

5.0 DESCRIPTION OF MANAGEMENT ALTERNATIVES AND RATIONALE (Amendment, EIS, RFA)

5.1 Summary of Proposed Action and Initial Allocations

This section describes the final alternative approved by the Council at the August 13-14 and September 16-17, 2003 meetings and is the proposed action for Final Amendment 10. Based public comments and the DSEIS analysis as well as scientific advice since public hearings, the Council selected alternatives from among the preferred and non-preferred alternatives, sometimes choosing or revising the specifications and establishing the way an alternative should be implemented to improve the FMP's ability to meet its objectives.

Where it makes sense to do so, the sections below may refer to existing text in other sections that describe the alternatives, but in other cases it is necessary to describe the final alternative completely, incorporating all final revisions in the descriptions. To avoid confusion, the "preferred" labels for alternatives in Section 5.5 of the draft amendment were removed in the final document (see Section 5.3), since the Council sometimes selected a non-preferred alternative or revised the preferred alternative based on the comments and additional scientific advice. Thus, the final alternatives and proposed action described in this section are based on either a preferred or non-preferred alternative in Section 5.3, but modest differences from an alternative in the draft amendment will be present, reflecting the final Council decisions. The final alternatives described below furthermore identify specifications that were included as a range of choices in the draft documents.

Also, to be clear, the Council approved continuing to use the status quo overfishing definition to determine when a stock is overfished or overfishing is occurring, but moved the minimum biomass threshold from $\frac{1}{4}B_{MSY}$ to $\frac{1}{2}B_{MSY}$. Perhaps a little confusing, the title of the disapproved overfishing definition alternative is the "Proposed Overfishing Definition", because it was originally proposed by the PDT for consideration in Amendment 10 and has no other name. Only the status quo overfishing definition is being proposed in the final Amendment 10 alternative, with a slight modification of the minimum biomass threshold to improve compliance with the National Standard 1 guidelines.

Sections 5.2 and 5.3 of the DSEIS described the combination of the preferred alternatives and the potential initial area management beginning in 2004. As a result of the Council's decisions based on updated data that have come in since the DSEIS and based on public comment, this section describes the final alternative (some of which include formerly non-preferred alternatives) and initial allocations/specifications, replacing Sections 5.2 and 5.3 in the DSEIS. To review the discussion of the combined description of the DSEIS preferred alternatives and predicted initial area rotation in 2004, please refer to the draft document.

5.1.1 Overfishing Definition (Status quo)

The final alternative will use the status quo overfishing definition as described and justified in Amendment 7 to the FMP, except that the minimum biomass threshold will be raised from $\frac{1}{4}B_{max}$ to $\frac{1}{2}B_{max}$ and the data used to specify the biomass target, B_{max} , will be the mean stratified number of recruits from the 1982 to 2002 annual scallop surveys. Also, to clarify the potential ambiguity in the Amendment 7 language, for the purposes of biomass status determination (i.e. whether a stock is overfished), the FMP considers the sea scallops in federal and state waters to be a continuous stock for the purposes of

management. Status determination of overfishing (i.e. whether the level of fishing is exceeding the maximum fishing mortality threshold) will also be made on a resource wide basis, because the FMP manages effort on a region-wide basis.

Unlike the way that the minimum biomass threshold was developed in Amendment 7, the new minimum biomass threshold will be used to determine when a scallop stock is overfished, i.e. at unacceptably low biomass, which would require the development of a new rebuilding program should a stock again become overfished. In the absence of other adjustments or annual fishing mortality specifications that rebuild the stock, the maximum fishing mortality threshold during rebuilding will be the one described by the control rule for the status quo overfishing definition, identified in Amendment 7.

Consistent with the status quo overfishing definition and applying risk averse management principals in the National Standard 1 guidelines and managing the fishery as a unit, optimum yield is the annual amount of scallop biomass that may be landed to achieve the mortality target for the combined stocks. Total biomass and fishing mortality for the entire resource area, including scallops in closed areas, will be used for status determination with respect to the overfishing definition reference points. The value for the annual fishing mortality target is 80% of F_{max} . Day-at-sea and other allocations will be set to achieve this constant annual mortality target, unless the stock is overfished and being managed according to a rebuilding program. Specific management areas, e.g. controlled access areas, may have TACs based on fishing mortality rates that are above F_{max} however, provided that the resource wide average does not exceed F_{max} . The Council may however set other annual allocations below that which would cause overfishing to occur, in order to meet other plan objectives, stabilize yield or day-at-sea allocations, and/or maximize net benefits.

The Council may adjust the values of the biomass and fishing mortality targets and thresholds by framework or amendment, based on updated analysis or upon recommendation of the Stock Assessment Workshop.

The status quo overfishing definition, as revised by Amendment 10 will read:

“If stock biomass is equal or greater than B_{max} as measured by the resource survey weight per tow index (currently estimated at 5.60 kg/tow for scallops in the Georges Bank and Mid-Atlantic resource areas), overfishing occurs when fishing mortality exceeds F_{max} currently estimated as 0.24. If the total stock biomass is below B_{max} , overfishing occurs when fishing mortality exceeds the level that has a 50 percent probability to rebuild stock biomass to B_{max} in 10 years. A scallop stock is in an overfished condition when stock biomass is below $\frac{1}{2}B_{max}$ and in that case overfishing occurs when fishing mortality is above a level expected to rebuild in five years, or above zero when the stock is below $\frac{1}{4}B_{max}$ ”

These reference points form the basis for the Amendment 7 control rule shown in Figure 4:

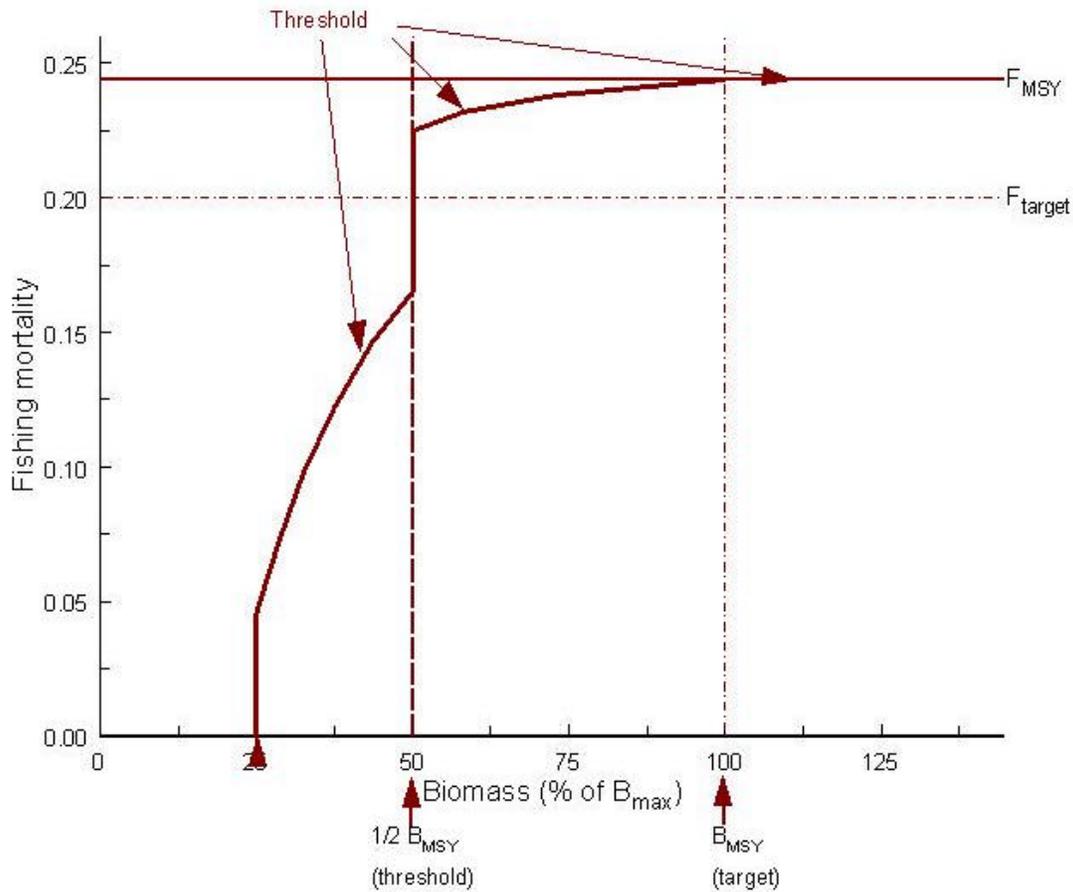


Figure 4. Existing overfishing definition control rule for sea scallops. Calculated threshold fishing mortality rates assume that the intrinsic rate of population growth is two times the value of F_{max} , then estimated to be $F=0.24$.

Specifications:

Based on scientific recommendations of SAW 32 (NEFSC 2001b) and updated stratified mean recruitment indices for 1982-2002, the biomass and fishing mortality targets and thresholds in the table below will be used as the basis for setting allocations and making status determinations. The biomass target and threshold for the Gulf of Maine is unknown because there is no annual survey and insufficient data to determine a value.

Table 7. Revised specifications (values) for overfishing definition targets and thresholds by stock.

Stock	Mid-Atlantic & Georges Bank	Gulf of Maine
Biomass target (B_{max} , kg/tow)	5.60	Unknown
Minimum biomass threshold (kg/tow)	2.80	Unknown
Fishing mortality threshold (F_{max})	0.24	
Fishing mortality target	0.20	

Rationale and explanation:

The status quo overfishing definition includes specifications for thresholds and targets for biomass and fishing mortality. A minimum biomass threshold will protect the scallop resource from low biomass that could affect spawning potential and the capacity of the resource to produce MSY. A maximum fishing mortality threshold protects the resource from an unsustainable rate of fishing that could deplete the resource.

Target biomass and a target fishing mortality rate are also included to simultaneously achieve MSY and apply risk adverse management to avoid overfishing while achieving a yield that is very close to MSY. The Council believes that management targets set to achieve a fishing mortality rate of 80% of F_{max} will achieve this goal. Future yield, however, will depend on where, when, and how the management targets are set, and achieving optimum yield may require specification of annual management targets that deviate from F_{max} applied to the entire resource.

At the present time, regional differences in size selectivity of the fishery and scallop growth or natural mortality are insufficient to define separate fishing mortality targets and thresholds. The NMFS therefore recommends that a common value for a fishing mortality target and threshold apply over all areas.

Using the 1982 – 2002 recruitment index time series, the values of B_{max} for the Georges Bank and Mid-Atlantic regions area also similar, where they were once thought to vary by a factor of two (Georges Bank = 8.2 kg/tow; Mid-Atlantic = 4.1 kg/tow). While area-specific measures may be required to balance effort and achieve optimum yield, the NMFS recommends that one value is appropriate for determining when the scallop resource is overfished.

The fishing mortality reference points are also appropriate for Gulf of Maine scallops because although local difference in growth rates of Gulf of Maine scallops occur, they are not sufficient to justify applying a different fishing mortality target and threshold. Surveys in the Gulf of Maine, however, have been insufficient to enable estimation of separate biological reference points for the Gulf of Maine.

Overfishing occurs when fishing mortality exceeds the fishing mortality threshold. The threshold is F_{max} when biomass is above B_{max} and declines to zero as the stock approaches 25 percent of B_{max} (Figure 4). Between $\frac{1}{4}B_{max}$ and B_{max} , the fishing mortality threshold was determined from the calculated rate of logistic biomass growth, assuming that the intrinsic rate of population growth is two times the value of F_{max} and F_{max} is a valid proxy for F_{MSY} . When biomass is between $\frac{1}{2}B_{max}$ and B_{max} , the threshold is based on a ten-year rebuilding calculation. A more risk-adverse strategy is employed in the current overfishing definition when biomass is lower, between $\frac{1}{4}B_{max}$ and $\frac{1}{2}B_{max}$ a more aggressive five-year rebuilding calculation is employed. The target fishing mortality rate is 80% of the threshold value.

B_{max} , or the biomass target is calculated by multiplying the median recruitment by the estimated biomass per recruit when fished at F_{max} . Using the PDT's selectivity curve for 4" rings, the biomass per recruit is estimated to be 85.66 g/scallop for Georges Bank and 89.3 g/scallop for the Mid-Atlantic region. The 1982 – 2002 median recruits per tow is 64.0 scallops per tow for Georges Bank and 62.5 scallops per tow for the Mid-Atlantic region. Since the scallop resource area for Georges Bank comprises 46.6 of the total scallop resource area for both regions, the area-weighted product of the biomass per recruit and median number of scallops per tow give a B_{max} value of 5.60 kg/tow, which will be used as the biomass target until updated with new information. The minimum biomass threshold is $\frac{1}{2}$ of this value, or 2.80 kg/tow.

Both B_{\max} and F_{\max} apply to all areas, regardless of their status (i.e. open or closed). Thus, it is possible to increase biomass or reduce mortality by closing more of the scallop resource area, as has occurred since 1994. Greater survival in the closed areas will increase biomass as scallops there grow and reduce mortality, if fishing mortality does not increase an equal amount in the remaining open areas. B_{\max} cannot be calculated for scallops in the Gulf of Maine using this method, because there is no survey.

The maximum fishing mortality threshold and target are constant, i.e. they apply in all stock areas (including the Gulf of Maine) regardless of the age structure of the stock and its recent management history. Even if the majority of the resource had been subject to several years of closure and scallops were larger than optimum (i.e. natural mortality was removing more biomass than growth was adding), the resource-wide fishing mortality rate could not exceed F_{\max} , even temporarily when it would improve long-term yield.

See Section 6.1.1 for a summary of how the status quo overfishing definition meets the criteria and guidance for National Standard 1.

5.1.2 Area-Specific Limited Access Days-At-Sea And Trip Allocations

Amendment 10 will continue to allocate annual days-at-sea to limited access scallop vessels and allow other vessels to target scallops with a 400 lb. scallop possession limit under general category rules. Vessels with limited access scallop permits will be authorized to target sea scallops with a legal scallop dredge or trawl, with time at sea counted against an annual day-at-sea (DAS) allocation. Up to now, the DAS allocations were made for three classes of permits (full-time, part-time, and occasional) and vessels could target sea scallops while on a DAS anywhere that was not already closed. A modification to this system was introduced by Framework Adjustment 11 in 1999 to allow limited access scallop vessels special access, where they were charged a fixed 10 days to land 10,000 lbs. of sea scallops¹⁶. The advantage of this change was that the vessels were expected to catch and land the 10,000 lbs. in much fewer than 10 days and this would help to reduce fishing effort on smaller scallops found elsewhere. Unfortunately, the benefits of this program, which were initially very successful, were mitigated by vessels not fishing in the re-opened controlled access areas and using those days to fish in the general, open areas.

Amendment 10 takes this program one step further and makes separate DAS allocations for open and controlled access areas, each tracked and monitored separately by VMS and by declared controlled access area trips. It retains the scallop possession limit for controlled access areas and like earlier programs, vessels will be charged a fixed number of days for each controlled access trip. The difference in the new allocation system is that vessels may not use controlled access days to fish in open fishing areas, and vice versa. Like the existing program, limited access vessels will be assigned a maximum number of trips in each controlled access area that may be taken, thus ensuring that the controlled access TACs and fishing mortality targets will not be exceeded.

Since some limited access vessels will not be able or inclined to fish in distant controlled access areas. It is therefore necessary to accommodate the existing fishing practices by allowing limited access vessels to exchange controlled access trips with another limited access scallop vessel that would prefer to fish in an area closest to its port. A vessel from Gloucester, MA or New Bedford, MA, for example, would be able to trade a Hudson Canyon Area trips with a vessel from Point Pleasant, NJ or Seaford, VA in exchange for the same number of trips to fish in Closed Area I.

¹⁶ The 10,000 lb. scallop possession limit was gradually increased in Framework Adjustments 13, 14, and 15 to match the higher catch rates for the rebuilding scallop resource.

5.1.2.1 Annual allocations

The final alternative is area-specific day and trip allocations, a non-preferred alternative described in Section 5.3.3.1. Amendment 10 also applies a DAS tradeoff with a scallop possession limit for trip allocations for fishing in controlled access areas.

Annual day-at-sea allocations will be set to achieve a fishing mortality target of $F = 0.20$ or any other level that the Council determines will produce optimum yield and does not cause or risk overfishing. Day-at-sea allocations and use will be made separately and monitored for open and controlled access areas. Vessels may not use controlled access area days to fish in open areas, and vice versa.

The day-at-sea allocations for fishing in open areas (excluding controlled access areas) will be based on the allowable day-at-sea use, as adjusted for the number of active permits (i.e. those using days in the previous fishing year) and the percent of allocated days actually used by active permits. Part-time vessels will receive 40% of the number of full-time days allocated, while occasional vessels will receive $1/12^{\text{th}}$ of the number of full-time day-at-sea allocations, both rounded up to the nearest whole number of days. Vessels may also use their carry over days (up to 10 unused days may be carried over from the previous fishing year) to fish in the open fishing areas (but not in controlled access areas). When calculating open area DAS allocations, the allowable DAS use will be reduced by three percent to accommodate the set-asides in Section 5.1.8, for carrying out sea sampling, cooperative industry surveys, and scallop research.

The day-at-sea allocations for controlled access areas will be made by calculating the product of the total number of trips that are allocated to each area and the number of days charged for each controlled access trip. With five trips and a 12 DAS tradeoff, for example, a full-time vessel would receive 60 controlled access days. These days may be used in any controlled access area, provided the vessel has sufficient number of unused trips to fish in the area being fished. When calculating controlled access trip allocations, the TACs will be reduced by three percent to accommodate the set-asides in Section 5.1.8, for carrying out sea sampling, cooperative industry surveys, and scallop research. Except for sea sampling, the data monitoring and research conducted using funds generated from allowing controlled access possession limit exceptions need not be conducted within that or other controlled access areas, although it may be convenient or more cost-effective in doing so.

Part-time and occasional vessels will receive controlled access day-at-sea allocations that are equal to 40% and $1/12$ of the number of full-time controlled access days-at-sea, rounded down to the next block of trips, but may be no less than one controlled access trip DAS charge. Using the above example, a part-time vessel would receive 24 controlled access days, equivalent to two controlled access trips, while an occasional vessel would receive 12 controlled access days, equivalent to one controlled access trip.

The number of controlled access trips in each area for a full-time vessel will be computed from a TAC that is equivalent to the annual fishing mortality target chosen for each controlled access management area, divided by the chosen scallop possession limit on controlled access trips and distributed among the number of active full-time, part-time, and occasional scallop permits, using the allocation method described above for allocating controlled access days. This calculation defines the maximum number of controlled access trips that can be taken for each controlled access management area, subject to the number of controlled access days available for full-time, part-time, and occasional vessels.

