

### **8.3.8 Effects on bycatch and bycatch mortality from a proactive protected species program (Alternative 5.3.5.9)**

The distributions of sea turtles interacting with scallop fishing gear and finfish species that are vulnerable to capture and discarding as bycatch are somewhat exclusive. It is difficult to anticipate what type of measures would be applied to reduce interactions with sea turtles below PBRs if action becomes necessary, but if they involve seasonal closures the impacts on bycatch and bycatch mortality for finfish species could be negative. If they involve gear modifications, it is impossible at this point to say whether they would have a positive or negative effect on finfish bycatch.

Seasonal area closures, if needed to minimize interactions with protected species could cause a shift in fishing effort to other open fishing areas. This would shift effort north, because the sea turtle distribution in the late summer and early fall overlaps the southern third or half of the resource. Fishing effort might shift to other seasons, or it might shift to other areas. If shifted north, the added effort would increase fishing time and finfish catches in the northern part of the scallop resource which has a greater overlap with monkfish, yellowtail flounder, barndoor skate, and other groundfish species of concern.

### **8.3.9 Effects on bycatch and bycatch mortality from the status quo overfishing definition (Section 5.1.1)**

Compared to the proposed overfishing definition, the status quo overfishing definition would allow more fishing effort in regular, open fishing areas to achieve a stock-wide fishing mortality target, rather than one that applies only to scallops that are available to the fishery. As a result, overall scallop fishing effort is higher, smaller scallops would be available to the fishery, and fishing time would increase overall and on a DAS basis.

Projections show that total area swept by the fleet is likely to be higher with the status quo overfishing definition. Since finfish catches, many that cannot be landed due to possession and/or size limits that apply to scallop fishing, are proportional to the amount of fishing time and area swept, the effect of the status quo overfishing definition is expected to be negative.

## ***8.4 Impacts on Protected Species***

### **8.4.1 Protected Species Impact Summary – Large Whales**

Six species of large whales that are listed as endangered under the Endangered Species Act (ESA) are found in the waters fished by scallop vessels. The major known sources of anthropogenic mortality and injury of right, humpback, and fin whales clearly are ship strikes and entanglement in commercial fishing gear. Although these species are known to become entangled in fixed gear, no right, humpback, or fin whale has ever been observed or reported taken in the mobile dredge and bottom trawl gear used to catch scallops. The apparent preference of their prey resources to mid-water or surface zones further makes it unlikely that the scallop fishery will affect either species.

Blue, sei and sperm whales are generally found along the continental shelf margins. Because of this general offshore distribution these species are found at the fringe of the area fished by scallop vessels. In addition, the near-surface feeding habits of blue and sei whales, and the deep diving habits of the sperm whale to depths below those fished by scallop vessels make it further unlikely that they may be affected by mobile gear used in the scallop fishery. See Section 7.2.7 for more detailed information.

#### **8.4.2 Protected Species Impact Summary – Other Marine Mammals**

There are several cetaceans protected under the Marine Mammal Protection Act of 1972 (MMPA) that are found within the management unit of the Scallop FMP (Northeast Region waters), namely the minke whale, Risso's dolphin, pilot whale, Atlantic white-sided dolphin, harbor porpoise, common dolphin, spotted and striped dolphins, and the coastal form of Atlantic bottlenose dolphin. These species are common along the continental shelf from the Gulf of Maine to Cape Hatteras, and generally forage for small schooling fish species, zooplankton, or squid that are found either near the surface or in the mid-water levels.

Although these species may occasionally become entangled or otherwise entrapped in bottom tending fixed gear or in mid-water trawls, the low profile and slow speed of the bottom-tending dredge and trawl gear used by the scallop fishery make it unlikely to interact with these species.

#### **8.4.3 Protected Species Impact Summary – Fish Species**

The shortnose sturgeon is a benthic fish that mainly occupies the deep channel sections of several Atlantic coast rivers. They can be found in most major river systems from the St. Johns River, Florida to the Saint John River in New Brunswick, Canada. The scallop fishery in the Northeast Region does not extend to shallow water, or into the intertidal zone of major river systems where shortnose sturgeon are likely to be found. Therefore, there appears to be adequate separation between the two species making it highly unlikely that the scallop fisheries will affect shortnose sturgeon.

The wild populations of Atlantic salmon found in rivers and streams from the lower Kennebec River north to the U.S.-Canada border are considered to be endangered. These rivers include the Dennys, East Machias, Machias, Pleasant, Narraguagus, Ducktrap, and Sheepscot Rivers and Cove Brook. No scallop landings have been recorded for the areas adjacent to the Atlantic salmon rivers. In addition, the NMFS fishery research surveys have rarely found scallops in the nearshore regions adjacent to the Atlantic salmon rivers. Therefore, it is unlikely that operation of the scallop fisheries occurs in or near the rivers where concentrations of Atlantic salmon are most likely to be found. Furthermore, bottom-tending gear used in the scallop fishery is not likely to encounter salmon in the open water environment, making it highly unlikely that the fisheries occurring under the existing Scallop FMP and proposed Amendment 10 will affect the endangered runs of Atlantic salmon in the Gulf of Maine.

Barndoor skate are considered a candidate species under the ESA. The barndoor skate is caught as a bycatch species in scallop dredge fishing operations, although they represent less than 1% of the skate landed in the Northeast. Restoration of the overfished skate species is major goal of the Skate FMP (effective September 18, 2003), and a complete prohibition on possession of barndoor skate is now in effect. This prohibition will extend to scallop vessels, making it unlikely that this species will be further depleted by the proposed actions contained in Amendment 10. See Section 7.2.7.3 for more information on the effects of the fishery on barndoor skate.

#### **8.4.4 Protected Species Impact Summary – Birds**

The roseate tern and piping plover inhabit coastal waters and nest on coastal beaches within the Northeast Region. The terns prey on small schooling fishes, and the plovers prey on shoreline invertebrates and other small fauna. Foraging activity for these species occurs either along the shoreline (plovers) or within the top several meters of the water column (terns). Bottom-tending dredge and trawl gear used in the scallop fishery pose no threat to these species or their forage species.

#### **8.4.5 Protected Species Impact Summary – Sea Turtles**

Leatherbacks are predominantly a pelagic species that feeds on jellyfish and other soft-body prey, and are susceptible to entanglement in lobster and crab pot gear and trawl gear as described by NMFS in a biological opinion on the Scallop FMP (Framework 15) issued on February 24, 2003.

