

6.0 ENVIRONMENTAL CONSEQUENCES (IMPACTS) OF THE PROPOSED ACTION AND ALTERNATIVES

6.1 Introduction to Analysis of impacts

This section contains the analysis of impacts of the proposed action and alternatives, including no action, which are also summarized in Appendix I.

6.2 Biological Impacts

The following sections (Sections 6.2.1 - 6.2.3) contain a discussion of the biological impacts of the alternatives on monkfish, other managed fisheries, and protected species, respectively, and also includes a discussion of the alternatives that have little or no biological impact (Section 6.2.4).

6.2.1 Impacts on Monkfish

6.2.1.1 Stock Rebuilding Impacts

The range of alternatives under consideration in this amendment, including taking no action under each of the specific alternatives (“decisions” in Appendix 1), will not likely have a significant or direct impact on the stock rebuilding program implemented under Framework 2 to the FMP. Framework 2 established a method for setting annual target TACs based on the status of the survey biomass indices relative to annual and the ultimate biomass targets. Framework 2 also put in place a streamlined method for setting trip limits for the directed fishery consistent with achieving the annual TACs, after accounting for incidental monkfish landings in other fisheries.

The measures under consideration in this amendment do not alter that program, but make modifications to the management measures within the program – the method for calculating TACs and the associated trip limits and DAS (the essential elements of the stock –rebuilding program) is not changed by the measures in this amendment. The alternatives for separating DAS usage requirements would provide for more control over the directed monkfish fishery, and the associated trawl gear proposals (for vessels on a monkfish DAS) would reduce bycatch and discards, and increase yield-per-recruit (see discussion in the following section), and minimize impacts on EFH (see Section 6.3). Consequently, this amendment could indirectly, and in a positive way, enhance the stock-rebuilding program.

On the other hand, separating DAS usage requirements for Category C and D permits could result in increased directed fishing effort as a result of monkfish DAS being “freed up”. In other words, as the opportunity cost of using a monkfish DAS declines (that is, would not cost a vessel a multispecies or scallop DAS), vessels may elect to use more of their monkfish DAS than in the past. At the same time, multispecies Category C and D vessels, and to a lesser extent scallop C and D vessels, could direct more of their effort on multispecies or scallops stocks, since they would have monkfish only DAS to target monkfish.

The degree to which individual vessels would actually avail themselves of this opportunity cannot be predicted, but if additional monkfish DAS are used, the program established in Framework 2 provides for annual adjustment of trip limits to ensure that target catch levels designed to achieve annual biomass rebuilding goals are not exceeded. Under that program, the TAC for the directed fishery is calculated by subtracting the expected incidental catch from the overall TAC. The residual amount is then distributed among the DAS vessels under a formula that calculates the expected catch per DAS and DAS usage (by permit category) using the most recent full year for which landings data is available (that is, the previous fishing year). Thus, if either the catch per DAS or total DAS usage rates were to change significantly in any year (such as in response to the separation of DAS usage requirements), the current management program has an immediate and automatic response mechanism built in. This program functions as a backstop that protects the stock rebuilding program from sudden increases in monkfish effort.

The same protection exists to help minimize the potential for unsustainable effort increases under either of the DAS transfer alternatives (leasing or sale). There is considerable uncertainty, however, in trying to determine the effect of DAS transfer alternatives on active effort levels. First of all, the amount of DAS transferring that will occur under either alternative cannot be predicted. Secondly, the effect those DAS transfers will have on the overall active effort level is unknown, although the potential exists for effort to increase as vessels that lease or purchase DAS are more likely to use them (because they have made an investment in those DAS) than vessels that are leasing out or selling DAS. This uncertainty is the basis for the Councils' decision to prefer implementing DAS transfer alternatives at a future time under the framework adjustment procedure. The adoption of DAS sale and lease programs in the Multispecies FMP under Amendment 13 will provide an empirical basis for evaluating the potential effect of such programs in the monkfish FMP.

In both cases (leasing or sale), however, the alternatives contain measures to protect against increases in active effort in addition to the backstop feature of the rebuilding plan discussed above. The DAS leasing proposal contains measures for achieving "conservation equivalency" of transferred DAS, and is a short-term program subject to review and/or expiration. The DAS sale proposal also contains conservation tax provisions to protect against effort increases. Nonetheless, if stock rebuilding continues on schedule, and fishing mortality rates remain below the threshold (to the extent they can be determined), then active effort is presumed to be consistent with FMP goals, regardless of whether active DAS levels are increasing or decreasing. If the annual stock goals are not being met, then reductions in trip limits and/or DAS will occur to achieve the annual rebuilding goals.

Another source of additional monkfish effort, besides the separation of DAS and associated DAS transfer provisions, is the addition of new permits that would qualify under the alternatives being considered in Section 4.1.6.2. If one of the alternatives other than no action is adopted, as many as seven new federal monkfish permits could be issued. None of these alternatives would not have a significant biological impact compared to no action, however, for the following reasons: these vessels have already been fishing for monkfish in state waters and/or under experimental fisheries permits in

federal waters; the new permits would be taken into account in the distribution of the available TAC (DAS and trip limits), but would not result in an increase in the TAC; these vessels have a limited season of opportunity that is further constrained by sea turtle protection measures, so the total catch by these vessels is expected to be a small fraction of the overall catch from the southern stock component.

