
DRAFT Highly Migratory Species Fishery Management Plan

**Chapter 3: ONGOING HMS MANAGEMENT:
MANAGING FOR OPTIMUM YIELD**

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3.1 Healthy Stocks: Managing for F_{OY}

The Magnuson-Stevens Act is clear in its requirement to prevent overfishing. Once stocks are rebuilt, it is critical to set precautionary thresholds to avoid overfishing. For healthy stocks, the target biomass and fishing mortality levels should be selected to maximize the likelihood that the maximum fishing mortality and minimum stock size thresholds will not be exceeded. This is consistent with the National Standard Guidelines (NSGs) which indicate that target reference points, such as optimum yield (OY), should be set safely below limit reference points, which are defined by the status determination criteria. The criteria used to set target catch levels should be risk-averse, so that greater uncertainty regarding the status or productive capacity of a stock or stock complex corresponds to greater caution in setting target catch levels. HMS stocks that have not been determined to be either overfished or approaching overfishing are albacore, skipjack, small coastal sharks and pelagic sharks.

3.1.1 Target Control Rule (F_{target})

F_{target} will be used to set fishing mortality levels for healthy (non-overfished) stocks and after rebuilding of overfished stocks has been accomplished to ensure that the maximum fishing mortality threshold (F_{limit}) is not exceeded. Optimum yield is the yield from a fishery that will provide the greatest overall benefit to the Nation, particularly with respect to food production and recreational opportunities, taking into account the protection of marine ecosystems. Optimum yield is the maximum sustainable yield from the fishery, reduced by any relevant social, economic, or ecological factors. For the HMS stocks that are not overfished, OY is set at the yield resulting from fishing at 75 percent of F_{MSY} . Based on modelling results (Restrepo, *et al.*, 1998), this yield is expected to average more than 90 percent of the maximum average long-term yield (i.e., MSY), for stocks that are not overfished. The target fishing mortality rate should be set sufficiently below the limit such that it offers a reasonable margin of safety and it is also possible to distinguish between the two statistically.¹ Setting the target fishing mortality rate below the limit fishing mortality rate (MFMT) of F_{MSY} also safeguards against uncertainty in stock assessments, imperfect implementation of management actions, and other factors that can cause the MFMT to be approached or surpassed.

3.1.2 Biomass Approaching Overfished Designation: the Minimum Biomass Flag

Once rebuilding is complete (or for stocks that did not require rebuilding), the biomass flag is useful to managers because it signals a decline in biomass before biomass falls to a level where the stock must be classified as overfished and in need of rebuilding. Since this is a precautionary variable, the biomass flag should be set in excess of the minimum biomass threshold (MSST) that identifies the stock as overfished (Figure 2.1) in order to alert managers and fishery to the need for action. Arresting stock biomass decline before the MSST is reached will allow managers to implement precautionary measures that may boost biomass and prevent further

¹The limit fishing mortality rate is the equivalent of the maximum fishing mortality threshold (MFMT). For Atlantic HMS, the MFMT is F_{MSY} . Thus, F_{OY} should be set sufficiently below F_{MSY} to: 1) ensure that the limit is not regularly exceeded; and 2) that the two can be statistically distinguished from each other.

decline to a level where the Magnuson-Stevens Act requires implementation of a rebuilding program. Consideration of the natural variations of population should also be a component in determining the value of this precautionary variable.

The minimum biomass flag should be set For Atlantic HMS, the biomass flag is set at $(1-M)B_{OY}$ where $B_{OY} > B_{MSY}$. This alternative seeks to set a biologically-linked measure that would trigger precautionary management action to ensure that a stock will not become overfished. Table 3.1 summarizes the biomass flags for Atlantic HMS stocks.

Table 3.1 Biomass of Atlantic HMS relative to the minimum biomass threshold (adapted from SCRS, 1998).

Species	$(1-M)B_{OY}$
North Atlantic Swordfish	$.8B_{OY}$
South Atlantic Swordfish	$.8B_{OY}$
Western Atlantic Bluefin Tuna ¹	$0.86SSB_{OY}$
Bigeye Tuna ¹	$.6B_{OY}$ (age 2+)
Albacore Tuna	$.7B_{OY}$
Yellowfin Tuna ¹	$.5B_{OY}$ (age 2+) ³
Skipjack Tuna	Unknown
Blacktip Shark ²	$0.9B_{OY}$
Sandbar Shark ²	$0.9B_{OY}$
Large Coastal Sharks ² (all species)	$0.9B_{OY}$
Small Coastal Sharks	$0.9B_{OY}$
Pelagic Sharks	Unknown

¹Natural mortality for yellowfin and bigeye tunas changes with age. For yellowfin tuna ages 0 and 1, $M = 0.8$ and $M = 0.6$ for yellowfin tuna ages 2+. For bigeye, $M = 0.8$ for ages 0 and 1, and 0.4 for ages 2+. The values of M for older age classes will be used in setting the MSST. Bigeye tuna will likely be identified as overfished in the 1998 Report to Congress on the Status of Fisheries.

²Since most of the CPUE series and catches were in number of fish rather than biomass or yield in weight, the production modeling method was used to estimate numbers of fish rather than biomass.

³In the case of yellowfin tuna, M is greater than 0.5 , necessitating use of $0.5B_{OY}$ as the MSST, rather than using $(1-M)B_{OY}$.

Table 3.2

Summary of management alternatives discussed in Chapter 3.

	Ecological Impacts	Social and Economic Impacts
<i>Bluefin Tuna Effort Controls</i>		
Prohibit the use of spotter aircraft in all BFT fisheries, except the purse seine category	Minimal impact on stock rebuilding since whatever quota is in place would most likely be harvested with or without assistance from aircraft.	Reduced average gross revenues for spotter pilots and potentially to the vessel operators that use aircraft assistance. Revenues which currently go to spotter plane operators would remain with vessel operators. In context of thousands of small businesses (vessels, shoreside operations), economic impact may not be significant.
Prohibit the use of spotter aircraft in all BFT fisheries, except the purse seine and harpoon categories	Same as above.	Less impact on spotter pilots than above if assistance of harpoon category vessels is exempted.
Reintegrate harpoon and general categories	Minimal.	Limiting Harpoon category vessels to one fish per trip would require more trips for the same number of fish, incurring more costs. However, this alternative would eliminate the need for multiple vessels.
Status quo (no action) [PREFERRED ALTERNATIVE]	Minimal impact on stock rebuilding since whatever quota is in place would most likely be harvested with or without assistance from aircraft.	Continued positive economic impacts for spotter pilots, as they receive a portion of the revenues generated from fishery. Continued higher gross revenues to the vessel operators that use aircraft assistance and negative impacts on vessel operators that do not use aircraft assistance, as vessel operators using planes are able to land more fish than those not using planes, and since fishery may close more quickly than if aircraft are prohibited.
Establish a "School Reserve" category [PREFERRED ALTERNATIVE]	Positive impact from helping to prevent the United States from exceeding its quota of school BFT.	Minimal.
<i>Yellowfin Tuna Size Limits</i>		
Status quo [PREFERRED ALTERNATIVE]	Positive impact through discouraging targeting of small fish and through survival of released fish to reproductive age. However, could increase discards.	Some loss of revenue to commercial fishery associated with regulatory discards.
Increase minimum size (both commercial and recreational) for yellowfin to 47 inches (119 cm)	Minimal impact on the stock because the United States is responsible for a very small percentage of Atlantic-wide mortality. Average size of fish landed would increase; total number of fish landed could decrease. Likely increase in yellowfin discards.	Could cause significant economic losses to commercial and for-hire fisheries that land and sell yellowfin tuna between 27 (current minimum size) and 47 inches. Would also impact ACS by changing the practice and nature of the charterboat fishery for yellowfin.