The status of leatherback sea turtles range-wide is of concern. Leatherback survivability is affected by numerous natural and anthropogenic factors, including various fisheries. However, given that leatherback sea turtle nests in Florida and the U.S. Caribbean have been increasing since the early 1980s and the population of nesting females numbers in the thousands, the anticipated annual loss of leatherback sea turtles from the Atlantic population as a result of scallop trawl fishing is not expected to appreciably reduce the species' likelihood of survival and recovery in the wild.

Hawksbills may occur in the southern range of the scallop management unit (i.e., North Carolina and South Carolina), but their distribution is not known to overlap with those waters fished by vessels that may catch scallops. Therefore, it is unlikely that interactions between hawksbill sea turtles and scallop vessels will occur.

Loggerhead and ridley sea turtles, and to a lesser extent herbivorous green turtles, are vulnerable to takes by bottom trawl and dredge gear. Previous discussions regarding the potential impacts of scallop gear on sea turtles had recognized the overlap of scallop fishing effort with sea turtle distribution in the Mid-Atlantic region. However, the low temperature preference of scallops (<50° F) was thought to provide adequate separation between the mobile bottom gear and sea turtles. The focus at that time was on the scallop trawl effort that concentrates in the North Carolina-Virginia area in the spring and fall. The new takes in dredge gear that occurred off the New Jersey coast in the 2001-2002 summer season (described below) require the Council to look at the cause-effect and impact level of these takes from the Delmarva peninsula to Long Island in the summer months.

Sea turtle distribution data (Map 51) show that the potential for sea turtle interactions with the scallop fishery are likely limited to the Mid-Atlantic continental shelf region from Long Island to Cape Hatteras. Specifically, the North Carolina-Virginia region appears to be a major migration path during the spring and again in the fall although turtles may be found in that region from April 1 to November 30. The remaining Mid-Atlantic region from the Delmarva Peninsula to Long Island is an area of general sea turtle foraging from late May to early November.

A total of 40 sea turtles were reported captured in scallop dredge gear operating in the Mid-Atlantic from 1996 to 2002 (See Section 7.2.7.3 for more information). Of these, 23 were reported alive with no injuries. 6 were reported injured (one subsequently died on deck), 6 were of unknown condition, and 5 were dead, although two of these turtles were decomposed carcasses and thus were not attributed to the scallop dredge fishery.

#### **8.4.6 ESA consultation history and ongoing action**

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 (opinion) for the scallop fishery as a whole, including the measures included in Framework 15, on February 24, 2003<sup>85</sup>. The opinion concluded that the continued implementation of the scallop fishery and the

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<sup>85</sup> The Biological Opinion is available on request from NMFS, Gloucester, MA or may be downloaded from their web site: <http://www.nefsc.noaa.gov/ro/doc/nero.html>.

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 opinion, 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 extent of incidental take of sea turtles in the scallop fishery may be determined by the number of observed takes, the number of takes calculated to have occurred based on the number of observed takes and the percentage of observer coverage, the number of reported takes, the number of turtles found stranded where the cause of the stranding can be attributed to the scallop fishery, or any combination of the above. Additional observer coverage, monitoring of takes, and additional research to determine the scope and extent of takes is called for the opinion. NMFS is currently evaluating the means to undertake these tasks.

#### 8.4.7 Impacts of Amendment 10 Options

The protected species considered to be adversely affected by the Scallop FMP are the endangered Kemp's ridley; green and leatherback sea turtles, and the threatened loggerhead sea turtle. As described above and in the Protected Species chapter (Section 7.2.7.3), the overlap of known sea turtle distribution and scallop fishing effort is restricted to the Mid-Atlantic shelf area (Cape Hatteras to Long Island) from late May to early November. Barndoor skate are a candidate species found from Nantucket shoals, east to Georges Bank, and extending into the Gulf of Maine that are also included in the following analyses.

The approved scallop management measures contained in Amendment 10 include:

- A status quo overfishing definition with an increase in the minimum biomass threshold from  $\frac{1}{4} B_{MSY}$  to  $\frac{1}{2} B_{MSY}$ . The annual mortality target will be 80% of  $F_{max}$  and the biomass target will be estimated as before.
- A flexible boundary area rotation scheme will be implemented with closures occurring until annual growth in total biomass declines below 15%.
- A rotation area management closure will be implemented in a 4 X 5 ten-minute square area in the Mid-Atlantic.
- Mechanical rotation of the Framework 13 areas will include certain groundfish closed areas pending approval of Framework 39 of the Multispecies FMP.
- The Hudson Canyon Area controlled access program will continue for 2004 and 2005.
- The VA/NC Area will revert to an open scallop fishing area on March 1, 2004.
- Area-specific DAS allocations will be calculated for controlled access areas, with limited access vessels allowed to make exchanges with limited access vessels with certain conditions.
- The additional habitat alternatives include implementation of 4" rings as of March 1, 2004, and habitat research funded by scallop set-asides.
- A minimum 10" twine top will be required as of March 1, 2004.
- General category requirements are unchanged, but limited access vessel management will be further restricted.
- Framework measures may be implemented for area-specific seasons to avoid bycatch, area-specific TAC's for some finfish species, area-specific possession limits for some finfish species, and other gear modification that may be identified by future research.
- The protected species alternative was approved.
- A 2% set-aside from the TAC and/or DAS allocations was approved for scallop and habitat related research.

- A 1% set-aside from the TAC and/or DAS allocations was approved for mandatory observer coverage on an appropriate sample of scallop trips to characterize protected species and finfish bycatch interactions.

The key management measure that affects scallop fishing effort in many of the specific alternatives discussed below is the overfishing definition. It defines the annual mortality target to be used as well as the minimum biomass thresholds that will be used to establish TAC's and/or DAS allocations. While it appears that the TAC's and DAS allocations may be higher under Amendment 10 than the existing management conditions, Amendment 10 will clearly focus effort on areas where scallop biomass is highest. This management focus is intended to reduce total fishing time overall. Therefore, although total catch may increase, the total fishing time for scallop gear in the water is expected to decrease relative to conditions experienced in 2003.

The specific alternatives chosen are discussed below in regard to the expected impact to the protected species identified above as potentially affected by the scallop fishery.

### **Alternatives for Improving Yield**

The Alternatives for improving yield will establish the general management scheme for scallop management under Amendment 10, following which the subsequent alternatives will be chosen to meet the specific goal described in this alternative.

