DAS by fishing most or all of their DAS in the winter when prices are better. This again increases concerns about safety.

Indirect negative social impacts resulting from DAS reductions relate to adaptations that vessels make to compensate for reduced opportunity and reduce income, which can oftentimes increase their risk-taking and compromise their safety at sea. As income is reduced, some fishermen will try to minimize their operating costs in order to stay viable, sometimes reducing or eliminating crew, especially on smaller vessels. More owners of smaller vessels could be forced to fish alone for some or all of the year. Vessels may also try to maximize their remaining DAS by fishing during the winter when prices are usually better. Winter weather is more extreme and less predictable, increasing dangers that fishermen may encounter.

DAS reductions were cited as having been difficult for the Boston fleet and the dependent support services in the community to adapt to because the fleet is not highly diversified and historically depended primarily on groundfish. DAS reductions have precluded year-round fishing opportunities; now, most vessels from Boston fish most or all of their DAS during the winter and tie-up their vessels for 3-5 months. This has negative impacts on the economy of the shoreside support services that depend on year-round income to cover the costs of maintaining their businesses.

In addition, the disproportionate impacts of DAS reductions can create perceptions of inequity, which often exacerbate social impacts occurring in communities involved in groundfishing harvesting. Some people think that DAS allocations from Amendments 5 and 7 were unfair and created inequities and tensions between sectors involved in the fishery. Those who switched from groundfish to other fisheries with the decline of the groundfish stocks feel that they were punished by not receiving their true historical allocation of DAS. Some fishermen view DAS allocations as unfair because those who depend most on the fishery were impacted the greatest, while others who never depended on the fishery were allowed to potentially increase their effort eighty-eight fold (88 Fleet DAS were allocated to any vessel that could prove one pound of groundfish landings). Many fishermen feel that they have sacrificed more than their share to rebuild the resource and are concerned about their future ability to realize the benefits of their sacrifices. Six

years later, this amendment includes alternatives that propose to reduce used DAS by another 50% and 65%. Similar to Amendments 5 and 7, this measure will again significantly affect those who are most active in and dependent on the multispecies fishery. It is likely that if implemented, reductions as large as 50% and 65% will cause significant economic dislocation in most of the communities involved in groundfishing identified in the Affected Human Environment.

Reductions in allocated DAS proposed in the capacity alternatives have the potential to exacerbate problems associated with the disproportionate impacts of DAS reductions. Vessels that stand to lose the most allocated DAS in this amendment are those that currently have the highest levels of latent DAS. Some proportion of latent DAS in the fishery can be attributable to vessels that are still active, but have shifted their effort from groundfish to other fisheries for many reasons, including groundfish stock declines, market conditions, and opportunities and encouragement to pursue alternative fisheries. As a result, some vessels may feel unfairly treated and disproportionately impacted by the capacity alternatives.

One concern about the long-term impacts of DAS reductions is that once allocated or used DAS are reduced, the DAS that are eliminated from the fishery will never be returned to the vessels. Whether or not this is the case cannot be predicted at this time, but it should be noted as a serious concern relative to long-term social and community impacts of DAS reductions. As noted in the report from the social impact informational meetings, losses of shoreside support infrastructure like cutting houses, ice facilities, processing facilities, and other important services have been experienced in communities throughout the region. While these losses may be due in part to external factors, additional losses will be experienced in some communities that depend on the groundfish fishery if DAS are further reduced by large amounts in this amendment. The long-term concerns relate to the ability of the community to remain actively involved in the groundfish fishery and the ability of the community to support increased participation in the fishery as the stocks continue to recover and support larger yields. This is a significant concern for communities that are marginally involved in the fishery at this time (northern Maine and southern New England communities).

Another important concern is the potential for increased conflicts between user groups resulting from DAS reductions. If DAS are reduced significantly in this amendment or if this amendment changes the way that DAS are counted, it is possible that vessels that historically fished offshore will fish closer to shore to minimize steam time and maximize their DAS usage. This could mean that larger vessels from Gulf of Maine ports that may traditionally fish on Georges Bank will instead fish in the Gulf of Maine to save the DAS that they lose from their steam time to Georges Bank. Conflicts between user groups were identified during the social impact informational meetings (big boats/little boats, Individual DAS/Fleet DAS) and could intensify as a result of adaptations that vessels make to DAS modifications. The vessels likely to make these kinds of adaptations are the larger vessels and those with Individual DAS permits since Individual DAS vessels are currently using most or all of their DAS. Conflicts between user groups can exacerbate intra- and inter-community conflicts, create additional perceptions of inequity, and weaken overall cohesion within communities involved in groundfish harvesting.

The economic impacts of DAS reductions that are being considered in this amendment are discussed in section 5.4.4. Certainly the most significantly impacted vessels from an economic perspective will be those that currently use most or all of their DAS. Many of these vessels possess Individual DAS permits. Similarly, the most significantly impacted communities will be those that currently depend on vessels that use most or all of their DAS and communities that include a relatively large percentage of Individual DAS vessels.

The following table provides percentages of the total multispecies permit holders homeported in the communities of interest that possessed Individual and Fleet DAS permits in the 2000 fishing year. When combined with the information presented in section 5.4.4, it becomes possible to deduce which community groups are likely to be most significantly impacted by reductions in used DAS proposed under alternatives 1a and 1b.

HOMEPORT COMMUNITY GROUP	%Individual Multispecies Permits Within Group (number of permits)	%Fleet Multispecies Permits Within Group (number of permits)	Total Number of Multispecies Permits Homeported in Group
Portland	29.6% (24)	46.9% (38)	81
Portsmouth	10.7% (6)	51.8% (29)	56
Gloucester	6.9% (17)	46.8% (116)	248
Boston	23.3% (7)	37.5% (12)	32
Chatham/Harwichport	0% (0)	43.6% (79)	181
New Bedford/Fairhaven	22.2% (53)	21.3% (51)	239
Point Judith	1.6% (2)	56.5% (70)	124
Eastern Long Island	0% (0)	41.7% (90)	216
Upper Mid-Coast 1, ME	5.6% (3)	50% (27)	54
NH Seacoast	1% (1)	43.5% (40)	92
South Shore, MA	1.2% (2)	39.8% (68)	171
Provincetown	2.8% (1)	47.2% (17)	36

Table 335 – Distribution of Multispecies Permit Holders in FY00 that were Homeported in the Communities of Interest

Note that Lower Mid-Coast 1 ME, Eastern RI, and Northern Coastal NJ are not included in the above table. All three of these community groups are assumed to exhibit patterns in multispecies permits similar to Upper Mid-Coast 1 ME and Eastern Long Island.

Portland, Boston, and New Bedford are homeports to the largest percentages of vessels that have Individual DAS permits, use more of their allocated DAS, and will be most impacted by the large-scale reductions in DAS proposed in Alternatives 1a and 1b. These ports are followed by Chatham/Harwichport, Provincetown, Gloucester, the NH Seacoast, and Portsmouth, which exhibit a relatively high dependence on the multispecies fishery and are homeports to a significant number of active Fleet DAS vessels. Communities like Eastern Long Island, Point Judith, Eastern RI, and Northern Coastal NJ are currently less dependent on the groundfish fishery and are likely to be impacted by the DAS allocations through the loss of flexibility and the opportunity to pursue the groundfish fishery as an alternative to other fisheries.

B DAS

The identification of programs to use Category B DAS is intended to help mitigate the social and economic impacts of the measures needed to rebuild overfished stocks. The use of Category B DAS distinguishes between B reserve DAS - only used in special access programs (SAP) (e.g., closed areas) - and regular B DAS used to target healthy. Two of the proposed SAPs are located offshore and target resources in CA II. Smaller vessels are less likely to have the capacity to steam such a distance and may not find the use of DAS coupled with operating costs and safety risks worth the effort. Conversely, the CA I SAP for hook gear is closer to shore and may provide an opportunity for smaller, selective hook gear to use Category B (reserve) DAS. Massachusetts vessels have easier access to this SAP.

Future programs to use Category B (regular) DAS will be limited to targeting healthy stocks. Present stock conditions suggest that there may be more opportunities for these programs on Georges Bank, given the status of GB haddock, yellowtail flounder, and winter flounder. There are almost no opportunities for these programs in the southern New England area given the status of SNE/MA yellowtail flounder and SNE/MA

winter flounder. Within the Gulf of Maine, there may be limited opportunities for programs to target GOM haddock and pollock. For example, there may be an opportunity for a hook gear SAP in the WGOM closed area analogous to that in CA I.

5.6.2.2.1.2 Area Closures

Area closures are proposed throughout the alternatives under consideration in the form of additional and/or modified year-round and seasonal closures. Area closures are used as a management tool in the alternatives to address rebuilding requirements as well as the measures to minimize adverse impacts on habitat. In the alternatives to address rebuilding requirements, most proposed area closures have been developed to address fishing mortality of Gulf of Maine or Georges Bank cod, although some are proposed to address fishing mortality reductions across many groundfish stocks.

The recently implemented Interim Action (settlement agreement) implemented modifications to area closures, the impacts of which also must be considered in this social impact assessment. The EA for the Interim Action includes analysis of the settlement agreement year-round area closures (addition of Cashes year-round) and modifications to seasonal closures (124-125 open Jan-Mar; 80, 81, 118-120 closed May). All of the EA measures were effective during the 2002 fishing year and are included in some of the alternatives under consideration in Amendment 13. Only Alternative 4A reverts back to the pre-settlement agreement area closures. The proposed action will maintain the year round and seasonal closed areas adopted under the settlement agreement.

The continuation of the Cashes closure on a year-round basis is being considered in all of the Amendment 13 alternatives, with the exception of 4A. Cashes Ledge is an offshore area (compared to other areas in the Gulf of Maine that are proposed for closure), and the vessels and communities that will be most impacted by a year-round closure on Cashes are those that depend on it for fishing during some or all of the year. There is an active gillnet fleet that fishes on Cashes during some part of the year. If possible, these vessels will be forced to relocate their operations. On the other hand, this area will have been closed year-round in the 2002 fishing year, so some adaptations may have already been made by vessels that fish in this area.

In general, two categories of fishing vessels will be most affected by changes to the area closures: (1) vessels from communities involved in groundfish harvesting directly bordering the proposed additional area closures, and (2) vessels from other communities that have traditionally accessed the proposed additional closed areas to fish. Affected vessels from both categories include not only those vessels that fish for Gulf of Maine or Georges Bank cod, but also those vessels that fish for other species like flatfish or scallops. Of the SIA factors under consideration, area closures tend to produce the most significant impacts on *safety* and *disruption in daily living*, although impacts on *occupational opportunities* and *formation of attitudes* can also be expected.

The vessels in Category (1) will be the most directly affected by additional inshore and rolling area closures because the area closures border on the coastlines of their communities and, in some cases, extend up to 80 or 100 miles offshore for a period of time. For the communities of interest in the Gulf of Maine, these vessels are primarily based in Gloucester, Portland, Portsmouth, the NH Seacoast, Provincetown, and the South Shore of Massachusetts. For the communities of interest in Georges Bank, these vessels are primarily based in Chatham/Harwichport.

Within this category of affected vessels, smaller vessels (less than 50 feet) will be at a greater disadvantage to adjust to the regulations because of their inability to travel beyond the area closures to fish. Medium and larger-sized vessels will undoubtedly be constrained and inconvenienced, but the physical characteristics of these vessels may allow them to sustain some level of offshore fishing activity during the time period of closure. A majority of the vessels in question, especially those from Gloucester, Chatham/Harwichport, Portsmouth, the NH Seacoast, Provincetown, and the South Shore are relatively smaller-sized vessels and

may be forced to seek alternatives to fishing for multispecies due to the closures. This held true for the inshore area closures implemented through Frameworks 25, 26, 27, 31, and 33. The communities in which these vessels conduct their fishing activities and are homeported are likely to experience the greatest short-term social impacts resulting from additional area closures proposed in this amendment.

The second category of affected vessels is comprised of vessels that have accessed the proposed additional closed areas to fish for a variety of species and may now be facing closure of these fishing grounds. Although some of the affected vessels in this category include those coming from communities involved in groundfishing bordering the area closures (Category (1)), others come from other communities throughout the region. These vessels, while inconvenienced and limited in terms of their flexibility, may still have the opportunity to fish in other parts of the Gulf of Maine and Georges Bank as well as in other regions, although usually at increased expense. Affected vessels in Category (2) but not in Category (1) are more likely to shift their effort into other areas and perhaps onto other species. The communities in which these vessels conduct their fishing activities and are homeported (New Bedford, Point Judith, and Eastern LI, for example) are less likely to experience short-term social impacts resulting from the additional area closures proposed in this amendment.

There are other sectors of the groundfish fishery that will be affected by additional area closures. Shoreside facilities that supply bait, ice, fishing gear, and other supplies may suffer from a decrease in fishing activity in their communities, especially if vessels in their communities are unable to access fishery resources for a period of time. Greater dependence on fishing for groundfish in communities like Gloucester could ultimately lead to a greater potential for community economic dislocation resulting from the area closures implemented in this amendment. As an example, according to information from the 1990 U.S. Census, Essex County, Massachusetts employs close to 6,000 persons in fishing related businesses (processing, seafood markets, vessel repair, etc.). Support infrastructure in communities such as Gloucester (located in Essex County) is estimated to be at a premium, and very little additional infrastructure could be lost without having a major impact in the ability of the fleets in these communities to operate (Aguirre International 1996).

Loss of income and displacement from the fishery are likely to result in the short-term from additional area closures, and these losses are likely to be most significant in communities like Portsmouth, the NH Seacoast, Gloucester, the South Shore of MA, Provincetown, and Chatham/Harwichport MA. In extreme cases, the need for financial assistance as a result of loss of occupational opportunities, when combined with the perception of lowered social status resulting from decreased income, can often result in lowered self-esteem and negative impacts on job satisfaction. These social impacts are often consequences of any management plan directed at reducing exploitation. They also tend to result from alternatives that include either large-scale, long-term area closures or nearshore area closures that preclude opportunities for smaller vessels.

Some area closures proposed in the Amendment 13 alternatives may require that vessels find new fishing grounds and/or travel farther to fish. The potential need to spend more time at sea as a result of Amendment 13 area closures may produce negative social impacts. In fact, length of time at sea has been cited as an important characteristic affecting job satisfaction because of the amount of time fishermen are required to spend away from their families and communities and because of the potential for smaller vessels to compromise their own safety to maintain income during the closure time (Pollnac and Littlefield 1983).

To summarize, the area closures proposed in Amendment 13 will require fishermen and their respective communities to adjust to the regulations aimed at rebuilding commercial groundfish stocks and minimizing adverse impacts on habitat. How these adjustments will affect individuals, their families, and their communities varies with a number of factors, such as their dependence on Gulf of Maine or Georges Bank cod and other groundfish species as well as their ability to increase the value of a reduced catch or to shift effort to other fisheries in order to maintain a year-round stream of revenues.

The proposed action continues the year round and seasonal closed areas adopted by the FW 33 settlement action.

5.6.2.2.1.3 Trip Limits

In comparison to the no action alternative (400/4,000 for GOM cod; 2,000/20,000 for GB cod; no trip limits for SNE or CC/GOM yellowtail):

- Increases to the GOM cod trip limit were proposed for all alternatives, with the exception of 4a, to reduce regulatory discards without compromising fishing mortality.
- Reductions to the GB cod trip limit were considered in Alternatives 2a and 2b to reduce fishing mortality.
- New trip limits are being proposed for Southern New England/mid-Atlantic yellowtail flounder in all alternatives with the exception of 4a.
- A 50-pound trip limit is being proposed for Cape Cod/Gulf of Maine yellowtail flounder in Alternative 2a and 2b. The yellowtail trip limit for Cape Cod/Gulf of Maine yellowtail flounder is the same as Southern New England/mid-Atlantic yellowtail in alternatives 1a and 1b. There are no trip limits for Cape Cod/gulf of Maine yellowtail in alternatives 3 and 4.
- The Haddock trip limits are the same as currently exist.

The proposed action:

- Increases the GOM cod trip limit to 800 lbs/4,000 lbs
- Reduces the GB cod trip limit to 1,000 lbs/10,000 lbs for most vessels, with a seasonal limit for hook gear.
- Adopts a trip limit for CC/GOM yellowtail flounder and SNE/MA yellowtail flounder. While the amounts are the same as implemented in the settlement agreement, the months are different.

The recently implemented Interim Action (settlement agreement) implemented modifications to trip limits, the impacts of which also must be considered in this social impact assessment. The EA for the Interim Action includes analysis of the following changes to trip limits: 200 pounds for open access handgear vessels; 250 pounds Mar-May and 750/3,000 pounds June-Feb for Southern New England yellowtail flounder; and 500/4,000 pounds for GOM cod. All of the EA measures were effective during the 2002 fishing year and are included in some of the alternatives under consideration in Amendment 13.

Trip Limits are most likely to affect *regulatory discarding* and *formation of attitudes*. In general, trip limits can affect the structure of a fishery. If the trip limit is set very low, the inshore sector of the fleet can sometimes manage to fish economically, while the offshore sector of the fleet cannot cover trip expenses to direct fishing effort on the species managed by the trip limit. This can change the structure of revenues generated in the fishery and can ultimately change the long-term structure of the fishery itself. These types of outcomes, however, have not been evident to a large extent in the GOM cod fishery because trip limits have been set too low for most vessels to target GOM cod.

Instead, social impacts have resulted because the trip limits themselves hold a socially-undesirable characteristic – *regulatory discarding*. The impacts of regulatory discarding are discussed in Section 5.6.2.1.1.

Based only on the likelihood of reducing regulatory discarding, the Gulf of Maine cod trip limits under consideration rank as follows:

No Action	400 pounds per day/4,000 pounds per trip	(LEAST LIKELY)
Alternatives 2a, 2b and 3	500 pounds per day/4,000 pounds per trip	

Different trip limits for cod on Georges Bank and in the Gulf of Maine also have created perceptions of inequity between some sectors of the fishery. Currently, vessels can land 2,000 pounds per day/20,000 pounds per trip when fishing on Georges Bank and 400 pounds per day/4,000 pounds per trip when fishing in the Gulf of Maine. Although they are separate stocks of cod and there are many reasons for different trip limits, codfish are marketed similarly no matter where they are caught (sometimes prices may vary depending on how they are caught). Fishermen in the Gulf of Maine may be disadvantaged in terms of the fresh fish market for cod. Moreover, larger vessels from Gulf of Maine ports may be able to fish on Georges Bank and land more cod, increasing perceptions of inequity in some communities. This often exacerbates conflicts between sectors of the industry, which create social impacts in the form of intra-community conflicts and loss of community cohesion. The proposed action will reduce the difference between these two trip limits.

While the true magnitude of Gulf of Maine cod discards is unknown, any alternative in Amendment 13 that increases the Gulf of Maine cod trip limit to a level that minimizes regulatory discarding without compromising long-term stock recovery will mitigate the social impacts of the trip limit itself. While it may improve perceptions of inequity, creating a significant regulatory discarding problem on GB can be expected to have similar social impacts as the recent low GOM cod trip limits. This would be a likely result for both day boats and trip boats. In addition, if the GB cod trip limits are set too low, disproportionate impacts are likely to be experienced by the hook sector in Chatham/Harwichport, as discussed in the economic impact analysis. The most significant negative social impacts in Chatham/Harwichport and other Cape Cod communities are expected to result from Alternatives 2a and 2b because of a 500 pound per day GB cod trip limit.

5.6.2.2.1.4 Gear Restrictions

In comparison to the no action alternative, several gear restrictions are being proposed in the alternatives under consideration. These include changes in otter trawl codend mesh size; various limits on the number of stand-up and tie-down gillnets that can be used in different areas; requirements to use separator nets, raised footrope trawls, or other gears; limits on the number and size of hooks; and various restrictions on bottom-tending gear to minimize adverse effects on habitat.

The recently implemented Interim Action (settlement agreement) implemented modifications to gear restrictions, the impacts of which also must be considered in this social impact assessment. The EA for the Interim Action includes analysis of the following changes to gear restrictions: 6.5-inch diamond or square mesh codends in the GOM; limits on the numbers of gillnets in the GOM and on GB; limits on the number of hooks to 2,000 in the GOM and SNE and to 3,600 hooks on GB; and 7-inch diamond or 6.5-inch square mesh codends in the newly-defined SNE area. All of the EA measures were effective during the 2002 fishing year and are included in some of the alternatives under consideration in Amendment 13. The impacts of the Interim Action measures are especially important to consider in the context of gear restrictions; in some cases, the no action alternative may have more significant impacts because it would lessen the gear restrictions from the status quo (settlement agreement), leaving fishermen with recently-purchased gear that would no longer be required. The proposed action makes minor changes to gear requirements, but on the whole retains most of the measures adopted by the settlement agreement.

In terms of the SIA factors, gear restrictions affect *changes in occupational opportunities and community infrastructure* and *formation of attitudes* the most, although they can also affect *regulatory discarding* and *disruption in daily living* to a lesser extent. Gear restrictions can compromise business planning for shoreside support services and impose an economic burden on a large number of vessels. The social impacts likely to result from changes to gear restrictions are related to the cost for vessels to comply with and the

ability of gear suppliers to adapt to the new gear restrictions. An assessment of the impacts associated with the Interim Action gear restrictions is provided in the Interim Action EA (NMFS 2002).

If a new mesh size is required by the proposed action and not readily available, gear suppliers must order the twine well in advance of the effective date of the new regulation. Gear suppliers have indicated that ordering enough new mesh for the groundfish fleet could take between 3-6 months. In addition, new mesh requirements can sometimes leave gear suppliers with a significant amount of the “old mesh” that may no longer be marketable if it cannot be used in the fishery anymore (or in other fisheries). This results in a more significant loss of income for the gear suppliers.

Gear changes can affect short-term and long-term business planning for gear suppliers and related support services. The uncertainty associated with the implementation of new groundfish regulations necessitates gear suppliers to wait until it is definite that a new gear will be required. It is too risky and too expensive to order new twine or other gear prior to an official announcement of a new regulation. Quite often, this leaves gear suppliers uncertain about the short-term future needs for their business and makes it impossible for them to plan accordingly when developing longer-term business strategies. It is rare that a supplier can plan his/her business needs annually if gear restrictions change on as frequent a basis.

Gear restrictions place an additional economic burden on all affected fishing vessels. The ability to adapt to the new gear regulations will depend on vessels' current economic situation and ability to cover the short-term costs of the gear. If the new gear requirement is significantly different from current gear requirements, it is likely that the most marginal vessels will not be able to cover the costs of the new gear and will be forced to seek alternative fisheries or stop fishing altogether. For the vessels that can cover the short-term costs of the gear, long-term impacts are related more to the loss of revenues from fishing that may occur because of the new gear. For example, vessels are likely to lose some of their catch of species other than groundfish if they are required to fish for groundfish with a larger mesh. Over the long-term, this may result in more significant economic impacts and, ultimately, more severe dislocation of vessels in the fishery.

The magnitude and nature of the impacts of the gear restrictions under consideration in Amendment 13 will depend on the cost of the new gear, the current availability of the new gear, and vessels' choices as to whether or not to fish in the areas where the new gear is required. Some additional discussion of specific gear restrictions proposed in this amendment is provided within the discussion of the various alternatives.

5.6.2.2.1.5 Hard TACs

Hard TACs, or quotas, are being considered as management tools in many of the alternatives proposed in this amendment. Alternatives 2a, 2b and 3 include Hard TACs as backstop measures; Alternatives 4 and 4a represents a Hard TAC approach to managing the groundfish fishery. While the proposed action focuses on effort controls, it does adopt a hard TAC to implement the US/CA Resource Sharing Understanding for cod, haddock, and yellowtail flounder on eastern Georges Bank.

The EA for the recently-implemented Interim Action (settlement agreement) contemplated Hard TACs in the groundfish fishery. Attachment A to the EA described two options for Hard TACs and generally discusses the socio-economic impacts of Hard TACs (NMFS 2002). The EA concluded that the Hard TAC alternative would have the most significant negative impacts of the measures under consideration. The EA document should be referenced for more information and analysis.

Hard TACs have the potential to significantly impact all five SIA factors that have been identified in this assessment: *regulatory discarding, safety, disruption in daily living, changes in occupational opportunities and community infrastructure, and formation of attitudes.*

Especially in a multispecies fishery, social impacts of Hard TACs can be a byproduct of several changes in fishing behavior, including derby-style fishing, highgrading, and regulatory discarding. If a TAC is set low enough on a commercially valuable species, it can create a derby or a race for the fish. Derby-style fishing can negatively affect the price for the species and the revenues from the fishery if too much product is put on the market at one time. These negative economic impacts can affect occupational opportunities in the fishery and may impact community infrastructure over the long-term. In addition, derby-style fishing can create unsafe conditions for a vessel or a fleet depending on how competitive the race is and what time of year the fleet is catching the fish.