	Ecological Impacts	Social and Economic Impacts
<i>Yellowfin Tuna Bag Limits</i>		
Status quo (no recreational bag limit for yellowfin tuna)	Minimal.	Minimal.
Establish a recreational bag limit of 3 yellowfin tuna/person/day [PREFERRED ALTERNATIVE]	Minimal ecological effect because LPS data indicate that current catches generally are within this limit. This alternative could prevent expansion of the recreational fishery for yellowfin tuna in expectation of effort shifts away from other HMS that are subject to more restrictive rebuilding measures.	Minimal social and economic effects because LPS data indicate that current catches generally are within this limit.
<i>Pelagic Sharks: Commercial Fishery</i>		
Status quo (quota of 580 mt dw)	May result in maintenance of pelagic shark stocks at OY levels. Pending assessment, sustainability of current mortality is unknown.	No additional economic or social impacts. Negative impacts may result if stocks decline.
Interim reduced quota pending assessment	May have variable ecological impacts depending on the magnitude of reductions. May exceed NS 1 guidelines or may facilitate stock rebuilding, depending on current stock status. May increase regulatory discards.	May have variable economic and social impacts depending on the magnitude of reductions. May have short-term impacts if reductions are large; may mitigate any future reductions that may be necessary if pelagic sharks are declining.
Establish separate quota for porbeagle sharks of 30 mt dw; reduce pelagic shark quota by 30 mt dw to 550 mt dw [PREFERRED ALTERNATIVE]	May have variable ecological impacts depending on porbeagle stock status. May exceed NS 1 guidelines if porbeagle sharks are at OY levels or may contribute to stock declines if porbeagle sharks are below OY levels.	May have negative economic and social impacts to the extent that fishermen would not be able to expand their porbeagle shark operations.
Prohibit possession of blue sharks; establish separate dead discard quota for blue sharks of 273 mt dw; reduce pelagic shark quota by overages in blue shark dead discard quota [PREFERRED ALTERNATIVE]	Minor ecological impacts on blue shark stocks because most blue sharks are discarded alive. May contribute to blue shark maintenance by preventing directed fisheries from developing. May increase regulatory discards of pelagic sharks if overages in the blue shark dead discard quota are large.	May have substantial economic and social impacts because blue shark dead discards may exceed the dead discard quota and reduce the pelagic shark quota. Depending on the magnitude of any reductions, derby fishing conditions may develop and regulatory discards may increase.

	Ecological Impacts	Social and Economic Impacts
<i>Pelagic Shark: Recreational Fishery</i>		
See Alternatives under LCS recreational bag limits, Section 2.5.1.3.		
<i>Small Coastal Shark: Commercial Fishery</i>		
Status quo (quota of 1,760 mt dw)	May result in maintenance of SCS stocks at OY levels. Pending assessment, sustainability of current mortality is unknown.	No additional economic or social impacts. Negative impacts may result if stocks decline.
Interim reduced quota pending assessment	May have variable ecological impacts depending on the magnitude of reductions. May exceed NS 1 guidelines or may facilitate stock status, depending on current stock status. May increase regulatory discards.	May have variable economic and social impacts depending on the magnitude of reductions. May have short-term impacts if reductions are large; may mitigate any future reductions that may be necessary if SCS are declining.
Cap commercial quota at 10 percent higher than 1997 levels as an interim measure pending assessment [PREFERRED ALTERNATIVE]	Minor ecological impacts as the SCS quota will not be reduced.	May have negative economic and social impacts to the extent that fishermen would not be able to expand their operations above 1997 levels.
<i>Small Coastal Shark: Recreational Fishery</i>		
See Alternatives under LCS recreational bag limits, Section 2.5.1.3.		
Monitoring, Permitting, and Reporting		
Status Quo with no changes (Rejected)	Increased quality and scope of information is needed to improve management of HMS fisheries.	Lack of adequate data could result in increased bycatch problems, with negative long-term consequences for fishery participants.
Require charter/headboat vessels to obtain annual vessel permit and submit logbooks for all HMS trips [PREFERRED ALTERNATIVE]	Defines the universe of recreational anglers, and their effort catch and bycatch; improves catch and release statistics.	Information collection burden, administrative costs associated with processing permits and logbook information, as well as enforcement costs to ensure compliance among captains.
Implement observer coverage of all HMS charter/headboat vessels and in the BFT purse seine and harpoon fisheries. [PREFERRED ALTERNATIVE]	Increases biological information about the composition and character of total catch (landed and discarded), enhancing the quality of stock assessments.	Cost to vessel operators associated with housing and feeding observers; cost to NMFS associated with training and employing observers.
Require tournament registration for all tuna, swordfish, and shark	Facilitates collection of bycatch information in certain times/areas to more accurately characterize bycatch in	Information collection burden on those tournaments that target only tunas and sharks; tournaments that involve billfish are already

	Ecological Impacts	Social and Economic Impacts
Require vessel operators to complete logbook forms within 24 hours of hauling a longline set [PREFERRED ALTERNATIVE]	Improves quality of data reporting on discard rates by minimizing poor recollection that may be associated with delayed reporting on multi-day fishing trips.	Information collection burden would not increase since longline vessels are already required to submit logbooks; some additional inconvenience to operators by requiring more immediate completion of the form.
Require vessel operator education workshops for all recreational HMS vessel operators	Reduces bycatch by teaching operators handling and release techniques; improves the accuracy of bycatch reporting to dockside and telephone surveyors.	Other less costly and burdensome measures are under consideration; until there is a permitting system for all recreational HMS species, the universe of affected vessels is unknown.
Require vessel permits for all U.S. registered vessels fishing recreationally for HMS	Provides NMFS with a sampling frame to form the basis of fleet size calculations (used for catch and effort estimates) in fisheries that do not require mandatory reporting.	Could increase the regulatory burden on some recreational anglers; however, many anglers are already required to obtain the Atlantic tunas permit.
<i>Fishing Year</i>		
Status quo (tuna and shark fishing year would remain January 1 through December 31; swordfish fishing year would remain June 1 through May 31) (rejected)	No additional ecological impacts expected.	Difficulty in allowing sufficient time for public participation in implementing ICCAT recommendations for tunas would continue.
Fishing year begins June 1 and ends May 31 for tunas and swordfish; fishing year begins January 1 and ends December 31 for sharks [PREFERRED ALTERNATIVE]	No ecological impacts expected because it would not necessarily change any times or areas where fish are caught.	Beneficial economic and social impacts expected by allowing fishery participants more time to plan their fishing activities and should increase predictability of fishery.

3.2 Atlantic Tunas Fisheries Management Measures

Current management measures for Atlantic tunas are described in the Atlantic tunas regulations. Proposed changes from status quo management are described in the preferred alternatives below; should NMFS determine that further changes are necessary, they will be made through the framework regulatory adjustment or FMP amendment process (see section 3.12). Certain inconsistencies in HMS regulations are also proposed to be changed in this FMP. These inconsistencies were originally outlined and proposed to be changed in the proposed consolidation of regulations for HMS (61 FR 57361; November 6, 1996). Most of these proposed changes are minor or technical in nature, and are designed to implement measures in the FMP and to make management measures consistent for all HMS. The proposed changes for Atlantic tunas which

were initially included as part of the consolidated rule include, but are not limited to, the following:

- Changes to the Angling category "trophy" BFT reporting requirements to require reporting through the Automated Catch Reporting System;
- Extension of the logbook requirement to tuna permittees who fish with longline, purse seine, or hand gear;
- Elimination of the permit category for BFT buy-boats as obsolete; and
- Requirement to land all tunas with tail attached to facilitate the enforcement of minimum size and catch limit regulations and to facilitate identification of species.
- In order to clarify existing regulations regarding incidental catch of BFT, and to address enforcement issues concerning unauthorized landing of BFT under the bycatch quota, the allowance for incidental catch of BFT would be restricted to pound nets, traps, and weirs. Vessels using longline gear would still be allowed to retain incidentally-caught BFT and would be issued permits in a separate category (i.e., the Longline category).