#### **Mechanical area rotation and fixed area boundaries (Not approved)**

Management areas would have been fixed, and would have opened and closed on a set schedule. The amount of closed area in any one year would be in the same proportion as the amount of time an area would be closed. Areas could be open for three years and then closed for three years, or could be closed for five years and open for only one year.

The protected species impact of this alternative depended on the open/close schedule that would have been developed for the sea turtle and barndoor skate concentration areas. If those areas were given a long closure period, the impact would be low. However, a short closure followed by a long open period would have done little to protect those species.

#### **Adaptive closures, for a fixed duration and with fixed area boundaries (Not approved)**

This alternative is similar to the mechanical rotation alternative discussed above, with the exception that the closed areas would have been determined by biomass surveys. Closures would have been for a three to five year period, and reopening would have been restricted by TAC or DAS for one to three years to "ramp-up" effort in the area.

The protected species impact of this alternative depended on the areas chosen for closure and would have shifted as biomass surveys indicate new areas requiring protective management measures. The initial analysis suggested that two Mid-Atlantic areas and two Georges Bank areas would have been closed initially. This would provide a three to five year protection for sea turtles and barndoor skate in those areas.

#### **Adaptive area closures and re-openings, with fixed area boundaries (Not approved)**

This alternative would have been similar to the alternative in Section 5.3.2.3, except that areas would be opened when survey data indicate adequate recovery had occurred. Reopened areas would undergo a “ramp-up” period as discussed above.

The effects to protected species are similar to those discussed above, except that the closure period is variable. Therefore, an area may be reopened more quickly or remain closed longer depending on the biomass survey data.

**Adaptive closures and re-openings, with fixed boundaries and mortality targets or frequency of access that vary by area** (Not approved)

Adaptive area closures would have been determined by biomass data as with the alternative in Section 5.3.2.4. TAC and DAS would have been used to control effort in open areas, and habitat bycatch and endangered species sensitivity would have been factored into the management scheme.

Although there would have been fewer complete closures under this alternative, there may have been a more consistent effort reduction in sensitive protected species areas. Since complete closures are more often determined by scallop management needs, the beneficial effects to protected species would have been variable. Consistent effort reduction in sensitive protected species areas would have provided a constant benefit.

**Adaptive area closures and re-openings with adaptive boundaries identified by survey when the areas are closed** (Approved in final alternative)

Scallop fishing will be allowed in the Georges Bank areas under this option. Changes in scallop biomass will dictate the ten-minute square areas to be closed. The size, configuration, and timing of closed areas will be determined by using the growth rates identified in each area.

The relative protection to protected species (sea turtles and barndoor skate) will depend on the areas determined to be closed and the length of each closure. It is likely that closure areas will shift between northern and Mid-Atlantic areas as fishing effort reduces the scallop biomass in one area, triggering a closure and subsequent shift in effort to open areas. The opening of areas at a time and location where sea turtles or barndoor skate are concentrated may increase the impact to those species until the scallop biomass in the area falls to a level requiring closure. There is no way to predict the potential protected species impact until the actual areas are proposed for opening and/or closing.

**Area based management – with area-specific fishing mortality targets without formal area rotation** (Not approved)

This alternative would have contained little if any area closures. Vessels would receive area-specific effort allocations (DAS or trips) to reduce localized overfishing.

As in other alternatives, the relative protection to protected species (sea turtles and barndoor skate) depended on the areas where scallop effort is significantly reduced. It is likely that these areas will shift between northern and Mid-Atlantic areas as fishing effort depletes the scallop biomass in one area, triggering an effort reduction and subsequent shift in effort to other areas. However, increased effort allocations at a time and location where sea turtles or barndoor skate are concentrated might increase the impact to those species until the scallop biomass in the area falls to a level requiring effort reduction.

**Rotation Area Management Closures** (approved in the final alternative)

The concept of area rotation is a new form of management implemented by Amendment 10. Rotation area management will close areas where small sea scallops are prevalent, and maintain the closure until the scallops reach a larger size. The opening and closing of areas will require framework adjustments. Three actions are proposed for consideration in Amendment 10: 1.) a 15 minute square area in the Mid-Atlantic known locally as the “elephant trunk area” will be closed in March 2004 for approximately a three year period; 2.) the current Hudson Canyon Closed Area is scheduled for reopening in 2006; and 3.) the current VA/NC Closed area will reopen in March 2004.

### **Mid-Atlantic Area Closure**

Rotation area management closures in the Mid-Atlantic will, on the face of it, be beneficial to any sea turtles that may forage within a closed area during the spring and summer months. However, sea turtles may be found anywhere in the Mid-Atlantic region from Long Island to Hatteras from May to November. Sea turtle distribution data collected to date has not shown any specific foraging areas that are preferred in successive years. Therefore, closing areas in the Mid-Atlantic is good for sea turtles largely in the sense that the individual turtles utilizing that area will not be subjected to possible capture while they are in a closed area. However, if total scallop fishing effort remains constant throughout the Mid-Atlantic region then the overall impact to turtles may not be reduced as turtles in the open areas may be subjected to increased fishing effort. The reopening of areas closed under the rotation area management program will be subject to controlled access restrictions designed to reduce heavy fishing effort on the reopened scallop resource. In summary, the closing of the “elephant trunk area” will provide a general benefit to sea turtles foraging in that area.

### **VA/NC Area open area management beginning in 2004**

The VA/NC Area will reopen on March 1, 2004. According to recent surveys, the scallop abundance and biomass in the VA/NC Area is not substantially different than the surrounding areas. Since no notable increases in fishing effort are expected to coincide with sea turtle abundance as a result of the planned scallop management of the VA/NC Area, the re-opening of the VA/NC Area in March 2004 is unlikely to pose new adverse effects for sea turtles.

### **Hudson Canyon Area open area management beginning in 2006**

After being closed for 1998 – 2000 and managed under controlled access regulations from 2001 to 2005, Amendment 10 anticipates that, like the VA/NC Area, the Hudson Canyon Area will re-open to customary limited access and other fishing at the beginning of the 2006 fishing year. Sea turtles were observed captured in scallop dredges during two successive years of controlled access trips in the Hudson Canyon Area. However, since similar observer effort was not in place in adjacent open Mid-Atlantic areas, it is not known whether these events could also occur at the same level in the other areas. The broad distribution of sea turtles that has been observed in the Mid-Atlantic makes it likely that similar levels of sea turtle capture occur in other Mid-Atlantic areas during the summer months.