Once a quota is reached, further landings of the species are usually prohibited. This can create a regulatory discard problem, worsened by the race to fish and a consequently shorter period of time during which the species can be landed. In a multispecies fishery like the groundfish fishery, it is likely that some TACs will be reached, while others will not, allowing some groundfish species to continue to be landed. Depending on the time of year and stock area in question, this could exacerbate problems with regulatory discarding, as the race to fish for the other quota-managed species may force most vessels to continue to fish while discarding the species for which the quota has already been reached.

This outcome is very likely if Hard TACs are set for each stock in the multispecies fishery and if they are combined with other measures in Amendment 13. For example, DAS reductions could increase the race to fish under Hard TACs, as fishermen may try to maximize their remaining DAS by targeting the highest-valued species. This also can lead to highgrading, discarding that occurs when fishermen select only the highest-valued fish to land. For example, if large cod are worth the most, fishermen may discard other marketable sizes to keep only the largest cod, especially if the total quota is low and their opportunities to fish for groundfish are further restricted.

The alternatives that minimize negative social impacts resulting from Hard TACs are likely to be those that include set-asides for bycatch fisheries once the quota in the directed fishery has been reached. This reduces regulatory discarding. Other alternatives with fewer impacts are those that establish Hard TACs for only some of the groundfish species. Negative impacts can be expected to increase proportionately with the number of groundfish stocks managed under Hard TACs.

A Hard TAC management approach does have some potential social benefits. It can provide some stability to the fishing regulations, at least on an annual basis. This can allow for better business planning over the short-term. Assuming that regulatory discards do not increase fishing mortality beyond target levels, Hard TACs have the potential to generate long-term positive social impacts resulting from the ability to meet the conservation objectives of the management program. If Hard TACs are set appropriately and enforced adequately, biological objectives should be met, eliminating the need to increase restrictions on the fishery in the future. This is why some alternatives under consideration set Hard TACs as backstops. Meeting biological objectives ensures an improved revenues stream over the long-term as well.

Since the intent of a Hard TAC is to guarantee that fishing mortality targets will be achieved and management objectives will be met, it is likely that a Hard TAC management program will include fewer other kinds of measures to reduce fishing mortality like area closures, gear restrictions, and DAS modifications (except for programs that use Hard TACs as backstops). To the extent that this is true, the negative social impacts of these other measures can be reduced. It seems reasonable to assume that a Hard TAC management program would eliminate nearshore seasonal area closures in order to provide all vessels with equal access to the resource. This would reduce the impacts associated with derby-style fishing and improve safety, especially for smaller fishing operations that are pursuing the quota.

5.6.2.2.1.6 Special Access Programs

Special access programs are being considered in combination with the alternatives proposed in this amendment. In concept, Amendment 13 endorses the concept of a Special Access Program (SAP) to allow

for the establishment of groundfish fisheries that target stocks that can support increased fishing mortality, while avoiding stocks that require reductions in mortality. The positive impacts of these access programs would be from increased groundfish fishing opportunities for vessels that are able to participate in them. Participation could generate additional revenues and help to provide year-round fishing income. Over the long-term SAPs could mitigate some of the negative social impacts resulting from the broader management measures that affect mortality on all stocks like DAS modifications. SAPs are most likely to positively affect *changes in occupational opportunities and community infrastructure, disruption in daily living, and formation of attitudes*.

There are four SAPs proposed for Amendment 13. Three of those SAPs are on Georges Bank. Two in particular – targeting stocks near CAII – are not likely to be used by small vessels, since they do not have the range to participate safely in these SAPs. One SAP for hook gear vessels in CAI may provide limited opportunities for small vessels, primarily from Cape Cod and other Massachusetts ports. The fourth SAP will reduce regulatory discards of winter flounder taken while fishing for fluke.

5.6.2.2 Impacts of Fishery Program Administration

There are several measures proposed within the administration of the fishery management program (section 3.4) that may generate some social impacts. These measures and their likely impacts are discussed generally below.

FMP Review and Adjustments

The proposed modifications to the periodic adjustment process include revisions to the structure of the Groundfish PDT and establishment of a biennial management adjustment (instead of an annual adjustment). These changes could result in positive social impacts by streamlining and simplifying the management process and improving *formation of attitudes*. In recent times, the Council's annual review/adjustment process and the resulting series of framework adjustments (Framework 25, 27, 31, 33, etc.) have created perceptions of an ever-changing management system that does not allow adequate time for stock recovery to occur before additional, usually more severe, measures are implemented. Adjusting measures less frequently will reduce uncertainty and improve stability for fishery participants. This should allow for better business planning over the short-term. Extending the duration of time between each periodic review and adjustment also would allow measures to affect stocks, ultimately enabling the PDT to more accurately evaluate the impacts of the management measures before recommending additional measures. In the long-term, this approach could lead to more effective management of the multispecies resources.

DAS Leasing

A conservation-neutral DAS leasing program may be a very important mitigating factor for vessels that experience DAS reductions through Amendment 13 and are able to participate in the leasing program. It is possible that the DAS reductions in Amendment 13 will be severe enough for many vessels that they can no longer remain viable in the groundfish fishery. A leasing program offers an option for some vessels to temporarily increase the number of DAS they may fish by leasing the DAS from another vessel that chooses not to fish them. For vessels that are able to participate, this program is likely to mitigate the impacts associated with *disruption in daily living, changes in occupational opportunities and community infrastructure, and formation of attitudes*. If a particular community is home to a large number of vessels that can participate, this program may provide for the sustained participation of the community in the groundfish fishery.

The selection of a mechanism to ensure conservation-equivalency is important and may determine the extent to which some vessels are able to participate in the DAS leasing program. Option 1, leasing within categories, limits vessels to leasing DAS that are within similar bounds of size and gear. First, a lessor may not lease DAS to any vessel with a main engine horsepower rating that is more than 20% that of the lessee and may not lease DAS to any vessel that is more than 10% of the lessee vessel's LOA, GRT, and NT. Second, lease agreements would be restricted by gear such that vessels with hook-only permits may lease

DAS only from other hook-only permit holders, trip gillnet vessels may lease DAS only from other trip gillnet vessels with a FY2001 trip gillnet designation, etc. This reduces flexibility within the program and significantly limits the pool of DAS available to a lessor. The largest and most unique fishing vessels are likely to be disadvantaged by this approach; these are the same vessels that may benefit most, economically and socially, from a DAS leasing program. Option 2, calibrating DAS, provides much broader opportunities to match buyers and sellers of leased DAS. Both approaches proposed within Option 2 appear to improve flexibility within the leasing program and maximize the economic and social benefits associated with such a program.

DAS Leasing - Flow

The proposed action will implement a DAS leasing program. The following gives some indication of the possible social impacts from leasing DAS. This analysis is based on part on the predicted outcomes from economic modeling (section 5.4.9.2.7) further aggregated by port, state, and vessel size to give an indication of the differential effects of DAS leasing within the groundfish industry. This analysis should be interpreted as an indication of the *direction* of pressures or trends, rather than a precise estimate of impacts. The economic model itself is highly stylized and makes a number of theoretical assumptions about perfect markets (such as the overall ability and willingness to trade and the full information to do so, and simultaneous execution of all trades) that are not reasonably expected to occur. There are also a number of reasons to expect, based on anthropological perspectives, that such trading will not take place as economic modeling may predict. Anthropological studies have demonstrated repeatedly that for many fishermen and fishing families, a commitment to fishing is based not solely on income or profit maximization but rather on fishing as a way of life (Gatewood and McCay 1988, Gatewood and McCay 1990). Other studies have shown that many fishing businesses are family-run enterprises where income pooling and other forms of resource sharing mitigate against the more traditionally-capitalist assumptions about firms in economic analyses (Doeringer et al. 1986).

The economic modeling assumes that a vessel owner would only lease DAS if the income from leasing is more than the expected income from fishing those DAS; in other words, the impacts from such a leasing arrangement are expected to be positive, or at least no worse than status quo. Given the coupling of this alternative with other alternatives in order to meet conservation neutrality, leasing would at best mitigate the negative impacts from the overall reduction in fishing activity. However, since the income accrues to the owner of the vessel, crew members on vessels that lease DAS away may see a negative impact to income, depending on to what extent the vessel engages in alternative fishing activities (about which the model makes no predictions). Alternatively, crew on vessels that lease DAS in may see positive impacts from increased fishing activity. Changes in landing patterns that could occur with net outflows of DAS from particular ports (as indicated below) could have negative impacts on buyers and processors, depending again on to what extent vessels engage in other fishing activities. Moreover, the social impacts from policy changes extend beyond changes in income. Studies on the social ramifications of ITQ's (though fundamentally different from the policy proposed here since DAS are only leased and not permanently sold) have, for example, pointed to the significant impacts on social relations that stem from the commodification of fishing activity (Pálsson 1998, Pálsson and Helgason 1995). Moreover, such ITQ studies have pointed to the ramifications of changing market shares that enable the domination of particular segments of the industry over others without further protective legislation (McCay 1995, McCay et al. 1995).

In terms of the distributional effects within the groundfish industry, the economic modeling indicates a movement of DAS from large/medium to small vessels (see Table 336). For all size categories, there is a movement to vessels more dependent on groundfish income, though this is more pronounced for the larger vessels. At the state level (Table 337), the influx of DAS is primarily to Massachusetts, which is also the state with the highest groundfish income from the vessels modeled. Maine, though with the second highest income and with income that comes from vessels dependent or highly dependent on groundfish, sees significant loss of DAS. Rhode Island also shows significant loss of DAS. It is therefore expected that the negative impacts (as detailed above) from DAS leasing would be felt most there. At the port level, ports

such as New Bedford and Gloucester see a net gain of DAS while ports such as Portland, Point Judith, Newport, and Hampton might see a net loss (Table 338).

Size Class	Groundfish income*	Percent of which comes from dependent vessels	Percent of which comes from highly dependent vessels	Net gain in days-at-sea	Percent of days leased out by dependent vessels	Percent of days leased out by highly dependent vessels	Percent of days leased in by dependent vessels	Percent of days leased in by highly dependent vessels
LARGE	54,281,601	28.8	52.0	-1,771	35.2	30.1	22.1	61.0
MEDIUM	30,187,619	35.8	45.9	-1,585	34.2	23.9	26.0	61.7
SMALL	24,667,130	27.1	62.4	6,095	23.3	45.5	23.0	65.6

* Source: weighout and permit records. Small refers to vessels less than 50 feet in length; medium refers to vessels between 50 and 70 feet in length; and large refers to vessels greater than 70 feet in length. Groundfish income pertains only to vessels included in the economic model. Dependent vessels refers to those earning 50-75% of annual income from groundfish; highly dependent vessels refers to those earning 75-100% of annual income from groundfish (based on 2001 weighout records).

Table 336 - Distribution of Net Flows of Leased DAS, by size of vessel*

State of landing	Groundfish income*	Percent of which comes from dependent vessels	Percent of which comes from highly dependent vessels	Net gain in days-at-sea	Percent of days leased out by dependent vessels	Percent of days leased out by highly dependent vessels	Percent of days leased in by dependent vessels	Percent of days leased in by highly dependent vessels
ME	18,666,203	59.2	38.8	-2,001	66.9	24.3	46.2	53.4
NH	3,773,469	29.4	53.7	799	23.0	42.3	25.5	58.1
MA	76,777,771	23.3	62.6	7,055	22.6	48.3	19.5	69.2
RI	5,967,614	39.9	0.5	-2,001	16.5	2.3	63.4	1.7
NY	3,202,298	22.2	3.2	-844	6.3	2.4	12.5	0.1
NJ	748,095	2.5	0.0	-262	0.1	0.0	16.2	0.0

* Source: weighout and permit records. Does not include states with less than 200 dollars of groundfish income from vessels included in the economic model. Dependent vessels refers to those earning 50-75% of annual income from groundfish; highly dependent vessels refers to those earning 75-100% of annual income from groundfish (based on 2001 weighout records).

Table 337 - Distribution of net flows of leased DAS, by State if Landing*

Port of landing	State of landing	Groundfish income*	Percent of which comes from dependent vessels	Percent of which comes from highly dependent vessels	Net gain in days-at-sea	Percent of days leased out by dependent vessels	Percent of days leased out by highly dependent vessels	Percent of days leased in by dependent vessels	Percent of days leased in by highly dependent vessels
NEW BEDFORD	MA	41,486,508	21.8	61.3	1,659	26.8	34.6	18.7	68.6
GLOUCESTER	MA	18,709,914	11.7	75.1	1,755	14.9	61.7	12.7	73.1
PORTLAND	ME	15,461,837	55.7	42.4	-1,057	69.3	23.3	47.0	52.7
CHATHAM	MA	4,734,080	20.4	72.9	1,870	12.9	32.5	19.5	68.6
BOSTON	MA	4,569,693	77.6	9.6	-433	54.4	29.2	54.9	45.1
POINT JUDITH	RI	4,281,728	29.7	0.4	-1,322	11.8	0.0	54.1	2.2
MONTAUK	NY	2,011,176	25.7	0.3	-37	2.2	0.5	16.4	0.1
HARWICH PORT	MA	1,777,747	2.8	95.6	258	0.5	98.3	8.3	88.3
PORTSMOUTH	NH	1,619,038	36.7	40.6	-6	22.6	29.1	23.8	47.8
NEWPORT	RI	1,502,057	69.6	0.6	-437	37.4	10.7	94.8	0.0
PROVINCETOWN	MA	1,437,719	22.4	68.1	392	17.0	50.7	17.1	69.0
SEABROOK	NH	1,309,124	14.5	79.3	470	19.8	58.3	16.2	83.5
PORT CLYDE	ME	1,140,943	87.0	13.0	-151	89.3	10.7	41.7	58.3
SCITUATE	MA	1,047,175	23.5	57.0	-177	22.6	43.5	7.6	82.0
HAMPTON BAYS	NY	862,372	4.3	10.9	-526	1.4	4.3	3.2	0.0
RYE	NH	725,085	42.9	30.9	313	39.9	55.3	47.5	23.2
PLYMOUTH	MA	676,815	41.4	54.0	553	22.1	69.2	36.0	47.5
ROCKPORT	MA	622,078	30.1	69.8	409	47.8	52.2	14.7	85.3
MARBLEHEAD	MA	608,661	56.3	42.6	395	0.7	79.3	29.5	70.4
SOUTH BRISTOL	ME	523,310	97.7	2.3	-32	100.0	0.0	43.7	56.3
NEWBURYPORT	MA	419,484	81.6	18.4	333	70.7	29.3	60.8	39.2
POINT PLEASANT	NJ	401,744	0.0	0.0	-296	0.0	0.0	0.0	0.0
OTHER BARNSTABLE	MA	377,717	57.6	29.4	-78	39.7	38.1	85.3	14.6
BELFORD	NJ	343,701	5.5	0.0	64	0.4	0.0	16.8	0.0
CUNDYS HARBOR	ME	295,106	90.2	9.3	7	59.8	3.2	99.9	0.1
FREEPORT	NY	235,136	55.2	0.0	-137	27.5	0.0	99.5	0.0
BAR HARBOR	ME	158,417	63.1	36.9	-103	48.8	51.2	.	.
HAMPTON/SEABROOK	NH	120,222	11.4	87.4	22	9.3	89.1	10.8	89.0
NEW HARBOR	ME	119,254	96.1	0.0	-30	61.1	0.0	100.0	0.0
OWLS HEAD	ME	116,934	100.0	0.0	-63	100.0	0.0	.	.
STONINGTON	ME	106,910	19.1	80.9	-132	37.4	62.6	0.0	100.0
TIVERTON	RI	100,109	34.3	0.0	-94	0.0	0.0	99.6	0.0

* Source: weighout and permit records. Does not include ports with less than 100,000 dollars of groundfish income from vessels included in the economic model or fewer than 3 of these vessels landing. Dependent vessels refers to those earning 50-75% of annual income from groundfish; highly dependent vessels refers to those earning 75-100% of annual income from groundfish (based on 2001 weighout records).

Table 338 - Distribution of New Flows of Leased DAS, by port of Landing*

5.6.2.2.3 Impacts of Measures to Control Capacity

For the most part, the social impacts of the measures proposed to control capacity are discussed in Section 5.6.2.2.1.1. The capacity measures propose to eliminate some proportion of unused (latent) DAS from the pool of DAS that can be used in the multispecies fishery. This can be achieved through several strategies: (Alternative 1) Permit Absorption; (Alternative 2) Permit Transfer; (Alternative 3) DAS Transfer; (Alternative 4) Freeze on Unused DAS; (Alternative 5) DAS Reserve.

Alternative 1, permit absorption, allows a permit holder to transfer all permits held to another vessel. This allows permit holders to combine scallop and multispecies limited access permits, with some restrictions in the form of a conservation tax. Under this alternative, the transferring vessel is required to retire from fishing, and all of its limited access permits must be transferred to other limited access permit holders, or

they will expire. Retirement from fishing means that a vessel may not participate in any other state or federal open access or limited access fisheries after its permits are transferred. DAS that are acquired by a vessel through a permit transfer and absorption would be made available through a schedule that allows for 20% of the DAS acquired to be reactivated each year. To an extent, this alternative increases flexibility and enhances opportunities in the multispecies fishery for vessels that are able to participate. It may mitigate some of the negative social impacts resulting from DAS reductions and other restrictions in Amendment 13. The social impacts of this alternative for participating vessels may be similar to those associated with a DAS leasing program (Section 5.6.2.2.2). However, the benefits of this alternative are limited to those vessels that may have the financial ability to participate in the program. In addition, the long-term benefits of reducing capacity in the fishery may not be very significant under this alternative.

Alternative 2, permit transfer, allows limited access groundfish permit holders to transfer their multispecies permits to another vessel or vessels, with some restrictions in the form of a conservation tax. Under this alternative, the selling vessel is required to retire from fishing, and all of its limited access permits must be sold to other limited access permit holders, or they will expire. Retirement from fishing means that a vessel may not participate in any other state or federal open access or limited access fisheries after its permits are sold. DAS that are acquired by a vessel through a permit transfer would be made available through a schedule that allows for 20% of the DAS acquired to be reactivated each year. This alternative is very similar to Alternative 1 (permit absorption), so similar impacts can be expected. Benefits may accrue to those vessels that are financially capable of participating in the program. Again, however, the long-term benefits of reducing capacity in the fishery may not be very significant under this alternative.

Alternative 3 allows limited access multispecies permit holders to permanently transfer DAS to other limited access multispecies permit holders, with some restrictions on vessel size and the percentage of active and inactive DAS that can be transferred. Alternative 3 may be adopted as a stand-alone capacity reduction measure, or it may be incorporated into Alternatives 1 or 2. Similar to Alternatives 1 and 2, this approach may have positive impacts for vessels that are financially capable of participating in the program. It could increase DAS available to participating vessels, thereby mitigating the negative impacts of the DAS reductions and other restrictions in Amendment 13. The social impacts of Alternative 3 are expected to be similar to those associated with Alternatives 1 and 2, as well as the proposed DAS leasing program. More significant long-term benefits associated with reducing capacity in the fishery can be expected under Alternative 3 when compared to Alternatives 1 and 2.

Several options are proposed in Alternative 5 so that reductions in fleet capacity are achieved through changing the way that the baseline of DAS is calculated for individual vessels. These measures essentially allocate all limited access multispecies permit holders Individual DAS based on the permit holder's recent level of participation in the groundfish fishery. For the purposes of this assessment, a freeze on unused DAS (Alternative 4) and the DAS Reserve (Alternative 5) equate to reductions in allocated DAS and are discussed in Section 5.6.2.2.1.1.

Effective Effort Baseline

The proposed action adopts a different baseline for determining effective DAS than the baseline used under the court settlement agreement. Under the FW 33 settlement agreement, all vessels received at least 10 DAS, even if they had not fished for groundfish during the qualification period. The proposed action would prevent these vessels from participating either directly by fishing or indirectly by leasing or transferring their DAS.

The distribution of vessels with no DAS under the proposed action can be divided into two overlapping groups of ports (homeports): those having vessels with more than 10 DAS under the court settlement agreement and those having no vessels with more than 10 DAS under the settlement agreement. The ports having a significant number of vessels with more than 10 DAS under the settlement agreement but also having a significant number of vessels that would lose all their DAS under the proposed action are Boston,

MA, Gloucester, MA, Barnegat Light, NJ, and Montauk, NY. The other ports in this category have from 0 to 3 vessels that would lose all their DAS (Table 339).

The other category of ports, those with a significant number of vessels allocated only 10 DAS under the court settlement, includes the above ports as well as many ports without any vessels with more than 10 DAS under the settlement agreement. This category includes Boston, Ma, New Bedford, Ma, Portland, ME, Swans Island, ME, Barnegat Light, NJ, Cape May, NJ, Montauk, NY, Point Judith, RI and Newport, RI. In many of the smaller homeports in this group no vessels will have an allocation of DAS. The comparison of overall impacts for the two separate port groupings show that the allocation of no DAS will significantly affect many ports that had vessels allocated fewer than ten DAS (Table 340). Vessels that qualified for less than 10 DAS are likely to be smaller vessels or those that did not have sufficient landings history in the multispecies fishery to qualify for more days. This action removes future potential participation of vessels with less than ten DAS from either directly participating in the fishery or indirectly participating in a lease or transfer program (at least unless Category C DAS are allowed to be used in the fishery). A substantial number of vessels with greater than 10 DAS received an increase in DAS.

CONNECTICUT HOMEPORT STATE	Number of Permits	Number of Vessels with no Change in DAS	Number of Vessels that have increased DAS allocations	Number of vessels with reduced DAS allocations	Number of vessels with zero allocation
GROTON	C	C	C	C	C
NEW LONDON	3	1	1	0	1
NOANK	C	C	C	C	C
NORWALK	C	C	C	C	C
STONINGTON	7	1	0	1	5
	13	3	1	1	8
MASSACHUSETTES HOMEPORT STATE					
ALLENS HARBOR	C	C	C	C	C
AMESBURY	C	C	C	C	C
BARNSTABLE	5	2	2	0	1
BASS RIVER	3	2	1	0	0
BEVERLY	7	3	3	0	1
BOSTON	144	100	24	4	16
BRANT ROCK	5	3	0	1	1
CENTERVILLE	C	C	C	C	C
CHATHAM	45	28	14	1	2
CHILMARK	3	1	1	0	1
DENNIS	6	1	3	1	1
EDGARTOWN	C	C	C	C	C
FAIRHAVEN	8	4	3	1	0
FALL RIVER	C	C	C	C	C
GLOUCESTER	104	61	32	3	8
GREEN HARBOR	8	4	0	2	2
HARWICH	15	10	4	0	1
HULL	3	1	0	1	1
HYANNIS	6	2	3	1	0
LYNN	C	C	C	C	C
MANCHESTER	3	0	3	0	0
MARBLEHEAD	6	3	3	0	0
MARSHFIELD	7	2	1	2	2
MENEMSHA	C	C	C	C	C
NAHANT	C	C	C	C	C
NANTUCKET	3	1	1	1	0
NEW BEDFORD	80	67	10	1	2
NEWBURYPORT	5	3	2	0	0
ORLEANS	8	6	2	0	0
OSTERVILLE	C	C	C	C	C
PIGEON COVE	3	0	3	0	0
PLYMOUTH	5	1	3	0	1
PROVINCETOWN	16	6	8	0	2

Table 339 - Comparison of Settlement Agreement and Proposed Action Baseline DAS by Homeport (Permits > 10 DAS)

MASSACHUSETTS HOMEPORT STATE	Number of Permits	Number of Vessels with no Change in DAS	Number of Vessels that have increased DAS allocations	Number of vessels with reduced DAS allocations	Number of vessels with zero allocation
ROCKLAND	C	C	C	C	C
ROCKPORT	10	4	3	0	3
SAGAMORE	C	C	C	C	C
SALISBURY	3	2	1	0	0
SANDWICH	6	4	2	0	0
SCITUATE	20	7	8	1	4
SOUTH CHATHAM	C	C	C	C	C
SOUTH YARMOUTH	C	C	C	C	C
SWAMPSCOTT	3	2	1	0	0
TAUNTON	C	C	C	C	C
WELLFLEET	C	C	C	C	C
WEST NEWBURY	C	C	C	C	C
WESTPORT	4	0	1	3	0
WOODS HOLE	4	2	1	0	1
YARMOUTH	C	C	C	C	C
	568	339	148	25	56
MAINE HOMEPORT STATE					
PORT CLYDE	C	C	C	C	C
BEALS	C	C	C	C	C
BELFAST	C	C	C	C	C
BIDDEFORD	C	C	C	C	C
BOOTHBAY	C	C	C	C	C
BOOTHBAY HARBOR	4	2	2	0	0
CAMP ELLIS	C	C	C	C	C
CAPE ELIZABETH	C	C	C	C	C
CAPE PORPOISE	4	1	3	0	0
CUNDYS HARBOR	7	4	2	0	1
FREEPORT	C	C	C	C	C
FRIENDSHIP	C	C	C	C	C
HARPSWELL	C	C	C	C	C
KITTERY	C	C	C	C	C
KITTERY POINT	C	C	C	C	C
MEDOMAK	C	C	C	C	C
MILBRIDGE	C	C	C	C	C
MONHEGAN	C	C	C	C	C
NEW HARBOR	C	C	C	C	C
ORRS ISLAND	C	C	C	C	C
OWLS HEAD	C	C	C	C	C
PEAKS ISLAND	C	C	C	C	C