The sum of the maximum number of trips per vessel for each controlled access area is equal to the number of controlled access trips that full-time vessels will receive. The number of trips for part-time and occasional vessels will be 40% and 1/12th of the number of full-time controlled access trips, but may be no less than one trip if full-time vessels receive a controlled access trip allocation. Part-time and occasional vessels may fish the controlled access trips in any combination among the controlled access areas, up to the maximum number of trips per vessel assigned to the area by the above method.

The Regional Administrator should apply sanctions, when they are used to reduce the annual DAS allocations as a penalty for past law violations or other reasons, on a case-by-case basis. The Regional Administrator may reduce the open area DAS allocations, the controlled access DAS allocations, or both to account for the number of sanctioned DAS.

To achieve the annual resource-wide fishing mortality target requires more open-area DAS without access than with access, because without access a greater share of the resource would have zero fishing mortality and it would take more effort in the remaining open areas to take the same number of scallops without access. With access, the fishing mortality is spread across a broader range and it takes fewer days in the open areas to achieve the fishing mortality target.

Amendment 10 by itself does not allow access to the Georges Bank groundfish closed areas, which would be allowed under a joint Framework 16 for the Scallop FMP and Framework 39 for the Multispecies FMP, the latter that dictates what gear may be used in the Georges Bank groundfish areas and would set parameters to minimize catches and discarding of regulated multispecies. Therefore, standing alone, Amendment 10 should allocate 62 full-time open area days-at-sea on March 1, 2004 without access (see table below), then reduce the open area DAS allocations to 42 full-time open area DAS when Framework 16/39 is implemented during the fishing year.

Such a strategy would cause havoc in the fishery and scallop markets, causing economic disruptions and potentially compromising safety at sea. Fishing vessels would respond by using as many of the open area DAS as possible before the DAS were reduced during the fishing year, causing a derby style fishery to develop.

To avoid this situation, Amendment 10 will allocate 42 full-time open area DAS and 48 full-time Hudson Canyon Area DAS on March 1, 2004. If Framework 16/39 is approved and allows rotation access to the Framework 13 portions of the Georges Bank groundfish areas, NMFS would allocate the remaining 36 controlled access DAS (and three additional trips) when Framework 16/39 is implemented. Framework Adjustment 16 may re-estimate the TACs and associated DAS/trip allocations based on new information from 2003 surveys, when the data become available for analysis.

In case Framework 16/39 is not approved or does not allow access to the Georges Bank groundfish areas, the full-time open area DAS allocations will increase by 20 DAS to 62 on August 15, 2004 to be used through the remainder of the 2004 fishing year. Part-time and occasional DAS allocations would be adjusted in the same manner, proportionally to their allocation relative to full-time DAS allocations and the above procedures, as shown in the table below.

Specifications: Annual specification estimates for 2004 and 2005-2007 are shown in Table 8, following the procedure described above. Initial allocations for 2006 and future years would continue as shown for 2005, but any allocations would be re-evaluated and potentially adjusted by framework action.

On March 1, 2004, full-time limited access scallop vessels will receive 42 open area days, plus 4 trips and 48 DAS to use in controlled access areas. At that time, only the Hudson Canyon Area would be open for fishing and limited access vessels could take up to 4 trips there during the 2004 fishing year.

Part-time scallop vessels will receive 17 open area DAS, plus one trip and 12 DAS to use in controlled access areas. Occasional vessels will receive 4 open area DAS, plus one trip and 12 DAS to use in controlled access areas.

If Framework Adjustment 16/39 is approved and implemented to allow access to Georges Bank groundfish closed areas in 2004, the controlled access full-time allocations will increase in 2004 to 7 trips and 84 DAS and controlled access part-time allocations will increase in 2004 to 2 trips and 24 DAS. Occasional controlled access allocations would remain constant since one trip is more than 1/12th of a full-time allocation, but like full-time and part-time vessels, occasional vessels could use the one trip allocation in all re-opened controlled access areas that are available at the time of their use. In other words, before Framework 16/39 implementation, occasional vessels could fish the trip in the Hudson Canyon Area only. After Framework 16/39 implementation, occasional vessels could use the trip in the Hudson Canyon Area, Nantucket Lightship Area, or Closed Area I, whenever they are open for scallop fishing.

If Framework Adjustment 16/39 is disapproved or fails to allow Georges Bank area access, then on August 15, 2004, the full-time open area DAS allocation would increase to 62 DAS, the part-time open area DAS allocation would increase to 25 DAS, and the occasional open area DAS allocation would increase to 5 DAS.

Rationale and explanation: The allocation mechanism that assigns area-specific days and trips improves the ability of the FMP to achieve its objectives and prevent overfishing. Allocations of controlled access trips and days that cannot be used to fish in non-controlled access open fishing areas reduces the potential for overexploitation of scallops in open areas, thereby increasing yield-per-recruit and total yield.

Vessels may carry over up to 10 unused days from the previous year to fish in open non-controlled access areas to reduce risk and improve safety that may otherwise be compromised when vessels try to finish out an annual allocation at the end of the year. By prohibiting these days from being used in controlled access areas, the amendment improves the ability of the FMP to control mortality in controlled access areas without a hard TAC and without requiring real-time monitoring of landings to close the fishery.

DAS tradeoffs with a scallop possession limit for controlled access areas allows the FMP to allocate more DAS than it would without the tradeoff, but also has a benefit of reducing the incentive to fish as if it were a derby-style fishery. With projected catch rates around 2,400 to 2,800 lb./day, vessels will catch their scallop possession limit in much less time than they would be charged for the trip when the DAS tradeoff is based on a lower value, e.g. 1,500 lb./day. Thus when fishing in controlled access areas, there is no cost to the vessel to fish in less productive zones that have lower finfish bycatch or on smoother bottom to reduce gear hang-ups or wear. Secondly, it removes the incentive to deck load scallops and fish as hard as possible to maximize the catch per day, while fishing in a controlled access area where the gear's catch rates are expected to exceed the crew's shucking capacity.

The Council examined the performance over DAS tradeoffs ranging from 8 to 15 days, with a trip possession limit equivalent to 1,500 lb./day. In the short term (2004-2007), a 12 DAS tradeoff with an 18,000 pound scallop possession limit appears to be best, because:

1. Other than the effect of rounding and allocating trip-equivalent blocks of DAS and scallop lbs., it does not matter biologically which choice is made. Total bottom contact time is nearly the same in all scenarios – influenced mainly by the projected LPUE.

2. The allocated days (after considering the effect of the DAS tradeoff) is highest for this option, 84 days (seven trips) in 2004, versus 70 days (seven trips) in 2004 with a 10 DAS/15,000 lb. tradeoff.
3. There will be no hard scallop TAC for controlled access areas with area-specific day-at-sea allocations, according to the alternative selected by the Council.
4. Rounding up has the potential for significant overruns of the TACs, so without a hard TAC, simple rounding makes the best sense and allows combined controlled access landings of be very close to the TAC.
5. The analysis of the proportion of TAC landed, shows that in some years there could be slight overages assuming that all allocated trips are taken and they land 100% of the scallop possession limit. Even with the broken trip procedure and one-to-one trading this is unlikely, so overages of a maximum 12% (see graph below), should be acceptable.

Table 8. Initial allocations of area-specific days-at-sea and trips by management area for 2004-2005 and estimated DAS to achieve fishing mortality target in 2006. The allocations for individual areas represent the maximum number of trips and days that can be taken in each area by a limited access vessel, unless authorized to do so through an approved trip/day-at-sea exchange with another limited access vessel. Controlled access DAS allocations and charges assume a 12 DAS/18,000 lb. tradeoff.

Management area	Possession limit & DAS charge	Permit	Trip allocation			Day-at-sea allocation		
			2004	2005	2006 (default)	2004	2005	2006 (default)
Open fishing areas (excluding controlled access areas; begins on Aug. 15, 2004 if Framework Adjustment 16/39 does not allow Georges Bank groundfish area access) (Gulf of Maine, Georges Bank, Mid-Atlantic)	Does not apply	Full-time	Does not apply			62	117	152
		Part-time				25	47	61
		Occasional				5	10	13
Controlled access areas combined (Hudson Canyon Area allocation, begins March 1, 2004)	18,000 for 12 DAS	Full-time	4	3	0	48	36	0
		Part-time	1	1	0	12	12	0
		Occasional	1	1	0	12	12	0
Open fishing areas (excluding controlled access areas; begins March 1, 2004) (Gulf of Maine, Georges Bank, Mid-Atlantic)	Does not apply	Full-time	Does not apply			42	40	67
		Part-time				17	16	27
		Occasional				4	3	6
Controlled access areas combined (implemented via FW 16)	18,000 for 12 DAS	Full-time	7	7	4	84	84	48
		Part-time	2	2	1	24	24	12
		Occasional	1	1	1	12	12	12
Maximum trip and day-at-sea allocations by controlled access area								
Hudson Canyon Area (begins March 1, 2004)	18,000 for 12 DAS	All	4	3	Does not apply	48	36	Does not apply
Nantucket Lightship Area (implemented via FW 16)	18,000 for 12 DAS	All	2	Closed	Closed	24	Closed	Closed
Closed Area I (implemented via FW 16)	18,000 for 12 DAS	All	1	Closed	Closed	12	Closed	Closed
Closed Area II (implemented via FW 16)	18,000 for 12 DAS	All	Closed	4	4	Closed	48	48

6. The 12 DAS/18,000 lb. choice allows the greatest proportion (98%) of the TAC to be landed.
7. Total net revenues per vessel are the highest for this choice, about \$333,202 dollars (see Figure 142), after deducting fishing costs for each trip length estimated from controlled access LPUEs. This value is sensitive to trip length and the percent of TAC potentially landed.
8. Short-term market effects from landing a large amount of large scallops are less than with higher scallop possession limits that were considered.
9. An 18,000 lb. possession limit will be taken in 6-8 days, depending on area, in 2004; 7-9 days in 2005, and about 8 days in 2006. Thus, the scallop possession limit could be caught by the average trip in less than 12 days for all years. This is about the same as the trip length for vessels making controlled access trips into the Hudson Canyon Area during 2001 and 2002.

5.1.2.2 One to one exchanges of controlled access trip and DAS allocations

Open area days-at-sea and controlled access area trips and days-at-sea will be allocated for the fishing year to use for scallop DAS trips beginning March 1 (or the start of the fishing year if the date later changes). Vessels will be able to re-balance their controlled access trips to fish more economically (or for any reason) by exchanging trips and days with another limited access scallop vessel having controlled access area allocations.

Limited access vessels can exchange controlled access trips with one or more other limited access vessels within the first three months of the fishing year, using a method developed and authorized by the Northeast Regional Office of the NMFS. This could involve joint submission of the exchange by a legal document that NMFS develops and authorizes for this use. NMFS may instead use any other means it deems appropriate for administration of the exchanges. Vessels, however, may not make use of the authorized controlled access exchange until at least 15 days from the time the documents are submitted and not before NMFS approves and authorizes the exchange. Additional exchanges will be authorized or approved for exchanges received by the Regional Office after three calendar months into the fishing year. Trip exchanges may be made between any limited access permit categories, or between any limited access vessels, whether or not they are authorized to use trawls or dredges only. Controlled access trips may also be exchanged between vessels having the same ownership, but must use this exchange process. Limited access exchanges between permit categories are permissible.

Exception: Amendment 10 by itself does not allow access to the Georges Bank groundfish areas, which may become available for scallop fishing during the 2004 fishing year and if so, limited access scallop vessels would receive additional controlled access allocations (see section above). Since the controlled access allocations for Georges Bank areas will not be available until later in the fishing year, limited access vessels will have a three-month window to execute trip exchanges after the implementation of the final rules for Framework 16/39.

Although the above allocation method allocates controlled access days and trips in a combined block, these exchanges would enable a vessel to fish for more trips in one controlled access area than the initial allocation, in exchange for reducing the number of authorized trips in another controlled access area. The following table provides an example of how an exchange would work:

Table 9. Example one-to-one exchange of controlled access trips, showing the application of day-at-sea allocations and charges. This example assumes a 12 DAS tradeoff.

	Management area	Vessel A		Vessel B	
		Trips	DAS	Trips	DAS
Before exchange	Open area allocation	Does not apply	72	Does not apply	72
	Controlled access area allocation	6	72	6	72
	Area 1, trips authorized	4	48 days to be charged	4	48 days to be charged
	Area 2, trips authorized	2	24 days to be charged	2	24 days to be charged
		Vessel A Exchanges two trips from area 1 to fish two more in area 2		Vessel B Exchanges two trips from area 2 to fish two more in area 1	
After exchange	Open area allocation	Does not apply	72	Does not apply	72
	Controlled access area allocation	6	72	6	72
	Area 1, trips authorized	2	24 days to be charged	6	72 days to be charged
	Area 2, trips authorized	4	48 days to be charged	0	0 days to be charged

Rationale : The DAS allocation and monitoring in the previous section prevents a vessel from using its controlled access days to fish in open areas elsewhere, as has been allowed until now. It could be inconvenient and costly for a scallop vessel to fish in a very distant controlled access area, which it might be forced to do if the days cannot be applied elsewhere.

Although quantitative data are unavailable, this management measure will reduce the adverse economic and community impacts of area-specific day-at-sea allocations, which otherwise might prevent a vessel from using its controlled access DAS and/or force the vessel to land scallops at distant and unfamiliar ports. It furthermore could improve safety of human life at sea, by allowing vessels to fish closer to port on familiar fishing grounds, and improve the ability of the FMP to achieve OY.

Administrative and enforcement costs associated with the exchange of controlled access trip authorizations should be relatively modest, when compared with the potential improvement in controlled access allocation programs and reduced economic costs to the industry.

5.1.2.3 Carry over days

Vessels may carry over up to 10 unused open-area days-at-sea from the previous fishing year and use them to fish in open, non-controlled access areas in the current year. Controlled access days may not be carried forward into the next fishing year, even when applied to the same area.

Rationale : Originally this measure was intended to address the potential requirement for limited access scallop vessels to use abnormally short trips at the end of the year to use their available day-at-sea allocations, which would otherwise be lost. Doing so, also improves safety by reducing the likelihood that a vessel would have to make a trip at the end of a fishing year during inclement weather or under unsafe conditions.

The current allowance has proven satisfactory for the purposes it was intended to serve and has caused minimal increases in uncertainty for estimating day-at-sea allocations that would prevent overfishing. With 2003 DAS allocations, the potential effect is 8.33 percent, compared to the 20% difference between the target and threshold fishing mortality rates. Secondly, a potential increase in carry over days was proposed to mitigate the business risk associated with proposed changes in the fishing year. Since Amendment 10 will not change the fishing year, increases in carry over day limits are unnecessary.

5.1.2.4 Broken trip exemption

Vessels returning from a controlled access area trip with less than the scallop possession limit, due to an emergency, poor weather, or any other reason deemed appropriate by the captain will have the automatic DAS charge reduced, based on the amount of scallops landed. To terminate a trip and have a reduced day-at-sea charge, the Captain must notify NMFS of his intent to terminate the trip before landing; and report the reason for the termination, the hail weight of the scallop catch onboard the vessel, and the intended time and location of offloading and landing. In addition, vessel owners or captains must submit an application to receive credit for a broken trip adjustment, showing the actual amount of scallops landed, the date sailed, and the date when the vessel returned to a port (i.e. no longer on a DAS). This application must be received and acknowledged by the NMFS Law Enforcement Division before the broken trip may be retaken. Since controlled access DAS and trips cannot be carried over to the next fishing year, all broken trip applications expire at the end of the fishing year.

Vessels returning from a controlled access area trip and having no scallops onboard to land will be charged two days-at-sea. Otherwise the vessel meeting the above conditions would be charged a minimum of 2 days-at-sea plus one day-at-sea for each 10 percent of the scallop possession limit onboard the vessel (i.e. landed).

Actual time will be charged against a vessel's annual day-at-sea allocation for trips that are longer than the DAS charges associated with the amount of scallop landings, unless a special exemption is granted by the Regional Administrator for extenuating circumstances that require the vessel to be towed to port by another vessel, to remain on station to assist in an official USCG search and rescue, or to aid another vessel in distress. Examples of the default broken trip day-at-sea charges are given in the table below:

Vessels that qualify for a broken trip day-at-sea adjustment will also be allowed to re-take the same trip later within the fishing year, the replacement trip having a possession limit that is reduced to account for remaining time from the original trip. The day-at-sea charge for this trip will be the remaining days-at-sea for that trip and the possession limit will be prorated at a 1,500 per day-at-sea equivalent. For example, a vessel charged two days for a broken trip could continue the trip later in the fishing year, but would be able to land 15,000 lbs. and would be charged 10 DAS. A vessel charged four days for a broken trip could continue that trip later in the fishing year, but would be able to land 12,000 lbs. of scallops (see table below). Adjustments for two or more broken trips from the same area may be combined in a "make-up" trip, provided that the scallop possession limit does not exceed 18,000 lbs.

After adjustments, more than one broken trip may be combined into one controlled access trip, as long as the total does not exceed the maximum scallop possession limit for controlled access trips for the area being fished, presently 18,000 lbs. of scallop meats for all controlled access areas.

Table 10. Schedule of day-at-sea charges for trips terminated early by limited access scallop making controlled access trips. This is an example day-at-sea charge schedule if the scallop possession limit is 18,000 pounds and the re-opened area day-at-sea tradeoff is 12 days.

<i>Proportion of scallop landings to the scallop possession limit</i>	<i>Example hail weight of sea scallops (meat weight, pounds)</i>	<i>Minimum day-at-sea charge¹⁷</i>	<i>Trip continuation</i>
	18,000 pound possession limit	12 day-at-sea tradeoff	
0 percent	Zero	2 days-at-sea	10 days; 15,000 lbs.
More than 0 to 10 percent	1 to 1,800	3 days-at-sea	9 days; 13,500 lbs.
More than 10 percent to 20 percent	1,801 to 3,600	4 days-at-sea	8 days; 12,000 lbs.
More than 20 percent to 30 percent	3,601 to 5,400	5 days-at-sea	7 days; 10,500 lbs.
More than 30 percent to 40 percent	5,401 to 7,200	6 days-at-sea	6 days; 9,000 lbs.
More than 40 percent to 50 percent	7,201 to 9,000	7 days-at-sea	5 days; 7,500 lbs.
More than 50 percent to 60 percent	9,001 to 10,800	8 days-at-sea	4 days; 6,000 lbs.
More than 60 percent to 70 percent	10,801 to 12,600	9 days-at-sea	3 days; 4,500 lbs.
More than 70 percent to 80 percent	12,601 to 14,400	10 days-at-sea	2 days; 3,000 lbs.
More than 80 percent	Over 14,400	11 days-at-sea	1 day; 1,500 lbs.

Rationale : Although Amendment 10 will increase the likelihood that vessels will take controlled access trips, since they cannot apply those days to fishing trips elsewhere, the above broken trip procedure is needed to reduce fishing costs and encourage landings from controlled access trips where scallops are generally larger, which in turn may reduce the incentive to fish all of the open area allocated days.

