

8.3.5.4 Conclusions

The only component of the Proposed Action that has the potential to adversely impact EFH is the seasonal prohibition on the use of midwater trawls in Management Area 1A (inner portion of the GOM). This measure may shift midwater trawling effort out of the GOM on to Georges Bank during June-September. However, it is not clear that an increase in effort will occur as a result of this shift or that the areas on Georges Bank where effort would increase are any more vulnerable to the impacts of midwater trawl gear than the areas in the GOM where effort would be reduced. Therefore no adverse impacts on EFH are expected from this action and no EFH consultation is required.

8.4 IMPACTS ON FISHERY-RELATED BUSINESSES AND COMMUNITIES (FISHERY IMPACTS)

This section discusses the impacts of the Proposed Action and management alternatives/independent measures that were considered in Amendment 1 on fishery-related businesses and communities. “Fishery-related businesses and communities” is one of the valued ecosystem components (VECs) that was identified specifically for Amendment 1. **Analysis of the impacts of the proposed measures on this VEC represents the economic and social impact analyses for Amendment 1.** To the extent possible, the analyses in the following subsections discuss the short-term and long-term impacts of the Amendment 1 measures on fishery-related businesses and communities in the context of revenues from herring and other fishery resources, opportunities in the fishery, allocation of the resource, impacts related to regulatory discarding, market conditions, effects on the lobster and mackerel fisheries, and the importance of Atlantic herring to fishery-dependent communities.

The management action proposed in this amendment includes: a limited access program, open access incidental catch permit, and limited access permit provisions; a seasonal purse seine/fixed gear-only area in the inshore Gulf of Maine; establishment of an MSY proxy; a TAC set-aside process for research; adjustments to the herring fishery specification process; adjustments to herring management area boundaries; measures to address fixed gear fisheries; and changes to the regulatory definition of midwater trawl gear. While the impacts of all proposed management measures are addressed in this section, the limited access program and purse seine/fixed gear-only area are the primary focus of the following analysis. Management measures that are more administrative in nature and/or relate to the fishery specification process are expected to have less significant and less direct impacts on fishery-related businesses and communities, but these impacts are still discussed in the following subsections.

The fishery-related businesses and communities background section of this document characterizes what is usually referred to as the “Affected Human Environment” (AHE) and provides a detailed description of the different participants and other stakeholders associated with this fishery; this background information should be referenced to provide perspective for understanding the impacts described below (Section 7.4). While the AHE specifically describes many of the different players (plants, dealers, vessels, communities) considered in this assessment, due to confidentiality issues, this assessment addresses issues in more general terms, focusing on impacts on states, regions, gear types, etc.

Social impacts are the “consequences to human populations of any public or private actions that alter the ways in which people live, work, play, relate to one another, organize to meet their needs and generally cope as members of society. The term includes cultural impacts involving changes to the norms, values, and beliefs that guide and rationalize their cognition of themselves and their society” (Buck 1995).

The following are some of the key factors considered when determining what social and economic impacts might be expected as a result of implementing the Proposed Action, other management alternatives, and independent management measures that were considered in Amendment 1.

- Social Factors (individual, household and communities)
 - Safety and health
 - Distribution of resources among user groups (equity, justice)
 - Access to resources
 - Quality of life (and/or life style)
 - Cultural traditions and diversity (values, attitudes, perceptions)
 - Community dynamics, stability
 - Governance
 - Role of fishing in American culture and tradition
- Economic Factors
 - Impacts on individual and business income
 - Employment (livelihood of fishermen)
- Other
 - Regulatory discarding

The proposed limited access program and the purse seine/fixed gear-only area evolved from the development and consideration of seven management alternatives in the Amendment 1 DSEIS. The seven management alternatives are described in Section 5.1 of this FSEIS document and consist of measures related to a limited access program for some or all of the Atlantic herring fishery and a seasonal purse seine/fixed gear only area within some or all of Area 1A. In addition, the no action alternative was considered by the Council. **For reference purposes, Table 134 on p. 462 summarizes the various elements of the limited access programs that were considered in Amendment 1, including the Proposed Action that was approved at the January 2006 Council meeting.** The limited access program in the Proposed Action consists of a “current permit” requirement (see below), a 500 mt threshold (1993-2003) to qualify to fish in all management areas, a 250 mt threshold (1993-2003) to qualify to fish in Areas 2/3 only, and a 15 mt threshold (1988-2003) for a limited access incidental catch permit to catch 25 mt of herring per trip.

A combination of dealer and logbook data were used to estimate which vessels would qualify under the proposed limited access program as well as each of the criteria considered in the Amendment 1 DSEIS. While the Council has expressed interest in utilizing multiple data sources including VTR data, these may not be the same data that will be used by the NMFS to qualify vessels if limited access is implemented. NMFS has historically relied on third-party, independent data like dealer data to qualify vessels for a limited access program. Given the appeals process that is likely to occur if a limited access program is implemented in Amendment 1, the estimates of qualifying vessels provided in this document are considered to be minimum estimates. The numbers were provided in the DSEIS as a basis for comparing limited access alternatives and are provided in this document relative to the Proposed Action as well for additional perspective on the likely impacts of the proposed limited access program on fishery-related businesses and communities.

For limited access directed fishery permits in Areas 1, 2, and 3, the Council clarified the definition of current permit to mean the possession of a specified permit(s) through November 10, 2005. Since complete permit data were not available at the time analyses of Alternatives 2 through 7 were completed, permit data through 2004 were used in the Amendment 1 DSEIS. The analyses of Alternatives 2 through 7 were not completely updated using 2005 permit data in the FSEIS because it was determined that the estimates of qualifiers would change minimally when 2005 permit data were used as compared to using 2004 permit data (see below). However, the analyses of the Proposed Action contained in this FSEIS uses permit data through November 10, 2005.

For limited access incidental catch permits, the Council clarified the current permit definition from “current squid, mackerel, butterfish, or whiting permit” to “current squid mackerel, butterfish, Atlantic herring, or whiting permit as of November 10, 2005.” Again, since the affect on the estimate of qualifiers is expected to be low, the analyses of Alternatives 2 through 7 were not updated to reflect the change. However, the analysis of the Proposed Action incorporates uses federal permit data through November 10, 2005.

To determine that the Council’s “current permit” clarifications do not significantly alter the estimates of qualifiers for Alternatives 2 through 7 in the DSEIS, the updated criteria were used to estimate the number of vessels that qualify under the most and least restrictive alternatives by limited access permit type (all areas, Areas 2 and 3 only, and incidental catch). This approach provides adequate perspective on the range of impacts of the current permit clarifications relative to the limited access alternatives that were analyzed in the Amendment 1 DSEIS. The impacts of the Proposed Action are discussed in more detail below.

Table 135 shows the results of applying the November 10, 2005 permit requirements to the most restrictive and least restrictive qualification criteria for each limited access permit type. These changes in the estimate of number of qualifiers are considered to be minimal (difference of 4 vessels in most cases) for a number of reasons. The primary reason is that the final number of qualifiers is likely to be higher than the estimates provided in this document for a variety of reasons, which are discussed throughout the analysis. Using the clarified current permit requirement date only marginally improves the estimate and would not provide additional information useful for decision makers. Moreover, the purpose for estimating number of qualifiers is to compare differences among alternatives based on existing data, not to provide absolute numbers. Based on this preliminary assessment, updating the estimates would not change the ordinal ranking of alternatives.

Table 135 Change in Estimates of Qualifying Vessels Using November 10, 2005 Permit Requirements for the Alternatives in the DSEIS

QUALIFICATION CRITERIA	MOST RESTRICTIVE	LEAST RESTRICTIVE
All Areas	Alternative 7: total number of qualifiers declines from 23 to 21	Alternative 3: total number of qualifiers declines from 57 to 53
Areas 2 and 3 (all qualifiers)	Alternatives 2 and 5: total number of qualifiers declines from 42 to 38	Alternatives 3, 4, 6, and 7: total number of qualifiers declines from 45 to 41
Incidental Catch (all qualifiers)	Alternatives 3 and 4: total number of qualifiers declines from 55 to 51	Alternatives 2, 5, and 6: total number of qualifiers declines from 80 to 73

8.4.1 Discussion of Central Issues

This section provides additional background discussion and qualitative analysis that is important to consider relative to impacts on fishery-related businesses and communities. This information relates to the Proposed Action as well as the alternatives that the Council considered in the DSEIS for Amendment 1 to the Herring FMP.

Limited Access

While severely shortened fishing seasons have not yet been seen during the early years of management under the Herring FMP, harvest and fleet capacity have grown significantly since 1999. Capacity growth in an open-access fishery managed by hard TACs is not sustainable in the long term. Even though days out of the fishery may keep the seasons and management areas open longer, they do not change the incentive to race for fish. Rather, the days out measure simply redistributes what would be closed days at the end of the season to earlier parts of the season. As the race to fish strengthens, more days out or other effort control measures may be necessary to “stretch” the season. This is one of the long-term consequences of maintaining an open-access fishery (i.e., no action alternative). Limited access will help to address capacity problems, in part, by limiting the number of permits and vessels harvesting herring in the various management areas.

“Derby fishing,” when vessels fish as hard and fast as possible in order to catch as much of the quota as possible before the fishery is closed to fishing, has negative impacts on safety, on the quality of the product, supply, and consumer confidence as well as on the sustainability of the fisheries’ shoreside infrastructure. Furthermore, the fast pace of some derby fishing can lead to overfishing since it is not always possible for managers to anticipate how quickly the quota will be caught (for example, in March 2005, NOAA Fisheries, at the request of the Gulf Council, established an Emergency Rule for trip limits on grouper “to moderate the rate of harvest of the available quotas, reduce the adverse social and economic effects of derby fishing, enable more effective quota monitoring, and reduce the probability of overfishing”).

Although currently, only in Area 1A is the quota consistently fully utilized, a fear of the potential for the sudden development of a derby fishery is based on experiences elsewhere in the country where access was not limited when the fleet was smaller or less technologically advanced. For example, derby fisheries developed in the surf clam and red snapper fisheries on the East Coast and the halibut fishery in Alaska. “While monthly catches of red snapper were relatively uniform throughout the year before the implementation of restrictive quotas, the entire year’s catch now is landed in less than two months, and these landings are accompanied by sharp declines in ex-vessel prices (NOAA Fisheries 1996).” In the 1970s, halibut was fished for during a five-month season in Alaska. In the 1980s, however, rumors of imminent limited entry attracted many more fishermen wishing to create a “history.” By the 1990s, only a few 24-hour openings annually were allowed. As many as two thousand boats competed during the brief open periods with too much gear, regardless of weather conditions.

The Bering Sea snow crab fishery management is due to be changed in October to reduce derby fishing, in part due to safety problems (Loy, 2005). When vessels only have a brief window of opportunity to catch fish, they will push the safety envelope by fishing in worse weather, longer hours, sometimes with fewer crew members to maximize their economic returns. 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 fishing communities, many of which are close-knit groups with longstanding family and social networks.

When the annual allowable catch is taken within a short time frame in a derby fishery, there is often a bottleneck at the docks with too many vessels trying to unload at the same time. More significantly, the fresh seafood market can usually only absorb a portion and the rest must be purchased for freezing. The price to the vessel is therefore generally lower since the buyers have to pay for cold storage until the demand grows again. Furthermore, the consumer must be satisfied with frozen product. In addition, processors and other markets can suffer when the supply of fish is uneven. Processors, in particular, rely on skilled workers (to cut and pack sardines, for example). If they are unable to retain a regular supply of product to process, they can lose their workers to others who can provide steadier employment.

In the herring fishery, if a significant “derby” were to develop, the shoreside infrastructure could be quickly overwhelmed. This fishery already involves the harvesting, landing, and processing of large volumes of fish. If more fish came in over a shorter time period, the existing small businesses that handle the preparation and movement of herring for bait might not be able to survive. In addition, the preferred bait is salted, not frozen, so the lobster fishery might also be negatively affected.

Businesses and communities involved in the herring fishery rely in particular on consistency of product supply. Processing facilities can better maintain markets and stable employment if an adequate volume of landings can be assured. This is especially important for sardine and frozen export processors. Limited access should help to improve the stability of product to the extent that it prevents a derby fishery.

In areas that have a relatively short tourist season, one argument for maintaining a requirement for marine-dependent business in at least a portion of a community’s waterfront has been the value of a year-round business providing employment for community members. If an erratic supply drives out some of the businesses, the demand for summer homes and tourist-related businesses might encroach on the waterfront. Once waterfront property is lost to fishing-related businesses, it is unlikely to be regained.

Each management alternative that includes a limited access element will have differing effects on vessels, processing plants, states, and regions. Restricting newcomers, for example, would limit choices available to those who had considered moving into this fishery if other fisheries became unattractive or unavailable. Impacts would be particularly acute for businesses that recently have, despite the well-publicized development of the limited access program in this amendment and the previous 1999 control date for the herring fishery, made significant financial investments in vessels and related gear but do not qualify for limited access permits according to the date that the Council ultimately selected for the qualification criteria in this amendment (December 31, 2003).

In understanding social and economic impacts, it is essential to consider both short and long-term impacts, as these can often be very different. Over the long-term, if the status quo is maintained (no action, open access fishery), the social impacts are likely to be greater than they would be if the limited access is established. In recent years, relatively large midwater and pair trawl vessels have moved into the herring fishery. With its existing open access, it is one of the few fisheries in the region having growth opportunity without associated permit costs. Continued growth may lead to overcapitalization and the development of a derby fishing atmosphere. It is well documented that a stable industry is good for fisheries, employment, businesses and communities (see above discussion).

Despite data that suggest a relatively strong overall stock biomass, a variety of interests, including recreational fishermen, tuna fishermen, and whale watch businesses, warn that too many herring are being caught in inshore areas, and that this has negative repercussions on their fisheries and interests. Limiting access could be viewed as the first step in controlling fishing capacity before additional conflicts arise. This, in turn, could mitigate the potential for negative impacts on community dynamics and cultural traditions.

Limited Access Incidental Catch Permit

There are a number of vessels that are not heavily dependent on herring in terms of a percentage of their catch but rely on herring as part of an overall harvest strategy and would be negatively affected if they lost access to this fishery.

This measure should limit regulatory discards in the other small mesh fisheries. Fishermen have not been immune to the movement towards more environmental awareness in the U.S. over the past two decades. Many are proud to be supplying a high quality food for the market despite the difficulties inherent in fishing, but they are horrified by the waste of the resources when forced to discard fish that has been caught because of regulations. Discards of “already dead fish” are an anathema, not only because of the economic loss but because of the loss of food when there are people that are hungry. Some fishermen have said that they would rather bring the fish in and donate it to food banks rather than dump it overboard (fishermen interview, 2001). Given such values, the elimination of the waste generated by regulatory discards would have a positive impact.

To the extent that other fisheries land substantial amounts of herring that may be caught incidentally, full-time herring fishermen could be affected if these landings mean that the TAC is reached earlier. This is not likely to be the outcome under the Proposed Action, however, because the possession limit is intended to accommodate incidental catch in other fisheries that is already occurring without providing incentive to target herring, as herring is generally a very high-volume, market-driven fishery. The proposed possession limit is not expected to increase the incidental catch of herring such that the TACs will be reached more quickly in any management area(s). A 25 mt trip limit and a restriction of one landing per calendar day should adequately address incidental catch and minimize regulatory discarding (bycatch) without providing an incentive to target herring and significantly affect the rate of removals in any of the management areas.

Purse Seine/Fixed Gear Only Area

The Proposed Action includes a provision to restrict herring fishing gear to purse seines and fixed gear in all of Area 1A from June through September. This measure also was included in Alternative 7 in the Amendment 1 DSEIS. The gear restricted area under Alternatives 3, 4, and 6 included Area 1A, east of 69 degrees longitude, and the other alternatives considered in this amendment did not include any purse seine/fixed gear area.

Some purse seiners suggest that midwater gear disperses herring schools, making it difficult to seine, while fixed gear participants argue that midwater gear keeps the schools from coming in shore, limiting opportunities for this gear type. Other purse seiners argue that the herring aggregate for spawning in the summer months and that with purse seines, vessels can more easily test for the existence of spawn, releasing the fish with minimal mortality if they are ripe. In contrast, the midwater trawlers usually pump the herring into their vessels, so they can neither easily test for spawning fish nor return live fish to the water. Furthermore, if the midwater trawlers do dump their catch due to an overabundance of spawning or feedy fish, or too great a bycatch, the sheer quantity may “sour the bottom,” according to some fishermen. A purse seine/fixed gear-only area during the summer months will ensure access to the herring fishery in Area 1A for vessels using these gear types. The impacts on these vessels are clearly expected to be positive.

Gear conflict stemming from any localized impact or perceived impact of midwater trawling on herring may be resolved by this measure (e.g., the dispersal of schools could not be blamed on the midwater trawlers). Gear conflict in general has the potential to lead to disruptions in local communities. When users of one gear type believe that the reason they are not successfully catching sufficient fish for their income needs is because those using another gear type are either catching too much or changing the behavior of the fish, the anger and anxiety is likely to be brought ashore. This can have negative consequences in community life (e.g., less socializing across gear groups) and/or home life (anxiety leading to divorce, etc.).

Mainers pride themselves on their independence and offer others the freedom to choose their own way of life. But there is also a strong sentiment that traditional ways of life are important and should be maintained/supported. Occasionally, purse seines are regarded sentimentally as “traditional.” However, purse seines were the new and efficient technology when they became popular in the 1980s, virtually making obsolete the stop seines and weirs that were first used by the Native Americans before the Europeans arrived. It is not clear whether or not the set aside for purse seines and fixed gear would actually improve the fixed gear’s access to herring. If it did so, a more accurately described “traditional” fishery would be thereby improved.

Other conflicts could be resolved by this measure. Tuna fishermen believe that the midwater trawlers are too efficient and with their large catches are changing the behavior, if not survival, of bluefin and other tuna. Purse seiners are not regarded as efficient and consequently, are not blamed for a lack of tuna. Whale watchers blame midwater trawlers for dispersing schools of herring on important whale feeding grounds, leading to negative impacts on their businesses and a less positive experience for the general public. Seabird enthusiasts have made similar arguments. While it is unclear whether the purse seine/fixed gear measure proposed in this amendment will produce direct positive impacts on these other fisheries, the measure will reduce conflicts and improve perceptions at the very least. The social impacts on other affected fisheries and those who have argued in support of this measure are therefore expected to be positive.

Purse seines are not generally used for fishing for herring in deep water in this region. Setting aside the proposed area for the purse seines could be seen as equitable since the purse seiners are limited by their size to fishing closer to shore and by their gear to fishing nights when the herring rises to the surface. Also, purse seiners are 100 percent dependent on herring. In contrast, the majority of the midwater trawlers can safely fish farther offshore in less dependable weather. They can fish during the day or night while purse seine vessels are limited to night fishing when herring school further up in the water column. Midwater trawl vessel dependency on herring ranges from 58 to 89 percent because these vessels catch mackerel, squid, and other pelagic species. Purse seiners catch only herring and are limited to safely fishing in inshore areas.