Table 339 - Comparison of Settlement Agreement and Proposed Action Baseline DAS by Homeport (Permits > 10 DAS)

MAINE HOMEPORT STATE	Number of Permits	Number of Vessels with no Change in DAS	Number of Vessels that have increased DAS allocations	Number of vessels with reduced DAS allocations	Number of vessels with zero allocation
PORT CLYDE	10	8	2	0	0
PORTLAND	31	26	4	0	1
SACO	3	0	3	0	0
SEBASCO ESTATES	C	C	C	C	C
SOUTH BRISTOL	9	5	4	0	0
SOUTH FREEPORT	C	C	C	C	C
SOUTH PORTLAND	C	C	C	C	C
SOUTHWEST HARBOR	C	C	C	C	C
SPRUCE HEAD	C	C	C	C	C
STONINGTON	3	1	2	0	0
TREVETT	C	C	C	C	C
WEST POINT	C	C	C	C	C
WESTBROOK	C	C	C	C	C
WINTER HARBOR	C	C	C	C	C
YARMOUTH	C	C	C	C	C
YORK	C	C	C	C	C
YORK HARBOR	C	C	C	C	C
	113	70	35	3	56
NEW HAMPSHIRE HOMEPORT STATE					
HAMPTON	8	5	3	0	0
HAMPTON BEACH	C	C	C	C	C
HAMPTON FALLS	C	C	C	C	C
PORTSMOUTH	26	12	12	0	2
RYE	9	4	5	0	0
SEABROOK	12	1	10	0	1
SOUTH HAMPTON	C	C	C	C	C
	60	23	31	1	5
NEW JERSEY HOMEPORT STATE					
BARNEGAT	C	C	C	C	C
BARNEGAT LIGHT	14	3	0	1	10
BELFORD	11	9	1	0	1
BRICKTOWN	C	C	C	C	C
BRNEGAT LIGHT	C	C	C	C	C
CAPE MAY	8	7	0	0	1
EAST BRUNSWICK	C	C	C	C	C
POINT PLEASANT	6	4	1	0	1
TOMS RIVER	C	C	C	C	C
	44	26	2	1	15

Table 339 - Comparison of Settlement Agreement and Proposed Action Baseline DAS by Homeport (Permits > 10 DAS)

NEW YORK HOMEPORT STATE	Number of Permits	Number of Vessels with no Change in DAS	Number of Vessels that have increased DAS allocations	Number of vessels with reduced DAS allocations	Number of vessels with zero allocation
BROOKLYN	C	C	C	C	C
EAST QUOGUE	C	C	C	C	C
FOX PT	C	C	C	C	C
FREEPORT	C	C	C	C	C
GREENPORT	5	3	1	1	0
HAMPTON BAYS	5	2	2	0	1
ISLIP	C	C	C	C	C
MATTITUCK	C	C	C	C	C
MONTAUK	28	17	4	0	7
NEW YORK	40	28	6	0	6
POINT LOOKOUT	C	C	C	C	C
SHINNECOCK	9	7	0	0	2
SOUTHAMPTON	C	C	C	C	C
THREE MILE HARBOR	C	C	C	C	C
	99	62	17	1	19
RI HOMEPORT STATE					
BLOCK ISLAND	C	C	C	C	C
BRISTOL	C	C	C	C	C
CHARLESTOWN	C	C	C	C	C
GALILEE	C	C	C	C	C
LITTLE COMPTON	3	0	0	2	1
NARRAGANSETT	6	4	2	0	0
NEWPORT	14	8	4	0	2
POINT JUDITH	43	37	2	0	4
PORTSMOUTH	C	C	C	C	C
PROVIDENCE	C	C	C	C	C
SAKONNET POINT	C	C	C	C	C
TIVERTON	4	0	2	1	1
WAKEFIELD	6	4	2	0	0
WARWICK	C	C	C	C	C
WESTERLY	C	C	C	C	C
	88	58	13	6	11
ALL OTHER HOMEPORT STATES					
BATH	C	C	C	C	C
BEAUFORT	C	C	C	C	C
BELHAVEN	C	C	C	C	C
CHINCOTEAGUE	C	C	C	C	C
CRISFIELD	C	C	C	C	C
ENGELHARD	C	C	C	C	C
FALLING WATERS	3	2	0	0	1

Table 339 - Comparison of Settlement Agreement and Proposed Action Baseline DAS by Homeport (Permits > 10 DAS)

ALL OTHER HOMEPORT STATES	Number of Permits	Number of Vessels with no Change in DAS	Number of Vessels that have increased DAS allocations	Number of vessels with reduced DAS allocations	Number of vessels with zero allocation
HATTERAS	C	C	C	C	C
MANNS HARBOR	C	C	C	C	C
NEWPORT NEWS	3	1	1	0	1
NORFOLK	4	1	2	0	1
ORIENTAL	C	C	C	C	C
PHILADELPHIA	5	4	0	0	1
WANCHESE	6	4	2	0	0
WILMINGTON	C	C	C	C	C
	32	18	8	0	6
GRAND TOTAL	1017	599	255	38	125

Table 339 - Comparison of Settlement Agreement and Proposed Action Baseline DAS by Homeport (Permits > 10 DAS)

CONNECTICUT HOMEPORT STATE	Number of Permits	Number of Vessels that have increased DAS allocations	Number of vessel with reduced DAS allocations	Number of vessels with zero allocation
LEDYARD	C	C	C	C
NEW HAVEN	C	C	C	C
NOANK	C	C	C	C
	4	0	0	4
MASSACHUSETTES HOMEPORT STATE				
ALLENS HARBOR	C	C	C	C
BARNSTABLE	C	C	C	C
BASS RIVER	C	C	C	C
BEVERLY	6	0	0	6
BOSTON	49	1	0	48
BRANT ROCK	C	C	C	C
BREWSTER	C	C	C	C
CHATHAM	9	0	1	8
CHILMARK	C	C	C	C
CUTTY HUNK	C	C	C	C
DENNIS	C	C	C	C
EASTHAM	C	C	C	C

Table 340 - Comparison of Settlement Agreement and Proposed Action Baseline DAS by Homeport (Permits < 10 DAS)

MASSACHUSETTS HOMEPORT STATE	Number of Permits	Number of Vessels that have increased DAS allocations	Number of vessel with reduced DAS allocations	Number of vessels with zero allocation
EDGARTOWN	3	0	0	3
FAIRHAVEN	7	0	1	6
FALL RIVER	C	C	C	C
FALMOUTH	C	C	C	C
FRANKLIN	C	C	C	C
GLOUCESTER	23	3	1	19
GREEN HARBOR	C	C	C	C
HARWICH	5	0	1	4
HUDSON	C	C	C	C
HULL	4	0	0	4
HYANNIS	C	C	C	C
IPSWICH	C	C	C	C
KINGSTON	C	C	C	C
MANCHESTER	C	C	C	C
MARBLEHEAD	3	0	0	3
MARION	C	C	C	C
MARSHFIELD	C	C	C	C
MENEMSHA	C	C	C	C
NAHANT	C	C	C	C
NEW BEDFORD	21	2	3	16
NEWBURYPORT	5	0	0	5
NORTH WEYMOUTH	C	C	C	C
ORLEANS	C	C	C	C
PIGEON COVE	C	C	C	C
PLYMOUTH	C	C	C	C
PROVINCETOWN	3	1	0	2
ROCK HARBOR ORLEANS	C	C	C	C
ROCKPORT	3	0	0	3
RYE HARBOR	C	C	C	C
SAGAMORE	C	C	C	C
SALISBURY	C	C	C	C
SANDWICH	4	0	0	4
SCITUATE	6	1	0	5
SOUTH BOSTON	C	C	C	C
SOUTH WELLFLEET	C	C	C	C
SOUTH YARMOUTH	C	C	C	C
SUTTON	C	C	C	C
SWAMPSCOTT	C	C	C	C
TAUNTON	C	C	C	C
VINEYARD HAVEN	C	C	C	C
WAREHAM	C	C	C	C
WELLFLEET	C	C	C	C

Table 340 - Comparison of Settlement Agreement and Proposed Action Baseline DAS by Homeport (Permits < 10 DAS)

MASSACHUSETTS HOMEPORT STATE	Number of Permits	Number of Vessels that have increased DAS allocations	Number of vessel with reduced DAS allocations	Number of vessels with zero allocation
WEST BARNSTABLE	C	C	C	C
WESTPORT	7	0	0	7
WESTPORT POINT	C	C	C	C
WINTHROP	C	C	C	C
WORCESTER	C	C	C	C
YARMOUTH	C	C	C	C
	211	9	8	194
MAINE HOMEPORT STATE				
BAILEY ISLAND	C	C	C	C
BASS HARBOR	C	C	C	C
BATH	C	C	C	C
BEALS	C	C	C	C
BOOTHBAY HARBOR	C	C	C	C
BREMEN	C	C	C	C
BRISTOL	C	C	C	C
BUCKS HARBOR	C	C	C	C
CAPE PORPOISE	C	C	C	C
CHEBEAGUE ISLAND	C	C	C	C
CUNDYS HARBOR	5	2	0	3
EAST HARPSWELL	C	C	C	C
FREEPORT	C	C	C	C
GEORGETOWN	C	C	C	C
HARPSWELL	C	C	C	C
JONESPORT	C	C	C	C
KENNEBUNKPORT	C	C	C	C
KITTERY	3	1	0	2
KITTERY POINT	C	C	C	C
MONHEGAN	C	C	C	C
OGUNQUIT	C	C	C	C
ORRS ISLAND	C	C	C	C
OWLS HEAD	C	C	C	C
PHIPPSBURG	C	C	C	C
PORTLAND	4	0	0	4
ROCKLAND	C	C	C	C
SACO	C	C	C	C
SEBASCO ESTATES	C	C	C	C
SOUTH BERWICK	C	C	C	C
SOUTHWEST HARBOR	C	C	C	C
SPRUCE HEAD	C	C	C	C
SPRUCE HEAD ISLAND	C	C	C	C
STEBEN	C	C	C	C

Table 340 - Comparison of Settlement Agreement and Proposed Action Baseline DAS by Homeport (Permits < 10 DAS)

MAINE HOMEPORT STATE	Number of Permits	Number of Vessels that have increased DAS allocations	Number of vessel with reduced DAS allocations	Number of vessels with zero allocation
STONINGTON	3	0	0	3
SWANS ISLAND	4	0	0	4
TENANTS HARBOR	C	C	C	C
VINALHAVEN	3	0	0	3
WELLS HARBOR	C	C	C	C
WEST JONESPORT	C	C	C	C
WEST POINT	C	C	C	C
WESTPORT	C	C	C	C
WINTER HARBOR	3	1	0	2
WISCASSET	C	C	C	C
YORK HARBOR	C	C	C	C
	66	8	1	57
NEW HAMPSHIRE HOMEPORT STATE				
HAMPTON	7	0	0	7
PORTSMOUTH	3	0	0	3
RYE	C	C	C	C
RYE HARBOR	C	C	C	C
SEABROOK	3	0	1	2
	15	0	1	14
NEW JERSEY HOMEPORT STATE				
BARNEGAT LIGHT	4	0	0	4
BELFORD	7	0	0	7
BELMAR	C	C	C	C
BRICK	C	C	C	C
BRIELLE	C	C	C	C
BRNEGAT LIGHT	C	C	C	C
CAPE MAY	5	0	0	5
MANASQUAN INLET	C	C	C	C
POINT PLEASANT	3	0	0	3
POINT PLEASANT BEACH	C	C	C	C
SEA ISLE CITY	C	C	C	C
WARETOWN	C	C	C	C
WILDWOOD	3	0	0	3
	33	0	1	32
NEW YORK HOMEPORT STATE				
ATLANTIC BEACH	C	C	C	C
EAST ISLIP	C	C	C	C
FREEPORT	C	C	C	C
GLEN COVE	C	C	C	C

Table 340 - Comparison of Settlement Agreement and Proposed Action Baseline DAS by Homeport (Permits < 10 DAS)

NEW YORK HOMEPORT STATE	Number of Permits	Number of Vessels that have increased DAS allocations	Number of vessel with reduced DAS allocations	Number of vessels with zero allocation
HAMPTON BAYS	C	C	C	C
ISLAND PARK	C	C	C	C
LONG ISLAND	C	C	C	C
MASTIC BEACH	C	C	C	C
MATTITUCK	C	C	C	C
MONTAUK	12	0	0	12
NEW YORK	20	0	1	19
POINT LOOKOUT	C	C	C	C
SHINNECOCK	C	C	C	C
WEST SAYVILLE	C	C	C	C
	44	0	1	43
RI HOMEPORT STATE				
BLOCK ISLAND	C	C	C	C
DAVISVILLE	C	C	C	C
GALILEE	C	C	C	C
NARRAGANSETT	C	C	C	C
NEWPORT	5	0	0	5
POINT JUDITH	7	0	0	7
PROVIDENCE	C	C	C	C
SAKONNET POINT	C	C	C	C
SAUNDERSTOWN	C	C	C	C
SNUG HARBOR	C	C	C	C
TIVERTON	C	C	C	C
WAKEFIELD	C	C	C	C
	26	0	0	26
ALL OTHER HOMEPORT STATES				
ATLANTIC	C	C	C	C
AURORA	C	C	C	C
BEAUFORT	C	C	C	C
GOMEZ	C	C	C	C
NEWPORT	C	C	C	C
NEWPORT NEWS	C	C	C	C
NORFOLK	C	C	C	C
OCEAN CITY	4	0	0	4
ORIENTAL	C	C	C	C
PHILADELPHIA	4	0	0	4
ST HELENA	C	C	C	C
SWAN QUARTER	C	C	C	C
WANCHESE	5	0	1	4
WILMINGTON	C	C	C	C
	26	0	2	24
GRAND TOTAL	425	17	14	394

Table 340 - Comparison of Settlement Agreement and Proposed Action Baseline DAS by Homeport (Permits < 10 DAS)

5.6.2.2.4 Impacts of Management Alternatives to Address Rebuilding Requirements

A significant amount of discussion about social impacts already has been presented in this assessment (Sections 5.6.1.3, 5.6.2.1 and 5.6.2.2.1). Discussion of the alternatives in the subsections below is brief and refers to previous sections of this assessment where appropriate.

5.6.2.2.4.1 Proposed Action

The major components of the proposed action include:

- Categorization of allocated DAS into Category A, Category B (regular) Category B (reserve) and Category C DAS based on effective effort. Category A DAS can be used to target any stock, Category B DAS can only be used to target healthy stocks. Details for the use of Category B (regular) DAS, outside of special access programs, remain to be developed. Effective effort option 9 is used, with the split of effective effort into A and B DAS set at 60/20/20.
- Year round and seasonal closed areas as adopted by the settlement agreement
- GOM cod trip limit increased to 800 lbs/4,000 lbs
- GB cod trip limit reduced to 1,000 lbs./10,000 lbs, with a seasonal limit for hook gear
- CC/GOM yellowtail flounder trip limit of 250 lbs (May/June and October/November), 750 lbs/3,000 lbs remainder of year
- SNE/MA yellowtail flounder trip limit of 250 lbs (March through June) and 750 lbs/3,000 lbs remainder of the year
- Minor revisions to gear requirements

The proposed action anticipates a large reduction in the number of DAS used to target any groundfish stock. This will reduce opportunities and participation in the fishery by many vessels. The categorization of DAS and identification of opportunities to use B DAS may reduce some of the negative impacts of the DAS reduction. This depends on how successful the Council is in identifying ways to use B DAS outside of special access programs. If the Council is unsuccessful in doing so, then the possibility of using B DAS may be viewed as a sham by some fishermen and their families, and there will be a negative reaction to the regulations.

Increasing the GOM cod trip may help reduce regulatory discards. It will also help make each of a limited number of DAS more profitable, helping to mitigate the negative impacts of the DAS reductions. Lowering the GB cod trip limit to a level closer to that of GOM cod may help defuse many of the complaints about the discrepancy between the trip limits for the two stocks. The lower GB cod trip limit could result in increased discards. Analysis of observer and study fleet data indicate that the limit may be at the right level to reduce mortality without significantly increasing discards. The trip limits on yellowtail flounder will probably increase discards on stocks that have not been subject to a trip limit prior to the settlement action. This will create more negative attitudes concerning the discard levels.

The changes to gear requirements focus on gillnet vessels. Many gillnet fishermen felt the settlement agreement gillnet measures were unfair. The proposed action addresses some (but not all) of those complaints. It increases the number of trip gillnets that can be used on Georges Bank to the same number used in the Gulf of Maine, addressing one perceived inequity. It also removes restrictions on the use of stand-up nets in the GOM, providing a limited opportunity to target healthy groundfish stocks in the winter months.

One of the most contentious elements of the proposed action is adopting Option 9 for the definition of effective effort. This option uses a qualification period of fishing year 1996 through 2001, and adds a requirement that a vessel document landings of regulated groundfish during this period. It is a significant re-shuffling of the DAS allocations authorized under the settlement agreement. By extending the qualification period to 2001, the Council did not use a control date announced in 1999 for evaluating DAS. Some argue that this rewards those who ignored the control date and began fishing after its adoption. Establishing a landings requirement is viewed as prejudicial to those who either did not have access to groundfish during the period because of low stock sizes, or who targeted other species for any reason (better economic opportunities, to allow groundfish to rebuild, etc.). In effect, the use of Option 9 favors current active participants in the fishery while limiting future opportunities for those who were not active during the qualification period. While many active fishermen believe this is more equitable, those who see stocks rebuilding and who cannot fish on them are concerned that they will not be allowed back into the fishery in the future.

5.6.2.2.4.2 No Action Alternative (Not selected)

For the purposes of Amendment 13, the no action alternative is considered to be the regulatory environment which would exist if Amendment 13 is not implemented and the interim action (settlement agreement) expires. In general, this includes the following:

- Amendment 7 DAS allocations and reductions (Individual DAS and 88 Fleet DAS)
- Seasonal/rolling area closures implemented through Frameworks 27, 31, and 33 – effective until modified by future Council action
- Extension of the existing WGOM closed area until modified by future Council action
- Continuation of the triggered closures if 50% of the Target TAC is landed by July 31 (Cashes in November and Blocks 124 and 125 in January)
- Gulf of Maine cod trip limit of 400 pounds per day/4,000 pound trip maximum
- 2001 gear restrictions (6-inch diamond, 6.5-inch square mesh, 80/160 gillnets)
- 2001 recreational fishery restrictions (10 fish recreational bag limit, minimum size of 21-inches for cod, access to Gulf of Maine closed areas with 3-month exemption letter)
- Georges Bank cod trip limit of 2,000 pounds per day/20,000 pound trip maximum
- No trip limits for yellowtail flounder.

Analysis indicates that the no action alternative will not meet the objectives of Amendment 13. The long-term impacts of the no action alternative are therefore likely to be more negative than the long-term impacts of any alternative that can meet the mortality objectives and rebuild the stock to sustainable levels. Under the no action alternative, landings can be expected to decline within a few years, consequently reducing revenues from groundfishing and causing long-term related problems in communities. However, it should be noted that from a social impact perspective, because the Amendment 13 rebuilding alternatives are major in scope and nature, the short-term impacts of any of the Amendment 13 alternatives are likely to be negative and significant when compared to the no action alternative.

The long-term social impacts of taking no action also relate to the probability that future additional action would be necessary to further reduce mortality to rebuild some of the groundfish stocks. If fishing mortality on these stocks remains too high, it is likely that stock biomass would decline, possibly below the threshold levels. The Council would then be required by law to take additional management action, the social consequences of which could be more severe and much larger in scale. Moreover, further declines in stock levels would lengthen recovery periods and, therefore, the period over which the greatest negative social impacts are experienced by affected communities.

A related and important consideration is that in this case, the no action alternative actually represents a step backwards from the current regulatory environment in terms of fishing mortality reductions. The Interim Action implemented through the court order is effective for the 2002 fishing year even though it technically does not represent the no action alternative in this amendment (it represents the status quo). Measures currently effective include significant reductions in DAS allocations through a new baseline; a 20% reduction in DAS; gear restrictions including increased mesh and limits on the numbers of gillnets and hooks; and trip limits on Southern New England yellowtail flounder. While this essentially guarantees that the short-term social impacts of the no action alternative would be positive, any conservation gains from the Interim Action measures would be lost, increasing the likelihood that additional management measures may be necessary in the future.

5.6.2.2.4.3 Alternative 1A (55% Reduction in Used DAS) and 1B (Phase-in of 65% reduction in Used DAS) (Not selected)

The major components of this alternative include:

- Increase in the trip limit for Gulf of Maine cod to 800/4,000.
- An option to maintain the Southern New England yellowtail flounder trip limit implemented in the settlement agreement: 250 pounds Mar-May and 750 pounds June-Feb.
- Reduction in allocated DAS by one of the capacity alternatives
- 50% reduction in used DAS, or phase-in of 65% reduction in used days at sea.
- Seasonal rolling closures.
- Gear restrictions including increased mesh size for trawls and gillnets in some areas and limits on the number of allowable gillnets and hooks.

For measures that were implemented in the settlement agreement, the EA for the Interim Action should be referenced for more detailed information about the social and community impacts.

Relative to other trip limits under consideration, the cod trip limits proposed in this alternative (GOM and GB) are likely to have the least impact on *regulatory discarding*. The social impacts, when compared to the no action alternative, will be positive for the GOM cod trip limit. The GB cod trip limit will have the least impact on regulatory discarding . The GB cod trip limit proposed in Alternatives 2a and 2b is much more likely to have more significant negative impacts.

The previous discussion about SIA factors and DAS modifications should be referenced for more information about the social impacts of DAS reductions proposed in both Alternatives 1 and 1A. If combined with a capacity alternative to reduce DAS allocations, a 55% reduction in used DAS has high probability of causing significant impacts on vessels and most communities in the groundfish fishery. DAS reductions affect the economy of the fishery and have the most significant long-term effect on *changes in occupational opportunities and community infrastructure* . A 35% reduction in the first year of the phase-in of a 65% DAS reduction would yield a similar amount of days to what was used in Fishing year 2002.

5.6.2.2.4.4 Alternative 2A and 2B – Settlement Agreement Days at Sea baseline minus 20% (Not selected)

The major components of this alternative include:

- Settlement agreement DAS baseline minus 20 percent (30% reduction in DAS for GOM vessels).
- Increase in the trip limit for Gulf of Maine cod to 500 pounds per day/4,000 pounds per trip as implemented in the settlement agreement
- Georges Bank cod trip limit of 500 pounds per day/ 4,000 pounds per trip.
- Seasonal Southern New England yellowtail flounder trip limit implemented in the settlement agreement: 250 pounds Mar-May and 750 pounds June-Feb.

- Cape Cod yellowtail Flounder Trip Limit of 50 pounds per trip in statistical areas 514 and 521.
- Potential reduction in allocated DAS by one of the capacity alternatives
- Seasonal and year-round closures.
- Gear restrictions including increased mesh size for trawls and gillnets in some areas and limits on the number of allowable gillnets and hooks.

This alternative allocates days at sea using the settlement agreement baseline, and then reduces them by 20% (30% for GOM vessels). The difference between 2a and 2b is how vessels fishing in the Gulf of Maine are treated. Under alternative 2A, any vessel which fishes in the Gulf of Maine will have their days at sea reduced by 30% from the settlement agreement baseline. Under alternative 2B, vessels will only be able to use 70% of their days at sea in the Gulf of Maine after their 20% reduction is imposed. For measures that were implemented in the settlement agreement, the EA for the Interim Action should be referenced for more detailed information about the social and community impacts.

Relative to other trip limits under consideration, the GOM cod trip limits proposed in this alternative is likely to have a slight positive impact on *regulatory discarding*. The GB cod trip limit essentially is likely to have a large impact on hook vessels fishing out of major Cape ports, and increase regulatory discards on Georges Bank. Hook vessels catch almost exclusively cod, and those that depend heavily on the groundfish fishery will be most affected by the GB cod trip limit

The previous discussion about SIA factors, the impacts of DAS modifications, and the impacts of Alternative 1 should be referenced for more information about the social impacts of the DAS reductions proposed in Alternative 2.

5.6.2.2.4.5 Alternative 3 – Area Management (Not selected)

The area management alternative is intended to provide for development of management measures that are more consistent with fishing activity and resource conditions in a particular area; encourage a greater sense of stewardship, simplify participation by interested parties in the management process, and insure that fishing activity in one area does not adversely affect fishing activity in another area.