The proposed adjustments to the incidental catch limit (including all of the alternatives described in Section 4.1.2) will not effect the stock-rebuilding program. One of the fundamental elements of the management plan is that the directed fishery TAC is calculated after accounting for the incidental catch of monkfish in other fisheries. Thus, if monkfish catches increase as a result of any adjustment to the incidental catch limit, the amount of the overall TAC available to the directed fishery will be reduced accordingly. Nevertheless, the proposed adjustments are not expected to result in increased catches of monkfish in those non-directed fisheries affected by the proposed changes. Those increases will convert some discards to landings, especially as monkfish stocks increase, resulting in better catch data, but they are not large enough to create a directed fishery under a nominal incidental catch fishery.

6.2.1.2 Impacts on yield-per-recruit

The measures under consideration that could directly effect yield-per-recruit are minimum mesh size and minimum fish size. Indirectly, cooperative research incentives (DAS set aside or exemption) and the Monkfish Trawl Experimental Fishery proposed in this amendment could also result in increased yield-per-recruit to the extent those actions result in increased age-at-entry of monkfish (the age at which fish are susceptible to capture in monkfish gear).

Increasing age at entry would allow maximum long-term yield to be attained at a higher fishing mortality rate. That is, measures that increase the age at which fish first become susceptible to capture, or that cause fishermen to modify their behavior such that they are targeting older fish, could allow a higher fishing mortality rate while achieving maximum yield-per-recruit. In general, those measures include increased mesh size and minimum fish size rules, other gear selectivity requirements, as well as area closures that protect juvenile fish concentrations. Taking no action on separating DAS usage requirements, with the commensurate adoption of 10-inch or 12-inch minimum mesh requirements, would enable vessels on multispecies DAS to continue to target monkfish with smaller groundfish regulated mesh (under Amendment 13, that would be 6.5-inch or 7-inch mesh, depending on area).

In the case of monkfish, the selectivity characteristics of trawl and gillnet mesh are not well understood, but the fishery uses (by both fishermen's choice and regulation) the largest meshes of any fishery in the region, 10-12 inches in the case of gillnets. Alternatives that increase minimum mesh size are likely to result in some increase in yield per recruit for monkfish, but these effects cannot be quantified. Increases in minimum fish size rules may or may not result in increased yield per recruit depending on the selectivity characteristics of the gear in use, and the adjustments fishermen make in their operations to avoid catching small fish. If the sub-legal size fish are merely caught and discarded, the benefits to increasing yield per recruit would not be realized.

Conversely, alternatives that reduce or eliminate the minimum fish size do not necessarily translate into reduced yield per recruit if those fish that could be landed under the new rule were simply fish that otherwise would be caught and discarded. According to the analysis of bycatch in Section 5.3.5, the primary reason given to observers for monkfish discards in directed fisheries is “too small” either due to regulation or market cull, and, therefore, those measures are not likely to have a significant effect on reducing yield per recruit.

6.2.2 Impacts on other Managed Fisheries

6.2.2.1 General Considerations

Most of the alternatives under consideration will not have a significant direct or indirect impact on other managed fisheries since they focus on administrative or operational aspects of the monkfish fishery, and do not cause effort to shift or otherwise change how the fishery interacts with other fisheries. The alternatives that may have an impact on other fisheries include de-coupling of DAS, trawl net configuration and increased trawl mesh size, increased incidental catch limits, the offshore SFMA fishery program and the NFMA trawl experimental fishery.

The de-coupling of monkfish DAS from scallop or multispecies DAS usage requirements could result in some multispecies DAS being directed on groundfish where they otherwise would have been used on a DAS targeting monkfish. This is only likely to occur in the SFMA, since vessels in the NFMA are not using monkfish DAS but are targeting both monkfish and multispecies on their multispecies DAS (as vessels with monkfish permits have no monkfish trip limit while on a multispecies DAS).

In FY 2002, approximately 3,400 multispecies/monkfish DAS were used in the SFMA. Since many vessels may elect to fish on a combined day so they can also land their multispecies, and since the availability of multispecies fisheries in the SFMA is limited in time and area, it is unlikely that all of that effort would re-direct on multispecies. Some portion of the “freed-up” multispecies DAS could be used to target multispecies, however, these vessels are already targeting multispecies during those trips when they have to use a multispecies DAS while on a monkfish DAS. Therefore, the impact of de-coupling the DAS usage requirement is not expected to increase overall effort directed on multispecies stocks.

Likewise, scallop vessels are currently not using any DAS to target monkfish, so de-coupling the DAS usage requirement will not result in any scallop DAS being “freed up” to focus on scallops with a resulting increase in scallop effort or fishing mortality. Furthermore, if scallop vessels target monkfish on monkfish-only DAS, the gear requirements will minimize the bycatch of multispecies on those trips, especially considering that such fishing will be required to take place in Multispecies Exempted Fisheries (times and areas demonstrated to have minimal multispecies bycatch).

Both the trawl net configuration and increased trawl mesh size alternatives would have a positive impact on other managed fisheries because of the reduced interaction that would result. Both of those measures are intended, among other things, to reduce bycatch of non-target fish. The trawl configuration alternative would also reduce the monkfish trawl

fishery's interaction with the essential fish habitat of other species, particularly regulated multispecies.

The offshore SFMA fishery program may increase the fishery's interaction with red crab fisheries, but the impact cannot be quantified due to insufficient data (see Section 5.3.5.2.1).