Improved access to herring for purse seiners could have important implications for those businesses and coastal communities that depend on herring for lobster bait. Retention or improvement of such benefits may be particularly important for communities in this region where access to other forms of employment is limited, as is the case in Downeast Maine. Additionally, existing community dynamics are likely to be reinforced, for example, the current ties between purse seine vessels, bait dealers/processors and lobstermen will be sustained by this measure. However, with only five purse seine vessels currently in the herring fishery, there could be some negative impacts of this measure if the supply of lobster bait is disrupted during the summertime. The specific impacts of this measure will depend on how many vessels re-rig to purse seining to fish in Area 1A during the period of closure to midwater trawl gear. The Proposed Action in this amendment represents the most restrictive alternative that was considered for a

purse seine/fixed gear-only area, and the likelihood is greatest under this measure that some midwater trawl vessels will re-rig to purse seining during the summer months.

The impact of the proposed purse seine/fixed gear area will be considerable for some affected midwater trawl vessels. While midwater or pair trawlers do not rely as heavily on Area 1A as the purse seine vessels do for the majority of their herring catch, there were a number of midwater trawl trips made in this area in 2003 landing about 10,000 mt of herring. Consequently, closing this area could reduce the options available to these fleets during the summer months. However, the majority of these vessels (given their size, associated technology, and ability to travel greater distance than purse seiners) are more likely to be able to find alternative fishing grounds in areas that would not be available to existing purse seiners. Trip costs for midwater trawl vessels will certainly increase if they must fish farther from shore. In addition, there are a few smaller midwater trawl vessels that could be more affected because they cannot fish as safely on Georges Bank.

Under the Proposed Action, there is only one midwater trawl vessel that may not be able to fish offshore. The negative impacts of the proposed purse seine/fixed gear area on this individual vessel are likely to be greater than other affected midwater trawl vessels. All other qualifying vessels are greater than 70 feet in length and have recent significant landings from Area 3, suggesting that they are capable of safely fishing offshore. Three of these vessels have no recent Area 3 landings but have been inactive in the other areas in recent years as well.

Two midwater trawl vessels unload most of their catch on Vinalhaven and Rockland – located within the proposed restricted area. This is of some concern as both vessels have important connections to the local bait industry and lobster fishing communities who depend on these vessels for access to bait in the critical summer months when bait is scarce and dealers are managing their limited stores of herring to the margins. To the extent that restricting access for these vessels limits their fishing options, requiring them to steam farther south or to Area 1B, there may be financial costs (increased fuel costs) and potential social costs for crew as they may be required to spend more time at sea away from their families. Depending on availability of fish in the alternative areas, there may be impacts on the lobster fisheries in the communities dependent on bait from these vessels. However, given that these vessels are so significantly involved in the Maine lobster bait fishery, it is likely that re-rigging to purse seining will be considered in the summer months. There is a substantial financial cost associated with this adaptation as well (see below).

The Proposed Action includes a provision that all of Area 1A be reserved for purse seine and fixed gear in the summer months. Since midwater trawl vessels land a significant part of their catch from Area 1A in the summer, the impact on some of these vessels is likely to be significant. These impacts are discussed in further detail in the analysis of the Proposed Action (as well as Alternative 7) in the following subsections.

Costs of Re-Rigging

A result of establishing a purse seine/fixed gear only area may be that midwater trawl vessels choose to re-rig their vessels to purse seine gear. The cost of converting a midwater trawl vessel to a purse seine vessel would be substantial. The cost will depend on the size and characteristics of the vessel. At a minimum, a new purse seine net for a 150 to 200 metric ton capacity vessel costs on the order of \$200,000. Nets for smaller inshore vessels cost about \$50,000 to \$100,000. However, in order to use purse seine nets other equipment changes are required, depending on the current configuration of the vessel. These include changes/additions to/of: hydraulic rollers, power blocks, and the mast. Also, certain vessels may have to remove their gallows frame if they have one. Depending on whether the vessel has thrusters, they may need to purchase a 20' to 25' aluminum bug boat. Estimates of total

conversion costs could be on the order of \$300,000 to \$500,000. During the comment period on the Amendment 1 DSEIS, industry members commented that the costs of re-rigging are likely to be much higher, and some estimated that it could cost up to \$1 million to convert a few vessels in the fishery. While these estimates could not be further substantiated, it is important to acknowledge the significant financial cost associated with re-rigging. Vessel owners will have to weigh this choice against the costs associated with traveling to alternative fishing locations during the summer months or not fishing for herring at all during this time period.

8.4.2 Accuracy of Estimates From 1988 Versus 1993

Estimates of the number of vessels that qualify for limited access permits are based on VTR and NMFS NERO permit data. The VTR data were used to determine yearly herring landings for all vessels that reported landing herring. Dealer data were used for years prior to VTR reporting. Vessels were preliminarily qualified if the yearly landings levels exceeded the requirement for a particular alternative (ex., 500 mt or more in at least one year from 1993-2003 for the Proposed Action).

Permit data from 2004 were used to meet the current permit requirement in the DSEIS analysis (most recent available at the time of analysis). At the final meeting for Amendment 1, the Council clarified the current permit requirement for the limited access qualification criteria to mean as of November 10, 2005, and the analysis in the DSEIS was reviewed relative to this clarification in the previous section of this document (Section 8.4). The analysis of the Proposed Action in this FSEIS reflects a current permit requirement as of November 10, 2005. See Section 8.4 of this document for additional discussion/analysis of the current permit requirements and the effect of the November 10, 2005 clarification on the non-preferred alternatives, which were analyzed using 2004 permit data.

VTR Data

Since 1994, commercial fishing data have been gathered through a relatively comprehensive system of fishermen's reports, called vessel trip reports (VTRs) or logbooks. In general, VTR data are used as the primary source of trip-level information for landings by species, area fished, and days absent. The VTRs also contain data on kept pounds by species but cannot be used to estimate landed value. One helpful element of the VTR data is that they include information about fishing location – latitude and longitude as well as statistical area.

- The VTR program was initiated for some fisheries in 1994, but 1994 is considered to be an incomplete year in terms of logbook reporting. For fisheries that required logbook reporting at the time, VTR data are considered to be complete from 1995 onward.
- The Herring FMP did not become effective until the start of the 2001 fishing year. Prior to 2001, many herring vessels were not engaged in other fisheries that required them to report their catch through the VTR system. As a result, VTR reporting for the herring fishery in particular is incomplete prior to 2001.
- In the past, VTR data have not been used to qualify vessels for limited access programs because they are considered less reliable than data that can be confirmed through a third party (dealer data, for example, see below). VTRs are based on self-reported information, usually estimates provided by the vessel's captain. In a high-volume fishery like the herring fishery, catch estimates reported through VTRs may be less accurate.

- Data collected through Interactive Voice Reporting (IVR) are available for Category 1 herring vessels as well, but only since the 2000 fishing year. The IVR data are eventually cross-checked with the VTR data and provide no information in addition to what can be obtained through VTR data. In addition, IVR data are based on “hail weight” and are considered less accurate than VTR data.

Of the 2,033 vessels that possessed a herring permit of any kind in 2003, 1,176 vessels (58%) possessed a federal permit in 1994 which required landings be reported through the VTRs. While 58% of herring-permitted vessels may have been reporting in 1994, none were reporting in 1988.

Of the 110 vessels that possessed a Category 1 herring permit in 2003 (more than 500 mt), 83 vessels (75%) possessed a federal permit in 1994 which required landings be reported through the VTRs.

Dealer Data

Reports of fish purchases submitted by dealers are the longest and most comprehensive database available to qualify vessels for a limited access program. Dealer reports exist since the 1970s or earlier and are composed of reports submitted by dealers as well as port agents located throughout the region. In 1994, when the VTR/logbook system was implemented, the dealer reporting system was re-vamped, and the collection of information by port agents was modified. In 1994, fishing location/area was dropped from the dealer reports in lieu of area-specific information collected through the VTR system.

- The dealer information is the principal source of data on pounds and value by species and on market categories, but it cannot be used to identify area fished or to estimate fishing time. Until 1994, area was recorded on dealer weighouts, but that was based on what the dealer reported where he/she thought the fish may have been caught. For this reason, the area-specific element of the dealer data is considered to be somewhat unreliable.
- Dealer data are most often used to qualify vessels for limited access programs because they are the most comprehensive data and represent a third party confirmation for a vessel’s landings. Unfortunately, however, they cannot be used to confirm areas from which fish may have been caught.
- Combining dealer and VTR data in order to incorporate the area-specific element of the VTR data cannot be accomplished in many cases. The linkage between the dealer and VTR/logbook data is not complete. Because of the different ways that dealer reports have been submitted over time (by individual dealers, port agents, and/or lumped together by some States), there are many individual trips in the logbooks that cannot be matched to a specific dealer report.
- Because the Herring FMP did not become effective until the start of the 2001 fishing year, dealer reports prior to 2001 may be incomplete. This is true for dealers that may purchase only herring and would not have possessed any other permits that would have required them to submit dealer reports prior to 2001. In the herring fishery, this may be the case for some lobster bait dealers.

It is likely that estimates of qualifying vessels are more accurate for the 1993-2003 time period than for 1988-1999 or 1988-2003 due to the availability of better data for participants in the herring fishery since 1993 and especially since 2001. However, it is not possible to predict with any degree of certainty how many vessels would qualify for the limited access permits in addition to those predicted in the analysis.

It is important to remember that the qualifying thresholds for the limited access directed fishery permits are relatively high (250 mt and 500 mt), making it less likely that a significant number of vessels will “come out of the woodwork” with independent third party verification of these amounts of herring landings. The herring fishery is a relatively discrete fishery, and most participants are aware of the vessels that have been engaged in the fishery and recall many of the larger players over the last 15 or so

years. This conclusion is further supported by the Council's choice of 1993-2003 as a qualifying time period for the limited access directed fishery permits.

A start date of January 1, 1988 is only used for qualifying for a limited access incidental catch permit in the Proposed Action, which limits participants to 25 mt of herring and one landing per calendar day. Concerns about the potential for more vessels to qualify for limited access directed fishery permits than can be predicted are therefore reduced under the Proposed Action, as confidence about estimates for the qualifying years 1993-2003 is greater than for 1988-2003. Most vessels that may "come out of the woodwork" are likely to qualify only for a limited access incidental catch permit and will not have full access to the fishery.

8.4.3 Impacts on Small Entities

The primary focus of the discussion of impacts on fishery-related businesses and communities from the limited access program is on vessel-level qualification into the directed fishery. The reason for analysis at this level of the marketing chain is that direct impacts to processors and consumers from the limited access alternatives are not anticipated. While there may be some localized effects under certain conditions (particularly the purse seine/fixed gear provision), impacts of the limited access measures beyond the vessel level are not expected for the reasons discussed below.

For this analysis, it is assumed that the area TACs will be those used for the 2005 and 2006 fishing years (a total TAC of 150,000 metric tons). Since no major changes in the market are anticipated, it is assumed that overall fishery landings will remain at the historical level of about 100,000 metric tons per year. While the mix of vessels harvesting the resource may change, the overall level of landings is not expected to decline. Therefore, direct impacts to processors and consumers should be minimal.

However, some adjustments may need to be made. Currently, agreements between harvesters and processors exist and, to the extent that the limited access program affects the ability of a harvester to maintain a traditional supply schedule, processors may need to seek supplies of herring from other vessels they may not have purchased from extensively. This may mean that the price of herring rises in a given region or market segment for a short time to attract needed supplies. However, since the Northeast U.S. is a price taker in a world herring market, the overall average price is not expected to change from the proposed limited access program, primarily because overall landings will remain the same. For these reasons, shortages of herring across the various market segments are not anticipated, and normal price signals in the market are expected to serve the function of allocating herring supplies.

The other factor that supports this conclusion is that under the Proposed Action as well as all other alternatives except Alternative 5, all of the currently active vessels which depend highly on herring qualify for a directed fishery permit (see following analysis of active vessels). Therefore, the overall capability to harvest the resource and supply the market will likely not be diminished. The real difference among alternatives is in the make-up of vessels that qualify for Area 1. The exclusion of certain vessels from Area 1 would change the cost of supplying the various markets, so the following analyses focus on the make-up of the vessels that qualify for each area under the Proposed Action and the non-preferred alternatives. Also, since Area 1 is the area over which most concern about vessel capacity has been expressed, potential catch measures have been developed to provide an indication of the level of capacity across alternatives that could fish in Area 1.

There are two primary ways in which the limited access program may economically impact vessels that do not qualify for Area 1 (in particular, Area 1A). The first is increased vessel operating costs (primarily increased fuel costs), related to longer steam times if a vessel's optimal fishing location would be in Area 1 (1A) and the vessel must choose a second best location that requires a longer steam time. The second is the cost of decreased net revenues (revenues less the cost of items that vary directly with the quantity of fish caught such as pumping, refrigeration, and packaging costs) from choosing a second-best fishing location. These two impacts are related in that the choice of fishing location depends on the cost of reaching a location and the expected abundance and quality of fish at that location. These choice factors, and others including business relationships with buyers (choice of market), the vessel's homeport, and the status of the TAC in a management area, determine the selection of fishing locations.

If the best fishing location happens to be in Area 1 (especially 1A), then the captain is faced with balancing the additional costs of choosing a more distant location with the expected catch from the alternative area. Given that the second-best choice involves increased operating costs, the total impacts would include the increased vessel operating costs and the decreased net revenue. Circumstances may dictate that the second best fishing location choice may be a location which is closer to port and results in a cost savings. The net impact in this situation is the loss of net revenue as offset by the decreased steaming costs. Presumably, the loss of net revenue is greater than the cost savings in this case, or the fishing captain would have chosen the alternative location in the first place.

The discussion above assumes that a single fishing location is chosen. In many cases, the trip may include several different fishing locations. Each location choice then depends on the success of the previous choice and the interplay of the decision points described for the single location would occur as the trip unfolds.

Observer data from 2003 and 2004 were used to calculate the average gallons of fuel used by herring vessels of various gear types and vessel sizes. These figures will be used to provide an indication of the increased cost of additional steaming time for vessels that do not qualify for Area 1 (1A). The fuel usage reported in Table 136 comprises both steaming and trawling time for the single and pair midwater trawl vessels. Since fuel use rates are higher when trawling, these average rates are an over-estimate of the fuel use rate when steaming. For purse seine vessels, the rate is an under-estimate since fuel usage is lower while the vessel is seining herring.

To estimate the per trip increase in fuel costs from additional steaming time, an hourly fuel cost rate is determined using a price of \$2.50 per gallon. This is multiplied by the average difference in steaming times to Areas 2 and 3 versus Area 1. This figure is then doubled to account for the return trip. Fuel is not the only cost that would increase with greater steaming times. Repair and maintenance and lubrication costs would also increase.

The following example is provided to help understand the information provided in Table 136. For medium midwater trawl vessels the average gallons of fuel used per hour is multiplied by \$2.50 to get a cost per hour of \$100. If such a vessel from ME, MA, or RI was precluded from fishing in Area 1, it would take that vessel about 15 hours to steam to Area 2 or 3. At \$100 per hour, it would cost the vessel an additional \$1,500 to reach the area. Since another 15 hours is required to return to Area 1, the figure is doubled. The last column in Table 136 reports this final calculation (\$3,000 in this example), which is an estimate of the increased cost per trip, by gear type and vessel size, from being precluded from fishing in Area 1.

Table 136 Average Fuel Usage by Gear Type and Vessel Size

Gear Type/Vessel Size	Average Gallons of Fuel Used per Day-at-sea	Average Gallons of Fuel Used per Hour	Average Difference in Steam Time from Area 1 to Areas 2 and 3 for Vessels from ME, MA, and RI	Average Increased Fuel Cost Per Trip
Midwater Trawl Vessels (medium - 40 to 80 feet)	960	40	15 hours (Area 3 only)	\$3,000
Midwater Trawl Vessels (large - greater than 80 feet)	2,100	88		\$6,600
Pair Trawl Vessels (medium - 40 to 80 feet)	625	26		\$1,950
Pair Trawl Vessels (large - greater than 80 feet)	1,460	61		\$4,575
Purse Seine Vessels	500	21	30 hours (Area 2 only)	\$3,150

Table 137 presents unique counts, under the Proposed Action and by management alternative, of active vessels (2002-2004) that qualify for limited access directed fishery permits for Areas 2 and 3 only and do not qualify for Area 1. The count is provided by gear type (with information about dependence on Area 1A and vessel activity), so the figures in Table 136 can be used for perspective on the increased costs of steaming under the various limited access alternatives. For example, under Alternative 2, three bottom trawl vessels and one pair trawl vessel qualify for Areas 2 and 3 only and not Area 1. Since herring landings from the bottom trawl vessels are historically very low, these vessels are not expected to be significantly impacted. The large pair trawl vessel, however, which operates out of MA, would face an additional fuel cost of \$4,575 per trip. Under Alternative 7, a total of 12 vessels would incur additional fuel costs according to the fuel usage rates associated with each vessels particular gear type and length. In particular, the 11 pair trawl vessels that would be excluded from Area 1 are active vessels that catch almost 60% of their landings in Area 1A (average of 90 days-at-sea per year).

The Proposed Action mitigates these impacts by minimizing the number of affected vessels and qualifying all pair trawl, midwater trawl, and purse seine vessels for limited access directed fishery permits for Area 1 (and all management areas). Only one bottom trawl vessel that qualifies for Areas 2/3 is excluded from Area 1, and impacts on bottom trawl vessels are expected to be minimal because these vessels are not heavily dependent on the herring fishery. The pair trawl and midwater trawl vessels that are less impacted by the limited access program in the Proposed Action, however, will be impacted by the purse seine/fixed gear-only area from June – September. If these vessels do not re-rig to purse seine gear during the restriction, costs like those provided in Table 136 can be expected for vessels that choose to travel to alternative fishing locations.

Table 137 Unique Count of Number of Active Vessels that Qualify for Areas 2 and 3 Only

		Bottom Trawl	Pair Trawl	Single Midwater Trawl	Purse Seine
Proposed Action	Number of Vessels	1			
	Average Landings per year (mt 02-04)	C			
	Average of Maximum DAS 02-04	C			
Alternative 2	Number of Vessels	3	1 large from MA		
	Average 02-04 Landings per year (Area 1A)	19 (8)	C		
	Average of Maximum DAS 02-04	13	C		
Alternative 4	Number of Vessels	2			
	Average Landings per year (mt 02-04)	C			
	Average of Maximum DAS 02-04	C			
Alternative 5	Number of Vessels	3	2 large (1 from ME and 1 from MA)	1 medium from ME	
	Average Landings per year (mt 02-04)	19 (8)	C	C	
	Average of Maximum DAS 02-04	13	C	C	
Alternative 6	Number of Vessels		9 large, 1 medium (all from ME and MA)	1 medium from ME	1 from ME
	Average Landings per year (mt 02-04)		2,663 (1,542)	C	C
	Average of Maximum DAS 02-04		92	C	C
Alternative 7	Number of Vessels	2	10 large, 1 medium (all from ME and MA)	1 medium from ME	1 from ME
	Average Landings per year (mt 02-04)	C	2,523 (1,480)	C	C
	Average of Maximum DAS 02-04	C	90	C	C

Alternative 1 maintains an open access fishery.

Note: "C" denotes "cannot report" due to confidentiality issues.

Note: Analysis of the Proposed Action has been updated to reflect a current permit requirement as of November 10, 2005; analysis of the non-preferred alternatives includes permit data complete through the 2004 fishing year. See discussion at the beginning of Section 8.4 for more information.

