

**INITIAL REGULATORY FLEXIBILITY ANALYSIS FOR AMENDMENT 13 TO THE
NORTHEAST MULTISPECIES FISHERY**

Prepared by the National Marine Fisheries Service, Northeast Region

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1.0 Background

NMFS, pursuant to section 603 of the Regulatory Flexibility Act (RFA), prepared this initial regulatory flexibility analysis (IRFA) as a supplement to the Council submission of Amendment 13 to the Fishery Management Plan for Northeast Multispecies (Amendment 13). The IRFA describes the economic impact that this proposed rule, if adopted, would have on small entities.

The Council, in its submission, included a Regulatory Flexibility Act Analysis (RFAA) in support of the proposed action. In this analysis, the baseline (no-action alternative) is the set of measures that were in place prior to the first set of interim measures implemented under the settlement agreement (i.e., FY 2001 fishing measures). The use of this baseline was adopted by the Council. Copies of Amendment 13, which includes the Council's RFAA, can be obtained from the Council (see ADDRESSES in the proposed rule). Tables and sections that are referenced in this IRFA refer to those contained in Amendment 13. An appendix containing those tables cited in the IRFA is attached. A description of the reasons why this action is being considered is found in the preamble to this proposed rule, the Executive Summary and Section 1.0, Volume 1, of Amendment 13. The objectives of, and legal basis for, the proposed rule is found in the preamble to this proposed rule and Section 1.0, Volume 1, of Amendment 13. There are no federal rules that may duplicate, overlap, or conflict with the proposed rule.

2.0 Description of and Estimate of the Number of Small Entities to Which the Proposed Rule Will Apply

The proposed action would implement changes affecting any vessel holding a limited access groundfish permit, an open access hand gear-only permit, and vessels that hold an open access party/charter permit. Based on fishing year 2002 (FY2002) data, the total number of small entities that may be affected would be 1,442 limited access permit holders, 1,994 hand gear permits, and 685 party/charter permits. However, since an open access permit holder may hold more than one permit, the total number of unique entities holding either a hand gear or a party/charter permit was 2,250 of which 1,565 held only a hand gear permit, 306 held only a party/charter permit, and 379 held both a hand gear and a party/charter permit. The Small Business Administration (SBA) size standard for small commercial fishing entities is \$3.5 million in gross receipts, while the size standard for small party/charter operators is 100 employees. The commercial fishing size standard would apply to limited access permit holders, as well as open access hand-gear only, permits. Available data based on 1998-2001 average gross receipts show that the maximum gross receipts for any single commercial fishing vessel was \$1.3 million. For this reason, each vessel is treated as a single entity for purposes of size determination and impact assessment. This means that all commercial fishing entities would fall under the SBA size standard. Since all entities were deemed to fall under the SBA size standard for small commercial fishing entities, there would be no disproportionate impacts between small and large entities.

3.0 Economic Impacts of the Proposed Action

Recreational Measures

The proposed action would implement a 10 cod/person/day bag limit for private recreational vessels and party/charter vessels in the Gulf of Maine (GOM), and a minimum size for cod 22 inches and haddock 19 inches. This would relax current restrictions on the bag limit for GOM party/charter passengers and would permit passengers to retain a two-day equivalent of the daily bag limit on trips that take place over two calendar days and that are at least 15-hours in duration. These measures would affect any vessel that choose to take passengers for-hire in the GOM where cod are caught. While there are a large number of vessels that hold a party/charter groundfish permit, there have only been about 120 vessels that have actually reported landing GOM cod when taking passengers for hire. Of these vessels, the majority earn at least 75 percent of fishing income from passenger fees. Although the impact of a relaxation of the bag limit cannot be estimated using available data, there is little doubt that the higher bag limit will be more attractive to party/charter customers, which should result in higher passenger loads and an overall improvement in party/charter business profits.

Commercial Measures

Measures to Address Stock Rebuilding Requirements

The proposed action would implement both a change in baseline days-at-sea (DAS) allocations and a number of management measures that would affect the manner in which available DAS allocations may be used.

The Settlement Agreement assigned baseline DAS allocations based solely on DAS that had been called-in during fishing years 1996 to 2000 and granted a minimum allocation of 10 DAS to all limited access permit holders. The proposed action would change this baseline by adding FY2001 to the qualification period but would also require that only years in which at least 5,000 pounds of regulated groundfish would count toward qualification. Vessels that either called in no DAS at all, or never landed more than 5,000 pounds in a single year, would receive a baseline allocation of zero, although their full pre-settlement agreement allocation would be placed in Category C DAS.

Preliminary analysis of the proposed action indicates that the majority (599) of vessels would see no change in their effective effort baseline, while 272 vessels would receive a higher allocation than their Settlement Agreement baseline. However, 52 vessels would have a lower baseline and 519 vessels would receive a zero baseline allocation. Of the vessels with a zero baseline, 394 were vessels that had received a minimum allocation under the Settlement Agreement and 125 were vessels whose baseline allocation was more than 10 DAS.

In effect, the proposed action places greater weight on providing for continued participation in the groundfish fishery to those vessels that may be comparatively more active and that may be more dependent on the groundfish fishery for business income. That is, reducing the potential pool of qualifying DAS, makes it possible to achieve the same conservation objective with a lower DAS reduction to all remaining vessels that will receive a baseline allocation.

Vessels that receive no baseline allocation in FY2004 would not be able to fish for regulated groundfish, until all stocks have been rebuilt and all Category B DAS have been converted to Category A DAS. This prohibition may not have an immediate impact on fishing income (i.e. vessels that received no allocation have either not participated in the groundfish

fishery over a five-year period or did participate but at a very low level), but a loss of DAS does mean that the equity value of the business would be reduced. A loss in equity would affect the resale value of the vessel and may affect the ability to obtain business loans.

A total of 923 vessels would receive a non-zero baseline allocation; approximately the annual average number of vessels that have participated in the groundfish fishery since 1996. For these qualifying vessels, the action would have no effect on economic opportunities for the 519 vessels with no change in baseline DAS. It would increase economic opportunity for 272 vessels, while 52 boats with DAS allocations would receive lower allocations. Approximately 500 vessels would receive zero DAS.

Since all entities were deemed to fall under the SBA size standard for small commercial fishing entities, disproportionality does not apply as a standard against which small entity impacts would be compared to large entity impacts. Nevertheless, in section 5.4.4, revenue impacts were estimated for several different vessel categories, including total value of groundfish sales, where groundfish sales classes were broken into four intervals based on quartiles of the distribution of 1998-2001 average groundfish sales for participating vessels. The findings in section 5.4.4 indicate that relative changes in total fishing income would have lower impact on vessels with total groundfish sales of less than \$35,000. Overall, vessels with the highest groundfish sales, as opposed to those with lower sales, may be expected to be more affected by Amendment 13 management measures. However, the proposed action would have lower revenue impact than any of the non-selected alternatives. To examine whether the proposed action would have impacts based on total sales, the revenue impacts were summarized by gross sales intervals where intervals were established as the quartiles of the distribution of 1998-2001 average gross sales. Due to differences in dependence on groundfish and normal fishing patterns, these total revenue losses are not equally distributed across all vessels. In fact, revenue changes were found to be quite skewed, which means that reporting average or even median vessel impacts fails to identify the full range of revenue losses across the groundfish fleet. For this reason, revenue impacts are reported for the 10th, 25th, 50th (median), 75th and 90th percentile of the distribution of impacted vessels sorted in ascending order from most negatively to least impacted vessel (Table 184). Each percentile forms an interval that represents a specific number of vessels as well as the lower and upper range of impact on vessels between percentiles.

Relative changes in total fishing revenues were not markedly different across all sales intervals at least among the 55 most impacted vessels in each sales interval, although the estimated impact at the 10th percentile was greatest (a 44.7-percent reduction) for vessels with sales less than \$65,000 (Table 369). However, revenue impacts on the remaining 150 or so vessels in this sales category were generally lower, and were even positive for some vessels as compared to vessels with higher gross sales. In fact, the overall impact was generally most burdensome on vessels with highest gross sales (\$300,000 or more). Note that these estimated impacts would be higher for all sales intervals for any of the non-selected alternatives versus the no-action alternative. Based on the estimated changes in gross fishing revenue the proposed action would have higher impact on vessels with highest total sales and would not, therefore, have a disproportionate impact on vessels with smallest total sales.

Change in gross revenues provides an incomplete picture of the impact of the proposed action on vessel profitability making it difficult to determine whether any given vessel may cease business operations. Unfortunately, while available data permit tracking landings and revenues

by vessel, no comparable data collection system exists to collect a comprehensive set of operating, fixed, and debt service costs for the groundfish fleet. This means that it is not possible to directly provide a reliable numerical estimate of current profit levels or how many vessels may not be able to remain profitable once the Proposed action is implemented. However, a relative measure of profitability change and percent of possible business failures was estimated by simulating vessel costs and returns by using a combination of the cost data developed for the break-even DAS analysis (see Section 4.4.5), available data, and the estimated reduction in effective effort. Specifically, empirical data were used to fit theoretical probability distributions for fixed costs, costs per day, annual revenue on groundfish trips, annual revenue on trips where groundfish were not landed, days absent on groundfish trips, and days absent on trips where groundfish were not landed. A Monte Carlo simulation was then run using 1,000 iterations to produce 1,000 different possible financial profiles or equivalently profit levels for each gear and size class developed for the break-even analysis. By simultaneously simulating a baseline scenario and the Proposed action (the baseline groundfish days absent reduced by 45 percent) each realization produces a paired estimate of profit for the baseline and the Proposed action. In this manner, groundfish revenue is directly linked to the DAS reduction but so too are the operating cost savings associated with a reduction in groundfish effort. For calculations used to estimate profitability, see section 7.3.3.7.2.

The potential business failure rate ranged from 25 to 35 percent for small vessels using long-line gear depending on debt levels (Table 371). For vessels that may remain above break-even, median reduction in profit level ranged from 47 percent to 56 percent for vessels with no debt and high debt respectively. Across all vessels, reductions in profit levels could exceed 80 percent while some vessels may experience more modest changes in profitability (between 8.0 and 25 percent depending on debt level). Available data does not make it possible to determine the mix of small long-line vessels by debt level. However, assuming a medium debt level represents a fleet average, 17 out of a total of 51 small long-line vessels may be expected to cease business operations.

Larger long-line vessels had higher overall fishing revenues in FY2000 than small long-line vessels, but also had higher estimated costs. These costs represented a small overall increase in proportion to increases in total fishing revenues which means that business failure rates for these vessels are likely to be lower. Failure rates were estimated to range from a low of 9 percent for vessels with no debt to a high of 15 percent for vessels with high annual debt payments (Table 372). Median estimated reduction in profit level would also be lower than small long-line vessels, but would still exceed 37 percent, regardless of debt level. At the medium debt failure rate, a total of 3 of 24 large long-line vessels may cease business operations under the Proposed action.

Business failure rates for small gillnet vessels may range from 19 to 24 percent depending on debt level (Table 373). Median reduction in profit would be about 35 percent, but may be much higher (more than 80 percent) for some vessels or may be less than 1 percent for others. Assuming a medium debt failure rate, 14 of 63 small gillnet vessels may be expected to cease business operations.

As was the case for larger hook vessels, larger gillnet vessels had higher overall fishing revenues but costs were not higher by the same proportion. For this reason, failure rates for large gillnet vessels were somewhat lower (from 15 to 21 percent) than for small gillnet vessels

(Table 374). However, potential reductions in profit levels for vessels that would still be above break-even may be higher for large, as compared to small gillnet vessels. Specifically, median profit reduction may be at least 50 percent; about 15 percentage points greater than estimated median impacts on small gillnet vessels. Using the medium debt level failure rate, a total of 23 of 118 large gillnet vessels may be expected to cease business operations.

Small trawl vessels (less than 50 feet in length) may have business failure rates between 27 and 33 percent depending on level of debt payments (Table 375). Median losses in profit levels for vessels that may still be able to break-even may be between 50 and 60 percent with some vessels experiencing much larger reduction in profitability (90 percent or greater for vessels with high debt), while others may experience much lower reductions in profit. Assuming that medium debt is consistent with a fleet average, about 55 of 187 small trawl vessels may go out of business under the proposed action.

The business failure rate for medium trawl vessels was estimated to range between 18 and 27 percent (Table 376). This failure rate was lower than that of small trawl vessels suggesting that these vessels may be able to take advantage of economies of scale which makes them somewhat more resilient to adverse economic conditions. Median reduction in profit level ranged within a narrow interval of from 45 to 48 percent. Based on the medium debt failure rate, 48 of 218 trawl vessels would not be able to remain in business after Amendment 13 is implemented.

Large trawl vessels had the highest debt levels and generally had higher trip and fixed costs than any other vessel size or gear category. These higher costs were not offset by proportionally higher revenue which tends to produce lower profit margins than other vessel gear/size classes. For this reason, the estimated business failure rate (between 31 and 43 percent) was the highest for large trawl vessels (Table 377). Similarly, reductions in profit, as measured at the median, were also generally higher (53 to 61 percent) as were reductions in profitability for both the most affected and least affected vessels. Applying the medium debt failure rate to the 187 large trawl vessels included in the economic analysis in Section 4.4.4 results in a potential for 68 business failures.

Discussion

Based on the above analysis, a total of 228 vessels of varying sizes and gear groups may not be able to remain in business under the proposed action. This estimate was based on the assumption that all vessels had a medium level of debt and may range from 190 to 260, depending upon which debt level best represents a fleet-wide average. These estimates are also contingent on the extent to which the simulated cost and returns reflect actual financial conditions in the groundfish fleet. Unfortunately, not enough cost data, particularly on fixed costs and debt payments, has been collected to evaluate the veracity of these results. This difficulty aside, the profitability analysis did not take into account differences in potential revenue generation that may exist for vessels that fish predominately in the Gulf of Maine, as compared to elsewhere. The analysis also does not account for differences in how area closures may affect vessels, particularly small as compared to large vessels. Finally, the analysis only took into account the potential effort reduction associated with the expected use of Category A DAS.

4.0 Measures Proposed to Mitigate Adverse Economic Impacts of the Proposed action

The proposed action contains a number of measures that would provide small entities with some degree of flexibility to be able to offset at least some portion of the estimated losses in profit. The major offsetting measures include the opportunity to use additional “B” DAS, leasing of DAS, DAS transfer, and sector allocation. As designed, the proposed action would achieve target fishing mortality rates for most stocks but would achieve higher than necessary reduction for others.

Category B DAS

Category B DAS would be subdivided into two categories, one which would be used in Special Access Programs (reserve B DAS), while the use of the remaining B days or Regular B DAS will be determined in a Framework Action. The primary purpose of B DAS is to provide access to and increased yield from stocks that may be fished at higher levels. These opportunities would enhance profitability for vessels that may be able to participate in any one or more of these special fisheries.

DAS Leasing or Transfer

Particularly for vessels with few alternative fisheries, reductions in profit may be offset by the ability to acquire more DAS either through leasing or DAS transfer. The former would make DAS available to a vessel for a single fishing season whereas the latter would be a permanent transfer of DAS from one vessel to another. Transferred DAS would be subject to a 40-percent conservation tax on the transfer, but vessels would be able to acquire both Category A and Category B DAS. By contrast, a DAS lease would not be subject to a conservation tax but vessels would be only allowed to acquire Category A DAS. It is not known which option any given vessels may choose to pursue, but analysis clearly suggests that making DAS available in some form of exchange can improve overall profitability for both buyer and seller. The following describes this analysis.

The economic impact of a DAS leasing program was estimated by simulating a quota market using a math programming model. The model maximized industry profits by choosing the days each vessel will fish (if any) of their own allocation, days they will lease from other vessels, and the number of their days they will lease to other vessels. Each vessel can only fish a maximum number of days at sea, which is the sum of their days and their FY 2001 allocation. Days fished above their allocation of days must be leased from other vessels. In the model, vessels were constrained to be either a lessee or lessor, although in a real world situation a vessel could be a lessee and a lessor simultaneously. Restrictions were placed on the model which did not allow days to be leased by larger vessels from smaller vessels, which were consistent with the restrictions passed by the Council. Results from the model yielded a very efficient outcome in terms of maximizing industry profit with as few vessels as possible. In reality, the actual leasing of DAS among industry participants may not be as profitable as projected by the math programming model. An individual vessel’s activity level chosen by the model is determined by its productivity, the maximum allowable days it can fish, the lease price for days at sea, daily fishing costs, and the prices of each species, and a restriction which prohibit leasing of days from smaller vessels by bigger vessels. The model doesn't differentiate between areas fished, where vessels land their fish, and a variety of other factors that will influence the amount of DAS leased, including other fisheries in which the vessel can participate, and it assumes perfect

information among participants.

Vessels were grouped together regardless of gear type, and then stratified into fleets of 100 vessels. Each fleet was then paired with itself, and then with every other fleet to simulate trades between all 1,345 vessels which could potentially lease quota. For each sector pair, the model was run 50 times in order to incorporate a stochastic lease price, which was generated based on results from a previous LP model. Lease prices used in the model ranged from \$218 to \$2,093, with a mean of \$1,029. Results from the simulations were used to examine changes in profitability which would occur from allowing days at sea leasing.

Results from the simulation runs were stratified by gear type and length of vessel. Class 1 vessels were less than 50 feet; class 2 vessels were between 50 and 69 feet, and class 3 vessels were 70 feet and greater. The three gear types examined were hook (50 vessels), trawl (1,126 vessels) and gillnet (169 vessels). There were more vessels in the model than had Category A DAS in the proposed action. Because vessels can fish up to the total of their Category A DAS and their FY 2001 allocation, vessels with zero Category A DAS can still lease days at sea, and therefore need to be included in the model. Because the model is attempting to maximize industry profit, under a DAS leasing scheme, fewer vessels will fish (Table 378). However, mean profits for all vessels will be higher than if DAS trading were not allowed, and all vessels fished their allocation (Table 379). Mean profits are also higher than those generated by actual fishing during calendar year 2002 by vessels actually fishing. Vessels which choose to lease all their quota can greatly enhance their profit since the owner is getting all the revenue from the lease without incurring any costs, and in particular not having to pay labor costs. The decision from a vessel perspective on whether to lease quota to other vessels is based on whether they can lease their quota for more then they would earn after paying expenses including payments to the crew. If a vessel decides to lease quota from other vessels, it is based on whether they can earn more from a leased day at sea than what they will pay for the lease plus what they will pay to the crew, and to cover other expenses.