The NFMA trawl experimental fishery, if successful, will reduce the monkfish fishery's impact on the multispecies fishery. The goal of the experiment is to determine if and under what circumstances a monkfish trawl exempted fishery can be established that meets the maximum bycatch tolerance of the multispecies regulations. If successful, the fishery will provide an alternative fishery for multispecies vessels facing increasing restrictions under Amendment 13. In addition, the experimental fishery may provide the data needed to validate the efficacy of the proposed trawl configuration in reducing impacts on groundfish EFH.

6.2.2.2 Skate Baseline Review requirement

The Skate FMP identified and characterized a baseline of management measures in other fisheries that provide additional conservation benefits to skate species. If the Council initiates an action in another FMP that changes one of the baseline measures such that the change is likely to have an effect on the overall mortality for a species of skate in a formal rebuilding program, then a baseline review process is required.

A baseline review process is initiated if one of seven management measures are changed which have been identified as beneficial for skates. The seven management measures identified in the Skate FMP are: (i) NE Multispecies year-round closed areas, (ii) NE Multispecies DAS restrictions, (iii) Gillnet gear restrictions, (iv) Lobster restricted gear areas, (v) Gear restrictions for small mesh fisheries, (vi) Monkfish DAS restrictions for monkfish only permit holders, and (vii) Scallop DAS restrictions (See Section 4.1.6 of the Skate FMP for more details). Since Amendment 2 proposes to decouple Monkfish and Multispecies DAS, overall allocated DAS may increase, although it is very difficult to predict whether overall effort will increase, decrease, or stay the same. Since overall effort levels may increase, the Skate PDT must evaluate the potential impacts of this change before the Councils make final decisions on management measures for Amendment 2. In general, this section will evaluate whether decoupling DAS will have a greater impact on overall skate mortality as compared to the baseline and additional benefits of other measures implemented in this action as well as other FMPs (Multispecies and Scallop).

It is important to point out that the skate baseline review is only required for skate species that are currently in a formal rebuilding program. Of the seven skate species managed under the Northeast Skate Complex FMP, only two species are in a formal rebuilding program: thorny and barndoor. Therefore, this baseline review will only evaluate the impacts of this Amendment on the mortality rates of these two species. Furthermore, the Skate FMP is very specific in identifying only seven management measures that would trigger a baseline review. Therefore, while there may be other measures in this Amendment that could indirectly increase or decrease skate mortality, the baseline review is only required to evaluate the seven identified measures.

The skate baseline review for Amendment 2 will be incorporated within the Baseline Review Process that is being initiated in Spring 2004. A report from the Skate PDT will be presented to the Councils before final measures are selected, and the results of that report will be summarized in this section for the Final Environmental Impact Statement.

6.2.3 Impacts on Marine Mammals and Protected Species

6.2.3.1 General Considerations

Background information on the fishery relative to interactions with threatened and endangered species is included below to lend context to the discussion on impacts of the management alternatives under consideration in Section 6.2.3.2. It is excerpted from the Biological Opinion dated April 14, 2003 and prepared by NOAA Fisheries, Northeast Region. While a number of the species discussed have no known takes in the directed monkfish fishery, many have either had documented takes in multispecies sink gillnet gear which is used on the monkfish fishery or their distribution is known to overlap with the fishery. For example, in the case of sei whales, takes in fishing gear have not been documented and their distribution is generally offshore, but Waring et al. (2002) reports that reduced prey availability in certain years has resulted in inshore movements of this species in locations such as Great South Channel and Stellwagen Bank. The following discussion, therefore, is based on potential risks based on the overlap of the monkfish fishery and the distribution of the species, or takes in gear that is consistent with that used in the directed monkfish fishery.

The location of the monkfish fishery in relation to the distribution of ESA-listed species is a factor influencing the likelihood that a gear entanglement will occur. All of the species considered in this Opinion occur in the action area where monkfish gillnet gear is set. Overlap of monkfish gillnet gear with right and humpback whales occurs during the fall and spring when right and humpback whales travel between northern foraging grounds and southern calving areas as well as when these species are on the foraging grounds in the Gulf of Maine. Overlap of the fishery with humpback whales can also occur in the winter off of Virginia where juvenile humpback whales have been observed feeding.

Fin whales are more ubiquitous in their distribution, and less is known about their winter distribution than for right and humpback whales. In the North Atlantic, the single most important area for this species appears to be from Great South Channel, along the 50m isobath past Cape Cod, over Stellwagen Bank, and past Cape Ann to Jeffrey's Ledge (Hain *et al.* 1992).

Within the action area, the sei whale is most common on Georges Bank and into the Gulf of Maine/Bay of Fundy region during spring and summer, primarily in deeper waters. Individuals may range as far south as North Carolina. Blue whales are still considered to occur more regularly in Canadian waters as compared to U.S. waters, but blue whales have been observed in the Gulf of Maine including three sightings in the summer and early fall 2002. In the U.S. EEZ, sperm whales are distributed in a distinct seasonal cycle; concentrated east-northeast of Cape Hatteras in winter and shifting northward in spring when whales are found throughout the Mid-Atlantic Bight. Distribution extends

further northward to areas north of Georges Bank and the Northeast Channel region in summer and then south of New England in fall, back to the Mid-Atlantic Bight (Waring *et al.* 1999). Given the distribution of these species, all occur in areas where monkfish gillnet gear is set, although blue whales and sperm whales are expected to have the least extent of overlap with monkfish gillnet gear given the depths at which these species typically occur.