As mentioned above, sea turtle distribution is temperature-dependent and seasonal. Thus opening the Hudson Canyon Area on the regular season opening date of March 1 will precede the movement of turtles into the area by only two months. Recent surveys indicate that the scallop abundance and biomass in the Hudson Canyon Area is substantially higher than surrounding areas. Thus reopening the area is expected to draw scallop effort during the first few months of the 2006 season. This makes the timing of it's reopening an important factor for turtles. If it is reopened earlier in the winter when turtles are not present, the expected surge of fishing effort immediately after reopening will not be detrimental to sea turtles. In addition, any increase in effort from vessels not normally fishing in the Mid-Atlantic area

moving into the reopened Hudson Canyon Area could increase the adverse effect to sea turtles if effort is concentrated during the late summer and early fall.

The Council will consider these effects under the next regularly scheduled framework adjustment for setting allocations and area rotation provisions for the 2006 fishing year.

**Georges Bank access to groundfish closed areas** (Approved in final alternative)

This alternative will allow scallop effort in existing or future closures occurring in the Multispecies FMP where groundfish closures are either in place or may be closed under Amendment 13 to the Multispecies FMP. Current area closures under the Multispecies FMP include Closed Area I and II and the Nantucket Lightship Area.

The benthic-feeding sea turtles species are not known to inhabit the Georges Bank area where these closed areas are found. Therefore, the alternative will not directly affect sea turtles. However, any shifting of scallop effort into these areas may reduce effort in areas where turtles are found. Conversely, these areas are frequented by barndoor skate, an ESA candidate species that will not benefit from an increase of scallop fishing in these areas.

**Increasing the minimum ring size to 4-inches in all or selected areas** (Approved in final alternative)

This alternative will increase the minimum ring size from 3.5 to 4 inches in all areas.

Ring size is believed to have no direct beneficial impact to protected species. Turtles and skate are too large to be able to escape through a 4-inch ring. However, increasing dredge ring size will increase the efficiency of scallop dredging for large scallops and reduce the dredge weight by 200 to 300 pounds. This would decrease bottom contact time and total area swept by 10 to 15 percent. This would be of some benefit to sea turtles if it were found that they are captured on the bottom.

**Gear specific day-at sea (DAS) allocation adjustments based on equal mortality per DAS** (Not approved)

Vessels authorized to use trawls would have, under this alternative, received a DAS allocation in proportion to the average number of scallops landed per DAS by dredge vessels.

This alternative might have reduced the DAS allocated to trawl vessels. This may have benefited sea turtles, as there is a general assumption that trawl operations in the Mid-Atlantic from Late May to early November are likely to catch turtles. However, there are few observer data available on sea turtle take in trawl vessels to support this assumption. Therefore, the potential beneficial impact to sea turtles cannot be assessed. Reducing trawl effort will not benefit barndoor skate, as trawls do not operate in the Georges Bank region frequented by that species.

**No Action Alternative** (Not approved)

Taking no action would have provided no benefit to protected species, and may have resulted in an increased adverse affect as no further closed areas are scheduled to take place.

**Status Quo Alternative** (Not approved)

The Status Quo Alternative assumed that some further closures might be created through Framework action to protect scallops. However, this alternative would have no benefit to protected species as sea turtle takes and barndoor skate bycatch would have continued to occur at the current levels.

### **Alternatives for Allocating Effort**

The alternatives for allocating effort will establish the effort control mechanism to be employed under Amendment 10. Alternatives such as area-specific Days-at-Sea (DAS), or trip limits would be used within the area management system chosen above to meet the overall scallop allocation set to achieve the overfishing goal of Amendment 10. The allocation scheme used within each area rotational management system will not change the total amount of effort that may occur in any given area. Total effort within areas during the concentration periods for protected species is the important factor in reducing impacts to those species. How that effort is allocated has little, if any affect on impacts to sea turtles or barndoor skate.

#### **Individual DAS allocations by management area (Not approved)**

Individual vessels would have received an annual DAS allocation for each rotational area management unit under this alternative. The allocation could have been used in the area as long as it is open to fishing. As described above, individual vessel DAS allocations will not, by themselves, benefit protected species. The allocation of a total DAS for each vessel would have allowed vessels to take their DAS for any areas at any time. This may have relieved the derby-fishing factor for a reopened area, but the level of protection afforded to these species depended on the timing of the area reopening.

#### **Area-specific trip allocations with possession limits and DAS trade-offs (Approved in final alternative)**

Under this alternative, individual vessels will receive an annual DAS allocation for all areas. Vessels will also be given a number of trips to be taken in reopened areas where a possession limit will also be set to meet the overall fishing mortality target for the area. As described above, individual vessel DAS allocations and trip limits will not, by themselves, benefit protected species. Trip limits will serve to further relieve the derby-fishing factor in reopened areas, but the level of protection afforded to these species depends on the timing of the area reopening.

#### **One-to-one trades of area-specific allocations (DAS or trips) (Approved in final alternative)**

This alternative will allow vessels to exchange area-specific allocations for trips or DAS with other vessels. This alternative will not provide any beneficial impact to protected species unless it results in a shift of effort away from protected species concentration areas. This will have to be analyzed on a case-by-case basis.

#### **Status Quo (Not approved)**

Scallop vessels currently receive an annual DAS allocation. This allocation scheme is incompatible with area rotation management and would not have provided any additional benefit to protected species. Development and use of gear or gear operational procedures that reduce sea turtle capture (Section 5.3.5.4) would have been the only way to relieve these impacts under this alternative.

### **Alternatives for Designating Scallop EFH and HAPC**

This section investigates the various methods that may be used to designate scallop EFH and HAPC. Areas that may be designated for scallop EFH and HAPC are usually based on bottom conditions favorable to key scallop life stages. They are not always synonymous with protected species concentration areas that also have an important seasonal migration component not shown by the generally immobile scallop resources. In addition, designating scallop EFH and HAPC will not, by itself, provide any protection to the designated area. Four alternative closure levels to reduce habitat impacts are found in this alternative. Readers will need to compare the alternatives offered in this section in relation to one of the four closure levels described below to get the complete picture on approaches being considered for EFH and HAPC designation. The four closure levels are;

Level 1 – The area is to be closed indefinitely on a year round basis to all fishing gear.

Level 2 – The area will be closed indefinitely on a year round basis to all bottom tending gear (static and mobile).

Level 3 – The area will be closed indefinitely on a year round basis to all bottom tending mobile gear.