Model results generally showed the flow of lease days going from larger vessels to smaller vessels. Trawl and gillnet vessels less than 50 feet in length were projected to use more days at sea than in 2002 under a DAS leasing scheme (Table 380). Trawl and gillnet vessels greater than 50 feet saw their days at sea usage decline from 2002 levels. Hook vessels were projected to see their days at sea increase. Restrictions on DAS trading make it difficult for larger vessels to lease from smaller vessels, but the opposite does not hold. Small vessels have a large potential number of vessels that they can lease from, which is what model results show. Examination of both tables 378 and 379 show that larger vessels can profit by leasing their days to smaller vessels. For example, length class 2 trawl vessels average profit was \$68,387 using an average of 36.92 days of effort under a DAS leasing scheme, while their average profit was \$31,428 using 46.13 days of effort in 2002. Small trawl vessels average profit was \$41,111 using 31.9 days of effort under days at sea leasing, while their 2002 average profit was \$12,271, and their average days at sea was 25.13. This demonstrates that both sectors would be better off with a DAS leasing program than fishing at their calendar year 2002 effort levels.

Additionally, the average profit levels were projected to be higher under DAS leasing than if the vessels fished at their allocated 2004 levels. This demonstrates DAS could provide substantial regulatory relief to these vessels compared with no leasing (no-action alternative).

Hand Gear A Permit

The proposed action would convert the existing open access hand-gear permit into a limited access category and an open access category Hand gear A permits. Vessels that qualify for a limited access permit would benefit from a relaxation of the cod trip limit and would not be subject to trip limits on any other species. Vessels that do not qualify for limited access would still be able to obtain an open access permit but the cod trip limit would be much lower than current hand-gear only permit holders may retain. Available data show that even though a large number of open access hand-gear permits have been issued in the past not much more than 10 percent of these permits actually report landings of any amount of either cod or haddock. A preliminary assessment of qualification indicates that approximately 150 vessels would qualify for a limited access hand-gear A permit which just about as many vessels with documented landings in any given year since 1997. Thus, the conversion to a limited access permit with the potential to achieve higher landings and higher incomes overall also may permit the majority of small entities currently participating in the fishery to continue operating. The no-action alternative would yield no economic benefits as compared to the proposed action. Therefore, the proposed alternative is favorable when compared to the no-action.

Elimination of the Area Restriction for the Northern Shrimp Exempted Fishery

The northern shrimp fishery would no longer be restricted to the area shoreward to the small mesh fishery exemption line. All other restrictions remain in effect. The elimination of the line will increase potential economic benefits for shrimp fishermen without harm to the multispecies stock. Recent studies have shown that with other devices such as the Nordmore grate, bycatch of regulated multispecies is minimal. The no-action alternative would yield no economic benefits and would not change the economic conditions in the shrimp fishery. Therefore, the proposed alternative is favorable when compared to the no-action. For further detail of the economic impacts relating to the measures see section 5.4.11.

Tuna Purse Seine Vessel Access to Groundfish Closed Areas

Tuna purse seine gear is defined as exempted gear for the purposes of the multispecies FMP. Tuna purse seine vessels will be allowed into all groundfish closed areas, subject only to the normal restrictions for using an exempted gear in the area. This would benefit the purse seiners by expanding groundfish areas available for fishing and, thus, allow those vessels to increase profitability. The Council recognizes that part of the seine contains mesh less than the regulated mesh size for the multispecies fisheries. For further detail on the economic impacts of the proposed alternatives, see section 5.4.10.

Southern New England General Category Scallop Vessel Exemption Program

Unless otherwise prohibited in 50 CFR 648.81, vessels with a limited access scallop permit that have declared out of the DAS program as specified in 648.10, or that have used up their DAS allocations, and vessels issued a general category scallop permit, may fish in the statistical areas 537, 538, 539, and 613 - defined as the Southern New England General Category Scallop Exemption Area - when not under a NE multispecies DAS. This would relieve a restriction and allow scallop vessels to enter expanded areas for the harvest of scallops, relieving a restriction and allowing those vessels to increase profits, if available (see section

5.4.12). The no-action alternative would yield no economic benefits because vessels would be precluded from participating in this program. Therefore, the proposed alternative is favorable when compared to the no-action.

Modified VMS Operation Requirement

A vessel using a VMS can opt out of the fishery for a minimum period of one calendar month by notifying the Regional Administrator. Notification must include the date a vessel will resume transmitting VMS reports. After receiving confirmation from the RA, the vessel operator can stop sending VMS reports. During the period out of the VMS program, the vessel cannot engage in any fisheries until the VMS is turned back on. This would reduce operating costs associated with VMS operation (see section 3.4.11). The no-action alternative would yield no economic benefits. Therefore, the proposed alternative is favorable when compared to the no-action.

Observer Coverage Level Adjusted by NMFS

No later than 2006, NMFS would determine if a 10 percent level of observer coverage is sufficient to monitor catches and discards in the groundfish fishery with an acceptable level of precision and accuracy. The level of observer coverage will be adjusted (increased or decreased) consistent with that analysis. The present cost for a NMFS-approved observer is estimated to be \$ 1150 per day at sea. Based upon the analysis conducted by 2006, costs associated with the observer coverage program may increase or decrease.

Revised Standards for Certification for Bycatch/Exempted Fisheries

The standards for certification of a bycatch/exempted fishery that were implemented through Amendment 7 would continue to be used. However, this measure would allow the RA to modify the 5 percent bycatch rule and make additional modifications on a one-to-one basis under an accepted set of conditions. The economic benefits or costs are uncertain with this measure since the RA could decrease the percentage used in the bycatch rule as well as increase it. However, the measure seems to be intended to allow a very controlled expansion of fishing areas, thus, benefitting vessels economically while conserving critical species. The effect of the no-action alternative would depend on the Regional Administrator's determination on a case-by-case basis, e.g., if the RA lowered the acceptable bycatch percentage, the no-action alternative would have a beneficial impact, but if the acceptable bycatch percentage was increased, the no-action would have a negative impact.

Flexible Area Action System(FAAS)

The FAAS would be eliminated under the proposed action. This system has not been used in recent years and its elimination should have no economic impact on multispecies vessels.

Periodic Adjustment Process

The annual adjustment process is revised to be a biennial adjustment, with the PDT performing a review and submitting management recommendations to the Council every two years. This would tend to have a positive effect on profitability of individual vessels since it would expand their planning horizon making their fishing operations more efficient and

profitable. The no-action alternative would yield no economic benefits. Therefore, the proposed alternative is favorable when compared to the no-action.

US/Canada Resource Sharing Understanding

Management of Georges Bank (GB) cod, haddock, and yellowtail flounder would be subject to the terms of the United States/Canada resource sharing agreement. The agreement specifies an allocation of GB cod, haddock, and yellowtail flounder for each country. The management objective is for the shared cod, haddock, and yellowtail flounder to achieve, but not exceed the US allocation fraction. This allocation would be based on a formula, which includes historical catch percentage and present resource distribution. The economic implications of this agreement would depend on the specific allocation, the reduction in DAS attributable to steaming time, and other economic considerations such as fuel prices and Canadian and US fish prices. This measure would most likely benefit larger vessels who traditionally fish GB. It would also allow each country to plan its fishing activities in advance which could result in a more efficient use of the limited resources found on GB, thus, increasing the profitability of individual vessels engaged in the fishery (see section 5.49.2.3). The no-action alternative would yield no economic benefits as this system would not be established and fishermen would not be in a position to benefit from management measures established through this Understanding. Therefore, the proposed alternative is favorable when compared to the no-action.

Sector Allocation

Under this measure, sector allocation may be used to apportion part or all of groundfish fishery resources to various industry sectors. A self-selected group of permit holders may agree to form a sector and submit a binding plan for management of that sector's allocation of catch or effort. Allocations to each sector may be based on catch (hard TACs) or effort (DAS) with target TACs specified for each sector. Vessels within the sector would be allowed to pool harvesting resources and consolidate operations in fewer vessels if they desired. One of the major benefits of self selecting sectors is that they provide incentives to self-govern, therefore, reducing the need for Council-mandated measures. A primary motivation for the formation of a sector is assurance that members of the sector would not face reductions of catch or effort as a result of the actions of vessels outside the sector (i.e., if the other vessels exceed their target TACs). This measure could benefit vessels within a sector since they would be able to better plan and control their fishing operations. However, as sector plans evolve, each plan would need to include an economic analysis to determine the extent, if any, that vessels outside the sector are negatively impacted. By creating a process for the formation of self-selecting sectors, this Amendment creates an opportunity for groups of vessels to adapt their fishing behavior so that they remain economically viable in the face of increasing restrictions imposed to rebuild groundfish stocks. The ability to form a sector could be an important component of providing flexibility to small commercial fishing entities to mitigate the economic impacts of the Amendment. Further, depending on the geographic location of the membership of a given sector, sector allocation could also provide an opportunity for fishing communities to reduce economic impacts. The no-action alternative would yield no economic benefits. Therefore, the proposed alternative is favorable when compared to the no-action. For additional detail on the economic impacts of the proposed alternatives see section 5.4.9.3.

GB Hook Sector

The proposed action would create a voluntary sector for longline/hook vessels on GB. This provides an opportunity for vessels to mitigate the impacts of the management alternatives. By organizing into a cooperative, vessels may be able to develop more efficient ways to harvest groundfish and minimize the inefficiencies that result from the regulations. While it is not possible to estimate the economic impacts of a sector until the actual participants are known, the pool of participants will probably be the vessels that have used longline gear to fish on GB in the past.

For fishing years 1996 through 2000, 182 vessels reported using longline gear to catch GB cod. This alternative also includes access to CAI to harvest haddock. From 1996 through 2000, 44 hook vessels reported landing GB haddock, roughly one-fourth of the total number that reported landing GB cod. Allowing access to CAI for vessels that choose to participate in the sector may increase the ability of these vessels to target GB haddock, further mitigating the impacts of the rebuilding programs.

Frameworkable Items

The Council has submitted, for approval, a number of items to be frameworkable. There are no economic impacts from this measure. However, each future framework action would need to contain an analysis of economic impact when applicable.

Measures to Minimize Adverse Effects of Fishing on EFH

The proposed action would implement habitat closed areas that are modifications of existing closed areas (Alternative 10B). For all VTR records retained for analysis, the total estimated gross revenue from all species reported during calendar year 2001 was \$296.3 million. The proposed Level 3 habitat closure would allow stationary bottom tending gear and mid-water trawl gear to continue to fish in a closed area. As a result, total revenues earned by vessels using these gears would not be reduced. The revenue losses from prohibiting bottom tending mobile gear in a Level 3 closure ranged from 8.1 percent (Alternative 5b) to 0.5 percent (Alternatives 6, 10A and 10B) (Table 295). Compared to the effects from a Level 1 closure where all fishing is prohibited, the revenue losses for the remaining alternatives were 1 to 2 percent lower. However, revenue losses for some specific species groups were substantially reduced. Since a large proportion of monkfish are landed with gillnet gear, the Level 3 closure would mitigate a substantial proportion of estimated monkfish revenue losses associated with a level 1 closure. Similarly, revenue losses for the “other” species group would be mitigated under a Level 3 closure because a significant proportion of these revenues are comprised of lobster landings from trap gear. Revenue losses for groundfish would be partially offset by a Level 3 closure since gillnet and hook segments of the groundfish fishery would not be affected. However, bottom trawl gear accounts for the majority of groundfish effort, hence, groundfish revenue losses would still range between 9 and 14 percent for all gear for all alternatives except Alternatives 6, 10A, and 10B. Since a Level 3 habitat closure does not provide any relief to fisheries using mobile bottom-tending gear the share of revenue impact for fisheries that are dominated by these mobile gears increases relative to other fishery impacts. The surf clam/ocean quahog fishery would be impacted by a 0.9 percent revenue loss. The surf clam/ocean quahog

fishery would further be impacted since under proposed Alternative 7 since surf clam/ocean quahog dredges would not continue to be exempted from regulations prohibiting the use of that gear in multispecies closed areas. Therefore, while short-term revenue losses are estimated to be 0.9 percent there may be longer term impacts which cannot be estimated until further closures are undertaken.

In addition to Alternatives 7 and 10b, the Council has also adopted Alternative 2 to address impacts of fishing on EFH. There are no anticipated economic impacts resulting from the selection of Alternative 2. This Alternative relies on the habitat benefits of other non-habitat related management measures implemented through Amendment 13 to meet the EFH provisions of the Magnuson-Stevens Act. The No-Action alternative would increase profitability for those vessels prohibited in closed areas when compared to the proposed action which restricts fishing in those areas. Affected gear types include clam dredges and bottom trawl gear.

5.0 Economic Impacts of Alternatives to the Proposed action

This section describes the impacts of management measures that were considered by the Council but were not adopted as part of Amendment 13. Unless otherwise stated, these impacts compare the economic results of the measure compared to the baseline period.

Recreational Measures

Two alternatives to the preferred action were considered: the status quo (settlement agreement measures) and a measure featuring a trip bag limit for cod with a closed season.

Under the status quo settlement agreement measures, charter/party operators would be directly affected by the enrollment requirement. The enrollment program would remove the possibility of charter/party vessels switching back-and-forth between commercial fishing and carrying passengers for hire for those vessels that still want to be able to take recreational passengers into any one of the rolling closure areas. Vessels that forego the exemption program would still be able to switch between commercial and recreational activities, but may sacrifice some charter/party business to competitors if catch rates are actually higher, or even perceived to be higher, inside the closed areas. Given the increase in the minimum size limit, charter/party vessels may experience a reduction in passenger demand. However, the minimum fish size increase will have a relatively small effect on charter/party keep opportunities. Following implementation of the minimum fish size increases in 1996 and 1997, passengers and trips have increased on charter/party vessels. Further, among alternative management measures, size limits are generally supported by the recreational fishing public. Therefore, the change in minimum size would not seem likely to result in a substantial reduction in passenger demand for charter/party trips in the GOM or GB.

The status quo alternative would retain a bag limit on charter/party anglers fishing for Atlantic cod in the GOM. Industry representatives have indicated in the past that passenger demand is, in part, driven by angler expectations, and that one important component of angler expectations is the opportunity to have a "big trip." As the argument goes, even though these expectations are realized on only a small fraction of trips, imposition of a bag limit would cause individuals to lose interest in taking a charter/party trip. The extent to which anglers would respond in the manner described is not known, nor have there been any studies that document angler response to changes in charter/party bag limits.

The third alternative would increase the minimum size of cod, reduce the minimum size of haddock, prohibit fishing in the GOM from December through March, and implement a 10 cod/trip limit. While the reduction in the haddock minimum size would represent a potential increase in economic benefits, this option would yield smaller economic benefits than the proposed action due to the closed season.

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

Management Alternatives to Address Rebuilding Requirements

The Council considered 4 stock rebuilding alternatives to the proposed action.: Up to a 65 percent reduction in DAS; a reduction in DAS with gear modifications; area management; and a hard TAC alternative.

Alternative 1 - Up to a 65 percent reduction in DAS

Alternative 1 contains two different proposed DAS use levels and two different trip limit alternatives for GB Cod. Alternative 1A has a DAS use of 28,400 days and a Georges Bank cod trip limit of 2,000 pounds per DAS, up to 20,000 pounds per trip. Alternative 1B has the same GB cod trip limit, but would reduce DAS use to 41,050 in the first year, with used DAS declining to 22,100 DAS in the fourth year after implementation. Alternative 1C would have the same DAS use as 1A, but would implement a GB cod trip limit that would vary by gear and season. Similarly, Alternative 1D would implement the same GB cod trip limit as 1C but would reduce DAS use to the same level as 1B. Alternative 1A would result in an estimated reduction of \$45.6 million in total fishing income, while Alternative 1B would result in an estimated reduction of \$28.3 million in the first year. Due to a more restrictive GB cod trip limit, Alternative 1C would result in an estimated reduction in total fishing revenues of \$49.1 million and Alternative 1D would result in a reduction of \$33 million.

Vessel-level impacts are not uniformly distributed with some vessels being much more impacted than others. Because of the tendency for revenue impacts to be skewed, revenue impacts are reported for the 10th, 25th, 50th (median), 75th and 90th percentile of the distribution of impacted vessels sorted in ascending order from most negatively to least impacted vessel (Table 192). Each percentile forms an interval that represents a specific number of vessels as well as the lower and upper range of impact on vessels between percentiles. For example, since there are 848 vessels included in the analysis, there are 85 (rounding to the nearest whole number) vessels at or below the 10th percentile. Gross revenues for these vessels would decline 46.3 percent or greater for Alternative 1A, but would decline 29.8 percent or more for Alternative

1B. Similarly, the revenue loss for the 127 vessels between the 10th and 25th percentile would range from 46.3 to 40.1 percent for Alternative 1A and from 29.8 to 25.4 percent for Alternative 1B. The revenue loss for the median (50th percentile) vessel was 24.0 percent and the revenue loss at the 25th percentile was 40.1 percent.

At the upper end of the distribution of impacted vessels are some vessels that may realize an increase in fishing revenues, in spite of the DAS reductions proposed under Alternative 1.

For

example, the 85 vessels above the 90th percentile would realize either no change, or some modest improvement in fishing income, because of the increase in the GOM cod trip limit from 400 lb under No Action to 800 pounds per day, as well as differences in the suite of closures between what had been in place in FY2001 and that proposed under Alternative 1. That is, compared to No Action, Alternative 1 measures permit a small number of vessels (about 10 percent) to be more efficient. For these vessels, the gain in efficiency is sufficient to more than offset the DAS losses resulting in a net increase in fishing income relative to No Action. This highlights the relationship between efficiency and regulatory design. That is, economic impacts may be reduced by identifying measures that permit vessels to operate as efficiently as possible within available effort allocations. The trip limit is one such example; the tradeoff between DAS and area closures is another. For example, for vessels with limited range a larger DAS reduction with fewer area closures may yield higher revenues as compared to a lower DAS reduction with more area closures.