Sea turtles also occur through all or most of the area in which monkfish gillnet gear is set. Of the turtle species considered, loggerheads are the most abundant in the action area. Loggerhead turtle abundance is relatively high from Cape Hatteras to Long Island throughout continental shelf waters (NOAA Fisheries 1994). Loggerhead, green and Kemp's ridley turtles are also sighted in inshore waters of the Mid-Atlantic area (NOAA Fisheries 1994).

While leatherbacks are most often sighted offshore, they may follow jellyfish into nearshore waters (NOAA Fisheries 1994). Turtles occurring in the inshore waters of Virginia tend to stay from May through November, and turtles generally occur in New York inshore waters from June until October (NOAA Fisheries 1994). Coincidentally, peak monkfish landings by gillnet gear occur in the SFMA in May-June and November-December (Monkfish SAFE Report 2001). Of particular concern is the early spring monkfish gillnet fishery that occurs off of North Carolina and Virginia in March through May. It has been previously shown that the narrowness of the continental shelf and the influence of the Gulf Stream on nearshore regions serves to concentrate sea turtles emigrating from nearshore waters in the Mid-Atlantic Bight and Pamlico and Core Sounds in the late fall and early winter (Epperly *et al.* 1995b). As water temperatures warm in the spring, these turtles begin to move north and disperse to summer foraging grounds. Although monkfish fishing effort in EEZ waters off of North Carolina and Virginia is far less than elsewhere in the action area, the high concentration of turtles in the area means there is a risk of a high level of interaction with the fishery.

As described above, monkfish trawl gear is used more often in New England waters and in deeper waters throughout the action area where sea turtles are less likely to occur. Therefore, the risk of entanglement for sea turtles in this gear type is expected to be less than for gillnet gear. However, based on take of sea turtles in trawl gear used in other fisheries, sea turtle takes in monkfish gear are possible when the distribution of sea turtles and operation of this gear in the monkfish fishery overlap.

Another factor influencing the likelihood that a gear entanglement will occur is the configuration of the fishing gear. Baleen whales, including right, humpback, fin, sei and blue whales, skim and gulp for prey and filter vast quantities of water through rows of baleen plates suspended from the upper jaw on the inside of their large mouths. Line suspended in the water column such as from buoy lines may become caught in the baleen if the whale incidentally encounters the line when feeding. Whales may also be more likely to become incidentally entangled in gillnets when distracted by feeding or social behavior.

Leatherback sea turtles may actually be attracted to buoys used on trawl and gillnet gear which could appear to be jellyfish, or they may be attracted to the organisms which

colonize ropes and buoys. Tie-downs used on monkfish gillnet gear in the Mid-Atlantic may also contribute to sea turtle entanglements in such gear. While tie-downs reduce the vertical profile of the net which can help to reduce interactions with harbor porpoise, the tie-down also creates a pocket of netting which can increase the likelihood of entanglement for species that occur at or near the bottom. Using tie-downs is a common practice in portions of the monkfish fishery in order to increase the catch rate of monkfish (a bottom dwelling fish species). Given that hard-shelled sea turtles such as loggerheads, greens, and Kemp's ridleys forage at or near the bottom in benthic habitats, the use of tie-downs for gillnets set in the same areas may increase the likelihood that turtles will be caught in the net. The long soak time of monkfish gillnets, particularly in the Mid-Atlantic, also increases the risk of sea turtle entanglements by increasing the length of time (*i.e.*, the opportunity for incidental capture) that the net is in the water. Soak times for monkfish gillnets, in general, are greater than the submergence tolerance of sea turtles. Therefore, sea turtles are almost certainly expected to die as a result of capture in a monkfish gillnet unless the animal is caught in the net close to the surface and has the ability to breathe, or is caught immediately prior to hauling of the net.

While the implications of potential shifts, as well as increases and decreases in fishing effort, are discussed in detail below, in Section 6.2.3.2, the overall impacts of the amendment remain unclear at this writing. In a number of cases they are dependent on the behavior of fishermen responding to actions proposed for the northeast multispecies and sea scallop fisheries. It is known, however, that right, fin, humpback, fin and sei whales and loggerhead, green, Kemp's ridley and leatherback turtles become entangled in both trawl and sink gillnet gear that is identical or similar to that used in the monkfish fishery.

Although they could occur, the April 2003 NMFS Biological Opinion prepared for the monkfish fishery notes that there have been no reported or observed incidental takes of sea turtles specifically in the monkfish otter trawl fishery during any time of the year. Similarly, ESA-listed whales are rarely caught in trawl gear.

Sea turtles, however, occur throughout the area in which monkfish gillnet gear is set, but particularly in the SFMA. Takes of turtles that have been attributed to monkfish gear are expected to be reduced by the Large-Mesh Gillnet Final Rule in effect for federal waters off North Carolina and north to Chincoteague by limiting effort to times when sea turtles are not expected to be present in large or significant numbers.

Loggerhead turtles are most affected by potential increases in gillnet effort and benefit from the Large Mesh Final Rule, although green and Kemp's ridley turtles are also found inshore in the Mid-Atlantic area. Right and humpback whales may also experience reduced risks of entanglement as a result of the turtle measures.