A secondary effect would be to improve safety. In some cases, fishermen would be less inclined to keep fishing in the face of bad weather if they knew that they wouldn't lose the full controlled access day-at-sea charge if they came home early. At present, fishermen are unsure of whether they would be granted an adjustment and could be less prudent in bad weather because of this risk of not landing sufficient scallops to make a 10 day-at-sea charge (for example) a profitable venture.

Built into this procedure, there are three provisions which will prevent abuse of the system that might occur if there are loopholes which provide an advantage to fishermen. First is that any vessel that terminates a trip will automatically be charged two days-at-sea. A day-at-sea is worth over \$6000 for a vessel that fishes 120 days and stocks \$750,000 per year. Second, actual time at sea will be charged even with no scallop landings or a small amount, unless there are extenuating circumstances explained above that require the vessel to remain at sea. This would prevent vessels from catching large amounts of scallops in controlled access areas and despite a prohibition, transferring portions of the catch to other vessels. While this problem might not be a factor under normal circumstances, the broken trip procedure could open a new incentive to transfer catches to reduce the DAS charge for controlled access trips, unless the vessel would be charged for actual time at sea when landing small amounts of scallops.

In Framework Adjustment 14, the day-at-sea adjustment for broken trips became a non-preferred alternative because of law enforcement concerns. Although vessels would be required to hail the catch and report the intended time of landing, law enforcement interests thought that this program could create opportunities for abuse. A second factor in the decision was that NMFS believes that an existing program

¹⁷ Actual time at sea will be charged against the vessel's annual day-at-sea allocation for trips longer than these amounts, unless a special exemption is granted by the Regional Administrator.

performed satisfactorily and reduced the risk vessels face when fishing in the Hudson Canyon and VA/NC Areas. Under the existing program, vessels can apply for an adjustment to the day-at-sea charge for broken trips. NMFS has granted or denied adjustments on a case-by-case basis for vessels that claim a medical emergency, equipment failure, bad weather, or other legitimate reason to return early to port.

The amount of fishing activity in the Hudson Canyon and VA/NC Areas in 2001 was however significantly below desired amounts and only about ½ of the TAC was landed. Even fewer controlled access trips for the Hudson Canyon Area were taken in 2002, too. Part of the reason for the sub-optimal amount of fishing effort (and corresponding mortality reduction in other scallop fishing areas) is because catch rates outside of the Hudson Canyon and VA/NC Areas was around 1,800 pounds or more per day, reducing the attractiveness of fishing in the Hudson Canyon and VA/NC Areas with an 18,000 pound possession limit and a 10 day-at-sea tradeoff.

5.1.3 Area Rotation

Amendment 10 introduces a new form of management to the Sea Scallop FMP – area rotation. The concept in its simplest form is that areas that circumscribe beds of small sea scallops close before the scallops begin experiencing fishing mortality (from either non-catch mortality from gear damage, discarding, or landing) and then the areas re-open for fishing when the scallops are larger, boosting meat yield and yield-per-recruit.

Applying this simple concept is considerably more difficult, requiring consideration of the smallest practical areas to close, how long to close them, and how hard they should be fished when re-opened.

Except for the groundfish closed areas on Georges Bank (where scallops are large due to a prolonged closure to enhance groundfish rebuilding) and the Hudson Canyon Area (which was closed and re-opened on an ad hoc area rotation basis), a flexible-boundary area rotation system (described below) will apply.

5.1.3.1 General area rotation policies

Unlike the current management measures, area rotation will introduce a systematic structure that determines where commercial vessels may fish for scallops and for how long. Area rotation also establishes a planned set of criteria or guidelines that would regularly close areas to fishing when small scallops are more abundant than large scallops, due to abundant new recruitment, due to the effects of fishing, or both. Framework adjustments will consider areas for closure when the expected increase in exploitable biomass in the absence of fishing mortality exceeds 30% per year, and re-open to fishing when the annual increase in the absence of fishing mortality is less than 15% per year. These criteria define times when stock structure is composed of young, fast-growing scallops or older, slower growing scallops, respectively.

Three types of areas will be established under the area rotation management system: Closed rotation area, re-opened rotation area, open fishing areas. The general area rotation rules for these area classifications are described in Table 11.

Table 11. General management structure for area rotation management.

Area type	Criteria for rotation area management consideration	General management rules	Who may fish
Closed rotation	Rate of biomass growth exceeds 30% per year if closed.	<ul style="list-style-type: none"> • No scallop fishing allowed • Scallop limited access and general category vessels may transit closed rotation areas provided fishing gear is properly stowed. • Scallop bycatch must be returned intact to the water in the general location of capture. 	<ul style="list-style-type: none"> • Any vessel may fish with gear other than a scallop dredge or scallop trawl • Zero scallop possession limit
Re-opened controlled access	<p>A previously closed rotation area where the rate of biomass growth is less than 15% per year if closure continues.</p> <p>Status expires when time averaged mortality increases to average the resource-wide target, i.e. as defined by the Council by setting the annual mortality targets for a re-opened area.</p>	<ul style="list-style-type: none"> • Fishing mortality target set by framework adjustment subject to guidelines determined by time averaging since the beginning of the most recent closure. • Maximum number of limited access trips will be determined from permit activity, scallop possession limits, and TACs associated with the time-average annual fishing mortality target. • Transfers of scallops at sea would be prohibited 	<ul style="list-style-type: none"> • Limited access vessels may fish for scallops only on authorized trips. • Vessels with general category permits will be allowed to target scallops or retain scallop incidental catch, with a 400 lb. scallop possession limit in accordance with general category rules.
Open	Scallop resource does not meet criteria to be classified as a closed rotation or re-opened controlled access area	<ul style="list-style-type: none"> • Limited access vessels may target scallops on an open area day-at-sea • General category vessels may target sea scallops with dredges or trawls under existing rules. • Transfers of scallops at sea would be prohibited 	All vessels may fish for scallops and other species under applicable rules.

Area rotation also allows for differences in annual fishing mortality targets to catch scallops at a higher than normal rate, precisely (used in a relative sense) when the scallops are at an optimum size. This optimum is defined by a biomass growth rate that declines as scallops age and falls below losses due to natural mortality. Interestingly, it also is defined by a gear efficiency vector with scallop size (see comparison of 3 ½ and 4-inch rings in Section 8.2.8), reducing the tow time (and environmental impacts) needed to catch scallops that maximize yield (appropriately reduced to account for risks due to uncertainty and to achieve economic and social objectives). Thus when scallops are abundant and near

the optimum size, fishing mortality should be higher at that time, than it would be if fished continuously the appropriate level that would otherwise achieve maximum yield-per-recruit.

One way to account for temporary changes in annual fishing mortality is by using time averaged fishing mortality, such that the average for an area since the beginning of the last closure will be equal to the resource-wide fishing mortality target (80% of F_{max} , estimated to be $F=0.20$). To do this, framework adjustments should set either the length of time when a rotation area is deemed to be “re-opened, controlled access”, or set the annual fishing mortality target for recently re-opened areas should in advance within the framework adjustment that establishes and implements controlled access for a re-opened rotation management area. The Council will decide this issue based on resource conditions and projected results when considering re-opening a rotation closure by framework adjustment. Nonetheless the potential choices and approach are described below. The choices may also be affected by length of closure and whether other new controlled access re-openings are foreseeable in the near future when a framework adjustment is made.

For example, after a closure period of three years and a planned re-open period of another three years, the time-averaged fishing mortality target is 0.4 [i.e. 0.2 times 6 years divided by 3 years (the total period as a re-opened area)]. A useful variation on this calculation (and one that is risk adverse and reduces variability in landings) is to catch scallops at less than 0.4 in the first re-opened year, at 0.4 in the second year, and higher than 0.4 in the third (and last) re-opened year. The first year might be fished at a rate of 80% of the time averaged target (or $F=0.32$), the second year at 100% ($F=0.40$), and the third year at 120% ($F=0.48$; see Table 12).

In the example below, whether or not the annual fishing mortality target increases with time, the time-averaged fishing mortality declines to the norm in the seventh year (i.e. $F=0.20$). Also, in the seventh year (or whenever the time averaged fishing mortality target increases to the stock-wide target), the fishing area becomes reclassified as an “open” fishing area under general scallop fishing rules and under most of the strategies below, there would be no area specific limits or a hard TAC.

Variations on the above example include the length of the closure, the length of the recently re-opened period, and the “ramping” strategy applied to the annual mortality targets in the re-opened areas. The following tables show how this would work:

Table 12. Example of ramped fishing mortality targets for re-opened areas, compared to mortality targets with no rotation and simple rotation with constant fishing mortality targets when re-opened. See Sections 8.2.1 and for analysis of impacts.

YEAR	Year N	1	2	3	4	5	6	7 to N	1	All
No rotation	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
Status	Open	Closed	Closed	Closed	Re-opened	Re-opened	Re-opened	Open	Closed	Average
Simple rotation	0.20	0.00	0.00	0.00	0.40	0.40	0.40	0.20	0.00	0.20
Ramped rotation	0.20	0.00	0.00	0.00	0.32	0.40	0.48	0.20	0.00	0.20

Table 13. Management policies and fishing mortality targets for rotation areas.

Area type	Rotational management policy	Annual fishing mortality target and TAC
Closed rotation	Temporarily closed to scallop fishing	Set to zero
Re-opened, controlled access	<ul style="list-style-type: none"> • Area specific day-at-sea allocations and trips with possession limits and day-at-sea tradeoffs • Target TAC applies and trip allocations based on the number of trips with a possession limit calculated to achieve the target. A DAS tradeoff of 12 days will apply for each controlled access trip, no matter the actual trip length unless the trip qualifies for the broken trip adjustment exemption (Section 5.1.2.4). DAS charges will count against a combined pool of controlled access DAS allocations. • Trip allocations for part-time and occasional limited access vessels are 40% and 1/12th of the number of full-time trips that can be allocated, rounded down to the nearest whole number, but may be no less than one trip if controlled access areas are available. • Areas re-open to fishing at the beginning of the fishing year (Section 5.3.9.4), unless there is a seasonal closure to avoid unacceptably high bycatch of finfish or turtles. 	Set by framework action to achieve the target mortality that the Council sets, consistent with time average guidelines, possibly following a ramped strategy to achieve optimum yield from the scallops in the re-opened area.
Open	<ul style="list-style-type: none"> • Open to scallop fishing under general rules • DAS allocations are determined from the target TACs consistent with the fishing mortality target at right, divided by the expected catch per DAS. 	Equals a value such that the resource-wide average fishing mortality is expected to be 80% of F_{max} .

5.1.3.2 Adaptive closures and re-openings, with adaptive boundaries identified by survey when the areas are closed

The fully adaptive strategy will estimate whether various configurations of potential areas meet closure and re-opening criteria. Ten-minute squares (Map 3), each about 75 nm², will be the basis for evaluation of contiguous blocks that may close to postpone mortality on small scallops. A ten-minute square is considerably smaller than the annual biomass estimates from the existing resource survey will allow. Instead, a procedure utilizing an industry supported survey described in Section 5.1.8.2 would provide a detailed assessment of candidate rotational management areas.

The boundaries of the rotational management areas would be established by future framework adjustment, based on the distribution and abundance of scallops at size. The guidelines described below would keep the size of the areas large enough and regular in shape to be effective, while allowing a degree of flexibility to define closed rotation areas.

Like other area rotation alternatives, the decision about whether an area should close or re-open to fishing would depend on its expected potential biomass growth rate if closed, following pre-defined

criteria. Areas will be considered for closure when the annual increase in scallop biomass is estimated to exceed 30% in the absence of fishing and would be considered for re-opening when the scallop biomass increase declines to below 15 percent per year in the absence of fishing. No additional closures would be considered if said closure would result in more than 25 percent of the exploitable scallop biomass to reside within closed rotation areas when a new area is considered.

5.1.3.2.1 Closure shaping rules

The following rules describe the Council intent and outlook for managing area rotation by this system, rather than as strict, invariable rules as written in the DSEIS. The rules below are intended as guidance on how and when rotation closures should be considered for implementation, but do not bind NMFS or the Council to close all areas that meet these criteria. Similarly, NMFS and the Council may deviate from these guidelines for re-opening and managing controlled access areas to achieve optimum yield or achieve plan objectives, in response to changing resource conditions or regulatory environments.

Boundaries and distribution of rotational closures

Scallop management regions would be divided into “blocks”, each approximately 75 square nautical miles in area, by the existing grid of latitude and longitude lines at 10-minute intervals. [generally west of 72°30’W], the blocks spanning the depth range [ranging from 15 to 45 fathoms] are grouped into east-west “strips”, each 10 nautical miles wide, north-south. The blocks would be grouped into five “regions”:

- Gulf of Maine – [all blocks north of 42°20’N].
- Georges Bank – [all blocks south of 42°20’N and east of 68°30’W].
- South Channel – [all blocks south of 42°20’N, west of 68°30’W and east of 72°30’W].
- Hudson Canyon – [all blocks west of 72°30’W and north of 38°30’N].
- Southern – [all blocks south of 38°30’N]

Within these regions, the following rules would apply to determine the number and configuration of areas that would be closed to scallop fishing until the potential biomass growth rate declined below the minimum threshold, reclassifying by framework action the area as “re-opened, controlled access”.

Number of Closures

Unless the combination of all other closed areas in a region exceeds the maximum acceptable closure extent, there will be one and no more than one scallop rotational closure in each region at any time, except the Gulf of Maine region. In that region, there may be either zero or one scallop rotational closure at any time. Areas indefinitely closed to scalloping (to minimize bycatch or habitat impacts, or for other reasons) will not be considered “rotational closures” for this purpose. If areas are temporarily closed to scalloping by management measures outside of this scallop rotation system, those areas may be (but need not be) considered to fulfill this requirement for having a rotational closure in each region.

Minimum Closure Sizes

Closures may be larger than but may not be smaller than:

- Georges Bank region: 9 blocks arranged in a 3x3 square.
- Hudson Canyon and Southern regions: 3 adjacent strips.
- Gulf of Maine and South Channel regions: Any 6 contiguous blocks, where blocks are considered to be contiguous if it is possible to pass from one to any of the others by only crossing the boundaries of abutting blocks within the six.

Where a closure spans the boundaries of two or more regions, it shall be at least as large as the minimum size for any of the regions concerned. In the Hudson Canyon and Southern regions, strips may only be closed or re-opened as whole units.

Maximum Closure Extent

Closures in each of the five regions may not close more than 25 percent of the exploitable scallop biomass when new closures are considered. In no case will areas be closed under this rotational system if doing so would result in the total area closed to scalloping (including all closed areas, not simply rotational closures) exceeding 50% of the productive blocks in a region. For this purpose, the sum of the total blocks and that of those in closures will be weighted by the relative productivities for the ten-minute squares in a region (Map 2). Blocks that are cut by the boundaries of federal waters or by the boundaries of closed areas will be weighted pro rata to their included area. Similarly, no areas will be closed under this system if doing so would result in 75% or more of the scallop biomass in a region (as estimated by the best scientific estimates available) being in areas closed to scalloping.

If some blocks in a region are subject to seasonal closures to scalloping, the above requirement must be met at some point during the year. In addition, no areas will be closed under this rotational system if doing so would result in the total area closed to scalloping (including all closed areas, not simply rotational closures) at any point during the year exceeding 75% of the productive blocks in a region, with the weighted sum calculated as above. Similarly, no areas will be closed under this system if doing so would result in 90% or more of the scallop biomass in a region being in areas closed to scalloping at any point during the year.

Boundaries

Straight lines will form all boundaries of rotational closures. The internal angles between such lines will never be greater than 180°, except that 270° internal angles may be used when the boundary lines that meet at such an angle both extend for at least 21 nautical miles. Where possible, the boundaries will follow the edges of blocks (north-south and east-west boundaries). However, where a rectangular closure would enclose one or more corner blocks that would not themselves merit closure, the Council may select a diagonal boundary aligned from one corner of a block to one corner of another. Long-term closures abutting a rotational closure will be considered when applying this rule.

Basic guidance for closures

Subject to the above guidelines, the areas to be included in each year's closures shall be selected so as to include as many as possible of the blocks for which the annual potential increase has been estimated to be above 30% in the absence of fishing, plus as many as possible of those blocks closed in the previous year for which the annual potential increase has been estimated as 15% or more, while incorporating as few other blocks as possible.

When it is not possible to include all of the blocks for which the annual potential increase exceeds the relevant levels, preference may be given to closing those with higher values of the product of current biomass and annual potential increase.

Low-Biomass Blocks

Blocks with scallop biomasses currently estimated as less than 400 tons of meats in the block will be treated as having zero annual potential increase when applying the basic rule. They may be included in rotational closures, however, when necessary to satisfy the requirements of the invariable rules.