At a fleet-wide level, Alternatives 1C and 1D have similar predicted revenue losses to that of Alternatives 1A and 1B. However, because of the comparatively more restrictive GB cod trip limit, Alternatives 1C and 1D revenue losses are 2-3 percent larger.

The impact on individual vessels depends on a variety of factors. Vessels that have a relatively high dependence on groundfish would be more affected by a given reduction in groundfish trip income than another vessel that is engaged in other fisheries. For example, if vessel A earned 80 percent and vessel B earned 20 percent of annual revenue from groundfish trips, a 20-percent reduction in groundfish revenue for both vessels would result in 16-percent reduction in total fishing income for vessel A, but would be only a 4 percent reduction in total annual fishing revenue for vessel B. For Alternative 1A and 1B the loss of gross fishing revenue increases with higher dependence on groundfish trip income (Table 193). For Alternative 1A, the median revenue loss for vessels that depend on groundfish for 25 percent or less of fishing revenue was estimated to be 3.2 percent while the median loss for vessels with 75 percent or greater dependence on groundfish was 41.1 percent. This difference between vessels from lower to higher levels of dependence on groundfish trip income is consistent for all percentiles. As noted above, the revenue losses for Alternative 1B are lower across all dependence categories. Alternative 1C and 1D revenue losses are higher, but not appreciably so, for vessels with groundfish dependence below 75 percent. Among vessels that are most dependent on groundfish, the revenue losses for Alternative 1C are 3 to 5 percentage points higher as compared to Alternative 1A with the same used DAS. Similarly, the losses of Alternative 1D exceed that of 1B particularly among vessels at or below the 10th percentile (i.e. the most affected vessels).

Dependence on groundfish is defined as the proportion of groundfish trip income of total fishing income. This magnitude of dependence does not take into account the level of total

fishing income since a vessel with \$5,000 in total fishing income could have the same level of dependence on groundfish as a vessel with \$500,000 in total fishing income. In relative terms the impact on these two vessels may be the same but the total losses may be very different since the former may have income from other non-fishing sources while for the latter fishing may be the sole source of income and may support a larger number of people. To examine the relative impact on vessels with differing levels of groundfish revenues the estimated distribution of no action revenues was divided into approximate quartiles resulting in the following revenue classes; \$35,000 or less, \$35,001 to \$100,000, \$100,001 to \$250,000, and \$250,001 or more.

As was the case for groundfish dependence, the relative impact on vessels with higher gross sales was estimated to be greater at all percentiles, although the relative impact for the most affected vessels (the 10th percentile) was approximately the same (-47 percent) for all sales categories from \$35,001 and above (Table 194). It is important to note that the fact that estimated relative revenue losses were generally higher for vessels with higher gross sales also means that the revenue losses in absolute terms would also be greater.

The relative impact on vessels with gross groundfish sales of \$35,000 or less was substantially lower than vessels with higher gross sales. In fact, 25 percent of these vessels were estimated to earn higher fishing income under either Alternative 1A or 1B as compared to No Action. Vessels with increased revenue tended to be smaller vessels using gillnet or hook gear; vessels that would benefit relatively more from the increased GOM cod trip limit and whose revenue would be more sensitive to differences in area closures between No Action and Alternative 1. Estimated losses of gross revenues were higher for Alternative 1C and 1D as compared to 1A and 1B but the relative distribution of losses among sales intervals was similar; with revenue impacts tending to increase with sales.

The relative revenue loss was lower for hook gear than for either gillnet or trawl gears for both Alternative 1A and 1B (Table 195). Since cod represents a higher proportion of trip income for hook gear than for gillnet or trawl gear, revenue impacts associated with DAS reductions are offset by the higher GOM cod trip limit that for some vessels is enough to result in a net increase in fishing revenue.

Estimated revenue losses were similar among the most impacted gillnet and trawl vessels but estimated revenue changes tended to be less severe for gillnet vessels above the 25th percentile as compared to the trawl vessels. For example, the revenue loss of the median gillnet vessel was 12.0 percent as compared to 29.5 percent for the median trawl vessel. Gillnet losses tended to be lower than trawl losses, because like hook gear, cod represents a higher proportion of trip income so gillnet gear tends to benefit proportionally more from a change in cod trip limits than trawl gear. Note that total losses on trawl vessels is not only greater in relative terms but would also be greater in absolute terms since there are more than twice as many trawl vessels than either gillnet or hook vessels.

The more restrictive GB cod trip limit for Alternative 1C and 1D results in only a small loss on trawl vessels compared to Alternatives 1A and 1B but would have a larger loss on both gillnet and hook gears. However, these losses are not uniform for all hook and gillnet vessels. That is, vessels that rely on GOM stocks would not be affected by a change in GB cod trip limits, whereas vessels that fish primarily on GB are more affected.

The estimated relative loss of total annual fishing revenue was lower for vessels under 50-feet for either Alternative 1A or 1B, although the Alternative 1A impact on the most affected

small vessels was not substantially less (40.3 percent) than either medium (46.6 percent) or large (46.3 percent) vessels (Table 196). The distribution of revenue impact was similar for both medium and large vessels indicating that neither vessel size class would be disproportionately affected relative to each other under either Alternative 1A or 1B. Since hook and gillnet vessels tend to be small, the economic impacts on small vessels of Alternatives 1C and 1D was proportionally greater than Alternatives 1A and 1B.

The relative revenue loss for small hook vessels was less than that of larger hook vessels, although not substantially so (Table 197). Unlike hook gear, small gillnet vessels were less affected than larger gillnet vessels but there was a greater difference in revenue loss with larger gillnet vessels being substantially more impacted at all percentiles than small gillnet vessels. For trawl gear, the distribution of revenue losses was similar across all size classes at least up to the 50th percentile. Above the 50th percentile small vessels tended to be proportionally less affected than either medium or large vessels and large vessels tended to be less impacted than medium vessels. As noted previously, due to the lower DAS reductions the revenue impacts for Alternative 1B were lower across all gear and size groupings than that of Alternative 1A.

Alternative 1A would have greatest revenue impact (i.e., loss) on vessels from Maine home ports as compared to those vessels from other states (Table 198). The distribution of revenue loss was similar across all states except for New Jersey at the 10th percentile ranging from a loss of 42.8 percent in Rhode Island to 47.8 percent in Massachusetts. At the 25th percentile, Maine and Massachusetts's vessel revenue reductions were higher than all other states at 42.5 percent and 42.4 percent respectively. However, at higher percentiles Maine vessels were estimated to experience higher revenue loss than any other state at both the 50th and 75th percentiles.

Across all states, only New Jersey and Rhode Island (and quite likely New York) did not have any vessels with unchanged or increased fishing revenues under Alternative 1A. Vessels from these states are most likely to fish on GB or Southern New England and so would not be likely to benefit from an increase in the GOM cod trip limit.

Across port groups the relative distribution of estimated revenue losses was similar at and below the 25th percentile for the port groups of Boston, Gloucester, New Bedford, MA, and Portland, ME, Portsmouth, NH, and Upper Mid-Coast, Maine (Table 199). For these ports and port groups, the revenue losses on the most affected vessels ranged from 43.0 percent in Boston to 45.9 percent in Portland. Revenue losses at the 50th percentile ranged from nearly 30 percent in Portsmouth to 43.6 percent in Portland. Overall, Portland, Maine had the highest revenue reduction at the 25th, 50th, and 75th percentile. However, the total impact on the ports of New Bedford and Gloucester would likely be greater because the number of vessels operating out of these ports is greater. Among other ports the groups including Point Judith, Provincetown, and South Shore Massachusetts all had roughly equivalent revenue losses across all percentiles. Revenue losses on home port vessels in states with proportionally more vessels that rely on GB cod would be comparatively more affected under Alternative 1C and 1D as compared to 1A and 1B than vessels from states that have greater reliance on GOM stocks. As noted previously, revenue losses of Alternatives 1C and 1D are larger for vessels that fish predominantly on GB and fish for GB cod in particular. This is particularly notable for the Chatham/Harwich port group that is home to a concentration of hook and gillnet vessels.

Alternative 2 - Reduction in allocated DAS with gear modifications

Alternative 2 would implement a suite of measures that would require a number of gear changes over and above what current regulations require. Alternative 2 would also implement a set of area closures that differ from no action and differ from that of Alternative 1. The DAS would be similar to current regulations (under the FW 33 court order) except that under Alternative 2A vessels that fished in the GOM would take a 30 percent reduction in DAS instead of 20 percent while Alternative 2B would result in the same proportional DAS reduction for all vessels but would restrict the total number of DAS that could be fished in the GOM to 70 percent of allocated DAS. In all other respects there are no differences between 2A and 2B.

In addition to DAS and area controls, Alternative 2 has a number of proposed gear restrictions that have been designed to reduce fishing mortality to desired levels. Alternative 2 also includes a hard TAC as a backstop measure, in case any one of the other effort reduction measures are not as effective as anticipated. The analysis presented below reports the impacts of fishing revenues for Alternative 2 with and without the TAC backstop. In this manner, the economic impact of the management measures modeled in the Closed Area Model can be contrasted with that of the TAC backstop. The Closed Area Model, however, does not include the impacts of some of the gear changes (haddock separator trawl, raised footrope trawl, mesh changes, etc). If these measures are as effective as expected, the revenue impacts would be more severe than those shown here for the alternative without the hard TAC. Nevertheless, removing the hard TAC from Alternative 2A and 2B and showing the economic impacts does demonstrate that these two alternatives may have slightly different distributive economic impacts.

Alternative 2B provides some flexibility to vessels to fish outside the GOM rather than be subject to a different DAS reduction. Because of this flexibility, the estimated gross revenue loss (Table 200) for Alternative 2B (\$30.2 million) was slightly less than that of 2A (\$31.6 million). This difference may be underestimated because the area closure model imposes constraints on fishing location decisions that are consistent with recent fishing history. This means that a vessel that never fished outside the GOM under the no action would not choose to do so under Amendment 13, even though it may be advantageous. Given this limitation, the revenue losses associated with Alternative 2B may be overestimated relative to Alternative 2A, which would tend to obscure the difference in relative economic effect between the two ways of administering DAS controls in the GOM.

As modeled, Alternative 2 does not meet conservation objectives without the hard TAC backstop. With a hard TAC, the added flexibility offered by the different DAS management options under Alternative 2A and 2B is eliminated because the hard TAC becomes more constraining than DAS allocations. This means that the estimated economic effects of the hard TAC backstop were the same regardless of the proposed DAS administration under Alternative 2A or 2B. The total loss of gross revenue was estimated to be \$64.2 million. Note that this impact may be overestimated because the effectiveness of the gear changes could not be quantified. Should the gear changes be as effective as anticipated, or more so, then the hard TAC may not be constraining or would at least not be as constraining as predicted. Nevertheless, even though the economic impact would likely be lower it would probably still be greater than that estimated for Alternative 2A and 2B without the hard TAC backstop since that analysis underestimates revenue impacts because assumed catch rates, hence fishing revenue,

would be overestimated.

At the vessel-level the estimated revenue losses associated with Alternative 2 with the hard TAC were higher by about 30 percent at the 10th and 25th percentile. The difference in impact at the median was not quite as high but was still higher by 23 percent (a reduction of 37.1 percent for Alternative 2 with a hard TAC as compared to a reduction of 13.8 percent for Alternative 2 without a TAC backstop).

Without the TAC backstop the impact on annual estimated gross fishing revenue increased, as dependence on groundfish revenue increased (Table 201). The median loss for vessels that rely on groundfish was less than 1 percent, but was almost 25 percent for vessels with 75 percent or greater reliance on groundfish. Among those most dependent on groundfish, estimated revenue loss was 63 percent or more for 37 of 371 vessels.

For some vessels, the estimated revenue change was positive suggesting some vessels would see modest improvements in total fishing revenues under Alternative 2. Such an increase in gross revenue results relative to the No Action because of the increase in the GOM cod trip limit as well as some differences in area closures. Note that positive changes in revenues tend to be associated with vessels that are less dependent on groundfish.

With the hard TAC backstop the estimated revenue losses for vessels least dependent on groundfish would be greater but not by more than 6 percent at any given percentile. However, for vessels with greater dependence on groundfish for total fishing revenue, the estimated impact of the hard TAC backstop was much greater, particularly among the most affected vessels (i.e. at the 10th percentile). For example, the impact on gross revenues for vessels that depend on groundfish for 25 to 50 percent of revenue would be almost -33 percent with a hard TAC as compared to about -20 percent without a TAC backstop.

The estimated impact of Alternative 2 without the TAC backstop was generally less for vessels with gross sales of \$35,000 or less (Table 202). Across all categories of gross sales the largest reduction in gross revenue was 50.9 percent or greater for vessels with gross sales between \$100 and \$250 thousand. However, at the 25th and 50th percentile revenue losses within this sales category were similar to that of vessels with sales of between \$35,000 and \$100,000 and to vessels with sales in excess of \$250,000. Above the 50th percentile the proportional change in revenue impacts was greatest for vessels with gross sales above \$250,000.

With a hard TAC backstop, the estimated revenue losses were larger across all categories of gross sales at all percentiles with revenue reductions at the 10th percentile of 70 percent or more for vessels with gross sales of \$35,000 to \$250,000. Estimated impact on the median vessel was highest (a reduction of 49.9 percent) for vessels with gross sales of more than \$250,000 and lowest (a reduction of 12.9 percent) for vessels with \$35,000 or less in gross sales.

Alternative 2 contains a modest increase in the GOM cod trip limit compared to what had been implemented during FY2001. However, Alternative 2 has a trip limit on GB cod that is much lower than that of the No Action which means that vessels that depend on GB cod for the majority of fishing revenue would be significantly affected under this particular Alternative. The difference in cod trip limits between GOM and GB is evident in the estimated revenue impacts of

both gillnet and hook gear. Without a hard TAC backstop the revenue impacts for these two sectors show markedly different effects depending upon whether a vessel might fish in the GOM or GB as estimated revenue losses for gillnet vessels ranged from 56.9 percent at the 10th

percentile to a gain of 0.7 percent at the 90th percentile (Table 203). The range of revenue loss on hook gear was even greater with 8 vessels experiencing a loss of 73.7 percent or more with the same number of vessels experiencing revenue increases of 6.3 percent at the 90th percentile. Revenue loss on vessels using trawl gear ranged between 33.4 percent and no change in revenue at the 10th percentile and 90th percentiles respectively. The disproportionate loss in revenue for hook and gillnet vessels operating on GB is due to the greater reliance on cod for fishing revenue as compared to trawl gear.

With the hard TAC backstop, the disparity across gear groups does not disappear altogether, but it is reduced. Specifically, at the 10th percentile gillnet and hook gear revenue losses were estimated to be 75.9 percent and 78.5 percent, respectively. The revenue loss on trawl gear was still lower at 67 percent. The analysis showed a much smaller difference among gear groups than estimated impacts without the hard TAC. The median vessel impact (revenue losses) across gear groups was similar ranging between reductions of 34 and 38.1 percent.

Without a hard TAC backstop, the relative impacts of Alternative 2 on vessels of different sizes were similar for Alternatives 2A and 2B (Table 204). Across size classes the impacts on medium and large vessels were similar as there were only modest differences in revenue change at any percentile from the 10th to the 90th. By contrast, small vessels were substantially more affected at the 10th percentile (58.8 percent loss) than either medium (36.1 percent) or large (33.3 percent) vessels.

With a hard TAC backstop, the impact was still proportionally greater on small vessels (reduction of 75.7 percent) at the 10th percentile, but the relative distribution of impacts across vessels of differing sizes was similar at all other percentiles.

For trawl gear there was little difference among small, medium or large vessels in the distribution of revenue impacts (Table 205). For example, revenue impacts without a TAC backstop among the most negatively affected trawl vessels ranged from a 32.4-percent reduction for medium vessels and a 35.1-percent reduction for small vessels. Median impacts also fell within a relatively narrow range of reductions of 12.6 percent to 15.0 percent for large and medium trawl vessels, respectively. With a hard TAC backstop, the relative distribution of impacts across trawl vessels was similar although estimated revenue impacts were consistently greater for small followed by medium then large vessels at the 10th, 25th, and 50th percentiles. At higher percentiles medium-sized vessels tended to be most impacted compared to other trawl vessels.

Both with and without the hard TAC backstop, small hook and small gillnet vessels tended to be comparatively more impacted than larger hook or gillnet vessels although both gear/size groupings were disproportionately affected relative to either trawl or gillnet gears. Without the TAC backstop, both small and larger gillnet vessels were similarly affected up to the 25th percentile but median impacts were lower for small gillnet vessels (a 6.0-percent reduction) compared to medium gillnet vessels (a 14.4-percent reduction). These larger gillnet vessels were estimated to experience larger revenue changes at higher percentiles as well. With the TAC backstop, efficiency gains from the increase in the GOM cod trip limit are lost as TACs. The TAC backstop, once reached, reduces overall fishing opportunities.

Without a TAC backstop, Alternative 2 measures would have least impact on New Jersey vessels and would have greatest overall impact on Massachusetts vessels (Table 206). The median vessel impact (a 23.2-percent reduction) was greater for Massachusetts vessels than any

other state, and the impact on the most affected vessels was a 58.8-percent reduction or more, which exceeded the next closest state (New Hampshire) by almost 19 percentage points.

The overall impact on gross annual revenues was similar for Rhode Island and for New York/Connecticut vessels as revenue impacts ranged from -20.7 percent/-17.2 percent to no change/+0.7 percent in Rhode Island and New York/Connecticut, respectively. Among the remaining states, the relative impact on New Hampshire vessels was greater than that of Maine vessels since the estimated revenue loss was greater at all percentiles for New Hampshire than for Maine vessels.