The major components of this alternative include:

- Trip limits for GB cod: 2000 pounds per day/20,000 pounds per trip.
- GOM Cod trip limit of 500 pounds per day/4,000 pounds per trip.
- Seasonal Southern New England yellowtail flounder trip limit implemented in the settlement agreement: 250 pounds Mar-May and 750 pounds June-Feb. No retention south of 40N
- Settlement agreement DAS baseline with 20% reduction.
- Seasonal and year-round closures.
- Gear restrictions including increased mesh size for trawls and gillnets in some areas and limits on the number of allowable gillnets and hooks.

For measures that were implemented in the settlement agreement, the EA for the Interim Action should be referenced for more detailed information about the social and community impacts.

Relative to the status quo alternative, regulatory discarding should decrease with a higher GOM cod trip limit (500 pounds per day instead of 400). There may still be a perception of inequity between GOM and GB fishermen as the GB cod trip limit will remain at 2000 pounds per day/20,000 pounds per trip.

The settlement agreement EA as well as the previous discussion about SIA factors, the impacts of DAS modifications, and the impacts of Alternatives 1 and 2 should be referenced for more information about the social impacts of the DAS reductions proposed in Alternative 3.

5.6.2.2.4.6 Alternatives 4 and 4A– Quota Management (Not selected)

Alternative 4 and 4A use hard TACs for all stocks in the groundfish fishery. The difference between the two options is that under alternative 4, vessels are allocated days at sea based on the settlement agreement baseline reduced by 20%, while under alternative 4a, vessels have their amendment 7 baseline.

Additionally, alternative 4a reverts back to the “no action” seasonal closures, while alternative 4 adopts the seasonal closures proposed under the other 3 alternatives. The social impacts of Hard TACs are discussed in Section 5.6.2.2.1.5.

The major components of this alternative include:

- Trip limits for GB cod: 2000 pounds per day/20,000 pounds per trip.
- GOM Cod trip limit of 500 pounds per day/4,000 pounds per trip.
- Seasonal Southern New England yellowtail flounder trip limit implemented in the settlement agreement: 250 pounds Mar-May and 750 pounds June-Feb. No retention south of 40N (Alternative 4 only)
- Settlement agreement DAS baseline with 20% reduction (Alternative 4). Amendment 7 baseline (Alternative 4A).
- Seasonal and year-round closure (“no-action alternative” for alternative 4A).
- Gear restrictions including increased mesh size for trawls and gillnets in some areas and limits on the number of allowable gillnets and hooks.

This alternative has the potential to cause significant short-term and long-term social and community impacts. Immediate economic impacts, loss of employment, and dislocation from the groundfish fishery will disrupt fishing operations, families, and community networks. Long-term impacts will result from loss of fresh fish markets and shoreside support businesses. This has the potential to change the structure and character of the groundfish fishery. This alternative will most negatively affect *changes in occupational opportunities and community infrastructure*. A TAC-management program intended to minimize negative social impacts could set separate hard or target TACs for incidental catch fisheries to reduce regulatory discarding.

5.6.2.2.4.7 Recreational Fishery Measures

In addition to the no action alternative, the recreational fishery restrictions considered in this amendment included:

- Option 1 (not selected): settlement agreement measures – minimum size for cod/haddock 23 inches; 10 fish cod/haddock for private recreational vessels, except 5 cod in GOM December-March; party/charter 10 cod/haddock GOM April-November and 5 cod creel limit in GOM December-March; 3-month or more declaration into party/charter fishery to fish in GOM closed areas
- Option 2 (not selected): 10 cod/trip for private recreational vessels and party/charter vessels in the GOM; minimum size for cod 23 inches and haddock 19 inches; closed season in GOM December-March
- Option 3 (proposed action): 10 cod/person/day for private recreational vessels and party/charter vessels in the GOM; minimum size for cod 22 inches and haddock 19 inches.

The impacts of Option 1 are discussed in the EA for the Interim Action (settlement agreement). Because the options are similar, elements of Options 2 and 3 also are discussed in the EA for the Interim Action. Additional discussion of some of the proposed measures is provided below.

Minimum Sizes

The analysis shows that any increase in the recreational minimum size for cod will have a greater impact on private boat/shore mode anglers than on party/charter vessels. This is because more private anglers fish in state waters, and some states currently allow cod smaller than the federal minimum size to be landed. Recreational anglers from ports in New Hampshire and Rhode Island are therefore likely to be most impacted.

Increasing the recreational minimum cod size should not result in significant negative social impacts. While private anglers are impacted, it is unlikely that they will stop fishing recreationally, especially if they already own boats and/or gear. Their landings will be impacted, and for those who fish for subsistence, this may be a concern. However, most will likely continue to fish under the new minimum size and possibly shift some effort onto other fisheries.

Three-Month or More Declaration to Fish in GOM Closed Areas

For vessels that operate as party/charter vessels on a year-round basis, this measure will have no significant impact. However, it could further reduce opportunity and limit flexibility for vessels that operate as party/charter only seasonally and use DAS to fish commercially during other times of the year. This is an adaptation that some smaller vessels have made in recent years to maintain a year-round business. This measure prevents a party/charter vessel that wants to fish in any of the Gulf of Maine closures from using any DAS to fish for groundfish during its time of enrollment, which could be year-round if the vessel wants to access the western Gulf of Maine closed area. Vessels that take party/charter trips during times when waters adjacent to their communities are closed to commercial fishing could no longer have the opportunity to do so. These vessels may not be able to adapt to this measure by fishing on party/charter trips outside of the closed areas because they cannot safely access the areas outside the closed areas; if they could, they would most likely be fishing commercially.

From 1995-2000, an average of 72.7% of vessels that reported taking party/charter groundfish trips made 100% of their fishing income from party/charter operations. The remaining 27.3% earned income from other fishing activities. About ten percent earned less than 50% of their fishing income from party/charter operations. These vessels could be commercial vessels that are taking party/charter trips to compensate for reduced income from commercial fishing or to maintain a year-round income during times of area closures. The communities most likely to be impacted by this measure are those that are adjacent to Gulf of Maine closure areas and those in which the most party/charter vessels are homeported. These communities are Gloucester and the North Shore of Massachusetts, Portsmouth and the NH Seacoast, southern Maine, and the South Shore of Massachusetts.

Economic Impacts

The economic impacts of the proposed recreational measures are discussed in section 5.4.7. Social impacts from recreational measures are related to economic impacts to the extent that the economic impacts reduce the value or satisfaction derived from taking a recreational trip. For the most part, it is assumed that recreational groundfish fishermen derive more satisfaction from keeping fish than from the sport of catching them. As a result, the social impacts associated with the measures that reduce the ability to keep fish are expected to be more significant than they would in other recreational fisheries where catching fish for sport is more important. These measures include minimum fish sizes and recreational possession limits.

The economic analysis indicates that party/charter vessels will be most affected by the proposed recreational restrictions, especially Option 2, followed by Option 1 and then Option 3. Total losses are predicted to range from \$306,000 in sales, \$125,000 in income, and 8 jobs under a 25% reduction in trips for Option 3 to \$697,000 in sales, \$284,000 in income, and 18 jobs under a 25% reduction in trips for Option 2. Since party/charter operations stand to be most affected, the communities that will likely experience the most negative impacts are those with a high proportion of party/charter operations and those whose vessels fish in the GOM. These communities include the NH Seacoast, Gloucester MA, and the South Shore of Massachusetts.

5.6.2.2.5 Habitat Alternatives

In addition to the no action alternative, the Council considered the following alternatives to minimize the adverse effects of fishing on habitat in Amendment 13:

- reliance on the incidental benefits of other Amendment 13 measures;
- options for establishing additional closed areas designed to mitigate the impacts of fishing on EFH;
- options for establishing additional closed areas designed to protect important EFH and balance fishery productivity;
- closed areas consistent with the Framework 13 scallop closed area access program;
- prohibition of shrimp trawls, herring mid-water trawls, clam dredges, and pots and traps from the closed areas;
- options for restricting the use of rockhopper and/or roller gear; and
- requirement for all groundfish vessels to use VMS.

The social impacts of the alternatives under consideration to minimize adverse impacts on habitat have been discussed in previous sections of this assessment (Sections 5.6.2.2.1.2 and 5.6.2.2.1.4). In addition, the EA for the Interim Action (settlement agreement) provides information about social and economic impacts associated with various kinds of gear restrictions.

The habitat alternatives are most likely to affect *safety, disruption in daily living, and formation of attitudes*. Over the long-term, large-scale area closures can affect *changes in occupational opportunities and community infrastructure*. The social impacts of the habitat alternatives should be considered **additional** to any impacts resulting from the alternatives to address rebuilding requirements and the capacity alternatives.

The most significant social impacts associated with the habitat alternatives are likely to result from options that include the additional year-round closure of inshore areas. Communities with smaller vessels that fish exclusively in the inshore Gulf of Maine have already experienced significant impacts from inshore area closures and stand to be disproportionately impacted from some of the habitat alternatives proposed in this amendment. These communities include Lower Mid-Coast 1 ME, Portsmouth NH, the NH Seacoast, Gloucester MA, South Shore MA, and Provincetown MA, among others.

It is important to note that some of the habitat alternatives will affect more than just groundfish vessels; prohibitions on fishing in closed areas have the potential to affect vessels that fish for shrimp, herring, and other species. The vessels and communities affected by such prohibitions are likely to be the same as those affected by all of the Amendment 13 measures. On an individual-vessel basis, however, these kinds of prohibitions could exacerbate some of the negative impacts associated with Amendment 13 to the extent that they further reduce opportunities in other fisheries and overall vessel flexibility. Vessels may find it more difficult to adapt to the Amendment 13 measures if they are limited in terms of alternatives to groundfishing.

5.6.2.2.5.1 Alternatives to Minimize Adverse Effects of Fishing on Essential Fish Habitat

Many of the habitat measures considered have limited data with which to evaluate social and community impacts. The one exception is for the proposed habitat protection areas. The impacts of closing these areas on vessel revenue can be bound by analyzing recent landings. Community level analysis is based on port level VTR data that is also aggregated by sub-regions identified by Hall-Arbor et. al., (2001) in New

England's Fishing Communities and by McCay and Cieri (2000) in Fishing Ports of the Mid-Atlantic: A Social Profile. Community and regional impacts are expressed in relative terms to total revenue loss impacts. This analysis estimates the magnitude of revenue impacts in the affected port communities which would have corresponding social impacts.

The impacts of a habitat protected area depend in large part on the level of protection provided. The Council considered four levels of closure. Overall, the relative difference between a Level 1 and Level 3 habitat closure mitigates about 22% of total revenue losses for Alternatives 3a, 3b, and 4 (Table 296). For the Alternative 5 variants the revenue losses are reduced by as much as 46% (Alternative 5c). Much of this reduction in revenue impact is associated with savings of monkfish gillnet and lobster trap fishery revenues. A Level3 habitat closure would have the largest mitigating effect on Alternatives 6, 10A, and 10B.

Alternative	Level 1	Level 3 (Proposed)	Reduced Impact (\$)	Reduction in Loss (%)
3a	23,237,630	18,098,883	5,138,747	22%
3b	22,042,497	17,498,370	4,544,127	21%
4	15,599,271	11,970,233	3,629,039	23%
5a	20,251,311	11,730,565	8,520,746	42%
5b	38,394,041	24,470,730	13,923,311	36%
5c	25,289,695	13,780,403	11,509,291	46%
5d	16,738,994	9,208,996	7,529,998	45%
6	3,990,045	1,436,544	2,553,501	64%
10A	4,162,998	1,345,937	2,817,060	67%
10B (Proposed)	3,768,834	1,570,002	2,198,832	58%

Table 341-Summary of Revenue Impacts by Alternative and EFH Level

Data and Methods

The subregions designated herein were based on several criteria. First and foremost, data particularly on the non-fishing industrial sectors were available only at a county-level. Thus, the subregional impact area designations represent either an individual county or groups of counties within each of the five New England states. Data obtained from Northeast vessel trip reports, Northeast dealer weigh-out slips, Northeast permit applications, and County Business Patterns information on processors were used to classify Subregions that have similar economic networks and fishing-related attributes. In general, these data provided the ability to identify the regional distribution channels of seafood as it flows from harvesters through dealers and finally on to processors in New England. The subregional designations mainly consist of a coastal county or groups of coastal counties, for these are the counties where the majority of the losses accrue and where the harvesters, dealers, and processors reside. However, if it was determined that fish are regularly being sold to dealers and processors in adjacent noncoastal counties, the subregional designations were expanded to account for these transactions. Subregions 2 through 11 show the impact areas considered in the model. Subregion 1 (Downeast Maine) was not included in this assessment as no revenue impacts due to any one of the habitat alternatives were found.

5.6.2.2.5.2 Port and Regional Impacts

The concentration of revenue loss for Level 1 EFH alternatives 3a, 3b, and 4 are localized in the New Bedford, Gloucester, and Cape Cod regions with a minimum of approximately 2/3 of the revenue loss coming from the community of New Bedford. A level 3 closure generally reduces overall revenue losses across ports except for New Bedford for which revenue loss remains constant for both closure levels. This results in an increase in the relative proportion (> 80%) of impact for New Bedford for these alternatives. Smaller impacts were found for the communities of Gloucester followed by Harwichport, and Chatham

which were generally lower for level 3 closures. This contrasts with alternatives 5a, 5b, 5c, and 5d for which smaller revenue losses were more evenly distributed across five regions (New Bedford, Gloucester, New Jersey, Cape Cod, and Boston).

ALTERNATIVE 3a

Level 1			Between Port Impact (%)	Total Revenue Impact (\$)	Between Region Impact (%)	Level 3			Between Port Impact (%)	Total Revenue Impact (\$)	Between Region Impact (%)
Sum of Total Value						Sum of Total Value					
Region	Port	Total (\$)				Region	Port	Total (\$)			
	SCITUATE	52,310	0%	655,890	3%	BOSTON	SCITUATE	0	0%	550,582	3%
	BOSTON	549,876	2%				BOSTON	549,431	3%		
	ALL_OTHER	53,703	0%				ALL_OTHER	1,151	0%		
CAPE	YARMOUTH	86,438	0%	2,426,351	10%	CAPE	YARMOUTH	0	0%	197,483	1%
	ORLEANS	714	0%				ORLEANS	0	0%		
	NAUSET	0	0%				NAUSET	0	0%		
	NANTUCKET	131,520	1%				NANTUCKET	125,657	1%		
	HARWICHPORT	823,339	4%				HARWICHPORT	1,370	0%		
	CHATHAM	1,176,604	5%				CHATHAM	5,155	0%		
	BARNSTABLE	128,874	1%				BARNSTABLE	1,139	0%		
	ALL_OTHER	78,862	0%				ALL_OTHER	64,163	0%		
CTCOAST	ALL_OTHER	98,175	0%	98,175	0%	CTCOAST	ALL_OTHER	97,139	1%	97,139	1%
DEL_MAR	ALL_OTHER	0	0%	0	0%	DEL_MAR	ALL_OTHER	0	0%	0	0%
DOWNEAST	ALL_OTHER	0	0%	0	0%	DOWNEAST	ALL_OTHER	0	0%	0	0%
GLOUCESTER	SALISBURY	7,084	0%	3,111,219	13%	GLOUCESTER	SALISBURY	676	0%	1,449,792	8%
	ROCKPORT	101,080	0%				ROCKPORT	23,147	0%		
	NEWBURYPORT	32,267	0%				NEWBURYPORT	29,438	0%		
	MARBLEHEAD	25,977	0%				MARBLEHEAD	0	0%		
	GLOUCESTER	2,939,124	13%				GLOUCESTER	1,396,532	8%		
	ALL_OTHER	5,687	0%				ALL_OTHER	0	0%		
LOWER_MID_ME	PORTLAND	367,220	2%	460,178	2%	LOWER_MID_ME	PORTLAND	355,123	2%	362,727	2%
	CHEBEAGUE_IS.	71,332	0%				CHEBEAGUE_IS.	0	0%		
	ALL_OTHER	21,626	0%				ALL_OTHER	7,604	0%		
N_CAROLINA	ALL_OTHER	0	0%	0	0%	N_CAROLINA	ALL_OTHER	0	0%	0	0%

Table 342- Revenue Loss Impacts by Port and Region for Habitat Alternative 3a

ALTERNATIVE 3a

Level 1		Between Port Impact (%)	Total Revenue Impact (\$)	Between Region Impact (%)	Level 3		Between Port Impact (%)	Total Revenue Impact (\$)	Between Region Impact (%)		
NEW_BEDFORD	NEW_BEDFORD	14,676,812	63%	15,408,480	66%	NEW_BEDFORD	NEW_BEDFORD	14,676,812	81%	15,047,308	83%
	FAIRHAVEN	731,667	3%				FAIRHAVEN	370,495	2%		
	ALL_OTHER	0	0%				ALL_OTHER	0	0%		
NEW_JERSEY	SHARK_RIVER	0	0%	102,241	0%	NEW_JERSEY	SHARK_RIVER	0	0%	102,241	1%
	PT_PLEASANT	0	0%				PT_PLEASANT	0	0%		
	NEPTUNE	0	0%				NEPTUNE	0	0%		
	MONMOUTH	0	0%				MONMOUTH	0	0%		
	LONG BEACH & BARNEGAT_L.	102,241	0%				LONG BEACH & BARNEGAT_L.	102,241	1%		
	HIGHLANDS	0	0%				HIGHLANDS	0	0%		
	CAPE_MAY	0	0%				CAPE_MAY	0	0%		
	BELMAR	0	0%				BELMAR	0	0%		
	BELFORD	0	0%				BELFORD	0	0%		
	ATLANTIC_CITY	0	0%				ATLANTIC_CITY	0	0%		
	ALL_OTHER	0	0%				ALL_OTHER	0	0%		
NEW_YORK	MONTAUK	3,971	0%	3,971	0%	NEW_YORK	MONTAUK	0	0%	0	0%
	HAMPTON_BAY	0	0%				HAMPTON_BAY	0	0%		
	GREENPORT	0	0%				GREENPORT	0	0%		
	FREEPORT	0	0%				FREEPORT	0	0%		
	ALL_OTHER	0	0%				ALL_OTHER	0	0%		
NHCOAST	SEABROOK	33,254	0%	673,584	3%	NHCOAST	SEABROOK	18,668	0%	26,001	0%
	RYE	41,756	0%				RYE	813	0%		
	PORTSMOUTH	424,794	2%				PORTSMOUTH	6,481	0%		
	NEWINGTON	169,719	1%				NEWINGTON	0	0%		
	NEW_CASTLE	335	0%				NEW_CASTLE	0	0%		
	HAMPTON	3,726	0%				HAMPTON	39	0%		

Table 342- Revenue Loss Impacts by Port and Region for Habitat Alternative 3a

ALTERNATIVE 3a											
Level 1			Between Port Impact (%)	Total Revenue Impact (\$)	Between Region Impact (%)	Level 3			Between Port Impact (%)	Total Revenue Impact (\$)	Between Region Impact (%)
RICOAST	NEWPORT	173,696	1%	186,156	1%	RICOAST	NEWPORT	173,696	1%	186,156	1%
	ALL_OTHER	12,460	0%				ALL_OTHER	12,460	0%		
SOUTH_ME	ALL_OTHER	21,788	0%	21,788	0%	SOUTH_ME	ALL_OTHER	3,006	0%	3,006	0%
UPPER_MID_ME	S.W._HARBOR	64,278	0%	89,367	0%	UPPER_MID_ME	S.W._HARBOR	61,067	0%	76,451	0%
	ALL_OTHER	25,088	0%				ALL_OTHER	15,384	0%		
VIRGINIA	ALL_OTHER	231	0%	231	0%	VIRGINIA	ALL_OTHER	0	0%	0	0%
OTHER	ALL_OTHER	0	0%	0	0%	OTHER	ALL_OTHER	0	0%	0	0%
Grand Total		23,237,630		23,237,630	100%	Grand Total		18,098,883		18,098,883	100%

Table 342- Revenue Loss Impacts by Port and Region for Habitat Alternative 3a(cont.)

ALTERNATIVE 3b												
Level 1			Between Port Impact (%)	Total Revenue Impact (\$)	Between Region Impact (%)	Level 3			Between Port Impact (%)	Total Revenue Impact (\$)	Between Region Impact (%)	
Sum of TotalValue	Region	Port	Total (\$)			Sum of TotalValue	Region	Port	Total (\$)			
	BOSTON	SCITUATE	51,260	0%	647,281	3%	BOSTON	SCITUATE	0	0%	549,750	3%
		BOSTON	549,044	2%				BOSTON	548,599	3%		
		ALL_OTHER	46,977	0%				ALL_OTHER	1,151	0%		
	CAPE	YARMOUTH	86,438	0%	2,426,351	11%	CAPE	YARMOUTH	0	0%	197,483	1%
		ORLEANS	714	0%				ORLEANS	0	0%		
		NAUSET	0	0%				NAUSET	0	0%		
		NANTUCKET	131,520	1%				NANTUCKET	125,657	1%		
		HARWICHPORT	823,339	4%				HARWICHPORT	1,370	0%		
		CHATHAM	1,176,604	5%				CHATHAM	5,155	0%		
		BARNSTABLE	128,874	1%				BARNSTABLE	1,139	0%		
		ALL_OTHER	78,862	0%				ALL_OTHER	64,163	0%		
	CTCOAST	ALL_OTHER	98,175	0%	98,175	0%	CTCOAST	ALL_OTHER	97,139	1%	97,139	1%
	DEL_MAR	ALL_OTHER	0	0%	0	0%	DEL_MAR	ALL_OTHER	0	0%	0	0%
	DOWNEAST	ALL_OTHER	0	0%	0	0%	DOWNEAST	ALL_OTHER	0	0%	0	0%
	GLOUCESTER	SALISBURY	6,408	0%	1,979,105	9%	GLOUCESTER	SALISBURY	0	0%	872,461	5%
		ROCKPORT	1,689	0%				ROCKPORT	1,664	0%		
		NEWBURYPORT	2,829	0%				NEWBURYPORT	0	0%		
		MARBLEHEAD	18,215	0%				MARBLEHEAD	0	0%		
		GLOUCESTER	1,948,714	9%				GLOUCESTER	870,797	5%		
		ALL_OTHER	1,249	0%				ALL_OTHER	0	0%		
	LOWER_MID_ME	PORTLAND	367,220	2%	460,178	2%	LOWER_MID_ME	PORTLAND	355,123	2%	362,727	2%
		CHEBEAGUE_IS.	71,332	0%				CHEBEAGUE_IS.	0	0%		
		ALL_OTHER	21,626	0%				ALL_OTHER	7,604	0%		

Table 343- Revenue Loss Impacts by Port and Region for Habitat Alternative 3b

ALTERNATIVE 3b

Level 1		Between Port Impact (%)	Total Revenue Impact (\$)	Between Region Impact (%)	Level 3		Between Port Impact (%)	Total Revenue Impact (\$)	Between Region Impact (%)		
N_CAROLINA	ALL_OTHER	0	0%	0	0%	N_CAROLINA	ALL_OTHER	0	0%	0	0%
NEW_BEDFORD	NEW_BEDFORD	14,676,812	67%	15,408,480	70%	NEW_BEDFORD	NEW_BEDFORD	14,676,812	84%	15,047,308	86%
	FAIRHAVEN	731,667	3%				FAIRHAVEN	370,495	2%		
	ALL_OTHER	0	0%				ALL_OTHER	0	0%		
NEW_JERSEY	SHARK_RIVER	0	0%	102,241	0%	NEW_JERSEY	SHARK_RIVER	0	0%	102,241	1%
	PT_PLEASANT	0	0%				PT_PLEASANT	0	0%		
	NEPTUNE	0	0%				NEPTUNE	0	0%		
	MONMOUTH	0	0%				MONMOUTH	0	0%		
	LONG BEACH & BARNEGAT_L.	102,241	0%				LONG BEACH & BARNEGAT_L.	102,241	1%		
	HIGHLANDS	0	0%				HIGHLANDS	0	0%		
	CAPE_MAY	0	0%				CAPE_MAY	0	0%		
	BELMAR	0	0%				BELMAR	0	0%		
	BELFORD	0	0%				BELFORD	0	0%		
	ATLANTIC_CITY	0	0%				ATLANTIC_CITY	0	0%		
	ALL_OTHER	0	0%				ALL_OTHER	0	0%		
NEW_YORK	MONTAUK	3,971	0%	3,971	0%	NEW_YORK	MONTAUK	0	0%	0	0%
	HAMPTON_BAY	0	0%				HAMPTON_BAY	0	0%		
	GREENPORT	0	0%				GREENPORT	0	0%		
	FREEPORT	0	0%				FREEPORT	0	0%		
	ALL_OTHER	0	0%				ALL_OTHER	0	0%		
NHCOAST	SEABROOK	10,235	0%	619,173	3%	NHCOAST	SEABROOK	555	0%	3,651	0%
	RYE	40,943	0%				RYE	0	0%		
	PORTSMOUTH	394,792	2%				PORTSMOUTH	3,057	0%		
	NEWINGTON	169,719	1%				NEWINGTON	0	0%		
	NEW_CASTLE	335	0%				NEW_CASTLE	0	0%		
	HAMPTON	3,149	0%				HAMPTON	39	0%		

Table 343- Revenue Loss Impacts by Port and Region for Habitat Alternative 3b(cont.)