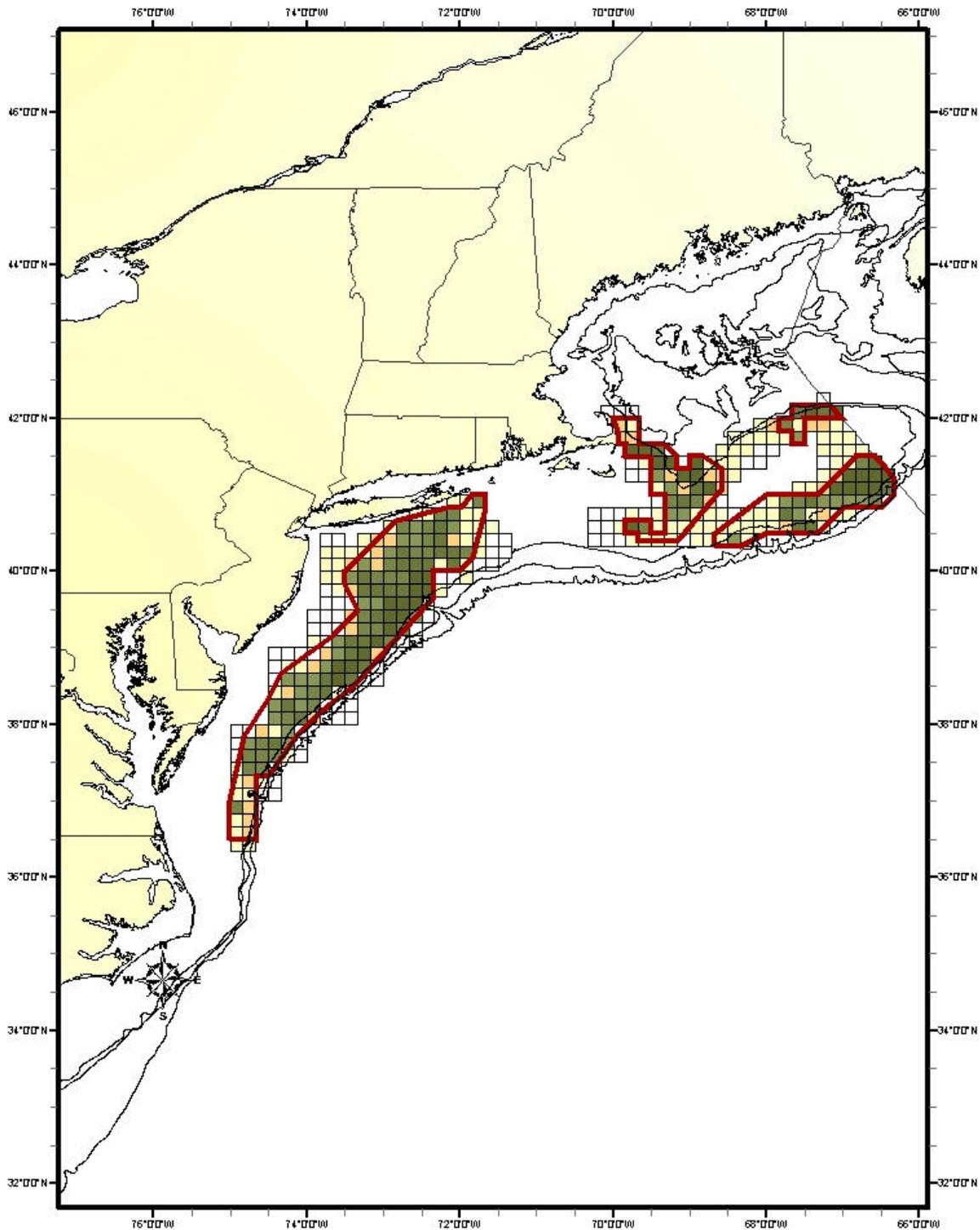
Closure Expansion

Blocks abutting a block in either the Georges Bank or South Channel regions that itself meets the annual potential increase requirements of the basic rule may be included in a closure if the directions of water movement are such that dispersal of scallops into the additional block from a closure is probable. Other blocks will only be added to closures when essential to meet the requirements of the invariable rules.

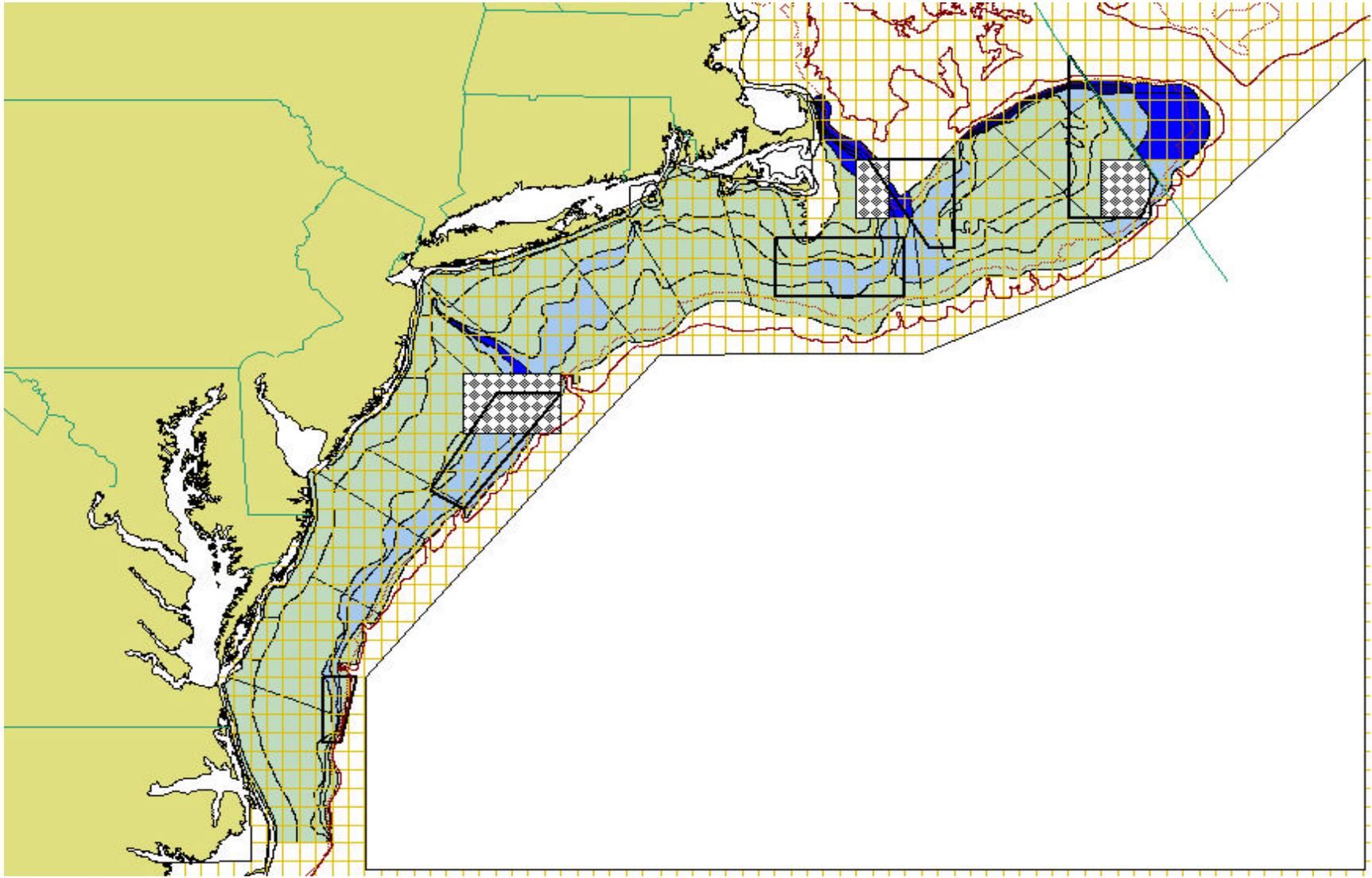
Overall Guidance

Except where required to meet the minimum of one closure per region, each rotational closure must, as a whole unit, meet the requirements of the basic rule. For that purpose, the biomass-weighted average of the annual potential increases of the blocks included in the closure (with any part blocks further weighted by the proportion of their areas in the closure) must equal or exceed a biomass-weighted average of the 30% target for those blocks not currently closed and 15% for those under rotational closure in the previous year. Any long-term closures will be excluded from these calculations.

The average scallop biomass in the blocks included in the closure (with any part blocks weighted by the proportion of their areas in the closure and excluding any long-term closures) must exceed 400 tons of meats per block. If no closure in a region (except for the Gulf of Maine region) can meet these requirements, the minimum-sized closure which would enclose the largest sum, across its included blocks, of the product of biomass and annual potential increase for each block shall be selected for rotational closure.



Map 2. Map of estimated scallop productivity by rotation management area, distributed by average recruitment by ten-minute square in the 1982 – 2000 scallop survey. Darker shades (green) represent higher productivity levels. The polygons encircle areas of high productivity.



Map 3. Basemap for area rotation with adaptively managed boundaries, showing potential minimum size and example configurations of closures (hatched) to protect concentrations of small scallops. Other closures may also occur at any time subject to the above invariable rules.

5.1.3.2.2 Closure Process

Rotation area closures will be implemented by ad hoc or standard framework adjustments, utilizing the slate of framework measures that exist in the FMP as amended by Section 5.1.9.

Identification of appropriate closure areas would be based on either a combination of NMFS Survey and industry-based surveys or industry-based surveys alone. NMFS surveys are not designed to identify resource conditions at the level of precision on which this alternative is based. Therefore, if NMFS surveys are used, it could be used to identify broad areas which would need to be refined by further industry-based surveys, implemented via the measures described in Section 5.1.8.2. Alternatively, industry may identify areas during fishing activities and the Council may initiate a framework adjustment which will analyze and consider taking action to close new areas for rotation. In such cases, it will be crucial that NMFS establishes the program in Section 5.1.8.2 so that it is ready for use when the need arises.

5.1.3.2.3 Monitoring and Re-Opening

1. All closed blocks will be surveyed annually by a commercial scallop vessel with a NMFS survey dredge to determine current biomass, size composition and growth rates. These surveys will also extend over all blocks immediately adjacent to a closed one. They will also cover all blocks currently subject to re-opening TACs.
2. NMFS receives the data and calculates the “annual potential increase” of the scallops in each closed rotation area.
3. Block closures re-open on when appropriate and defined by framework adjustment or whenever the Council sets as a default opening date when the area closes, unless:
 - a: The discovery of additional seed of younger year-classes, during the period of a closure, requires extension of that closure,
 - b: The shaping of new closures requires re-opening in advance of the expected year, or
 - c: An early re-opening is made under an Emergency Action (e.g. if mass mortality of scallops in closure is suspected).No other alterations to the timing of re-opening may be made without a Plan Amendment.
4. For each re-opening, a TAC will be set, based on survey estimates (corrected for catchability) of harvestable biomass and, for most blocks, a target fishing mortality rate calculated by applying time averaged mortality calculations. The biomass estimates will include scallops in all blocks immediately adjacent to the re-opening, provided that they will be open in the coming year. Such blocks will then be subject to the same TAC control as those in the re-opened area.
5. Based on the annual fishing mortality target for a re-opened area, a TAC will be calculated and the number of trips to allocate will be determined using a scallop possession limit which the Council will determine. Controlled access day-at-sea allocations will be calculated using a DAS/possession limit tradeoff that the Council establishes. Both controlled access trips and equivalent days will be allocated as one block, following the procedures described in Section 5.1.2.1. Each re-opened controlled access area will have a maximum number of trips that limited access vessels may take to that area, subject to one-to-one exchanges (Section 5.1.2.2), to avoid exceeding the areas TAC.

Rationale : Although this is the most complicated (and probably most costly to administer) area rotation alternative, it is intended to produce the highest benefits by protecting small scallops during their highest growth rates, and more accurately determine areas that should be closed. Improvements in yield and fishing efficiency, compared with fixed boundary area rotation alternatives, will result from temporal and geographic heterogeneities in age structure, growth, and recruitment that may not be captured by other alternatives.

The higher potential biomass growth rate criteria, compared to the other alternatives is believed to be warranted because the adaptive boundaries and frequent surveys will be able to earlier and better identify the concentrations of small scallops. As a result, the more dynamic and adaptive approach would better conserve smaller and faster growing scallops than an annual review process with fixed boundaries.

5.1.3.3 Rotation area management closures

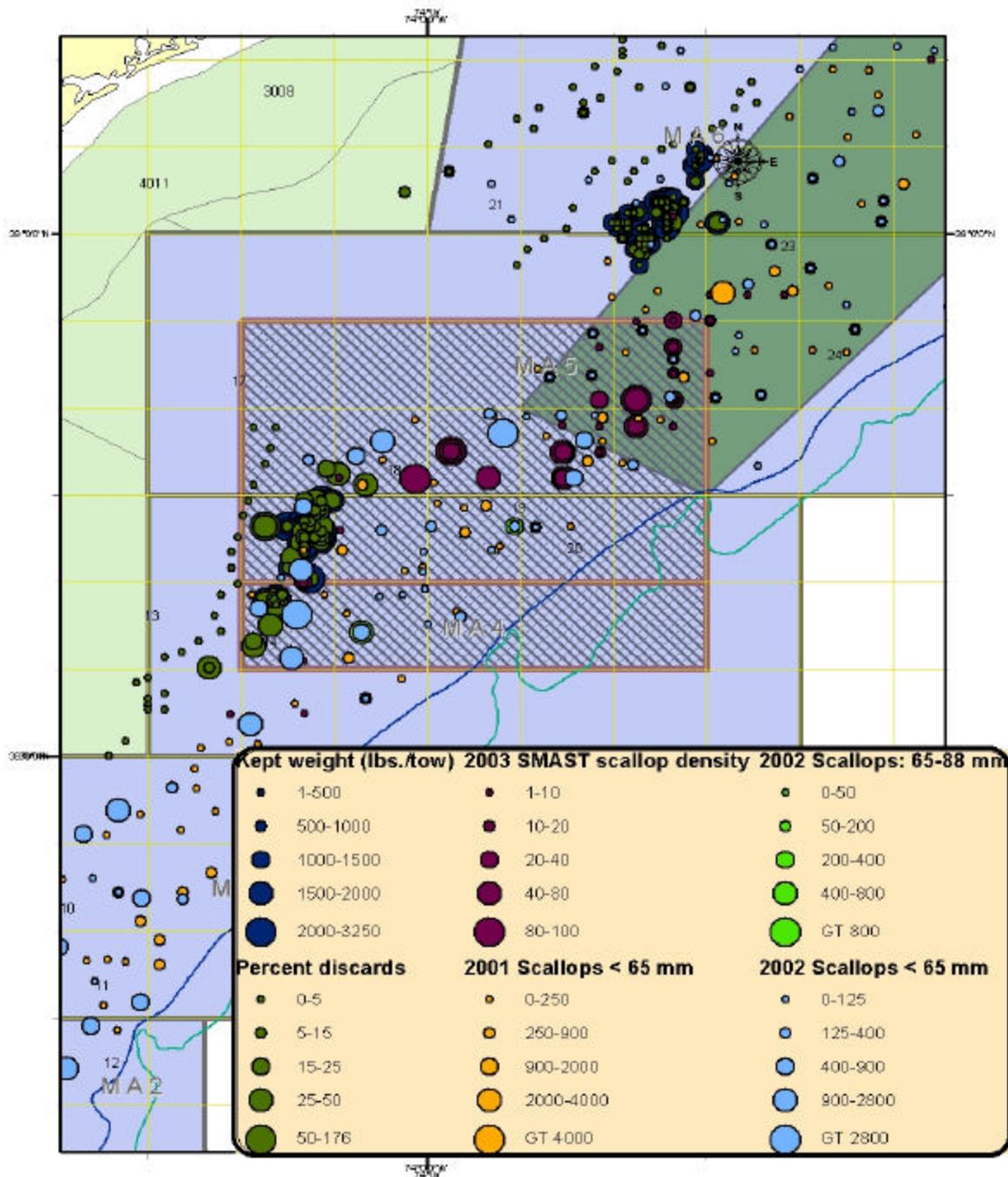
Using the principals of the rotation area management system described above, Amendment 10 will close an area in the Mid-Atlantic on March 1, 2004; encompassing beds where small scallops are abundant and prevalent. This area will closed for a default three years (re-opening on March 1, 2007), which the Council may extend or shorten by framework adjustment based on future conditions. The area, known locally as “the elephant trunk”, is composed of a rectangle of 15 ten-minute squares, shown in Map 4 having the coordinates in Table 14. This area overlaps areas that are open for scallop fishing in 2003 and part of the Hudson Canyon Area which is under controlled access limits. Both portions within the boundaries in the table below would close to scallop fishing and possession of sea scallops would be prohibited, unless fishing gear is properly stowed.

Table 14. Boundaries of “Elephant Trunk” closed rotation area.

Vertex	Latitude	Longitude
ET1	38°50' N	74°20' W
ET2	38°10' N	74°20' W
ET3	38°10' N	73°30' W
ET4	38°50' N	73°30' W

Rationale: The abundance of small scallops in this area appears to be substantially higher than other fishing areas and would benefit from a rotational closure. Large beds of small scallops were apparent within the closure area in the 2002 and 2003 R/V Albatross annual scallop survey and in the 2003 SMAST survey. Elevated scallop discard rates in this area were also apparent in the 2003 sea sampling data base for scallop fishing trips.

A closure of this area could substantially improve yield from the fishery, potentially offering the benefits attributable to the Hudson Canyon Area and Georges Bank closed areas. The analysis of the small scallop distribution is given in Section 8.2.5 (data also displayed in the figure below) and the benefits of the closure when it would re-open are integrated into the projections in Section 8.2.1. Like other controlled access areas that came before it, re-opening the area to fishing when the scallops are much larger improves yield, reduces fishing costs, reduces bottom contact time, and potentially reduces finfish bycatch. Precise estimates of the benefits of the closure are difficult because the application of controlled access for this area (e.g. target fishing mortality rates, seasons, etc.) are uncertain.



Map 4. Mid-Atlantic rotation area management closure for 2004-2007, shown as being hatched. This area is shown in relationship to the distribution of small scallops in the 2002 R/V Albatross survey and the identified seed beds in the 2003 SMAST video survey. Also shown are the distribution of kept scallop catch rates and discard proportions from 2003 sea sampling data on observed scallop trips. Fixed boundary rotation management areas used to analyze and evaluate the effects of area rotation are shown in blue and the Hudson Canyon Area controlled access area is shown in dark green.

5.1.3.4 Controlled access

The approved controlled access alternative will continue out the controlled access program for the Hudson Canyon Area, following a gradual increase in annual fishing mortality targets as outlined in Section 5.1.3.1. Controlled access to the Georges Bank groundfish closed areas will be implemented by Framework Adjustments 16 (scallop) and 39 (multispecies) according to the mechanical rotation of these areas described by Section 5.1.3.4. The VA/NC Area will no longer exist as a special, distinct management area on March 1, 2004.

Future re-openings of rotation area management closures would be considered following the guidelines described in Section 5.1.3.2, using the allocation procedures in Section 5.1.2.1. The Council will choose the duration of the controlled access program and thus the time-averaged annual fishing mortality targets that apply to the areas, when implemented by framework adjustment.

Following a rotation area management closure, areas are expected to re-open under a controlled management program designed to maximize yield. For each re-opened area, the Council will set a target annual fishing mortality rate for individual areas and estimate a total allowable catch (TAC). Dividing the TAC by a scallop possession limit and the number of active limited access scallop permits¹⁸ in the prior fishing year, the Council will determine the maximum number of trips that limited access scallop vessels may take in each controlled access area. The combined sum of these trips times the DAS tradeoff is equal to the number of controlled access days allocated to full-time vessels. Since part-time and occasional vessels will have a controlled access DAS allocation that is equivalent to 40% and 1/12th of a full-time allocation, rounded down to the nearest multiple of trips,

Specifications : All controlled access trips will have a 18,000 lb. scallop possession limit and would accrue 12 DAS to be charged against the vessel's annual controlled access DAS allocation, no matter the actual length of the trip unless it qualified for a broken trip exemption. Controlled access day-at-sea and trip allocations, and the maximum number of trips that a vessel may take in each controlled access area are shown in Table 8.

The Hudson Canyon Area (Map 5) will continue under the controlled access program for the 2004 and 2005 fishing years, then become a regular, open fishing area unless the controlled access program is continued or the area is closed later under the rotation area management guidelines in Section 5.1.3.1. The target fishing mortality rate for the Hudson Canyon Area is $F=0.40$ in 2004 and $F=0.48$ in 2005, following the time-averaged mortality guidance in Section 5.1.3.1.