The hard TAC backstop would increase estimated revenue reductions but the overall pattern of effects across differing states would be unchanged. The state of Massachusetts would still be most impacted followed by New Hampshire and Maine. The relative distribution of impacts on Rhode Island and New York/Connecticut would still be roughly equivalent and New Jersey vessels would be least affected.

Across all ports and port groups the largest reduction in annual fishing income would be in the port group of Chatham/Harwich with three-fourths of all vessels losing at least 29.7 percent of fishing revenue and half of all vessels losing more than half of fishing income. The impacts on these ports are directly related to the reduction in the GB cod trip limit as this port group is a center for the Cape Cod hook and gillnet fleet that relies heavily on GB cod for fishing revenue.

The Chatham/Harwich port group would still be the most impacted area under a TAC backstop with three-fourths of all vessels losing nearly 50 percent of annual fishing income. Among the most impacted vessels the estimated revenue loss was at least 77 percent.

Without a hard TAC backstop, the distribution of revenue changes was similar for the ports of Provincetown, Gloucester, New Bedford, Boston, and South Shore Massachusetts, and the New Hampshire Seacoast. Thus, even though the revenue losses among these ports do differ, Alternative 2 does not disproportionately disadvantage these ports over one another. Ports that may be expected to experience lowest revenue impact include Point Judith and the Eastern Long Island port group.

The hard TAC backstop would change the relative distribution of impacts across port groups. As noted previously, Chatham/Harwich would be most impacted but Gloucester would also be disproportionately affected whereas the relative distribution of impacts on the ports of New Bedford, New Hampshire Seacoast, Portland, Portsmouth, Provincetown, and Upper Mid-Coast Maine would be similar.

Alternative 3 - Area management

As proposed, other than area-species TACs, Alternative 3 (area management) would not implement any specific new measures as these would be developed later by some yet to be determined form of area management team or other type of governing body. The area closure model was used to estimate the impacts of current measures that would remain in place as well as

the economic impact of a hard TAC. As noted previously, the area closure model treats a hard TAC as equivalent to an individual vessel quota and so does not evaluate area-specific quotas without also prorating those quotas by species and areas to individual vessels. However, the area closure model also limits fishing choices to areas that had been fished by a given vessel. This

means that the area closure model already incorporates some aspects that would be consistent with assignment of a species-area TAC so the results may reasonably approximate the impact of an area TAC particularly one that is based primarily on logbook records.

Other than area-specific TACs the default management measures including trip limits, area closures and DAS allocations are identical to Alternative 4. For this reason, the economic impact of the Alternative 3 measures with a hard TAC are discussed with Alternative 4 (section 5.4.4.5).

Alternatives 3, 4, and 4A - Hard TAC alternatives

Alternative 3, 4 and 4A implement a hard TAC in addition to different suites of area closures, DAS allocations, and gear restrictions. In spite of these differences, the estimated impact of all three alternatives was approximately the same because the hard TAC becomes the primary measure that constrains individual vessels. Note that the gear differences between Alternatives 4 and 4A could not be taken into account because the base data for the area closure model included catch information for 1998-2001. These years would be consistent with Alternative 4A but would not reflect the effect of current gear restrictions that are also proposed for Alternative 4. How this effects the analysis is unclear. On the one hand, larger mesh associated with Alternative 4 may result in lower catch rates and the TAC might not be reached as quickly while on the other hand, DAS allocations are lower.

As noted previously, Alternative 3 was modeled in its default form as though it were identical to Alternative 4. Therefore, in the following discussion, Alternatives 3 and 4 are referred to as a single alternative, called Alternative 3/4. Given that the default would likely be changed once the specific management areas, method for assigning TACs, and most importantly, mechanism for developing measures for each area have been determined, the estimated impact of Alternative 3/4 may be an upper-bound. Presumably, management measures by area would be designed so as to reduce overall economic impacts on area participants, but the form that these measures will take cannot be anticipated at this time.

For both Alternative 3/4 and 4A the total revenue loss from all species on groundfish trips was estimated to be \$59.9 million. Median revenue loss was estimated to be 35 to 36 percent (Table 208). Revenue losses for the most affected vessels would be at least 63.2 percent while revenue losses for the least affected vessels would be approximately 5 percent.

The relative distribution of impacts for both Alternative 3/4 and 4A are virtually identical. This does not necessarily mean that the two alternatives affect all vessels the same way. That is, the impact on the median vessel (or at any other percentile) may be the same for both alternatives but may not be the same vessel. The primary source of differential impact across Alternative 3/4 and 4A is likely to be the area closures particularly for vessels that fish within a limited range and/or within a relatively short season. However, even though the two Alternatives affect different vessels differently, the overall estimated impact on the groundfish fleet was similar.

The impact on gross revenue losses increases with dependence on groundfish (Table 209). Estimated revenue impacts ranged between a 13.8-percent reduction at the 10th percentile, to a 0.1-percent reduction at the 90th percentile, for vessels that rely on groundfish for less than one-quarter of annual fishing revenue.

By contrast, gross revenues for vessels most dependent on groundfish were estimated to

decline by at least 70 percent for the 37 vessels at or below the 10th percentile. At the 90th percentile, vessels were estimated to lose between 35 and 37 percent of gross revenue for Alternative 3/4 and 4A, respectively.

At the 10th percentile, estimated revenue reductions ranged from 61 to 67 percent, regardless of the amount of annual gross groundfish sales (Table 210). At the 25th percentile, the revenue reductions were lower (about 40 percent) for vessels with groundfish sales of \$35,000 or less as compared to vessels with higher groundfish sales (52 to 55 percent). Similarly, the revenue changes for vessels with the least groundfish sales at higher percentiles were also lower than that of vessels with more than \$35,000 in groundfish sales at the same percentile. However, the relative distribution of revenue impacts was similar for each sales interval above \$35,000.

The relative distribution of estimated changes in annual fishing revenue was comparable across gear groups for both Alternative 3/4 and 4A (Table 211). Although the estimated revenue reduction at every percentile was consistently ordered from lowest (hook gear) to highest (trawl gear), the difference in impact at each percentile was no more than five percentage points. Thus, even though the total revenue loss would be largest on trawl gear (nearly 70 percent of total vessels), Alternative 3/4 would not place any given vessel at a competitive disadvantage based solely on gear.

The distributions of estimated revenue reductions were similar for all vessels size classes for both Alternatives 4 and 4A (Table 212). At the 10th percentile estimated losses were largest for small vessels (64.2 percent for Alternative 4A) as compared to medium (63.2 percent) and large vessels (58.7 percent), although these differences are not large. At all other percentiles estimated revenue reductions were higher for medium than for either small or large vessels, but once again, the difference across vessel length categories was less than 10 percentage points.

Alternatives 3/4 and 4A would have similar impacts among hook vessels of differing size although estimated revenue reductions among 10 percent of the most affected vessels would be greater for small (60.6 percent) than for large (52.2 percent) hook vessels. However, the difference between the two size classes of hook vessels is less than five percentage points at all other percentiles.

Small trawl vessels would be comparatively more affected by either Alternative 3/4 or 4A at all percentiles up to the median vessel as compared to either medium or large trawl vessels.

Similarly, medium-sized trawl vessels were estimated to incur higher revenue losses than large vessels at all percentiles. Thus, Alternative 3/4 and 4A would tend to have disproportional affects across vessel size classes with large vessels being least impacted followed by medium and small vessels, although the difference in economic effect by vessel size class is not large.

The estimated revenue losses among gillnet vessels of differing size was similar with no more than four to five percentage points separating either size class across all percentiles. Thus, Alternative 3/4 and Alternative 4A would not result in disproportionate economic impacts among gillnet vessels of differing lengths.

The estimated revenue changes across different states would be similar for New Hampshire and Massachusetts vessels up to the 25th percentile (Table 214). Revenue reductions for Massachusetts (45.8 percent), Maine (43.5 percent) and New Hampshire (45.1 percent) were

similar at the 25th percentile, but estimated reductions on New Hampshire vessels were larger than either Maine or Massachusetts at the 75th and the 90th percentiles.

Alternatives 3/4 and 4A would have the least impact on New Jersey vessels. The estimated revenue reduction on Rhode Island vessels was similar to that of New York/Connecticut vessels although Rhode Island vessels were more negatively affected at all percentiles.

Across ports or port groups median estimated revenue losses exceeded 50 percent in the ports of Gloucester, Portland, and Boston. This means that half of all vessels in these three port groups would lose more than half of annual fishing revenue under either Alternative 3/4 or 4A. Median revenue losses were lower in the port groups of Chatham/Harwich, New Bedford, New Hampshire Seacoast, Portsmouth, Provincetown, and Upper Mid-Coast Maine, but still were at least 44 percent. By contrast, median vessel revenue losses in Eastern Long Island and Point Judith were 13.5 percent and 26.1 percent respectively (Table 215).

Measures to minimize adverse effects of fishing on EFH

A level 1 habitat closure under Alternative 10B, as opposed to the proposed level 3 closure, would produce a decrease in total gross revenues of 1.3 percent for proposed Alternative 10B and between 1.3 percent and 12.8 percent for other alternatives (Table 294).

Under a level 3 closure, revenue impacts across species were more varied across alternatives than total revenue impacts. The impact on monkfish revenue was between 11 and 18 percent under any of the variants of Alternative 5. By contrast, scallop revenue impacts were largest under Alternative 5b (10.8 percent) but were less than 1.5 percent for Alternatives 5a, c, and d. Revenue losses for small mesh fisheries for whiting and squid were similar (about 3 percent) for Alternatives 5a, b, and c but were less than 1 percent for all others. Revenue losses for combined “other species (dogfish, skates, lobster, shrimp, herring, mackerel, tunas, and clams) were greatest for Alternatives 5b (12.7 percent) and 5c (11.4 percent) but were similar all other habitat alternatives (from 3.5 to 6.5 percent). Revenue losses for groundfish were highest for Alternative 5b (21.6 percent) and lowest for Alternative 10A (1.6 percent). With only a few exceptions, revenue losses for groundfish exceeded that of all other species across all alternatives. Revenue losses for combined summer flounder, black sea bass, and scup were 0.1 percent for all alternatives other than the variants of Alternative 5. Among these alternatives, revenue losses were similar for Alternatives 5a, c, and d.

Tuna Purse Seine Vessel Access to Groundfish Closed Areas

The Council considered 2 alternatives to the proposed action for tuna purse seines - no action, and access with restrictions. Under the no action alternative, there are no changes to current fishing practices. Fishing vessel revenues and operating costs are not expected to change. Therefore, there is no net change in the economic impacts under this option. As a result of the no action alternative, however, tuna purse seine vessels are limited in the area that they can fish. This may constrain their ability to fish at times that avoid the seasonal glut of tuna landings that result from the General Category sub-period openings. If this occurs and purse seine vessels land their catches at the beginning of a sub-period, ex-vessel prices could be depressed resulting in lower gross revenues for both the General and Purse Seine category vessels. It is not possible to predict how often this may occur, since the distribution of tuna varies considerably over time.

The access with restrictions option would allow tuna purse seine vessels to fish in all groundfish closed areas, but limits fishing in closed areas to water depths of 30 fathoms or greater (or alter nets to less than the depth of water) and excludes the vessels from any HAPC. Allowing vessels to fish in closed areas may reduce vessel operating costs because it expands the area available to locate and fish on tuna schools. While allowing tuna purse seine vessels to fish in three areas presently closed to them may decrease vessel costs, this option also significantly changes current access to the seasonal closures in the Gulf of Maine and the WGOM closed area. Most of the seasonal closures occur in the winter and early spring and are not in effect during the purse seine fishing season. The Cashes Ledge closure (July through October, November if triggered) and the October and November closures of thirty minute square blocks 124 and 125 do occur during the purse seine season. In addition, the year round WGOM closure area may also be important to purse seine vessels. This option does provide some increased ability for purse seine vessels to avoid fishing during periods of high landings from General category vessels because it allows partial access to all groundfish year round closed areas. This may reduce the likelihood and extent of market gluts and result in higher ex-vessel prices for both categories of vessels. Because certain types of fixed gear are allowed in the groundfish closed areas (lobster and hagfish pots), allowing tuna purse seine vessels into these areas may increase the likelihood of gear conflicts. Given the small number of tuna purse seine sets and the historically low number of reported gear conflict incidents, the likelihood of significant gear conflicts is very low.

GB gillnet sector

An additional GB sector allocation that would allocate part of the groundfish resource to gillnet vessels on GB was not approved. Instead, the Council chose to develop a framework action at a later date when sufficient data were available to estimate the impacts of a sector gillnet fishery. If successful, economic benefits similar to those discussed for the GB hook sector would be expected.

Hand Gear Only Permit

The no-action alternative would not change any economic benefits or costs relative to the baseline. Alternative 2 would not change the trip limits but would remove the prohibition of issuing permits to vessels that had never held any such permit. Alternative 2 would have no additional economic impact on vessels that may participate in the fishery but would provide, albeit limited, an opportunity for new participants.

Other Capacity Control Alternatives to DAS transfers

The Council also considered DAS absorption, permit transfer, DAS transfers, freeze on unused DAS, DAS reserve, and mandatory latent effort categorizations. Each of the capacity alternatives is designed to provide greater economic opportunity and flexibility in all fisheries while maintaining the character of the existing fleet and to achieve some long-term reduction in the number of vessels permitted to fish in Northeast fisheries. Many of these alternatives require that with the transfer of its permits the selling vessel must retire from fishing in state or federal open and limited access fisheries. While this expands economic opportunities for some vessels, it eliminates participation of others in the groundfish and other fisheries. This may reduce

participation in the capacity reduction programs. Measures which define effective effort may have widely varied impacts on permit holders depending on their history in the groundfish fishery, benefitting some and severely limiting others. For additional detail on the economic impacts of the other alternatives dealing with capacity control, see section 5.4.9.4.

6.0 Description of the projected reporting, recordkeeping, and other compliance requirements of the proposed rule

Reporting and Recordkeeping Requirements

The proposed measures under Amendment 13 include the following provisions requiring either new or revised reporting and recordkeeping requirements: (1) Initial vessel application for a limited access Handgear A permit; (2) limited access Handgear A permit appeals; (3) DAS baseline appeals; (4) DAS Transfer Program application; (5) VMS purchase and installation; (6) automated VMS polling of vessel position twice per hour while fishing within the U.S./Canada Area; (7) VMS proof of installation; (8) SAP area and DAS use declaration via VMS prior to each trip into a SAP; (9) notice requirements for observer deployment prior to every trip into the CA I Hook Gear SAP; (10) expedited submission of a proposed SAP; (11) request to power down VMS for at least 1 month; (12) GB Hook Gear Cod Trip Limit Exemption declaration; (13) request for an LOA to participate in the GOM Cod Landing Exemption; (14) request for an LOA to participate in the Yellowtail Flounder Possession/Landing Exemption for the Northern Yellowtail Trip Limit Area; (15) request for an LOA to participate in the Yellowtail Flounder Possession/Landing Exemption in SNE and MA RMAs; (16) request for an LOA to participate in the Monkfish Southern Fishery Management Area Landing Limit and Minimum Fish Size Exemption; (17) request for an LOA to participate in the Skate Bait-only Possession Limit Exemption; (18) submission of a sector allocation proposal; (19) submission of a plan of operations for an approved sector allocation; (20) daily electronic catch and discard reports of GB cod, GB haddock, and GB yellowtail flounder when fishing within the U.S./Canada Area and/or the associated SAPs; and (21) annual reporting requirement for sectors. The compliance costs associated with most of these new reporting and recordkeeping requirements are minimal, consisting only of postage and copying costs.

Other compliance requirements

All groundfish DAS vessels participating in the U.S./Canada Understanding, and all participants in SAPs, with the exception of the SNE/MA Winter Flounder SAP, must use VMS within these programs. Any vessel that does not currently possess a VMS must obtain one prior to fishing in a SAP or in the U.S./Canada Management Area. The cost of purchasing and installing VMS, along with the associated operational costs is currently estimated at \$3,600 per vessel.

Participation in the CA I Hook Gear SAP would require observers to be on board each vessel. It is estimated that the cost of complying with this regulation would be \$1,150 per day at sea.

The required changes to mesh size were estimated to affect 424 trawl vessels fishing in the GOM or GB area, and 221 trawl vessels fishing in the SNE area. The average cost to replace a codend was estimated to be \$1,250. The mesh changes were estimated to affect 18 Day gillnet vessels that use tie-down nets in the GOM. The average cost to these vessels to replace their

nets is estimated to be \$7,794. The mesh changes were estimated to affect 31 Day gillnet vessels that use stand-up nets in the GOM. The average cost to these vessels to replace their nets was \$9,300. The mesh changes were estimated to affect 25 Trip gillnet vessels that fish in the GOM. The average cost to these vessels to replace their nets was estimated to be \$18,352. The mesh changes were estimated to affect 32 gillnet vessels that fished in either GB or SNE. The average cost to these vessels to replace their nets was estimated to be \$8,800. Finally, the requirement for groundfish vessels to fish with a haddock separator trawl or a flatfish net when fishing in the U.S./Canada Resource Sharing Understanding areas was estimated to affect 400 vessels. The average cost for these vessels to replace their nets with a flatfish net was estimated to be \$747, and the average cost associated with purchasing and installing a separator panel, for the purposes of being in compliance with the haddock separator trawl net requirement, was estimated to be approximately \$7,500.

APPENDIX

	Number of Vessels	Lower	Upper
10th Percentile and Below	85	Minimum	-40.4%
10th to 25th Percentile	127	-40.4%	-34.3%
25th to 50th Percentile	212	-34.3%	-19.6%
50th to 75th Percentile	212	-19.6%	-5.4%
75th to 90th Percentile	127	-5.4%	0.0%
Above 90th Percentile	85	0.0%	Maximum

Table 184 - Fleet-Wide Impacts of Proposed Action

	Number of Vessels	Alternative 1A		Alternative 1B		Alternative 1C		Alternative 1D	
		Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper
10th Percentile and Below	85	Min.	-46.3%	Min.	-29.8%	Min.	-48.8%	Min.	-34.2%
10th to 25th Percentile	127	-46.3%	-40.1%	-29.8%	-25.4%	-48.8%	-42.2%	-34.2%	-28.0%
25th to 50th Percentile	212	-40.1%	-24.0%	-25.4%	-14.7%	-42.2%	-25.6%	-28.0%	-16.9%
50th to 75th Percentile	212	-24.0%	-7.2%	-14.7%	-3.0%	-25.6%	-8.8%	-16.9%	-4.9%
75th to 90th Percentile	127	-7.2%	0.0%	-3.0%	0.6%	-8.8%	0.0%	-4.9%	0.2%
Above 90th Percentile	85	0.0%	Max.	0.6%	Max.	0.0%	Max.	0.2%	Max.