Level 4 – The area will be open indefinitely on a year round basis only to gear defined as “reduced impact” gear as determined by the ecological function that would be protected by the closure.

A Level 1 closure would provide the most protection to all protected species. A Level 2 closure would provide nearly the same protection as Level 1, since bottom tending static and mobile gear are known to be involved in the majority of protected species interactions. Only pelagic or mid-water gear would be allowed under Level 2. A Level 3 closure will provide protection to sea turtles and certain pelagic delphinds that have been reported captured in mobile bottom tending gear. Level 4 protection to protected species depends on the ecological function for which the gear is designed, and would have to be assessed on a case-by-case basis.

**No additional habitat-related management measures (Status Quo/No Action) (Not approved)**

This alternative would have retained the groundfish year round closed areas already in existence during FY 2001 that include the Western Gulf of Maine (WGOM), Closed Areas I and II (CA I and CA II), and the Nantucket Lightship Closed Area (NLCA). Of these, only NLCA would have benefited sea turtles, and CA II would have provided a benefit to barndoor skate.

**Incidental benefit of other Amendment 10 Alternatives (Approved in final alternative)**

The benefits to protected species provided by each of the Amendment 10 alternatives are discussed in this section. Certain alternatives such as area specific seasons to reduce bycatch (Section 5.3.5.7) and the specific protected species alternative (Section 5.1.7) will have a direct beneficial impact to protected species. However, most of the other alternatives will either provide no additional benefit, or the benefit relies on the timing and area encompassed by the measure.

**Habitat closed areas (Not approved)**

This alternative would have modified the boundaries of the existing groundfish boundaries to better protect hard bottom or other sensitive habitat. The two options for this alternative involved the existing areas that are closed year round for mobile fishing gear (WGOM, CA I and CA II, and the NLCA). These areas would have provided good overlap with barndoor skate habitat, but did not cover

the sea turtle concentration area that runs from Long Island to Cape Hatteras along the Mid-Atlantic continental shelf from late May to early November.

**Modified groundfish closed area with habitat subsets identified** (Not approved)

This alternative would have provided protection to certain subsets of the groundfish areas mentioned above. There would have been little or no added benefit to protected species since the areas are not high use habitats for sea turtles, and are already restricted for mobile bottom tending gear that often catch barndoor skate.

**Closed Areas designed to protect important EFH and balance fishery productivity** (Not approved)

This alternative includes habitat closures of the most important and sensitive EFH for scallop and groundfish, as well as the most productive fishing areas for those species. This alternative would have provided a broader area of protection to sensitive scallop and groundfish EFH. It is not clear if scallop EFH would have overlapped with sea turtle concentration areas, as the alternatives for identifying those areas (see the previous section) vary widely. However, groundfish EFH did not overlap with sea turtle concentration areas, but may have covered some barndoor skate habitat.

**Closed areas consistent with the Framework 13 scallop closed areas access program** (Not approved)

This alternative considered the groundfish closed areas mentioned above to be Habitat Closures except for certain areas opened under the Scallop Framework 13 Closed Area Access Program. These areas were not high use habitat for sea turtles, and the reopened areas would have exposed more barndoor skate to incidental capture.

**Habitat closures encompassing areas identified based on EFH designation data and minimizing scallop fishing effort in the less productive scallop fishing areas** (Not approved)

This alternative presumes that areas with the highest density of scallops of optimal commercial size represent the areas where scallop fishing effort can occur with the minimum of bottom towing time. Overlap with protected species concentration areas would have varied according to location of EFH areas. However, the general goal of this alternative to reduce bottom-towing time and increase catch per tow would have helped reduce the capture of sea turtles.

**Close the designated Habitat Areas of Particular Concern (HAPC) for cod to scallop fishing indefinitely** (Not approved)

This alternative would have closed the area designated as an HAPC for cod that runs along the northern edge of Georges Bank. It would have provided good overlap with barndoor skate habitat, but did not cover the sea turtle concentration area that runs from Long Island to Cape Hatteras along the Mid-Atlantic continental shelf from late May to early November.

**Existing management boundaries for area closures would be used to protect habitat from harm by scallop fishing gear** (Not approved)

The two options for this alternative involved the existing areas that are closed year round for mobile fishing gear, and the recent area access options for those areas. These areas include Western Gulf of Maine closed Area, Closed Areas I and II and the Nantucket Lightship Closed Area. These areas

would have provided good overlap with barndoor skate habitat, but did not cover the sea turtle concentration area that runs from Long Island to Cape Hatteras along the Mid-Atlantic continental shelf from late May to early November.

**Restrictions on rock chains** (Not approved)

Rock chains are seen as a method that allows scallop dredges to be used in hard bottom areas. Limiting rock chains would have been a way to reduce dredge access to these important habitat areas. There have been some indications that additional rock chains may help exclude sea turtles from dredges. However, the Mid-Atlantic area is not known to have a great deal of hard-bottom. Therefore, this alternative would not have conflicted with the potential beneficial effect to protected species if rock chains were found to reduce sea turtle capture.

**Increasing dredge ring size to 4-inches in all areas** (Approved in final alternative)

Increasing dredge ring size will increase the efficiency of scallop dredging for large scallops and reduce the dredge weight by 200 to 300 pounds. This would decrease bottom contact time and total area swept by 10 to 15 percent. This would be of some benefit to sea turtles if it were found that they are captured on the bottom.

**Habitat research funded through scallop TAC set-aside** (Approved in final alternative)

Set-asides for habitat research will not by themselves be a benefit to protected species, although they may provide a cumulative benefit when considered along with the research being conducted under the general Scallop research section (Section 5.3.8.1).

**Area based management and rotation based on habitat protection** (Not Selected)

Area based management and rotation would have reduced the total bottom time and commercial area swept by scallop dredges and trawls. The general goal of this alternative to reduce bottom-towing time and increase catch per tow would have helped reduce the capture of sea turtles.

**Alternatives for Reducing Bycatch and Bycatch Mortality**

The alternatives being considered under this section are wide ranging as they attempt to address various fish and protected species bycatch issues.

**Area rotation** (Approved in final alternative)

Area rotation would have reduced fishing in areas with a lower biomass of large scallops. Vessels are expected to target areas with larger scallops thus reducing the amount of fishing per DAS and area swept. This would have been a benefit to protected species if the preferred area for fishing was not in an area of sea turtle concentration. The reduced area swept would also have been a benefit if turtles are captured on the bottom.

**Increasing the minimum ring size to 4-inches in all or select areas** (Approved in final alternative)

The impact of this alternative on protected species is discussed in bullet 1(h) above.