Amendment 10 will not re-open the Georges Bank groundfish closed areas to controlled scallop access, but Framework Adjustment 16 to the Scallop FMP and Framework Adjustment 39 to the Multispecies FMP (planned for approval in early 2004 and implementation by summer of 2004) is expected to consider additional measures to minimize groundfish bycatch and allow access. Should the Council and NMFS approve Framework Adjustment 16 (and its Multispecies companion Framework Adjustment 39), controlled access for these areas would occur according to the provisions in access alternative 1 (Section 5.3.2.8).

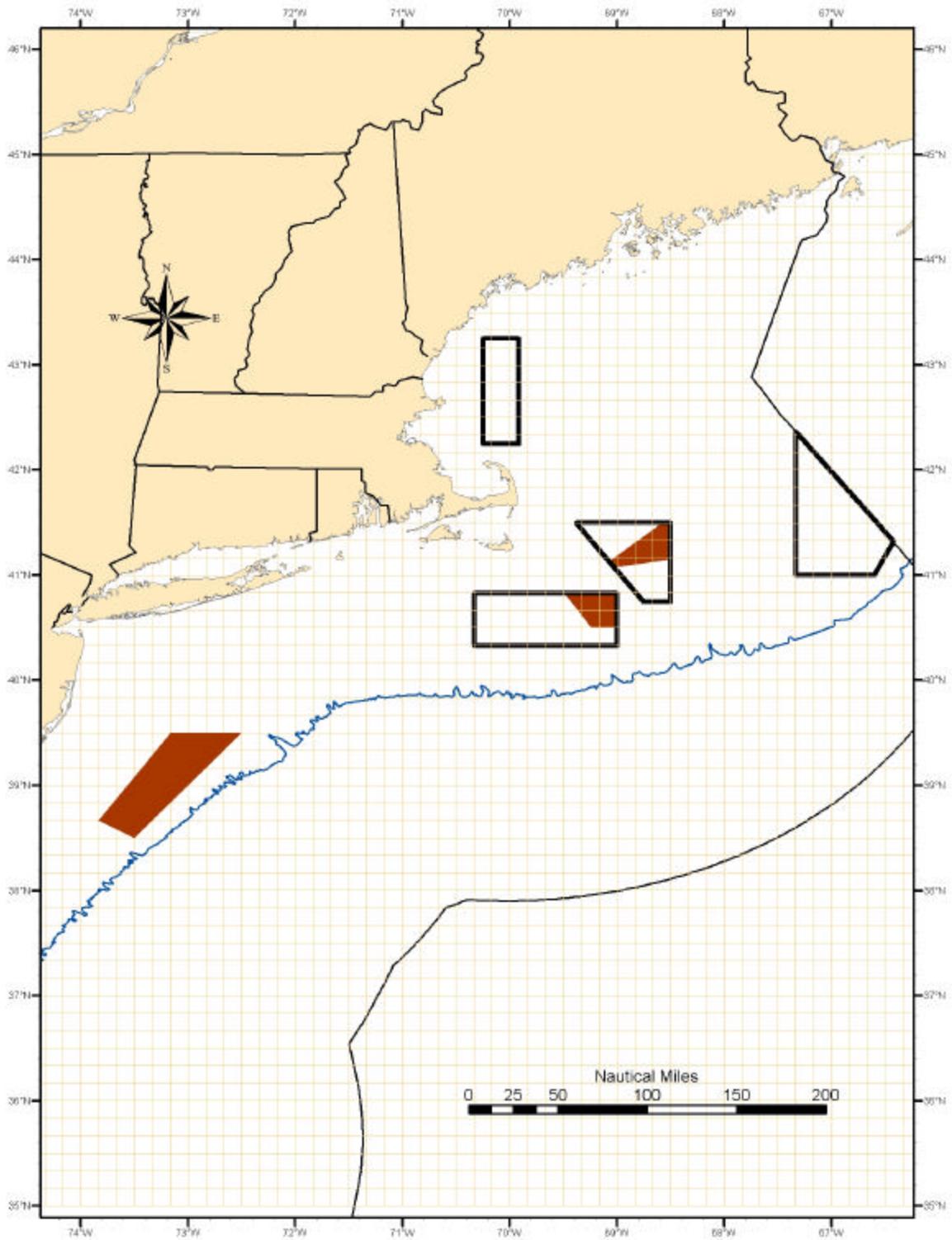
Although Framework Adjustment 39 may limit the duration of the controlled access openings, Amendment 10 specifies the order of mechanical rotation of the controlled access to the groundfish closed areas. During the 2004 fishing year, the portions of Closed Area I and the Nantucket Lightship Area that were opened in 2000 (Framework Adjustment 13) to scallop fishing (see Map 5) would open for

¹⁸ An active permit is considered to be one that used one or more DAS in the prior fishing year.

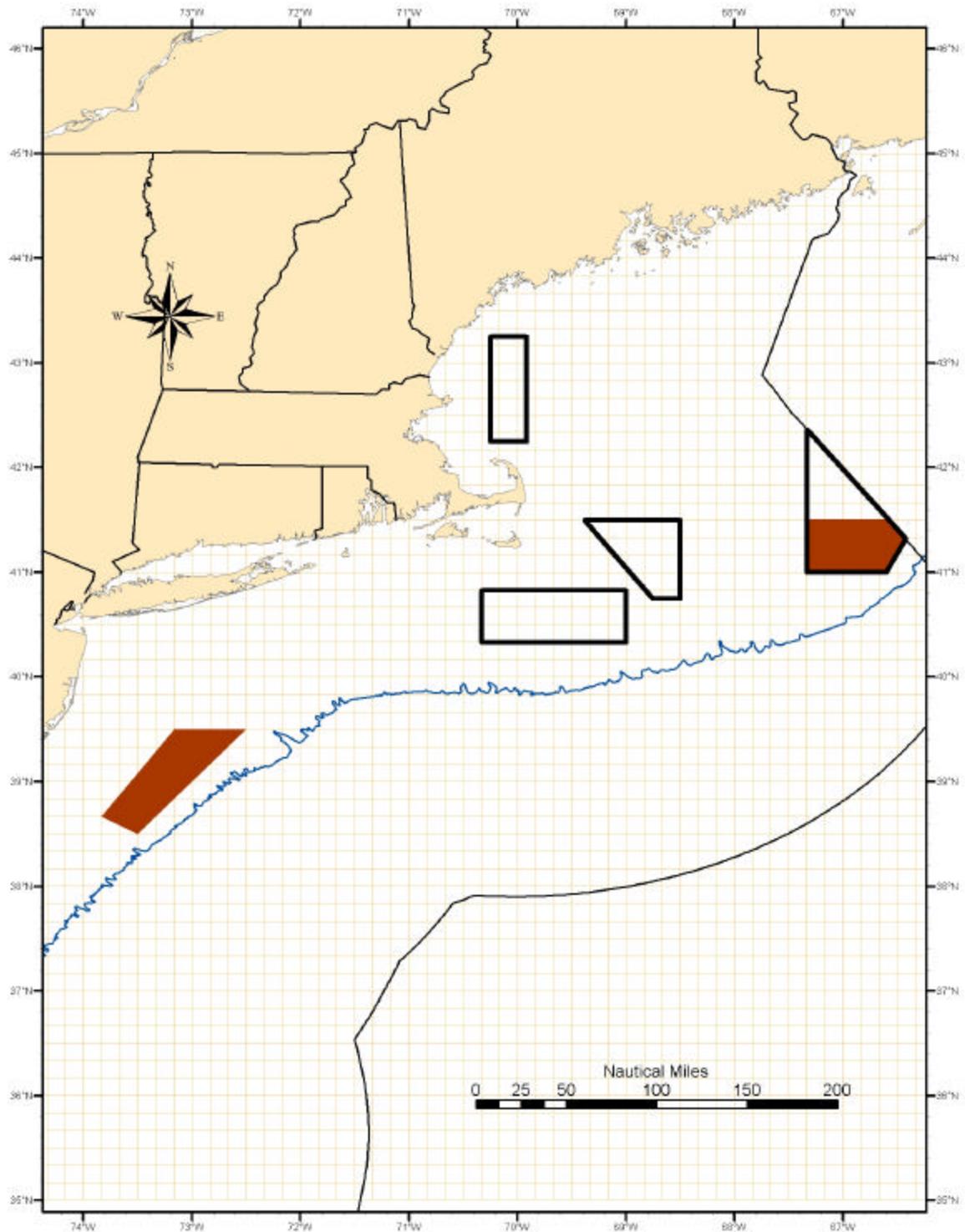
controlled access, with a fishing mortality target of $F=0.40$. In 2005-2007, the southern part of Closed Area II (Map 6) would open for controlled access with a fishing mortality target of $F=0.20$.

Table 8 shows the maximum number of trips and total, combined controlled access trip and day-at-sea allocations that would apply, subject to approval of Framework Adjustment 16/39. Framework Adjustment 16 would implement these allocations, subject to the groundfish bycatch limits and associated rules in Framework Adjustment 16 to minimize bycatch.

Rationale and explanation: This Hudson Canyon Area management program was described in Section 5.3 of the DSEIS and available for public comment. Proposed management alternatives for controlled access for the Georges Bank groundfish closed areas were described in Section 5.3.2.8. These controlled access management measures are needed to achieve OY, minimize bycatch and habitat impacts, and prevent derby-style fishing that might otherwise occur if these areas are re-opened with the limits that generally apply to limited access and general category vessels. The normal general category possession limit will apply for vessels operating or fishing in re-opened controlled access scallop areas to enable their participation in and benefit from re-opened areas where they were prohibited from fishing during a rotation area management closure. The need for a special VA/NC Area management area no longer exists because the scallop population there do not exhibit characteristics of a re-opened controlled access area.



Map 5. Controlled access areas (shaded polygons) for the 2004 fishing year. The target fishing mortality rate will be 0.40 for all areas. The existing groundfish closed areas and a grid of ten-minute squares are shown for comparison.



Map 6. Controlled access areas (shaded polygons) for the 2005 fishing year. The target fishing mortality rate will be 0.48 for the Hudson Canyon Area and 0.20 for Closed Area I South. The existing groundfish closed areas and a grid of ten-minute squares are shown for comparison. For 2006 and 2007, only Closed Area II South will be open under controlled access rules and the Hudson Canyon Area will be subject to the general scallop fishing rules.

5.1.4 Gear Restrictions

5.1.4.1 Minimum ring size

Beginning September 1, 2004, scallop dredges onboard vessels having limited access and general category scallop permits must have rings throughout the chain bag that are no less than 4-inches in diameter. Beginning March 1, 2004, all scallop dredges onboard vessels on a Hudson Canyon Area controlled access trip must have rings throughout the chain bag that are no less than 4-inches in diameter.

Monitoring compliance with the 4-inch minimum ring size requirement will follow existing procedures. Vessels fishing under an exempted state fishery are not subject to this requirement, unless required to do so by the state exemption provisions.

Rationale: This is the alternative originally described in Section 5.3.2.9, a preferred alternative in the DSEIS, applied to the entire resource. Increasing the ring size to 4-inches will improve size selectivity of scallop dredges, increasing yield-per-recruit and reducing the potential for scallop vessels to target smaller scallops. Experiments indicate that catches of 70-110 mm scallops are reduced and catches of larger scallops increase. Where scallops larger than 110 mm are available to the fishery, research has shown that a dredge with 4-inch rings catches more scallops per hour and reduces finfish and invertebrate bycatch (See Section 8.2.8). Vessels that are shucking capacity limit due to the crew size limits and shucking at sea requirements will therefore fish less time per DAS. As an added benefit, the use of dredges with 4-inch rings will reduce bottom contact time by 5-15 percent, since the dredge will catch scallops more quickly. Reducing bottom contact time will reduce finfish bycatch, reduce non-catch mortality of scallops that dredges encounter but do not retain, and could help to minimize EFH impacts. Since scallop populations have rebuilt to the biomass target and larger scallops are much more abundant throughout the resource than they have been in the past, requiring a minimum 4-inch ring size in all areas is appropriate.

Delayed implementation for six months until September 1, 2004 will allow manufacturers and gear suppliers to ramp up production to supply the fleet with new gear. Also scallop vessels will be able to use existing gear for a phase-in period, replacing the old gear with the new rings as it wears. Many scallop vessels replace dredge chain bags once or twice per year due to wear. On the other hand, 4-inch rings are available in the market, just not in quantities that can supply the entire fleet at the same time. The conditions in the Hudson Canyon Area are close to those that would benefit most from the 4-inch rings, where large scallops are abundant, but there is a mix of small to intermediate sizes as well. Vessels that cannot obtain 4-inch rings will be able to postpone Hudson Canyon Area controlled access trips, but may continue to use the 3½ rings elsewhere until September 1, 2004.

5.1.4.2 Twine top mesh

Beginning March 1, 2004, scallop dredges onboard vessels having limited access and general category scallop permits must have twine tops with mesh no less than 10-inches, diamond or square mesh. Scallop vessels may not have twine tops with less than 10-inch mesh onboard.

Monitoring compliance with the 10-inch minimum mesh requirement will follow existing procedures. Vessels fishing under an exempted state fishery are not subject to this requirement, unless required to do so by the state exemption provisions.

Rationale : This is the alternative in Section 5.3.5.3, a non-preferred alternative in the DSEIS, to minimize finfish bycatch. Increasing the minimum twine top mesh has proven successful for reducing finfish bycatch of many species when used in the controlled access areas since 1999. When applied in all areas (see note below about rebuilding and expanding scallop age structure), the 10-inch mesh will allow greater escapement of many species and help to minimize bycatch. Many small finfish and animals will benefit from escaping the dredge through the twine top.

Few problems associated with scallop loss have been reported, especially where large scallops are available and relatively abundant. Since scallop populations have rebuilt to the biomass target and larger scallops are much more abundant throughout the resource than they have been in the past, requiring a 10-inch minimum mesh in all areas is now appropriate.

Scallop vessels on controlled access trips have had to use 10-inch mesh twine tops since 1999, so the gear is readily available and can be easily adopted. A new twine top is relatively inexpensive, is frequently replaced due to wear, and can be installed in a dredge in less than an hour.

Although Section 5.3.5.3 in the DSEIS indicated that a six-month implementation delay would occur, the Council decided to require 10-inch twine top minimum mesh immediately when Amendment 10 is implemented. The alternative was changed to help address some of the concerns expressed by public comments concerning scallop fishery bycatch. The Council felt that the benefits of quicker implementation of larger twine top mesh requirements outweighed the cost, because vessels frequently replace twine tops due to customary wear, because of the relatively low cost (\$300 – 500, plus about an hour or two to replace them), and because of the ready availability of twine tops from suppliers due to existing requirements to use them in the Hudson Canyon and VA/NC Areas.

5.1.5 Permit Restrictions

Except for vessels fishing on a multispecies or monkfish day-at-sea or fishing for scallops under a state-exemption program, vessels holding a limited access scallop permit may possess no more than 40 lbs. (18.14 kg) of shucked scallops or 5 US bu. (176.2 L) of unshucked scallops while not on a scallop DAS.

Vessels without limited access scallop permits may hold a general category scallop permit, which authorizes the vessel to possess and land on a trip up to 400 lbs. (181.44 kg) of shucked scallops or 50 US bu. (17.62 hl) of unshucked scallops, with no more than one trip per calendar day. This limit will apply to vessels holding general category scallop permits and vessels fishing under a Multispecies or Monkfish DAS in all open scallop fishing areas and re-opened, controlled access areas (including those re-opened for species other than scallops), unless the vessel is operating in a state-exempted fishery which authorizes the vessel to possess a different amount of scallops.. This measure does not supercede the groundfish gear regulations and a specific gear exemption may be required for vessels with general category permits to fish for scallops, using dredges or small mesh gear.

Rationale : The Council selected the alternative in Section 5.3.6.3, a non-preferred alternative in the DSEIS. Although some vessels with limited access scallop permits targeted scallops under general category rules while not on a scallop DAS, it was a loophole that has the potential for increasing mortality on sea scallops and exceeding the fishing mortality threshold. In addition, it would rob days from other limited access scallop permit holders if this source of fishing mortality is taken into account for setting allocations to meet annual mortality targets.

Other than requiring that limited access scallop vessels land a certain amount of other species while not fishing on a scallop DAS, the only practicable means for preventing limited access scallop vessels from targeting scallops under general category rules is to remove that authorization and its associated scallop possession limit. In some cases, scallop fishing gear (especially scallop trawls) is used to target other species and may be practicably indistinguishable for purposes of enforcement. Prohibiting the use of scallop fishing gear by limited access vessels when not on a DAS is therefore not practicable.

Some vessels with limited access scallop permits used this loophole to supplement their crew's income and keep their crew actively fishing for scallops. Other vessels took some time off, maintained their vessels, or fished for other species when they had no scallop DAS available. Nonetheless, no other FMP allows vessels with limited access permits to commercially fish for the plan's regulated species while not on a DAS.

Under area rotation, vessels with general category permits would be prohibited from possessing sea scallops in a closed rotation area. Allowing them to target and retain sea scallops in a re-opened, controlled access area would enable the vessels to recover the benefits that were gained as a result of the short-term costs of a rotation closure. Although there is a potential for vessels with general category permits to exceed the possession limit and/or transfer scallops within an area with a limited access scallop possession limit, the Council finds that the existing requirements for reporting and the enforcement capabilities are adequate to avoid this problem. The benefits of requiring VMS onboard general category scallop vessels that fish in controlled access areas do not justify the costs of requiring the vessel to install and continuously use VMS equipment.

5.1.6 Measures To Minimize Impacts On Essential Fish Habitat

5.1.6.1 Habitat Alternative 2 - Benefits of other Amendment 10 measures

This alternative identifies and assesses the incidental habitat benefits that are attributed to non-habitat-specific management measures in Amendment 10, and relies on these benefits to comply with the EFH provisions of the Magnuson-Stevens Act. There are several measures that are "carry-over" measures that have been in place for sometime which have benefited EFH, as well as new measures that will have additional habitat benefits. New measures adopted by the Council in the final alternative that are expected to have positive habitat benefits include:

- Days-at-sea limits in open access areas
- Gear modification (4-inch rings in scallop dredges)
- Promoting habitat research with funding through scallop set-asides
- Rotational Area Management

Resource management measures with positive habitat impacts that are incorporated into an open access strategy that will be implemented in subsequent framework adjustments include days-at-sea tradeoffs and trip adjustments for broken trips in limited access areas (Table 1). A "carry-over" management measure that has positive habitat impacts is crew limits. Rotational area management may or may not benefit habitat, depending on which areas are opened or closed to scallop gear and how much bottom fishing with other gears takes place in these areas, however the overall effect of this management strategy is expected to be beneficial for habitat. Most of these measures effectively minimize bottom contact time by scallop gear. These effects and the potential distribution of fishing effort relative to the metrics that the Council uses to assess adverse EFH impacts are analyzed and assessed in Sections 8.5.4 and 8.5.6.4

Rationale : The Council selected Habitat Alternative 2 in Section 5.3.4.2, a preferred alternative in the DSEIS, as part of the suite of measures implemented to reduce the impacts of fishing on EFH, to the extent practicable. The Council discussed the practicability of the alternatives to minimize adverse effects of fishing on EFH and concluded that Habitat Alternative 2 (Section 5.3.4.2), which relies on the habitat benefits derived from the other Amendment 10 measures, meets the SFA mandate and is practicable. It is important to note, that Amendment 10 implements the foundation of a rotational area management strategy, but does not actually open specific areas for access. Therefore, the habitat benefits of a rotational area management strategy, which includes DAS limits and DAS tradeoffs, will not be realized until subsequent framework actions are adopted which implement the access program and specify which areas will be included in it. Management measures that will benefit habitat and do not rely on access are DAS limits, crew limits, 4-inch dredge rings, and TAC set-asides for habitat research. The Council discussion of the habitat benefits of this alternative (with and without access) is described below and summarized in Table 15.