Other actions affecting sink gillnet gear include the Harbor Porpoise Take Reduction Plan which prohibits setting gillnets in southern Mid-Atlantic waters for selected time periods. The plan should benefit any cetacean moving from southern nursery areas to northern feeding areas during these periods as well as sea turtles that are present in the areas during the closure period. Rules included in the Atlantic Large Whale Take Reduction Plan require modifications to gillnet gear to reduce the risk of entanglement as well as the severity of entanglements for large whales.

6.2.3.2 Impacts of Amendment 2 Measures on Protected and Endangered Species

6.2.3.2.1 Monkfish DAS usage by limited access permit holders in scallops and multispecies fisheries

The Councils are considering two alternatives for modifying the requirement that Category C and D vessels (vessels with a multispecies or scallop limited access permit that qualified for a monkfish limited access permit) must use either a scallop or multispecies DAS when fishing on a monkfish DAS. Under both alternatives (Alternative 1a and 1b) and under the no action alternative (Alternative 2), all monkfish limited access permit holders would be allocated 40 monkfish DAS. Options are also provided under Alternative 1 that would allocate individual DAS based on past performance in the monkfish fishery. DAS could be reduced, under the management program implemented in Framework 2, if the SFMA TAC is set below 8,000 mt. In that case, the trip limits would remain fixed at 550 lbs. and 450 lbs. (tails/DAS) for Category A and C, and B and D, respectively.

The two alternatives for de-coupling monkfish DAS from multispecies and scallop DAS usage requirements would allow vessels the choice, both annually and on a trip-by-trip basis, to use separated DAS or combined DAS. Whether or not a vessel would fish its monkfish DAS separately depends on the particular circumstances of the vessel, namely, area and gear fished, number of DAS or opportunities available in other fisheries, and possibly other considerations.

Gillnet vessels fishing in the NFMA, for example, whose multispecies DAS exceed its monkfish DAS, may find it more profitable to fish the multispecies DAS (with no monkfish trip limit) than to fish the monkfish DAS with no monkfish trip limit and the multispecies DAS with a monkfish incidental catch limit, even though the total number of DAS available to the vessel would be greater if the DAS were separated. As a result, there would be no increased effort under the DAS Alternative 1, and in fact effort may decline due to restrictions forthcoming in Amendment 13, decreasing any negative impact on protected species.

The requirement to use a specific net (proposed monkfish trawl or large-mesh gillnet) while on a monkfish DAS, if adopted, is an additional factor that each vessel owner would have to consider in making the decision whether to de-couple DAS. Protected species interactions would likely not change from current levels under this scenario. It should be noted that until a monkfish trawl exempted fishery is established in the NFMA (following experimental fishing shown to minimize bycatch of regulated species to below the 5 percent standard), trawl vessels must be on a multispecies DAS to land more than the incidental catch limit, therefore, in the near term the option to increase effort by separating DAS in the NFMA does not exist for trawl vessels.

In the SFMA, where vessels can direct effort on monkfish and multispecies with far less overlap than in the NFMA, Category C and D could increase overall effort compared to no action because they would have monkfish DAS *in addition* to their multispecies or scallop DAS, not *in combination with* their other DAS. If effort increases, there could be negative effect on protected species due to the increased possibility of encounter. Under Multispecies Amendment 13, groundfishing effort will be reduced significantly, so the

cumulative total potential increase in effort will be less than if Amendment 13 were not being implemented. The total change in effort due to the combination of DAS alternatives in this amendment and changes in Amendment 13 cannot be predicted at this time.

While the number of vessels that would use the opportunity presented by Alternative 1 cannot be determined, it is most likely that some scallop vessels will increase overall fishing time if DAS are decoupled. Under Alternative 1, those vessels could fish their entire scallop allocation on a full-time basis and then fish their monkfish DAS allocation. Under this alternative the potential for interactions with protected species in the SFMA is likely to increase. One limiting factor is that vessels will have to weigh the opportunity costs and the cost of re-rigging to use the monkfish trawl against the expected revenues.

If a significant number of scallop vessels targeted monkfish, overall effort levels would increase (unless, of course, scallop DAS were reduced under scallop management actions). These vessels generally operate in the SFMA, and as a consequence, the impacts to protected species of increased trawl fishing effort will increase accordingly and could potentially affect sea turtles where overlap with the scallop fishery occurs.

If DAS transfer options result in the activation of latent effort, or unused DAS by monkfish vessels, the impact of the fishery on protected species could increase. Provisions to maintain conservation neutrality would mitigate this effect.

6.2.3.2.2 Trip Limits for Monkfish Incidental Catch

Incidental catch limits for vessels in fisheries other than those directing on monkfish would apply regardless of whether monkfish DAS are de-coupled from groundfish and scallop DAS. The limits, ranging from 50 pounds per trip or per day to a 500 pound maximum in the three alternatives are intended to reduce discards of monkfish by allowing specified vessels, including general category scallop, clam dredge and summer flounder boats and to retain small amounts monkfish.

Given the very low trip limits proposed, these measures, as well as the No Action alternative, are not likely to have an impact on any protected species in the action area. At such low levels, especially when compared to value of the target species of these vessels, the poundage under consideration is not significant and should not appreciably affect monkfish effort or shifts in effort. Consequently it is not likely to change interactions with protected species beyond what currently exists in the identified fisheries. No action could result in the continued discarding of monkfish by the vessels in these fisheries and would continue the status quo with respect to protected species.