ALTERNATIVE 3b											
Level 1			Between Port Impact (%)	Total Revenue Impact (\$)	Between Region Impact (%)	Level 3			Between Port Impact (%)	Total Revenue Impact (\$)	Between Region Impact (%)
RICOAST	NEWPORT	173,696	1%	186,156	1%	RICOAST	NEWPORT	173,696	1%	186,156	1%
	ALL_OTHER	12,460	0%				ALL_OTHER	12,460	0%		
SOUTH_ME	ALL_OTHER	21,788	0%	21,788	0%	SOUTH_ME	ALL_OTHER	3,006	0%	3,006	0%
UPPER_MID_ME	S.W. HARBOR	64,278	0%	89,367	0%	UPPER_MID_ME	S.W. HARBOR	61,067	0%	76,451	0%
	ALL_OTHER	25,088	0%				ALL_OTHER	15,384	0%		
VIRGINIA	ALL_OTHER	231	0%	231	0%	VIRGINIA	ALL_OTHER	0	0%	0	0%
OTHER	ALL_OTHER	0	0%	0	0%	OTHER	ALL_OTHER	0	0%	0	0%
Grand Total		22,042,497		22,042,497	100%	Grand Total		17,498,370		17,498,370	100%

Table 343- Revenue Loss Impacts by Port and Region for Habitat Alternative 3b(cont.)

ALTERNATIVE 4												
Level 1			Between Port Impact (%)	Total Revenue Impact (\$)	Between Region Impact (%)	Level 3			Between Port Impact (%)	Total Revenue Impact (\$)	Between Region Impact (%)	
Sum of TotalValue	Region	Port	Total (\$)			Sum of TotalValue	Region	Port	Total (\$)			
	BOSTON	SCITUATE	30,144	0%	611,196	4%	BOSTON	SCITUATE	0	0%	546,121	5%
		BOSTON	544,970	3%				BOSTON	544,970	5%		
		ALL_OTHER	36,082	0%				ALL_OTHER	1,151	0%		
	CAPE	YARMOUTH	83,969	1%	2,260,519	14%	CAPE	YARMOUTH	0	0%	165,647	1%
		ORLEANS	642	0%				ORLEANS	0	0%		
		NAUSET	0	0%				NAUSET	0	0%		
		NANTUCKET	131,520	1%				NANTUCKET	125,657	1%		
		HARWICHPORT	713,580	5%				HARWICHPORT	1,370	0%		
		CHATHAM	1,158,454	7%				CHATHAM	5,155	0%		
		BARNSTABLE	125,328	1%				BARNSTABLE	1,139	0%		
		ALL_OTHER	47,026	0%				ALL_OTHER	32,326	0%		
	CTCOAST	ALL_OTHER	98,175	1%	98,175	1%	CTCOAST	ALL_OTHER	97,139	1%	97,139	1%
	DEL_MAR	ALL_OTHER	0	0%	0	0%	DEL_MAR	ALL_OTHER	0	0%	0	0%
	DOWNEAST	ALL_OTHER	0	0%	0	0%	DOWNEAST	ALL_OTHER	0	0%	0	0%
	GLOUCESTER	SALISBURY	6,408	0%	955,962	6%	GLOUCESTER	SALISBURY	0	0%	471,619	4%
		ROCKPORT	26	0%				ROCKPORT	0	0%		
		NEWBURYPORT	2,829	0%				NEWBURYPORT	0	0%		
		MARBLEHEAD	3,634	0%				MARBLEHEAD	0	0%		
		GLOUCESTER	941,815	6%				GLOUCESTER	471,619	4%		
		ALL_OTHER	1,249	0%				ALL_OTHER	0	0%		
	LOWER_MID_ME	PORTLAND	380,708	2%	466,357	3%	LOWER_MID_ME	PORTLAND	364,501	3%	366,710	3%
		CHEBEAGUE_IS.	71,332	0%				CHEBEAGUE_IS.	0	0%		
		ALL_OTHER	14,316	0%				ALL_OTHER	2,209	0%		

Table 344- Revenue Loss Impacts by Port and Region for Habitat Alternative 4

ALTERNATIVE 4											
Level 1			Between Port Impact (%)	Total Revenue Impact (\$)	Between Region Impact (%)	Level 3			Between Port Impact (%)	Total Revenue Impact (\$)	Between Region Impact (%)
N_CAROLINA	ALL_OTHER	0	0%	0	0%	N_CAROLINA	ALL_OTHER	0	0%	0	0%
NEW_BEDFORD	NEW_BEDFORD	9,803,675	63%	10,334,817	66%	NEW_BEDFORD	NEW_BEDFORD	9,803,675	82%	9,979,041	83%
	FAIRHAVEN+	531,142	3%				FAIRHAVEN	175,366	1%		
	ALL_OTHER	0	0%				ALL_OTHER	0	0%		
NEW_JERSEY	SHARK_RIVER	0	0%	102,241	1%	NEW_JERSEY	SHARK_RIVER	0	0%	102,241	1%
	PT_PLEASANT	0	0%				PT_PLEASANT	0	0%		
	NEPTUNE	0	0%				NEPTUNE	0	0%		
	MONMOUTH	0	0%				MONMOUTH	0	0%		
	LONG BEACH & BARNEGAT_L.	102,241	1%				LONG BEACH & BARNEGAT_L.	102,241	1%		
	HIGHLANDS	0	0%				HIGHLANDS	0	0%		
	CAPE_MAY	0	0%				CAPE_MAY	0	0%		
	BELMAR	0	0%				BELMAR	0	0%		
	BELFORD	0	0%				BELFORD	0	0%		
	ATLANTIC_CITY	0	0%				ATLANTIC_CITY	0	0%		
	ALL_OTHER	0	0%				ALL_OTHER	0	0%		
NEW_YORK	MONTAUK	3,971	0%	3,971	0%	NEW_YORK	MONTAUK	0	0%	0	0%
	HAMPTON_BAY	0	0%				HAMPTON_BAY	0	0%		
	GREENPORT	0	0%				GREENPORT	0	0%		
	FREEPORT	0	0%				FREEPORT	0	0%		
	ALL_OTHER	0	0%				ALL_OTHER	0	0%		
NHCOAST	SEABROOK	9,473	0%	508,618	3%	NHCOAST	SEABROOK	555	0%	3,651	0%
	RYE	23,191	0%				RYE	0	0%		
	PORTSMOUTH	302,751	2%				PORTSMOUTH	3,057	0%		
	NEWINGTON	169,719	1%				NEWINGTON	0	0%		
	NEW_CASTLE	335	0%				NEW_CASTLE	0	0%		
	HAMPTON	3,149	0%				HAMPTON	39	0%		

Table 344- Revenue Loss Impacts by Port and Region for Habitat Alternative 4(cont.)

ALTERNATIVE 4											
Level 1			Between Port Impact (%)	Total Revenue Impact (\$)	Between Region Impact (%)	Level 3			Between Port Impact (%)	Total Revenue Impact (\$)	Between Region Impact (%)
RICOAST	NEWPORT	173,696	1%	173,696	1%	RICOAST	NEWPORT	173,696	1%	173,696	1%
	ALL_OTHER	0	0%				ALL_OTHER	0	0%		
SOUTH_ME	ALL_OTHER	21,788	0%	21,788	0%	SOUTH_ME	ALL_OTHER	3,006	0%	3,006	0%
UPPER_MID_ME	S.W._HARBOR	61,067	0%	61,700	0%	UPPER_MID_ME	S.W._HARBOR	61,067	1%	61,364	1%
	ALL_OTHER	633	0%				ALL_OTHER	297	0%		
VIRGINIA	ALL_OTHER	231	0%	231	0%	VIRGINIA	ALL_OTHER	0	0%	0	0%
OTHER	ALL_OTHER	0	0%	0	0%	OTHER	ALL_OTHER	0	0%	0	0%
Grand Total		15,599,271		15,599,271	100%	Grand Total		11,970,233		11,970,233	100%

Table 344- Revenue Loss Impacts by Port and Region for Habitat Alternative 4(cont.)

ALTERNATIVE 5A											
Level 1			Between Port Impact (%)	Total Revenue Impact (\$)	Between Region Impact (%)	Level 3			Between Port Impact (%)	Total Revenue Impact (\$)	Between Region Impact (%)
Sum of TotalValue	Region	Port	Total (\$)			Sum of TotalValue	Region	Port	Total (\$)		
	BOSTON	SCITUATE	449,332	2%	2,042,834	10%	BOSTON	SCITUATE	325,518	3%	1,789,248
		BOSTON	1,388,154	7%				BOSTON	1,388,154	12%	
		ALL_OTHER	205,348	1%				ALL_OTHER	75,576	1%	
	CAPE	YARMOUTH	5,052	0%	2,182,191	11%	CAPE	YARMOUTH	0	0%	1,085,886
		ORLEANS	160,658	1%				ORLEANS	0	0%	
		NAUSET	152,648	0%				NAUSET	0	0%	
		NANTUCKET	165,174	1%				NANTUCKET	165,174	1%	
		HARWICHPORT	82,404	0%				HARWICHPORT	60,805	1%	
		CHATHAM	1,137,690	6%				CHATHAM	470,254	4%	
		BARNSTABLE	217,545	1%				BARNSTABLE	213,175	2%	
		ALL_OTHER	261,020	1%				ALL_OTHER	176,479	2%	
	CTCOAST	ALL_OTHER	60,211	0%	60,211	0%	CTCOAST	ALL_OTHER	56,705	1%	56,705
	DEL_MAR	ALL_OTHER	0	0%			DEL_MAR	ALL_OTHER	0	0%	
	DOWNEAST	ALL_OTHER	0	0%			DOWNEAST	ALL_OTHER	0	0%	
	GLOUCESTER	SALISBURY	32,946	0%	4,203,843	21%	GLOUCESTER	SALISBURY	9,726	0%	2,218,407
		ROCKPORT	249,173	1%				ROCKPORT	123,923	1%	
		NEWBURYPORT	297,845	2%				NEWBURYPORT	275,762	2%	
		MARBLEHEAD	16,930	0%				MARBLEHEAD	0	0%	
		GLOUCESTER	3,598,061	18%				GLOUCESTER	1,808,996	16%	
		ALL_OTHER	8,888	0%				ALL_OTHER	0	0%	
	LOWER_MID_ME	PORTLAND	322,001	2%	412,340	2%	LOWER_MID_ME	PORTLAND	288,715	3%	293,595
		CHEBEAGUE_IS.	75,834	0%				CHEBEAGUE_IS.	0	0%	
		ALL_OTHER	14,506	0%				ALL_OTHER	4,880	0%	

Table 345- Revenue Loss Impacts by Port and Region for Habitat Alternative 5a

ALTERNATIVE 5A

Level 1		Between Port Impact (%)	Total Revenue Impact (\$)	Between Region Impact (%)	Between Reg	Level 3		Between Port Impact (%)	Total Revenue Impact (\$)	Between Region Impact (%)	
N_CAROLINA	ALL_OTHER	11,347	0%	11,347	0%	N_CAROLINA	ALL_OTHER	11,104	0%	11,104	0%
NEW_BEDFORD	NEW_BEDFORD	4,095,371	21%	4,625,885	23%	NEW_BEDFORD	NEW_BEDFORD	3,064,165	27%	3,068,343	27%
	FAIRHAVEN	217,437	1%				FAIRHAVEN	4,178	0%		
	ALL_OTHER	313,077	2%				ALL_OTHER	0	0%		
NEW_JERSEY	SHARK_RIVER	174,046	1%	2,401,541	12%	NEW_JERSEY	SHARK_RIVER	0	0%	1,066,973	9%
	PT_PLEASANT	665,381	3%				PT_PLEASANT	195,215	2%		
	NEPTUNE	92,440	0%				NEPTUNE	0	0%		
	MONMOUTH	59,905	0%				MONMOUTH	0	0%		
	LONG BEACH & BARNEGAT_L.	65,745	0%				LONG BEACH & BARNEGAT_L.	0	0%		
	HIGHLANDS	81,354	0%				HIGHLANDS	0	0%		
	CAPE_MAY	73,696	0%				CAPE_MAY	73,696	1%		
	BELMAR	4,557	0%				BELMAR	3,429	0%		
	BELFORD	1,142,793	6%				BELFORD	785,956	7%		
	ATLANTIC_CITY	0	0%				ATLANTIC_CITY	0	0%		
	ALL_OTHER	41,624	0%				ALL_OTHER	8,677	0%		
NEW_YORK	MONTAUK	95,402	0%	352,835	2%	NEW_YORK	MONTAUK	27,957	0%	178,688	2%
	HAMPTON_BAY	272	0%				HAMPTON_BAY	272	0%		
	GREENPORT	20,028	0%				GREENPORT	20,028	0%		
	FREEPORT	147,637	1%				FREEPORT	84,044	1%		
	ALL_OTHER	89,497	0%				ALL_OTHER	46,387	0%		
NHCOAST	SEABROOK	200,698	1%	1,723,111	9%	NHCOAST	SEABROOK	21,884	0%	250,561	2%
	RYE	578,136	3%				RYE	117,187	1%		
	PORTSMOUTH	800,903	4%				PORTSMOUTH	105,657	1%		
	NEWINGTON	0	0%				NEWINGTON	0	0%		
	NEW_CASTLE	14,227	0%				NEW_CASTLE	0	0%		
	HAMPTON	129,147	1%				HAMPTON	5,833	0%		

Table 345- Revenue Loss Impacts by Port and Region for Habitat Alternative 5a(cont.)

ALTERNATIVE 5A											
Level 1			Between Port Impact (%)	Total Revenue Impact (\$)	Between Region Impact (%)	Level 3			Between Port Impact (%)	Total Revenue Impact (\$)	Between Region Impact (%)
RICOAST	NEWPORT	135,308	1%	899,929	5%	RICOAST	NEWPORT	75,606	1%	622,059	6%
	ALL_OTHER	764,621	4%				ALL_OTHER	546,452	5%		
SOUTH_ME	ALL_OTHER	399,702	2%	399,702	2%	SOUTH_ME	ALL_OTHER	167,160	1%	167,160	1%
UPPER_MID_ME	S.W._HARBOR	373,586	2%	374,918	2%	UPPER_MID_ME	S.W._HARBOR	373,586	3%	373,586	3%
	ALL_OTHER	1,332	0%				ALL_OTHER	0	0%		
VIRGINIA	ALL_OTHER	63,036	0%	63,036	0%	VIRGINIA	ALL_OTHER	58,472	1%	58,472	1%
OTHER	ALL_OTHER	15,261	0%	15,261	0%	OTHER	ALL_OTHER	7,449	0%	7,449	0%
Grand Total		19,768,983		19,768,983	100%	Grand Total		11,248,237		11,248,237	100%

Table 345- Revenue Loss Impacts by Port and Region for Habitat Alternative 5a(cont.)

ALTERNATIVE 5b												
Level 1			Between Port Impact (%)	Total Revenue Impact (\$)	Between Region Impact (%)	Level 3			Between Port Impact (%)	Total Revenue Impact (\$)	Between Region Impact (%)	
Sum of TotalValue	Region	Port	Total (\$)			Sum of TotalValue	Region	Port	Total (\$)			
	BOSTON	SCITUATE	219,841	1%	1,481,269	4%	BOSTON	SCITUATE	190,435	1%	1,330,949	6%
		BOSTON	1,107,690	3%				BOSTON	1,106,279	5%		
		ALL_OTHER	153,738	0%				ALL_OTHER	34,235	0%		
	CAPE	YARMOUTH	73,196	0%	5,986,713	16%	CAPE	YARMOUTH	0	0%	1,491,945	6%
		ORLEANS	0	0%				ORLEANS	0	0%		
		NAUSET	6,443	0%				NAUSET	0	0%		
		NANTUCKET	213,799	1%				NANTUCKET	177,269	1%		
		HARWICHPORT	1,240,317	3%				HARWICHPORT	263,582	1%		
		CHATHAM	3,827,902	10%				CHATHAM	525,543	2%		
		BARNSTABLE	442,403	1%				BARNSTABLE	415,026	2%		
		ALL_OTHER	182,652	0%				ALL_OTHER	110,524	0%		
	CTCOAST	ALL_OTHER	1,348,536	4%	1,348,536	4%	CTCOAST	ALL_OTHER	1,274,305	5%	1,274,305	5%
	DEL_MAR	ALL_OTHER	0	0%			DEL_MAR	ALL_OTHER	0	0%		
	DOWNEAST	ALL_OTHER	0	0%			DOWNEAST	ALL_OTHER	0	0%		
	GLOUCESTER	SALISBURY	46,508	0%	8,718,787	23%	GLOUCESTER	SALISBURY	25,091	0%	3,879,561	16%
		ROCKPORT	1,049,807	3%				ROCKPORT	280,955	1%		
		NEWBURYPORT	521,855	1%				NEWBURYPORT	437,710	2%		
		MARBLEHEAD	439,142	1%				MARBLEHEAD	0	0%		
		GLOUCESTER	6,313,995	17%				GLOUCESTER	3,135,805	13%		
		ALL_OTHER	347,479	1%				ALL_OTHER	0	0%		
	LOWER_MID_ME	PORTLAND	211,395	1%	229,397	1%	LOWER_MID_ME	PORTLAND	207,417	1%	208,370	1%
		CHEBEAGUE_IS.	0	0%				CHEBEAGUE_IS.	0	0%		
		ALL_OTHER	18,003	0%				ALL_OTHER	954	0%		

Table 346- Revenue Loss Impacts by Port and Region for Habitat Alternative 5b

ALTERNATIVE 5b											
Level 1			Between Port Impact (%)	Total Revenue Impact (\$)	Between Region Impact (%)	Level 3			Between Port Impact (%)	Total Revenue Impact (\$)	Between Region Impact (%)
N_CAROLINA	ALL_OTHER	0	0%	0	0%	N_CAROLINA	ALL_OTHER	0	0%	0	0%
NEW_BEDFORD	NEW_BEDFORD	12,864,636	34%	14,107,483	37%	NEW_BEDFORD	NEW_BEDFORD	11,759,628	49%	12,259,904	51%
	FAIRHAVEN	886,135	2%				FAIRHAVEN	500,277	2%		
	ALL_OTHER	356,711	1%				ALL_OTHER	0	0%		
NEW_JERSEY	SHARK_RIVER	29,246	0%	1,411,729	4%	NEW_JERSEY	SHARK_RIVER	0	0%	679,987	3%
	PT_PLEASANT	309,139	1%				PT_PLEASANT	124,294	1%		
	NEPTUNE	0	0%				NEPTUNE	0	0%		
	MONMOUTH	0	0%				MONMOUTH	0	0%		
	LONG BEACH & BARNEGAT_L.	652,382	2%				LONG BEACH & BARNEGAT_L.	196,209	1%		
	HIGHLANDS	0	0%				HIGHLANDS	0	0%		
	CAPE_MAY	192,753	1%				CAPE_MAY	192,753	1%		
	BELMAR	78	0%				BELMAR	0	0%		
	BELFORD	25,012	0%				BELFORD	10,260	0%		
	ATLANTIC_CITY	0	0%				ATLANTIC_CITY	0	0%		
	ALL_OTHER	203,119	1%				ALL_OTHER	156,472	1%		
NEW_YORK	MONTAUK	87,964	0%	200,436	1%	NEW_YORK	MONTAUK	66,226	0%	167,240	1%
	HAMPTON_BAY	0	0%				HAMPTON_BAY	0	0%		
	GREENPORT	8,043	0%				GREENPORT	8,043	0%		
	FREEPORT	1,311	0%				FREEPORT	1,311	0%		
	ALL_OTHER	103,119	0%				ALL_OTHER	91,660	0%		
NHCOAST	SEABROOK	547,265	1%	1,969,487	5%	NHCOAST	SEABROOK	282,929	1%	816,380	3%
	RYE	390,723	1%				RYE	208,597	1%		
	PORTSMOUTH	656,135	2%				PORTSMOUTH	144,678	1%		
	NEWINGTON	0	0%				NEWINGTON	0	0%		
	NEW_CASTLE	63,620	0%				NEW_CASTLE	0	0%		
	HAMPTON	311,743	1%				HAMPTON	180,176	1%		

Table 346- Revenue Loss Impacts by Port and Region for Habitat Alternative 5b(cont.)

ALTERNATIVE 5b											
Level 1			Between Port Impact (%)	Total Revenue Impact (\$)	Between Region Impact (%)	Level 3			Between Port Impact (%)	Total Revenue Impact (\$)	Between Region Impact (%)
RICOAST	NEWPORT	71,115	0%	1,299,516	3%	RICOAST	NEWPORT	69,778	0%	1,020,716	4%
	ALL_OTHER	1,228,401	3%				ALL_OTHER	950,937	4%		
SOUTH_ME	ALL_OTHER	391,641	1%	391,641	1%	SOUTH_ME	ALL_OTHER	116,307	0%	116,307	0%
UPPER_MID_ME	S.W._HARBOR	116,568	0%	201,578	1%	UPPER_MID_ME	S.W._HARBOR	116,568	0%	201,578	1%
	ALL_OTHER	85,011	0%				ALL_OTHER	85,011	0%		
VIRGINIA	ALL_OTHER	460,679	1%	460,679	1%	VIRGINIA	ALL_OTHER	458,763	2%	458,763	2%
OTHER	ALL_OTHER	22,393	0%	22,393	0%	OTHER	ALL_OTHER	328	0%	328	0%
Grand Total		37,829,644		37,829,644	100%	Grand Total		23,906,333		23,906,333	100%

Table 346- Revenue Loss Impacts by Port and Region for Habitat Alternative 5b(cont.)

ALTERNATIVE 5c												
Level 1			Between Port Impact (%)	Total Revenue Impact (\$)	Between Region Impact (%)	Level 3			Between Port Impact (%)	Total Revenue Impact (\$)	Between Region Impact (%)	
Sum of TotalValue	Region	Port	Total (\$)			Sum of TotalValue	Region	Port	Total (\$)			
	BOSTON	SCITUATE	1,155,744	5%	3,362,563	14%	BOSTON	SCITUATE	530,608	4%	2,088,038	16%
		BOSTON	1,460,933	6%				BOSTON	1,431,061	11%		
		ALL_OTHER	745,886	3%				ALL_OTHER	126,368	1%		
CAPE		YARMOUTH	5,052	0%	2,315,214	9%	CAPE	YARMOUTH	0	0%	1,197,311	9%
		ORLEANS	160,658	1%				ORLEANS	0	0%		
		NAUSET	152,648	0%				NAUSET	0	0%		
		NANTUCKET	165,174	1%				NANTUCKET	165,174	1%		
		HARWICHPORT	79,609	0%				HARWICHPORT	60,805	0%		
		CHATHAM	1,166,227	5%				CHATHAM	494,842	4%		
		BARNSTABLE	217,545	1%				BARNSTABLE	213,175	2%		
		ALL_OTHER	368,300	1%				ALL_OTHER	263,316	2%		
CTCOAST		ALL_OTHER	44,301	0%	44,301	0%	CTCOAST	ALL_OTHER	38,003	0%	38,003	0%
DEL_MAR		ALL_OTHER	0	0%			DEL_MAR	ALL_OTHER	0	0%		
DOWNEAST		ALL_OTHER	0	0%			DOWNEAST	ALL_OTHER	0	0%		
GLOUCESTER		SALISBURY	16,041	0%	9,232,150	37%	GLOUCESTER	SALISBURY	14,214	0%	3,751,990	28%
		ROCKPORT	1,047,879	4%				ROCKPORT	278,003	2%		
		NEWBURYPORT	410,561	2%				NEWBURYPORT	364,253	3%		
		MARBLEHEAD	448,460	2%				MARBLEHEAD	0	0%		
		GLOUCESTER	6,878,152	28%				GLOUCESTER	3,095,519	23%		
		ALL_OTHER	431,056	2%				ALL_OTHER	0	0%		
LOWER_MID_ME		PORTLAND	325,213	1%	341,026	1%	LOWER_MID_ME	PORTLAND	322,123	2%	324,205	2%
		CHEBEAGUE_IS.	0	0%				CHEBEAGUE_IS.	0	0%		
		ALL_OTHER	15,813	0%				ALL_OTHER	2,082	0%		

Table 347-Revenue Loss Impacts by Port and Region for Habitat Alternative 5c

ALTERNATIVE 5c											
Level 1			Between Port Impact (%)	Total Revenue Impact (\$)	Between Region Impact (%)	Level 3			Between Port Impact (%)	Total Revenue Impact (\$)	Between Region Impact (%)
N_CAROLINA	ALL_OTHER	11,347	0%	11,347	0%	N_CAROLINA	ALL_OTHER	11,104	0%	11,104	0%
NEW_BEDFORD	NEW_BEDFORD	4,316,049	17%	4,982,753	20%	NEW_BEDFORD	NEW_BEDFORD	3,142,218	24%	3,146,396	24%
	FAIRHAVEN	309,993	1%				FAIRHAVEN	4,178	0%		
	ALL_OTHER	356,711	1%				ALL_OTHER	0	0%		
NEW_JERSEY	SHARK_RIVER	174,046	1%	2,401,441	10%	NEW_JERSEY	SHARK_RIVER	0	0%	1,066,873	8%
	PT_PLEASANT	665,381	3%				PT_PLEASANT	195,215	1%		
	NEPTUNE	92,440	0%				NEPTUNE	0	0%		
	MONMOUTH	59,905	0%				MONMOUTH	0	0%		
	LONG BEACH & BARNEGAT_L.	65,745	0%				LONG BEACH & BARNEGAT_L.	0	0%		
	HIGHLANDS	81,354	0%				HIGHLANDS	0	0%		
	CAPE_MAY	73,696	0%				CAPE_MAY	73,696	1%		
	BELMAR	4,557	0%				BELMAR	3,429	0%		
	BELFORD	1,142,693	5%				BELFORD	785,856	6%		
	ATLANTIC_CITY	0	0%				ATLANTIC_CITY	0	0%		
	ALL_OTHER	41,624	0%				ALL_OTHER	8,677	0%		
NEW_YORK	MONTAUK	86,428	0%	347,903	1%	NEW_YORK	MONTAUK	65,399	0%	220,172	2%
	HAMPTON_BAY	0	0%				HAMPTON_BAY	0	0%		
	GREENPORT	20,699	0%				GREENPORT	20,699	0%		
	FREEPORT	147,637	1%				FREEPORT	84,044	1%		
	ALL_OTHER	93,139	0%				ALL_OTHER	50,030	0%		
NHCOAST	SEABROOK	137,643	1%	299,148	1%	NHCOAST	SEABROOK	85,032	1%	166,104	1%
	RYE	80,517	0%				RYE	63,104	0%		
	PORTSMOUTH	65,179	0%				PORTSMOUTH	15,922	0%		
	NEWINGTON	0	0%				NEWINGTON	0	0%		
	NEW_CASTLE	5,705	0%				NEW_CASTLE	0	0%		
	HAMPTON	10,104	0%				HAMPTON	2,047	0%		

Table 347-Revenue Loss Impacts by Port and Region for Habitat Alternative 5c(cont.)