8.4.3.1 All Qualifiers

The management alternatives considered in Amendment 1 and embedded in the Proposed Action are composed of primary management measures, use a variety of qualification criteria based on levels of herring landings over specified periods of time, and qualify vessels for different management areas. The Proposed Action qualifies vessels for all management areas based on 500 mt of landings from 1993-2003 and for Areas 2 and 3 only based on 250 mt of landings from 1993-2003. See Table 134 on p. 462 for a summary of the qualification criteria in the Proposed Action as well as the non-preferred alternatives.

A combination of dealer and logbook data were used to estimate which vessels would qualify under each of the proposed limited access programs. While the Council has expressed interest in utilizing multiple data sources including VTR data, these may not be the same data that will be used by the NMFS to qualify vessels if limited access is implemented. NMFS has historically relied on third-party, independent data like dealer data to qualify vessels for a limited access program. **Given the appeals process that is likely to occur if a limited access program is implemented in Amendment 1, the estimates of qualifying vessels provided in this document are considered to be minimum estimates.**

Since the same qualification criteria were considered across several alternatives, Table 138 through Table 144 report information about qualifiers by alternative groups where possible to avoid redundancy. For most alternatives, vessels that qualify for all areas or for Area 1 also qualify for Areas 2 and 3.

Table 138 describes the number of qualifying vessels and their physical characteristics (vessel length, gross tons, and horse power) by alternative group and by 2004 herring permit category. Vessel characteristic descriptions for the status quo alternative (Alternative 1), which would leave the fishery open access, are not provided since any vessel could obtain a permit and participate in the fishery under this alternative. Over the 1988 through 2003 period, which is the period of the longest qualification criteria under consideration, **346** different vessels landed greater than 1 metric ton of herring in any one year. This represents the set of vessels from the relevant time period that could potentially be in a limited access fishery. Some of these vessels may no longer exist, but this group represents the pool of possible qualifiers.

Under the Proposed Action, 31 vessels are estimated to qualify for limited access directed fishery permits to fish in all management areas, and an additional three (3) vessels are estimated to qualify for Areas 2/3 only, totaling 34 vessels in the limited access directed herring fishery. The majority of these vessels possessed Category 1 herring permits (more than 500 mt) in 2004, suggesting that they are substantial participants in the fishery.

Table 139 describes the physical characteristics of vessels that do not qualify for a limited access directed fishery permit but qualify for limited access incidental catch permits. For Alternative 1, any vessel can catch herring incidentally if they stay under the current 2,000-pound trip limit (Category B). These vessels are not described since the open-access nature of this alternative provides access to any vessels fishing in the EEZ.

The vessels that qualify for limited access incidental catch permits will be restricted to a 25 mt possession limit under the Proposed Action (one landing per calendar day). The limited access incidental catch permit criteria in the Proposed Action represents the least restrictive alternative because it utilizes a longer qualifying time period (1988-2003) and accounts for a greater proportion of historical participants and/or currently inactive vessels. Vessels that do qualify for a limited access incidental catch permit will benefit from being able to retain herring on trips where they are targeting other small mesh species (mackerel, squid, for example). This will help to minimize bycatch under the Amendment 1 limited access program. The Proposed Action should therefore address concerns about eliminating incidental catch vessels from the herring fishery better than the non-preferred alternatives considered in this amendment.

To provide a unique count of qualifying vessels under each of the limited access alternatives, Table 140 reports the vessels that qualify for Area 2 and 3 but do not qualify under the criteria for all areas or for Area 1, depending on the alternative. Table 140 also reports the sum of a Capital Inventory Index (CII), which is a measure of vessel size. The CII for a vessel is the product of length, gross tons, and horsepower divided by 100,000 and provides some perspective on the size and nature of vessels that may participate in the limited access fishery.

The Proposed Action is estimated to qualify 31 vessels for all management areas, three vessels for Areas 2/3 only, and 56 vessels for limited access incidental catch permits. **The estimated total number of limited access vessels under the Proposed Action is 90, with 34 unique vessels qualifying for the directed herring fishery.**

The real difference across alternatives relative to the Proposed Action, however, is how many and which vessels qualify for access to Area 1. The vast majority of vessels that qualify for the directed fishery have access to Area 1 under the Proposed Action. If active vessels are examined, which is discussed in the following subsection, the range across alternatives is smaller.

Table 138 Physical Description of Individual Vessels Qualifying for Directed Fishery Permits by Herring Permit Category and Alternative/Area

Alternative/Area				
Alternative 1	Number of Vessels	346 individual vessels caught more than 1 mt of herring from 1988 – 2003		
		2004 Category 1 Permit	2004 Category 2 Permit	Total
Proposed Action Qualify for all Areas	Number of Vessels	28	3	31
	Average Length	98	67	95
	Average Gross Tons	185	115	178
	Average Horse Power	1,268	480	1,192
Proposed Action Qualify for Areas 2 & 3	Number of Vessels	29	5	34
	Average Length	97	66	93
	Average Gross Tons	181	106	170
	Average Horse Power	1,246	492	1,135
Alternative 2 Qualify for all areas	Number of Vessels	31	5	36
	Average Length	95	58	90
	Average Gross Tons	175	80	162
	Average Horse Power	1,219	398	1,105
Alternatives 2 & 5 Qualify for Areas 2&3	Number of Vessels	30	12	42
	Average Length	92	62	83
	Average Gross Tons	168	89	146
	Average Horse Power	1,167	522	983
Alternative 3 Qualify for Area 1	Number of Vessels	39	18	57
	Average Length	91	63	82
	Average Gross Tons	167	89	142
	Average Horse Power	1,146	532	952
Alternatives 3 , 4, 6, & 7 Qualify for Areas 2&3 (after trigger for 3&4)	Number of Vessels	35	10	45
	Average Length	93	63	86
	Average Gross Tons	169	91	151
	Average Horse Power	1,167	461	1,010
Alternative 4 Qualify for Area 1	Number of Vessels	31	7	38
	Average Length	95	62	89
	Average Gross Tons	175	89	159
	Average Horse Power	1,219	455	1,078
Alternative 5 Qualify for all areas	Number of Vessels	25	4	29
	Average Length	95	55	89
	Average Gross Tons	173	71	159
	Average Horse Power	1,228	405	1,114
Alternative 5 Qualify for 1A priority	Number of Vessels	13		13
	Average Length	89		89
	Average Gross Tons	177		177
	Average Horse Power	1,101		1,101
Alternative 6 Qualify for Area 1	Number of Vessels	22	10	32
	Average Length	90	63	81
	Average Gross Tons	169	91	144
	Average Horse Power	1,104	461	903
Alternative 7 Qualify for Area 1	Number of Vessels	17	6	23
	Average Length	94	66	86
	Average Gross Tons	178	101	158
	Average Horse Power	1,199	506	1,018

Note: Analysis of the Proposed Action has been updated to reflect a current permit requirement as of November 10, 2005; analysis of the non-preferred alternatives includes permit data complete through the 2004 fishing year. See discussion at the beginning of Section 8.4 for more information.

Table 139 Physical Description of Individual Vessels that Do Not Qualify for Directed Fishery Permits but Qualify for Limited Access Incidental Catch Permits by Herring Permit Category and Alternative/Area

Alternative		2004 Category 1 Permit	2004 Category 2 Permit	No 2004 Herring Permit	Total
Proposed Action	Number of Vessels	14	34	8	56
	Average Length	80	63	70	68
	Average Gross Tons	153	81	103	102
	Average Horse Power	862	529	489	607
Alternative 2	Number of Vessels	9	27	1	37
	Average Length	79	62	104	67
	Average Gross Tons	141	74	198	94
	Average Horse Power	851	496	1,200	601
Alternative 3	Number of Vessels	2		1	3
	Average Length	80		104	88
	Average Gross Tons	131		198	153
	Average Horse Power	1,140		1,200	1,160
Alternative 4	Number of Vessels	5	8	1	14
	Average Length	83	62	104	73
	Average Gross Tons	146	87	198	116
	Average Horse Power	1,034	621	1,200	810
Alternative 5	Number of Vessels	10	27	1	38
	Average Length	78	62	104	67
	Average Gross Tons	135	74	198	93
	Average Horse Power	811	496	1,200	597
Alternative 6	Number of Vessels	8	30	1	39
	Average Length	83	61	104	67
	Average Gross Tons	152	74	198	93
	Average Horse Power	890	517	1,200	611
Alternative 7	Number of Vessels	10	25	2	37
	Average Length	82	61	65	67
	Average Gross Tons	161	76	81	99
	Average Horse Power	869	522	370	608

Note: Analysis of the Proposed Action has been updated to reflect a current permit requirement as of November 10, 2005; analysis of the non-preferred alternatives includes permit data complete through the 2004 fishing year. See discussion at the beginning of Section 8.4 for more information.

Table 140 Unique Count of Qualifying Vessels and Capital Inventory Index

ALTERNATIVE	QUALIFYING AREA	QUALIFICATION CRITERIA	NUMBER OF VESSELS	SUM OF CII
Proposed Action	Area 1 (All Areas)	500 mt, 1/1/93-12/31/03	31	8,418
	Area 2 & 3 Only	250 mt, 1/1/93-12/31/03	3	124
	Incidental Catch Only	15 mt, 1/1/88-12/31/03	56	3,601
Alternative 1	Area 1	N/A	N/A	N/A
(No Action)	Area 2 & 3 Only	N/A	N/A	N/A
	Incidental Catch Only	N/A	N/A	N/A
Alternative 2	Area 1 (All Areas)	500 mt, 1/1/93-12/31/03	36	8,627
	Area 2 & 3 Only	100 mt, 9/16/93-9/15/99 OR 250 mt, 9/16/99-9/15/01	10	783
	Incidental Catch Only	25 mt, 1/1/88-12/31/02	37	2,187
Alternative 3	Area 1 Only	100 mt, 1/1/88-12/31/03	57	10,125
	Area 2 & 3 (All Areas)	Controlled Access 250 mt, 1/1/88-12/31/03 after trigger	45 (all qualify for Area 1)	see above
	Incidental Catch Only	100 mt cumulative, 1/1/88-12/31/02	3	494
Alternative 4	Area 1 (All Areas)	500 mt, 1/1/88-12/31/03	38	8,742
	Area 2 & 3 Only	Controlled Access 250 mt, 1/1/88-12/31/03 after trigger	7	388
	Incidental Catch Only	100 mt cumulative, 1/1/88-12/31/02	14	1,391
Alternative 5	Area 1 (All Areas)	500 mt, 9/16/93-9/15/99 OR 500 mt, 9/16/99-9/15/01	29	10,023
	Area 2 & 3 Only	100 mt, 9/16/93-9/15/99 OR 250 mt, 9/16/99-9/15/01	13	1,059
	Incidental Catch Only	25 mt, 1/1/88-12/31/02	38	2,209
Alternative 6	Area 1 (All Areas)	250 mt, 1/1/88-9/16/99	32	5,500
	Area 2 & 3 Only	250 mt, 1/1/88-12/31/03	13	3,630
	Incidental Catch Only	25 mt, 1/1/88-12/31/02	39	2,485
Alternative 7	Area 1 (All Areas)	500 mt, 1/1/88-9/16/99	23	4,964
	Area 2 & 3 Only	250 mt, 1/1/88-12/31/03	22	4,166
	Incidental Catch Only	15 mt, 1/1/93-12/31/02	37	2,344

Note: CII, Capital Inventory Index, is a relative measure of vessel size based on vessel length, GRT, and horsepower.

Note: Analysis of the Proposed Action has been updated to reflect a current permit requirement as of November 10, 2005; analysis of the non-preferred alternatives includes permit data complete through the 2004 fishing year. See discussion at the beginning of Section 8.4 for more information.

8.4.3.2 Active Qualifiers

For the purposes of this analysis, active vessels are defined as those that averaged more than 1 mt of herring per trip from 2002-2004.

The Proposed Action utilizes a qualifying time period for limited access directed fishery permits from 1993-2003. However, since some qualification criteria that were considered in this amendment go back to 1988 (including the proposed limited access incidental catch qualifying criteria), not all vessels described in Table 138 and Table 139 have been active in the herring fishery in recent years. The information provided in this section describes the activity of only those qualifying vessels that were active in the herring fishery during 2002 through 2004. Some of the vessels that qualify under various criteria may not be active in the herring fishery because they no longer exist or have moved to other fisheries. The landings history associated with these permits, whether they are attached to an existing vessel or not, still represent potential capacity that could move into the herring fishery. However, the vessels most recently active may be the vessels most likely to participate after the limited access program proposed in this amendment is implemented.

Table 141 defines active qualifying vessels by the principal gear type (based on landings) used over a three-year period from 2002 through 2004. The table also indicates levels of dependence on herring using such information as per-vessel average landings from all areas and Area 1A, average yearly value, and the average number of crew members employed per trip. Dealer data were used to see what landings of other species, in addition to herring, were documented for active qualifying vessels. Since the major non-herring species landed by these vessels is mackerel, average percentages of herring and mackerel are presented in Table 141. The other measure of dependency is the number of limited access permits for other fisheries that qualifying vessels possess. This provides perspective on some alternative fishing opportunities available to these vessels (aside from participation in other open-access fisheries).

Caution must be used when analyzing the vessels' (and their associated communities) relative dependence on herring, however. While those with multiple limited access permits, for example, may appear to be less dependent than those with one or two other permits, it may be that the landings of herring are absolutely essential for those businesses to remain viable. Because Rhode Island and the Mid-Atlantic vessels have traditionally relied on mixed catch (i.e., a larger number of species), they have qualified for multiple limited access permits, but the management plans for the species associated with these permits may underestimate the importance of each of the species to the businesses. The cumulative impact, therefore, may be as great as the impacts of specific plans on those with only one or two permits.

Nevertheless, qualifying purse seine vessels are clearly the most dependent on herring. Under all scenarios analyzed, including the Proposed Action, purse seine vessels:

- are 100% dependent on herring;
- on average, possess only one limited access permit for other fisheries (note that the Atlantic mackerel fishery is an open-access fishery at this time, so this information does not include mackerel permits that herring vessels may possess); and
- land only in Maine.

Qualifying midwater pair trawl vessels are the next most dependent on herring:

- 58% dependence for pair trawl vessels qualifying for Areas 2/3 under Alternatives 2 & 5;
- 89% dependence for pair trawl vessels qualifying for Area 1 under Alternative 5; and
- the majority of non-herring landings by pair trawl vessels are Atlantic mackerel.

According to Table 141, pair trawl vessels that qualify for limited access directed fishery permits under the Proposed Action are 69% dependent on herring. Qualifying single midwater trawl vessels are 38% dependent, and as previously noted, qualifying purse seine vessels are 100% dependent on herring. Dependence on herring for single midwater trawl vessels ranges from 38% to 45% for most alternatives considered in the Amendment 1 DSEIS. Vessels which qualify for Area 1 under Alternative 5 obtain 71% of their landings from herring. Bottom trawl vessels are the least dependent on herring.

Table 142 describes the vessels that do not qualify for directed fishery permits but do qualify for limited access incidental catch permits. There were not sufficient data to report percentage dependence on herring or mackerel. The alternative that would issue the most incidental catch permits (17) to active vessels is the Proposed Action. For Alternative 3, there would be no limited access incidental catch permits issued to recently active herring vessels. Other vessels expected to qualify for limited access incidental catch permits under the Proposed Action (39) were not active in the herring fishery from 2002-2004, although they may have landed less than 1 mt of herring per trip during this time period while fishing for other species.

In Table 8, rather than grouping by principal gear, the information about qualifying vessels is grouped by principal state of landing. Since the majority of herring landings occur in Maine and Massachusetts, it follows that the vessels landing in these States have higher rates of dependence on herring. For Maine, the dependency rates range from 74% under Alternatives 2 & 5 (Areas 2&3) to 88% under Alternative 5 (All Areas). Dependency for Maine vessels under the Proposed Action is 77%. Massachusetts dependency rates range from 56% under Alternatives 2 & 5 (Areas 2 & 3) to 84% under Alternative 5 (Area 1). Dependency for Massachusetts vessels under the Proposed Action is 69%.

Table 144 shows the dependency of the active vessels that only qualify for limited access incidental catch permits by principal State and management alternative (17 vessels under the Proposed Action).

Table 141 Dependency on Herring for Active Vessels Qualifying for Directed Fishery Permits by Principal Gear and Alternative

		Alternative 1	Alternative 2	Alternatives 2 & 5	Alternative 3	Alternatives 3, 4, 6, & 7 Areas 2 & 3	Alternative 4
Qualifying area:			All Areas	Areas 2 & 3	Area 1	(after trigger for Alts 3 & 4)	Area 1
Number of vessels that qualify but have no landings from 2002 – 2004:		292	5	11	19	12	7
Principal Gear	Data for Vessels with 2002 - 2004 Landings						
Bottom Trawl	Number of vessels	17	2	5	8	4	2
	Average landings (mt)	88	482	204	146	249	482
	Average Area 1A landings (mt)	18	C	58	36	67	134
	Average value	13,643	C	32,125	22,757	39,262	76,198
	Average percent revenue from herring	5%	26%	10%	7%	14%	26%
	Average percent revenue from mackerel	9%	18%	9%	7%	12%	18%
	Average crew size (incl capt)	4	9	5	4	6	9
	Average number of limited access plans	5	5	5	6	6	5
Pair Trawl	Number of vessels	20	17	14	18	17	17
	Average landings (mt)	3,156	3,604	3,591	3,411	3,604	3,604
	Average Area 1A landings (mt)	1,819	2,101	2,194	1,990	2,101	2,101
	Average value	483,439	552,533	544,043	522,842	552,533	552,533
	Average percent revenue from herring	63%	71%	58%	66%	71%	71%
	Average percent revenue from mackerel	46%	46%	51%	46%	46%	46%
	Average crew size (incl capt)	5	5	5	5	5	5
	Average number of limited access permits	2	2	3	2	2	2

Note: Analysis of the Proposed Action has been updated to reflect a current permit requirement as of November 10, 2005; analysis of the non-preferred alternatives includes permit data complete through the 2004 fishing year. See discussion at the beginning of Section 8.4 for more information.

Table 141 continued. Dependency on Herring for Active Vessels Qualifying for Directed Fishery Permits by Principal Gear and Alternative

		Alternative 1	Alternative 2	Alternatives 2 & 5	Alternative 3	Alternatives 3, 4, 6, & 7 Areas 2 & 3	Alternative 4
Qualifying area:		All Areas	All Areas	Areas 2 & 3	Area 1	(after trigger for Alts 3 & 4)	Area 1
Principal Gear	Data for Vessels with 2002 - 2004 Landings						
Midwater Trawl	Number of vessels	11	7	7	7	7	7
	Average landings (mt)	1,511	2,367	2,367	2,367	2,367	2,367
	Average Area 1A landings (mt)	822	1,285	1,285	1,285	1,285	1,285
	Average value	228,995	358,734	358,734	358,734	358,734	358,734
	Average percent revenue from herring	39%	39%	39%	39%	39%	39%
	Average percent revenue from mackerel	24%	24%	24%	24%	24%	24%
	Average crew size (incl capt)	4	6	6	6	6	6
	Average number of limited access permits	4	5	5	5	5	5
Purse Seine	Number of vessels	6	5	5	5	5	5
	Average landings (mt)	3,489	4,185	4,185	4,185	4,185	4,185
	Average Area 1A landings (mt)	3,365	4,037	4,037	4,037	4,037	4,037
	Average value	551,963	662,203	662,203	662,203	662,203	662,203
	Average percent revenue from herring	100%	100%	100%	100%	100%	100%
	Average percent revenue from mackerel	0%	0%	0%	0%	0%	0%
	Average crew size (incl capt)	5	5	5	5	5	5
	Average number of limited access permits	1	1	1	1	1	1

Note: Analysis of the Proposed Action has been updated to reflect a current permit requirement as of November 10, 2005; analysis of the non-preferred alternatives includes permit data complete through the 2004 fishing year. See discussion at the beginning of Section 8.4 for more information.