The alternative that would restore the incidental catch limit west of 72°30' to what was in place prior to the Multispecies interim rule in 2001 (See Section 4.1.2.3) will not have a measurable effect on effort. Affected vessels fishing in this area under the monkfish incidental catch limit are targeting summer flounder and did not alter their fishing pattern subsequent to the reduced monkfish incidental catch limit. They simply discarded monkfish over the 50 lb. limit, according to reports by fishermen. Therefore, the impact of Alternative 2 on protected species is no different than Alternative 1 (no action).

6.2.3.2.3 Minimum Mesh Size on Directed Monkfish DAS

Three alternatives, including the No Action alternative, propose a minimum mesh size for vessels on a monkfish only DAS. Category A and B vessels on a monkfish DAS, as well as limited access scallop vessels on a DAS, would be required to use mesh larger than the current minimum size. This would apply to multispecies vessels on a monkfish only DAS whether DAS are de-coupled or not. If a multispecies vessel is on a combined trip and days are decoupled, the Councils may require either multispecies regulated mesh or another of the proposed alternatives.

The Councils' intent is to minimize the bycatch of small monkfish and of other species on monkfish trawl vessels. Gillnet vessels currently are required to fish with 10-inch minimum mesh, but do not experience the same finfish bycatch problems as monkfish trawl gear. In fact, many participants in the gillnet fishery claim to already use mesh sizes larger than the current required minimum size. If, as intended, the proposed measures reduce fishing effort in areas with a bycatch of multispecies, effort could shift to areas where protected species are either more or less abundant than in the current fishery. As such, the outcome for any of the alternatives is unclear at this writing, but the changes in fishing patterns would affect the trawl sector only. As has been mentioned, takes of protected species are known to occur in bottom trawl fisheries, but based on current data, the risk of entanglement is lower than in the gillnet fishery. Therefore, unless the alternative selected moves effort into protected species high-use areas and seasons, the measure should not affect interactions with the monkfish fishery.

6.2.3.2.4 Minimum Fish Size

Four alternatives for reducing, eliminating, or in one case increasing the monkfish minimum size requirement are being considered for the purpose of converting some monkfish discards to landings. Because none of the choices, as well as No Action, would change catch targets or DAS/trip limit allocations, thereby having little or no impact on effort, the alternatives are expected to have a negligible impact on any protected species. If they do not high-grade, it is possible for vessels to reach their trip limit more quickly under these scenarios, resulting in trips that are shorter in duration. Gear in the water for shorter periods than under No Action alternative could benefit protected species because of the potential reduced risk of entanglement.

6.2.3.2.5 Closed Season or Time Out of the Fishery

Three alternatives are proposed for closed seasons (spawning closures or time out of the fishery). The No Action alternative would maintain the current 20-day block out of the fishery in the spring while other proposals either eliminate the requirement or extend it to 40 days. This requirement affects all limited access monkfish vessels, except category C and D vessels with a scallop limited access permit. In general, gear out of the water equates to fewer impacts to protected species. It could be inferred here that the alternative which doubles the time that gear must be removed from the water will have the most benefit to protected species. Conversely, elimination of the requirement could have negative impacts to protected species. The effects, however, are not straightforward because individual vessels may elect to take their block out at any point during the March 1 –May 31 period with ample time left to use their 40 day allocation within the 90 day

window. Therefore, varying amounts of gear will still be in the water even if the gear removal time were doubled.

To the extent that benefits are realized, species most likely affected by a reduction in gear during the spring period include right and humpback whales traveling from southern calving areas to northern foraging grounds, sperm whales shifting northward to the Mid-Atlantic Bight, sea turtles traveling to the Mid-Atlantic from wintering grounds in the south and harbor seals moving northward within the Gulf of Maine. Elimination of the requirement will have a negative impact if monkfish gear appreciably overlaps with occurrences of protected species.

6.2.3.2.6 Authorized Fishery Programs

Two programs are proposed, an offshore directed fishery in the SFMA (see Section 4.1.6.1), and a fishery south of 38°N (or 38°20'N if the current turtle protection rule is not modified prior to implementation, see Section 4.1.6.2). Under the No Action alternative, fishing would occur in either area under the current rules. In the offshore SFMA fishery, the increased trip limits associated with the programs provide vessels with an incentive to shift effort into the areas defined. Mitigating factors for protected species include the fact that the October through April period is one of declining use for many protected species, including sea turtles, and DAS will be used at a higher rate as a requirement of participation, ensuring that fishing gear will be in the water less than boats operating under current requirements. Gillnet vessels, for example will have approximately one third less days available to them than under the No Action alternative. Further, vessels must enroll annually in the program and carry a VMS, thereby enhancing monitoring of the portion of the fleet that chooses to participate, and potentially providing more information that could contribute to a better understanding of protected species and their overlap or interactions with the monkfish fleet.

The modification of permit qualification criteria is intended to reinstate a fishery south of 38°N. The four limited access permit qualification periods under consideration would allow Virginia and North Carolina vessels that did not qualify for a monkfish permit under the initial rules of the FMP to now qualify for participation in the fishery. Up to 7 new vessels could enter the fishery and are likely to use gillnet gear if they operate similarly to other monkfish only vessels in this area. The proposals could result in increased gillnet effort, with corresponding risks to sea turtles, however, these vessels have been fishing in the EEZ post-FMP under a series of experimental fisheries permits and fishing in state waters, so the total effort increase is not likely to be significant compared to taking no action. Large mesh gillnets are subject to a series of closures in federal waters off North Carolina and north to Chincoteague by the Final Rule for Large Mesh Gillnet Fisheries except in late winter and very early spring when turtles are less likely to be found.