Under a controlled access program with rotation of closed areas, DAS and swept area are projected to decline, and this is expected to have positive benefits on EFH. In this analysis, swept area is an estimate of how much bottom area is swept by scallop gear, assuming no overlap of individual dredge tows. According to Section 8.2.2.3.4, under the proposed action, the swept area is expected to reduce significantly in FY2004 with or without access to the closed areas. Furthermore, for FY 2005-2007 with access to the closed areas, swept area is expected to decline significantly as well. Without access, swept area is projected to increase by 60% in 2005-2007.

The final alternative in Amendment 10 is expected to reduce overall area swept, particularly in the Mid-Atlantic region (see Section 8.2.2.3.4). While effort is expected to stay relatively the same on Georges Bank, substantial catches from the Nantucket Lightship and Closed Area I are expected, so high daily catch limits in combination with the crew shucking capacity will keep area swept levels down. The habitat evaluation of rotational area management in terms of how effort is expected to shift over different sediment types and EFH is summarized in Section 8.5.7.2.1.2. It is difficult to describe the specific impacts of area rotation on EFH because the impacts will vary depending on the type and vulnerability of habitat types present in the area, its size, the intensity of scallop fishing prior to closure, recovery times for critical habitat features, duration of closure, etc. Thus, each framework action that implements access to specific closed areas, will have a complete habitat evaluation and assessment of impacts. However, the general impacts of a rotational area management strategy are assessed in this document.

DAS tradeoffs associated with participation in access programs will benefit EFH in terms of reduced bottom contact time. If catch levels are high in a re-opened access area, as they are expected to be, then the amount of time a vessel needs to catch the trip limit is expected to be much less than the amount of time that vessel is charged to participate in an access program. For example, if it takes a vessel only four days to harvest the trip limit for an access trip, but that vessel is charged ten days to access the area, then the remaining six days are not used to fish, a positive impact on habitat inside and outside the area.

There are additional measures implemented in Amendment 10 which will benefit essential fish habitat that do not rely on a rotational area management program. According to the gear effects workshop, there are three management strategies that have been identified as beneficial for habitat: effort reductions, gear modifications, and closed areas. A new measure implemented in Amendment 10 is requiring vessels to use four-inch rings, which will slightly increase dredge efficiency for larger scallops, thus reduce bottom contact time in recently-opened areas where large scallops are abundant. However, it is possible that this measure will reduce catch rates and increase bottom time in areas where medium-small sized scallops are prevalent. Ten-inch twine tops will reduce by-catch, but have no direct habitat

effects. Limiting the number of crew that can be on a scallop vessel is an effort control measure that will benefit EFH. This measure has been implemented since Amendment 4 in 1994, and in areas where scallop density is high, this measure has successfully limited effort and the amount of time scallop gear is on the bottom. DAS limits is another effort control strategy that has direct benefits on habitat. By reducing the amount of days individual vessels can fish, effort is reduced, thus bottom contact time is reduced which has beneficial impacts on EFH. Lastly, habitat research funded with scallop TAC set asides could indirectly benefit habitat. The following table summarizes the habitat benefits from proposed scallop management measures in Amendment 10 (both new and carry-over measures), and explains how these measures could affect habitat.

Table 15. Characterization and summary of positive impacts of Amendment 10 management measures on EFH.

Management Measure	Carry-over or New measure	Impact on Habitat	Explanation
Status quo overfishing definition	Carry-over	- w/o access + with access	Use of SQ definition will increase scallop fishing effort in open access areas, which could lead to resource depletion, reduced catch rates and increase in bottom time, but not if fleet has access to closed areas; with access, total bottom time will probably decrease because of high catch rates in closed areas.
Rotational Area Management (RAM)	New	+	Specific impacts of area rotation will vary depending on the type and vulnerability of habitat types present in the area, its size, the intensity of scallop fishing prior to closure, recovery times for critical habitat features, duration of closure, etc., but overall, RAM is expected to have positive effects on habitat because effort on gravelly sand sediment types is expected to decline. However, negative impacts may also occur because more effort is expected to shift to areas with more EFH for juvenile species with vulnerable EFH. Therefore, there may be both positive and negative cumulative impacts on EFH from RAM.. In general, swept area is expected to decline in most of the projected scenarios (especially in the Mid-Atlantic region), which could have positive impacts on EFH.
Access to Georges Bank closed areas	Depends if access plan is implemented	+ and -	Amendment 10 does not provide access to the GB closed areas, but it does implement a long-term strategy of access that will be implemented through subsequent frameworks. Access to Georges Bank has localized negative impacts on the EFH within the closures, but overall access programs have reduced bottom contact time and may have reduced fishing effort in areas with "sensitive" habitat in areas outside access programs, which would benefit EFH.
DAS Limits	New	+	The total DAS allocation in open areas is significantly less than the Status quo DAS allocation. Less DAS translates into less fishing effort, so positive for EFH.

Management Measure	Carry-over or New measure	Impact on Habitat	Explanation
DAS Tradeoffs	Depends if access plan is implemented	+	Positive impact on EFH from this measure, if bottom contact time is reduced and vessels are shifted into areas that are more appropriate/efficient for harvesting scallops
Broken trip DAS and trip adjustments	Depends if access plan is implemented	+	Could reduce effort in controlled access areas. Under a broken trip adjustment, vessels will actually lose some controlled access DAS allocations as part of the penalty. They would not be able to finish the trip, unless they had sufficient days remaining.
Crew Limits	Carry-over	+	If harvest levels are high, particularly in the access areas, then the capacity of each vessel is limited to how fast the crew can shuck. This measure is not a new restriction under A10, but will continue to have indirect benefits on EFH as long as catch limits are high.
Four inch rings and 10 inch twine tops	New	+	Four inch rings will slightly increase dredge efficiency for larger scallops, thus reducing bottom contact time in recently-opened areas where large scallops are abundant, but will reduce catch rates and increase bottom time in areas where medium-small sized scallops are prevalent. Ten-inch twine tops will reduce by-catch, but have no direct habitat effects.
Reduced possession limit for limited access vessels fishing outside of scallop DAS	New	+	Vessels with limited access permits are currently allowed to possess and land up to 400 lbs per trip of shucked scallop meats when not required to use allocated DAS; this measure will reduce possession limit to 40 lbs/trip) and reduce fishing effort by vessels that have been targeting scallops under the higher general category possession limit. Scallops harvested under this provision cannot be sold.
2% set-aside from TAC and/or DAS allocations to fund scallop and habitat research and surveys	New	+	Could indirectly benefit habitat when habitat research is funded and provides better information for future management decisions.

5.1.6.2 Habitat Alternative 6 - Habitat Closures Consistent With The Framework Adjustment 13 Scallop Closed Areas Access Program

Year-round groundfish closed areas (Western Gulf of Maine, Closed Area I, Closed Area II and the Nantucket Lightship Area) during 1998 - 2003 are considered by the Sea Scallop FMP as habitat closures except for areas opened under the Scallop Framework Adjustment 13 controlled access. Amendment 10 and the Sea Scallop FMP will implement this habitat closure by prohibiting fishing with scallop dredges and trawls, the type of fishing regulated by this FMP.

Figure 5 shows the coordinates and a map of the habitat closures. See Sections 8.5.4.6 and 8.5.6.4.6 for the analysis of the management measure (Habitat Alternative #6 is the same in both Scallop Amendment 10 and Multispecies Amendment 13 except that Alternative 6 in Amendment 10 is closed only to scallop dredge gear based on the Council's final decision).

Rationale: Critical and sensitive habitats occur within these area boundaries and protection of these areas from fishing with scallop gear will allow continued habitat recovery in these areas, particularly when other bottom tending mobile gear are prohibited to promote groundfish rebuilding and to protect groundfish spawning activities. Under the present management circumstances, selection of these closures for habitat protection carries little cost as long as the groundfish closed areas apply to scallop fishing. If other areas are later identified to be better areas for habitat protection by closure to various types of fishing gear, the costs of the habitat closures under this alternative would be much higher and subject to re-evaluation by the Council.

In terms of EFH protection, the percent of total vulnerable EFH in Alternative 6 ranks higher than most of the other alternatives, excluding habitat alternatives 7 and 9. However, because this area is larger than most of the other alternatives (except for habitat alternatives 7 and 9), when the EFH values are scaled for area, this alternative ranks lower than most. It is less "effective" than alternatives 3, 4, 8, and 5a-c in terms of EFH value per nautical mile. Alternative 6 contains high amounts of biomass for three bottom-feeding trophic guilds which is an important indication of what species live in this area, and how many. For example, more benthivore biomass (species that eat from the ocean bottom) is contained in Alternative 6 than any of the other alternatives, except for habitat alternatives 7 and 9. In terms of the sediment composition, over 60% of the area in this closure alternative is composed of sandy bottom. And although habitat alternative 6 is a small part of the total area under management, 2.3% of the proposed habitat closed area is made up of gravel and comprises a significant portion (17%) of the total amount of gravel sediment substrates in the Northwest Atlantic Analysis Area.

The Council selected Habitat Alternative 6 in Amendment 10 for the following reasons:

- Because these areas had already been defined and used as closed areas, this alternative would minimize any re-distribution of impacts which would help gain widespread acceptability among stakeholders.
- Closing areas within the boundaries of existing groundfish closed area would help build on the habitat protection benefits that had been provided to date by these areas by clarifying and elevating the intent of the closures to protect essential fish habitat (habitat closures).
- While the closures include some productive scallop fishing areas and areas of relatively low habitat value (e.g. high energy sandy environments), these closures also protect a substantial amount of complex bottom in the Gulf of Maine (WGOM closure) and George's Bank (Closed Area II north of the 72°30' N latitude and the northern and southern thirds of Closed Area I). This is accomplished by converting a large portion of the current year round groundfish closed areas into modified Level 3 habitat closures (closed indefinitely to scallop dredge gear).
- Uncertainty over the efficacy of closing large areas, given the uncertainties about benefits v. costs, optimal location of areas, distribution of impacts, and the difficulty of re-opening the areas if they are not optimal. The Council is initiating action on an omnibus

habitat amendment that will strive to integrate habitat protection across all plans and to explore other approaches using new data to develop better habitat alternatives.

- Closing any additional areas could be costly and imprudent, until the Council takes action under Amendment 13 to the Northeast Multispecies FMP. Additionally, the Council believes that Amendment 10 and Amendment 13 will implement measures to meet plan objectives, rebuild fishery stocks, while meeting the Council's obligations to minimize adverse effects of fishing in the short term.
- Reducing day-at-sea use by 25% from 2002 and 2003 levels in Scallop Amendment 10 will minimize habitat impacts, which will be bolstered by the crew limits while fishing in re-opened scallop rotation areas. These scallop management measures are expected to minimize bottom contact time and projection analyses (Section 8.2.1) show that redistribution of intensive fishing effort in sensitive areas (measured by the EFH metrics analysis) is not significant. As such, other measures besides closed habitat areas implemented in Amendment 10 will help reduce the impacts of fishing on EFH.
- Enforcement and compliance will be supported by the coincidental boundaries of this alternative with the existing groundfish closure boundaries.

The Council did not select other habitat closure alternatives for the following reasons:

- Alternative 3 includes the closure of the Great South Channel, which is impracticable due to the dramatic social and economic impacts. Further, the equity of impacts is uneven and is focused mainly in the New Bedford, MA port.
- Alternative 4 was deemed impracticable because it is inconsistent with the rotational management areas as they overlap the boundaries of Alternative 4. The Council expressed concern of implementing an area-based rotational management scheme with these areas closed as habitat closures.
- Alternative 5 was thought to be impracticable due to the inequity of social and economic impacts in the ports of Provincetown, MA, Chatham, MA, and Gloucester, MA.
- Alternative 7 is impracticable because it includes a tremendous amount of the EEZ, which is largely comprised of sandy sediment. These areas do not experience scallop dredging and don't warrant protection.
- Alternative 8 is impracticable due to the concern with implementing either of these closure alternatives only to scallop gear was noted. The Council acknowledges that closing these areas to scallop dredging will lead to some habitat benefit. However, since otter trawling will still be able to occur in this area, the habitat benefit will be greatly reduced.
- Alternative 9 was not practicable because it included the Framework 13 Access Areas as habitat closures. The Council believes that not allowing access to these areas is impracticable due to the high costs that are associated with lack of access to scallops, compared to the benefits that might accrue from closing the parts of the groundfish closed areas that had been previously open for scallop fishing.

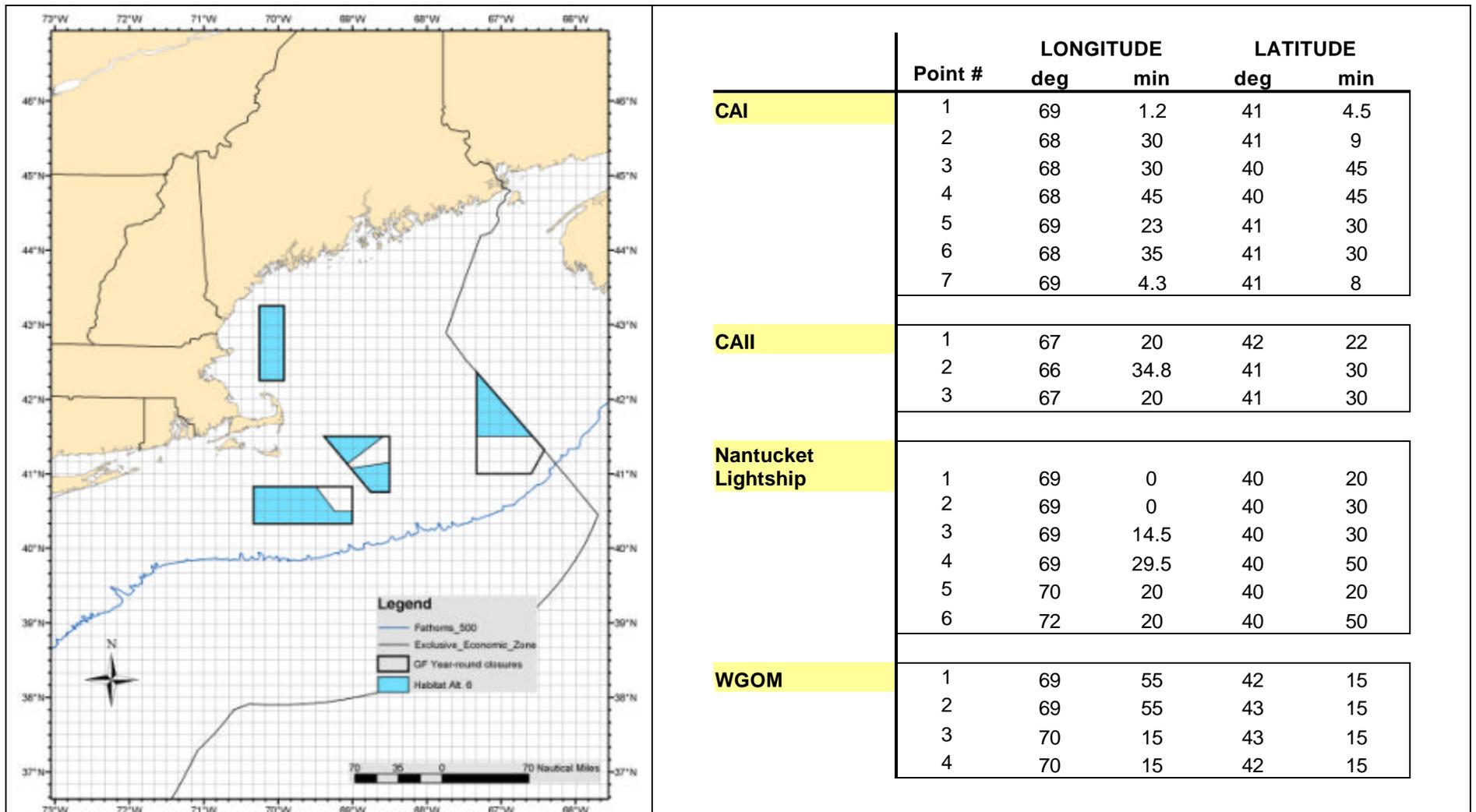


Figure 5. Map and Coordinates for Habitat Alternative 6 (current groundfish closed areas included for reference)

5.1.6.3 Minimum ring size

This is a scallop management measure, described in Section 5.1.4.1 which will have benefits that arise from reducing total bottom contact time by improving dredge efficiency for catching large scallops.

Rationale : The Council selected Habitat Alternative 11 in Section 5.3.4.11, a non-preferred alternative in the DSEIS.

Scallop research conducted by Dr. DuPaul of the Va. Inst. of Marine Science indicates that gear efficiency for a dredge outfitted with 4” rings increases by 10-15 percent for scallops over 110 mm. Particularly in areas having predominately large scallops, like a re-opened controlled access scallop rotation area, this measure will decrease bottom contact time to take the same number of scallops and achieve the fishing mortality targets. This result can help reduce habitat impacts, particularly when it reduces the ‘footprint’ of the fishing activity by reducing effort in areas that are fished infrequently. With vessel DAS at a premium, scallop fishing vessels are unlikely to spend time targeting smaller scallops in marginal areas with a dredge that is designed to allow more escapement of smaller scallops. Since the distributional effects of this measure are difficult to quantify, it could reduce fishing in areas that are infrequently fished or it could simply reduce fishing intensity in areas that would continue be dredged. In the latter case, the habitat benefits would be lower than if the measure eliminated fishing in some areas that are infrequently fished.

The second impact of increasing dredge ring size to 4 inches is the effect this will have on fishing patterns in general and swept area in particular. Four-inch dredge rings appear to be more efficient harvesters of larger (110+ mm) scallops, and long-term projections indicate that the effect will be to also improve scallop yield by about 4 to 5%. As a result of the combined effect of improving scallop yield (i.e. the fleet catching larger sea scallops) and dredge efficiency for large scallops, long-term projection indicate an reduction in area swept by 14% (Table 16).