NMFS will accept comments on these proposed regulatory changes during the comment period on the proposed FMP.

3.2.1 Bluefin Tuna Effort Controls

General Category

Effort controls are used in the BFT tuna fishery to affect where, when, and how (gear type) BFT are harvested for a variety of objectives. General and Angling category catch-per-unit-effort (CPUE) information is used in stock assessments, and lengthening the season is important for scientific monitoring purposes. See Chapter 2 for a more detailed explanation of CPUE and the scientific monitoring nature of the west Atlantic BFT fishery. Objectives also include reducing bycatch, lengthening the season for market reasons, and addressing allocation issues (e.g., through set-asides and split seasons). For example, the temporal and spatial effort control alternatives for the General category seek to lengthen the fishing season in a category with high participation and catch rates.

Currently, all but one of the commercial and recreational Atlantic tuna permit categories are open access. The Purse Seine category is the single "closed" U.S. BFT fishery, operating under a limited access, transferable individual vessel quota (IVQ) system. While all the other categories are open access, NMFS has published a "control date" (September 1, 1994) in the Federal Register. The purpose of this control date is to advise current and future commercial participants that access to the U.S. BFT fishery may be limited at some point in the future, and that future access for entrants after the control date is not assured. NMFS has also published a

concept paper on limited access for Atlantic HMS, and has held public workshops on limited access in the Atlantic tunas fisheries. The 1995 BFT Final EIS also discusses several “strawman” proposals for limited access and IVQs. There may be a renewed interest in considering some form of limited access in the BFT fishery, as other fisheries undergo limited access, restrictions on fishing effort to support rebuilding, and a narrowing of other alternatives available to new fishery participants. The effort controls discussed below should be considered in light of both open and limited access.

Currently, NMFS establishes, on an annual basis through specifications, time period subquotas, splitting General category quota (into three subquotas in 1997 and 1998). NMFS also establishes restricted-fishing days (RFDs) on which fishing for BFT by vessels in the General category is prohibited. This is intended to extend the fishing season temporally and spatially, for scientific monitoring purposes and to increase ex-vessel prices as fish quality improves in the fall. NMFS intends to continue with this method of annual specifications to establish time period subquotas and RFDs. Input from the public, industry, NMFS’ consultative parties, as well as the HMS Advisory Panel is incorporated into the annual effort control specifications for the General category.

Spotter Aircraft

Spotter planes are used in the commercial fisheries for bluefin tuna. Planes are utilized by vessels fishing in the General, Harpoon, and Purse Seine categories to locate schools of fish and assist the vessels in the capture of the fish, by providing information on where to set nets, throw harpoons, and put out or troll lines. NMFS has received numerous comments that the use of aircraft to locate bluefin tuna is, among other things, working against the effort controls previously established for the General category and is accelerating the closure of the Harpoon category.

NMFS has, on two prior occasions, requested specific comments on ways to mitigate the impact of aircraft use on catch rates (54 FR 29916; July 17, 1989 and 61 FR 18366; April 25, 1996). Prior to 1997, NMFS elected not to regulate aircraft use in the Atlantic tuna fisheries, in part because of concerns about the enforceability of spotter aircraft regulations. Additionally, in 1996, a voluntary agreement was signed by the majority of active tuna spotters that would limit activity to harpoon vessels. NMFS recognized that the voluntary agreement warranted a trial period, but also indicated that the agency would continue to monitor the situation and would take appropriate action if necessary.

On March 4, 1997 (62 FR 9726), NMFS proposed to prohibit use of aircraft and again requested comments. On July 18, 1997 (62 FR 38487), NMFS published a final rule prohibiting the use of aircraft to assist vessels in all but the Purse Seine and Harpoon categories. In response to a lawsuit filed by the Atlantic Fish Spotters Association, the United States District Court for Massachusetts, on June 10, 1998, ordered that the prohibition on the use of spotter aircraft in assisting BFT vessels in other than the Harpoon and Purse Seine categories, as codified in 50 CFR 285.31(a)(40) be overturned, and is now void.

Fishery management concerns continue to be expressed, public testimony suggests that the numbers of aircraft and vessels have increased, and members of the public continue to raise safety issues. Therefore, NMFS is again considering action to respond to these issues. The following section describes several alternatives which NMFS may pursue in order to better understand and manage the effects of spotter aircraft in the BFT fishery.

Alternative 1. For All Vessels Other than Purse Seine Category Vessels, Prohibit the Use of Aircraft to Assist Fishing Vessel Operators in the Location and Capture of West Atlantic BFT.

General

As mentioned above, NMFS has received numerous comments that the use of aircraft to locate bluefin tuna for General category vessels is contrary to effort controls previously established and is accelerating the closure of the Harpoon category. This alternative would prohibit the use of aircraft for BFT fishing except for assisting purse seine vessels.

The Harpoon boat category was established in 1980 based on information supplied by a small number of harpoon fishermen. They presented evidence that supported the conclusion that there was a small traditional fishery that should be segregated from the General category. The harpoon fishery could only be pursued under optimal weather and sea conditions, which allow fishermen to sight fish from the tower and pulpit. Since these conditions occur infrequently in New England, the one fish per day per vessel General category catch limit was too restrictive and hence, a separate quota and a multiple daily catch allowance was established for the Harpoon boat category.

NMFS has received comments that the use of spotter aircraft undermines the basis for the multiple daily catch allowance which was once considered necessary for the preservation of the traditional harpoon fishery. Commentors note that, with the advent of spotter planes, harpooning can be done under far less than optimal weather and sea conditions, and Harpoon category participants are able to fill category quota more quickly. Some Harpoon vessel owners apparently switch to General category vessels when the Harpoon category quota is attained and continue to use their spotter planes, thus accelerating the rate at which the General category quota (or time period subquota) and counteracting the effort controls designed to extend fishing opportunities for the General category.

Commentors have noted that maintaining the current regulations could result in continued difficulties with premature fishery closures and market gluts and could counteract the General category effort controls. Similarly, banning spotter aircraft for all but the purse seine fishery is consistent with other measures used by NMFS in recent years to ensure a wider geographical and temporal distribution of fishing activities, and extending the season helps ensure improved scientific monitoring as well as providing opportunities for all fishery participants. NMFS notes that use of aircraft to harvest more fish in a short period of time is inconsistent with measures to slow the fishery and improve market conditions. Data regarding closures in the General category support the conclusion that seasons have been shortened. In 1996, ICCAT adopted a recommendation prohibiting the use of spotter aircraft by purse seine vessels in the Mediterranean due to their effect of accelerating catch rates. However, in the United States, the purse seine fishery is managed under a transferable individual vessel quota program. Therefore, aircraft do not have the effect of accelerating catch in the U.S. purse seine fishery and can assist in location schools of large fish, thus reducing discards.

Enforcement is a central issue in the regulation of the use of aircraft for the BFT fishery. Certain industry members have indicated that they are willing to work with NMFS Enforcement by providing information regarding potential violations of spotter plane regulations. Special agents with investigative training could be deployed to follow up on potential violations. In comments on the 1997 spotter plane prohibition rulemaking, the Federal Aviation Administration (FAA) indicated that the ban would not interfere with the FAA's jurisdiction, because the rule would not prevent or hinder pilots from flying since the action would prohibit vessels from using any aircraft to aid in the harvest of BFT only.