Alternatively, if the current sea turtle closures remain in effect, the Council could adopt a proposal to move the boundary at 38°N to 38°20'N to allow these vessels to prosecute a monkfish fishery and not be subject to the Large Mesh Gillnet Final Rule. Under this scenario, impacts to protected species, and turtles in particular, should not change from those that currently exist.

6.2.3.2.7 Framework Adjustment to Minimize Impacts on Protected Species, Including Sea Turtles

Because this alternative will enable the Councils to take timely action to implement measures to address protected species issues within the context of the FMP through framework adjustment, this measure is expected to have positive benefits for the protected species that are likely to interact with monkfish gear in the EEZ. Measures include, but are not limited to gear-specific seasonal/area closures or gear modifications.

6.2.3.2.8 Exemption Program for Vessels Fishing Outside of the EEZ (in the NAFO Regulated Area)

If Alternative 1 is approved, few vessels are able (because of the size required to fish on the Grand Banks) or likely to take advantage of this measure, which would allow an exemption from regulations required by the Monkfish FMP. Encounters with deep water cetacean species such as sperm whales could occur in the area, but impacts are not likely to increase appreciably beyond that now occurring in the multispecies fishery which currently has a provision for this exemption (Alternative 2, No Action). Even slightly increased numbers of vessels beyond the few that are now taking advantage of this provision are not likely to appreciably affect the potential for encounters with protected species beyond what is now occurring.

6.2.3.2.9 Measures to Minimize the Fishery Impacts on EFH

The Councils are considering closure alternatives to minimize the actual or potential adverse impact of the directed monkfish fishery on deepwater coral habitat. Alternatives 1, 2 and 3, are proposed as measures that would minimize the impact of the monkfish fishery on EFH. Alternative 1, or no action, has been assessed with regard to impacts on protected species in the Monkfish FMP and subsequent framework adjustments as well as in the Biological Opinions prepared by NMFS for ESA Section 7 consultations. The Amendment 2 measures (Alternative 2) are discussed in this document and actions taken under existing FMPs have addressed in a manner similar to Alternative 1. Amendment 13 to the Multispecies Plan and Sea Scallop Amendment 10 have been determined to have varying impacts that are not expected to appreciably increase the potential risks to protected species, although impacts vary by species. Note, however, that final approval of Amendments 10 by NMFS has not yet occurred nor has the Council approved final alternatives for Amendment 13.

While adverse effects can and do occur under all of these management programs, none are considered by NMFS to jeopardize the continued existence of ESA-listed species, except for right whales. In that case, a Reasonable and Prudent Alternative has been implemented through the ALWTRP.

The options for trawl configurations (Alternative 4) proposed in Amendment 2 may have benefits to protected species, if the ability of the net to “herd” fish is reduced and other effects have the potential to reduce the likelihood of sea turtle interactions. This conclusion, however, is speculative given that actual gear trials not yet occurred. Further, although bottom trawls have documented takes of sea turtles, there are none documented in monkfish trawl gear. This is possibly an artifact of low observer coverage. More

comprehensive monitoring of this component of the fishery should lead to a better evaluation of this potential.

Protection of deepwater corals (Alternative 5) through area closures could afford some level of protection to sperm whales and possibly other offshore species such as beaked whales, dwarf sperm whales, Risso's dolphins, pilot whales and common dolphins to the extent that their distribution overlaps with the fishery. The options afford greater protection if the closure includes all monkfish gears (both trawls and gillnets).

6.2.3.2.10 Cooperative Research Program Funding

Two alternatives for facilitating and streamlining cooperative research programs under the FMP are proposed. One is based on a DAS set-aside, and the other on providing a limited exemption from DAS for vessels engaged in research. Both are expected to have neutral effects to protected species in that they do no, in and of themselves result in any changes in effort. Projects undertaken within either program will be evaluated on a case-by-case basis as to their impacts on protected species, as the Experimental Fishery Program currently operates. The exemption or set-aside alternatives simply obviate the need for individual researchers to apply for DAS exemptions and conduct the required impact analysis with respect to the effects on monkfish fishing mortality. Since Alternative 1 sets aside DAS from the existing pool of allocated DAS, effort is not likely to increase as a result of adopting this approach. Under Alternative 2, which provides an exemption from DAS, effort is also not likely to increase as long as the vessels are only using part of their allocated DAS. In other words, the DAS being set aside under Alternative 1 are from the same currently unused portion of allocated DAS that would be used under the exemption program in Alternative 2. In either case, the proportion of DAS available under both alternatives is a small fraction of the total DAS used, and, therefore, likely to be insignificant.

6.2.3.2.11 Measures to Reduce Bycatch

A complete list of measures proposed in Amendment 2 to reduce bycatch are listed in section 4.1.12, but have been considered separately in other sections of the protected species discussion. Adding "bycatch reduction devices" to the list of frameworkable measures currently in the FMP will have no effect on protected species given that it is an administrative measure only.

6.2.3.2.12 Clarification of Vessel Baseline History

The Councils are considering a proposal that would eliminate the dual vessel-upgrading baseline that applies on any vessel that was modified or replaced between the time it received its multispecies or scallop limited entry permit and its monkfish limited entry permit. While increases in vessel size and horsepower could affect the vessel's impact on protected species by enabling it to fish in more areas and in deeper water, this proposal will not likely have any appreciable impact because the upgrading provision will only equalize two existing baselines, not increase the overall baseline.