Table 16. Long-term non-rotation projections of scallop biomass, yield, and area swept, 3.5 inch vs. 4 inch dredge rings.

Fishing mortality	Ring size (inches)	Average scallop biomass (g/tow)	Average Catch (mt)	Average landings per DAS	Average DAS use	Total area swept (nm ²)
F=0.2	3.5	13732	14945	2314	14559	2334
F=0.2	4	14237	15561	2397	14267	1996

Initially, the 4 inch dredge ring could lead to an unquantifiable increase in swept area in open scallop management areas (as contrasted with re-opened controlled access areas) as scallop vessels attempt to compensate for reduced catches of small (90-95 mm) scallops which will escape through the larger rings. The short-term effect is expected to last for one year, the time it takes for scallops of this size to grow large enough to be retained by the dredge. As the average size of scallops throughout the range of the fishery increases, the area swept will decrease. However, depending on the management alternatives selected in future framework adjustments, the potential exists that scallop vessels will continue to fish, albeit with reduced efficiency, on beds of smaller scallops. This could lead to an overall increase in swept area and bottom contact time for the fishery.

In addition to this effect, the comparative gear research conducted by Dr. DuPaul shows that a dredge outfitted with 4” rings catches considerably fewer finfish and benthic invertebrates (sponges, crabs, starfish, etc.) than a dredge outfitted with 3½” rings. While benthic species still exhibit non-catch

mortality when passing through the dredge and escaping through or between the rings, disturbance and mortality associated with gear retrieval (caused by temperature changes in the water column) and the sorting process on deck (caused by desiccation, crushing, and temperature change) will be reduced. Reduced damage and mortality of bottom dwelling species enhances biodiversity and reduces the impact of dredging on benthic community structure. The magnitude of this bycatch reduction has not been studied and cannot be quantified at this time.

5.1.6.4 Habitat research funded through scallop TAC set-aside

This measure will improve data and information that could reduce habitat impacts and enhance recovery from adverse impacts. The program is incorporated and derive its funds from the scallop research program described in Section 5.1.8.3.

Rationale : The Council selected Habitat Alternative 12 in Section 5.3.4.12, a non-preferred alternative in the DSEIS.

Scientists conducting habitat research related to the effects of scallop fishing could apply for funding through the research TAC/day-at-sea set aside. Research is needed to quantify or evaluate the long-term effects of scallop fishing on the essential fish habitat and to estimate habitat recovery rates. Some of the funds from a TAC set-aside would promote such research. Up to 2% of the TAC set-aside would be used to conduct both scallop and habitat-related scallop research, including cooperative industry surveys to monitor the resource and rotation area management.

This alternative will broaden the range of research types that could be funded through the scallop research set aside. Research funded through this mechanism could identify fishing gear or methods that have fewer habitat impacts, or might be useful to identify ways that fishing is managed to minimize related habitat impacts. While there may be some benefit to habitat through the research itself, and research may result in additional bottom contact time for fishing gears, these alternatives address only mechanisms for enabling research. Under this program, however, funds and a research mechanism could become available to advance habitat research if it relates to scallop fishery management.

Research conducted under this alternative would directly benefit the habitats of the region. There are large gaps in the understanding of fishery impacts on EFH, and much research is needed. Valuable research that is currently being conducted would also likely benefit from additional funding. This alternative does not quantify the funds available specifically for habitat research. Priorities and funding will be managed by the Council in cooperation with the Scallop and Habitat Oversight Committees, according to the priorities identified in this document (Section 5.1.8.3) and as modified by future framework adjustments.

5.1.7 Proactive Protected Species Program

The Council passed a motion at its November 2001 meeting that established steps to be taken to address protected species issues in the scallop fishery. This alternative is proposed to address the majority of the recommendations set out at that meeting. It provides a mechanism to close areas through a framework adjustment to reduce the risk of encounters between turtles (as well as other protected species) and fishing gear used in the scallop fishery, and the necessary data collection and analyses needed to address the Council's recommendations. It also provides suggestions for gear research to determine how sea turtles are caught and how to reduce the potential for those captures.

Management Measures – Framework adjustments for controlled access re-openings (see Section 5.1.9) would allow area re-openings to be timed in a manner to minimize the interactions between scallop gear and protected species found in the action area, particularly sea turtles. This measure could be applied to the Mid-Atlantic region during the sea turtle concentration period from June to November and be modified as resource conditions or fishery operations change.

This section provides for closures of areas or modifications to gear or fishing operations to protect sea turtles and any other protected species through a framework adjustment to the FMP. Further discussion in future framework documents would address the specific problem and fully describe the timing, duration and other requirements associated with the action, as well as provide the appropriate analyses and background information:

- Data Collection and Analyses – More sea sampling will help identify where and when interactions with sea turtles occur, and the increase in the frequency of trips with an observer aboard will improve the estimates. The expanded and enhanced observer program for scallop fishing through a one-percent set-aside program is described in Section 5.1.8.1.
- Gear Research – Research priorities for identifying how turtles are caught by scallop fishing gear and for identifying means to reduce interactions and mortality are incorporated into the scallop research program, described in Section 5.1.8.3.

Rationale: In response to reports of sea turtle takes in the sea scallop fishery, NMFS reinitiated consultation under section 7 of the ESA on December 21, 2001. NMFS completed a Biological Opinion (BO) for the scallop fishery as a whole, including the measures included in Framework 15, on February 24, 2003. The BO concluded that the continued implementation of the scallop fishery and the proposed activity may adversely affect but is not likely to jeopardize the continued existence of loggerhead, Kemp’s ridley, green, and leatherback sea turtles. No designated critical habitat was likely to be affected by the fishery. In the BO, NMFS provided an incidental take statement allowing the annual take of 88 loggerhead (up to 25 lethal), 7 Kemp’s ridley (2 lethal), and 1 green (lethal or non-lethal) sea turtles in the sea scallop dredge fishery. In addition, the incidental take statement allows the lethal or non-lethal observed annual take of one loggerhead, Kemp’s ridley, green, or leatherback sea turtles in the scallop trawl fishery.

The BO completed by NMFS acknowledges that there is insufficient information to determine the full scope of sea turtle and scallop fishery gear interactions because of an overall lack of sufficient data and understanding of the interactions. NMFS is continuing to monitor the observed takes of sea turtles in this fishery and evaluate the potential impact of these interactions, which will require extrapolations of observed sea turtle takes within and outside of the Hudson Canyon and VA/NC Areas. Lacking this information, the Council does not have the benefit of more complete observer data to determine how to best mitigate these takes prior to submitting the draft phase of Amendment 10. Further Council action without such information and careful consideration of all relevant factors could displace fishing effort into areas of higher turtle bycatch than currently exists. The Council, therefore, is currently proposing broad measures for use in future actions that would contribute toward the protection turtles and other protected species. This alternative, however, provides a framework mechanism to mitigate takes of turtles in the scallop fishery and recommends enhanced observer coverage to collect the appropriate protected species data to better identify the nature and scope of this problem. Further research to provide longer-term solutions is also recommended.

5.1.8 Data Collection, Monitoring, And Scallop Research

5.1.8.1 Sea sampling

Vessels with sea scallop fishing permits may be required by the Regional Administrator to carry onboard an observer, whose costs will be born by the vessel. To defray the costs of carrying an observer [from partial up to full compensation of the observer cost], the Regional Administrator will also authorize the vessel to land more scallops or fish more DAS than it would otherwise be authorized to do. In controlled access areas where a scallop possession limit applies, the Regional Administrator will authorize the vessel to land more than the scallop possession limit that applies to the area where the trip takes place. In open fishing areas where there is no possession limit, the Regional Administrator will apply a constant adjustment factor that applies to each DAS on an observed trip, taking into account the average open area catch per day expected from open fishing areas and the effect that the amount has on sampling frequency. The adjustment will either reduce the amount of DAS charged for the trip or the vessel's annual DAS allocation. The table below gives an example of the controlled access possession limit and open area DAS adjustments that might be applied:

Table 17. Example controlled access possession limit and open area DAS adjustments needed to fully compensate for the cost of the observer. This example does not take into account the vessel's lay system or the costs for the extra time and effort needed to process the scallops.

	Controlled access areas	Open areas
Observer cost (\$/day)	800	800
Scallop possession limit	18,000	Does not apply
Expected LPUE (lbs./day)	2,400	1,800
Price per pound	\$4.25	\$3.25
Expected trip length	7.5	14.0
Landings needed to fully compensate observer cost from vessel share (lbs. of meats)	1,412	3,446
DAS equivalent adjustment (days-at-sea)	Does not apply	1.9
Possession limit equivalent adjustment (lbs. of meats)	19,412	Does not apply

The Regional Administrator will determine the number of sea sampled trips and distribution by gear and area, taking into account the desired level of sea sampling needed to estimate bycatch with an accuracy appropriate to the scallop at which the bycatch information will affect management decisions. As such, it would be appropriate for sea sampling intensity to favor areas of higher than average groundfish and turtle bycatch.

One percent of the controlled area TACs and one percent of the allowable open area days used will be deducted before calculating the controlled access trip and open area DAS allocations. This deduction will provide funding for vessels carrying observers and authorized to partially or completely recover the associated costs through scallop landings, while meeting the FMP's mortality targets. The purpose of the set-aside is to pay for the daily cost of observers (including fixed and variable costs for salary, administration, training, etc.), data entry, auditing, and analysis.

Specifications: Amendment 10 establishes a one percent set aside to provide some funding to increase Sea Sampling Observer Program sampling frequency on vessels targeting sea scallops with dredges or

trawls. Unlike the existing controlled access set aside, Amendment 10 expands this program to the entire fishery, applied to both controlled access areas (that have a target TAC, Section 8.2.4.1) and regular open scallop fishing areas (that have an annual target DAS use, Section 8.2.4.2).

Controlled access areas in 2004 and 2005 include only the Hudson Canyon Area, unless Framework Adjustment 16/39 (a planned framework adjustment to follow on the heels of Amendment 10) allows access to the Georges Bank groundfish closed areas during 2004 – 2007. The TAC set asides under both conditions are shown in Table 18, using the current target TAC estimates derived from 2002 survey data. The TAC set asides are of course higher with access than without, due to the additional TACs associated with the access to the groundfish closed areas in 2004 – 2007. Without access to the groundfish closed areas, the TAC set aside for controlled access areas would be zero in 2006 and 2007 if and when the Hudson Canyon Area converts to a regular open scallop fishing area. When this happens, the associated TAC set-aside would transfer from the TAC set aside from controlled access areas to a one-percent DAS set aside for regular open scallop fishing areas (see below).

Table 18. Controlled access TAC set-aside for observers.

Fishing year	Georges Bank area access	One percent TAC set-aside (total observer landing allowance)		Estimated ex-vessel value of landings
		Pounds	Metric tons	
2004	With	304,899	138	\$ 1,301,491
	Without	187,900	85.2	\$ 802,069
2005	With	354,106	160.6	\$ 1,564,105
	Without	149,562	67.8	\$ 660,621
2006	With	191,141	86.7	\$ 876,836
	Without ¹⁹	0	0	\$ 0
2007	With	177,031	80.3	\$ 934,700
	Without	0	0	\$ 0

Like the TAC set aside, one percent of the target DAS use for regular open scallop fishing areas was set aside to provide funds for placing observers on scallop vessels fishing in open fishing areas. This adjustment effects the annual DAS allocations for limited access scallop vessels, which leaves a pool of DAS that can be re-allocated to vessels carrying observers without exceeding the annual fishing mortality target for the scallop resource. A 350 DAS set-aside reduces a limited access vessel’s annual DAS allocation by approximately one day.

Table 19 shows the amount of DAS that were set aside from the projected DAS use before calculating full-time, part-time, and occasional DAS allocations, with and without access to the Georges Bank areas. The set-aside is higher in the open areas without access, because the target DAS use in the open areas increases to achieve the stock-wide fishing mortality target when more closed areas apply. Using the economics model price equation and predicted average scallop price per pound, Table 19 also gives an approximate value associated with the set-aside DAS. The value estimates assume that landings will be generated from the extra DAS allocations for vessels carrying observers, and those catches on those days-at-sea will be the same as the expected LPUE and be of the same average size as those estimated for regular, open scallop fishing areas. Actual value will vary depending on the utilization of rebated DAS, the size of the scallops, where the vessel fishes, and when the landings occur.

¹⁹ Assumes that the Hudson Canyon Area converts to a regular open fishing area, as scheduled in Amendment 10.

Table 19. Open area DAS set-aside for observers.

Fishing year	Georges Bank area access	One percent of target DAS use	Estimated ex-vessel value of landings
2004	With	117	\$ 693,893
	Without ²⁰	171	\$ 1,010,345
2005	With	111	\$ 548,624
	Without	304	\$ 799,921
2006	With	187	\$ 768,509
	Without	376	\$ 755,915
2007	With	207	\$ 875,261
	Without	359	\$ 806,660

An estimate of the total value of the controlled access set-aside is also shown in Table 18 and Table 19, by applying the estimated average annual price per pound from a price equation used for estimating net economic benefits (Section 8.7.3.2). The scallop prices vary by year and by whether or not there is access to the groundfish closed areas because of the predicted response of scallop prices to domestic landings. The actual results may vary because scallop prices are sensitive to landings by grade or count, not just the average size used in the price equation. The seasonal timing of landings that differ from the assumptions in the projection model will also have an impact.

Nonetheless, the estimated value of the TAC and DAS set asides provide an approximation of the number of observer days that could be funded by the set-aside, once the daily observer cost is determined. The remaining observer costs associated with the total number of observer days needed to achieve a target sampling frequency would be borne by the vessels carrying observers.

Like the controlled access area TACs, the TAC set asides are targets, not a hard number that would close the fishery due to a lack of funding for observers. They are intended to provide guidance for how many trips can be observed with these funds and for setting the scallop possession limit allowance for vessels carrying observers. NMFS will set the scallop possession limit allowance for observed trips using this information and monitor the landings that exceed 18,000 lbs. per trip for observed trips. Substantial overruns of the TAC set aside could increase fishing mortality above the intended targets. Theoretically, landings that exceed the target set asides could cause overfishing, but the amounts, even if double the set-aside is a small proportion of the total catch.

The Regional Administrator will take into account the amount of funds generated by the set-asides and a reasonable compensation to scallop vessels carrying observers, to maximize the observer sampling frequency without placing an undue burden and hardship on vessels selected to carry observers. An analysis of this tradeoff is provided in Section 8.2.4, for the 2004 – 2007 fishing years with and without access. These analyses will be considered when setting a scallop possession limit allowance for controlled access areas and a DAS adjustment factor for regular open scallop fishing areas.

Rationale : The Council selected the alternative in Section 5.3.7.1, a preferred alternative in the DSEIS, applying the set aside and adjustment mechanism to the area-specific allocation system in Section 5.1.2. Increased observer coverage is needed to improve the estimated amount of finfish bycatch in order to better comply with National Standard 9, and to determine the level of sea turtle takes in the scallop fishery. Because the increase in observers would be costly and may not be entirely within the capabilities of NMFS to pay for such increases, the TAC and/or DAS set-asides would allow compensation to vessel

²⁰ After 8/15/03 if the default DAS allocations go into place.

owners and crews which have paid for observers. This program has proven to be successful in limited applications under the Georges Bank Closed Area Exemption Programs in 1999 and 2000 and under the Mid-Atlantic Area Access Program implemented in 2001, 2002.

As in previous fishing years and controlled access programs, a set-aside was deducted from the controlled access area TACs, before determining how many trips to an area could be allocated to limited access scallop vessels. Theoretically the reduction in the TACs by the set-aside would cause fewer controlled access trips to be allocated. In some cases, the Council also applied a set-aside that added to the TAC, to provide adequate funding. With a hard TAC that applied in previous fishing years, the sampling frequency might decline because less trips might be observed when the TAC set aside ran out, or in the extreme case, the Regional Administrator could shut the access program down because observers could not be placed on vessels due to insufficient funds being left to do so. Fortunately, it never came to this.

With a target, rather than hard, TAC, the link between the set-aside and the number of allocated trips or the season isn't as direct. A slight one or two percent reduction in the TAC does not in reality change the number of trips allocated, because of the coarse allocation mechanism that allocates a whole number of trips equally to all limited access vessels (subject to policies on part-time and occasional allocations). Thus the sampling frequency and vessel compensation for observed trips should be based on the TAC set aside, and care should be taken to ensure that the scallop possession limit observer allowance does not substantially exceed the amounts specified.

5.1.8.2 Cooperative industry surveys

NMFS will initiate a cooperative industry scallop survey, primarily designed to assist in estimating the distribution and biomass of scallops in specific areas, as needed to provide information for rotation area management. Vessel compensation and direct administrative costs of this survey are to be recaptured from a two percent set aside to fund research and resource monitoring. Two percent of the controlled area TACs and two percent of the allowable open area days used will be deducted before calculating the controlled access trip and open area DAS allocations. The Regional Administrator will authorize vessels that participate in the cooperative surveys to make compensation trips to defray the costs of the vessel's participation. The Regional Administrator will specify whether and for how long a vessel may fish in a controlled access area or open area to recoup the costs, based on the expected scallop catch per day and price per pound. A compensation trip is one in which the Regional Administrator authorizes the vessel to fish for scallops while not on the DAS clock or one in which the vessel is authorized to land more than a scallop possession limit that applies to a controlled access area. Resource surveys under this program shall be deemed scientific research under the Magnuson Act. Surveys and compensation trips that do not adversely affect the environment beyond those associated with a scallop DAS will not require an experimental fishing permit.

Cooperative surveys may target areas reported to have high concentrations of small scallops to determine the potential boundaries of a rotation management area closure, and/or to more accurately determine the biomass of a closed rotation management area about to re-open. The latter case may be anticipated, but small scallops may appear suddenly and an ad hoc survey may be needed. As such, the Regional Administrator is encouraged to develop administrative procedures for conducting an ad hoc resource survey using industry vessels and pre-arrange participation in such a survey, should the need arise.

Scientific personnel on industry vessels may be NMFS employees, state employees, or university employees. The added costs of these scientific personnel for their time aboard survey vessels and/or

preparing the data for analysis may be recovered from scallop compensation trips by charging the vessel that participated in the survey and recovered survey costs via compensation trips.

Rationale : This is the alternative included in Section 5.3.7.8, a preferred alternative in the DSEIS. Industry-funded and supported resource surveys are needed to increase the sampling intensity and support area rotation, especially if many small areas need to be evaluated to close or open rotation management areas.