The HMS Advisory Panel (AP) considered this issue at a meeting in Warwick, Rhode Island in August 1998. The meeting was open to the public and, during the public comment period the AP heard extensive testimony from fishery participants both in favor of and against this alternative. The majority of the public comments were against the use of aircraft in the General and Harpoon categories. Commentors expressed the following reasons for banning the use of spotter aircraft: spotter planes accelerate the catch rate in both the General and Harpoon categories, both directly and indirectly; accelerated catch rates result in shorter seasons, thereby effecting both CPUE data collection and economics; planes make it easier to catch multiple fish and thus make it easier to violate catch limit regulations and highgrade; vessels operating with the assistance of planes often cause conflict on the fishing grounds; airplanes are not a traditional or historical part of the Harpoon or General categories - they only got involved extensively after there was less work spotting for swordfish in the mid-1980's; and planes can cause safety concerns, for both boats and the planes themselves, by concentrating vessels and planes in a small area. The AP itself discussed the issue extensively, and while the AP did not express a unanimous view, a strong consensus emerged in favor of banning the use of airplanes by all vessels participating the Atlantic tunas fisheries, with the exception of purse seine vessels. Several AP members reserved comment, but none spoke out in favor of plane use. The points that the AP members made in favor of banning the use of aircraft in all but the purse seine category were as follows:

- The use of spotter aircraft accelerates the catch rate in both the General and Harpoon categories, both directly and indirectly. They are a highly efficient, unregulated, unpermitted, gear type. Vessels that hire planes directly are obviously assisted, but many vessels are assisted indirectly just by seeing the planes and using them as a guide to where the fish are. This indirect or "peripheral" catch may be hard to quantify, but it exists and is significant. In addition, most fish in the Harpoon category are caught with the assistance of planes. With no planes, the Harpoon category would last much longer, and the Harpoon category fishermen would not switch over to a General category boat (to further accelerate the catch in the General category) as soon.
- Because the use of spotter aircraft accelerates the catch rate, their use compromises the collection of good CPUE data, which is then used in the stock assessments. Aircraft cause the catch to be spatially and temporally concentrated, less random in nature, and more affected by short term and localized factors which can result in unreliable or unusable CPUE data for stock assessments.

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- Planes cause an increase in effort. When fish are hard to find or are far offshore during parts of the season, planes can find them very easily. Vessels that normally would not even try in such conditions are then directed to these fish by the planes.
 - The use of spotter planes adds to a vessel's potential to violate regulations and land multiple fish per day in the General category, to highgrade and discard low quality fish.
 - Pilots do not have a vested interest in the fishery. They are essentially an unpermitted gear type, and their activity is not monitored or controlled.
 - The use of spotter aircraft is a safety concern. The "rules of the road" for navigation and safety don't seem to apply when boats are racing after a plane.

Ecological Impacts

This alternative would have minimal impact on stock rebuilding as whatever quota is in place would most likely be harvested with or without the use of spotter aircraft. Spreading the General category fishery out, both temporally and geographically, would result in better data being collected and used in stock assessments, which would have positive ecological affects as there would be a better understanding of the status of the stock and more informed management decisions could be made. As for discards, it is unclear what effect prohibiting the use of aircraft would have on the catch of BFT too small to retain. Some comments indicate that discards would be reduced because harpooners not relying on aircraft may be more selective. However, some commenters argue that the discards may be increased because harpooners are not as accurate in finding retainable fish as are spotter pilots. There is little reliable information currently available to determine which outcome is more likely to occur.

Social and Economic Impacts

Spotter aircraft have largely been employed in the purse seine and harpoon fisheries, and to a much lesser extent in the General and Angling categories. Anecdotal evidence suggests that each spotter pilot assists in the harvest of 15 Harpoon Category fish per season and that spotter pilots receive 25 percent of a vessel's revenues from sale of bluefin. Using 1996 figures (average weight of Harpoon category catch and average price per pound), prohibiting the use of spotter aircraft in the Harpoon category would thus reduce average gross revenues for pilots by approximately \$12,000. However, in the General category, the daily catch is limited to one bluefin per vessel. Therefore, prohibiting the use of spotter pilots in the General category would be expected to reduce average gross revenues for pilots by considerably less than \$12,000.

Because the full BFT quota would in all likelihood be taken even without the aid of spotter aircraft, gross revenue lost to pilots would accrue to vessel operators. No information available to NMFS suggests that the pilots depend solely on bluefin tuna spotting for their livelihoods. This alternative may not have a significant economic impact, if one views the fishery in the context of several thousand small business entities, including vessel operators and shoreside

support services. The FEIS for BFT provides information on direct and indirect full time equivalent (FTE) employment in certain portions of the BFT fishery. An estimated total of over 1,200 direct and indirect FTE jobs are attributed to the BFT fishery. On a full-time equivalent basis, less than two percent of small business entities would be affected by this alternative (Final Environmental Impact Statement, July 20, 1995, p. 129, table 3.16).

Anecdotal information suggests the existence of some unsafe practices, such as near misses with more than one aircraft flying at low altitude or aircraft attracting too many vessels to a the same area. For example, on April 9, 1997, two single-engine planes carrying spotters of spawning herring collided over Prince William Sound, Alaska, killing two individuals in one of the planes.

Conclusion

This alternative is rejected at this time. NMFS believes more information on the use and effects of spotter aircraft in the BFT fisheries should be reviewed before taking further action. NMFS will continue to seek the input of the HMS Advisory Panel in further evaluation of management alternatives regarding spotter aircraft. See conclusion for the preferred alternative (Alternative 4).

Alternative 2. For All Vessels Other than Harpoon and Purse Seine Category Vessels, Prohibit the Use of Aircraft to Assist Fishing Vessel Operators in the Location and Capture of West Atlantic BFT.

General

NMFS implemented this measure though a final rule effective July 1997. However, as mentioned previously, the United States District Court for Massachusetts ordered that the prohibition be overturned effective June 10, 1998.

Despite the Court's ruling, NMFS continues to believe that extending the season for the rod-and-reel fisheries helps ensure improved scientific monitoring as well as providing opportunities for all fishery participants. To this end, NMFS has taken regulatory actions in previous years to extend the BFT season for the General and Angling categories. However, data from the harpoon and purse seine fisheries have not been incorporated into any of the currently usable catch-per-unit-effort indices, therefore the effect of spotter aircraft accelerating catch rates in these fisheries is less significant.

While exempting harpoon as well as purse seine vessels would mitigate adverse impacts on spotter pilots, there would be difficulties in enforcing the ban when the Harpoon and General category fisheries are operating concurrently. Harpoon gear is also authorized for the General category, but the exemption would only apply to vessels permitted in the Harpoon category.

Ecological Impacts

This alternative would have effects that are primarily economic and/or administrative in nature.

As spotter pilots are able to determine the approximate size class of a school of bluefin, prohibiting the use of spotter aircraft in the General category may increase the potential for catching undersized fish in the handgear categories and could lead to increased discards. It is unclear what effect prohibiting the use of aircraft would have on the catch of BFT too small to retain. Some comments indicate that discards would be reduced because harpooners not relying on aircraft may be more selective and because they will be less apt to strike at fish they cannot see well (as they may with spotter pilot assistance). However, some commenters argue that the discards may be increased because harpooners are not as accurate in finding retainable fish as are spotter pilots. There is little reliable information currently available to determine which outcome is more likely to occur. In recent years, less than 10 percent of the General category quota has been taken with harpoon gear, thus the potential for increased discards is limited.

Social and Economic Impacts

The analysis in effort control Alternative 1 includes a description of the potential social and economic impacts of this alternative. As mentioned above, exempting harpoon as well as purse seine vessels from a spotter aircraft prohibition would mitigate adverse impacts on spotter pilots.

Conclusion

This alternative is rejected at this time. NMFS believes more information on the use and effects of spotter aircraft in the BFT fisheries should be reviewed before taking further action. NMFS will continue to seek the input of the HMS Advisory Panel in further evaluation of management alternatives regarding spotter aircraft. See conclusion for the preferred alternative (Alternative 4).