ALTERNATIVE 5c											
Level 1			Between Port Impact (%)	Total Revenue Impact (\$)	Between Region Impact (%)	Level 3			Between Port Impact (%)	Total Revenue Impact (\$)	Between Region Impact (%)
RICOAST	NEWPORT	78,950	0%	914,887	4%	RICOAST	NEWPORT	77,613	1%	783,119	6%
	ALL_OTHER	835,937	3%				ALL_OTHER	705,507	5%		
SOUTH_ME	ALL_OTHER	27,674	0%	27,674	0%	SOUTH_ME	ALL_OTHER	20,142	0%	20,142	0%
UPPER_MID_ME	S.W._HARBOR	373,586	2%	373,586	2%	UPPER_MID_ME	S.W._HARBOR	373,586	3%	373,586	3%
	ALL_OTHER	0	0%				ALL_OTHER	0	0%		
VIRGINIA	ALL_OTHER	58,472	0%	58,472	0%	VIRGINIA	ALL_OTHER	58,472	0%	58,472	0%
OTHER	ALL_OTHER	49,740	0%	49,740	0%	OTHER	ALL_OTHER	7,398	0%	7,398	0%
Grand Total		24,762,205		24,762,205	100%	Grand Total		13,252,913		13,252,913	100%

Table 347-Revenue Loss Impacts by Port and Region for Habitat Alternative 5c(cont.)

ALTERNATIVE 5d												
Level 1			Between Port Impact (%)	Total Revenue Impact (\$)	Between Region Impact (%)	Level 3			Between Port Impact (%)	Total Revenue Impact (\$)	Between Region Impact (%)	
Sum of TotalValue	Region	Port	Total (\$)			Sum of TotalValue	Region	Port	Total (\$)			
	BOSTON	SCITUATE	479,369	3%	1,443,858	9%	BOSTON	SCITUATE	304,226	3%	1,034,009	11%
		BOSTON	635,905	4%				BOSTON	635,460	7%		
		ALL_OTHER	328,584	2%				ALL_OTHER	94,323	1%		
	CAPE	YARMOUTH	5,052	0%	1,976,040	12%	CAPE	YARMOUTH	0	0%	962,003	11%
		ORLEANS	160,862	1%				ORLEANS	0	0%		
		NAUSET	152,690	4%				NAUSET	0	7%		
		NANTUCKET	16,682	0%				NANTUCKET	16,682	0%		
		HARWICHPORT	71,951	0%				HARWICHPORT	60,805	1%		
		CHATHAM	1,125,406	7%				CHATHAM	469,386	5%		
		BARNSTABLE	216,096	1%				BARNSTABLE	213,125	2%		
		ALL_OTHER	227,301	1%				ALL_OTHER	202,005	2%		
	CTCOAST	ALL_OTHER	170,943	1%	170,943	1%	CTCOAST	ALL_OTHER	71,851	1%	71,851	1%
	DEL_MAR	ALL_OTHER	0	0%			DEL_MAR	ALL_OTHER	0	0%		
	DOWNEAST	ALL_OTHER	0	0%			DOWNEAST	ALL_OTHER	0	0%		
	GLOUCESTER	SALISBURY	36,902	0%	6,427,363	39%	GLOUCESTER	SALISBURY	12,217	0%	3,135,121	34%
		ROCKPORT	312,889	2%				ROCKPORT	185,255	2%		
		NEWBURYPORT	278,730	2%				NEWBURYPORT	256,140	3%		
		MARBLEHEAD	94,022	1%				MARBLEHEAD	0	0%		
		GLOUCESTER	5,672,638	34%				GLOUCESTER	2,681,510	29%		
		ALL_OTHER	32,182	0%				ALL_OTHER	0	0%		
	LOWER_MID_ME	PORTLAND	178,658	1%	264,433	2%	LOWER_MID_ME	PORTLAND	165,533	2%	168,331	2%
		CHEBEAGUE_IS.	75,834	0%				CHEBEAGUE_IS.	0	0%		
		ALL_OTHER	9,942	0%				ALL_OTHER	2,798	0%		

Table 348-Revenue Loss Impacts by Port and Region for Habitat Alternative 5d

ALTERNATIVE 5d											
Level 1			Between Port Impact (%)	Total Revenue Impact (\$)	Between Region Impact (%)	Level 3			Between Port Impact (%)	Total Revenue Impact (\$)	Between Region Impact (%)
N_CAROLINA	ALL_OTHER	794,863	5%	794,863	5%	N_CAROLINA	ALL_OTHER	453,708	5%	453,708	5%
NEW_BEDFORD	NEW_BEDFORD	2,086,254	13%	2,179,889	13%	NEW_BEDFORD	NEW_BEDFORD	1,670,380	18%	1,670,831	18%
	FAIRHAVEN	60,771	0%				FAIRHAVEN	451	0%		
	ALL_OTHER	32,863	0%				ALL_OTHER	0	0%		
NEW_JERSEY	SHARK_RIVER	0	0%	14,875	0%	NEW_JERSEY	SHARK_RIVER	0	0%	14,126	0%
	PT_PLEASANT	749	0%				PT_PLEASANT	0	0%		
	NEPTUNE	0	0%				NEPTUNE	0	0%		
	MONMOUTH	0	0%				MONMOUTH	0	0%		
	LONG BEACH & BARNEGAT_L.	0	0%				LONG BEACH & BARNEGAT_L.	0	0%		
	HIGHLANDS	0	0%				HIGHLANDS	0	0%		
	CAPE_MAY	14,126	0%				CAPE_MAY	14,126	0%		
	BELMAR	0	0%				BELMAR	0	0%		
	BELFORD	0	0%				BELFORD	0	0%		
	ATLANTIC_CITY	0	0%				ATLANTIC_CITY	0	0%		
	ALL_OTHER	0	0%				ALL_OTHER	0	0%		
NEW_YORK	MONTAUK	148,422	1%	165,069	1%	NEW_YORK	MONTAUK	25,456	0%	40,896	0%
	HAMPTON_BAY	617	0%				HAMPTON_BAY	617	0%		
	GREENPORT	14,722	0%				GREENPORT	14,722	0%		
	FREEPORT	1,207	0%				FREEPORT	0	0%		
	ALL_OTHER	100	0%				ALL_OTHER	100	0%		
NHCOAST	SEABROOK	236,044	1%	1,455,614	9%	NHCOAST	SEABROOK	57,569	1%	185,408	2%
	RYE	500,899	3%				RYE	81,472	1%		
	PORTSMOUTH	575,879	3%				PORTSMOUTH	40,262	0%		
	NEWINGTON	0	0%				NEWINGTON	0	0%		
	NEW_CASTLE	13,375	0%				NEW_CASTLE	0	0%		
	HAMPTON	129,419	1%				HAMPTON	6,105	0%		

Table 348-Revenue Loss Impacts by Port and Region for Habitat Alternative 5d(cont.)

ALTERNATIVE 5d											
Level 1			Between Port Impact (%)	Total Revenue Impact (\$)	Between Region Impact (%)	Level 3			Between Port Impact (%)	Total Revenue Impact (\$)	Between Region Impact (%)
RICOAST	NEWPORT	58,843	0%	1,094,368	7%	RICOAST	NEWPORT	58,843	1%	803,596	9%
	ALL_OTHER	1,035,525	6%				ALL_OTHER	744,753	8%		
SOUTH_ME	ALL_OTHER	118,163	1%	118,163	1%	SOUTH_ME	ALL_OTHER	55,475	1%	55,475	1%
UPPER_MID_ME	S.W._HARBOR	373,586	2%	377,489	2%	UPPER_MID_ME	S.W._HARBOR	373,586	4%	374,141	4%
	ALL_OTHER	3,903	0%				ALL_OTHER	555	0%		
VIRGINIA	ALL_OTHER	146,069	1%	146,069	1%	VIRGINIA	ALL_OTHER	130,698	1%	130,698	1%
OTHER	ALL_OTHER	1,206	0%	1,206	0%	OTHER	ALL_OTHER	51	0%	51	0%
Grand Total		16,630,243		16,630,243	100%	Grand Total		9,100,245		9,100,245	100%

Table 348-Revenue Loss Impacts by Port and Region for Habitat Alternative 5d(cont.)

ALTERNATIVE 6												
Level 1			Between Port Impact (%)	Total Revenue Impact (\$)	Between Region Impact (%)	Level 3			Between Port Impact (%)	Total Revenue Impact (\$)	Between Region Impact (%)	
Sum of TotalValue	Region	Port	Total (\$)			Sum of TotalValue	Region	Port	Total (\$)			
	BOSTON	SCITUATE	28,544	1%	109,737	3%	BOSTON	SCITUATE	0	0%	48,680	3%
		BOSTON	47,530	1%				BOSTON	47,530	3%		
		ALL_OTHER	33,663	1%				ALL_OTHER	1,151	0%		
	CAPE	YARMOUTH	40,168	1%	677,117	17%	CAPE	YARMOUTH	0	0%	15,056	1%
		ORLEANS	278	0%				ORLEANS	0	0%		
		NAUSET	0	1%				NAUSET	0	3%		
		NANTUCKET	0	0%				NANTUCKET	0	0%		
		HARWICHPORT	110,857	3%				HARWICHPORT	0	0%		
		CHATHAM	138,263	3%				CHATHAM	0	0%		
		BARNSTABLE	376,841	10%				BARNSTABLE	6,353	0%		
		ALL_OTHER	10,709	0%				ALL_OTHER	8,704	1%		
	CTCOAST	ALL_OTHER	12,718	0%	12,718	0%	CTCOAST	ALL_OTHER	12,718	1%	12,718	1%
	DEL_MAR	ALL_OTHER	0	0%			DEL_MAR	ALL_OTHER	0	0%		
	DOWNEAST	ALL_OTHER	0	0%			DOWNEAST	ALL_OTHER	0	0%		
	GLOUCESTER	SALISBURY	6,408	0%	653,192	16%	GLOUCESTER	SALISBURY	0	0%	221,677	16%
		ROCKPORT	3,124	0%				ROCKPORT	0	0%		
		NEWBURYPORT	2,829	0%				NEWBURYPORT	0	0%		
		MARBLEHEAD	5,481	0%				MARBLEHEAD	0	0%		
		GLOUCESTER	633,178	16%				GLOUCESTER	221,677	16%		
		ALL_OTHER	2,172	0%				ALL_OTHER	0	0%		
	LOWER_MID_ME	PORTLAND	289,076	7%	377,931	10%	LOWER_MID_ME	PORTLAND	279,073	20%	282,911	20%
		CHEBEAGUE_IS.	75,834	2%				CHEBEAGUE_IS.	0	0%		
		ALL_OTHER	13,021	0%				ALL_OTHER	3,838	0%		

Table 349-Revenue Loss Impacts by Port and Region for Habitat Alternative 6

ALTERNATIVE 6

Level 1		Between Port Impact (%)	Total Revenue Impact (\$)	Between Region Impact (%)	Level 3		Between Port Impact (%)	Total Revenue Impact (\$)	Between Region Impact (%)		
N_CAROLINA	ALL_OTHER	0	0%	0	0%	N_CAROLINA	ALL_OTHER	0	0%	0	0%
NEW_BEDFORD	NEW_BEDFORD	675,477	17%	1,136,343	29%	NEW_BEDFORD	NEW_BEDFORD	671,377	48%	671,377	48%
	FAIRHAVEN	439,576	11%				FAIRHAVEN	0	0%		
	ALL_OTHER	21,289	1%				ALL_OTHER	0	0%		
NEW_JERSEY	SHARK_RIVER	0	0%	0	0%	NEW_JERSEY	SHARK_RIVER	0	0%	0	0%
	PT_PLEASANT	0	0%				PT_PLEASANT	0	0%		
	NEPTUNE	0	0%				NEPTUNE	0	0%		
	MONMOUTH	0	0%				MONMOUTH	0	0%		
	LONG BEACH & BARNEGAT_L.	0	0%				LONG BEACH & BARNEGAT_L.	0	0%		
	HIGHLANDS	0	0%				HIGHLANDS	0	0%		
	CAPE_MAY	0	0%				CAPE_MAY	0	0%		
	BELMAR	0	0%				BELMAR	0	0%		
	BELFORD	0	0%				BELFORD	0	0%		
	ATLANTIC_CITY	0	0%				ATLANTIC_CITY	0	0%		
	ALL_OTHER	0	0%				ALL_OTHER	0	0%		
NEW_YORK	MONTAUK	31,147	1%	31,233	1%	NEW_YORK	MONTAUK	4,242	0%	4,328	0%
	HAMPTON_BAY	0	0%				HAMPTON_BAY	0	0%		
	GREENPORT	86	0%				GREENPORT	86	0%		
	FREEPORT	0	0%				FREEPORT	0	0%		
	ALL_OTHER	0	0%				ALL_OTHER	0	0%		
NHCOAST	SEABROOK	9,968	0%	753,638	19%	NHCOAST	SEABROOK	1,050	0%	51,129	4%
	RYE	25,113	1%				RYE	0	0%		
	PORTSMOUTH	326,458	8%				PORTSMOUTH	50,040	4%		
	NEWINGTON	388,615	10%				NEWINGTON	0	0%		
	NEW_CASTLE	335	0%				NEW_CASTLE	0	0%		
	HAMPTON	3,149	0%				HAMPTON	39	0%		

Table 349-Revenue Loss Impacts by Port and Region for Habitat Alternative 6(cont.)

ALTERNATIVE 6											
Level 1			Between Port Impact (%)	Total Revenue Impact (\$)	Between Region Impact (%)	Level 3			Between Port Impact (%)	Total Revenue Impact (\$)	Between Region Impact (%)
RICOAST	NEWPORT	57,983	1%	114,697	3%		ALL_OTHER	18,748	1%	15,636	1%
	ALL_OTHER	56,714	1%			RICOAST Total		34,384	2%		
SOUTH_ME	ALL_OTHER	30,264	1%	30,264	1%	SOUTH_ME	ALL_OTHER	3,006	0%	3,006	0%
UPPER_MID_ME	S.W._HARBOR	61,067	2%	63,031	2%	UPPER_MID_ME	S.W._HARBOR	61,067	4%	61,364	4%
	ALL_OTHER	1,964	0%				ALL_OTHER	297	0%		
VIRGINIA	ALL_OTHER	231	0%	231	0%	VIRGINIA	ALL_OTHER	0	0%	0	0%
OTHER	ALL_OTHER	0	0%	0	0%	OTHER	ALL_OTHER	0	0%	0	0%
Grand Total		3,960,131		3,960,131	100%	Grand Total		1,406,630		1,406,630	99%

Table 349-Revenue Loss Impacts by Port and Region for Habitat Alternative 6(cont.)

ALTERNATIVE 10A

Level 1			Between Port Impact (%)	Total Revenue Impact (\$)	Between Region Impact (%)	Level 3			Between Port Impact (%)	Total Revenue Impact (\$)	Between Region Impact (%)	
Sum of TotalValue	Region	Port	Total (\$)			Sum of TotalValue	Region	Port	Total (\$)			
	BOSTON	SCITUATE	40,765	1%	121,652	3%	BOSTON	SCITUATE	12,221	1%	60,902	5%
		BOSTON	47,530	1%				BOSTON	47,530	4%		
		ALL_OTHER	33,357	1%				ALL_OTHER	1,151	0%		
	CAPE	YARMOUTH	62,109	1%	715,310	17%	CAPE	YARMOUTH	0	0%	16,105	1%
		ORLEANS	367	0%				ORLEANS	0	0%		
		NAUSET	0	0%				NAUSET	0	0%		
		NANTUCKET	0	0%				NANTUCKET	0	0%		
		HARWICHPORT	247,050	6%				HARWICHPORT	0	0%		
		CHATHAM	290,289	7%				CHATHAM	147	0%		
		BARNSTABLE	103,884	2%				BARNSTABLE	6,353	0%		
		ALL_OTHER	11,610	0%				ALL_OTHER	9,605	1%		
	CTCOAST	ALL_OTHER	74,519	2%	74,519	2%	CTCOAST	ALL_OTHER	74,519	6%	74,519	6%
	DEL_MAR	ALL_OTHER	0	0%			DEL_MAR	ALL_OTHER	0	0%		
	DOWNEAST	ALL_OTHER	0	0%			DOWNEAST	ALL_OTHER	0	0%		
	GLOUCESTER	SALISBURY	6,408	0%	696,853	17%	GLOUCESTER	SALISBURY	0	0%	221,195	16%
		ROCKPORT	26	0%				ROCKPORT	0	0%		
		NEWBURYPORT	2,829	0%				NEWBURYPORT	0	0%		
		MARBLEHEAD	5,481	0%				MARBLEHEAD	0	0%		
		GLOUCESTER	679,937	16%				GLOUCESTER	221,195	16%		
		ALL_OTHER	2,172	0%				ALL_OTHER	0	0%		
	LOWER_MID_ME	PORTLAND	172,870	4%	269,137	6%	LOWER_MID_ME	PORTLAND	162,034	12%	169,638	13%
		CHEBEAGUE_IS.	75,834	2%				CHEBEAGUE_IS.	0	0%		
		ALL_OTHER	20,433	0%				ALL_OTHER	7,604	1%		

Table 350 - Revenue Loss Impacts by Port and Region for Habitat Alternative 10A

ALTERNATIVE 10A

Level 1		Between Port Impact (%)	Total Revenue Impact (\$)	Between Region Impact (%)	Level 3		Between Port Impact (%)	Total Revenue Impact (\$)	Between Region Impact (%)		
N_CAROLINA	ALL_OTHER	0	0%	0	0%	N_CAROLINA	ALL_OTHER	0	0%	0	0%
NEW_BEDFORD	NEW_BEDFORD	648,342	16%	1,263,779	30%	NEW_BEDFORD	NEW_BEDFORD	644,242	48%	644,242	48%
	FAIRHAVEN	160,731	4%				FAIRHAVEN	0	0%		
	ALL_OTHER	454,705	11%				ALL_OTHER	0	0%		
NEW_JERSEY	SHARK_RIVER	0	0%	0	0%	NEW_JERSEY	SHARK_RIVER	0	0%	0	0%
	PT_PLEASANT	0	0%				PT_PLEASANT	0	0%		
	NEPTUNE	0	0%				NEPTUNE	0	0%		
	MONMOUTH	0	0%				MONMOUTH	0	0%		
	LONG BEACH & BARNEGAT_L.	0	0%				LONG BEACH & BARNEGAT_L.	0	0%		
	HIGHLANDS	0	0%				HIGHLANDS	0	0%		
	CAPE_MAY	0	0%				CAPE_MAY	0	0%		
	BELMAR	0	0%				BELMAR	0	0%		
	BELFORD	0	0%				BELFORD	0	0%		
	ATLANTIC_CITY	0	0%				ATLANTIC_CITY	0	0%		
	ALL_OTHER	0	0%				ALL_OTHER	0	0%		
NEW_YORK	MONTAUK	4,616	0%	4,717	0%	NEW_YORK	MONTAUK	0	0%	101	0%
	HAMPTON_BAY	0	0%				HAMPTON_BAY	0	0%		
	GREENPORT	101	0%				GREENPORT	101	0%		
	FREEPORT	0	0%				FREEPORT	0	0%		
	ALL_OTHER	0	0%				ALL_OTHER	0	0%		
NHCOAST	SEABROOK	9,968	0%	802,264	19%	NHCOAST	SEABROOK	1,050	0%	51,129	4%
	RYE	42,253	1%				RYE	0	0%		
	PORTSMOUTH	365,108	9%				PORTSMOUTH	50,040	4%		
	NEWINGTON	381,451	9%				NEWINGTON	0	0%		
	NEW_CASTLE	335	0%				NEW_CASTLE	0	0%		
	HAMPTON	3,149	0%				HAMPTON	39	0%		

Table 350 - Revenue Loss Impacts by Port and Region for Habitat Alternative 10A(cont.)

ALTERNATIVE 10A

Level 1			Between Port Impact (%)	Total Revenue Impact (\$)	Between Region Impact (%)	Level 3			Between Port Impact (%)	Total Revenue Impact (\$)	Between Region Impact (%)
RICOAST	NEWPORT	17,945	0%	102,503	2%	RICOAST	NEWPORT	17,945	1%	64,977	5%
	ALL_OTHER	84,559	2%				ALL_OTHER	47,033	3%		
SOUTH_ME	ALL_OTHER	23,352	1%	23,352	1%	SOUTH_ME	ALL_OTHER	6,162	0%	6,162	0%
UPPER_MID_ME	S.W._HARBOR	64,278	2%	88,682	2%	UPPER_MID_ME	S.W._HARBOR	61,067	5%	76,451	6%
	ALL_OTHER	24,403	1%				ALL_OTHER	15,384	1%		
VIRGINIA	ALL_OTHER	231	0%	231	0%	VIRGINIA	ALL_OTHER	0	0%	0	0%
OTHER	ALL_OTHER	0	0%	0	0%	OTHER	ALL_OTHER	0	0%	0	0%
Grand Total		4,162,998		4,162,998	100%	Grand Total		1,345,937		1,345,937	100%

Table 350 - Revenue Loss Impacts by Port and Region for Habitat Alternative 10A(cont.)