Table 141 continued. Dependency on Herring for Active Vessels Qualifying for Directed Fishery Permits by Principal Gear and Alternative

		Alternative: Qualifying area:	Alternative 5 All Areas	Alternative 5 Area 1A	Alternative 6 Area 1	Alternative 7 Area 1	Proposed Action All Areas	Proposed Action Areas 2&3
Number of vessels that qualify but have no landings from 2002 – 2004:			4	0	11	5	3	5
Principal Gear	Data for Vessels with 2002 - 2004 Landings							
Bottom Trawl	Number of vessels		2		4	2	2	3
	Average landings (mt)		C		249	482	C	332
	Average Area 1A landings (mt)		C		67	134	C	89
	Average value		C		39,262	76,198	C	52,334
	Average percent revenue from herring		26%		14%	26%	26%	14%
	Average percent revenue from mackerel		18%		12%	18%	18%	12%
	Average crew size (incl capt)		9		6	9	9	7
	Average number of limited access permits		5		6	5	5	5
Pair Trawl	Number of vessels		12	6	7	6	16	16
	Average landings (mt)		4,136	6,621	4,949	5,586	3,796	3,796
	Average Area 1A landings (mt)		2,497	3,699	2,898	3,238	2,201	2,201
	Average value		627,214	1,010,013	751,233	849,850	581,367	581,367
	Average percent revenue from herring		69%	89%	67%	75%	69%	69%
	Average percent revenue from mackerel		51%	51%	41%	32%	46%	46%
	Average crew size (incl capt)		5	5	5	5	5	5
	Average number of limited access permits		3	1	2	2	2	2

Note: Analysis of the Proposed Action has been updated to reflect a current permit requirement as of November 10, 2005; analysis of the non-preferred alternatives includes permit data complete through the 2004 fishing year. See discussion at the beginning of Section 8.4 for more information.

Table 141 continued. Dependency on Herring for Active Vessels Qualifying for Directed Fishery Permits by Principal Gear and Alternative

		Alternative: Qualifying area:	Alternative 5 All Areas	Alternative 5 Area 1A	Alternative 6 Area 1	Alternative 7 Area 1	Proposed Action All Areas	Proposed Action Areas 2&3
Principal Gear	Data for Vessels with 2002 - 2004 Landings							
Midwater Trawl	Number of vessels		6	3	6	6	6	6
	Average landings (mt)		2,642	5,071	2,642	2,642	2,579	2,579
	Average Area 1A landings (mt)		1,383	2,669	1,383	1,383	1,335	1,335
	Average value		399,091	766,852	399,091	399,091	388,439	388,439
	Average percent revenue from herring		45%	71%	45%	45%	38%	38%
	Average percent revenue from mackerel		24%	17%	24%	24%	28%	28%
	Average crew size (incl capt)		6	4	6	6	6	6
	Average number of limited access permits		5	5	5	5	4	4
Purse Seine	Number of vessels		5	4	4	4	4	4
	Average landings (mt)		4,185	5,062	5,062	5,062	4,859	4,859
	Average Area 1A landings (mt)		4,037	4,876	4,876	4,876	4,687	4,687
	Average value		662,203	800,547	800,547	800,547	771,460	771,460
	Average percent revenue from herring		100%	100%	100%	100%	100%	100%
	Average percent revenue from mackerel		0%	0%	0%	0%	0%	0%
	Average crew size (incl capt)		5	5	5	5	6	6
	Average number of limited access permits		1	1	1	1	1	1

Note: Analysis of the Proposed Action has been updated to reflect a current permit requirement as of November 10, 2005; analysis of the non-preferred alternatives includes permit data complete through the 2004 fishing year. See discussion at the beginning of Section 8.4 for more information.

Table 142 Landings, Value, Crew Size, Permits for Active Vessels that Do Not Qualify for Directed Fishery Permits but Qualify for Limited Access Incidental Catch Permits by Principal Gear and Alternative

Principal Gear	Data for Vessels with 2002 - 2004 Landings	Proposed Action	Alternative 2	Alternative 3	Alternative 4	Alternative 5	Alternative 6	Alternative 7
Bottom Trawl	Number of vessels	14			3	9	10	10
	Average landings (mt)	32			8	29	29	31
	Average Area 1A landings (mt)	5			8	4	6	8
	Average value	4,870			1,218	4,469	4,380	4,671
	Average crew size (incl capt)	3			3	3	3	3
	Average number of limited access permits	5			5	6	5	5
Pair Trawl	Number of vessels	1			1	1	1	1
	Average landings (mt)	C			C	C	C	C
	Average Area 1A landings (mt)	C			C	C	C	C
	Average value	C			C	C	C	C
	Average crew size (incl capt)	5			5	4	5	5
	Average number of limited access permits	4			4	0	4	4
Midwater Trawl	Number of vessels	2	1			1	1	2
	Average landings (mt)	C	C			C	C	C
	Average Area 1A landings (mt)	C	C			C	C	C
	Average value	C	C			C	C	C
	Average crew size (incl capt)	2	2			2	2	2
	Average number of limited access permits	2	1			1	1	2

“C” means cannot report due to confidentiality issues.

Note: Analysis of the Proposed Action has been updated to reflect a current permit requirement as of November 10, 2005; analysis of the non-preferred alternatives includes permit data complete through the 2004 fishing year. See discussion at the beginning of Section 8.4 for more information.

Table 143 Dependency on Herring for Active Vessels Qualifying for Directed Fishery Permits by Principal State and Alternative

Alternative:		Alternative 1	Alternative 2	Alternatives 2 & 5	Alternative 3	Alternatives 3, 4, 6, & 7	Alternative 4
Qualifying area:			All Areas	Areas 2 & 3	Area 1	Areas 2 & 3 (after trigger for Alts 3 & 4)	Area 1
Number of vessels that qualify but have no landings from 2002 – 2004:		292	5	11	19	12	7
Principal Landings State	Data for Vessels with 2002 - 2004 Landings						
MA	Number of vessels	18	10	8	12	10	10
	Average landings (mt)	2,046	3,667	3,890	3,066	3,667	3,667
	Average Area 1A landings (mt)	1,068	1,910	2,215	1,600	1,910	1,910
	Average value	311,257	557,973	585,299	466,488	557,973	557,973
	Average percent revenue from herring	60%	73%	56%	66%	73%	73%
	Average percent revenue from mackerel	45%	49%	56%	44%	49%	49%
	Average crew size (incl capt)	5	5	6	5	5	5
	Average number of limited access permits	3	1	2	2	1	1
ME	Number of vessels	17	12	12	13	12	12
	Average landings (mt)	2,973	4,207	3,753	3,884	4,207	4,207
	Average Area 1A landings (mt)	2,371	3,355	3,053	3,097	3,355	3,355
	Average value	461,713	653,379	580,120	603,120	653,379	653,379
	Average percent revenue from herring	76%	76%	74%	76%	76%	76%
	Average percent revenue from mackerel	20%	20%	20%	20%	20%	20%
	Average crew size (incl capt)	4	5	5	4	5	5
	Average number of limited access permits	2	2	3	2	2	2

Note: Analysis of the Proposed Action has been updated to reflect a current permit requirement as of November 10, 2005; analysis of the non-preferred alternatives includes permit data complete through the 2004 fishing year. See discussion at the beginning of Section 8.4 for more information.

Table 143 continued. Dependency on Herring for Active Vessels Qualifying for Directed Fishery Permits by Principal State and Alternative

	Alternative:	Alternative 1	Alternative 2	Alternatives 2 & 5	Alternative 3	Alternatives 3, 4, 6, & 7	Alternative 4
	Qualifying area:		All Areas	Areas 2 & 3	Area 1	Areas 2 & 3 (after trigger for Alts 3 & 4)	Area 1
Principal Landing State	Data for Vessels with 2002 - 2004 Landings						
RI	Number of vessels	11	4	5	6	5	4
	Average landings (mt)	602	1,561	1,255	1,071	1,255	1,561
	Average Area 1A landings (mt)	227	624	499	416	499	624
	Average value	92,497	240,302	193,163	164,528	193,163	240,302
	Average percent revenue from herring	21%	46%	35%	28%	35%	46%
	Average percent revenue from mackerel	8%	19%	16%	13%	16%	19%
	Average crew size (incl capt)	5	9	8	7	8	9
	Average number of limited access permits	6	6	6	6	6	6
Other New England	Number of vessels	8	3	4	4	3	3
	Average landings (mt)	1,002	2,072	1,560	1,560	2,072	2,072
	Average Area 1A landings (mt)	488	1,103	833	833	1,103	1,103
	Average value	155,255	323,765	243,725	243,725	323,765	323,765
	Average percent revenue from herring	29%	56%	38%	38%	56%	56%
	Average percent revenue from mackerel	36%	53%	27%	27%	53%	53%
	Average crew size (incl capt)	4	5	4	4	5	5
	Average number of limited access permits	4	3	4	4	3	3
Mid-Atlantic	Number of vessels	4	2	2	3	3	2
	Average landings (mt)	44	C	C	39	39	59
	Average Area 1A landings (mt)	0	C	C	0	0	0
	Average value	5,644	C	C	4,959	4,959	7,416
	Average percent revenue from herring	1%	1%	1%	1%	1%	1%
	Average percent revenue from mackerel	20%	29%	29%	23%	23%	29%
	Average crew size (incl capt)	4	5	5	4	4	5
	Average number of limited access permits	3	5	5	5	5	5

Note: Analysis of the Proposed Action has been updated to reflect a current permit requirement as of November 10, 2005; analysis of the non-preferred alternatives includes permit data complete through the 2004 fishing year. See discussion at the beginning of Section 8.4 for more information.

Table 143 continued. Dependency on Herring for Active Vessels Qualifying for Directed Fishery Permits by Principal State and Alternative

	Alternative:	Alternative 5	Alternative 5	Alternative 6	Alternative 7	Proposed Action	Proposed Action
	Qualifying area:	All Areas	Area 1A	Area 1	Area 1	All Areas	Areas 2&3
Number of vessels that qualify but have no landings from 2002 – 2004:		4	0	11	5	3	5
Principal Landing State	Data for Vessels with 2002 - 2004 Landings						
MA	Number of vessels	7	4	3	2	9	9
	Average landings (mt)	4,428	6,991	6,977	9,904	4,014	4,014
	Average Area 1A landings (mt)	2,516	3,637	3,886	5,399	2,067	2,067
	Average value	666,327	1,059,361	1,042,915	1,484,605	609,837	609,837
	Average percent revenue from herring	66%	84%	63%	82%	69%	69%
	Average percent revenue from mackerel	56%	50%	37%	22%	49%	49%
	Average crew size (incl capt)	6	5	5	5	6	6
	Average number of limited access permits	2	0	2	1	2	2
ME	Number of vessels	9	7	7	7	10	10
	Average landings (mt)	4,866	5,456	5,456	5,456	4,790	4,790
	Average Area 1A landings (mt)	3,922	4,414	4,414	4,414	3,783	3,783
	Average value	752,544	847,383	847,383	847,383	743,487	743,487
	Average percent revenue from herring	88%	87%	87%	87%	77%	77%
	Average percent revenue from mackerel	20%	21%	21%	21%	30%	30%
	Average crew size (incl capt)	5	5	5	5	5	5
	Average number of limited access permits	2	1	1	1	2	2

Note: Analysis of the Proposed Action has been updated to reflect a current permit requirement as of November 10, 2005; analysis of the non-preferred alternatives includes permit data complete through the 2004 fishing year. See discussion at the beginning of Section 8.4 for more information.

Table 143 continued. Dependency on Herring for Active Vessels Qualifying for Directed Fishery Permits by Principal State and Alternative

	Alternative:	Alternative 5	Alternative 5	Alternative 6	Alternative 7	Proposed Action	Proposed Action
	Qualifying area:	All Areas	Area 1A	Area 1	Area 1	All Areas	Areas 2&3
Principal Landing State	Data for Vessels with 2002 - 2004 Landings						
RI	Number of vessels	4	1	5	4	4	5
	Average landings (mt)	1,561	C	1,255	1,561	1,561	1,255
	Average Area 1A landings (mt)	624	C	499	624	624	499
	Average value	240,302	C	193,163	240,302	240,302	193,163
	Average percent revenue from herring	46%	100%	35%	46%	46%	35%
	Average percent revenue from mackerel	19%	10%	16%	19%	19%	16%
	Average crew size (incl capt)	9	3	8	9	9	8
	Average number of limited access permits	6	7	6	6	6	6
Other New England	Number of vessels	3	1	3	3	3	3
	Average landings (mt)	2,072	C	2,072	2,072	2,072	2,072
	Average Area 1A landings (mt)	1,103	C	1,103	1,103	1,103	1,103
	Average value	323,765	C	323,765	323,765	323,765	323,765
	Average percent revenue from herring	56%	98%	56%	56%	56%	56%
	Average percent revenue from mackerel	53%	53%	53%	53%	53%	53%
	Average crew size (incl capt)	5	4	5	5	5	5
	Average number of limited access permits	3	5	3	3	3	3
Mid-Atlantic	Number of vessels	2		3	2	2	2
	Average landings (mt)	C		39	C	C	C
	Average Area 1A landings (mt)	C		0	C	C	C
	Average value	C		4,959	C	C	C
	Average percent revenue from herring	1%		1%	1%	1%	1%
	Average percent revenue from mackerel	29%		23%	29%	29%	29%
	Average crew size (incl capt)	5		4	5	5	5
	Average number of limited access permits	5		5	5	5	5

Note: Analysis of the Proposed Action has been updated to reflect a current permit requirement as of November 10, 2005; analysis of the non-preferred alternatives includes permit data complete through the 2004 fishing year. See discussion at the beginning of Section 8.4 for more information.

Table 144 Landings, Value, Crew Size, Permits for Active Vessels that do not Qualify for Directed Fishery Permits but Qualify for Incidental Catch Permits by Principal State and Alternative

Principal Landing State	Data for Vessels with 2002 - 2004 Landings	Proposed Action	Alternative 2	Alternative 3	Alternative 4	Alternative 5	Alternative 6	Alternative 7
MA	Number of vessels	3	1	0	2	2	2	2
	Average landings (mt)	45	C		C	C	C	C
	Average Area 1A landings (mt)	40	C		C	C	C	C
	Average value	6,606	C		C	C	C	C
	Average crew size (incl capt)	4	3		4	4	4	4
	Average number of limited access permits	6	7		6	4	6	6
	ME	Number of vessels	3	1	0	1	1	2
	Average landings (mt)	14	C		C	C	C	14
	Average Area 1A landings (mt)	14	C		C	C	C	14
	Average value	2,216	C		C	C	C	2,216
	Average crew size (incl capt)	2	2		3	2	2	2
	Average number of limited access permits	2	1		4	1	3	2

Note: Analysis of the Proposed Action has been updated to reflect a current permit requirement as of November 10, 2005; analysis of the non-preferred alternatives includes permit data complete through the 2004 fishing year. See discussion at the beginning of Section 8.4 for more information.

Table 144 continued. Landings, Value, Crew Size, Permits for Active Vessels that do not Qualify for Directed Fishery Permits but Qualify for Incidental Catch Permits by Principal State and Alternative

Principal Landing State	Data for Vessels with 2002 - 2004 Landings	Proposed Action	Alternative 2	Alternative 3	Alternative 4	Alternatives 5	Alternative 6	Alternative 7
RI	Number of vessels	3	2	0		2	2	2
	Average landings (mt)	107	C			C	C	C
	Average Area 1A landings (mt)	0	C			C	C	C
	Average value	15,769	C			C	C	C
	Average crew size (incl capt)	3	2			2	2	2
	Average number of limited access permits	7	7			7	7	7
	Other New England	Number of vessels	6	4	0	1	4	5
Average landings (mt)		20	22		C	22	22	20
Average Area 1A landings (mt)		11	8		C	8	11	11
Average value		3,176	3,537		C	3,537	3,550	3,176
Average crew size (incl capt)		3	3		2	3	3	3
Average number of limited access permits		4	5		4	5	5	4
Mid-Atlantic		Number of vessels	2	2	0		2	1
	Average landings (mt)	C	C			C	C	
	Average Area 1A landings (mt)	C	C			C	C	
	Average value	C	C			C	C	
	Average crew size (incl capt)	3	3			3	2	
	Average number of limited access permits	6	6			6	6	

Note: Analysis of the Proposed Action has been updated to reflect a current permit requirement as of November 10, 2005; analysis of the non-preferred alternatives includes permit data complete through the 2004 fishing year. See discussion at the beginning of Section 8.4 for more information.

8.4.4 Consideration of Potential Harvesting Capacity

To evaluate the implications each limited access alternative has on the potential for various mixes of vessels to catch the area TACs, **two measures of potential landings** were used that consider the average number of days-at-sea and the average metric tons of herring landed per day-at-sea.

The first measure multiplies a vessel's highest number of days-at-sea per year observed from 2002 through 2004 by their average metric tons landed per day-at-sea over the same time period. The average of each of these factors is reported in Table 145 by principal gear along with average yearly landings from all areas and Area 1A. The sum of the products are reported to provide a first level estimation of what the group of vessels which qualify under a given alternative are likely to land.

The second measure is similar to the first except that days-at-sea are multiplied by the highest yearly average metric tons per day-at-sea observed over the 2002 to 2004 time period. The sum of these vessel level products represents a second level estimation of potential catch by alternative. This second measure provides an estimate of potential landings under the assumption that vessels produce at their highest average catch rates and at their highest level of effort observed in recent years.

Throughout the remainder of this analysis, the two measures of potential harvesting capacity, described above, are referred to as “potential catch measures” and/or “potential landings” because they characterize the potential harvest/catch of the limited access fleet under each management alternative based on recent observed patterns of fishing effort by the active vessels that qualify for the limited access directed fishery.

The last portion of Table 145 provides the statistics described above for all active vessels (2002-2004) qualifying for limited access directed fishery permits under each alternative. The status quo alternative (no action and Alternative 1) would allow 54 active vessels to remain in the herring fishery, with estimates of potential landings ranging from 170,087 metric tons to 209,368 mt. Currently, the TACs for the herring fishery total 150,000 mt across all management areas, and total landings are usually around 100,000 mt annually.

The qualification criterion for Area 1 under Alternative 7 is the most restrictive, resulting in the lowest potential landings estimate (a range of 99,133 mt to 111,977 mt). This is a reduction in potential catch of approximately 40% from the status quo. The second least restrictive criterion (in terms of potential catch measures) for Area 1 is contained in the **Proposed Action** with a potential landings range of 161,030 mt to 198,710 mt. This is a reduction of approximately 5% from the status quo. The least restrictive for Area 1 is Alternative 3 with a potential landings estimate range of 167,525 mt to 206,463 mt. Additional discussion of the potential capacity analysis relative to the Proposed Action is provided in Section 8.4.7 of this document.

While the estimates of potential landings provide some perspective about the harvesting capacity of the limited access fleet under each alternative, they may be minimum estimates of potential catch in the fishery because they include only active vessels that qualify for directed fishery permits. Inactive vessels and those that qualify for limited access incidental catch permits also may have the ability to participate in the fishery and land significant amounts of herring; these vessels may choose to participate in the fishery and/or increase their effort depending on market and fishery conditions.