Alternative 3. Reintegrate the Harpoon and General Categories

Reintegration of the Harpoon category with the General category would simplify regulations and establish parity between the two categories insofar as the catch limit would be one bluefin greater than 73" (or 81", if implemented) per vessel per day for all handgear types. It has been alleged that fishing activities associated with spotter aircraft require that multiple landings be attempted, potentially through the practice of at-sea transfers. The reduction in the daily catch limit for the harpoon sector would diminish the cost-effectiveness of spotter aircraft assistance and thus could potentially reduce their use in the fishery.

Ecological Impacts

This alternative would have effects that are primarily economic and/or administrative in nature.

Social and Economic Impacts

The social and economic impacts from this alternative would mostly be felt by the participants in the Harpoon category who would be limited to the one fish per trip limit in the General category. Some vessels in the Harpoon category land over 25 fish per year. The more successful vessels in the General category land similar numbers of fish, so the impact may not be great. Many vessel owners in the Harpoon category also own another vessel in the General category, and when the Harpoon category closes, they fish in the General category on their second vessel. This alternative would eliminate the need for a second vessel, and could impact the revenues of those owners/operators who have multiple vessels. This is hard to assess, however, as these vessel owner/operators could participate full time in the General category and potentially make up for the income lost from the Harpoon category vessel.

Conclusion

This alternative is rejected at this time. For those who use exclusively harpoon gear, the weather dependency of using harpoon gear still warrants the multiple catch limit in the Harpoon category. NMFS will continue to seek the input of the HMS Advisory Panel in further evaluation of management alternatives regarding spotter aircraft. See conclusion for the preferred alternative (Alternative 4).

Alternative 4. No action (Status Quo) [PREFERRED ALTERNATIVE]

As mentioned above, maintaining the current regulations could result in continued difficulties with premature fishery closures and market gluts, and could counteract the General category effort controls. In addition, safety concerns would not be addressed. The traditional harpoon fishery can only be pursued under optimal weather and sea conditions and has therefore been provided with a multiple daily catch allowance. Using aircraft in the harpoon fishery is not entirely consistent with the rationale for a higher catch limit and optimal weather conditions needed to sight fish from the tower and pulpit.

As mentioned above, the HMS AP considered this issue at a meeting in Warwick, Rhode Island in August 1998. The meeting was open to the public and, during the public comment period the AP heard extensive testimony from fishery participants both in favor of and against this alternative. While the vast majority of the public comments were against the use of aircraft in the General and Harpoon categories, some did speak in favor of their use. The reasons they gave for allowing the use of spotter aircraft in all categories included: spotter planes do not significantly accelerate the catch rate—it is the sheer number of participants in the fishery that accelerate the catch rate; spotter aircraft and pilots have contributed to science through the aerial survey; and spotter pilots allow vessels to select for larger fish, resulting in fewer discards. Those defending

the use of spotter aircraft also expressed concern that this issue was being decided by a popularity contest and that just because the majority wants aircraft banned does not mean it is a legally defensible action.

Ecological, Social, and Economic Impacts

The impacts of the use of spotter aircraft in the BFT fishery are described above.

Conclusion

As evidenced by the AP's consensus, NMFS continues to believe that the use of spotter planes in the General and Harpoon categories is a problem in the bluefin tuna fishery and that the use of spotter planes impedes the collection of important scientific information about this fishery. NMFS is currently developing a proposed rule to address the issue of spotter planes in the bluefin tuna fishery, and intends that a final rule would be completed prior to the commencement of the next General and Harpoon category fishing seasons, June 1, 1999. NMFS will consider information gathered during the development of this draft FMP, including comments from AP members and the public during the scoping and other public comment processes. These comments were very helpful; however, NMFS has determined that further deliberation is necessary prior to issuing a proposed rule.

Angling Category

Alternative 5. Establish a "School Reserve" Category. [PREFERRED ALTERNATIVE]

This alternative would establish a "school reserve" category which could be used in the instance of overharvest in the school category. This alternative could be implemented with any rebuilding and allocation alternative, so long as the allocation alternative provides for a school BFT fishery.

General

For school size class BFT, ICCAT limits west Atlantic BFT fishing nations to eight percent of their national quota (See discussion in Chapter 2). For the status quo quota levels, this is 108 mt for the United States. Because of high, as well as highly variable, catch rates, the Angling category can easily harvest and exceed this quota. The United States could be held accountable for such an overage, and those school fish could be deducted from the U.S. quota in the future. A "school" reserve of 20 mt would reduce the chances of the United States exceeding the eight percent tolerance, as the 20 mt would not be allocated at the start of the season, but would be held in reserve as a buffer against an overage. If an overage did not occur, the 20 mt could be allocated to the recreational fishery later in the year or carried over and allocated the following year, consistent with the relevant ICCAT recommendations.

Ecological Impacts

This alternative would have positive ecological impact as it would help prevent the United States from exceeding its quota of school size class BFT.

Social and Economic Impacts

As this alternative would not increase or decrease the overall quota or the Angling category quota, it would not have any social or economic impacts as compared to the status quo. The Angling category would still be allowed to harvest its full quota. One might argue that the Angling category benefits from exceeding its quota, but if overharvests are subtracted from the following year's quota, quota overages do not benefit any category.

Conclusion

This is a preferred alternative. It would help prevent the United States from exceeding its quota of school BFT, which would prevent excessive fishing on the stock as well as reductions in future years' school BFT quota. This alternative would not have negative social or economic impacts.

3.2 Yellowfin Tuna Management Measures

3.2.2 Yellowfin Tuna Size Limits

Alternative 1. Status Quo minimum size [PREFERRED ALTERNATIVE]

The current minimum size for yellowfin tuna is 27 inches CFL for both the commercial and recreational fisheries. This is a higher minimum size than the 3.2 kg minimum established by ICCAT. Although ICCAT allows a discretionary tolerance of 15 percent, the United States permits no tolerance for undersize fish.

Ecological Impacts

Minimum size regulations are intended to conserve juvenile fish in two ways. First, prohibition on landing prevents development of a commercial market for small fish, thereby discouraging fishermen from targeting them. Secondly, some of the small fish that are discarded will survive and mature to reproduce and contribute to the stock biomass. However, to the extent that fishermen cannot control the size composition of the fish they catch, minimum sizes can result in significant discards of undersized fish.

Economic Impacts

Minimum size limits can influence the size composition of the harvest, and will influence the amount of total fishing mortality in a fishery and the nature of the fishery. Under minimum

size regulations, fishermen may not retain and/or land fish below the minimum size, thus more yellowfin would be released. There would be some loss of revenue to the commercial fishery associated with the regulatory discards. There could also be some effect on Angler Consumer Surplus, but the extent of potential impacts on the recreational fishery is uncertain.

Conclusion

The United States has already implemented a higher minimum size than that required by ICCAT. The United States has also prohibited all retention of yellowfin less than the minimum size, rather than allowing a 15 percent tolerance. Raising the minimum size would not be consistent with the objective to minimize bycatch and bycatch mortality. Thus, at this time, NMFS has decided to maintain the current minimum size of 27 inches.

Alternative 2. Increase Minimum Size (both commercial and recreational) for Yellowfin Tuna to 47 inches (119 cm) CFL

This alternative would increase the minimum size for yellowfin tuna from 27 inches CFL to a size which is above their size at first maturity. Yellowfin reach sexual maturity at a size of about 45 inches (115 cm) CFL. A minimum size of 47 inches was chosen for this alternative because it corresponds to the large school size class for BFT.

Ecological Impacts

Overall impacts on the yellowfin stock would be minimal due to the very small percentage of yellowfin that the U.S. is currently estimated to land in the Atlantic compared to other nations (the U.S. landed 6 percent of yellowfin in the Atlantic in 1996). The average size of both yellowfin landed would increase, but overall landings could decrease. Large Pelagic Survey (LPS) data from 1996 and 1997, indicate that 91 percent of yellowfin caught by recreational anglers were below 47 inches CFL. The yellowfin numbers may be skewed by the fact that the LPS does not cover the Gulf of Mexico, where yellowfin tend to be larger, but the amount of yellowfin caught recreationally in the Gulf of Mexico is much less than that caught in the northwest Atlantic.