ALTERNATIVE 10B											
Level 1			Between Port Impact (%)	Total Revenue Impact (\$)	Between Region Impact (%)	Level 3			Between Port Impact (%)	Total Revenue Impact (\$)	Between Region Impact (%)
Sum of Total Value						Sum of Total Value					
Region	Port	Total (\$)				Region	Port	Total (\$)			
BOSTON	SCITUATE	40,765	1%	121,652	3%	BOSTON	SCITUATE	12,221	1%	60,902	4%
	BOSTON	47,530	1%				BOSTON	47,530	3%		
	ALL_OTHER	33,357	1%				ALL_OTHER	1,151	0%		
CAPE	YARMOUTH	62,109	2%	639,263	17%	CAPE	YARMOUTH	0	0%	16,105	1%
	ORLEANS	367	0%				ORLEANS	0	0%		
	NAUSET	0	0%				NAUSET	0	0%		
	NANTUCKET	0	0%				NANTUCKET	0	0%		
	HARWICHPORT	247,050	7%				HARWICHPORT	0	0%		
	CHATHAM	290,289	8%				CHATHAM	147	0%		
	BARNSTABLE	27,838	1%				BARNSTABLE	6,353	0%		
	ALL_OTHER	11,610	0%				ALL_OTHER	9,605	1%		
CTCOAST	ALL_OTHER	74,519	2%	74,519	2%	CTCOAST	ALL_OTHER	74,519	5%	74,519	5%
DEL_MAR	ALL_OTHER	0	0%			DEL_MAR	ALL_OTHER	0	0%		
DOWNEAST	ALL_OTHER	0	0%			DOWNEAST	ALL_OTHER	0	0%		
GLOUCESTER	SALISBURY	6,408	0%	696,853	18%	GLOUCESTER	SALISBURY	0	0%	221,195	14%
	ROCKPORT	26	0%				ROCKPORT	0	0%		
	NEWBURYPORT	2,829	0%				NEWBURYPORT	0	0%		
	MARBLEHEAD	5,481	0%				MARBLEHEAD	0	0%		
	GLOUCESTER	679,937	18%				GLOUCESTER	221,195	14%		
	ALL_OTHER	2,172	0%				ALL_OTHER	0	0%		
LOWER_MID_ME	PORTLAND	248,691	7%	344,593	9%	LOWER_MID_ME	PORTLAND	237,854	15%	245,094	16%
	CHEBEAGUE_IS.	75,834	2%				CHEBEAGUE_IS.	0	0%		
	ALL_OTHER	20,068	1%				ALL_OTHER	7,240	0%		

Table 351 - Revenue Loss Impacts by Port and Region for Habitat Alternative 10B

ALTERNATIVE 10B

Level 1		Between Port Impact (%)	Total Revenue Impact (\$)	Between Region Impact (%)	Level 3		Between Port Impact (%)	Total Revenue Impact (\$)	Between Region Impact (%)		
N_CAROLINA	ALL_OTHER	0	0%	0	0%	N_CAROLINA	ALL_OTHER	0	0%	0	0%
NEW_BEDFORD	NEW_BEDFORD	796,951	21%	1,251,656	33%	NEW_BEDFORD	NEW_BEDFORD	792,850	50%	792,850	50%
	FAIRHAVEN	0	0%				FAIRHAVEN	0	0%		
	ALL_OTHER	454,705	12%				ALL_OTHER	0	0%		
NEW_JERSEY	SHARK_RIVER	0	0%	0	0%	NEW_JERSEY	SHARK_RIVER	0	0%	0	0%
	PT_PLEASANT	0	0%				PT_PLEASANT	0	0%		
	NEPTUNE	0	0%				NEPTUNE	0	0%		
	MONMOUTH	0	0%				MONMOUTH	0	0%		
	LONG BEACH & BARNEGAT_L.	0	0%				LONG BEACH & BARNEGAT_L.	0	0%		
	HIGHLANDS	0	0%				HIGHLANDS	0	0%		
	CAPE_MAY	0	0%				CAPE_MAY	0	0%		
	BELMAR	0	0%				BELMAR	0	0%		
	BELFORD	0	0%				BELFORD	0	0%		
	ATLANTIC_CITY	0	0%				ATLANTIC_CITY	0	0%		
	ALL_OTHER	0	0%				ALL_OTHER	0	0%		
NEW_YORK	MONTAUK	4,616	0%	4,717	0%	NEW_YORK	MONTAUK	0	0%	101	0%
	HAMPTON_BAY	0	0%				HAMPTON_BAY	0	0%		
	GREENPORT	101	0%				GREENPORT	101	0%		
	FREEMPORT	0	0%				FREEMPORT	0	0%		
	ALL_OTHER	0	0%				ALL_OTHER	0	0%		
NHCOAST	SEABROOK	9,968	0%	420,813	11%	NHCOAST	SEABROOK	1,050	0%	11,646	1%
	RYE	42,253	1%				RYE	0	0%		
	PORTSMOUTH	365,108	10%				PORTSMOUTH	10,558	1%		
	NEWINGTON	0	0%				NEWINGTON	0	0%		
	NEW_CASTLE	335	0%				NEW_CASTLE	0	0%		
	HAMPTON	3,149	0%				HAMPTON	39	0%		

Table 351 - Revenue Loss Impacts by Port and Region for Habitat Alternative 10B(cont.)

ALTERNATIVE 10B											
Level 1			Between Port Impact (%)	Total Revenue Impact (\$)	Between Region Impact (%)	Level 3			Between Port Impact (%)	Total Revenue Impact (\$)	Between Region Impact (%)
RICOAST	NEWPORT	17,945	0%	102,503	3%	RICOAST	NEWPORT	17,945	1%	64,977	4%
	ALL_OTHER	84,559	2%				ALL_OTHER	47,033	3%		
SOUTH_ME	ALL_OTHER	23,352	1%	23,352	1%	SOUTH_ME	ALL_OTHER	6,162	0%	6,162	0%
UPPER_MID_ME	S.W._HARBOR	64,278	2%	88,682	2%	UPPER_MID_ME	S.W._HARBOR	61,067	4%	76,451	5%
	ALL_OTHER	24,403	1%				ALL_OTHER	15,384	1%		
VIRGINIA	ALL_OTHER	231	0%	231	0%	VIRGINIA	ALL_OTHER	0	0%	0	0%
OTHER	ALL_OTHER	0	0%	0	0%	OTHER	ALL_OTHER	0	0%	0	0%
Grand Total		3,768,834		3,768,834	100%	Grand Total		1,570,002		1,570,002	100%

Table 351 - Revenue Loss Impacts by Port and Region for Habitat Alternative 10B(cont.)

Surf Clam and Ocean Quahog Fishery:

The potential impacts on the surf clam/ocean quahog fishery were evaluated separately using methods similar to that which was used for other fisheries. However, because landings in the clam VTR's are reported in bushels rather than pounds, an average price from dealer records (reported in terms of \$ per pound meat weight) could not be assigned. For this reason impacts are reported in physical rather than dollar units and are aggregated at the state level.

Alternatives 3a, 3b and 4 would have no impact on the surf clam/ocean quahog fishery. Alternative 6 would mitigate impacts for the most states but would have the largest overall impact and would affect the state of Massachusetts exclusively. Of the Alternatives that would affect the fishery, Alternative 5a would have aggregate impacts similar to that of Alternatives 5b and 5d but would these impacts would be more broadly distributed across states in the Northeast region.

In terms of how surf clam/ocean quahog impacts may be distributed across states, the Massachusetts share of impacts is higher than any other state with the exception of New Jersey under Alternative 5a. Specifically, Massachusetts represents 100% of landings losses for Alternative 6; 87% under Alternative 5b; 51.2% under Alternative 5d and 45.4% under Alternative 5c (Table 352). Distributive impacts under Alternative 5a were estimated to be greatest for New Jersey (56.3%) followed by Massachusetts (23.4%), Maryland (19.4%) and Rhode Island (0.9%). Distributive impacts under Alternative 5b were estimated to be greatest for Massachusetts (87.1%) followed by New Jersey (11.7%) and Rhode Island (1.3%). Distributive impacts under Alternative 5c were estimated to be greatest for Massachusetts (45.4%) followed by New Jersey (40.1%), Maryland (13.8%), and Rhode Island (0.7%). Distributive impacts under Alternative 5d were estimated to be greatest for Massachusetts (51.2%) and Rhode Island (48.8%).

State	Alternative 3a, 3b, & 4	Alternative 5a	Alternative 5b	Alternative 5c	Alternative 5d	Alternative 6	Alternative 10A & 10B
MA	0	23.4%	87.1%	45.4%	51.2%	100.0%	92.5%
MD	0	19.4%	0.0%	13.8%	0.0%	0.0%	0.0%
ME	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
NJ	0	56.3%	11.7%	40.1%	0.0%	0.0%	0.0%
RI	0	0.9%	1.3%	0.7%	48.8%	0.0%	7.5%

Table 352 - Share of Total Surf Clam/Ocean Quahog Landings Loss (in bushels) by State and EFH Alternative

For the surf clam/ocean quahog fishery, aggregate landings from retained VTR records were 5.6 million bushels for calendar year 2001. Based on locations provided in these data no trips were reported as having occurred inside the confines of any of the specified habitat closure for Alternatives 3a, 3b, or 4. Therefore, the habitat closures for these three alternatives would have no impact on the surf clam/ocean quahog fishery. The remaining alternatives would affect between 2 and 7% of total fishery landings (Table 299).

State	Total Bushels	Alternative 3a, 3b, & 4	Alternative 5a	Alternative 5b	Alternative 5c	Alternative 5d	Alternative 6	Alternative 10A & 10B
MA	936,236	0	4.1%	11.0%	11.0%	8.8%	40.7%	4.8%
MD	622,065	0	5.1%	0.0%	5.1%	0.0%	0.0%	0.0%
ME	108,590	0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
NJ	3,788,123	0	2.4%	0.4%	2.4%	0.0%	0.0%	0.0%
RI	175,920	0	0.9%	0.9%	0.9%	44.6%	0.0%	2.1%
Totals	5,630,934	0	2.9%	2.1%	4.0%	2.9%	6.8%	0.9%

Table 353 - Proportional Loss of Surf Clam/Ocean Quahog Landings (bushels) by State and Alternative

5.6.2.2.5.3 General Revenue Loss Impacts

Alternative 5b level 1 will result in the most significant revenue losses nearing 38 million dollars. The revenue impact for Alternatives 6, 10A, and 10B are approximately 4 million dollars; significantly less than all other alternatives. Any one of these three alternatives would be 33 million less than the losses that may be experienced under alternative 5b, the most restrictive.

Vessel length class

Alternative 5b has the greatest over-all impact across all vessel sectors for level 1 EFH closures ranging from income impacts of 10% for large and medium vessels to 23% for small vessels. Level 3 impacts remain the same for large vessels and fall below 10% for medium and small vessels. Alternative 6, 10A, and 10B have the least impact on revenue across all vessel categories, all of which are less than 3%. Revenue impacts for small and medium vessels are most affected by alternatives 5a - 5d while large vessels are more affected by alternatives 3a and 3b. Level 3 revenue impacts are generally lessened for medium and small vessels while large vessel impacts remain constant.

Length Class	Alternatives - Level 1									
	3a	3b	4	5a	5b	5c	5d	6	10A	10B
LARGE	11%	11%	7%	3%	10%	4%	2%	1%	1%	1%
MEDIUM	4%	4%	3%	10%	10%	11%	8%	1%	2%	2%
SMALL	7%	5%	4%	13%	23%	18%	12%	2%	2%	2%
Length Class	Alternatives - Level 3									
	3a	3b	4	5a	5b	5c	5d	6	10A	10B
LARGE	11%	11%	7%	3%	10%	4%	2%	1%	1%	1%
MEDIUM	3%	3%	3%	8%	8%	9%	7%	1%	1%	1%
SMALL	1%	0%	0%	3%	6%	5%	4%	0%	0%	0%

Table 354- Revenue Impacts Within Vessel Length Class by Alternative and EFH Level

Number of affected vessels

The number of small vessels impacted is substantially less for a level 3 closure while the number of vessels impacted for large and medium vessel classes is not significantly different between level 1 and 3 closure alternatives. The number of boats affected and the average revenue loss of impacted vessels is greater for alternatives 5a, 5b, 5c, and 5d as compared to other alternatives.

Length Class	Alternatives – Level 1									
	3a	3b	4	5a	5b	5c	5d	6	10A	10B
LARGE (403 total)										
Impacted Vessels	129	128	117	119	177	123	106	40	35	33
Average Revenue Loss for Impacted Vessels	30%	30%	25%	18%	21%	20%	17%	13%	8%	9%
MEDIUM (330 total)										
Impacted Vessels	55	50	45	133	122	133	115	38	39	37
Average Revenue Loss for Impacted Vessels	22%	21%	20%	35%	30%	35%	33%	16%	17%	18%
SMALL (1,428 total)										
Impacted Vessels	323	283	239	451	532	512	438	197	213	211
Average Revenue Loss for Impacted Vessels	29%	28%	27%	33%	51%	46%	38%	20%	22%	22%
Length Class	Alternatives – Level 3									
	3a	3b	4	5a	5b	5c	5d	6	10A	10B
LARGE (403 total)										
Impacted Vessels	124	123	112	112	174	114	103	33	30	32
Average Revenue Loss for Impacted Vessels	29%	29%	24%	15%	21%	16%	16%	9%	7%	9%
MEDIUM (330 total)										
Impacted Vessels	43	39	33	106	103	112	96	26	24	23
Average Revenue Loss for Impacted Vessels	20%	17%	15%	31%	30%	32%	33%	12%	12%	12%
SMALL (1,428 total)										
Impacted Vessels	57	40	28	98	120	118	101	29	32	30
Average Revenue Loss for Impacted Vessels	11%	7%	5%	28%	51%	41%	32%	5%	5%	5%

Table 355- Summary of Number of Impacted Vessels and Average Revenue Loss per Vessel

Gear

The hook, gillnet and trap gear sectors are consistently impacted across all alternatives for level one closures. These impacts are eliminated for level 3 closures. Scallop dredge and trawl gear sectors impacts remain the same for level 1 and level 3 closures.

Gear Type	Alternatives - Level 1									
	3a	3b	4	5a	5b	5c	5d	6	10A	10B
GILLNET	8%	7%	4%	19%	25%	17%	17%	2%	4%	4%
HOOK	25%	24%	22%	10%	28%	10%	14%	5%	9%	9%
SCALLOP TRAWL	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
SCALLOP DREDGE	7%	7%	4%	1%	12%	2%	1%	0%	0%	0%
TRAPS	2%	2%	2%	6%	11%	14%	4%	4%	2%	1%
TRAWL	12%	12%	10%	11%	14%	14%	9%	1%	1%	1%
Gear Type	Alternatives - Level 3									
	3a	3b	4	5a	5b	5c	5d	6	10A	10B
GILLNET	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
HOOK	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
SCALLOP TRAWL	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
SCALLOP DREDGE	7%	7%	4%	1%	12%	2%	1%	0%	0%	0%
TRAPS	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
TRAWL	12%	12%	10%	11%	14%	14%	9%	1%	1%	0%

Table 356- Percent Total Impact Within Gear Type by Alternative and EFH Level

5.6.2.2.5.4 Analysis by Alternative

Alternative 1 - No Action (Not selected) and Alternative 2 (Proposed Action)

Neither of these alternatives includes habitat specific measures beyond what is included for management measures already under consideration. Therefore, there will be no additional social and economic impacts beyond what has already been evaluated for Amendment 10 or will be evaluated for the SEIS for Amendment 13.

Alternative 3a - Area Closure (Not selected)

The gross loss of revenue for a level 1 EFH closure is \$23,237,630. The community of New Bedford, MA will experience the greatest percentage of this loss at 63% (\$15,408,480) followed by Gloucester (13%), MA. Ten percent of the loss will affect the Cape Cod region and is largely distributed between the communities of Harwichport and Chatham, MA (Table 342). Revenue losses will be 22 % (\$5,138,747) lower for a level 3 EFH closure (Table 296). The disproportionate loss found in the level 1 closure for New Bedford, MA will rise to 83% (Table 342).

Vessel – The revenue for the large vessel sector will be impacted by eleven percent for both level 1 and 3 EFH closures. Five percent to 7% of revenue for medium and small vessels will be impacted for level 1 closure with the range reduced to 1% to 3% for a Level 3 EFH closure (Table 354). The average revenue losses for level 1 closures will range from 30% for large vessels to 22% for medium vessels. Revenue for one-third of all large vessels will be affected. Level 3 closures will result in fewer affected small vessels (Table 355).

Gear – Revenue for hook (25%) and trawl (12%) gear sectors will be the most affected for level 1 EFH closures followed by gillnet (8%) and scallop dredge (7%). Under a level 3 closure, revenue loss impacts are eliminated for gillnet, hook, and trap sectors while impacts remain the same for scallop dredge and trawl sectors (Table 356).

Alternative 3b - Area Closure (Not selected)

The gross loss of revenue for a level 1 EFH closure is \$22,047,497. The community of New Bedford, MA will experience the greatest percentage of this loss at 70% (\$14,676,812). Eleven percent of the loss will affect the Cape Cod region and is largely distributed between the communities of Harwichport and Chatham, MA (Table 343). Revenue losses will be 21 % (\$4,544,127) lower for a level 3 EFH closure (Table 3). The disproportionate loss found in the level 1 closure for New Bedford, MA will rise to 86% for a level 3 closure (Table 343).

Vessel – The revenue for the large vessel sector will be impacted by eleven percent for both level 1 and 3 EFH closures. The impact on revenue for medium and small vessels, 4% to 5% for a level 1 closure, is reduced for medium vessels and eliminated for small vessels for a level 3 EFH closure (Table 354). The average revenue losses for impacted vessels for level 1 closures will range from 30% for large vessels to 21% for medium vessels. Revenue for one-third of all large vessels will be affected. Level 3 closures will result in fewer affected small vessels and smaller revenue losses (Table 355).

Gear – Revenue for hook (24%) and trawl (12%) gear sectors will be the most affected for level 1 EFH closures followed by gillnet (7%) and scallop dredge (7%). Under a level 3 closure, revenue loss impacts are eliminated for gillnet, hook, and trap sectors while impacts remain the same for scallop dredge and trawl sectors (Table 356).

Alternative 4 - Area Closure (Not selected)

The gross loss of revenue for a level 1 EFH closure is \$15,599,271. The community of New Bedford, MA will experience the greatest percentage of this loss at 63% (\$9,803,675). Fourteen percent of the loss will affect the Cape Cod region and is largely distributed between the communities of Harwichport and Chatham, MA (Table 344). Revenue losses will be 23 % (\$3,629,039) lower for a level 3 EFH closure

(Table 3). The disproportionate loss found in the level 1 closure for New Bedford, MA will rise to 83% for a level 3 closure (Table 344).

Vessel – The large vessel sector will be impacted by 7% and 3% for medium vessels for both level 1 and level 3 EFH closures. Small vessel revenue impacts, 4% for level 1, are alleviated for a level 3 closure (Table 354). Average revenue losses for affected vessels for level 1 closures will range from 20% to 27%. The number of affected small vessels is substantially reduced for a level 3 closure (Table 355).

Gear – Revenue for hook (22%) and trawl (10%) gear sectors will be the most affected for level 1 EFH closures followed by gillnet (4%) and scallop dredge (4%). Under a level 3 closure, revenue loss impacts are eliminated for gillnet, hook, and trap sectors while impacts remain the same for scallop dredge and trawl sectors (Table 356).

Alternative 5a - Area Closure (Not selected)

The gross loss of revenue for a level 1 EFH closure is \$19,768,983. Seventy-seven percent of the loss is distributed across five regions in descending order of impact - New Bedford (23%), Gloucester (21%), New Jersey (12%), Cape Cod (11%), and Boston (10%). Communities within these regions most impacted by this alternative are New Bedford, MA (21%), Gloucester, MA (18%), Boston (7%), Chatham, MA (6%), and Belford, NJ (6%) (Table 345). Revenue losses will be 43 % (\$ 8,520,746) lower for a level 3 EFH closure (Table 296). The proportionately distributed loss found in the level 1 closure remains for a level closure 3 however increases to 27% for New Bedford and 16% for Boston, MA (Table 345) .

In relation to the surf clam/ocean quahog fishery, alternative 5a would affect 2.9% of total landings but would affect 5.1% of total Maryland landings; 4.1% of Massachusetts landings; 2.4% of New Jersey Landings; and 0.9% of Rhode Island landings. None of the habitat alternatives would affect surf clam/ocean quahog landings in Maine (Table 352).

Vessel – Revenue of small vessels (13%) and medium vessels (10%) will be affected by a level 1 closure. The impact for small vessels is reduced to 3% for a level 3 closure (Table 354). Approximately one-third of the affected medium and small vessels will experience a 35% to 33% average loss in revenue. While average losses are slightly less for all vessel classes for a level 3 closure, the number of affected small vessels is less than one-fourth of the total affected for a level 1 closure (Table 355).

Gear – Revenue for gillnet (19%), trawl (11%), and hook (10%) gear sectors will be the most affected for level 1 EFH closures followed by traps (6%). Under a level 3 closure, revenue loss impacts are eliminated for gillnet, hook, and trap sectors while impacts remain the same for scallop dredge and trawl sectors (Table 356).

Alternative 5b - Area Closure (Not selected)

The gross loss of revenue for a level 1 EFH closure is \$37,829,644. Seventy-six percent of the loss is distributed across three regions in descending order of impact - New Bedford (37%), Gloucester (23%), and Cape Cod (16%). Communities within these regions most impacted by this alternative are New Bedford, MA (34%), Gloucester, MA (17%), and Chatham, MA (10%) (Table 346). Revenue losses will be 37 % (\$ 13,923,311) lower for a level 3 EFH closure (Table 296). The distribution of loss found in the level 1 closure remains for a level closure however increases disproportionately to 51% for New Bedford, MA (Table 346).

In relation to the surf clam/ocean quahog fishery, alternative 5b would affect 2.1% of total landings. Across states, Alternative 5b would affect 11.0% of Massachusetts landings and 0.4% and 0.9% of landings in New Jersey and Rhode Island respectively. Alternative 5b would have no impact on either Maine or Maryland landings (Table 352) .

Vessel – All vessel size sectors will be impacted by a 10% or greater loss of revenue for a level 1 EFH closure with small length vessels (23%) experiencing the greatest impact as compared to other alternatives. The percentage loss of revenue remains constant at 10% for large vessels under both EFH closure levels. Impacts fall below 10% for small and medium length class vessels for level 3 closures (Table 354). Approximately one-third of the affected small and medium vessels will experience an average revenue loss of 35% and 51% respectively. While average losses are the same for all vessel classes for a level 3 closure, the number of affected small vessels is one-fourth of the total affected for a level 1 closure (Table 355).

Gear – Revenue impacts for hook (28%) and gillnet (25%) gear sectors will be most impacted followed by trawl (14%), scallop dredge (12%), and traps (11%) sectors will for level 1 EFH closures. Under a level 3 closure, revenue loss impacts are eliminated for gillnet, hook, and trap sectors while impacts remain the same for scallop dredge and trawl sectors (Table 356).

Alternative 5c - Area Closure (Not selected)

The gross loss of revenue for a level 1 EFH closure is \$24,762,205. Eighty-one percent of the loss is distributed across four regions in descending order of impact - Gloucester (37%), New Bedford (20%), Boston (14%) and New Jersey (10%). Communities within these regions most impacted by this alternative are Gloucester, MA (28%), New Bedford, MA (17%), Boston (6%), Scituate (5%), and Chatham (5%) (Table 347). Revenue losses will be 46% (\$ 11,509,291) lower for a level 3 EFH closure (Table 347). The relative distribution of loss found in the level 1 closure remains similar for a level 3 closure (Table 296).

In relation to the surf clam/ocean quahog fishery, alternative 5c would affect 4.0% of total landings. Across states, Alternative 5b would affect 11.0% of Massachusetts landings; 5.1 % of Maryland landings; and 2.4% and 0.9% of landings in New Jersey and Rhode Island respectively. Alternative 5b would have no impact on Maine landings (Table 352).

Vessel - Revenue losses for small (18%) and medium (11%) vessel sectors will be the most impacted for a level one EFH closure. All impacts fall below 10% for level 3 closures (Table 354). Approximately one-third of the affected small and medium vessels will experience an average revenue loss of 35% and 46% respectively. While average losses are slightly less for all vessel classes for a level 3 closure, the number of affected small vessels is one-fourth of the total affected for a level 1 closure (Table 355).

Gear – Revenue impacts for gillnet (17%), traps (14%), trawl (14%), and hook (10%) gear sectors will be most impacted for level 1 EFH closures. Under a level 3 closure, revenue loss impacts are eliminated for gillnet, hook, and trap sectors while impacts remain the same for scallop dredge and trawl sectors (Table 356).

Alternative 5d - Area Closure (Not selected)

The gross loss of revenue for a level 1 EFH closure is \$16,630,724. Sixty-four percent of the loss is distributed across three regions in descending order of impact - Gloucester (39%), New Bedford (13%), and Cape Cod (12%). Communities within these regions most impacted by this alternative are Gloucester, MA (34%), New Bedford, MA (13%), and Chatham, MA (7%). The remaining 36% percent is distributed across ten regions (Table 348). Revenue losses will be 45% (\$ 7,529,998) lower for a level 3 EFH closure (Table 296). The relative distribution of loss found in the level 1 closure is similarly distributed across four regions (Table 348).

In relation to the surf clam/ocean quahog fishery, alternative 5d would affect 2.9% of total landings. Across states only Massachusetts and Rhode Island would be affected with reductions of 8.8% and 44.6% respectively (Table 352).

Vessel – The small vessel length sector will have the greatest loss of income (12%) for a level 1 EFH closure. The impact on all vessel length sectors is less than 10% for a Level 3 EFH closure (Table 354). Approximately one-third of the affected small and medium vessels will experience an average revenue loss

of 38% and 33% respectively. While average losses are slightly less for large and small vessel classes for a level 3 closure, the number of affected small vessels is one-fourth of the total affected for a level 1 closure (Table 355).

Gear – Revenue impacts for gillnet (17%) and hook (10%) gear sectors will be most impacted for level 1 EFH closures followed by trawl gear (9%) and traps (4%). Under a level 3 closure, revenue loss impacts are eliminated for gillnet, hook, and trap sectors while impacts remain the same for scallop dredge and trawl sectors (Table 356).