**Increase minimum twine top mesh to 10-inches in all or selected areas (Approved in final alternative)**

Increasing the twine top mesh size to 10-inches (from the current 8-inches) is designed to allow escape of fish. However, since barndoor skate are the largest of the skate species, it is unlikely that any significant bycatch reduction for that species will occur. In addition, the average size of sea turtles found along the Mid-Atlantic continental shelf is more than 10-inches. The general premise for sea turtle life stages is that they convert from a pelagic high seas existence to an inshore benthic feeding life style around 10-inches. Therefore, pending gear research observations to the contrary, a 10-inch twine top is not likely to be a benefit to sea turtles.

**Gear modifications based on recent research (possible future framework action, but not approved for implementation in Amendment 10)**

This alternative will require the use of approved gear modifications through framework measures. It is not clear if this alternative will be used for gear that is shown to reduce capture of protected species. If this is true, then it can serve as the mechanism to implement gear modifications that are developed under Section 5.3.5.4.

**Area-specific possession limits for some finfish species (Approved for implementation by framework action)**

This alternative is similar to the alternative in Section 5.3.5.7, but will use possession limits for reopened areas to reduce bycatch. Possession limits will reduce the trip length in an area, but not the overall effort that may take place. Therefore, it will not be as effective as the alternative in Section 5.3.5.7 for reducing impacts to protected species.

**Area-specific TACs for some finfish species (Approved for implementation by framework action)**

This alternative will establish an area-specific TAC for groundfish bycatch in reopened scallop rotational area management areas. This alternative will provide no direct benefit to protected species unless it results in a reduction in fishing effort in a sea turtle high use area.

**Area-specific seasons to avoid bycatch (Approved for implementation by framework action)**

This alternative will establish specific seasons for reopened scallop rotational management areas that will minimize interactions with sensitive species (undefined in the alternative) that migrate through the area. This will provide a direct benefit to protected species as long as the migration and foraging patterns of sea turtles and barndoor skate are factored into the analysis. If this alternative were meant to be applied only to fish species, then any direct benefit to sea turtles would be accidental.

**Long-term, indefinite closures to avoid areas with high bycatch levels (Not approved)**

This alternative would have involved long-term closure of areas where high bycatch occurs. This would have provided the best protection for fish species such as barndoor skate. However, unless sea turtle high use areas were to be factored into this alternative, then the direct benefit to turtles would have to have relied on an overlap with a high use area for a sensitive fish species.

**Develop a proactive protected species program (Approved in final alternative)**

This alternative is specifically designed to develop a protected species program within the Scallop FMP management scheme that will reduce adverse impacts to protected species. It is based on collection of adequate data; identifying the scope and specific mechanics of the capture events; investigating the effectiveness of all reasonable gear modifications and/or operational procedures in reducing sea turtle capture; and developing and testing of the promising gear or operational procedures. Until those data collection and gear development tasks are completed, the Council will rely on developing area specific seasons for reopened areas to avoid sea turtle high-use periods (as discussed in Section 5.3.5.7) and the combined beneficial impacts gained in selection of other alternatives described above, to reduce scallop fishing effort in the Mid-Atlantic sea turtle concentration areas from late May through early November. The alternative also includes framework measures for specific time/area closures to protect sea turtles if the level of sea turtle mortalities and serious injuries warrant such action.

Protected species data collection needs will require increased coverage of the dredge and trawl vessels fishing in the Mid-Atlantic area from April through November. It is important that these observers, unlike those deployed in 2001, be trained in collection of protected species data. The gear research component of this program should involve determining how the gear may pose a threat to sea turtles during all phases of operation (towing on bottom, retrieving gear to surface, and towing at surface). The scallop research set-aside program has been used, and is currently proposed to be used to fund adequate observer coverage in the fleet (Section 5.3.5.7), as well as studies aimed at collecting scallop catch data and other scallop research (Section 5.3.8.1).

#### **Status Quo (Not approved)**

The status quo option would not have provided any additional direct benefit to protected species. Current levels of sea turtle capture would have continued to be a negative impact on those species. The adverse affect of those takes on the endangered/threatened sea turtle species was described by NMFS in a Biological opinion on Framework 15 of the Scallop FMP dated February 24, 2003.

#### **Alternatives for managing scallop fishing by vessels with a General Category permit or fishing for scallops when not on DAS**

This section considers several alternatives for managing vessels fishing under General Category Permits and limited access vessels not on DAS. Selection of alternative (c) will prevent limited access vessels from targeting sea scallops when not on a General Category day-at-sea trip. This will serve to prevent additional impacts to protected species that may have occurred under the Status Quo alternative.

#### **Incidental catch permit with a reduced possession limit (Not approved)**

#### **Open access for vessels to obtain either an incidental or general category scallop permit (Not approved)**

#### **Prohibiting limited access scallop vessels from targeting sea scallops under general category rules when not on a scallop day-at-sea (Approved in final alternative)**

#### **Status Quo (Not approved)**

#### **Alternatives for Improving Data Collection and Monitoring**

As noted above in Section 5.1.7, improving data collection and monitoring in the scallop fishery is important to implement a proactive program to reduce capture of protected species, especially sea turtles. The data collected will help managers determine where and how interactions with protected

species occur, provided the data collection and monitoring system are designed to collect protected species information.

**Adequate observer coverage and funding by DAS or TAC set-aside (Approved in final alternative)**

Providing adequate observer coverage in both the dredge and trawl components of the scallop fishery is important to understanding the protected species issues. This alternative will ultimately provide managers with some level of information to reduce the capture of protected species provided the observers are properly trained in collection of the necessary protected species data. However, it should be noted that the Council selected a 1% level of DAS and or TAC set-aside for this alternative. It is unclear at this point whether or not that will provide an adequate sampling level for the dredge and trawl fishery effort to meet the sampling specifications found in the biological opinion issued by NMFS on February 24, 2003.

**Bag tags and standard bags (Alternative 1 and 2) (Not approved)**

Implementation of a bag tag system or requirement for a standard bag size would not have provided any direct benefit for protected species. However, providing an adequate enforcement tool for controlling key effort reduction measures such as possession limits is important in assuring the expected effort reduction is occurring.

**Require vessels to make daily reports of vessel trip report (VTR) data through VMS (Not approved)**

Requiring real-time reporting through VMS would not have been a direct benefit to protected species. However, as in the alternatives above, providing an adequate enforcement tool for controlling key effort reduction measures is important in assuring the expected effort reduction is occurring.