A review of commercial data from dealer weighout slips for 1997 indicates that, in terms of numbers of fish, 92.5 percent, 66.7 percent, and 4.8 percent of the yellowfin caught with rod and reel in the Atlantic, longline in the Atlantic, and longline in the Gulf of Mexico, respectively, were below 47 inches CFL. By weight, the numbers are 84.9 percent, 50.8 percent, and 0.8 percent for yellowfin. Most landings are made using longline gear in the Atlantic.

Due to the above numbers for both commercial and recreational landings, discards of undersized yellowfin could increase substantially under this alternative. This alternative could also cause recreational and commercial effort targeting yellowfin to shift to other HMS, as well as other fisheries.

Social and Economic Impacts

Due to the large number of yellowfin currently caught that are below 47 inches CFL, this alternative could cause significant economic losses to the commercial sector. Using weights from the longline fishery in the Atlantic, about 50 percent of the revenues from yellowfin, and 40 percent of the revenues could be lost as a result of this alternative. This alternative could cause shifts in fishing activity to areas where there are larger fish, which would result in lower economic losses, but the loss of revenue would most likely still be substantial.

For the recreational fishery, this alternative would mean that most of the recreationally caught yellowfin could not be retained, which could seriously impact angler consumer surplus, as well as charterboat revenues and the communities that support the recreational and for-hire fisheries. The degree of impact on the recreational fishery, while most likely significant, is unknown.

Conclusion

While this alternative is viable, it is rejected at this time due to the increase in discards that could occur, particularly in view of the low percentage of yellowfin and bigeye that the U.S. lands in the Atlantic compared to other nations (and thus the overall impact on F stock-wide). This alternative would also have large adverse economic impacts on both recreational and commercial fishermen and communities in the U.S. While this alternative is rejected at this time, NMFS encourages further input from the HMS Advisory Panel and the public on this issue.

3.2.3 Yellowfin Tuna Bag Limits

Alternative 1. No Recreational Bag Limit for Yellowfin Tuna - Status Quo

General

Because yellowfin tuna are not currently overfished and current data suggest that catch rates per angler are low, it may not be necessary at this time to impose a bag limit. Conversely, catch rates are known to be quite high for those fishermen who are consistently successful at catching yellowfin tuna. Recreational (rod and reel) harvest of yellowfin tuna was reported as 52 percent of the total U.S. landings for this species in 1996 (NMFS, 1997a).

Ecological, Social, and Economic Impacts

For a description of the fishery for yellowfin tuna, including the economics of the fishery under the status quo, see the description of fisheries in Chapter 6 of this document.

Conclusion

This alternative is rejected. While yellowfin tuna are not overfished, NMFS believes that

in order to prevent excessive landings of yellowfin in the recreational fishery and maximize fishing opportunities, a recreational bag limit for yellowfin is warranted.

Alternative 2. Establish a Recreational Bag Limit of 3 Yellowfin Tuna/person/day
[PREFERRED ALTERNATIVE]

General

Bag limits for yellowfin tuna could reduce excessive landings in the recreational fishery and maximize fishing opportunities as NMFS. There have been reports of recreational anglers attempting to sell their catch of yellowfin tuna. Regulations require a commercial category Atlantic tunas permit in order to legally sell yellowfin and other tuna species. To comply with the regulations, vessel owners who sell yellowfin tuna and do not wish to be bound by the angler catch limits must apply for a commercial fishing permit. Bag limits might also help to encourage catch and release fishing of this species which has been designated fully fished. Voluntary bag limits currently exist in Delaware and North Carolina, as well as other areas, where charter boats and private anglers do not exceed three yellowfin tuna/person/day. This is already a voluntary bag limit for charter boats in some areas in North Carolina and Delaware, as well as in some areas in other states.

Ecological Impacts

This bag limit would limit the harvest of yellowfin while still allowing for consumptive use of the species. Data from the 1996 and 1997 Large Pelagic Survey indicate that 79 percent of trips targeting large pelagic species, including yellowfin, have 3 or more anglers on board. LPS data also indicate that under present conditions with no bag limit, 94.9 percent of trips which land at least 1 yellowfin, land 9 yellowfin or less. These data indicate that this alternative would have little ecological impact, as it would not restrict the yellowfin catch on most recreational fishing trips. This alternative could increase discards as anglers may need to release fish if they have already reached the bag limit. Since most fishing trips would not be restricted by this bag limit, however, any increase in discards due to this alternative would be minimal.

Social and Economic Impacts

This alternative may discourage fishermen from paying for charter trips if they see the bag limit as limiting their fishing activity. As indicated above, however, this bag limit would limit very few anglers or trips landing yellowfin. Based on the 1997 average yellowfin weight of approximately 33 pounds, a catch limit of 3 fish per person would amount to approximately 99 pounds of yellowfin for each angler per trip.

Chartered vessels typically have 4 or 6 anglers on board. LPS data indicate that under present conditions with no bag limit, 98.4 percent of trips that land at least 1 yellowfin, land 12 yellowfin or fewer, and 99.9 percent of trips which land at least 1 yellowfin, land 18 yellowfin or fewer. Therefore, this alternative would likely have little impact on charter operations or revenues. As also mentioned above, this bag limit would encourage catch and release fishing

which is increasingly popular for yellowfin tuna and other pelagic species caught in the recreational fishery.

Conclusion

This is the preferred alternative. NMFS believes that in order to reduce and/or prevent excessive recreational catches and maintain fishing opportunities, a recreational bag limit of 3 fish per person per day for yellowfin is warranted. This issue was discussed at the HMS AP meeting in Warwick, Rhode Island in August 1998, and while there was no consensus, there was some support for a bag limit for yellowfin tuna. NMFS encourages further input from the HMS AP and the public on this issue.

3.3 North Atlantic Swordfish Management Measures

Current management measures for Atlantic swordfish are described in the Atlantic swordfish regulations. Proposed changes from status quo management are described in the preferred alternatives below; should NMFS determine that further changes are necessary, they will be made through the framework regulatory adjustment or FMP amendment process (see section 3.12). Measures for management of the driftnet fishery will be addressed in a separate rulemaking. Similarly, NMFS published a proposed rule on October 13, 1998 that bans the import of undersized Atlantic swordfish, extends dealer permitting and reporting requirements to include swordfish importers, and establishes a Certificate of Eligibility program to aid in tracking swordfish imports. Final regulations on those issues will be incorporated in the final HMS FMP. Additionally, certain inconsistencies in HMS regulations are also proposed to be changed in this FMP. These inconsistencies were originally outlined and proposed to be changed in the proposed consolidation of regulations for HMS (61 FR 57361; November 6, 1996). Most of these proposed changes are minor or technical in nature, and are designed to implement measures in the FMP and to make management measures consistent for all HMS. The proposed changes for Atlantic swordfish which were initially included as part of the consolidated rule include, but are not limited to, prohibiting purchase or possession by dealers of undersized Atlantic swordfish landed by fishing vessels of the United States.

3.3.1 Introduction

Atlantic swordfish are considered overfished in the North Atlantic and fully fished in the South Atlantic, although under the status determination criteria proposed in this draft FMP, South Atlantic swordfish may also be declared overfished. The Standing Committee on Statistics and Research (SCRS) of ICCAT will conduct a stock assessment of swordfish in 1999, and the ICCAT commissioners will make recommendations regarding quotas and other management measures necessary for swordfish stock conservation. By that time, the United States will have adopted a preferred rebuilding plan for North Atlantic swordfish and may use this as a basis for discussions and negotiations at the 1999 ICCAT meeting.