Table 192 - Fleet-Wide Impacts of Alternatives 1A, 1B, 1C and 1D

Dependence on Groundfish	Number of Vessels	Alternative 1A		Alternative 1B		Alternative 1C		Alternative 1D	
		Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper
Less than 25% (n = 182)									
10th Percent. and Below	18	Min.	-11.6%	Min.	-10.4%	Min.	-12.2%	Min.	-10.4%
10th to 25th Percent.	27	-11.6%	-8.0%	-10.4%	-5.5%	-12.2%	-8.2%	-10.4%	-5.7%
25th to 50th Percent.	46	-8.0%	-3.2%	-5.5%	-2.1%	-8.2%	-3.6%	-5.7%	-2.5%
50th to 75th Percent.	46	-3.2%	0.0%	-2.1%	0.0%	-3.6%	0.0%	-2.5%	0.0%
75th to 90th Percent.	27	0.0%	0.5%	0.0%	0.6%	0.0%	0.3%	0.0%	0.4%
Above 90th Percent.	18	0.5%	Max.	0.6%	Max.	0.3%	Max.	0.4%	Max.
25 to less than 50% (n = 142)									
10th Percent. and Below	14	Min.	-27.4%	Min.	-22.7%	Min.	-27.4%	Min.	-22.8%
10th to 25th Percent.	21	-27.4%	-20.9%	-22.7%	-15.4%	-27.4%	-21.7%	-22.8%	-16.8%
25th to 50th Percent.	36	-20.9%	-17.1%	-15.4%	-10.9%	-21.7%	-17.8%	-16.8%	-11.8%
50th to 75th Percent.	36	-17.1%	-12.2%	-10.9%	-7.2%	-17.8%	-13.3%	-11.8%	-8.4%
75th to 90th Percent.	21	-12.2%	-2.6%	-7.2%	0.0%	-13.3%	-6.7%	-8.4%	-0.9%
Above 90th Percent.	14	-2.6%	Max.	0.0%	Max.	-6.7%	Max.	-0.9%	Max.
50% to less than 75% (n = 153)									
10th Percent. and Below	15	Min.	-39.6%	Min.	-33.0%	Min.	-40.3%	Min.	-33.2%
10th to 25th Percent.	23	-39.6%	-33.2%	-33.0%	-21.7%	-40.3%	-34.8%	-33.2%	-24.0%
25th to 50th Percent.	38	-33.2%	-28.9%	-21.7%	-17.6%	-34.8%	-29.7%	-24.0%	-19.0%
50th to 75th Percent.	38	-28.9%	-21.3%	-17.6%	-10.8%	-29.7%	-22.7%	-19.0%	-13.7%
75th to 90th Percent.	23	-21.3%	-7.2%	-10.8%	0.0%	-22.7%	-9.5%	-13.7%	-2.6%
Above 90th Percent.	15	-7.2%	Max.	0.0%	Max.	-9.5%	Max.	-2.6%	Max.
75% or Greater (n = 371)									
10th Percent. and Below	37	Min.	-50.0%	Min.	-33.8%	Min.	-54.8%	Min.	-43.6%
10th to 25th Percent.	56	-50.0%	-45.5%	-33.8%	-28.1%	-54.8%	-48.1%	-43.6%	-32.1%
25th to 50th Percent.	93	-45.5%	-41.1%	-28.1%	-24.9%	-48.1%	-43.2%	-32.1%	-27.5%
50th to 75th Percent.	93	-41.1%	-33.3%	-24.9%	-16.4%	-43.2%	-36.1%	-27.5%	-20.9%
75th to 90th Percent.	56	-33.3%	0.0%	-16.4%	5.1%	-36.1%	-8.1%	-20.9%	2.7%
Above 90th Percent.	37	0.0%	Max.	5.1%	Max.	-8.1%	Max.	2.7%	Max.

Table 193 - Revenue Impacts by Dependency on Groundfish for Alternatives 1A, 1B, 1C and 1D

Gross Groundfish Sales Intervals	Number of Vessels	Alternative 1A		Alternative 1B		Alternative 1C		Alternative 1D	
		Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper
\$35,000 or less (n = 209)									
10th Percentile and Below	21	Min.	-28.0%	Min.	-19.5%	Min.	-29.2%	Min.	-24.0%
10th to 25th Percentile	31	-28.0%	-11.4%	-19.5%	-7.1%	-29.2%	-13.3%	-24.0%	-10.8%
25th to 50th Percentile	52	-11.4%	-1.2%	-7.1%	0.0%	-13.3%	-2.8%	-10.8%	-1.2%
50th to 75th Percentile	52	-1.2%	0.3%	0.0%	0.6%	-2.8%	0.0%	-1.2%	0.4%
75th to 90th Percentile	31	0.3%	18.9%	0.6%	19.3%	0.0%	18.5%	0.4%	18.9%
Above 90th Percentile	21	18.9%	Max.	19.3%	Max.	18.5%	Max.	18.9%	Max.
\$35,001 to \$100,000 (n = 245)									
10th Percentile and Below	25	Min.	-46.3%	Min.	-32.4%	Min.	-48.1%	Min.	-33.8%
10th to 25th Percentile	37	-46.3%	-35.2%	-32.4%	-23.2%	-48.1%	-37.2%	-33.8%	-23.9%
25th to 50th Percentile	61	-35.2%	-20.9%	-23.2%	-12.8%	-37.2%	-21.5%	-23.9%	-13.9%
50th to 75th Percentile	61	-20.9%	-8.8%	-12.8%	-2.9%	-21.5%	-9.5%	-13.9%	-5.1%
75th to 90th Percentile	37	-8.8%	-1.0%	-2.9%	2.3%	-9.5%	-2.1%	-5.1%	1.0%
Above 90th Percentile	25	-1.0%	Max.	2.3%	Max.	-2.1%	Max.	1.0%	Max.
\$100,001 to \$250,000 (n = 197)									
10th Percentile and Below	21	Min.	-47.7%	Min.	-30.2%	Min.	-50.1%	Min.	-38.6%
10th to 25th Percentile	31	-47.7%	-42.8%	-30.2%	-26.6%	-50.1%	-45.4%	-38.6%	-29.4%
25th to 50th Percentile	47	-42.8%	-34.8%	-26.6%	-20.6%	-45.4%	-37.1%	-29.4%	-23.6%
50th to 75th Percentile	47	-34.8%	-21.0%	-20.6%	-11.4%	-37.1%	-23.6%	-23.6%	-14.5%
75th to 90th Percentile	31	-21.0%	-11.0%	-11.4%	-4.7%	-23.6%	-11.2%	-14.5%	-7.0%
Above 90th Percentile	21	-11.0%	Max.	-4.7%	Max.	-11.2%	Max.	-7.0%	Max.

Table 194 - Revenue Impacts by Size of Gross Groundfish Sales for Alternatives 1A, 1B, 1C and 1D

Gross Groundfish Sales Intervals	Number of Vessels	Alternative 1A		Alternative 1B		Alternative 1C		Alternative 1D	
		Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper
\$250,001 or more (n = 187)									
10th Percentile and Below	19	Min.	-47.1%	Min.	-29.8%	Min.	-50.5%	Min.	-38.6%
10th to 25th Percentile	28	-47.1%	-44.5%	-29.8%	-27.3%	-50.5%	-47.5%	-38.6%	-31.9%
25th to 50th Percentile	47	-44.5%	-39.4%	-27.3%	-24.4%	-47.5%	-42.5%	-31.9%	-27.5%
50th to 75th Percentile	47	-39.4%	-26.7%	-24.4%	-16.7%	-42.5%	-28.0%	-27.5%	-18.4%
75th to 90th Percentile	28	-26.7%	-15.6%	-16.7%	-9.6%	-28.0%	-16.6%	-18.4%	-11.1%
Above 90th Percentile	19	-15.6%	Max.	-9.6%	Max.	-16.6%	Max.	-11.1%	Max.

Table 194 - Revenue Impacts by Size of Gross Groundfish Sales for Alternatives 1A, 1B, 1C and 1D (cont.)

	Number of Vessels	Alternative 1A		Alternative 1B		Alternative 1C		Alternative 1D	
		Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper
Gillnet Gear (n= 181)									
10th Percentile and Below	18	Min.	-46.6%	Min.	-27.2%	Min.	-51.5%	Min.	-39.4%
10th to 25th Percentile	27	-46.6%	-34.9%	-27.2%	-19.3%	-51.5%	-42.5%	-39.4%	-26.2%
25th to 50th Percentile	45	-34.9%	-12.0%	-19.3%	-2.9%	-42.5%	-14.3%	-26.2%	-7.2%
50th to 75th Percentile	45	-12.0%	0.0%	-2.9%	0.6%	-14.3%	-0.2%	-7.2%	0.3%
75th to 90th Percentile	27	0.0%	11.6%	0.6%	18.5%	-0.2%	11.6%	0.3%	17.1%
Above 90th Percentile	18	11.6%	Max.	18.5%	Max.	11.6%	Max.	17.1%	Max.
Hook Gear (n=75)									
10th Percentile and Below	8	Min.	-37.7%	Min.	-24.3%	Min.	-44.1%	Min.	-31.9%
10th to 25th Percentile	11	-37.7%	-19.9%	-24.3%	-3.1%	-44.1%	-24.0%	-31.9%	-19.3%
25th to 50th Percentile	19	-19.9%	0.0%	-3.1%	0.0%	-24.0%	-7.7%	-19.3%	-3.0%
50th to 75th Percentile	19	0.0%	3.4%	0.0%	3.9%	-7.7%	1.9%	-3.0%	3.6%
75th to 90th Percentile	11	3.4%	29.2%	3.9%	29.2%	1.9%	29.2%	3.6%	29.2%
Above 90th Percentile	8	29.2%	Max.	29.2%	Max.	29.2%	Max.	29.2%	Max.
Trawl Gear (n=592)									
10th Percentile and Below	59	Min.	-46.4%	Min.	-30.6%	Min.	-48.8%	Min.	-33.5%
10th to 25th Percentile	89	-46.4%	-41.4%	-30.6%	-26.4%	-48.8%	-43.0%	-33.5%	-28.5%
25th to 50th Percentile	148	-41.4%	-29.5%	-26.4%	-18.7%	-43.0%	-30.3%	-28.5%	-20.1%
50th to 75th Percentile	148	-29.5%	-14.1%	-18.7%	-9.2%	-30.3%	-14.1%	-20.1%	-9.7%
75th to 90th Percentile	89	-14.1%	-4.7%	-9.2%	-2.7%	-14.1%	-4.7%	-9.7%	-2.8%
Above 90th Percentile	59	-4.7%	Max.	-2.7%	Max.	-4.7%	Max.	-2.8%	Max.

Table 195 - Proportional Change in Gross Annual Revenues by Gear Group for Alternatives 1A, 1B, 1C and 1D

	Number of Vessels	Alternative 1A		Alternative 1B		Alternative 1C		Alternative 1D	
		Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper
Large (n=190)									
10th Percentile and Below	19	Min.	-46.3%	Min.	-29.0%	Min.	-49.8%	Min.	-33.2%
10th to 25th Percentile	29	-46.3%	-42.3%	-29.0%	-26.2%	-49.8%	-45.2%	-33.2%	-30.1%
25th to 50th Percentile	48	-42.3%	-29.4%	-26.2%	-18.0%	-45.2%	-30.2%	-30.1%	-19.5%
50th to 75th Percentile	48	-29.4%	-14.6%	-18.0%	-9.2%	-30.2%	-15.7%	-19.5%	-10.6%
75th to 90th Percentile	29	-14.6%	-4.4%	-9.2%	-3.3%	-15.7%	-4.4%	-10.6%	-3.3%
Above 90th Percentile	19	-4.4%	Max.	-3.3%	Max.	-4.4%	Max.	-3.3%	Max.
Medium (n=485)									
10th Percentile and Below	49	Min.	-46.6%	Min.	-30.8%	Min.	-48.5%	Min.	-34.4%
10th to 25th Percentile	73	-46.6%	-41.0%	-30.8%	-26.4%	-48.5%	-43.0%	-34.4%	-26.2%
25th to 50th Percentile	121	-41.0%	-29.2%	-26.4%	-18.1%	-43.0%	-30.3%	-26.2%	-20.1%
50th to 75th Percentile	121	-29.2%	-12.8%	-18.1%	-6.1%	-30.3%	-13.5%	-20.1%	-7.2%
75th to 90th Percentile	73	-12.8%	0.0%	-6.1%	0.0%	-13.5%	-0.4%	-7.2%	0.0%
Above 90th Percentile	49	0.0%	Max.	0.0%	Max.	-0.4%	Max.	0.0%	Max.
Small (n=173)									
10th Percentile and Below	17	Min.	-40.3%	Min.	-25.1%	Min.	-44.7%	Min.	-30.6%
10th to 25th Percentile	26	-40.3%	-21.3%	-25.1%	-11.4%	-44.7%	-24.0%	-30.6%	-18.3%
25th to 50th Percentile	43	-21.3%	-5.5%	-11.4%	-0.3%	-24.0%	-9.2%	-18.3%	-4.2%
50th to 75th Percentile	43	-5.5%	0.0%	-0.3%	1.0%	-9.2%	0.0%	-4.2%	0.5%
75th to 90th Percentile	26	0.0%	19.3%	1.0%	23.7%	0.0%	18.5%	0.5%	23.7%
Above 90th Percentile	17	19.3%	Max.	23.7%	Max.	18.5%	Max.	23.7%	Max.

Table 196 - Proportional Change in Gross Annual Revenues by Vessel Size (Large = +70'; Medium = 50 to 70', Small = Under 50') for Alternatives 1A, 1B, 1C, and 1D

	Number of Vessels	Alternative 1A		Alternative 1B		Alternative 1C		Alternative 1D	
		Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper
Small Gillnet (n=63)									
10th Percentile and Below	6	Min.	-40.3%	Min.	-23.4%	Min.	-51.9%	Min.	-38.5%
10th to 25th Percentile	9	-40.3%	-17.7%	-23.4%	-4.1%	-51.9%	-19.0%	-38.5%	-13.1%
25th to 50th Percentile	16	-17.7%	-2.6%	-4.1%	0.0%	-19.0%	-2.9%	-13.1%	0.0%
50th to 75th Percentile	16	-2.6%	9.3%	0.0%	12.7%	-2.9%	9.3%	0.0%	12.3%
75th to 90th Percentile	9	9.3%	29.7%	12.7%	29.7%	9.3%	29.7%	12.3%	29.7%
Above 90th Percentile	6	29.7%	Max.	29.7%	Max.	29.7%	Max.	29.7%	Max.
Medium Gillnet (n=118)									
10th Percentile and Below	12	Min.	-47.8%	Min.	-27.7%	Min.	-51.5%	Min.	-43.2%
10th to 25th Percentile	18	-47.8%	-39.8%	-27.7%	-21.6%	-51.5%	-46.1%	-43.2%	-28.4%
25th to 50th Percentile	30	-39.8%	-18.8%	-21.6%	-10.2%	-46.1%	-24.3%	-28.4%	-14.3%
50th to 75th Percentile	30	-18.8%	-1.5%	-10.2%	0.0%	-24.3%	-4.0%	-14.3%	-0.2%
75th to 90th Percentile	18	-1.5%	1.7%	0.0%	4.6%	-4.0%	0.5%	-0.2%	3.2%
Above 90th Percentile	12	1.7%	Max.	4.6%	Max.	0.5%	Max.	3.2%	Max.