**Replacement of VTR with effort reporting via VMS, real-time landings reporting by dealers, and discard characterization by enhanced observer coverage (Not approved)**

This alternative is identical to the alternative above except that discard data would have been collected through observers. The potential impacts to protected species are identical to that alternative as discussed in bullet 6(c) above.

**Require all limited access vessel to operate a VMS (Not approved)**

This alternative would have required all limited access vessels to obtain and operate VMS equipment. Although this requirement would have no direct benefit to protected species, it would have provided consistent real-time data reporting that would have enhanced the effectiveness of effort-reducing measures that would have benefited those species.

**Scientific resource surveys conducted with industry vessels and crew, funded by the TAC/DAS set-aside and authorized as scientific research (Not approved)**

This alternative would not have provided any direct benefit to protected species.

**Status Quo (Not approved)**

Maintaining the existing reporting and monitoring requirements would have provided no benefit to protected species, and may have reduced the effectiveness of other proposed measures that would otherwise provide protection to those species.

### **Alternatives for enabling Scallop Research**

As noted above in Section 5.1.7, additional research on the scallop fishery is important to implement a proactive program to reduce capture of protected species, especially sea turtles.

#### **Process for managing research through scallop TAC or DAS set-aside (Approved in final alternative)**

Using DAS or TAC set-aside to fund scallop research is a method that has worked in past years. This alternative will set the funding level at 2% of the TAC and/or DAS. The research funded will include cooperative industry surveys as well as habitat and protected species research. This alternative will serve to fund the protected species research listed in the Protected Species alternative located in Section 5.3.5.9.

#### **Alternative process for setting research priorities (Not approved)**

Research priorities would have been set on an annual, bi-annual or other period of adjustments under a framework procedure. It is unclear how the protected species research would have fared under this process.

#### **Other considerations and definitions (Not approved)**

This alternative identified several research issues that need to be addressed to facilitate research under Amendment 10. Protected species research issues were not mentioned in this alternative.

#### **Research activities that have impacts and mortality no greater than and similar to those caused by a conventional commercial fishing trip using the associated DAS and TAC for normal fishing activities (Approved in final alternative)**

This alternative will limit the use of DAS or TAC set-asides to those trips that are conducting research that is outside normal fishing operations.

#### **Research funded through grants and contracts (Not approved)**

This alternative would have required research that increases fishing mortality or result in effects that go beyond those analyzed in the DSEIS and would have to be funded through grants and contracts where their impacts would have been analyzed separately under NEPA. This alternative would have had an indirect benefit to protected species, as the impact of specific research to those species would have to be conducted before the work is approved. Most of the research important to protected species issues is related to normal fishing operations.

#### **Status Quo (Not approved)**

No additional research would have been a detriment to protected species, as understanding the level of existing interactions is key to guiding future management measures toward reducing these impacts. The Status Quo would also have limited the funding of key research identified in the NMFS Biological opinion to other sources.

## **Alternatives for Adjusting Management Measures**

The method and timing for implementing management measures may have an affect on protected species.

### **Scallop harvest area action notice to close areas (Not approved)**

This alternative would have used a formal procedure to provide relatively rapid action to close scallop areas. The timing for actions would have been initiated on March 1 and October 1, with closures occurring on May 1 and December 1, respectively. Closing on those dates would not have affected protected species. However, the timing for reopening areas may be more important to sea turtles, especially if it were to occur when they are concentrated in an area.

### **Annual specifications during non-framework years (Not approved)**

This alternative assumes the two-year cycle for framework adjustments found in the alternative below is in place. It would have allowed annual specifications to be set by standard rule-making procedures. This would not have affected protected species.

### **Two-year cycle framework adjustment process (Approved in final alternative)**

This alternative will put the framework adjustment process on a two-year cycle, and will not affect protected species.

### **Scallop fishing year (Not approved)**

Selection of the Status Quo alternative to leave the start of the fishing year at March 1 will mean that there will be no additional impact to protected species beyond what has been described by NMFS in the recent Biological opinion mentioned above.

### **Increase the carry over day limit to between 10 and 30 days (Not approved)**

Increasing the carry over DAS limit from 10 days to between 10 and 30 days would not have affected protected species.

### **Adjustments for broken trips (Approved in final alternative)**

This alternative will provide adjustments to the loss of 10 DAS that now is incurred if a broken trip occurs in a closed area. The alternative may increase the number of trips in certain closed areas. However, the additional DAS allowed is limited to two, and adjustments will be made to the possession limit and trip allocation for that trip. Therefore, the overall potential increase in effort is minimal if it increases at all, as the running time to and from the fishing areas is likely to equal the additional DAS allowed.

### **Status Quo (Not Selected)**

Maintaining the annual framework adjustment process would not adversely affect protected species.

## 8.4.8 Conclusion

The recent Biological Opinion issued by the NMFS on February 24, 2003, concluded that the fishing operations being carried out under the Scallop FMP as defined through Framework 15, was not likely to adversely affect the endangered large whales (right, humpback, fin, blue, sei, and sperm whales), hawksbill sea turtle, Atlantic salmon, shortnose sturgeon, or the two right whale critical habitat areas found in the Northeast Region. The opinion did conclude that the fishing activities may affect the remaining sea turtle species (loggerhead, leatherback, Kemp's ridley, and green), but was not likely to jeopardize the continued existence of those species. The document went on to establish an incidental take statement for those species with required measures that must be implemented in order to allow the takes to be legal under the ESA. The opinion also provided several recommended conservation measures to further protect sea turtles. Amendment 10 contains actions that address several of these required and recommended measures.

As stated at the beginning of this section, the main goal of Amendment 10 is to focus scallop fishing effort in areas where biomass is greatest. Therefore, although the overfishing definition may result in an increase in landings over levels discussed in the extant biological opinion, the actual fishing time is likely to be reduced, as the overall catch per tow is expected to increase.

However, assessing the potential impacts of the various area management alternatives on sea turtles is impossible to predict at this time. Scallop management areas will be monitored through annual scallop surveys for scallop biomass and growth rates, so that when biomass in a closed area gets high and the growth rate drops off (i.e. the scallop resources are at maximum levels in the area) it would be opened. Conversely, closings will occur when the reverse situation is occurring (low biomass and high growth rate indicating a depleted scallop resource in the area). Therefore, until the annual scallop surveys are conducted, we do not know which areas may be candidates for closing or reopening.