In addition, the catch measures are provided as a basis for comparison among the Proposed Action, non-preferred alternatives, and the no action alternative. During the comment period on the Amendment 1 draft alternatives and DSEIS, some industry members commented that this catch analysis over-estimates harvesting capacity in the limited access fishery because it includes vessels that are not currently participating in the fishery and/or may not participate in the future for a variety of reasons. The potential catch estimates should be viewed as relative numbers, not absolute numbers, for a variety of reasons, some of which are discussed above. The analysis is based on active qualifiers from 2002-2004 and does not include any qualifying vessels that did not average more than 1 mt of herring per trip during this time period. The years chosen for this analysis represent a recent time frame, and current market and stock conditions suggest that the current fishery is similar to the fishery from 2002-2004.

Similar to Table 140, Table 146 provides a unique count of active qualifying vessels (2002-2004) by management alternative/area. It also reports average landings and the two potential catch measures for active vessels. In total, regardless of area, Alternative 3 qualifies the highest number of (38) active vessels, and the Proposed Action qualifies the lowest number (29). In terms of number of active vessels that qualify for Area 1, Alternative 3 qualifies the most (38), Alternative 7 qualifies the least (18), and the Proposed Action ranks in the middle (28). The ranking is the same in terms of potential catch measures 1 and 2 for Area 1 qualifiers (i.e. Alternative 3 is the highest, the Proposed Action ranks in the middle, and Alternative 7 is the lowest).

Table 145 Potential Landings for Active Vessels Qualifying for Directed Fishery Permits by Alternative

	Alternative:	Alternative 1	Alternative 2	Alts 2&5	Alternative 3	Alts 3, 4, 6, & 7	Alternative 4
	Qualifying area:		All Areas	Areas 2 & 3	Area 1	Areas 2 & 3 (after trigger Alts 3 & 4)	Area 1
	Number of vessels that qualify but have no landings from 2002 – 2004:	292	5	11	19	12	7
Principal Gear	Data for Vessels with 2002 - 2004 Landings						
Bottom Trawl	Number of vessels	17	2	5	8	4	2
	Sum of average yearly landings (mt)	1,496	C	1,019	1,166	996	963
	Sum of average yearly landings from Area 1A (mt)	310	C	291	291	268	268
	Average of maximum days-at-sea per year from '02 to '04	24	C	28	19	26	50
	Average metric tons per day-at-sea (02-04)	10	C	6	12	8	9
	Average of highest average metric tons per day-at-sea per year from '02 to '04	13	C	8	14	9	12
	Sum of yearly landings (using average mt/DAS over 02-04)	2,652	C	1,576	2,168	1,542	1,506
	Sum of yearly landings (using highest average mt/DAS over 02-04)	3,539	C	2,021	2,723	1,963	1,927
Pair Trawl	Number of vessels	20	17	14	18	17	17
	Sum of average yearly landings (mt)	63,121	61,274	50,269	61,398	61,274	61,274
	Sum of average yearly landings from Area 1A (mt)	36,383	35,712	30,718	35,820	35,712	35,712
	Average of maximum days-at-sea per year from '02 to '04	85	94	82	90	94	94
	Average metric tons per day-at-sea (02-04)	59	64	65	64	64	64
	Average of highest average metric tons per day-at-sea per year from '02 to '04	73	80	84	80	80	80
	Sum of yearly landings (using average mt/DAS over 02-04)	117,092	114,471	85,771	115,080	114,471	114,471
	Sum of yearly landings (using highest average mt/DAS over 02-04)	149,002	146,259	116,758	146,990	146,259	146,259
Midwater Trawl	Number of vessels	11	7	7	7	7	7
	Sum of average yearly landings (mt)	16,621	16,572	16,572	16,572	16,572	16,572
	Sum of average yearly landings from Area 1A (mt)	9,041	8,992	8,992	8,992	8,992	8,992
	Average of maximum days-at-sea per year from '02 to '04	41	64	64	64	64	64
	Average metric tons per day-at-sea (02-04)	29	40	40	40	40	40
	Average of highest average metric tons per day-at-sea per year from '02 to '04	32	46	46	46	46	46
	Sum of yearly landings (using average mt/DAS over 02-04)	26,552	26,494	26,494	26,494	26,494	26,494
	Sum of yearly landings (using highest average mt/DAS over 02-04)	30,165	30,099	30,099	30,099	30,099	30,099

Note: Analysis of the Proposed Action has been updated to reflect a current permit requirement as of November 10, 2005; analysis of the non-preferred alternatives includes permit data complete through the 2004 fishing year. See discussion at the beginning of Section 8.4 for more information.

Table 145 continued. Potential Landings for Active Vessels Qualifying for Directed Fishery Permits by Alternative

Alternative:		Alternative 1	Alternative 2	Alts 2&5	Alternative 3	Alts 3, 4, 6, & 7	Alternative 4
Qualifying area:			All Areas	Areas 2&3	Area 1	Areas 2 & 3 (after trigger Alts 3 & 4)	Area 1
Principal Gear	Data for Vessels with 2002 - 2004 Landings						
Purse Seine	Number of vessels	6	5	5	5	5	5
	Sum of average yearly landings (mt)	20,932	20,927	20,927	20,927	20,927	20,927
	Sum of average yearly landings from Area 1A (mt)	20,190	20,185	20,185	20,185	20,185	20,185
	Average of maximum days-at-sea per year from '02 to '04	46	55	55	55	55	55
	Average metric tons per day-at-sea (02-04)	65	77	77	77	77	77
	Average of highest average metric tons per day-at-sea per year from '02 to '04	72	86	86	86	86	86
	Sum of yearly landings (using average mt/DAS over 02-04)	23,792	23,783	23,783	23,783	23,783	23,783
	Sum of yearly landings (using highest average mt/DAS over 02-04)	26,661	26,652	26,652	26,652	26,652	26,652
Total	Number of vessels	54	31	31	38	33	31
	Sum of average yearly landings (mt)	102,170	99,736	88,786	100,062	99,769	99,736
	Sum of average yearly landings from Area 1A (mt)	65,925	65,156	60,186	65,287	65,156	65,156
	Average of maximum days-at-sea per year from '02 to '04	52	78	65	65	74	78
	Average metric tons per day-at-sea (02-04)	38	58	52	51	54	58
	Average of highest average metric tons per day-at-sea per year from '02 to '04	46	69	63	61	65	69
	Sum of yearly landings (using average mt/DAS over 02-04)	170,087	166,253	137,624	167,525	166,289	166,253
	Sum of yearly landings (using highest average mt/DAS over 02-04)	209,368	204,936	175,530	206,463	204,972	204,936

Note: Analysis of the Proposed Action has been updated to reflect a current permit requirement as of November 10, 2005; analysis of the non-preferred alternatives includes permit data complete through the 2004 fishing year. See discussion at the beginning of Section 8.4 for more information.

Table 145 continued. Potential Landings for Active Vessels Qualifying for Directed Fishery Permits by Alternative

	Alternative:	Alternative 5	Alternative 5	Alternative 6	Alternative 7	Proposed Action	Proposed Action
	Qualifying area:	All Areas	Area 1A	Area 1	Area 1	All Areas	Areas 2 & 3
Principal Gear	Data for Vessels with 2002 - 2004 Landings						
Bottom Trawl	Number of vessels	2		4	2	2	3
	Sum of average yearly landings (mt)	C		996	C	C	996
	Sum of average yearly landings from Area 1A (mt)	C		268	C	C	268
	Average of maximum days-at-sea per year from '02 to '04	C		26	C	C	34
	Average metric tons per day-at-sea (02-04)	C		8	C	C	10
	Average of highest average metric tons per day-at-sea per year from '02 to '04	C		9	C	C	12
	Sum of yearly landings (using average mt/DAS over 02-04)	C		1,542	C	C	1,542
	Sum of yearly landings (using highest average mt/DAS over 02-04)	C		1,963	C	C	1,963
Pair Trawl	Number of vessels	12	6	7	6	16	16
	Sum of average yearly landings (mt)	49,626	39,725	34,642	33,519	60,732	60,732
	Sum of average yearly landings from Area 1A (mt)	29,962	22,194	20,286	19,428	35,218	35,218
	Average of maximum days-at-sea per year from '02 to '04	93	130	97	103	99	99
	Average metric tons per day-at-sea (02-04)	65	80	65	70	64	64
	Average of highest average metric tons per day-at-sea per year from '02 to '04	87	92	74	78	81	81
	Sum of yearly landings (using average mt/DAS over 02-04)	84,019	63,921	52,036	49,515	113,537	113,537
	Sum of yearly landings (using highest average mt/DAS over 02-04)	114,883	72,630	58,799	55,766	145,211	145,211
Midwater Trawl	Number of vessels	6	3	6	6	6	6
	Sum of average yearly landings (mt)	15,853	15,212	15,853	15,853	15,474	15,474
	Sum of average yearly landings from Area 1A (mt)	8,296	8,008	8,296	8,296	8,007	8,007
	Average of maximum days-at-sea per year from '02 to '04	68	113	68	68	65	65
	Average metric tons per day-at-sea (02-04)	42	68	42	42	40	40
	Average of highest average metric tons per day-at-sea per year from '02 to '04	48	79	48	48	44	44
	Sum of yearly landings (using average mt/DAS over 02-04)	25,357	24,523	25,357	25,357	24,079	24,079
	Sum of yearly landings (using highest average mt/DAS over 02-04)	28,931	27,953	28,931	28,931	26,888	26,888

Note: Analysis of the Proposed Action has been updated to reflect a current permit requirement as of November 10, 2005; analysis of the non-preferred alternatives includes permit data complete through the 2004 fishing year. See discussion at the beginning of Section 8.4 for more information.

Table 145 continued. Potential Landings for Active Vessels Qualifying for Directed Fishery Permits by Alternative

Alternative:		Alternative 5	Alternative 5	Alternative 6	Alternative 7	Proposed Action	Proposed Action
Qualifying area:		All Areas	Area 1A	Area 1	Area 1	All Areas	Areas 2&3
Principal Gear	Data for Vessels with 2002 - 2004 Landings						
Purse Seine	Number of vessels	5	4	4	4	4	4
	Sum of average yearly landings (mt)	20,927	20,247	20,247	20,247	19,436	19,436
	Sum of average yearly landings from Area 1A (mt)	20,185	19,506	19,506	19,506	18,747	18,747
	Average of maximum days-at-sea per year from '02 to '04	55	62	62	62	56	56
	Average metric tons per day-at-sea (02-04)	77	87	87	87	87	87
	Average of highest average metric tons per day-at-sea per year from '02 to '04	86	96	96	96	98	98
	Sum of yearly landings (using average mt/DAS over 02-04)	23,783	22,755	22,755	22,755	21,908	21,908
	Sum of yearly landings (using highest average mt/DAS over 02-04)	26,652	25,353	25,353	25,353	24,684	24,684
Total	Number of vessels	25	13	21	18	28	29
	Sum of average yearly landings (mt)	87,368	75,184	71,738	70,582	96,605	96,638
	Sum of average yearly landings from Area 1A (mt)	58,710	49,708	48,355	47,497	62,240	62,240
	Average of maximum days-at-sea per year from '02 to '04	76	105	69	76	82	80
	Average metric tons per day-at-sea (02-04)	58	80	52	58	58	57
	Average of highest average metric tons per day-at-sea per year from '02 to '04	71	90	58	65	70	68
	Sum of yearly landings (using average mt/DAS over 02-04)	134,665	111,199	101,690	99,133	161,030	161,065
	Sum of yearly landings (using highest average mt/DAS over 02-04)	172,394	125,936	115,046	111,977	198,710	198,746

Note: Analysis of the Proposed Action has been updated to reflect a current permit requirement as of November 10, 2005; analysis of the non-preferred alternatives includes permit data complete through the 2004 fishing year. See discussion at the beginning of Section 8.4 for more information.

Table 146 Unique Count of Number of Active Vessels, CII, Average Landings, and Potential Catch Measures

Alternative	Qualifying Area	Number of Active Vessels	Sum of CII	Average MT per year	Sum of Potential Catch Measure 1 (mt)	Sum of Potential Catch Measure 2 (mt)
Alternative 1 (No Action)	All Areas	54			170,087	209,368
Alternative 2	All Areas	31	8,326	3,217	166,253	204,936
	Area 2 & 3 Only	4	193	45	680	825
Alternative 3	Area 1	38	8,720	2,633	167,525	206,463
	Area 2 & 3 Only	0	0	0	0	0
Alternative 4	Area 1	31	8,326	3,217	166,253	204,936
	Area 2 & 3 Only	2	131	C	C	C
Alternative 5	All Areas	25	6,396	3,495	134,665	172,394
	Area 1A	13	3,356	5,783	111,199	125,936
	Area 2 & 3 Only	6	438	236	2,959	3,136
Alternative 6	Area 1	21	5,076	3,416	101,690	115,046
	Area 2 & 3 Only	12	3,380	2,336	64,600	89,927
Alternative 7	Area 1	18	4,798	3,921	99,133	111,977
	Area 2 & 3 Only	15	3,658	1,946	67,156	92,995
Proposed Action	All Areas	28	8,125	3,450	161,030	198,710
	Area 2 & 3 Only	1	42	C	C	C

Note: CII, Capital Inventory Index, is a relative measure of vessel size based on vessel length, GRT, and horsepower.

Note: Analysis of the Proposed Action has been updated to reflect a current permit requirement as of November 10, 2005; analysis of the non-preferred alternatives includes permit data complete through the 2004 fishing year. See discussion at the beginning of Section 8.4 for more information.

Table 147 Alternative 1 (No Action): Number of Active Vessels by Principal Gear and State

Principal Gear	Principal State					
	MA	ME	RI	Other New England	Mid-Atlantic	Total
Bottom Trawl	4		8	3	2	17
Midwater Pair Trawl	12	4		4		20
Midwater Trawl		7	3		1	11
Purse Seine		6				6
Total	16	17	11	7	3	54

8.4.5 Non-Qualifying Active Vessels

In addition to evaluating the differences among vessels that qualify for Area 1 versus Areas 2/3, it is important to consider the circumstances of vessels that do not qualify for any of the limited access directed fishery permits. Vessels that qualify for limited access incidental catch permits were previously described in Table 139, Table 142, and Table 144; the following discussion of all non-qualifying vessels includes these incidental catch vessels. Vessels with no herring activity since 2001 are assumed to be either engaged in other fisheries or non-existent. Therefore, no impacts from the limited access alternatives are further discussed for these vessels.

Table 148 through Table 152 describe vessels that have a history of herring landings during 2002 through 2004 but do not qualify for directed fishing permits under the Proposed Action and each of the non-preferred alternatives. Across alternatives, the number of non-qualifying vessels is rather consistent. For Alternatives 2 through 7, eight (8) midwater trawl vessels and one purse seine vessel do not qualify. For the Proposed Action, nine (9) midwater trawl and two purse seine vessels do not qualify for directed fishery permits. The number of non-qualifying bottom trawl vessels ranges from 94 to 99, and the number of non-qualifying pair trawl vessels ranges from 2 to 6.

For the most part, the bottom trawl, midwater trawl, and purse seine vessels that would not qualify do not rely heavily on herring and are not likely to be significantly impacted. These vessels are catching herring while participating in other fisheries and would most likely be able to continue at this level by obtaining a limited access incidental catch permit (if they qualify) or an open access (3 mt) incidental catch permit. These vessels are not averaging more than seven days-at-sea fishing for herring in a year, and their average annual revenue from herring is less than \$1,600. Under the Proposed Action, there is one additional midwater trawl vessel that would not qualify as compared to the non-preferred alternatives. The exclusion of this vessel from the limited access directed fishery increases the average value of herring landed by the group of non-qualifying vessels from \$1,534 to \$21,420. The percentage of catch from herring increases from 8.3% to 28%. The impacts on this individual vessel are clearly substantial.

The non-qualifying pair trawl vessels, on the other hand, have higher levels of herring activity. Under Alternative 5, for example, a total of six pair trawl vessels would not qualify for limited access directed fishery permits. Included in this set of vessels are four vessels which are currently active in the herring fishery and have significant herring landings. These vessels service the freezer plants in New Bedford and Gloucester, MA. In addition, one of the four vessels also lands herring in RI and ME. These four vessels average up to 90 days-at-sea per year (as many as 170 days for one of the vessels) and have average yearly revenue from herring of \$342,031. On average, herring provides 73% of total revenue and mackerel provides 28% for these vessels. The economic impact to these four vessels of not qualifying for any of the limited access directed fishery permits would be significant had Alternative 5 been selected. Mackerel is a short season fishery, and these vessels are rigged for pelagic fishing. Unless market conditions change, fully replacing revenue lost from herring fishing with revenue from mackerel is unlikely. Also, it would be costly to switch to other fisheries, so it is likely these vessels would have to consider relocating. The freezer plants would be impacted by the loss of these vessels. Other vessels could supply these plants, but upgrades may be needed to meet plant needs.

Under the Proposed Action, there are four pair trawl vessels that would not qualify for a directed limited access herring permits. These vessels have, on average, annual revenue from herring of \$91,730 (from an average of 25 days of herring fishing) which represents about 35% of their total revenue from all species.

Table 148 Active Vessels Not Qualifying for Limited Access Directed Fishery Permits (Includes Incidental Catch Qualifiers) Under the Proposed Action

PROPOSED ACTION	Bottom Trawl	Pair Trawl	Midwater Trawl	Purse Seine
Number of Vessels	99	4	9	2
Average length	55	88	43	44
Average gross tons	58	158	37	16
Average horse power	379	905	482	433
Average CII	19	150	22	3
Average herring landings (mt)	6	597	131	C
Average herring value	945	91,730	21,420	C
Average percent revenue from herring	0%	35%	28%	n/a
Average percent revenue from mackerel	2%	0%	0%	0%
Average number of limited access plans	5	2	2	0
Average of maximum days-at-sea per year from '02 to '04	7	25	9	27

Note: CII, Capital Inventory Index, is a relative measure of vessel size based on vessel length, GRT, and horsepower.

Note: Analysis of the Proposed Action has been updated to reflect a current permit requirement as of November 10, 2005; analysis of the non-preferred alternatives includes permit data complete through the 2004 fishing year. See discussion at the beginning of Section 8.4 for more information.

Table 149 Active Vessels Not Qualifying for Directed Fishery Permits (Includes Incidental Catch Qualifiers) Under Alternative 2

Alternative 2	Bottom Trawl	Pair Trawl	Midwater Trawl	Purse Seine
Number of Vessels	97	2	8	1
Average length	55	101	38	44
Average gross tons	58	197	19	23
Average horse power	379	1,115	382	325
Average CII	20	225	3	3
Average herring landings (mt)	6	C	10	C
Average herring value	927	C	1,534	C
Average percent revenue from herring	0.4%	3.4%	8.3%	n/a
Average percent revenue from mackerel	1.7%	0%	0%	0%
Average number of limited access permits	5	2	2	0
Average of maximum days-at-sea per year from '02 to '04	7	38	3	5

Note: CII, Capital Inventory Index, is a relative measure of vessel size based on vessel length, GRT, and horsepower.

Note: Analysis of the Proposed Action has been updated to reflect a current permit requirement as of November 10, 2005; analysis of the non-preferred alternatives includes permit data complete through the 2004 fishing year. See discussion at the beginning of Section 8.4 for more information.