This draft HMS FMP includes a number of domestic measures designed to complement and enhance the ICCAT swordfish recommendations. Chapter 2 includes a proposed time/area closure to protect juvenile swordfish, and a number of measures for pelagic longline and driftnet fishermen designed to reduce the number and severity of interactions with protected and endangered species. In addition, Section 3.7 below addresses a change in the fishing year, which would delay the start of the swordfish fishing year by one month. Finally, Chapter 4 on Limited Access presents an important new management tool for the Atlantic swordfish fishery, notably, limited access.

3.3.2 Effort Controls

As international and domestic management measures for North Atlantic swordfish focus on decreasing annual total allowable catch, fishery managers may be able to work with industry to determine optimal parameters within which to conduct these “limited” fishery operations. In the past, seasonal closures affected the prices of swordfish to commercial fishermen and NMFS was asked to establish effort control measures to lengthen the season, reduce derby fishing conditions, and provide for delayed offloading. “Drop dead” closure dates cause market gluts and lower prices (as well as storage and handling problems), and a fleet of larger U.S. distant-water vessels increased catch rates for the pelagic longline fishery. However, a closure is not expected in Fall 1998, this FMP proposes requiring VMS on all vessels which would permit delayed offloading, and several large swordfish vessels have exited the Atlantic swordfish fishery. Therefore, the need for federally managed effort controls in the swordfish fishery may be significantly reduced. The most important effort control measure that will affect swordfish fishermen in the HMS FMP is the re-proposed limited access program which is described in detail in Chapter 4. With the advice of the HMS AP, NMFS can decide whether effort controls in this fishery are needed in the future (after the implementation of limited access permits). If NMFS identifies effort controls as a management priority for the Atlantic swordfish fishery, the framework measures would allow for trip limits, days between landings, and days at sea. However, the administrative burden increases with implementation of every effort control regulation and NMFS encourages fishery participants to work together to regulate fishing effort and establish parameters for optimal fishing conditions.

Effort control measures which may be considered include trip limits and/or days between landings. In the September 1995 final rule (60 FR 46776), NMFS implemented trip limits for the 1996 calendar year. There had been considerable discussion regarding options for establishing variable trip limits, including a trip limit based on the individual vessel’s catch history, trip limits for distant-water vs. coastal-water trips, and trip limits by vessel size. There was also discussion of allowing vessels to have a minimum amount of time in port between landings. All of these options were deemed to be difficult to quantify, implement and/or enforce. In the final rule, NMFS noted in response to comments on effort controls:

“The difficulty in classifying distant-water vs. coastal-water vessels and of enforcing different trip limits for them requires the establishment of one trip limit at this time. . . The trip limit is based on 90 percent of trips taken in the Grand Banks (distant-water) fishery in 1992 and 1993.”

Once the limited access system is in place, there may be expanded options for extending

the fishing season for Atlantic swordfish. With a smaller, more definable universe, NMFS may be able to design and implement systems that are efficient for both vessels and for administrative/enforcement purposes. In addition, this FMP proposes to require that pelagic longline vessels complete their logbooks within 24 hours of haulback, which may facilitate enforcement of minimum time in port (logbooks are currently required seven days after offloading). Given that other measures proposed in the FMP may present new options for addressing derby fishing conditions, NMFS will consider trip limits and other effort controls in future rulemaking under the framework provisions of the FMP.

3.4 Atlantic Shark Fisheries Management Measures

Current management measures for Atlantic sharks are described in the Atlantic shark regulations. Proposed changes from status quo management are described in the preferred alternatives below; should NMFS determine that further changes are necessary, they will be made through the framework regulatory adjustment or FMP amendment process (see section 3.12). Certain inconsistencies in HMS regulations are also proposed to be changed in this FMP. These inconsistencies were originally outlined and proposed to be changed in the proposed consolidation of regulations for HMS (61 FR 57361; November 6, 1996). Most of these proposed changes are minor or technical in nature, and are designed to implement measures in the FMP and to make management measures consistent for all HMS.

3.4.1 Pelagic Sharks

NMFS has not conducted a stock assessment for those species included in the pelagic shark management unit since the assessment that supported the FMP in 1993, primarily due to the lack of long-term and large scale (in terms of geographic coverage) time series. Several species within the pelagic shark management unit are trans-oceanic (e.g., blue, oceanic whitetip, and mako sharks) and are subject to exploitation by many nations. In fact, in the original Atlantic Shark FMP, no estimate of MSY could be calculated and the Total Allowable Catch (TAC) is based on the mean catches from 1986 to 1991. In order to conduct a comprehensive stock assessment for pelagic sharks with all relevant catch and catch rate time series, the cooperation of many nations is needed. However, a regional assessment of shortfin mako and porbeagle sharks alone may provide scientifically valid results as the ranges and primary fisheries for these species are within the jurisdiction of only a few countries (e.g., Canada and the United States).

Until either regional or international stock assessments are conducted, management within the United States for pelagic sharks will continue to be based on an undetermined fraction of the total mortality on these species. Available catch and catch rate information, while informative of general trends, is insufficient to modify current estimates of MSY or TAC levels. Nevertheless, concerns have been raised regarding the trends in the pelagic shark fishery that warrant consideration.

Commercial pelagic shark landings have not reached the commercial quota of 580 mt dw since the implementation of the FMP (Table 3.3), (although they did increase by 20 percent to 433 mt dw in 1997). Mako, porbeagle, and thresher sharks comprise 98 percent of the landings (Table 3.4). Currently, as the commercial pelagic fishery has not closed, only those pelagic shark species that lack commercial value are discarded (i.e., there should be no regulatory discards). Estimates of the pelagic sharks discarded dead in the tuna and swordfish longline fisheries range from approximately 300 to 1,200 mt ww (about 9,000 to 30,000 fish) from 1981 to 1995, of which approximately 80 to 95 percent are blue sharks (Table 3.5, see Cramer, 1996). Members of the public have raised concerns that the number of blue sharks caught and discarded in these fisheries can be very high, sometimes exceeding the targeted tuna or swordfish catch by two or three times. Members of the public have indicated that international stock assessments are necessary to estimate total current fishing mortality for blue sharks and evaluate whether these

levels are sustainable.

The estimated amount of blue sharks discarded dead in the pelagic tuna and swordfish longline fisheries exceeded the commercial quota in 1993. Estimates of pelagic sharks discarded in these fisheries in 1996 and 1997 are 839 and 253 mt ww, respectively (about 19,000 and 8,000 fish or 419 and 127 mt dw, respectively, assuming that dressed weight is 50 percent of whole weight), of which approximately 70 to 75 percent are blue sharks (Table 3.3, see Cramer et al., 1997; Cramer and Adams, 1998). Estimates of pelagic sharks discarded dead in other fisheries in 1996 and 1997 are 110 and 56 mt ww (55 and 28 mt dw), respectively, of which 97 and 76 percent are blue sharks (see Cramer et al., 1997; Cramer and Adams, 1998). Thus, in 1996, the estimate of dead discards is 82 percent of the commercial pelagic shark quota, with blue shark dead discards comprising 62 percent; whereas in 1997, the estimate of dead discards is 27 percent of the commercial pelagic shark quota, with blue shark dead discards comprising 19 percent. When blue sharks are not included, the estimate of dead discards in 1996 is about 119 mt dw, or 20 percent of the pelagic shark quota, and in 1997, the estimate of dead discards is about 46 mt dw, or 8 percent of the pelagic shark quota.

Estimates of blue sharks discarded alive range by area, quarter, and year from approximately 30 to 100 percent during the period 1992 to 1995 (Cramer, 1996). Catches of blue sharks in the Grand Banks and Northeast Coastal areas often near or exceed the catch of the targeted swordfish and tunas, with approximately 80 to 90 percent of those blue sharks discarded alive (Cramer, 1996).

Table 3.3 Pelagic Sharks commercial and recreational landings. Numbers and weights are converted to weights and numbers using an average size.