5.1.8.3 Scallop research

The scallop research program, formerly funded by TAC set-asides in controlled access areas, will continue using the existing administrative procedures and the funding will be expanded to a two-percent set aside of controlled access TACs and open area DAS for all areas. Before allocating controlled access trips and open area days, two percent will be deducted from the controlled access TACs and allowable open area day-at-sea use to calculate annual allocations. Because this SEIS analyzes the effects of achieving OY for the scallop fishery, research and compensation trips that do not adversely affect the environment beyond those on a scallop DAS will not be required to prepare an EA or EIS to conduct the research, unless required to do so for special, unique reasons identified by the Regional Administrator.

Whether funded by the set aside or by other sources, this section describes the type of research that may be conducted under an Experimental Fishing Permit, without preparing an Environmental Assessment (EA) or Environmental Impact Statement (EIS). To qualify for this exemption from the normal application procedures, the research must not cause mortality or impacts that differ from that created by normal scallop fishing on a day-at-sea (Section 5.3.8.2.2). Research projects that are not conducted on a day-at-sea (an allocated day or a set-aside day), in areas that are otherwise closed to scallop fishing, or using gear that is otherwise prohibited while fishing for sea scallops would be required to follow the normal application procedures (Section 5.3.8.3).

Nothing in the alternatives in this section is intended to supercede the requirements of the Magnuson-Stevens Act provisions with respect to experimental (exempted) fishing activity. Rather, the alternatives in this section are intended to incorporate the requirements of the Magnuson-Stevens Act provisions into the Amendment 10 process or into future specification or framework processes in order to facilitate future research. Based on the analysis contained herein and associated with a customary scallop fishing day, the applicant may be relieved of preparing an EA or EIS for a research application. If the research is deemed to have greater impacts, however, these procedures may require the applicant to prepare an EA or EIS to be authorized to conduct the research.

Types of research activities that would automatically be considered as analyzed by the SEIS are:

- Research that causes negligible mortality and disturbance of the sea floor, such as video surveys.
- Research that uses unmodified commercial fishing gear or commercial fishing gear that causes less mortality or disturbance of the sea floor, such as:
 - Paired tow comparisons using gear that complies with existing fishing regulations.
 - Resource surveys with unmodified commercial dredges or trawls.
 - Tagging of animals caught by gear that complies with existing fishing regulations.
- Observation of discard mortality during regular commercial fishing.
- Retention of catches that exceed a possession limit, unless it exceeds the amount associated with a TAC or DAS set aside.

Not included is research that:

- Uses commercial fishing gear that does not comply with existing regulations
- Requires fishing in closed areas
- Requires fishing on a day that exempt from the DAS regulations, except as provided for in a TAC or DAS set aside program.
- Uses liners or other gear that increases retention of scallops or non-target species, unless accounted for by a TAC or DAS adjustment under a set aside program.

The Regional Administrator will authorize vessels that participate in research programs funded by the set-aside to make compensation trips to defray the costs of the vessel's participation. The Regional Administrator will specify whether and for how long a vessel may fish in a controlled access area or open area to recoup the costs, based on the expected scallop catch per day and price per pound. A compensation trip is one in which the Regional Administrator authorizes the vessel to fish for scallops while not on the DAS clock or one in which the vessel is authorized to land more than a scallop possession limit that applies to a controlled access area.

Research conducted through the TAC set-aside should be related to information needed to make management decisions about scallop fishing, understanding and mitigating the fishery's environmental impacts, and the performance characteristics of potential new scallop fishing gear. Appropriate uses include those that identify and evaluate effects of the fishery on the environment, ways to reduce or mitigate those effects, and the recovery potential of habitat, flora, and fauna to potential conservation management measures or changes in the way fishing is conducted.

Important research issues are listed below and may be modified or prioritized by framework adjustment or plan amendment:

- ❑ Cooperative industry surveys to determine small sea scallop distribution and the biomass of exploitable size scallops in closed rotation management areas
- ❑ Video and/or photo transects of the bottom within Closed Area II and the Nantucket Lightship area in areas both subject to scallop fishing and not subject to scallop fishing, before and after scallop fishing commences
- ❑ Intensive sampling on both sides of the boundary of Closed Area II and the Nantucket Lightship area this year and in subsequent years to gauge the effects of fishing on the resource
- ❑ Special sampling stations be used during this summer's scallop survey, selected to represent areas both opened to scallop fishing and not opened to scallop fishing
- ❑ Development of higher resolution benthic/sediment mapping of Mid-Atlantic and New England areas
- ❑ Identification and description of biogenic structure and biological communities associated with different physical habitat types
- ❑ Development of high-resolution sediment mapping in the Gulf of Maine and Georges Bank, using Canadian sea scallop industry mapping effort as an example process.
- ❑ Identification of nursery and over-wintering habitats for species that are vulnerable to habitat alteration by scallop fishing.
- ❑ Any other habitat information that may be possible to collect.
- ❑ Evaluation of the co-distribution of sea turtles and scallop effort to identify time/area 'hot spots'
- ❑ Identification of the mechanisms that cause scallop fishing gear to threaten sea turtles during all phases of operation (towing on bottom, retrieving gear to surface, and towing at surface);
- ❑ Developing scallop dredge and trawl operations that would reduce or eliminate the threat of sea turtle capture;
- ❑ Developing appropriate escape gear or techniques that may be used without unacceptable reduction in scallop retention; and

- ❑ Comparing the turtle capture rates of similar gear in other fisheries such as the Mid-Atlantic summer flounder trawl fishery.
- ❑ Research on scallop biology and scallop fishery social science, including identifying ways to improve benefits to the fishery and to the nation
- ❑ Research on habitat effects from scallop fishing and identification of practicable methods to minimize or mitigate those impacts

Specifications : A two percent set aside will be deducted from the target TACs for controlled access areas and DAS use for regular, open scallop fishing areas to provide a pool of funds for qualified researchers to conduct studies on the scallop resource, the scallop fishery, and on scallop-related habitat. Scallop related habitat research includes but is not limited to investigations on the effect of scallop fishing on various marine habitats and EFH, discovering how scallop gear or fishing methods may be modified to reduce adverse impacts, discovering effective management strategies to minimize adverse effects on marine habitats and EFH, and evaluating the recovery potential of habitat adversely impacted by scallop fishing. The funds from the research set-aside are also intended to be used for cooperative industry scallop surveys, conducted to support scallop area rotation or scallop management (Section 5.1.8.2).

Table 20 estimates the total amount of scallop landings from controlled access areas that vessels will be able to land on compensation trips, i.e. trips taken by a vessel to compensate for their costs to participate in specific, approved research and/or to pay for the research expenses of the project. The Regional Administrator will authorize the participating vessel to land more than the scallop possession limit on controlled access area trips or may authorize the vessel to take additional trips to the controlled access areas specifically to land and generate revenue from its scallop research allowance. Research may be conducted on the compensation trip, or the compensation trip may be taken at another time, depending on whether or not it is practicable to catch and process scallops on the same trip that research is being conducted. Scallop and scallop-related habitat research may be conducted within or outside of the controlled access area boundaries, using funds generated by catching scallops from the controlled access area TAC set aside. Catches that count against the controlled access area TAC set aside must come from within the controlled access areas while they are otherwise open for scallop fishing.

Table 20. Controlled access TAC set-aside for scallop and scallop-related habitat research.

Fishing year	Georges Bank area access	Two percent TAC set-aside (total observer landing allowance)		Estimated ex-vessel value of landings
		Pounds	Metric tons	
2004	With	609,798	276.6	\$ 2,602,982
	Without	375,800	170.5	\$ 1,604,137
2005	With	708,213	321.2	\$ 3,128,210
	Without	299,123	135.7	\$ 1,321,241
2006	With	382,281	173.4	\$ 1,753,672
	Without ²¹	0	0	\$ 0
2007	With	354,062	160.6	\$ 1,869,399
	Without	0	0	\$ 0

Table 21 shows the amount of DAS use set aside from the target before estimating the limited access DAS allocations for regular, open scallop fishing areas. These set-asides will be established and monitored as a ceiling on the amount of fishing time that vessels may utilize to compensate them for participation in research or scallop surveys, or to pay for the costs of the research and/or survey.

²¹ Assumes that the Hudson Canyon Area converts to a regular open fishing area, as scheduled in Amendment 10.

These set aside DAS would be used to allow authorized limited access scallop vessels to fish for scallops under applicable limited access rules, without having the fishing time count against the vessel's annual DAS allocation. Revenue from these "off the clock" trips would be used to compensate the vessel for participating in scallop research or cooperative scallop surveys.

The research or surveys may be conducted on the same trip that is used to catch the scallops for compensation if it is practical to do so. Or, the research or surveys may be conducted at another time. Scallop and scallop-related habitat research may be conducted in open fishing areas, inside of the controlled access area boundaries, or in closed areas, using funds generated by catching scallops from the open area DAS set aside, but scallop catches made by using DAS set asides must come from regular open scallop fishing areas.

Table 21. Open area DAS set-aside for scallop and scallop-related habitat research.

Fishing year	Georges Bank area access	Two percent of target DAS use	Estimated ex-vessel value of landings
2004	With	233	\$ 1,387,785
	Without ²²	343	\$ 2,020,690
2005	With	607	\$ 1,599,843
	Without	223	\$ 1,097,248
2006	With	752	\$ 1,511,830
	Without	373	\$ 1,537,018
2007	With	719	\$ 1,613,320
	Without	415	\$ 1,750,521

The estimated annual ex-vessel value of the compensation trips is provided in Table 20 and Table 21 with and without access to the Georges Bank groundfish closed areas. In both the TAC and DAS set asides, the price equation and estimated annual scallop prices (Section 8.7.3.2) were applied to the estimated landings. For the DAS set aside, the estimated annual LPUE was assumed for each DAS. The scallop prices vary by year and by whether or not there is access to the groundfish closed areas because of the predicted response of scallop prices to domestic landings. The actual results may vary because scallop prices are sensitive to landings by grade or count, not just the average size used in the price equation. The seasonal timing of landings that differ from the assumptions in the projection model will also have an impact.

Rationale : Many times, management is compromised by a lack of information or adequate research. While in existence for controlled access programs beginning in 1999, the program has provided much information about resource distribution, habitat distribution and fishery effects, ways to reduce bycatch, and ways to improve size selection and gear efficiency. The last resulted in the implementation of 4-inch minimum ring size in this amendment. Much of the work, however, has been conducted in closed or controlled access areas where compensation trips were convenient and cost effective. Expansion of this program is expected to enhance the information and research that future management actions can rely. At MSY with existing scallop prices, a two-percent set aside will generate nearly \$3 million of scallop landings on compensation trips for scallop and habitat research.

Impacts of experimental fishing that are no greater than those expected on a standard commercial fishing trip can be estimated, anticipated, and evaluated in the Amendment 10 DSEIS. The various

²² Associate with the default DAS allocations that would go into effect on 8/15/03 if Framework Adjustment 16/39 does not allow access to the Georges Bank groundfish closed areas.

effects of this character of experimental fishing programs would furthermore be accounted for in the mortality controls on the commercial fishery. Experimental fishing proposals that exceeded this level would be difficult to anticipate and hard to analyze in advance, without knowing the details of the proposed experimental fishing activity.

5.1.9 Framework Adjustment Process

The Council will prepare a Stock Assessment and Fishery Evaluation (SAFE) Report on a bi-annual basis, beginning with 2005, providing the information and analysis needed to evaluate potential management adjustments. Based on this information and analysis, the Council will initiate a standard framework adjustment to set DAS allocations, TACs, scallop possession limits, or adjust other measures to achieve plan objectives and limit fishing mortality. The preparation of this document will start early enough (approximately May or early June), to provide the Council and NMFS the ability to develop, review, and prepare management measures with sufficient time to implement the measures for the following fishing year.

In the SAFE Report, the Scallop PDT will review and evaluate the existing management measures to determine if the measures are achieving the FMP objectives and optimum yield from the scallop resource as a whole. In doing so, the PDT will consider the effects of any closed areas, either temporary, indefinite, or permanent, on the ability of the FMP to achieve optimum yield and prevent overfishing on a continuing basis, as required by National Standard 1 of the Magnuson Stevens Act. If the existing management measures are deemed insufficient to achieve FMP objectives and/or are not expected to achieve optimum yield and prevent overfishing on a continuing basis, the PDT shall recommend to the Council appropriate measures and alternatives that will meet FMP objectives, achieve optimum yield, and prevent overfishing on a continuing basis.

When making the above status determination, the PDT will calculate the stock biomass and fishing mortality to compare with the minimum biomass and maximum fishing mortality thresholds, by combining all scallops in the stock area, including but not limited to scallops located in open fishing areas, controlled access areas, scallop closed areas, groundfish closed areas, and habitat closed areas. To the extent possible, all removals from the resource should be considered, including landings, discards, and non-catch mortality from directed scallop fishing by limited access vessels, directed scallop fishing by general category vessels, and vessels that catch scallops incidentally in other fisheries.

In order to assure that optimum yield is achieved, on a continuing basis, the PDT will develop, and modify as appropriate, the suite of management measures required to achieve optimum yield-per-recruit from the exploitable components of the resource (e.g. those components available for harvest in the upcoming fishing years), taking into account at least the following factors:

- Differential fishing mortality rates for the various spatial components of the resource
- Overall yields from the portions of the scallop resource available to the fishery
- Outlook for phasing in and out closed and controlled access areas according to the area rotation strategy
- Potential adverse impacts on EFH.

To prevent overfishing of the available biomass of scallops and ensure that optimum yield is achieved on a continuing basis, the Council will consider at the first framework meeting the management options (including DAS adjustments, area closures, gear restrictions, or other measures) recommended by the PDT. The PDT, Oversight Committee, and Council may develop or adjust measures based on, but not limited to, the following categories:

- Modification of the overfishing definition
- Adjustments to the area rotation program
- DAS allocation adjustments, including their area-specific distribution
- Gear restrictions

The Council must select one of the PDT recommendations or a substitute developed by the Scallop Oversight Committee or the Council that will achieve optimum yield and prevent overfishing on a continuing basis. If the Council fails to act or does not adopt a suitable alternative, the Regional Administrator may select an alternative developed and recommended by the PDT and shall proceed with a proposed rule, as described in the framework process regulations for the FMP.

The framework will set specifications and allocations for the following two fishing years, but the Council may initiate an ad hoc framework adjustment to change management measures at any time before the next regularly-scheduled framework adjustment. One area that ad hoc in-season or annual framework adjustments may be needed are for rotation closures when small scallops appear in sufficient concentrations to justify a new closure, and in controlled access re-openings when those openings do not coincide with the bi-annual adjustment and when they cannot be anticipated by the previous framework adjustment. If for some reason, the Council fails to initiate and approve a standard framework adjustment, the specifications from the then current fishing year will remain in force, unless NMFS initiates secretarial action to change them.

In addition to the frameworkable measures in the current FMP, the Council may adjust the following measures by framework action:

- Size and configuration of rotation management areas
- Controlled access seasons to minimize bycatch and maximize yield
- Area-specific day-at-sea or trip allocations
- Amount and duration of TAC specifications following re-opening
- Limits on number of closures
- TAC or day-at-sea set asides for funding research, for funding research
- Priorities for scallop-related research that is funded by a set aside from scallop management allocations.
- Finfish TACs for controlled access areas
- Finfish possession limits
- Sea sampling frequency
- Area-specific gear limits and specifications

Framework provision #18 (“Closed areas to lessen the amount of DAS reductions”) is removed from the list of frameworkable items, since it has been included into the area rotation framework and the DAS allocations will be consistent with area rotation strategies of achieve optimum yield.

Rationale: The Council selected the alternative in Section 5.3.9.3, a preferred alternative in the DSEIS. A bi-annual adjustment is possible because of improving analysis and data over the last several years. Also, having rebuilt scallop biomass to near target levels makes annual adjustments to prevent overfishing unnecessarily – there is less risk associated with short-term increases in mortality.

This change would allow the Council and NMFS time to administer a more complicated area rotation management system, as well as time to develop future plan amendments when needed. An environmental assessment (EA) would normally be associated with this action, but a DSEIS may be

prepared with an expansion in the normal framework adjustment process time line to accommodate the more in-depth analysis.

The longer framework adjustment cycle could reduce administrative costs arising from frequent extensive analysis, review, and approval currently associated with framework adjustments. The longer cycle would be adequate to manage the scallop resource and fishery.

5.2 No Action and Status quo

Some of the alternative sections in Section 5.3 contain unique status quo or no action alternatives that are also described within each section. For example, for management measures to minimize the adverse effects of fishing on EFH, a status quo/no action alternative is presented which would implement no further EFH measures. These are presented so that each set of alternatives can be considered separate from area rotation and area management and other alternatives to improve scallop yield. Otherwise, the entire set of alternatives within Amendment 10 would have to be adopted or not, eliminating flexibility in the Council and Agency's choice and decision making.. Throughout all the alternatives described in Section 5.3, a status quo alternative is described relative to the issue being addressed by the set of alternatives (e.g. area rotation, effort allocation, minimizing habitat impacts, data collection and monitoring, etc.).

The status quo describes what would transpire if Amendment 10 was not adopted and future annual framework actions were approved to meet the Amendment 7 plan objectives. This outcome includes adjustments to the annual day-at-sea allocations to meet the fishing mortality target ($F=0.2$) in Amendment 7 as well as the possibility of future access to areas now closed areas under controlled conditions or the possibility of new scallop closures on an ad hoc basis. Although the impact on habitat (including the effect of the year-round groundfish closed areas) was analyzed in the Omnibus EFH Amendment 9, no areas would close to scallop fishing for the purposes of protecting habitat, with the exception of the present HAPC for cod on Georges Bank.

Where there is a difference between the current management rules and those that would transpire under the status quo, an additional No Action alternative is also described below. For example, the No Action alternative includes the current Amendment 7 schedule of day-at-sea allocations and no access to the Georges Bank groundfish closed areas. The controlled access program for the Hudson Canyon and VA/NC Areas would furthermore would cease when the Framework Adjustment 15 action expires on February 28, 2004. No action would mean that the Hudson Canyon and VA/NC Areas would be treated as normal, open scallop fishing area under nominal Amendment 7 regulations. On the other hand, No Action would also mean that scallop fishing would not occur under any circumstances in the Georges Bank groundfish closed areas, until the Northeast Multispecies FMP re-opened the areas to "gears capable of catching groundfish". Therefore under the No Action alternative, habitat in the existing groundfish closures would not be affected by scallop fishing, similar to Habitat Alternative 1 (Section 5.3.4.1).

Thus, a 120 full-time day-at-sea allocation with continued controlled access to the Hudson Canyon and VA/NC Areas does not meet the standard of being either the status quo or no action. A status quo day-at-sea allocation appears to exceed the maximum fishing mortality threshold in the present overfishing definition and would be an unlikely outcome of status quo management. Nevertheless, in some analyses of scallop management, a scenario assuming the 2002 day-at-sea allocation and use has been included for comparison.