Table 150 Active Vessels Not Qualifying for Directed Fishery Permits (Includes Incidental Catch Qualifiers) Under Alternative 3

Alternative 3	Bottom Trawl	Pair Trawl	Midwater Trawl	Purse Seine
Number of Vessels	94	2	8	1
Average length	55	101	38	44
Average gross tons	56	197	19	23
Average horse power	368	1,115	382	325
Average CII	18	225	3	3
Average herring landings (mt)	5	C	10	C
Average herring value	729	C	1,534	C
Average percent revenue from herring	0.5%	3.4%	8.3%	n/a
Average percent revenue from mackerel	1.6%	0%	0%	0%
Average number of limited access plans	4	2	2	0
Average of maximum days-at-sea per year from '02 to '04	7	38	3	5

Note: CII, Capital Inventory Index, is a relative measure of vessel size based on vessel length, GRT, and horsepower.

Note: Analysis of the Proposed Action has been updated to reflect a current permit requirement as of November 10, 2005; analysis of the non-preferred alternatives includes permit data complete through the 2004 fishing year. See discussion at the beginning of Section 8.4 for more information.

Table 151 Active Vessels Not Qualifying for Directed Fishery Permits (Includes Incidental Catch Qualifiers) Under Alternatives 4, 6, and 7

Alternatives 4, 6, and 7	Bottom Trawl	Pair Trawl	Midwater Trawl	Purse Seine
Number of Vessels	98	3	8	1
Average length	55	95	38	44
Average gross tons	57	186	19	23
Average horse power	375	1,057	382	325
Average CII	19	193	3	3
Average herring landings (mt)	6	616	10	C
Average herring value	954	91,908	1,534	C
Average percent revenue from herring	0.4%	2.1%	8.3%	n/a
Average percent revenue from mackerel	1.5%	0%	0%	0%
Average number of limited access plans	4	3	2	0
Average of maximum days-at-sea per year from '02 to '04	7	29	3	5

Note: CII, Capital Inventory Index, is a relative measure of vessel size based on vessel length, GRT, and horsepower.

Note: Analysis of the Proposed Action has been updated to reflect a current permit requirement as of November 10, 2005; analysis of the non-preferred alternatives includes permit data complete through the 2004 fishing year. See discussion at the beginning of Section 8.4 for more information.

Table 152 Active Vessels Not Qualifying for Directed Fishery Permits (Includes Incidental Catch Qualifiers) Under Alternative 5

Alternative 5	Bottom Trawl	Pair Trawl	Midwater Trawl	Purse Seine
Number of Vessels	97	6	8	1
Average length	55	104	38	44
Average gross tons	58	201	19	23
Average horse power	379	1,253	382	325
Average CII	20	356	3	3
Average herring landings (mt)	6	2,142	10	5
Average herring value	927	342,031	1,534	764
Average percent revenue from herring	0.4%	73.0%	8.3%	n/a
Average percent revenue from mackerel	1.7%	28.1%	0%	0%
Average number of limited access plans	5	1	2	0
Average of maximum days-at-sea per year from '02 to '04	7	90	3	5

Note: CII, Capital Inventory Index, is a relative measure of vessel size based on vessel length, GRT, and horsepower.

Note: Analysis of the Proposed Action has been updated to reflect a current permit requirement as of November 10, 2005; analysis of the non-preferred alternatives includes permit data complete through the 2004 fishing year. See discussion at the beginning of Section 8.4 for more information.

8.4.6 Additional Impacts of Proposed Purse Seine/Fixed Gear-Only Area

Table 153 reports the number of vessels that will be excluded from the purse seine/fixed gear area by management alternative and gear type. The affected vessels that qualify for limited access directed fishery permits to fish in Area 1 will be restricted from fishing in the purse seine/fixed gear only area from June – September of each year. To compensate for potential losses, they may either choose to seek alternative fishing grounds for herring and/or to re-rig to fish in the gear restricted area with purse seines during the summer months. Also reported in Table 153 is the potential revenue (based on 2002 – 2004 landings from Area 1A) that the affected midwater trawl (single and paired) vessels may not be able to earn as a result of the gear restricted area. The last column in the table reports, on a percentage basis, what these potential revenue losses represent as a proportion of the vessels' total annual revenue from the gear restricted area.

In terms of numbers of vessels, Alternatives 3 would result in the greatest number of vessels excluded from the respective gear restricted area. However, while the Proposed Action and Alternative 7 impact fewer vessels, the impacts are the greatest because the gear restricted area is much larger for these alternatives (all of Area 1A versus 1A east of 69 degrees). This means that a greater share of these single and paired midwater trawl vessels' landings from Area 1A could be lost. This impact is especially important during the summer months, when demand for lobster bait is at its peak.

Of all the alternatives, the gear restriction in the Proposed Action would likely result in the greatest economic loss when the impacts of this measure is considered independent of the other measures and other alternatives in the document. This is the case even though Alternative 7 includes the identical management measure. The reason for this is that more midwater trawl vessels qualify for limited access directed fishery permits in Area 1 under the Proposed Action than under Alternative 7, and consequently, more vessels may incur losses from the gear restricted area. However, when compared to Alternative 7 and considered in the context of the limited access program, the overall impacts of this measure are

mitigated to some extent. The midwater trawl vessels that qualify under the Proposed Action but do not under Alternative 7 may be negatively impacted by the gear restriction, but under Alternative 7, they would be restricted entirely from Area 1A due to the limited access program, resulting in a comparatively greater negative impact. These vessels are less impacted by the Proposed Action even though it appears that the impacts from the gear restricted area are greater. This is because they can fish in Area 1 from October to May under the Proposed Action when they may not have qualified at all for the directed fishery in Area 1 under other alternatives (Alternative 7, for example).

Table 153 Summary of Impacts of Purse Seine/Fixed Gear-Only Areas in Each Alternative

ALT	PS/FG Measure	Number of Vessels Excluded from Proposed PS/FG Area	JUN through SEP Area 1A (avg of 2002 – 2004) Landings of Vessels Excluded from Proposed PS/FG Area	Average Percent of Area 1A Landings (Entire Area and Year) by Gear Type
Proposed Action	PS/FG Area in all of Area 1A for June – September	Paired MWT – 16 Single MWT - 6	21,298 5,472	60% 68%
Alternative 3	PS/FG Area in Area 1A east of 69 degrees for June – September	Paired MWT – 18 Single MWT - 7	7,398 1,091	21% 12%
Alternative 4	PS/FG Area in Area 1A east of 69 degrees for June – September	Paired MWT – 17 Single MWT - 7	7,398 1,091	21% 12%
Alternative 6	PS/FG Area in Area 1A east of 69 degrees for June – September	Paired MWT – 7 Single MWT - 6	3,705 938	18% 11%
Alternative 7	PS/FG Area in all of Area 1A for June – September	Paired MWT – 6 Single MWT - 6	10,933 5,560	56% 67%

The impacts of the proposed purse seine/fixed gear-only area are discussed further in Section 8.4.1 of this document as well as Section 8.4.7 (below), which discusses the impacts of each alternative individually. Included in Section 8.4.1 is a discussion about the potential for vessels to re-rig from midwater trawling to purse seining and the costs that may be associated with that decision.

8.4.7 Discussion of Alternatives

Proposed Action

The management measures included in the Proposed Action that are most likely to directly impact fishery-related businesses and communities are the proposed limited access program and the purse seine/fixed gear-only area. The Proposed Action is estimated to qualify 31 vessels for limited access directed fishery permits to fish in all management areas, three additional vessels for limited access directed fishery permits in Areas 2/3 only, and 56 vessels for limited access incidental catch permits with a 25 mt possession limit. **The estimated total number of limited access vessels under the Proposed Action is 90, with 34 unique vessels qualifying for the directed herring fishery.**

Based only on the potential catch measures of the 28 active vessels that qualify for all areas (see Consideration of Potential Harvesting Capacity in Section 8.4.4 for discussion of potential catch measures), the potential catch of the limited access fleet under the Proposed Action ranges from 161,030 to 198,710 metric tons. This represents a 5% decrease from the status quo. The additional potential catch measures for the additional active vessel that qualifies for Areas 2 & 3 increases the potential catch measures slightly (cannot report due to confidentiality issues).

The Proposed Action ranks in the middle of the alternatives considered in Amendment 1 relative to the potential catch measures (see Section 8.4.4 for a description of the catch measures). That is, three alternatives (Alternatives 2, 3, and 4) have higher potential catch measures and three alternatives (Alternatives 5, 6, and 7) have lower potential catch measures. When all areas are considered together, there are four alternatives (Alternatives 3, 4, 6, and 7) that have potential catch measures higher than the Proposed Action. Two alternatives (Alternatives 2 and 5) have lower potential catch measures.

In terms of number of vessels, the Proposed Action qualifies the fewest vessels into the limited access directed fishery (34 vessels). However, for Area 1 (i.e., all areas), four alternatives qualify more vessels, and two qualify fewer. The fact that the Proposed Action is the most restrictive in terms of the total number of vessels that qualify for the directed fishery is due to the nature of the Area 2/3 qualification criteria. The Area 2/3 criteria are the most restrictive of the alternatives considered in this amendment, due to the selection of 1993 as a start date for the qualification period (versus 1988). Only three additional vessels qualify for limited access directed fishery permits in Areas 2/3. These three vessels are the only ones in the limited access directed fishery that will be excluded from Area 1.

The majority of vessels that do not qualify for a limited access permit under the Proposed Action have not been active in the herring fishery in recent years, and in some cases, for many years. Some have switched to other fisheries like mackerel and squid. The limited access incidental catch permit will likely accommodate the catch of herring on these vessels and allow them to continue normal operations in other fisheries. This should help to mitigate the impacts of not qualifying for a directed fishery permit in Areas 2/3.

While the majority of non-qualifying vessels have not been active in the herring fishery in recent years, as shown in Table 148, there are four pair trawl vessels and nine single midwater trawl vessels that, on average, get about a third of their revenue from herring. The four pair trawl vessels average \$91,730 per year in herring revenue and the nine single midwater trawl vessels average \$21,420 per year. Of the four pair trawl vessels, three receive a significant level of revenue from herring (an average of \$122,000 per year) and the other vessel receives a minor amount of revenue from herring. Of the nine single midwater trawl vessels, only one receives a significant amount of revenue from herring while the other eight receive small amounts of revenue from herring (less than \$4,500 per year).

Under the Proposed Action, there are 56 vessels that qualify for incidental catch permits that do not qualify for the directed fishery permits. Seventeen of these vessels were recently active. These vessels can retain up to 25 metric tons of herring per calendar day until 95% of the TAC is reached and the management area closes, at which time they would be limited to an incidental catch of 2,000 pounds per trip. This is the least restrictive alternative for the limited access incidental catch permit that was considered in this amendment. It provides opportunities in the fishery for historical vessels that would not have otherwise qualified (due to lack of adequate landings since 1993).

There are 16 midwater pair trawl and six single midwater trawl vessels that qualify for Area 1 but would not be able to fish in the purse seine/fixed gear area proposed in the Proposed Action (all of Area 1A) from June through September. Of the 16 affected pair trawl vessels, 9 have their primary landing port in Massachusetts, four in Maine, and three are from other states in the Northeast. Of the six affected single midwater trawl vessels, two have their primary landing port in Maine, three in Rhode Island, and one in Mid-Atlantic States. Recent landings data show that four of the midwater trawl vessels and 13 of the pair trawl vessels are actively fishing in Area 1A during the June through September period.

During 2002 through 2004, the affected midwater trawl vessels landed an average of 5,472 metric tons (worth about \$892,000), and the pair trawl vessels landed 21,298 metric tons of herring (worth about \$3,472,000) per season (June through September) from Area 1A. These landings represent 68% and 60% of the total Area 1A landings by these single and paired midwater trawl vessels, respectively. The midwater trawl vessel landings ranged from 266 to 3,372 metric tons, and the pair trawl vessel landings ranged from 90 to 3,263 metric tons. Precluding midwater trawl vessels from the area will require that these vessels make up their Area 1A catch (which is about one third of their total catch) in other areas.

Depending on the availability of fish and portions of TACs in other areas, landings by these vessels could diminish, and the cost per metric ton of fish landed could increase. Since fish are not caught in Area 2 in the summer, the catch will have to come from Area 3. Increased costs would be due primarily to increased fuel costs if steam times are longer. Associated social considerations would be safety concerns and greater periods of time at sea often associated with stress on family life. However, as noted in the previous purse seine/fixed gear only discussion, it is possible that the purse seine and fixed gear catches will increase sufficiently to compensate for the loss of bait from midwater trawl landings, and/or that a sufficient number of midwater trawl vessels will re-rig to purse seine in the summer such that supply to the bait market is not interrupted.

If the 26,770 metric tons of herring that the single and paired midwater trawl vessels would be precluded from catching in Area 1A cannot be made up in other areas, then the purse seine vessels would have the opportunity to supply those markets. Historically, 74% of these purse seine vessels landings (about 15,000 mt) are landed during the summer months from Area 1A. If the purse seiners picked up all of what was left by the midwater trawler in Area 1A, it would more than double the purse seine catch for that period.

Those vessels whose principal landing port is Maine may be the most affected, as these ports are located nearest to the proposed closed area. These vessels also are more likely than those located farther south to be engaged in the lobster bait industry, which is at its height during the months of the proposed closure. Given this, restricting access of these vessels during these months may impact the flow of herring as bait to lobster fishing communities in the area (see previous discussion on the impacts of the purse seine/fixed gear only area in Section 8.4.1).

(See discussion in Section 8.4.1 regarding the costs associated with re-rigging a midwater trawl vessel to fish with a purse seine.)

Additionally, changes in access to herring fishing locations could potentially affect the supply of herring to ports in the region with potential impacts on processing plants, bait dealers, and ultimately lobster fishermen and other final consumers of herring. In this region, a number of key herring communities were identified including Prospect Harbor, Stonington, Vinalhaven, Rockland, and Portland, Maine; Portsmouth and Newington, New Hampshire; Gloucester and New Bedford, Massachusetts. A description of these communities is included in the Affected Human Environment section of this document (Section 7.4).

Alternative 1 (No Action)

This alternative equates to the no action alternative (status quo) relative to the primary management measures under consideration in this amendment. There were 346 vessels that caught greater than 1 metric ton of herring in any year from 1988 to 2003. This is the time period of the lengthiest qualification period and represents the pool of vessels that could possibly qualify. A more realistic measure of the status quo is the number of vessels that were actively fishing for herring in recent years. There were 54 vessels that averaged greater than 1 mt of herring per trip from 2002 through 2004. These vessels are described in Table 141, Table 143, and Table 145. Table 147 shows the number of vessels by principal gear and state.

If Alternative 1 is adopted, these active vessels (and potentially the other 292 inactive vessels) could fish for herring in all management areas. The potential catch measures for the active status quo vessels range from 170,087 metric tons to 209,368 metric tons. With a current total TAC of 150,000 metric tons, these vessels have the physical capability to reach and exceed the TAC if market conditions, fish availability, and other factors are favorable.

Over the long-term, if the status quo is maintained, the impacts on fishery related businesses and communities are likely to be greater and more negative than they would be if the limited access is established (see more detailed discussion in Section 8.4.1 of this document). In recent years, relatively large midwater and pair trawl vessels have moved into the herring fishery. With its existing open access, it is one of the few fisheries in the region having growth opportunity without associated permit costs. Continued growth may lead to overcapitalization, the development of a derby fishing atmosphere, overfishing of herring (especially the lack of herring as forage for tuna and other fish favored by recreational fishermen) and increased gear conflict. Additionally, overfishing might correlate with instability in the market such as the disruption of supply to processing plants, bait dealers and ultimately lobstermen and other final consumers of the resource.

Alternative 2

Alternative 2 qualifies 36 vessels (31 active vessels) to fish in all management areas. An additional 10 vessels (4 active vessels) qualify to fish in Areas 2 & 3 only. Unique to this alternative is the fact that four of the vessels that qualify for all areas do not qualify for Areas 2 & 3. It is unclear whether these vessels would have access to Areas 2/3 if this alternative is selected.

Based only on the potential catch measures of the vessels which qualify for all areas (see Consideration of Potential Harvesting Capacity in Section 8.4.4 for discussion of potential catch measures), the potential catch of the limited access fleet under this alternative (166,253 to 204,936 metric tons) is not that

different from the status quo. While fewer vessels qualify than would have opportunities to fish under Alternative 1, the vessels that do qualify are the majority of the most active and productive in the fishery in recent years.

Under Alternative 2, there are 37 vessels that qualify for limited access incidental catch permits that do not qualify for either of the directed fishery permits. Only one of these vessels was recently active in the herring fishery (2002-2004). These vessels could then retain up to 25 metric tons of herring per trip.

Alternative 3

Alternative 3 qualifies 57 vessels (38 active vessels) to fish in Area 1. All of these vessels also qualify for Area 2 & 3, and there are no additional vessels that qualify only for those areas. The qualification criteria for Areas 2 & 3, which is more restrictive than the Area 1 qualification, will not apply until 75% of the TAC is reached in either of these areas. Until that point, any vessel that qualifies under the moratorium criteria can fish Areas 2 & 3.

There are 1,937 vessels that would qualify under the moratorium proposed in Alternative 3. More realistically, however, the pool of potential vessels is the 54 recently active vessels in the herring fishery (2002-2004), unless the price and/or demand for herring rises dramatically or access to other fisheries is lost.

Based on the potential catch measures of the vessels that qualify for what is essentially an all area option (see Consideration of Potential Harvesting Capacity in Section 8.4.4 for discussion of potential catch measures), the potential catch of the limited access fleet under this alternative (167,525 to 206,463 metric tons) is not that different from the status quo. While fewer vessels qualify than would remain in Alternative 1, these vessels are the majority of the most productive in the fishery in recent years. While fewer vessels qualify than would have opportunities to fish under Alternative 1, these vessels are the majority of the most active and productive in the fishery. With the exception of the status quo alternative, this alternative is the least restrictive.

Under Alternative 3, there are 3 vessels that qualify for limited access incidental catch permits that do not qualify for the directed fishery permits. None of these vessels have been recently active in the herring fishery (2002-2004). These vessels could retain up to 25 metric tons of herring per trip until the TAC is reached and the directed fishery in a management area closes.

There are 18 midwater pair trawl and 7 single midwater trawl vessels that qualify for Area 1 but would not be able to fish in the purse seine/fixed gear area proposed in Alternative 3 (Area 1A East of 69 degrees) from June through September. Of the 18 pair trawl vessels, 11 have their primary landing port in Massachusetts, four in Maine, and three from other states in the Northeast. Of the seven single midwater trawl vessels, three have their primary landing port in Maine, three in Rhode Island, and one in Mid-Atlantic States. Recent landings data show that four of the midwater trawl and 12 of the pair trawl vessels are actively fishing in Area 1A East of 69 degrees during the June through September period.

During 2002 through 2004, the affected midwater trawl vessels landed an average of 230 metric tons (worth about \$37,490), and the pair trawl vessels landed 1,043 metric tons (worth about \$170,009) per season (June through September) in Area 1A East of 69 degrees. These landings represent 2.5% and 29% of the total Area 1A landings by these single and paired midwater trawl vessels, respectively. The midwater trawl vessel landings ranged from 20 to 136 metric tons, and the pair trawl vessel landings ranged from 44 to 120 metric tons. Precluding midwater trawl vessels from the area will require that these vessels make up their catch in other areas. Depending on the availability of fish and portions of

TACs in other areas, landings by these vessels could diminish and the cost per metric ton of fish landed could increase. Increased costs would be due primarily to increased fuel costs if steam times are longer. Associated social considerations would be safety concerns and greater periods of time at sea often associated with stress on family life. However, as noted in the previous purse seine/fixed gear-only discussion, it is possible that the purse seine and fixed gear catches will increase sufficiently to compensate for the loss of bait from midwater trawl landings.