Table 197 - Proportional Change in Gross Annual Revenues by Gear Group and Vessel Size (Large = +70'; Medium = 50 to 70', Small = Under 50') for Alternatives 1A, 1B, 1C, and 1D

Home Port State	Number of Vessels	Alternative 1A		Alternative 1B		Alternative 1C		Alternative 1D	
		Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper
Massachusetts (n=396)									
10th Percent./below	40	Min.	-47.8%	Min.	-29.8%	Min.	-51.3%	Min.	-38.1%
10th to 25th Percentile	59	-47.8%	-42.4%	-29.8%	-26.0%	-51.3%	-45.7%	-38.1%	-30.0%
25th to 50th Percentile	99	-42.4%	-29.7%	-26.0%	-17.3%	-45.7%	-32.4%	-30.0%	-21.1%
50th to 75th Percentile	99	-29.7%	-8.0%	-17.3%	-1.9%	-32.4%	-11.5%	-21.1%	-8.6%
75th to 90th Percentile	59	-8.0%	1.2%	-1.9%	3.6%	-11.5%	0.2%	-8.6%	2.6%
Above 90th Percentile	40	1.2%	Max.	3.6%	Max.	0.2%	Max.	2.6%	Max.
Maine (n=131)									
10th Percent./below	13	Min.	-45.9%	Min.	-28.2%	Min.	-47.5%	Min.	-29.4%
10th to 25th Percentile	20	-45.9%	-42.5%	-28.2%	-26.3%	-47.5%	-43.4%	-29.4%	-26.6%
25th to 50th Percentile	33	-42.5%	-36.1%	-26.3%	-21.8%	-43.4%	-36.1%	-26.6%	-21.9%
50th to 75th Percentile	33	-36.1%	-10.5%	-21.8%	-3.6%	-36.1%	-10.5%	-21.9%	-3.8%
75th to 90th Percentile	20	-10.5%	0.0%	-3.6%	0.0%	-10.5%	0.0%	-3.8%	0.0%
Above 90th Percentile	13	0.0%	Max.	0.0%	Max.	0.0%	Max.	0.0%	Max.
New Hampshire (n=60)									
10th Percent./below	6	Min.	-47.2%	Min.	-30.2%	Min.	-48.0%	Min.	-30.6%
10th to 25th Percentile	9	-47.2%	-38.2%	-30.2%	-24.5%	-48.0%	-41.0%	-30.6%	-26.7%
25th to 50th Percentile	15	-38.2%	-18.6%	-24.5%	-14.1%	-41.0%	-19.0%	-26.7%	-17.6%
50th to 75th Percentile	15	-18.6%	-5.2%	-14.1%	3.6%	-19.0%	-5.2%	-17.6%	3.6%
75th to 90th Percentile	9	-5.2%	25.2%	3.6%	25.2%	-5.2%	22.5%	3.6%	24.9%
Above 90th Percentile	6	25.2%	Max.	25.2%	Max.	22.5%	Max.	24.9%	Max.
New Jersey (n=45)									
10th Percent./below	5	Min.	-26.4%	Min.	-21.1%	Min.	-27.9%	Min.	-21.1%
10th to 25th Percentile	7	-26.4%	-19.0%	-21.1%	-14.3%	-27.9%	-19.7%	-21.1%	-14.5%
25th to 50th Percentile	11	-19.0%	-13.5%	-14.3%	-9.2%	-19.7%	-14.1%	-14.5%	-9.5%
50th to 75th Percentile	11	-13.5%	-6.1%	-9.2%	-3.5%	-14.1%	-6.1%	-9.5%	-5.7%
75th to 90th Percentile	7	-6.1%	-1.9%	-3.5%	0.0%	-6.1%	-1.9%	-5.7%	-1.9%
Above 90th Percentile	5	-1.9%	Max.	0.0%	Max.	-1.9%	Max.	-1.9%	Max.
New York/Connecticut (n = 95)									
10th Percent./below	10	Min.	-46.3%	Min.	-35.4%	Min.	-48.1%	Min.	-35.6%
10th to 25th Percentile	14	-46.3%	-31.9%	-35.4%	-25.1%	-48.1%	-34.0%	-35.6%	-26.7%
25th to 50th Percentile	24	-31.9%	-17.6%	-25.1%	-13.6%	-34.0%	-17.6%	-26.7%	-13.6%
50th to 75th Percentile	24	-17.6%	-8.1%	-13.6%	-3.7%	-17.6%	-8.1%	-13.6%	-4.0%
75th to 90th Percentile	14	-8.1%	0.0%	-3.7%	0.0%	-8.1%	-0.1%	-4.0%	0.0%
Above 90th Percentile	10	0.0%	Max.	0.0%	Max.	-0.1%	Max.	0.0%	Max.

Table 198 - Proportional Change in Gross Revenue by Home Port State for Alternatives 1A, 1B, 1C, and 1D

10th to 25th Percentile	33	-46.6%	-41.9%	-32.8%	-26.9%	-48.8%	-43.1%	-33.7%	-28.4%
25th to 50th Percentile	55	-41.9%	-32.1%	-26.9%	-21.6%	-43.1%	-33.8%	-28.4%	-22.6%
50th to 75th Percentile	55	-32.1%	-19.0%	-21.6%	-12.8%	-33.8%	-19.3%	-22.6%	-13.4%
75th to 90th Percentile	33	-19.0%	-10.2%	-12.8%	-6.2%	-19.3%	-10.2%	-13.4%	-6.3%
Above 90th Percentile	22	-10.2%	Max.	-6.2%	Max.	-10.2%	Max.	-6.3%	Max.
Large Trawl (n=187)									
10th Percentile and Below	19	Min.	-46.4%	Min.	-29.1%	Min.	-49.9%	Min.	-33.4%
10th to 25th Percentile	28	-46.4%	-42.3%	-29.1%	-26.2%	-49.9%	-45.2%	-33.4%	-30.1%
25th to 50th Percentile	47	-42.3%	-29.3%	-26.2%	-18.0%	-45.2%	-30.3%	-30.1%	-19.9%
50th to 75th Percentile	47	-29.3%	-14.6%	-18.0%	-9.2%	-30.3%	-15.7%	-19.9%	-10.6%
75th to 90th Percentile	28	-14.6%	-4.4%	-9.2%	-3.3%	-15.7%	-4.4%	-10.6%	-3.3%
Above 90th Percentile	19	-4.4%	Max.	-3.3%	Max.	-4.4%	Max.	-3.3%	Max.

Table 197 - Proportional Change in Gross Annual Revenues by Gear Group and Vessel Size (Large = +70'; Medium = 50 to 70', Small = Under 50') for Alternatives 1A, 1B, 1C, and 1D

Home Port State	Number of Vessels	Alternative 1A		Alternative 1B		Alternative 1C		Alternative 1D	
		Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper
Rhode Island (n=96)									
10th Percent./below	10	Min.	-42.8%	Min.	-33.7%	Min.	-43.1%	Min.	-35.2%
10th to 25th Percentile	14	-42.8%	-34.1%	-33.7%	-23.6%	-43.1%	-35.2%	-35.2%	-26.8%
25th to 50th Percentile	24	-34.1%	-19.8%	-23.6%	-13.2%	-35.2%	-21.1%	-26.8%	-14.7%
50th to 75th Percentile	24	-19.8%	-9.6%	-13.2%	-6.7%	-21.1%	-9.8%	-14.7%	-7.3%
75th to 90th Percentile	14	-9.6%	-3.1%	-6.7%	0.0%	-9.8%	-3.1%	-7.3%	0.0%
Above 90th Percentile	10	-3.1%	Max.	0.0%	Max.	-3.1%	Max.	0.0%	Max.
All Other (n=25)									
10th Percent./below	3	Min.	-39.1%	Min.	-24.8%	Min.	-44.0%	Min.	-30.5%
10th to 25th Percentile	4	-39.1%	-16.7%	-24.8%	-10.3%	-44.0%	-17.8%	-30.5%	-11.1%
25th to 50th Percentile	6	-16.7%	-8.8%	-10.3%	-5.5%	-17.8%	-8.8%	-11.1%	-5.6%
50th to 75th Percentile	6	-8.8%	-4.3%	-5.5%	-2.7%	-8.8%	-4.4%	-5.6%	-2.8%
75th to 90th Percentile	4	-4.3%	0.0%	-2.7%	0.0%	-4.4%	0.0%	-2.8%	0.0%
Above 90th Percentile	3	0.0%	Max.	0.0%	Max.	0.0%	Max.	0.0%	Max.

Table 198 - Proportional Change in Gross Revenue by Home Port State for Alternatives 1A, 1B, 1C, and 1D

Port Group	Number of Vessels	Alternative 1A		Alternative 1B		Alternative 1C		Alternative 1D	
		Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper
Boston (n=20)									
25th Percent./below	5	Min.	-43.0%	Min.	-26.2%	Min.	-45.7%	Min.	-31.3%
25th to 50th Percentile	5	-43.0%	-38.6%	-26.2%	-23.8%	-45.7%	-40.6%	-31.3%	-26.7%
50th to 75th Percentile	5	-38.6%	-15.5%	-23.8%	-7.6%	-40.6%	-14.6%	-26.7%	-8.4%
Above 75th Percentile	5	-15.5%	Max.	-7.6%	Max.	-14.6%	Max.	-8.4%	Max.
Chatham/Harwich (n=50)									
25th Percent./below	13	Min.	-42.9%	Min.	-24.3%	Min.	-51.5%	Min.	-43.6%
25th to 50th Percentile	13	-42.9%	-28.8%	-24.3%	-8.3%	-51.5%	-37.0%	-43.6%	-25.9%
50th to 75th Percentile	13	-28.8%	0.0%	-8.3%	0.0%	-37.0%	-18.3%	-25.9%	-13.2%
Above 75th Percentile	13	0.0%	Max.	0.0%	Max.	-18.3%	Max.	-13.2%	Max.
Eastern Long Island (n=40)									
25th Percent./below	10	Min.	-22.5%	Min.	-17.9%	Min.	-22.7%	Min.	-18.4%
25th to 50th Percentile	10	-22.5%	-14.2%	-17.9%	-11.6%	-22.7%	-14.2%	-18.4%	-12.5%
50th to 75th Percentile	10	-14.2%	-3.6%	-11.6%	-3.5%	-14.2%	-3.8%	-12.5%	-3.7%
Above 75th Percentile	10	-3.6%	Max.	-3.5%	Max.	-3.8%	Max.	-3.7%	Max.
Gloucester (n=97)									
25th Percent./below	24	Min.	-44.7%	Min.	-28.1%	Min.	-47.7%	Min.	-30.2%
25th to 50th Percentile	24	-44.7%	-36.2%	-28.1%	-18.5%	-47.7%	-39.4%	-30.2%	-20.9%
50th to 75th Percentile	24	-36.2%	-4.7%	-18.5%	0.1%	-39.4%	-6.5%	-20.9%	-1.3%
Above 75th Percentile	24	-4.7%	Max.	0.1%	Max.	-5.5%	Max.	-1.3%	Max.
New Bedford (n=96)									
25th Percent./below	24	Min.	-43.9%	Min.	-27.0%	Min.	-47.0%	Min.	-31.0%
25th to 50th Percentile	24	-43.9%	-39.6%	-27.0%	-24.4%	-47.0%	-42.3%	-31.0%	-27.5%
50th to 75th Percentile	24	-39.6%	-26.6%	-24.4%	-19.2%	-42.3%	-29.7%	-27.5%	-20.3%
Above 75th Percentile	24	-26.6%	Max.	-19.2%	Max.	-29.7%	Max.	-20.3%	Max.
New Hampshire Seacoast (n=32)									
25th Percent./below	8	Min.	-30.5%	Min.	-22.7%	Min.	-32.7%	Min.	-24.0%
25th to 50th Percentile	8	-30.5%	-13.4%	-22.7%	-9.6%	-32.7%	-13.4%	-24.0%	-10.2%
50th to 75th Percentile	8	-13.4%	2.4%	-9.6%	11.8%	-13.4%	2.4%	-10.2%	11.8%
Above 75th Percentile	8	2.4%	Max.	11.8%	Max.	2.4%	Max.	11.8%	Max.
Point Judith (n=49)									
25th Percent./below	12	Min.	-39.1%	Min.	-30.3%	Min.	-39.4%	Min.	-30.3%
25th to 50th Percentile	12	-39.1%	-22.4%	-30.3%	-13.7%	-39.4%	-24.8%	-30.3%	-16.8%
50th to 75th Percentile	12	-22.4%	-13.7%	-13.7%	-9.4%	-24.8%	-13.7%	-16.8%	-10.3%
Above 75th Percentile	12	-13.7%	Max.	-9.4%	Max.	-13.7%	Max.	-10.3%	Max.
Portland (n=39)									
25th Percent./below	10	Min.	-45.9%	Min.	-28.2%	Min.	-48.0%	Min.	-31.7%
25th to 50th Percentile	10	-45.9%	-43.6%	-28.2%	-26.5%	-48.0%	-44.4%	-31.7%	-27.4%
50th to 75th Percentile	10	-43.6%	-36.9%	-26.5%	-22.2%	-44.4%	-37.8%	-27.4%	-22.7%
Above 75th Percentile	10	-36.9%	Max.	-22.2%	Max.	-37.8%	Max.	-22.7%	Max.

Table 199 - Proportional Change in Gross Annual Revenues by Port Group for Alternatives 1A, 1B, 1C, and 1D

	Number of Vessels	Alternative 2A		Alternative 2B		Alternative 2A & 2B With Hard TAC	
		Lower	Upper	Lower	Upper	Lower	Upper
10th Percentile and Below	85	Minimum	-38.8%	Minimum	-40.9%	Minimum	-89.4%
10th to 25th Percentile	127	-38.8%	-26.1%	-40.9%	-26.0%	-89.4%	-55.2%
25th to 50th Percentile	212	-26.1%	-13.6%	-26.0%	-13.6%	-55.2%	-37.1%
50th to 75th Percentile	212	-13.6%	-2.3%	-13.6%	-2.5%	-37.1%	-14.4%
75th to 90th Percentile	127	-2.3%	0.5%	-2.5%	0.4%	-14.4%	-4.6%
Above 90th Percentile	85	0.5%	Maximum	0.4%	Maximum	-4.6%	Maximum

Table 200 - Fleet-wide Impacts of Alternative 2A and 2B, both with and without hard TAC

		Alternative 2A		Alternative 2B		Alternative 2A & 2B With Hard TAC	
		Alternative 2A		Alternative 2B		Alternative 2A & 2B With Hard TAC	
Gross Groundfish Sales Intervals	Number of Vessels	Lower	Upper	Lower	Upper	Lower	Upper
\$35,000 or less (n = 209)							
10th Percentile and Below	21	Minimum	-37.7%	Minimum	-37.7%	Minimum	-63.8%
10th to 25th Percentile	31	-37.7%	-14.3%	-37.7%	-13.5%	-63.8%	-39.5%
25th to 50th Percentile	52	-14.3%	-0.8%	-13.5%	-0.8%	-39.5%	-12.9%
50th to 75th Percentile	52	-0.8%	0.2%	-0.8%	0.2%	-12.9%	-3.5%
75th to 90th Percentile	31	0.2%	4.2%	0.2%	4.2%	-3.5%	-0.5%
Above 90th Percentile	21	4.2%	Maximum	4.2%	Maximum	-0.5%	Maximum
\$35,001 to \$100,000 (n = 245)							
10th Percentile and Below	25	Minimum	-43.7%	Minimum	-49.1%	Minimum	-72.5%
10th to 25th Percentile	37	-43.7%	-26.9%	-49.1%	-29.2%	-72.5%	-54.7%
25th to 50th Percentile	61	-26.9%	-11.7%	-29.2%	-12.9%	-54.7%	-37.2%
50th to 75th Percentile	61	-11.7%	-3.7%	-12.9%	-3.9%	-37.2%	-17.0%
75th to 90th Percentile	37	-3.7%	0.0%	-3.9%	-0.1%	-17.0%	-8.0%
Above 90th Percentile	25	0.0%	Maximum	-0.1%	Maximum	-8.0%	Maximum
\$100,001 to \$250,000 (n = 197)							
10th Percentile and Below	21	Minimum	-50.9%	Minimum	-50.0%	Minimum	-70.3%
10th to 25th Percentile	31	-50.9%	-26.4%	-50.0%	-30.8%	-70.3%	-54.9%
25th to 50th Percentile	47	-26.4%	-17.2%	-30.8%	-17.6%	-54.9%	-42.4%
50th to 75th Percentile	47	-17.2%	-6.5%	-17.6%	-6.5%	-42.4%	-27.4%
75th to 90th Percentile	31	-6.5%	-0.9%	-6.5%	-0.7%	-27.4%	-12.1%
Above 90th Percentile	21	-0.9%	Maximum	-0.7%	Maximum	-12.1%	Maximum
\$250,001 or more (n = 187)							
10th Percentile and Below	19	Minimum	-34.5%	Minimum	-30.9%	Minimum	-66.1%
10th to 25th Percentile	28	-34.5%	-29.7%	-30.9%	-25.8%	-66.1%	-59.0%
25th to 50th Percentile	47	-29.7%	-22.8%	-25.8%	-20.1%	-59.0%	-49.9%
50th to 75th Percentile	47	-22.8%	-12.4%	-20.1%	-11.8%	-49.9%	-30.5%
75th to 90th Percentile	28	-12.4%	-4.8%	-11.8%	-2.8%	-30.5%	-11.9%
Above 90th Percentile	19	-4.8%	Maximum	-2.8%	Maximum	-11.9%	Maximum

Table 202 - Revenue impacts by gross sales of groundfish for Alternative 2A and 2B

	Number of Vessels	Alternative 2A		Alternative 2B		Alternative 2A & 2B With Hard TAC	
		Lower	Upper	Lower	Upper	Lower	Upper
Gillnet Gear (n= 181)							
10th Percentile and Below	18	Minimum	-56.9%	Minimum	-56.9%	Minimum	-75.9%
10th to 25th Percentile	27	-56.9%	-27.5%	-56.9%	-25.6%	-75.9%	-51.0%
25th to 50th Percentile	45	-27.5%	-12.9%	-25.6%	-13.6%	-51.0%	-34.0%
50th to 75th Percentile	45	-12.9%	-0.2%	-13.6%	-0.3%	-34.0%	-13.9%
75th to 90th Percentile	27	-0.2%	0.7%	-0.3%	0.6%	-13.9%	-2.9%
Above 90th Percentile	18	0.7%	Maximum	0.6%	Maximum	-2.9%	Maximum
Hook Gear (n=75)							
10th Percentile and Below	8	Minimum	-73.7%	Minimum	-73.7%	Minimum	-78.5%
10th to 25th Percentile	11	-73.7%	-54.7%	-73.7%	-54.7%	-78.5%	-61.0%
25th to 50th Percentile	19	-54.7%	-9.7%	-54.7%	-9.7%	-61.0%	-34.3%
50th to 75th Percentile	19	-9.7%	0.5%	-9.7%	0.5%	-34.3%	-6.7%
75th to 90th Percentile	11	0.5%	6.3%	0.5%	6.3%	-6.7%	-0.1%
Above 90th Percentile	8	6.3%	Maximum	6.3%	Maximum	-0.1%	Maximum
Trawl Gear (n=592)							
10th Percentile and Below	59	Minimum	-33.4%	Minimum	-33.6%	Minimum	-66.7%
10th to 25th Percentile	89	-33.4%	-24.8%	-33.6%	-25.3%	-66.7%	-55.6%
25th to 50th Percentile	148	-24.8%	-13.7%	-25.3%	-14.1%	-55.6%	-38.1%
50th to 75th Percentile	148	-13.7%	-3.5%	-14.1%	-3.5%	-38.1%	-15.7%
75th to 90th Percentile	89	-3.5%	0.0%	-3.5%	0.0%	-15.7%	-6.1%
Above 90th Percentile	59	0.0%	Maximum	0.0%	Maximum	-6.1%	Maximum

Table 203 - Proportional change in gross annual revenues by gear group for Alternative 2A and 2B