Alternative 6 - Area Closure (Not selected)

The gross loss of revenue for a level 1 EFH closure is \$3,960,131. Ninety-one percent of the loss is distributed across five regions in descending order of impact - New Bedford (29%), New Hampshire Coast (19%), Cape Cod (17%), Gloucester (16%), and Lower Mid-Coast Maine (10). Communities within these regions most impacted by this alternative are New Bedford/Fairhaven, MA (17%), Gloucester, MA (16%), Portsmouth, NH (8%), Newington, NH (10%), and Barnstable, MA (10%) (Table 356). Revenue losses will be 64 % (\$ 2,553,501) lower for a level 3 EFH closure (Table 296). The proportionately distributed loss found in the level 1 closure remains for a level 3 closure (Table 356).

In relation to the surf clam/ocean quahog fishery, alternative 6 would have the largest impact (6.8%) on surf clam/ocean quahog landings. Further, Alternative 6 would mitigate all potential impacts on states other than Massachusetts but would impact 40.7% of State landings (Table 352).

Vessel – This alternative represents the least impact to revenue across all vessel classes for both EFH levels. The greatest impact on revenue, across all size sectors, will be for small vessels (2%) for a level 1 closure which is eliminated under a level 3 closure (Table 354). Average revenue losses range from 13% for large vessels to 20% for small vessels. The number of affected vessels is substantially less than for all other alternatives. While average losses are less for large and small vessel classes for a level 3 closure, the number of affected small vessels is one-sixth of the total affected for a level 1 closure (Table 355).

Gear – Revenue impacts for this alternative are the least affected compared to the other alternatives. Hook (5%) and traps (4%) will be most impacted for level 1 EFH closures. Under a level 3 closure, revenue loss impacts for trawl gear (1%) remain the same and eliminated for all other gear sectors (Table 356).

Alternative 7 – Gear (Proposed action)

Data used to evaluate this habitat alternative has been determined inadequate for this purpose. Alternative data configurations and years will need to be evaluated to improve the reliability of this analysis.

Alternative 8 – Gear (Not selected)

This alternative offers five levels of restrictiveness ranging from the least restrictive (8a) to the most restrictive (8e). Level 8a freezes the maximum size of rockhopper and roller trawl gear at the maximum size currently in use. For New England, this size range ranges approximately from 31” to 36”. This level would not impact vessels currently working with this gear specification. However, it would prevent vessels currently operating with this configuration from increasing roller gear size to enable future fishing in areas with greater bottom relief. Level 8e gradually restricts the size of otter trawl ground gear over a multi-year period from, for example, maximum allowable size of 24” in the first year to a maximum allowable size of 5” in the last year. This is an example scenario for which gear size and incremental gear reductions as well as the length of time at each interval may vary from this profile. This alternative allows more time for vessels to plan for and acquire required gear. Multiple changes in gear configurations increase the cost of adapting to increasingly restrictive management measures exponentially each time gear modification are made while increasingly restricting the fishing area to bottoms with incrementally less relief.

Alternative 9 – Gear (Not selected)

If this alternative is done specific to monitor habitat measures, then VMS acquisition costs can be attributed to these measures. However, if this gear requirement is adopted under Amendment 13, then costs would be allocated to that management measure. In addition to purchase and maintenance costs born by vessel owners, agency program monitoring costs are also an important consideration. Purchase and maintenance costs are estimated below.

To cover the entire fishing fleet (Table 358) of 1484 vessels, at \$2900 per unit including the PC, would cost \$4.3 million initially, or less than 1% of the ex-vessel value of New England fisheries (\$681 million in 2000). Although fishing effort is reduced to half the 73,063 DAS allocated, it is expected that the vessels will place those days-at sea (one-for-one) in other fisheries, in order to stay in business. With 73,063 days-at-sea (with the VMS shut off while the vessel is tied to the dock) adds \$73 thousand per year. Double-pinging to protect closed areas or participate in exempted fisheries add \$70 thousand annually. Safety may be enhanced by including distress buttons on each unit, and costs \$1.6 million for the 1484 boats and vessels, but this is not a requirement for groundfish management.

However, the benefits of total fleet coverage, especially to a multispecies fishery like that managed by the groundfish FMP, are much greater than tallying the official DAS and protecting the large, fixed closed areas. If all vessels require VMS, even partial closed areas become somewhat more inviolate because the enforcement agencies can identify every boat that enters them at any time. Likewise, corroboration of other reporting will be comprehensive rather than piecemeal, as it is with less than full VMS coverage. Safety at sea coverage will be comprehensive, and the extra \$1100 per unit for this purpose adds only \$1.6 million, to protect nearly 1500 U.S. vessels at sea. Any requirements for sampling at sea will be greatly enhanced with full VMS coverage, because the density of fishing vessel activity in the various fish stock areas will be known. Observer and Homeland Security programs will be enhanced, in similar fashion. Finally, trip limits, gear restrictions, fish sizes and other management measures may be affected.

Optionally, to cover that portion of the fishing fleet (Table 358) that has over 10 DAS allocated will eliminate VMS costs on vessels minimally involved in the multi-species fishery. These 1083 vessels, at \$2900 per unit including the PC, would cost \$3.1 million initially. Their 72,473 days-at-sea (with the VMS shut off while the vessel is tied to the dock) add \$72 thousand per year. Double-pinging to protect closed areas or participate in exempted fisheries add \$69 thousand annually. Additionally, safety would be enhanced by including distress buttons on each unit, and costs \$1.1 million for the 1083 boats and vessels.

Finally, to cover that portion of the fishing fleet (Table 358) that has over 20 DAS allocated will eliminate VMS costs on even more vessels involved in the multi-species fishery. These 988 vessels, at \$2900 per unit including the PC, would cost \$2.8 million initially. Their 71,074 days-at-sea (with the VMS shut off while the vessel is tied to the dock) add \$71 thousand per year. Double-pinging to protect closed areas or participate in exempted fisheries add \$68 thousand annually. Additionally, safety could be enhanced with distress buttons on each unit, and costs \$1.1 million for the 988 boats and vessels.

The benefits of such programs are reduced, somewhat, from those attainable with total VMS coverage, particularly the enforcement effectiveness on secondary measures like partial closures and trip limits. The costs are reduced fleet-wide, but are the same for each vessel in the program. The downside for vessels in the program is that, although they pay the same cost, the effectiveness and thus the benefits of management are reduced proportionate to the percent of the fleet with mandatory VMS. The incentive, however, is that mandatory-VMS vessels may participate in exempted fisheries in the closed areas.

Device	Boatrac	Thrane & Thrane 3022D	Thrane & Thrane 3026M	Comments:
Cost	\$6,000	\$2,650	\$1,550	Inmarsat has <i>no</i> service connection fee
Communication (flat fee; add'l amount above some limit)	\$3/day two-way	\$1/day two-way (requires PC)	\$1/day two-way (requires PC)	e.g. Thrane & Thrane sells a terminal for \$1,350
Distress buttons	Yes	Yes	No	
Delay	5-10 minutes	5-10 minutes	5-10 minutes	No transmit, no cost with Inmarsat
Maintenance	Replacement parts available	2 year warranty	2 year warranty	

Table 357 - Comparison of VMS Vendors

Note: Trimble is dropped from consideration; they no longer provide Inmarsat based units. Likewise, Argos is dropped because it is only approved for use in Alaska.

Boats	Initial Cost (\$1550 plus \$1350 PC per boat)	Communication Cost (\$1 per DAS)	Pinging Cost* (24/DAS)	Safety (\$1,100 per boat)
1484 Vessels	\$4,303,600	\$73,063	\$70,140	\$1,632,400

Table 358 - Cost of VMS

Note: currently, NE OLE pays all costs associated with the advisory email messaging and extra positioning costs when a vessel enters a closed area; monthly charges average \$1,500.

Boatrac cost 7 cents per ping, or \$1.68 per DAS for 24 pings; Inmarsat, 4 cents, or \$0.96. Pinging costs are shown using Inmarsat.

Alternative 10A – Area Closure (Not selected)

The gross loss of revenue for a level 1 EFH closure is \$4,162,998. Eighty-three percent of the loss is distributed across four regions in descending order of impact - New Bedford (30%), New Hampshire Coast (19%), Cape Cod (17%), and Gloucester (17%). Communities within these regions most impacted by this alternative are New Bedford/Fairhaven, MA (20%), Gloucester, MA (17%), Portsmouth, NH (9%), Newington, NH (9%), Chatham, MA (7%), and Harwichport, MA (6%) (Table 356). Revenue losses will be 67 % (\$ 2,817,060) lower for a level 3 EFH closure (Table 296). The proportionately distributed loss found in the level 1 closure remains for New Bedford and Gloucester regions for a level 3 closure (Table 356) with the loss nearly mitigated for the Cape Cod and New Hampshire coast. However, the proportionate loss increases for Lower Mid-Coast Maine region (Table 212).

In relation to the surf clam/ocean quahog fishery, alternative 10A would have less than 1% impact on surf clam/ocean quahog landings. Alternative A would mitigate all potential impacts on states other than Massachusetts and Rhode Island. However, in both cases the impact on state landings would be relatively small (4.8% in Massachusetts and 2.1% in Rhode Island) (Table 352).

Vessel– This alternative represents nearly equivalent revenue losses to that of Alternative 6 for both EFH levels. The impact on revenue, across all size sectors, will be the same for both small and medium vessels

(2%) and would have least impact on large vessels for a level 1 closure. The level 3 closure would eliminate impacts on small vessels and would have equal impact on medium and large vessels (1%) (Table 354). Average revenue losses range from 8% for large vessels to 22% for small vessels. The number of affected vessels is less than for all other alternatives. While average losses are less for large and small vessel classes for a level 3 closure, the number of affected small vessels is less than one-sixth of the total affected for a level 1 closure (Table 355).

Gear – Revenue impacts for this alternative are the least affected for trap and trawl gear compared to the other alternatives. Hook (9%) gear impacts are similar to that of Alternative 5a while gillnet gear impacts are similar to impacts under Alternative 4. Under a level 3 closure, revenue loss impacts for trawl gear (1%) remain the same but are eliminated for all other gear sectors (Table 356).

Alternative 10B – Area Closure (Proposed action)

The impacts of Alternative 10B are similar to that of 10A although gross revenue impacts are lower (\$3,768,834). Eighty-eight percent of the loss is distributed across five regions in descending order of impact - New Bedford (33%), Gloucester (18%), Cape Cod (17%), New Hampshire Coast (11%), and Lower Mid-Coast Maine (9%). Communities within these regions most impacted by this alternative are New Bedford/Fairhaven, MA (21%), Gloucester, MA (18%), Portsmouth, NH (10%), Chatham, MA (8%), and both Harwichport, MA and Portland, ME (7%) (Table 356). Revenue losses will be 58 % (\$ 2,198,832) lower for a level 3 EFH closure (Table 296). Note that these losses are distributed across regions in roughly the same order of impact but that the proportional impact in New Bedford increases to 50% of total revenue losses. (Table 356).

In relation to the surf clam/ocean quahog fishery, alternative 10B would have the same impact as that of Alternative 10A (Table 352).

Vessel – This alternative represents nearly equivalent revenue losses to that of Alternative 6 and Alternative 10A for both EFH levels. The impact on revenue, across all size sectors, will be the same for both small and medium vessels (2%) and would have least impact on large vessels for a level 1 closure. The level 3 closure would eliminate impacts on small vessels and would have equal impact on medium and large vessels (1%) (Table 354). Average revenue losses range from 9% for large vessels to 22% for small vessels. The number of affected vessels is less than for all other alternatives. Average losses are less for small vessel classes for a level 3 closure (Table 355).

Gear – Revenue impacts for this alternative are the least affected for trap and trawl gear compared to the other alternatives. Hook (9%) gear impacts are similar to that of Alternative 5a while gillnet gear impacts are similar to impacts under Alternative 4. Under a level 3 closure, revenue loss impacts are eliminated for all gear sectors (Table 356).

5.6.2.2.5.5 Summary of Social and Community Impacts of Habitat Alternatives

In general, impacts across all forms of analyses identified habitat alternative 5b as having the greatest impact and alternatives 6, 10a, and 10b as having the least. In between these extremes, more severe impacts (gross sales impacts of about \$100 million; income losses of about \$30 million; and employment losses of up to 1,400 jobs) will result from alternatives 3a, 3b, and 5c. Less severe impacts (losses of about \$70 million in sales, \$20 million in income losses, and losses of less than 1,000 jobs) will result from alternatives 4, 5a, and 5d.

In relation to area closure habitat measures considered here, the state of Massachusetts will experience the greatest share of impacts resulting from alternatives 3a through 6 and 10a through 10b. The region of New Bedford will be proportionately most affected followed by (depending on the alternative) Gloucester, Cape Cod, and Boston, and New Jersey. Overall impacts for New Jersey are likely to increase when the surf clam

and ocean quahog analysis is folded into an aggregate analysis. The community of New Bedford will generally be most impacted by these alternatives. Medium and large vessels are more impacted by alternatives 3a and 3b while small vessels are more impacted by alternatives 5a-5d. The number of small vessels impacted by level 3 closures is significantly less than for level 1 closure. Hook, gillnet, and trap gear sectors are impacted less by level 3 closures

5.6.2.2.6 Northern Shrimp Fishery Exemption Area

The Council is proposing to eliminate the Small Mesh Fishery Exemption Area boundary for the northern shrimp fishery. All other restrictions would remain in effect. This measure is difficult to assess from the social impact perspective because impacts will vary depending on the availability of shrimp outside the boundary line and the ability of the fleet to increase revenues from shrimp fishing because of the opportunity to fish in areas east of the line.

It is important to note, however, that shrimp fishing serves as a valuable alternative to groundfishing and can be the only option for some vessels during the season. Removing the restriction on the boundary line and providing shrimp fishermen with more opportunity could serve to mitigate some of the negative social and community impacts of other groundfish restrictions. Therefore, this measure will be positive so long as it does not increase fishing mortality on groundfish species or compromise the objectives of the amendment, both of which would result in more severe restrictions for the groundfish fleet in the long-term.

The Atlantic States Marine Fisheries Commission very recently completed some additional analyses for the shrimp fishery, including information about the vessels and communities engaged in the shrimp fishery and a social impact assessment of the shrimp management measures. This information should be referenced as needed to supplement this amendment.

5.6.2.2.7 Tuna Purse Seine Vessel Access to Groundfish Closed Areas

The following information summarizes the social impact information relative to the bluefin tuna purse seine fleet (based in New Bedford and Gloucester) contained in NMFS' Highly Migratory Species FMP (1999):

- The bluefin tuna purse seine fishery lasts for only a few weeks each year. The participating boats either tie up the rest of the time or they engage in alternative fisheries.
- The purse seine fleet's success is heavily dependent on price and hence on the value of the Japanese yen. The boats are expensive to maintain and those that tie up the rest of the year accumulate costs while they do so. This is a valuable fishery and finding crew for these vessels is not a problem, indeed many of the present crew have had their berths for many years. The fish traders to whom these vessels sell depend quite heavily on them to maintain their current profit margins. However, they report that the structure of their companies is such that there would be no lost jobs even if the purse seine bluefin tuna landings were to be significantly curtailed.
- The owners and many of the crew, even some who do not reside in the community, of the four New Bedford-related purse seine vessels are integrated through kinship ties into the community involved in fishing. The fleet enjoys the respect of the extended fishing communities in both New Bedford and Gloucester. They are generally seen to have done the most to create the bluefin tuna fishery and to still contribute a great deal to both communities.

Allowing access to the closed areas without restriction should not result in significant social impacts on the purse seine fleet or the communities on which these vessels depend. Any impacts should, in fact, be positive. The tuna purse seine fishery is managed through an individual transferable vessel quota system. Each participating vessel must stop fishing when it catches its quota once the season opens on August 15 of each year. None of the measures proposed for the tuna purse seine fleet will allow vessels to catch more than their quota or increase their revenues significantly. Some positive impacts may result from increased

flexibility for the tuna purse seine fleet (more options for areas in which to fish, better ability to plan business in the short-term and long-term) and decreased operating costs (see economic analysis).

5.6.2.2.8 Southern New England General Category Scallop Exemption Program

The proposed exemption program removes a groundfish plan restriction that prevented scalloping in the area south of Rhode Island unless on a scallop DAS. This program, subject to any restrictions imposed by the scallop FMP, may provide a way for vessels in the area to mitigate the impacts of rebuilding measures designed to restrict catches of winter and yellowtail flounder.

5.6.2.3 Summary and Conclusions

Many groundfish-dependent communities have been significantly impacted by groundfish regulations and the cumulative impacts of other related factors since Amendment 5 in 1993. While revenues in some communities are increasing to pre-Amendment 5 levels, vessels are experiencing more difficulties operating efficiently, maintaining year-round income, and competing in domestic and international markets. Regulations in many fisheries are splintering the fleet, “boxing them in,” and in many cases, making them more dependent on groundfish than ever. The loss of fishing-related infrastructure and support services in some communities has increased concerns about their future in the fishery. Increasingly complicated regulations in all fisheries, shifts from commercial fishing towards recreation and tourism, increasing employment opportunities in other industries, and the cost of waterfront property are contributing to the loss of shoreside infrastructure in many communities. The court decision on the Framework 33 lawsuit and the resulting order for the Interim Action has increased uncertainty and instability in many communities involved in groundfish harvesting. The recent discovery about the trawl survey warp error has compromised public confidence in the scientific basis of Amendment 13. The impacts of these factors individually cannot be separated from each other.

One difficulty in assessing the social impacts of the alternatives under consideration as compared to the no action alternative is that in the short-term, negative social impacts will result from attitudes and perceptions about the new regulations, adaptations that fishermen make to the new regulations, and short-term economic losses. When compared to taking no action, none of the alternatives considered, including the proposed action, are likely to produce positive short-term social impacts. This is because most affected entities have already adapted to the 2001 groundfish regulations, and those that remain in the fishery today are adapting to the measures implemented in the Interim Action (settlement agreement). Many have altered their fishing and business practices to cover the costs associated with the additional management restrictions. Any change from the current situation will create the need for additional adaptations to be made. In addition, the alternatives proposed in Amendment 13 have been met with opposition by the vast majority of the fishing industry. Whatever alternative is selected may worsen attitudes and perceptions about groundfish management, especially given the current lack of faith in the scientific information on which Amendment 13 mortality reductions are based in part.

The management measures under consideration that have the most chance of creating positive short-term social impacts are trip limit adjustments and special access programs. To the extent that increasing the Gulf of Maine cod trip limit can reduce regulatory discarding without compromising the long-term objectives of the amendment, short-term social impacts are likely to be positive. The Closed Area II yellowtail flounder access program has potential to mitigate some of the negative impacts of DAS modifications for large vessels. The positive impacts of this program will depend on which alternative is ultimately selected to address rebuilding requirements and whether or not vessels will find it worthwhile to use their remaining DAS to travel to Closed Area II.

The management measures under consideration that have the most chance of producing negative short-term (and most likely long-term) social impacts are DAS reductions and additional year-round area closures.

This includes direct reductions in allocated and used DAS as well as the possible strategy to count DAS at a 2:1 rate for vessels fishing in the inshore Gulf of Maine on a year-round basis. DAS reductions and additional year-round area closures are likely to produce long-term impacts on affected vessels, families, and communities. Just as they have in the past, vessels and communities will likely adapt and adjust to minor modifications to the area closures, additional gear restrictions, prohibitions on night fishing, etc. However, it will be more difficult to adjust to reductions in groundfish opportunities (DAS) and the year-round closure of areas on which some vessels depend 100%. It is very likely that smaller operations that are currently operating marginally will not be able to adapt to these kinds of measures. The year-round closure of the additional GOM blocks proposed in Alternative 1 is one of the most significant measures proposed in this amendment.

The differential impacts of some of the alternatives under consideration will likely exacerbate the social impacts resulting from them. For used DAS reductions, the largest and the most active vessels will be most affected. These vessels fish primarily in offshore areas. It is possible that they will resent the sacrifices they are being forced to make to protect certain species of groundfish, some of which they may not catch in significant amounts. The DAS reductions are proposed to be applied across the board, meaning that all limited access groundfish vessels will be impacted. For area closures, the smallest vessels will be the most affected. These vessels fish primarily in inshore areas and depend on these areas heavily, as many of them cannot access offshore areas safely. It is possible that they may resent the fact that they have no opportunity to fish, while larger vessels that are less limited by their size will continue to operate, some on a year-round basis. The DAS reductions appear to have a more proportional impact when compared to the proposed area closures. However, if implemented in combination, the impacts can be expected to be devastating for affected vessels and in affected communities.

Mitigation is an important consideration given the magnitude and extent of the impacts likely to result from this action. The elements of Amendment 13 that have the most likelihood of mitigating some of the negative social impacts of the measures, at least in the short-term, include some of the capacity alternatives (permit absorption, permit transfer), the DAS leasing program, and special access programs to harvest groundfish stocks that can support more effort. However, for the most part, these programs are geared towards benefiting vessels that are larger in size and/or more financially secure. The access programs that have been proposed to date allow access to predominantly offshore areas to harvest quantities of fish appropriate for larger vessels. It is unlikely that small vessels can take advantage of such programs. The programs proposed to allow the leasing of unused DAS from vessels and/or the purchase/transfer of DAS require capital investment. Many vessels that are currently marginal will not have the financial ability to participate in such programs unless they sell their DAS, further reducing their opportunities in the groundfish fishery. There is very little, if anything, proposed in this amendment, that will mitigate negative impacts of the measures for smaller and/or currently marginal vessels. Some marginal vessels may be able to take advantage of the DAS leasing program – leasing out DAS to reduce their operating costs – but this option may be viewed as abandoning a way of life. There may also be some opportunities to use Category B DAS, but at present those opportunities appear to be limited.

To an extent, mitigation can also be realized from the ability for affected individuals to exit the fishery altogether and capitalize on alternative employment opportunities. For fishermen, this has always been a difficult reality to face. Fishing Family Assistance Centers can help individuals seek alternative employment and train them for new/different job skills. Centers are currently located throughout communities in Maine, as well as in Gloucester, New Bedford, and on Cape Cod. It is likely that the importance of retraining centers in these communities will increase as a result of Amendment 13, especially because these are some of the communities that will be most negatively impacted by Amendment 13. However, retraining and obtaining alternative employment cannot be assumed to fully mitigate the impacts of such a severe reduction in the groundfish fishery. Only a small percentage of affected individuals can be expected to participate in the retraining programs that the centers offer. Because of the independence and freedoms associated with fishing as an occupation and a way of life, many fishermen are not interested in retraining for shoreside employment that lacks many of the characteristics that drew them to fishing in the

first place. In addition, education and language barriers will continue to limit the possibilities for retraining, despite other important skills that fishermen have acquired at sea. The declining status of today's economy exacerbates these problems.

5.7 Cumulative Effects

5.7.1 Definition of Cumulative Effects

The term "cumulative effects" is defined in the Council of Environmental Quality (CEQ) regulations in 40 CFR Part 1508.7 as:

"the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions."

5.7.2 General Approach

Cumulative effects are described with respect to:

- (a) Communities – human communities engaged in the Northeast multispecies fishery;
- (b) Resource – all stocks of regulated multispecies and protected species; and
- (c) Habitat – benthic marine habitat, particularly Essential Fish Habitat (EFH).

Cumulative effects of gear use, non-fishing entities and actions, past management actions in the multispecies fishery, and the proposed alternatives in Amendment 13 (Fishery Administration, Capacity Reduction, Rebuilding, Recreational, and Habitat). Much of the cumulative effects discussion is derivative of the detailed Environmental Impacts sections in Amendment 13:

- Biological Impacts (Section 5.2) (including impacts on protected resources section 5.2.9)
- Habitat Impacts (Section 5.3)
- Economic Impacts (Section 5.4)
- Social Impacts (Section 5.6)

Additionally, the Affected Human Environment section (9.4) characterizes the multispecies fishery since Amendment 5 (1994), providing a baseline with which to compare predicted changes to the fishery and associated communities that will result from Amendment 13. Because of the lack of quantitative data on parameters that are potentially cumulative, a quantitative assessment of cumulative effects was not possible. Thus, the analyses that follow are qualitative in nature.

5.7.3 Summary of Non-fishing Impacts

Following is an assessment of non-fishing impacts on fish habitat and fishery resources. For fish habitat, non-fishing effects have been reviewed in the Essential Fish Habitat Amendment for Groundfish prepared by the New England Fishery Management Council (Amendment 11 to the Groundfish FMP, NEFMC 1998). Table 359 below, taken from that document, represents the review of the EFH Technical Team of the potential effects of numerous chemical, biological and physical effects to riverine, inshore and offshore fish habitats. Table 359 exhibits twelve representative classes of chemicals, three categories of biological and nineteen types of physical threats, which are categorized as low, moderate or high threats to habitat, based on their geographic location—riverine, inshore and offshore. In general, the closer the proximity to the coast, i.e., close to pollution sources and habitat alternations, the greater the potential for impact. Riverine and inshore habitats were generally categorized as moderate to high threats whereas the offshore areas were low to moderate. For the offshore area, with the exception of events such as oil spills and algae blooms, which can spread over large areas, moderate effects were generally localized to a well-defined and