Midwater and pair trawl vessels whose principal landing port is Maine may be the most affected as these ports are located nearest to the purse seine/fixed-gear only area proposed in Alternative 3. These vessels also are more likely than those located farther south to participate heavily in the lobster bait fishery, which is at its height during the months of the proposed closure. Given this, restricting access of these vessels during these months may impact the flow of herring as bait to lobster fishing communities in the area. See the previous discussion regarding the impacts of the purse seine/fixed gear only area.

Additionally, changes in access to herring locations could potentially affect the supply of herring to ports in the region with potential impacts on processing plants, bait dealers, and ultimately lobster fishermen and other final consumers of herring. In this region, a number of key herring communities were identified including Prospect Harbor, Stonington, Vinalhaven, Rockland, New Harbor, and Portland, Maine; Portsmouth and Newington, New Hampshire; Gloucester, and New Bedford, Massachusetts. A description of these communities is included in the Affected Human Environment section of this document (Section 7.4).

Vinalhaven and Rockland fall within the proposed purse seine/fixed gear restricted area (Rockland lies just west of 69°). Vinalhaven is critically dependent on herring for use as lobster bait, and Rockland is the site of a major plant that prepares herring for bait purposes (i.e., salting and barreling). To the extent that midwater trawlers that supply Vinalhaven and Rockland with herring normally fish in the proposed purse seine area, there could be a temporary decrease in supply if they are forced to fish outside and cannot locate herring. However, there are midwater trawl owners who originally fished with purse seines and who would like to return to that fishing method (fisherman interview 2000). If the restricted area allows them to do so effectively, the supply would be likely to quickly rebuild.

The control date for notifying the industry about limiting entry into the herring fishery was originally September 16, 1999. In the intervening years and as Amendment 1 was being developed, several new companies entered the fishery, building shoreside facilities and attracting midwater trawlers to the herring fishery. Even with the added effort of these vessels, Areas 2 and 3 are still considered to be under-utilized. Area 1, being closer to shore, is accessible more quickly and with lower fuel costs than Areas 2 and 3. Not surprisingly, the quota is fully fished in Area 1A. To retain growth in the industry and especially to supply the new plants in New Bedford and Gloucester, Alternatives 3 and 4 propose a compromise that would allow vessels that are newer to the fishery to fish in Areas 2 and 3 after the implementation of Amendment 1, under a controlled access program. This flexibility could help retain the viability of the new plants over the short-term, contribute to the communities' income, and assure that herring for bait and human food is available. The potential costs of this approach, however, are two-fold. If the trigger is reached and limited access is implemented, the companies may have already expanded and increased their dependency on herring, making it more difficult to contract without affecting the employment of more people and the communities' reliance on their economic activity. If the companies have grown, their political influence may also grow, making it more contentious to impose the limited access.

Another consideration relative to the controlled access programs under consideration in Alternatives 3 and 4 is that the proposed programs are not consistent with what is usually intended by a true controlled access program. Normally, controlled access programs are established to allow new entrants to participate in a fishery up to a date certain (or a landings trigger). The levels of participation by new and existing vessels in the fishery during the controlled access time period are then used to define the limited access participants and/or qualify vessels for limited access permits. Instead, the controlled access programs under consideration in this amendment serve more as delayed limited access programs, as the proposed limited access program to be implemented upon reaching the trigger falls back to the 1988-2003 time period for qualification. This effectively delays limited access in Areas 2/3 until the trigger is reached, but once the trigger is reached, vessels without history in the fishery prior to 2004 would not have access to Areas 2 and 3. In this sense, the controlled access programs in Alternatives 3 and 4 are likely to produce impacts similar to those associated with the limited access program in Alternatives 6 and 7; the impacts would simply be delayed for some time period after the implementation of Amendment 1 and until the trigger is reached. Vessels that do not qualify for a limited access permit (i.e., those without history in the fishery prior to 2004) will obviously experience the most significant impacts (see impact discussion for Alternatives 6 and 7).

Alternative 4

Alternative 4 qualifies 38 vessels (31 active vessels) for limited access directed fishery permits to fish in Area 1. An additional 7 vessels (2 active vessels) qualify for directed fishery permits in Areas 2/3 only. The qualification criteria for Areas 2/3 would not apply until 75% of the TAC is reached in either of these areas. Until that point, any vessel that qualifies under the moratorium criteria can fish Areas 2/3. There are 1,937 vessels which qualify under the moratorium. More realistically, however, the pool of potential vessels is the 54 recently active, unless the price and/or demand for herring rises dramatically or access to other fisheries is lost.

Based only on the potential catch measures of the vessels which qualify for Area 1 (see Consideration of Potential Harvesting Capacity in Section 8.4.4 for discussion of potential catch measures), the potential catch of the limited access fleet that qualifies under this alternative (166,253 to 204,936 metric tons) is not that different from the status quo. While fewer vessels qualify than would remain in Alternative 1, these vessels are the majority of the most active and productive in the fishery. When looking at active vessels only, this is the same group of active vessels which qualify for all areas under Alternative 2.

Under Alternative 4, there are 14 vessels that qualify for limited access incidental catch permits that did not qualify for the directed fishery permits. Four of these were recently active in the herring fishery. These vessels could then retain up to 25 metric tons of herring per trip until the TAC is reached.

There are 17 midwater pair trawl and 7 single midwater trawl vessels that qualify for Area 1 but would not be able to fish in the purse seine/fixed gear area proposed in Alternative 4 (Area 1A East of 69 degrees) from June through September. Of the 17 pair trawl vessels, ten have their primary landing port in Massachusetts, four in Maine, and three are from other states in the Northeast. Of the seven single midwater trawl vessels, three have their primary landing port in Maine, three in Rhode Island, and one in Mid-Atlantic States. Recent landings data show that four of the midwater trawl and 12 of the pair trawl are actively fishing in Area 1A East of 69 degrees during the June through September period.

During 2002 through 2004, the affected midwater trawl vessels landed an average of 230 metric tons (worth about \$37,490), and the pair trawl vessels landed 1,043 metric tons (worth about \$170,009) per season (June through September) in Area 1A East of 69 degrees. These landings represent 2.5% and 29% of the total Area 1A landings by these single and paired midwater trawl vessels, respectively. The midwater trawl vessel landings ranged from 20 to 136 metric tons, and the pair trawl vessel landings ranged from 44 to 120 metric tons. Precluding midwater trawl vessels from the area will require that these vessels make up their catch in other areas. Depending on the availability of fish and portions of TACS in other areas, landings by these vessels could diminish, and the cost per metric ton of fish landed could increase. Increased costs would be due primarily to increased fuel costs if steam times are longer. Associated social consideration would be safety concerns and greater periods of time at sea often associated with stress on family life. However, as noted in the previous purse seine/fixed gear only discussion, it is possible that the purse seine and fixed gear catches will increase sufficiently to compensate for the loss of bait from midwater trawl landings.

Those vessels whose principal landing port is Maine may be the most affected as these ports are located nearest to the proposed closed area. These vessels also are more likely than those located further south to be engaged in the lobster bait industry, which is at its height during the months of the proposed closure. Given this, restricting access of these vessels during these months may impact the flow of herring as bait to lobster fishing communities in the area. See above discussion on the impacts of the purse seine/fixed gear only area.

(See discussion about controlled access program under Alternative 3.)

Alternative 5

Alternative 5 qualifies 29 vessels (25 active vessels) for limited access directed fishery permits to fish in all management areas. An additional 13 vessels (6 active vessels) qualify for directed fishery permits to fish in Areas 2/3 only. For this alternative, there is a provision for a subset of the 29 vessels that qualify for all areas to qualify for exclusive access to Area 1A once 50% of the Area 1A TAC is reached. Thirteen out of the 29 vessels qualify for the proposed historic inshore priority permit.

Based only on the potential catch measures of the vessels which qualify for all areas (see Consideration of Potential Harvesting Capacity in Section 8.4.4 for discussion of potential catch measures), the potential catch of the limited access fleet that qualifies under this alternative ranges from 134,665 to 172,394 metric tons; an 18% to 20% drop from the status quo. The additional potential catch measures for the 6 additional vessels which qualify for Areas 2/3 range from 2,959 to 3,136 metric tons.

Under Alternative 5, 38 vessels qualify for limited access incidental catch permits that did not qualify for the directed fishery permits. Eleven of these vessels were recently active in the herring fishery. These vessels could retain up to 25 metric tons of herring per trip until the TAC is reached.

While the control date of September 1999 was well-publicized, recognition of the underdevelopment of the herring fishery and herring market was also widely discussed in the years before the control date was instituted. Several companies moved into the business shoreside, working to broaden the market for U.S. harvested herring beyond the bait market to human food. Owners of these plants note that their viability relies on their ability to have close ties with vessels that will consistently provide a supply of herring to them. Alternative 5 threatens the newest plants viability because their associated vessels would not qualify for the directed fishery permits.

Under Alternative 5, a total of six pair trawl vessels would not qualify for limited access directed fishery permits. Included in this set of vessels are four vessels which are currently active in the herring fishery and have significant herring landings. These vessels service the freezer plants in New Bedford and Gloucester, MA. In addition, one of the four also lands herring in RI and ME. These four vessels average up to 90 days-at-sea per year (as many as 170 days for one of the vessels) and have average yearly revenue from herring of \$342,031. On average, herring provides 73% of total revenue and mackerel provides 28%. The economic impact to these four vessels of not qualifying for the limited access directed fishery permit would be significant. Mackerel is a short-season fishery and these vessels are rigged for pelagic fishing. Unless market conditions change, fully replacing revenue from herring with revenue from mackerel is unlikely. Also, it would be costly to switch to other fisheries, so it is likely these vessels would have to consider relocating. The freezer plants would likely be impacted by the loss of these vessels. Other vessels could supply these plants, but upgrades may be needed to meet plant needs.

The short-term economic and social impacts of this alternative are more severe than Alternatives 2 through 4 since fewer vessels will qualify. Alternative 5 excludes 33 vessels from the all areas criteria and 45 vessels from the Area 1 criteria. These excluded vessels will have to rely on catches from Areas 2 & 3 if they qualify for those areas or switch to other fisheries either in the Northeast or elsewhere.

When the capital that was invested in the herring fishery is disqualified under this alternative and is shifted elsewhere, the long-run overall qualifying fleet profitability will be greater than under the status quo and alternatives that qualify more vessels. Due to overall market limitations, the fishery usually lands about 100,000 metric tons per year. Using fewer vessels to harvest these landings will theoretically return higher profits and greater returns to crew because less fuel and other supplies will be used to harvest the fish. Additionally, long-term stability in the fishery can have positive externalities on employment, access to herring as bait and product for processing plants. Some fishermen have cautioned, though, that herring fishing is more successful when there is information sharing among the herring vessels. If the numbers of vessels are reduced too much, the expected benefit of lower use of fuel and other supplies might not materialize.

In addition, the modern facilities that have been developed in recent years could potentially fail, affecting some employment in the area, but also returning herring to almost exclusively bait industry. (Although herring is still canned for human food, there is only one plant remaining in the region.) The market limitations that keep the fishery at 100,000 mt per year would likely not be challenged or changed.

The inshore priority permit measure would likely slow the catch of TAC in Area 1A since more than half of the boats would be excluded once 50 percent of the TAC is reached. This could have a positive effect for those who qualify, lessening the temptation to engage in derby-style fishing and keeping the harvesting more evenly spaced out through the season, thus benefiting those who rely on fresh herring. If, however, the vessels that do qualify are for some reason unable to catch the TAC, and the non-qualifying vessels are not able to locate herring in Areas 2 and 3, there could be interruptions in the flow of bait.

There is no purse seine/fixed gear only component in this alternative. Therefore, this alternative does not provide added security to this sector of the fishery, nor should it have a positive impact on gear conflicts with the possible exception of reducing conflicts by decreasing the numbers of vessels in the area. Given that this measure is not included in this alternative, there are no impacts on other gear types that would have otherwise been excluded from this area during the summer months.

Alternative 6

Alternative 6 qualifies 32 vessels (21 active vessels) for limited access directed fishery permits to fish in Area 1. All of these vessels also qualify for the limited access directed fishery Area 2/3 permits. An additional 13 vessels (12 active vessels) qualify for directed permits to fish in Areas 2/3 only.

Based only on the potential catch measures of the vessels that qualify for Area 1 (see Consideration of Potential Harvesting Capacity in Section 8.4.4 for discussion of potential catch measures), the potential catch of the limited access fleet that qualifies under this alternative ranges from 101,690 to 115,046 metric tons; an 40% to 45% drop from the status quo. The additional potential catch measures for the 12 additional active vessels which qualify for Areas 2 & 3 range from 64,600 to 89,297 metric tons. While this alternative has the second lowest potential catch measures in Area 1, it has one of the highest in Areas 2 & 3. Overall, 45 individual vessels qualify under this alternative, similar to the total number of vessel qualifying in every alternative except for Alternative 3 in which 57 vessels qualify. The difference is that a much larger portion qualifies for Areas 2 & 3 whereas Area 1 is more restrictive in this alternative.

This alternative uses the September 1999 control date as the basis for qualifying vessels for permits to fish in Area 1. Since the Area 1A TAC is harvested every year and the TACs for Areas 2 and 3 are not, this alternative may force more vessels offshore to the areas that are regarded as having further potential for development. However, increased steam times will increase fuel costs. Because of the perishability of herring, despite the use of refrigerated seawater systems, the vessels would probably still return to unload their catch frequently. Travel farther offshore could compromise safety. Nevertheless, the shifting of effort to areas where herring is more plentiful could benefit the entire industry, increasing the supply so that marketing efforts could tap the potential for U.S.-caught herring in the global market. At the same time, fishing in Area 1 and particularly Area 1A might be slower so that those that do qualify could fish year-round, perhaps increasing the stability and predictability of supply. Those concerned about the availability of herring as forage for tuna and whales are likely to consider the slowing of the catch in Area 1 as a benefit. This might address both the values and interests of recreational fishermen and commercial tuna fishermen.

Under Alternative 6, there are 39 vessels that qualify for limited access incidental catch permits that did not qualify for the directed fishery permits. Twelve of these were recently active. These vessels could then retain up to 25 metric tons of herring per trip until the TAC is reached.

There are seven midwater pair trawl and six single midwater trawl vessels that qualify for Area 1 but would not be able to fish in the purse seine/fixed gear area proposed in Alternative 6 (Area 1A East of 69 degrees) from June through September. Of the seven affected pair trawl vessels, three have their primary landing port in Massachusetts, one in Maine, and three from other states in the Northeast. Of the six single midwater trawl vessels, two have their primary landing port in Maine, three in Rhode Island, and one in Mid-Atlantic States. Recent landings data show that three of the affected midwater trawl vessels and five of the affected pair trawl vessels are actively fishing in Area 1A East of 69 degrees during the June through September period.

During 2002 through 2004, the affected midwater trawl vessels landed an average of 179 metric tons (worth about \$29,177), and the pair trawl vessels landed 414 metric tons (worth about \$67,482) per season (June through September) in Area 1A East of 69 degrees. These landings represent 2.2% and 2% of the total Area 1A landings by these single and paired midwater trawl vessels, respectively. The midwater trawl vessel landings ranged from 20 to 136 metric tons and the pair trawl vessel landings ranged from 52 to 102 metric tons. Precluding midwater trawl vessels from the area will require that these vessels make up their catch in other areas. Depending on the availability of fish and portions of

TACS in other areas, landings by these vessels could diminish and the cost per metric ton of fish landed could increase. Increased costs would be due primarily to increased fuel costs if steam times are longer. Associated social considerations would be safety concerns and greater periods of time at sea often associated with stress on family life. However, as noted in the previous purse seine/fixed gear only discussion, it is possible that the purse seine and fixed gear catches will increase sufficiently to compensate for the loss of bait from midwater trawl landings.

Those vessels whose principal landing port is Maine may be the most affected as these ports are located nearest to the proposed closed area. These vessels also are more likely than those located farther south to be engaged in the lobster bait industry, which is at its height during the months of the proposed closure. Given this, restricting access of these vessels during these months may impact the flow of herring as bait to lobster fishing communities in the area (see the previous discussion about the impacts of the purse seine/fixed gear only area).

Alternative 7

Alternative 7 qualifies 23 vessels (18 active vessels) for limited access directed fishery permits to fish in Area 1. All of these vessels also qualify for the limited access directed fishery Area 2/3 permits. An additional 22 vessels (15 active vessels) qualify to fish in Areas 2/3 only under this alternative. This was the Council's preferred alternative in the DSEIS for Amendment 1.

Based only on the potential catch measures of the vessels which qualify for Area 1 (see Consideration of Potential Harvesting Capacity in Section 8.4.4 for discussion of potential catch measures), the potential catch of the limited access fleet under this alternative ranges from 99,133 to 111,977 metric tons; an 42% to 47% drop from the status quo. The additional potential catch measures for the 15 additional active vessels which qualify for Areas 2 & 3 range from 67,156 to 92,995 metric tons. While this alternative has the lowest potential catch measures in Area 1, it has the highest in Areas 2 & 3. Overall, 45 individual vessels qualify under this alternative which is similar to the total number of vessel qualifying in every alternative except Alternative 3 in which 57 vessels qualify. The difference is that a much larger portion qualifies for Areas 2 & 3 whereas Area 1 is more restrictive.

Under Alternative 7, there are 37 vessels that qualify for incidental catch permits that did not qualify for the directed fishery permits. Thirteen of these were recently active. These vessels could then retain up to 15 metric tons of herring per trip until the TAC is reached.

There are six midwater pair trawl and six single midwater trawl vessels that qualify for Area 1 but would not be able to fish in the purse seine/fixed gear area proposed in Alternative 7 (all of Area 1A) from June through September. Of the six affected pair trawl vessels, two have their primary landing port in Massachusetts, one in Maine, and three are from other states in the Northeast. Of the six affected single midwater trawl vessels, two have their primary landing port in Maine, three in Rhode Island, and one in Mid-Atlantic States. Recent landings data show that four of the midwater trawl vessels and five of the pair trawl vessels are actively fishing in Area 1A during the June through September period.

During 2002 through 2004, the affected midwater trawl vessels landed an average of 5,560 metric tons (worth about \$906,000), and the pair trawl vessels landed 10,933 metric tons (worth about \$1,782,000) per season (June through September) from Area 1A. These landings represent 67% and 56% of the total Area 1A landings by these single and paired midwater trawl vessels, respectively. The midwater trawl vessel landings ranged from 266 to 3,372 metric tons, and the pair trawl vessel landings ranged from 613 to 3,136 metric tons. Precluding midwater trawl vessels from the area will require that these vessels make up their Area 1A catch (which is one third of their total catch) in other areas. Depending on the

availability of fish and portions of TACs in other areas, landings by these vessels could diminish, and the cost per metric ton of fish landed could increase. Since fish are not caught in Area 2 in the summer, the catch will have to come from Area 3. Increased costs would be due primarily to increased fuel costs if steam times are longer. Associated social considerations would be safety concerns and greater periods of time at sea often associated with stress on family life. However, as noted in the previous purse seine/fixed gear only discussion, it is possible that the purse seine and fixed gear catches will increase sufficiently to compensate for the loss of bait from midwater trawl landings.