Gear	Number of Vessels	Alternative 2A		Alternative 2B		Alternative 2A & 2B With Hard TAC	
		Lower	Upper	Lower	Upper	Lower	Upper
Small Hook (n=51)							
10th Percentile and Below	5	Minimum	-80.4%	Minimum	-80.4%	Minimum	-86.7%
10th to 25th Percentile	8	-80.4%	-54.9%	-80.4%	-54.9%	-86.7%	-81.0%
25th to 50th Percentile	13	-54.9%	-27.5%	-54.9%	-27.5%	-81.0%	-34.3%
50th to 75th Percentile	13	-27.5%	0.0%	-27.5%	0.0%	-34.3%	-9.7%
75th to 90th Percentile	8	0.0%	3.2%	0.0%	3.2%	-9.7%	-0.6%
Above 90th Percentile	5	3.2%	Maximum	3.2%	Maximum	-0.6%	Maximum
Large Hook (n=24)							
10th Percentile and Below	2	Minimum	-60.8%	Minimum	-60.8%	Minimum	-70.4%
10th to 25th Percentile	4	-60.8%	-39.1%	-60.8%	-36.0%	-70.4%	-62.5%
25th to 50th Percentile	6	-39.1%	-1.3%	-36.0%	-1.3%	-62.5%	-32.7%
50th to 75th Percentile	6	-1.3%	2.6%	-1.3%	2.6%	-32.7%	-1.9%
75th to 90th Percentile	4	2.6%	19.3%	2.6%	19.3%	-1.9%	-0.1%
Above 90th Percentile	2	19.3%	Maximum	19.3%	Maximum	-0.1%	Maximum
Small Trawl (n=187)							
10th Percentile and Below	18	Minimum	-35.1%	Minimum	-41.5%	Minimum	-70.4%
10th to 25th Percentile	28	-35.1%	-26.3%	-41.5%	-30.5%	-70.4%	-58.1%
25th to 50th Percentile	47	-26.3%	-13.4%	-30.5%	-16.3%	-58.1%	-41.3%
50th to 75th Percentile	47	-13.4%	-2.2%	-16.3%	-2.6%	-41.3%	-15.9%
75th to 90th Percentile	28	-2.2%	0.0%	-2.6%	0.0%	-15.9%	-6.1%
Above 90th Percentile	18	0.0%	Maximum	0.0%	Maximum	-6.1%	Maximum
Medium Trawl (n=218)							
10th Percentile and Below	23	Minimum	-32.4%	Minimum	-32.4%	Minimum	-66.1%
10th to 25th Percentile	33	-32.4%	-23.5%	-32.4%	-25.2%	-66.1%	-55.3%
25th to 50th Percentile	55	-23.5%	-15.0%	-25.2%	-14.5%	-55.3%	-38.4%
50th to 75th Percentile	55	-15.0%	-4.8%	-14.5%	-4.5%	-38.4%	-19.1%
75th to 90th Percentile	33	-4.8%	-0.1%	-4.5%	0.0%	-19.1%	-7.9%

Small (n=173)							
10th Percentile and Below	17	Minimum	-58.8%	Minimum	-58.8%	Minimum	-75.7%
10th to 25th Percentile	28	-58.8%	-31.4%	-58.8%	-34.5%	-75.7%	-58.5%
25th to 50th Percentile	43	-31.4%	-8.7%	-34.5%	-9.4%	-58.5%	-32.7%
50th to 75th Percentile	43	-8.7%	0.0%	-9.4%	0.0%	-32.7%	-11.3%
75th to 90th Percentile	28	0.0%	1.6%	0.0%	1.1%	-11.3%	-2.4%
Above 90th Percentile	17	1.6%	Maximum	1.1%	Maximum	-2.4%	Maximum

Table 204 - Proportional change in gross annual revenues by vessel size (Large = +70'; Medium = 50 to 70', Small = Under 50') for Alternative 2A and 2B

Gear	Number of Vessels	Alternative 2A		Alternative 2B		Alternative 2A & 2B With Hard TAC	
		Lower	Upper	Lower	Upper	Lower	Upper
Small Gillnet (n=63)							
10th Percentile and Below	6	Minimum	-57.7%	Minimum	-57.7%	Minimum	-76.4%
10th to 25th Percentile	9	-57.7%	-25.2%	-57.7%	-25.2%	-76.4%	-53.5%
25th to 50th Percentile	18	-25.2%	-8.0%	-25.2%	-8.0%	-53.5%	-30.7%
50th to 75th Percentile	18	-8.0%	0.2%	-8.0%	0.0%	-30.7%	-9.5%
75th to 90th Percentile	9	0.2%	1.3%	0.0%	0.9%	-9.5%	-2.4%
Above 90th Percentile	6	1.3%	Maximum	0.9%	Maximum	-2.4%	Maximum
Medium Gillnet (n=118)							
10th Percentile and Below	12	Minimum	-56.9%	Minimum	-56.9%	Minimum	-75.9%
10th to 25th Percentile	18	-56.9%	-29.0%	-56.9%	-25.6%	-75.9%	-49.4%
25th to 50th Percentile	30	-29.0%	-14.4%	-25.6%	-14.4%	-49.4%	-34.5%
50th to 75th Percentile	30	-14.4%	-2.4%	-14.4%	-2.8%	-34.5%	-14.6%
75th to 90th Percentile	18	-2.4%	0.4%	-2.8%	0.4%	-14.6%	-2.9%
Above 90th Percentile	12	0.4%	Maximum	0.4%	Maximum	-2.9%	Maximum

Table 205 - Proportional change in gross annual revenues by gear group and vessel size (Large = +70'; Medium = 50 to 70', Small = Under 50') for Alternative 2A and 2B(cont.)

Above 90th Percentile	22	-0.1%	Maximum	0.0%	Maximum	-7.9%	Maximum
Large Trawl (n=187)							
10th Percentile and Below	18	Minimum	-33.4%	Minimum	-29.5%	Minimum	-63.8%
10th to 25th Percentile	28	-33.4%	-24.9%	-29.5%	-23.0%	-63.8%	-54.8%
25th to 50th Percentile	47	-24.9%	-12.6%	-23.0%	-12.4%	-54.8%	-31.9%
50th to 75th Percentile	47	-12.6%	-2.9%	-12.4%	-2.8%	-31.9%	-12.2%
75th to 90th Percentile	28	-2.9%	0.2%	-2.8%	0.2%	-12.2%	-4.7%
Above 90th Percentile	18	0.2%	Maximum	0.2%	Maximum	-4.7%	Maximum

Table 205 - Proportional change in gross annual revenues by gear group and vessel size (Large = +70'; Medium = 50 to 70', Small = Under 50') for Alternative 2A and 2B

Home Port State	Number of Vessels	Alternative 2A		Alternative 2B		Alternative 2A & 2B With Hard TAC	
		Lower	Upper	Lower	Upper	Lower	Upper
Massachusetts (n=396)							
10th Percentile and Below	40	Minimum	-58.8%	Minimum	-58.8%	Minimum	-75.9%
10th to 25th Percentile	50	-58.8%	-33.9%	-58.8%	-33.5%	-75.9%	-64.7%
25th to 50th Percentile	99	-33.9%	-23.2%	-33.5%	-22.3%	-64.7%	-50.1%
50th to 75th Percentile	99	-23.2%	-11.1%	-22.3%	-10.0%	-50.1%	-29.5%
75th to 90th Percentile	50	-11.1%	0.0%	-10.0%	0.0%	-29.5%	-11.5%
Above 90th Percentile	40	0.0%	Maximum	0.0%	Maximum	-11.5%	Maximum
Maine (n=131)							
10th Percentile and Below	13	Minimum	-27.2%	Minimum	-30.9%	Minimum	-60.8%
10th to 25th Percentile	20	-27.2%	-21.2%	-30.9%	-23.9%	-60.8%	-52.7%
25th to 50th Percentile	33	-21.2%	-13.6%	-23.9%	-14.8%	-52.7%	-44.0%
50th to 75th Percentile	33	-13.6%	-1.1%	-14.8%	-3.4%	-44.0%	-28.5%
75th to 90th Percentile	20	-1.1%	0.4%	-3.4%	0.1%	-28.5%	-7.0%
Above 90th Percentile	13	0.4%	Maximum	0.1%	Maximum	-7.0%	Maximum
New Hampshire (n=80)							
10th Percentile and Below	8	Minimum	-39.9%	Minimum	-44.3%	Minimum	-67.7%
10th to 25th Percentile	9	-39.9%	-30.1%	-44.3%	-30.1%	-67.7%	-57.8%
25th to 50th Percentile	15	-30.1%	-20.4%	-30.1%	-21.1%	-57.8%	-46.3%
50th to 75th Percentile	15	-20.4%	-5.4%	-21.1%	-4.5%	-46.3%	-36.0%
75th to 90th Percentile	9	-5.4%	0.7%	-4.5%	0.2%	-36.0%	-17.5%
Above 90th Percentile	6	0.7%	Maximum	0.2%	Maximum	-17.5%	Maximum
New Jersey (n=45)							
10th Percentile and Below	5	Minimum	-9.3%	Minimum	-13.0%	Minimum	-19.6%
10th to 25th Percentile	7	-9.3%	-5.8%	-13.0%	-5.5%	-19.6%	-14.4%
25th to 50th Percentile	11	-5.8%	-1.2%	-5.5%	-1.2%	-14.4%	-7.9%
50th to 75th	11	-1.2%	0.2%	-1.2%	0.2%	-7.9%	-3.8%

Home Port State	Number of Vessels	Alternative 2A		Alternative 2B		Alternative 2A & 2B With Hard TAC	
		Lower	Upper	Lower	Upper	Lower	Upper
New York/Connecticut (n = 95)							
10th Percentile and Below	10	Minimum	-20.7%	Minimum	-20.7%	Minimum	-40.7%
10th to 25th Percentile	14	-20.7%	-12.2%	-20.7%	-11.2%	-40.7%	-30.1%
25th to 50th Percentile	24	-12.2%	-3.8%	-11.2%	-3.3%	-30.1%	-16.9%
50th to 75th Percentile	24	-3.8%	-0.1%	-3.3%	-0.1%	-16.9%	-6.8%
75th to 90th Percentile	14	-0.1%	0.0%	-0.1%	0.6%	-6.8%	-1.4%
Above 90th Percentile	10	0.0%	Maximum	0.6%	Maximum	-1.4%	Maximum
Rhode Island (n=96)							
10th Percentile and Below	10	Minimum	-17.2%	Minimum	-15.9%	Minimum	-46.6%
10th to 25th Percentile	14	-17.2%	-10.9%	-15.9%	-10.9%	-46.6%	-35.2%
25th to 50th Percentile	24	-10.9%	-5.3%	-10.9%	-4.9%	-35.2%	-19.3%
50th to 75th Percentile	24	-5.3%	-0.2%	-4.9%	0.0%	-19.3%	-10.1%
75th to 90th Percentile	14	-0.2%	0.7%	0.0%	0.9%	-10.1%	-2.9%
Above 90th Percentile	10	0.7%	Maximum	0.9%	Maximum	-2.9%	Maximum
All Other (n=25)							
10th Percentile and Below	3	Minimum	-28.3%	Minimum	-21.4%	Minimum	-40.6%
10th to 25th Percentile	4	-28.3%	-8.8%	-21.4%	-8.8%	-40.6%	-17.6%
25th to 50th Percentile	6	-8.8%	-2.5%	-8.8%	-2.5%	-17.6%	-8.8%
50th to 75th Percentile	6	-2.5%	-0.4%	-2.5%	-0.4%	-8.8%	-5.4%
75th to 90th Percentile	4	-0.4%	1.6%	-0.4%	1.6%	-5.4%	-1.2%
Above 90th Percentile	3	1.6%	Maximum	1.6%	Maximum	-1.2%	Maximum

Table 206 – Proportional change in gross revenue by home port state for Alternative 2A and 2B

Home Port State	Number of Vessels	Alternative 2A		Alternative 2B		Alternative 2A & 2B With Hard TAC	
		Lower	Upper	Lower	Upper	Lower	Upper
Percentile							
75th to 90th Percentile	7	0.2%	2.8%	0.2%	2.8%	-3.9%	-1.7%
Above 90th Percentile	5	2.8%	Maximum	2.8%	Maximum	-1.7%	Maximum

Table 206 – Proportional change in gross revenue by home port state for Alternative 2A and 2B

	Number of Vessels	Alternative 3/4		Alternative 4A	
		Lower	Upper	Lower	Upper
10th Percentile and Below	85	Minimum	-63.2%	Minimum	-63.2%
10th to 25th Percentile	127	-63.2%	-51.8%	-63.2%	-51.8%
25th to 50th Percentile	212	-51.8%	-35.4%	-51.8%	-36.2%
50th to 75th Percentile	212	-35.4%	-13.8%	-36.2%	-13.9%
75th to 90th Percentile	127	-13.8%	-4.6%	-13.9%	-4.9%
Above 90th Percentile	85	-4.6%	Maximum	-4.9%	Maximum

Table 208 - Fleet-wide impacts of Alternative 3/4 and 4A

Dependence on Groundfish	Number of Vessels	Alternative 3/4		Alternative 4A	
		Lower	Upper	Lower	Upper
Less than 25% (n = 182)					
10th Percentile and Below	18	Minimum	-13.6%	Minimum	-13.8%
10th to 25th Percentile	27	-13.6%	-9.6%	-13.8%	-9.7%
25th to 50th Percentile	46	-9.6%	-5.8%	-9.7%	-5.8%
50th to 75th Percentile	46	-5.8%	-1.9%	-5.8%	-2.1%
75th to 90th Percentile	27	-1.9%	-0.1%	-2.1%	-0.1%
Above 90th Percentile	18	-0.1%	Maximum	-0.1%	Maximum
25 to less than 50% (n = 142)					
10th Percentile and Below	14	Minimum	-30.9%	Minimum	-30.4%
10th to 25th Percentile	21	-30.9%	-25.8%	-30.4%	-25.5%
25th to 50th Percentile	36	-25.8%	-18.9%	-25.5%	-19.0%
50th to 75th Percentile	36	-18.9%	-12.7%	-19.0%	-13.1%
75th to 90th Percentile	21	-12.7%	-9.3%	-13.1%	-9.4%
Above 90th Percentile	14	-9.3%	Maximum	-9.4%	Maximum
50% to less than 75% (n = 153)					
10th Percentile and Below	15	Minimum	-52.4%	Minimum	-50.7%
10th to 25th Percentile	23	-52.4%	-44.3%	-50.7%	-44.1%
25th to 50th Percentile	38	-44.3%	-36.6%	-44.1%	-36.6%
50th to 75th Percentile	38	-36.6%	-30.2%	-36.6%	-31.2%
75th to 90th Percentile	23	-30.2%	-24.2%	-31.2%	-21.9%
Above 90th Percentile	15	-24.2%	Maximum	-21.9%	Maximum
75% or Greater (n = 371)					
10th Percentile and Below	37	Minimum	-70.9%	Minimum	-69.7%
10th to 25th Percentile	56	-70.9%	-61.3%	-69.7%	-61.5%
25th to 50th Percentile	93	-61.3%	-53.0%	-61.5%	-53.1%
50th to 75th Percentile	93	-53.0%	-44.4%	-53.1%	-44.7%
75th to 90th Percentile	56	-44.4%	-34.7%	-44.7%	-37.4%
Above 90th Percentile	37	-34.7%	Maximum	-37.4%	Maximum

Table 209 - Revenue impacts by dependency on groundfish for Alternative 3/4 and 4A

Gross Groundfish Sales Intervals	Number of Vessels	Alternative 3/4		Alternative 4A	
		Lower	Upper	Lower	Upper
\$35,000 or less (n = 209)					
10th Percentile and Below	21	Minimum	-81.0%	Minimum	-82.8%
10th to 25th Percentile	31	-81.0%	-37.3%	-62.8%	-39.8%
25th to 50th Percentile	52	-37.3%	-12.8%	-39.8%	-13.4%
50th to 75th Percentile	52	-12.8%	-3.4%	-13.4%	-3.5%
75th to 90th Percentile	31	-3.4%	-0.5%	-3.5%	-0.5%
Above 90th Percentile	21	-0.5%	Maximum	-0.5%	Maximum
\$35,001 to \$100,000 (n = 245)					
10th Percentile and Below	25	Minimum	-87.5%	Minimum	-86.6%
10th to 25th Percentile	37	-87.5%	-52.6%	-66.6%	-53.1%
25th to 50th Percentile	61	-52.6%	-35.5%	-53.1%	-36.7%
50th to 75th Percentile	61	-35.5%	-16.8%	-36.7%	-16.4%
75th to 90th Percentile	37	-16.8%	-8.0%	-16.4%	-8.0%
Above 90th Percentile	25	-8.0%	Maximum	-8.0%	Maximum
\$100,001 to \$250,000 (n = 197)					
10th Percentile and Below	21	Minimum	-59.7%	Minimum	-60.1%
10th to 25th Percentile	31	-59.7%	-48.9%	-60.1%	-48.9%
25th to 50th Percentile	47	-48.9%	-39.7%	-48.9%	-39.7%
50th to 75th Percentile	47	-39.7%	-25.5%	-39.7%	-26.1%
75th to 90th Percentile	31	-25.5%	-11.7%	-26.1%	-11.7%
Above 90th Percentile	21	-11.7%	Maximum	-11.7%	Maximum
\$250,001 or more (n = 187)					
10th Percentile and Below	19	Minimum	-81.3%	Minimum	-81.4%
10th to 25th Percentile	28	-81.3%	-55.8%	-61.4%	-55.4%
25th to 50th Percentile	47	-55.8%	-46.4%	-55.4%	-46.6%
50th to 75th Percentile	47	-46.4%	-27.0%	-46.6%	-26.7%
75th to 90th Percentile	28	-27.0%	-10.7%	-26.7%	-10.7%
Above 90th Percentile	19	-10.7%	Maximum	-10.7%	Maximum

Table 210 - Revenue impacts by gross sales of groundfish for Alternative 3/4 and 4A