6.2.3.2.13 NFMA Monkfish Trawl Experimental Fishery

The Councils propose a two-year monkfish trawl experimental fishery for the purpose of establishing a trawl exempted fishery in the NFMA. The requirement to use the proposed

trawl configuration and its potential impacts were discussed earlier in this document. A two year trial would not affect protected species except to allow an adequate evaluation of its effects on listed and other protected species. Impacts at this time are unknown. Taking no action would not affect protected species.

6.2.3.2.14 Change Fishing Year

The NEFMC initially considered three alternatives for changing the multispecies fishing year in Amendment 13 to the Multispecies FMP, although it is now proposing no change. While Amendment 13 was still in development, the Councils considered changing the monkfish fishing year in this amendment to be consistent with any changes under Amendment 13, and are now considering these changes independent of what is being proposed in Amendment 13, and they seek public comment on these alternatives specifically as they pertain to the monkfish management program. Changing the fishing year will require pro-rating of DAS allocations to account for partial years during the transition period, and three alternatives are under consideration. Because the monkfish is market driven with a peak in landings coinciding overseas demand for tails and livers from November through February, a change to the fishing year is not expected to affect effort or shifts in effort. This factor makes the change one that will not likely affect protected species either positively or negatively.

6.2.4 Alternatives with little or no biological impact

In the preceding discussion, the biological impact of some of the alternatives under consideration, including no action, was discussed. Those alternatives are:

- separation of DAS, (Section 4.1.1)
- trip limits for incidental catch, (Section 4.1.2)
- minimum mesh size, (Section 4.1.3)
- minimum fish size, (Section 4.1.4)
- the offshore fishery program, (Section 4.1.6.1)
- the permit qualification criteria adjustment, (Section 4.1.6.2) and
- the NFMA trawl experimental fishery (Section 4.1.14).

The other alternatives under consideration are mostly administrative or operational in nature, and as such are not likely to have a biological impact. Those measures are:

- Closed season or time out of the fishery (Section 4.1.5). The biological impact of no action (Alternative 1 - 20 days out) is not likely to be different than taking no time out during the spawning period (Alternative 2), and the benefits of 40 days out (Alternative 3) are not likely to be significant, since other fishing can occur during this period, and not all vessels are out of the fishery simultaneously. Alternatives 1 and 3 are temporary closures and any fish protected during this period would be susceptible to capture upon re-opening. There is no evidence that protecting fish during a narrow window, even 40 days, during the spawning period that lasts for several months has any impact on increased recruitment;
- Including in the list of frameworkable actions, measures to minimize impacts on protected species (Section 4.1.7), and measures to require bycatch reduction devices (Section 4.1.12.1). These two proposals, if adopted, would not result in any change to the fishery, but would enable future action through the framework

adjustment process, during which the impacts of the specific proposals will be analyzed.

- Exemption program for vessels fishing outside of the EEZ (Section 4.1.8). This is an administrative action. Even if some U.S. vessels avail themselves of this opportunity, the biological impact is expected to be minimal – the fishery is outside the range of stocks managed under the FMP and in the area managed under NAFO regulations. While there are no current NAFO regulations specific to monkfish, the Organization could implement quotas if necessary. Furthermore, NAFO regulations and quotas are in place for stocks potentially at risk due to bycatch in a monkfish fishery. Furthermore, the physical requirements of the fishery (due to distance from port) and the fact that US vessels cannot land in Canadian ports provides somewhat of a self-regulating mechanism for this fishery.
- Measures to minimize fishery on EFH (Section 4.1.9), impacts are discussed below
- Cooperative research incentives (Section 4.1.10) Alternative 1 (DAS set-aside) and Alternative 2 (DAS exemption) are not likely to directly result in increased effort or other biological effects. Since Alternative 1 sets aside DAS from the existing pool of allocated DAS, effort is not likely to increase as a result of adopting this approach. Under Alternative 2, which provides an exemption from DAS, effort is also not likely to increase as long as the vessels are only using part of their allocated DAS. In other words, the DAS being set aside under Alternative 1 are from the same currently unused portion of allocated DAS that would be used under the exemption program in Alternative 2. In either case, the proportion of DAS available under both alternatives is a small fraction of the total DAS used, and, therefore, likely to be insignificant.
- Clarification of vessels baseline history (Section 4.1.13). This is an administrative measure with no biological effect.
- NFMA trawl experimental fishery (Section 4.1.14). This action is limited in scope and duration, and would not have a direct biological effect, although, any measures adopted pursuant to the experimental fishery results could have an effect, and would be analyzed in the associated regulatory action.
- Change fishing year (Section 4.1.15). These alternatives are administrative in nature and would have no biological effect.

6.3 Impacts on EFH

6.3.1 Habitat Assessment of alternatives designed to minimize impacts on EFH

This Amendment and DSEIS include a no action EFH alternative (Alternative #1), an alternative (#2) that relies on the incidental habitat benefits of other management measures in the amendment, and one (#3) that would rely on the habitat and non-habitat related management measures adopted in Amendments 10 and 13 to the Scallop and Multispecies FMPs respectively. One of the habitat management alternatives (#4) focus on the direct adverse impacts of bottom trawls for 23 species with life stages with EFH that is potentially vulnerable to bottom trawls and dredges. There are also several alternatives that focus on the indirect impacts of the monkfish fishery on EFH for these