Certain general statements may be made regarding areas encompassing several scallop management units. For example, sea turtles do not frequent the Georges Bank area where several closed areas are currently in effect under the Multispecies FMP. Scallop resources in those closed areas are known to be at maximum levels. Opening those areas would have no effect on sea turtles, and could shift effort out of the high use sea turtle areas in the Mid-Atlantic. (Note - This is not a certainty as vessels from Mid-Atlantic ports may not want to make the longer trips). To further complicate matters, reopening these areas requires new framework actions under both the Multispecies (Framework 39) and Scallop (Framework 16) FMP's, which may modify some parameters for the Georges Bank area controlled access program in Amendment 10, however the measures in these alternatives will focus on minimizing finfish bycatch which could alter the timing of access, but not necessarily the boundaries or the amount of effort that Amendment 10 predicts there.

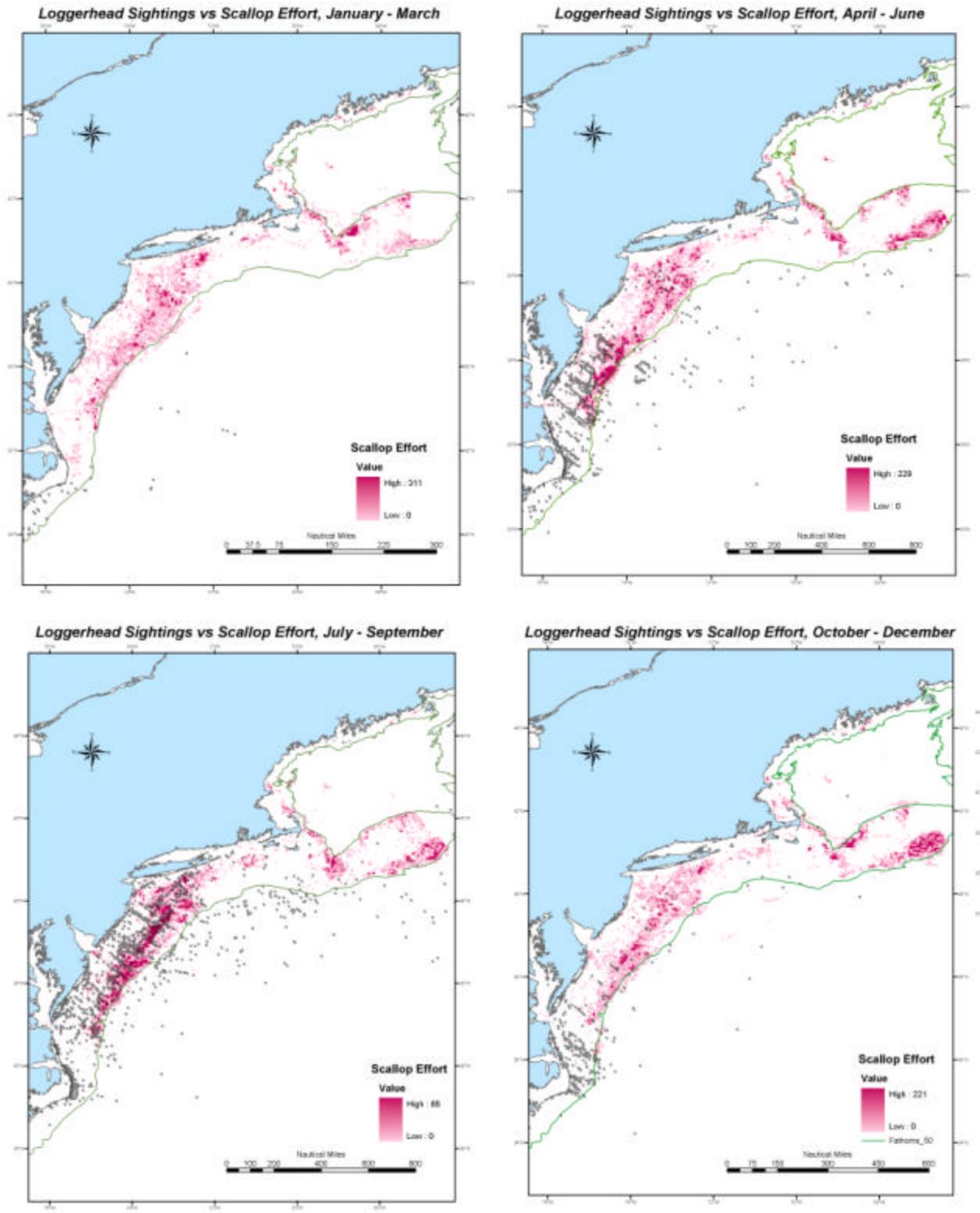
It also must be realized that a reverse shifting of effort from a low sea turtle area such as Georges Bank, to a high use area like the Mid-Atlantic will likely occur at some future time when the Georges Bank scallop resources decline and the Mid-Atlantic areas increase due to natural fluctuations and/or fishing effort distributions. Therefore, the impact assessment for protected species is likely to shift back and forth over the years under the management scheme being implemented under Amendment 10. The turtle takes seen now are likely to shift down as the industry moves to the east and north, but are also likely to shift back up at some point in the future as scallop resource levels change.

Therefore, the specific area management issues are going to have to be addressed as the openings and closings are proposed. Since they will be conducted under Framework actions, they will undergo

individual ESA scrutiny where the latest scallop survey data will be available to give the best resource management picture at that time.

The barndoor skate is a candidate species under the ESA and is considered an overfished species under the MSFCMA. The Skate FMP has implemented a prohibition on possession of barndoor skate, thus providing adequate protection to the species in the scallop fishery as well.

The capture of loggerhead, ridley and green sea turtles is likely higher than was believed in previous ESA consultations on the Scallop FMP. The NMFS has reinitiated their ESA Section 7 consultation on the Scallop FMP to assess the level of impact of current scallop fishing activities on these species. Many of the alternatives being considered by the Council may reduce the current impacts of the fishing effort conducted under the Scallop FMP on sea turtles. In addition, the definition of overfishing being considered under this Amendment is likely to reduce the overall scallop fishing effort by as much as 50%. Depending on where this effort reduction takes place, the potential impact on sea turtles is, at a minimum, unlikely to increase, and may be reduced pending selection of certain alternatives.



Map 51. Quarterly distribution of loggerhead sea turtles (large dots) compared with 1998-2000 sea scallop limited access fishing effort (hours per nm<sup>2</sup>, gray scale or red).