Gillnet Gear (n= 181)	Number of Vessels	Alternative 3/4		Alternative 4A	
		Lower	Upper	Lower	Upper
10th Percentile and Below	18	Minimum	-59.7%	Minimum	-61.5%
10th to 25th Percentile	27	-59.7%	-46.5%	-61.5%	-47.8%
25th to 50th Percentile	45	-46.5%	-33.0%	-47.8%	-34.8%
50th to 75th Percentile	45	-33.0%	-13.4%	-34.8%	-13.4%
75th to 90th Percentile	27	-13.4%	-2.9%	-13.4%	-2.5%
Above 90th Percentile	18	-2.9%	Maximum	-2.5%	Maximum
Hook Gear (n=75)					
10th Percentile and Below	8	Minimum	-60.5%	Minimum	-59.8%
10th to 25th Percentile	11	-60.5%	-45.6%	-59.8%	-45.6%
25th to 50th Percentile	19	-45.6%	-29.0%	-45.6%	-33.4%
50th to 75th Percentile	19	-29.0%	-5.5%	-33.4%	-6.2%
75th to 90th Percentile	11	-5.5%	-0.1%	-6.2%	-0.1%
Above 90th Percentile	8	-0.1%	Maximum	-0.1%	Maximum
Trawl Gear (n=592)					
10th Percentile and Below	59	Minimum	-63.9%	Minimum	-64.0%
10th to 25th Percentile	89	-63.9%	-53.6%	-64.0%	-53.6%
25th to 50th Percentile	148	-53.6%	-37.0%	-53.6%	-37.2%
50th to 75th Percentile	148	-37.0%	-15.2%	-37.2%	-15.2%
75th to 90th Percentile	89	-15.2%	-6.1%	-15.2%	-6.1%
Above 90th Percentile	59	-6.1%	Maximum	-6.1%	Maximum

Table 211 - Proportional change in gross annual revenues by gear group for Alternative 3/4 and 4A

50th to 75th Percentile	121	-37.6%	-16.8%	-38.2%	-16.8%
75th to 90th Percentile	73	-16.8%	-5.6%	-16.8%	-5.7%
Above 90th Percentile	49	-5.6%	Maximum	-5.7%	Maximum
Small (n=173)					
10th Percentile and Below	17	Minimum	-63.8%	Minimum	-64.2%
10th to 25th Percentile	26	-63.8%	-47.3%	-64.2%	-47.2%
25th to 50th Percentile	43	-47.3%	-29.0%	-47.2%	-31.2%
50th to 75th Percentile	43	-29.0%	-11.0%	-31.2%	-11.1%
75th to 90th Percentile	26	-11.0%	-2.4%	-11.1%	-2.5%
Above 90th Percentile	17	-2.4%	Maximum	-2.5%	Maximum

Table 212 - Proportional change in gross annual revenues by vessel size (Large = +70'; Medium = 50 to 70', Small = Under 50') for Alternative 3/4 and 4A

Home Port State	Number of Vessels	Alternative 3/4		Alternative 4A	
		Lower	Upper	Lower	Upper
Rhode Island (n=98)					
10th Percentile and Below	10	Minimum	-45.6%	Minimum	-45.6%
10th to 25th Percentile	14	-45.6%	-33.2%	-45.6%	-33.2%
25th to 50th Percentile	24	-33.2%	-19.7%	-33.2%	-19.0%
50th to 75th Percentile	24	-19.7%	-9.7%	-19.0%	-9.7%
75th to 90th Percentile	14	-9.7%	-2.8%	-9.7%	-2.1%
Above 90th Percentile	10	-2.8%	Maximum	-2.1%	Maximum
All Other (n=25)					
10th Percentile and Below	3	Minimum	-40.6%	Minimum	-40.6%
10th to 25th Percentile	4	-40.6%	-16.3%	-40.6%	-14.6%
25th to 50th Percentile	6	-16.3%	-8.5%	-14.6%	-8.5%
50th to 75th Percentile	6	-8.5%	-4.9%	-8.5%	-4.9%
75th to 90th Percentile	4	-4.9%	-1.2%	-4.9%	-1.2%
Above 90th Percentile	3	-1.2%	Maximum	-1.2%	Maximum

Table 214 - Proportional change in gross revenue by home port state for Alternative 3/4 and 4A(cont.)

Home Port State	Number of Vessels	Alternative 3/4		Alternative 4A	
		Lower	Upper	Lower	Upper
Massachusetts (n=396)					
10th Percentile and Below	40	Minimum	-68.8%	Minimum	-67.6%
10th to 25th Percentile	59	-68.8%	-58.5%	-67.6%	-58.4%
25th to 50th Percentile	99	-58.5%	-45.8%	-58.4%	-45.8%
50th to 75th Percentile	99	-45.8%	-27.4%	-45.8%	-27.3%
75th to 90th Percentile	59	-27.4%	-10.8%	-27.3%	-10.7%
Above 90th Percentile	40	-10.8%	Maximum	-10.7%	Maximum

Port Group	Number of Vessels	Alternative 3/4		Alternative 4A	
		Lower	Upper	Lower	Upper
Boston (n=20)					
25th Percentile and Below	5	Minimum	-56.0%	Minimum	-56.0%
25th to 50th Percentile	5	-56.0%	-50.8%	-56.0%	-51.8%
50th to 75th Percentile	5	-50.8%	-18.4%	-51.8%	-18.4%
Above 75th Percentile	5	-18.4%	Maximum	-18.4%	Maximum
Chatham/Harwich (n=50)					
25th Percentile and Below	13	Minimum	-57.4%	Minimum	-56.8%
25th to 50th Percentile	13	-57.4%	-46.1%	-56.8%	-46.1%
50th to 75th Percentile	13	-46.1%	-35.0%	-46.1%	-36.2%
Above 75th Percentile	13	-35.0%	Maximum	-36.2%	Maximum
Eastern Long Island (n=40)					
25th Percentile and Below	10	Minimum	-25.3%	Minimum	-25.3%
25th to 50th Percentile	10	-25.3%	-13.5%	-25.3%	-13.5%
50th to 75th Percentile	10	-13.5%	-3.8%	-13.5%	-3.8%
Above 75th Percentile	10	-3.8%	Maximum	-3.8%	Maximum
Gloucester (n=97)					
25th Percentile and Below	24	Minimum	-65.5%	Minimum	-63.9%
25th to 50th Percentile	24	-65.5%	-53.5%	-63.9%	-53.5%
50th to 75th Percentile	24	-53.5%	-36.6%	-53.5%	-39.5%
Above 75th Percentile	24	-36.6%	Maximum	-39.5%	Maximum
New Bedford (n=96)					
25th Percentile and Below	24	Minimum	-57.3%	Minimum	-55.1%
25th to 50th Percentile	24	-57.3%	-45.2%	-55.1%	-44.6%
50th to 75th Percentile	24	-45.2%	-29.0%	-44.6%	-28.6%
Above 75th Percentile	24	-29.0%	Maximum	-28.6%	Maximum
New Hampshire Seacoast (n=32)					
25th Percentile and Below	8	Minimum	-57.5%	Minimum	-59.8%
25th to 50th Percentile	8	-57.5%	-45.0%	-59.8%	-46.1%
50th to 75th Percentile	8	-45.0%	-32.7%	-46.1%	-33.8%
Above 75th Percentile	8	-32.7%	Maximum	-33.8%	Maximum
Point Judith (n=49)					
25th Percentile and Below	12	Minimum	-36.9%	Minimum	-36.9%
25th to 50th Percentile	12	-36.9%	-26.1%	-36.9%	-26.1%
50th to 75th Percentile	12	-26.1%	-10.7%	-26.1%	-10.7%
Above 75th Percentile	12	-10.7%	Maximum	-10.7%	Maximum

Table 215 – Proportional change in gross annual revenues by port group for Alternative 3/4 and 4A

Alternative	Total Revenue Loss	Monkfish Revenue Loss	Scallop Revenue Loss	Squid/Whiting Revenue Loss	Other Species Revenue Loss	Groundfish Revenue Loss	Fluke, Scup, Black Sea Bass Revenue Loss
Alternative 3a	7.8%	6.0%	6.5%	0.1%	5.7%	17.4%	0.1%
Alternative 3b	7.4%	5.1%	6.5%	0.1%	5.4%	16.1%	0.1%
Alternative 4	5.3%	3.5%	3.3%	0.1%	4.2%	13.4%	0.1%
Alternative 5a	6.7%	18.3%	1.4%	2.9%	6.5%	13.7%	4.5%
Alternative 5b	12.8%	18.2%	10.8%	3.3%	11.4%	21.6%	1.9%
Alternative 5c	8.4%	16.4%	1.5%	3.3%	12.7%	16.3%	4.7%
Alternative 5d	5.6%	11.1%	1.0%	0.8%	5.4%	13.4%	5.6%
Alternative 6	1.3%	1.8%	0.3%	0.2%	3.5%	1.7%	0.1%
Alternative 10A	1.4%	3.6%	0.4%	0.1%	2.9%	1.6%	0.1%
Alternative 10B	1.3%	3.6%	0.4%	0.1%	1.9%	1.8%	0.1%

Table 294 - Relative Loss in Gross Revenues by Alternative for Level 1 Habitat Closure

50th to 75th Percentile	7	-43.2%	-35.8%	-43.5%	-37.3%
Above 75th Percentile	7	-35.8%	Maximum	-37.3%	Maximum
Provincetown (n=19)					
25th Percentile and Below	5	Minimum	-53.0%	-53.2%	-53.2%
25th to 50th Percentile	5	-53.0%	-46.6%	-46.8%	-46.8%

Alternative	Total Revenue Loss	Monkfish Revenue Loss	Scallop Revenue Loss	Squid/Whiting Revenue Loss	Other Species Revenue Loss	Groundfish Revenue Loss	Fluke, Scup, Black Sea Bass Revenue Loss
Alternative 3a	6.1%	2.9%	6.5%	0.1%	1.8%	14.1%	0.1%
Alternative 3b	5.9%	2.7%	6.5%	0.1%	1.8%	13.3%	0.1%
Alternative 4	4.0%	2.2%	3.3%	0.0%	0.9%	11.3%	0.1%
Alternative 5a	3.8%	6.3%	1.4%	2.9%	1.0%	10.6%	4.4%
Alternative 5b	8.1%	6.3%	10.8%	3.3%	1.4%	14.0%	1.9%
Alternative 5c	4.5%	6.4%	1.5%	3.3%	1.1%	13.3%	4.6%
Alternative 5d	3.1%	3.4%	1.0%	0.7%	0.7%	9.3%	5.6%
Alternative 6	0.5%	0.6%	0.3%	0.2%	0.2%	1.3%	0.1%
Alternative 10A	0.5%	0.5%	0.4%	0.1%	0.1%	1.1%	0.1%
Alternative 10B	0.5%	0.5%	0.4%	0.1%	0.2%	1.2%	0.0%

Table 295 - Relative Loss in Gross Revenues by Alternative for Level 3 Habitat Closure

Table 215 - Proportional change in gross annual revenues by port group for Alternative 3/4 and 4A(cont.)					
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Gross Groundfish Sales Intervals	Number of Vessels	Proposed Action	
		Lower	Upper
\$65,000 or less (n = 205)			
10th Percentile and Below	21	Minimum	-44.7%
10th to 25th Percentile	31	-44.7%	-28.8%
25th to 50th Percentile	51	-28.8%	-11.4%
50th to 75th Percentile	51	-11.4%	-0.3%
75th to 90th Percentile	31	-0.3%	12.7%
Above 90th Percentile	21	12.7%	Maximum
\$65,001 to \$150,000 (n = 218)			
10th Percentile and Below	22	Minimum	-38.0%
10th to 25th Percentile	33	-38.0%	-30.9%
25th to 50th Percentile	55	-30.9%	-17.7%
50th to 75th Percentile	55	-17.7%	-2.3%
75th to 90th Percentile	33	-2.3%	2.0%
Above 90th Percentile	22	2.0%	Maximum
\$150,001 to \$300,000 (n = 211)			
10th Percentile and Below	21	Minimum	-40.2%
10th to 25th Percentile	32	-40.2%	-33.8%
25th to 50th Percentile	53	-33.8%	-20.7%
50th to 75th Percentile	53	-20.7%	-8.9%
75th to 90th Percentile	32	-8.9%	-0.4%
Above 90th Percentile	21	-0.4%	Maximum
\$300,001 or more (n = 214)			
10th Percentile and Below	21	Minimum	-41.5%
10th to 25th Percentile	32	-41.5%	-37.4%
25th to 50th Percentile	54	-37.4%	-26.0%
50th to 75th Percentile	54	-26.0%	-11.1%
75th to 90th Percentile	32	-11.1%	-3.8%
Above 90th Percentile	21	-3.8%	Maximum

Table 369 - Revenue Impacts by Fishing Vessel Gross Sales Size Classes

	No Debt	Low Debt	Medium Debt	High Debt
Percent Below Break-Even	24.7%	24.5%	32.1%	35.5%
10th Percentile	-80.1%	-84.8%	-85.8%	-88.2%
25th Percentile	-63.3%	-67.4%	-69.7%	-70.6%
50th Percentile	-47.0%	-50.8%	-52.7%	-56.1%
75th Percentile	-28.0%	-31.7%	-35.3%	-41.9%
90th Percentile	-8.0%	-8.1%	-16.2%	-24.8%

Table 371 - Simulation results for Long-line vessels less than 40 feet

	No Debt	Low Debt	Medium Debt	High Debt
Percent Below Break-Even	9.3%	10.3%	11.3%	14.8%
10th Percentile	-68.5%	-70.0%	-69.3%	-73.8%
25th Percentile	-54.4%	-55.7%	-56.1%	-59.7%
50th Percentile	-37.6%	-38.1%	-37.9%	-38.9%
75th Percentile	-12.7%	-13.1%	-13.0%	-12.7%
90th Percentile	-1.8%	-1.8%	-1.8%	-2.0%

Table 372 - Simulation results for Long-line vessels 40 feet and above

	No Debt	Low Debt	Medium Debt	High Debt
Percent Below Break-Even	18.8%	21.1%	22.7%	24.0%
10th Percentile	-76.0%	-79.3%	-80.2%	-79.3%
25th Percentil	-59.6%	-61.1%	-61.2%	-63.2%
50th Percentile	-35.3%	-35.3%	-35.6%	-31.9%
75th Percentile	-8.7%	-7.6%	-7.4%	-6.0%
90th Percentile	-0.5%	-0.6%	-0.7%	-0.5%

Table 373 - Simulation results for Gillnet vessels less than 40 feet

	No Debt	Low Debt	Medium Debt	High Debt
Percent Below Break-Even	15.1%	18.7%	19.1%	20.6%
10th Percentile	-74%	-71%	-72%	-64%
25th Percentil	-59%	-60%	-61%	-69%
50th Percentile	-49%	-50%	-51%	-57%
75th Percentile	-38%	-40%	-40%	-46%
90th Percentile	-22%	-23%	-24%	-27%

Table 374 - Simulation results for Gillnet vessels 40 feet and above

	No Debt	Low Debt	Medium Debt	High Debt
Percent Below Break-Even	27.1%	28.7%	29.5%	33.4%
10th Percentile	-81.7%	-85.1%	-84.5%	-90.2%
25th Percentil	-68.9%	-69.6%	-71.6%	-74.2%
50th Percentile	-53.0%	-54.5%	-55.6%	-59.0%
75th Percentile	-31.5%	-33.6%	-34.1%	-36.4%
90th Percentile	-13.0%	-13.2%	-13.1%	-15.0%

Table 375 - Simulation results for Trawl vessels less than 50 feet

	No Debt	Low Debt	Medium Debt	High Debt
Percent Below Break-Even	17.7%	18.4%	22.2%	26.8%
10th Percentile	-76.8%	-78.0%	-83.3%	-83.3%
25th Percentil	-59.4%	-60.6%	-65.2%	-64.8%
50th Percentile	-44.8%	-44.7%	-47.1%	-48.2%
75th Percentile	-21.8%	-21.3%	-22.4%	-23.6%
90th Percentile	-8.5%	-8.6%	-11.0%	-12.7%

Table 376 - Simulation results for Trawl vessels less than 50 to 70 feet

	No Debt	Low Debt	Medium Debt	High Debt
Percent Below Break-Even	31.0%	34.7%	36.4%	42.6%
10th Percentile	-81.7%	-87.5%	-86.7%	-90.9%
25th Percentil	-71.3%	-74.7%	-74.9%	-76.1%
50th Percentile	-53.1%	-57.5%	-59.5%	-61.3%
75th Percentile	-31.7%	-36.5%	-37.4%	-37.7%
90th Percentile	-17.3%	-18.0%	-19.5%	-19.9%

Table 377 - Simulation results for Trawl vessels above 70 feet

		Vessels	Fishing
	Length	with	Under
Gear Sector	Class	2004	DAS
		Days	Leasing
Hook	ALL	41	30
Trawl	1	300	141
	2	211	97
	3	203	100
Gillnet	1	127	110
	2	18	10
Total		900	488

Table 378 - Number of Vessel Fishing in 2002 and Number Fishing with Days at Sea Leasing

Gear Sector	Length Class	Vessels	Profit (Mean Per Vessel)		
			Leasing	2004 Allocation	2002 Effort
Hook	ALL	50	78,700	39,808	24,247
Trawl	1	603	41,111	16,383	12,271
	2	266	68,387	30,102	31,428
	3	257	97,050	56,700	74,890
Gillnet	1	148	82,320	54,047	38,514
	2	21	74,844	46,948	53,465

Table 379 - Mean Profit per Vessel under Days at Sea Leasing

Gear Sector	Length Class	Vessels	Days Fished			2002 Effort
			Leasing	Total	Sell	
Hook	ALL	50	37.0	59.0	15.0	28.0
Trawl	1	603	19.28	31.91	19.30	25.13
	2	266	22.08	36.92	30.48	46.13
	3	257	21.62	46.26	34.92	70.00
Gillnet	1	148	42.78	70.89	18.44	33.07
	2	21	32.98	54.25	34.09	61.63

Table 380 - Average Days Fished and Leased by Gear Type and Length Class