If the approximately 16,500 metric tons of herring that the single and paired midwater trawl vessels would be precluded from catching in Area 1A cannot be made up in other areas, then the purse seine vessels would have the opportunity to supply those markets. Historically, 74% of these purse seine vessels landings (about 15,000 mt) are landed during the summer months from Area 1A. If the purse seiners picked up all of what was left by the midwater trawler in Area 1A, it would more than double the purse seine catch for that period.

Those vessels whose principal landing port is Maine may be the most affected, as these ports are located nearest to the proposed closed area. These vessels also are more likely than those located farther south to be engaged in the lobster bait industry, which is at its height during the months of the proposed closure. Given this, restricting access of these vessels during these months may impact the flow of herring as bait to lobster fishing communities in the area (see previous discussion on the impacts of the purse seine/fixed gear only area).

(See discussion in Section 8.4.1 regarding the costs associated with re-rigging a midwater trawl vessel to fish with a purse seine.)

Additionally, changes in access to herring locations could potentially affect the supply of herring to ports in the region with potential impacts on processing plants, bait dealers, and ultimately lobster fishermen and other final consumers of herring. In this region, a number of key herring communities were identified including Prospect Harbor, Stonington, Vinalhaven, Rockland, and Portland, Maine; Portsmouth and Newington, New Hampshire; Gloucester and New Bedford, Massachusetts. A description of these communities is included in the Affected Human Environment section of this document (Section 7.4).

8.4.8 Impacts of Open Access Incidental Catch Permit on Fishery-Related Businesses and Communities

In Amendment 1, the Council proposes to establish an open-access incidental catch permit for vessels that do not qualify for any limited access herring permits. The open access permit would allow vessels to retain up to 3 mt of herring per trip (~6,600 pounds) and would limit permit holders to one landing per calendar day. The intent of this measure is to minimize bycatch (discards) in non-directed fisheries while limiting opportunities to target herring.

Currently, the Herring FMP allows incidental catch fisheries to retain 2,000 pounds of herring per trip. The available fishery data are summarized in Table 154 by trips landing less than 1 mt (~2,200 lb), 2 mt, 3 mt, 4 mt, and 5 mt (~11,000 lb). Most incidental catch of herring occurs in Area 1A. Trips landing less than 5 mt totaled 478 mt in 1999 and then decreased to less than 250 mt from 2000-2002. Without considering possible expansion of effort in incidental catch fisheries, it appears that the impact of these fisheries on the total TAC in any management area is insignificant.

Table 154 Herring Landings (mt) from Incidental Catch Fisheries (Trips Landing Less than 5 mt of Herring) by Year and Management Area, 1999-2002

Year		Area 1A	Area 1B	Area 2	Area 3	Grand Total
1999	SUM OF TRIPS < 1 MT	8.57	0	2.93	0.57	12.07
	SUM OF TRIPS < 2 MT	101.6	0	55.06	4.19	160.85
	SUM OF TRIPS < 3 MT	192.07	0	84.62	8.73	285.42
	SUM OF TRIPS < 4 MT	247.05	3.9	102	11.9	364.85
	SUM OF TRIPS < 5 MT	310.3	3.9	138.4	25.17	477.77
2000	SUM OF TRIPS < 1 MT	20.53	0.5	50.84	0.9	72.77
	SUM OF TRIPS < 2 MT	51.94	0.5	69.13	0.9	122.47
	SUM OF TRIPS < 3 MT	91.05	0.5	101.51	0.9	193.96
	SUM OF TRIPS < 4 MT	94.09	0.5	115.35	0.9	210.84
	SUM OF TRIPS < 5 MT	111.93	0.5	129.26	0.9	242.59
2001	SUM OF TRIPS < 1 MT	43.24	2.56	45.15	0.27	91.22
	SUM OF TRIPS < 2 MT	49.11	4.42	66.43	1.31	121.27
	SUM OF TRIPS < 3 MT	57.74	4.42	91.45	1.31	154.92
	SUM OF TRIPS < 4 MT	64.54	4.42	94.62	4.94	168.52
	SUM OF TRIPS < 5 MT	87	4.42	117.52	4.94	213.88
2002	SUM OF TRIPS < 1 MT	82.07	0.94	36.57	5.97	125.55
	SUM OF TRIPS < 2 MT	97.69	0.94	42.34	7.33	148.3
	SUM OF TRIPS < 3 MT	111.98	0.94	50.69	7.33	170.94
	SUM OF TRIPS < 4 MT	118.78	0.94	71.84	7.33	198.89
	SUM OF TRIPS < 5 MT	146.02	5.48	76.38	12.32	240.2

Benefits to this measure include the likelihood of a reduction in regulatory discards. It would also benefit those smaller vessels that fish for herring along with a number of other small mesh fisheries (e.g., whiting, squid, butterfish). Therefore, this measure could provide greater flexibility for the small boat fleet by allowing them to maintain opportunities in other fisheries that may catch herring incidentally. Given the amount of herring permitted as incidental catch under this measure, it is unlikely to have significant impacts on the limited access herring fleet. Moreover, the data provided above suggests that the TACs for the herring fishery are not likely to be caught more quickly as a result of having an open-access incidental catch permit available to all vessels; past performance by the vessels that may obtain the open access permit demonstrates very small amounts of herring landings.

8.4.9 Impacts of Other Proposed Management Measures on Fishery-Related Businesses and Communities

This section discusses the impacts of other proposed management measures on fishery-related businesses and communities. The management measures discussed in this section were identified in the Amendment 1 DSEIS as independent management measures, which have little to no interaction effects and could be combined with the final management alternative in any way. Unless otherwise specified below, the “no action” alternative for each of these measures maintains status quo conditions in the fishery and would not be expected to have any additional impact on fishery-related businesses and communities. The no action alternative for these measures is discussed in Section 5.1 of this document.

VMS Requirements and Vessel Upgrade Restrictions (Sections 4.1.4.3 and 4.1.4.2 respectively)

VMS Requirements – This measure will only impact those vessels that do not already have VMS. All Category 1 vessels have already met this requirement and therefore will not be further impacted. Of those vessels with permits in 2004, 41 averaged greater than 1 metric ton per trip. Of those vessels, 24 already have Category 1 permits (and therefore have already met VMS requirements). The remaining 17 will have to make these investments if they have not already been required to do so for another fishery. Apart from the higher relative cost (to a small versus larger business/vessel), this measure could be regarded as equitable since all would have the same data requisites. The benefits of having data from all the vessels could potential benefit everyone as well in assuring appropriate management.

The initial cost of a VMS device ranges from \$1,550 for a Thrane and Thrane 3026M (\$2,650 for a 3022D) to \$6,000 for a unit from Boatracs. Communications charges are \$3 per day for service through Boatracs. This is a flat fee for usage under a certain level. Communications service through Thrane and Thrane is \$1 per day, but a PC is required.

Vessel Upgrade Restrictions – For some fishery participants (particularly those if any with immediate plans to upgrade vessels), vessel upgrade restrictions may constrain future business opportunities. However, the restrictions included in this measure will reduce the likelihood of further capitalization of the industry. Introducing this measure is also likely to help sustain the viability of a diverse fleet.

Adjustments to Management Area Boundaries (Section 4.3)

Based on recent patterns of fishing effort (Section 7.4.1.2.3), the impacts on the operation of the Area 2 fishery from moving the Area 2/3 boundary to 70° are not expected to be significant. The majority of the Area 2 fishery occurs west of 70°, and very little catch occurs between 69° and 70°. This change should allow Area 2 to better reflect the area where the winter fishery occurs (inshore and offshore stock components) and Area 3 to better reflect the distribution of the offshore spawning component (no mixing with the inshore component occurs in Area 3).

Changing the line between Areas 2 and 3 is not likely to result in economic or social impacts since the TACs in both areas have not been fully utilized since they were implemented. Moving the line between Area 3 and Area 1B will reduce the size of Area 1B and expand the size of Area 3, but the respective TACs will remain the same at this time. The implication of this is if productive fishing areas are shifted from Area 1B to Area 3, the Area 3 landings may increase, possibly resulting in full utilization of the TAC and closure of the area, and the Area 1B season may be lengthened. If the Area 3 TAC remains a non-limiting factor, there would be no overall economic impact.

Area Measure 3 (eliminate 1A/1B boundary, non-preferred): Removing the 1A/1B line will likely shift vessels fishing in Area 1 closer to shore since there would be no need to travel to Area 1B to catch any herring (assuming the fish are available inshore). This would decrease costs for vessels fishing in this

area. However, concerns about increasing fishing effort in the inshore Gulf of Maine have been expressed by the Herring PDT on numerous occasions and should be weighed against the benefits of any reduced fishing costs. The potential for gear conflicts and an increase in the perception of negative impacts on the herring fishery should also be considered.

Proposed MSY Proxy (Section 4.5)

Reducing MSY, as compared to no action, could correspond with a reduced overall TAC for the herring fishery and may compromise future business opportunities, particularly in the areas where the TAC has yet to be fully-utilized. Determination of the area-specific TACs would continue to occur through the herring fishery specification process, so it is unclear which TACs would decrease as a result of a lower overall MSY value, and presumably a lower overall OY value. The area-specific TACs will likely continue to adjust in the future through the specification process, depending on stock and fishery conditions. However, setting an appropriate MSY for the fishery could provide additional assurance to fishery participants that a viable fishery would be available in future years.

Measures to Determine the Distribution of TACs (Section 4.6)

These measures are primarily related to the process by which the Council selects specifications for the Atlantic herring fishery, so they are not likely to produce any direct impacts on fishery-related businesses and communities. In the future, any social and/or economic impacts resulting from the TACs that are selected during the fishery specification process will be discussed in the EA associated with that action.

Adjustments to the Timing of the Specification Process (Section 4.7)

Extending the specification process from one to three years could give businesses a longer-term vision and create a more stable environment for business planning. However, if businesses are not satisfied with particular decisions, they may have to live with it for longer than if the specification process was revisited each year. Since the measure does permit the Council to adjust the specifications in the interim years, major problems or sudden changes in conditions of the stocks or human environment could potentially be accommodated.

Research Set-Aside Process (Section 4.8)

Since this measure simply authorizes the establishment of TAC set-asides for research as part of the herring fishery specification process, there are no impacts on fishery-related businesses and communities expected at this time. Once the Council utilizes this process and establishes TAC set-asides, the analyses conducted as part of the fishery specification process will consider the potential impacts of the specific set-asides under consideration. Some general discussion is provided below.

The area in which a TAC set-aside is likely to result in a negative economic impact is Area 1A. Since the Area 2 and 3 TACs are not usually reached, a set-aside of 3% would not reduce the landings of vessels fishing in those areas. Landings from Area 1A, however, would be reduced by the set-aside amount because the TAC is usually reached before the end of the season. Purse seine vessels may not be able to move offshore so the economic impact on those vessels would be the degree to which their revenues decline. Midwater trawl vessels, which have a wider range, would likely move offshore and the economic impacts to those vessels would be reflected in increased operating costs.

Improved information generated by the research should have positive outcomes for participants as it is likely to lead to more appropriate and effective management measures. Industry participation in this process could improve the relevance of the research to be carried out and may cultivate a greater sense of stewardship by participants in the fishery.

Measures to Address Fixed Gear Fisheries (Section 4.9)

There are no significant negative impacts anticipated for the measures included in this section. There may be an added reporting burden on the fixed gear fishery participants as currently they are not required to report using IVR and would be required to do so under these new measures. This is a requirement that the ASMFC is implementing through the Interstate FMP for Atlantic Herring, so impacts associated with this measure will be addressed by the ASMFC. Relative to the no action alternative, the measures proposed in this amendment may positively impact fixed gear participants in that these measures may provide them with increased flexibility and opportunities in the herring fishery.

Measures to Address Bycatch (Section 4.10)

Measures to address bycatch were separated from Amendment 1 and submitted in February 2006 as Framework 43 to the Northeast Multispecies FMP. The Framework 43 document should be referenced for additional information and analyses of impacts.

Measures to Modify the Regulatory Definition of Midwater Trawl Gear (Section 4.11)

This measure will impact those vessels that will have to invest in new gear or modify existing gear in order to meet the requirements of the new definition. These vessels may need to forgo fishing at very low levels of the water column, thus reducing their flexibility. However, since most of the herring vessel owners and operators live in communities that have been significantly affected by groundfish closures and other regulations, this measure could help improve community dynamics if fishermen of other gear types know that the midwater trawlers are unlikely to be fishing the bottom.

Additional Measures That Can Be Implemented Through a Framework Adjustment to the Herring FMP (Section 4.12)

This action simply identifies management measures that can be implemented through a framework adjustment to the Herring FMP in the future, or the fishery specification process in some cases, whichever is most expeditious. The action proposed in this amendment relative to the measures that can be implemented through a framework adjustment is not expected to produce any impacts. Impacts associated with specific measures that may be implemented in the future through this process will be analyzed in accordance with applicable law as part of the framework adjustment and/or specification process.

8.4.10 Summary of Impacts on Fishery-Related Businesses and Communities

The management measures included in the Proposed Action that are most likely to directly impact fishery-related businesses and communities are the proposed limited access program and the purse seine/fixed gear-only area. The Proposed Action is estimated to qualify 31 vessels for limited access directed fishery permits to fish in all management areas, three additional vessels for limited access directed fishery permits in Areas 2/3 only, and 56 vessels for limited access incidental catch permits with a 25 mt possession limit. **The estimated total number of limited access vessels under the Proposed Action is 90, with 34 unique vessels qualifying for the directed herring fishery.**

Under the Proposed Action, there are 56 vessels that qualify for incidental catch permits that do not qualify for the directed fishery permits. Seventeen of these vessels were recently active. These vessels can retain up to 25 metric tons of herring per calendar day until 95% of the TAC is reached and the management area closes, at which time they would be limited to an incidental catch of 2,000 pounds per trip. This is the least restrictive alternative for the limited access incidental catch permit that was considered in this amendment. It provides opportunities in the fishery for historical vessels that would not have otherwise qualified (due to lack of adequate landings since 1993).

The majority of vessels that do not qualify under the Proposed Action have not been active in the herring fishery in recent years, and in some cases, for many years. Some have switched to other fisheries like mackerel and squid. The limited access incidental catch permit will likely accommodate the catch of herring on these vessels and allow them to continue normal operations in other fisheries. This should help to mitigate the impacts of not qualifying for a directed fishery permit in Areas 2/3.

While the majority of non-qualifying vessels have not been active in the herring fishery in recent years, there are four pair trawl vessels and nine single midwater trawl vessels that, on average, get about a third of their revenue from herring. The four pair trawl vessels average \$91,730 per year in herring revenue and the nine single midwater trawl vessels average \$21,420 per year. Of the four pair trawl vessels, three receive a significant level of revenue from herring (an average of \$122,000 per year) and the other vessel receives a minor amount of revenue from herring. Of the nine single midwater trawl vessels, only one receives a significant amount of revenue from herring while the other eight receive small amounts of revenue from herring (less than \$4,500 per year).

There are 16 midwater pair trawl and six single midwater trawl vessels that qualify for Area 1 but would not be able to fish in the purse seine/fixed gear area proposed in the Proposed Action (all of Area 1A) from June through September. Of the 16 affected pair trawl vessels, 9 have their primary landing port in Massachusetts, four in Maine, and three are from other states in the Northeast. Of the six affected single midwater trawl vessels, two have their primary landing port in Maine, three in Rhode Island, and one in Mid-Atlantic States. Recent landings data show that four of the midwater trawl vessels and 13 of the pair trawl vessels are actively fishing in Area 1A during the June through September period.

During 2002 through 2004, the affected midwater trawl vessels landed an average of 5,472 metric tons (worth about \$892,000), and the pair trawl vessels landed 21,298 metric tons of herring (worth about \$3,472,000) per season (June through September) from Area 1A. These landings represent 68% and 60% of the total Area 1A landings by these single and paired midwater trawl vessels, respectively. The midwater trawl vessel landings ranged from 266 to 3,372 metric tons, and the pair trawl vessel landings ranged from 90 to 3,263 metric tons. To compensate for potential losses, they will have the choice to either seek alternative fishing grounds or fisheries and/or to re-rig to purse seine in Area 1A during the time of the restriction. All of the above choices are associated with financial costs.

Pair trawl vessels that qualify for limited access directed fishery permits under the Proposed Action are 69% dependent on herring. Qualifying midwater trawl vessels are 38% dependent, and qualifying purse seine vessels are 100% dependent on herring. Dependence on herring for single midwater trawl vessels ranges from 38% to 45% for most alternatives considered in the Amendment 1 DSEIS. Bottom trawl vessels are the least dependent on herring. Under the Proposed Action, there are four pair trawl vessels that would not qualify for a directed limited access herring permits. These vessels have, on average, annual revenue from herring of \$91,730 (from an average of 25 days of herring fishing) which represents about 35% of their total revenue from all species.

Based only on the potential catch measures of the 28 active vessels that qualify for all areas, the potential catch measures range from **161,030 to 198,710 metric tons** (relative to current total TAC for the fishery of 150,000 mt). This provides some perspective on what the potential harvesting capacity of the limited access directed fishery fleet may be under the Proposed Action. The range of potential catch of the limited access directed fleet represents a 5% decrease from the status quo. The additional potential catch measures for the one active vessel that qualifies for Areas 2/3 only increases the potential catch measures slightly (cannot report due to confidentiality issues). The Proposed Action ranks in the middle of the alternatives considered in Amendment 1 relative to the potential catch measures (see Section 8.4.4 for a description of the potential catch measures).

Table 155 summarizes the impacts of the Proposed Action on fishery-related businesses and communities. The table focuses on the impacts of the limited access program and the purse seine/fixed gear-only area, the two management measures that are likely to result in the greatest impact on affected participants in the fishery.

Table 155 Summary of Impacts of Proposed Action on Fishery-Related Businesses and Communities

Measures with Greatest Impacts	Limited Access Program and Permits Purse Seine/Fixed Gear-Only Area
LIMITED ACCESS DIRECTED FISHERY QUALIFIERS	
Area 1 (All Areas)	31
Areas 2/3 Only	3
TOTAL DIRECTED FISHERY QUALIFIERS = 34	
Limited Access Incidental Catch Qualifiers	56
TOTAL NUMBER OF LIMITED ACCESS VESSELS = 90	
Potential Catch Measure 1 for Area 1 Qualifiers (Active Directed Fishery Qualifiers Only)	161,030 mt
Potential Catch Measure 2 for Area 1 Qualifiers (Active Directed Fishery Qualifiers Only)	198,710 mt
POTENTIAL CATCH = 5% REDUCTION FROM NO ACTION	
Active Non-Qualifiers for Directed Fishery	2 purse seine 9 midwater trawl (2 qualify for incidental catch) 4 pair trawl (1 qualifies for incidental catch)
Average Revenues from Herring for Active Non-Qualifiers	Purse seine = cannot report Midwater trawl = \$21,420 Pair Trawl = \$91,730
Qualifying Vessels Impacted by Purse Seine/Fixed Gear Area	16 Pair Trawl 6 Midwater Trawl
Percentage of Total Area 1A Catch During Purse Seine/Fixed Gear Closure for Impacted Vessels	60% Pair Trawl 68% Midwater Trawl