Year	Commercial landings (lb dw)	Recreational landings (lb dw)	Total landings (lb dw)	Commercial landings (Number)	Recreational landings (Number)	Total landings (Number)
1986	269912	7542466	7812378	4264	42092	46356
1987	603516	3795202	4398718	8722	37259	45981
1988	1135734	3886981	5022715	15580	33418	48998
1989	2026772	3024180	5050952	31121	22609	53730
1990	1595497	1148853	2744350	23090	15359	38449
1991	705529	715223	1420752	9295	11553	20848
1992	1370698	1444062	2814760	18132	16418	34550
1993	1207666	2782806	3990472	14819	31271	46090
1994	986808	665920	1652728	18953	6151	25104
1995	834723	3046364	3881087	11521	32891	44412
1996	695531	1930016	2625547	170504	20838	191342
1997*	955313	776433	1731746	103406	8383	111789

*1997 data are preliminary

Sources: Scott et al., 1996; Poffenberger, 1996; Scott et al., 1998

Table 3.4 Estimated harvest estimates of Pelagic Sharks in commercial and recreational fisheries for 1996 and 1997. Note: commercial landings are in pounds dressed weight and recreational landings are in numbers of fish. Note: landings of fins are included in the commercial estimate.

Species	Commercial Landings		Recreational Landings	
	1996	1997	1996	1997
Bigeye thresher	5,295	5,308		
Blue	10,228	967	10,461	4,265
Cow		81	443	54
Longfin mako	5,923	2,112		
Mako genus			7	10
Oceanic whitetip	217,254	3,656		
Porbeagle	46,424	3,690		
Shortfin mako	158,422	261,825	9,062	2,618
Thresher	237,507	109,030	865	1,436
Unclassified	14,478	568,644		
TOTAL	695,531	955,313	20,838	8,383

*1997 data are preliminary
Source: Scott et al., 1998

Table 3.5 Blue Shark dead discards as a percentage of all Pelagic Shark dead discards by Pelagic Longline Vessels for 1987 through 1997.

Year	Pelagic Sharks			Blue Sharks			Percent of Pelagic Sharks (MT dw)
	Number	MT (ww)	MT (dw)	Number	MT (ww)	MT (dw)	
1987	13092	560.64	280.32	12506	526.202	263.101	93.86
1988	13655	468.73	234.365	12934	421.157	210.5785	89.85
1989	13480	538.21	269.105	12525	480.008	240.004	89.19
1990	13955	795.97	397.985	13141	741.336	370.668	93.14
1991	17232	813.21	406.605	16562	772.319	386.1595	94.97
1992	8940	298.3	149.15	7043	184.39	92.195	61.81
1993	30544	1191.53	595.765	29329	1136.33	568.165	95.37
1994	13411	637.7	318.85	11986	572.24	286.12	89.73
1995	8738	307.75	153.875	7325	242.39	121.195	78.76
1996	19020	839.272	419.636	15947	608.707	304.3535	72.53
1997	7846	253.62	126.81	6688	186.82	93.41	73.66

Sources: Cramer, 1996; Cramer et al., 1997; Cramer and Adams, 1998.

Catch rate data for the pelagic species combined indicate that the rapid decline seen in the late 1980s has apparently stabilized since 1992 (Figure 3.1). Individually, blue, mako and thresher sharks exhibit decreasing catch rates, although for both blue and thresher sharks the catch rates have increased slightly since 1995. Thresher and oceanic whitetip sharks catch rates exhibit high variability (Figure 3.1). Thus, there is little evidence from the catch rate data that supports the need for more restrictive management measures at this time. It is important to note that the catch rates for mako sharks from the Large Pelagic Survey (LPS) increased in 1996 and 1997, contrary to anecdotal evidence that the catches of shortfin mako sharks were greatly reduced in those years. The apparent decline of shortfin mako sharks is of substantial concern to the recreational fishing community.

Additional concerns have been raised by members of the public regarding the susceptibility of porbeagle sharks to overexploitation and the potential for expansions in directed pelagic shark fishing effort. The porbeagle fishery in the northwest Atlantic is a classic textbook example of a boom and bust commercial fishery (see description of fisheries in Chapter 5) that ceased being commercially viable within a few years of initiation. There is a small directed porbeagle fishery that predominantly occurs in New England, in addition to a moderate fishery for porbeagle sharks in Canada. Members of the public have expressed the concern that, based on historical catch rates, porbeagle sharks should be managed separately from the combined pelagic shark unit and carefully monitored to ensure that fishing mortality rates are sustainable. Also, the pelagic longline fishery, which currently encounters and lands pelagic sharks incidentally to tuna and swordfish fishing, may begin to direct effort on pelagic sharks in the face of declining tuna and swordfish quotas, and that the fully fished pelagic sharks may become overfished if fishing effort increases.

3.4.1.1 Commercial Fishery

Alternative 1. Status Quo (580 mt dw or 37 percent of the pelagic TAC).

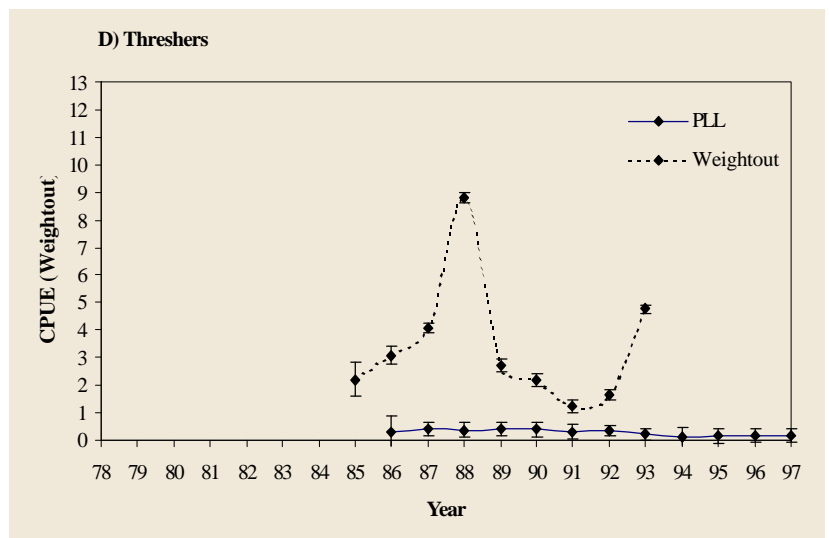
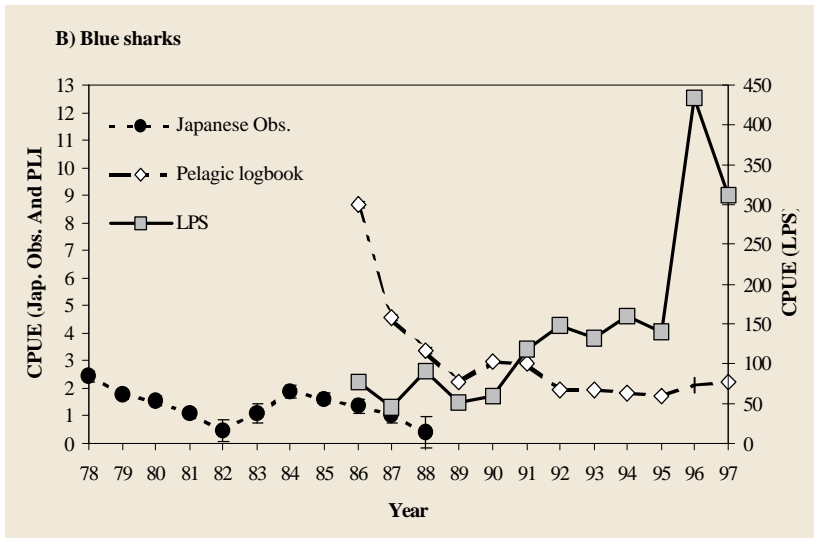
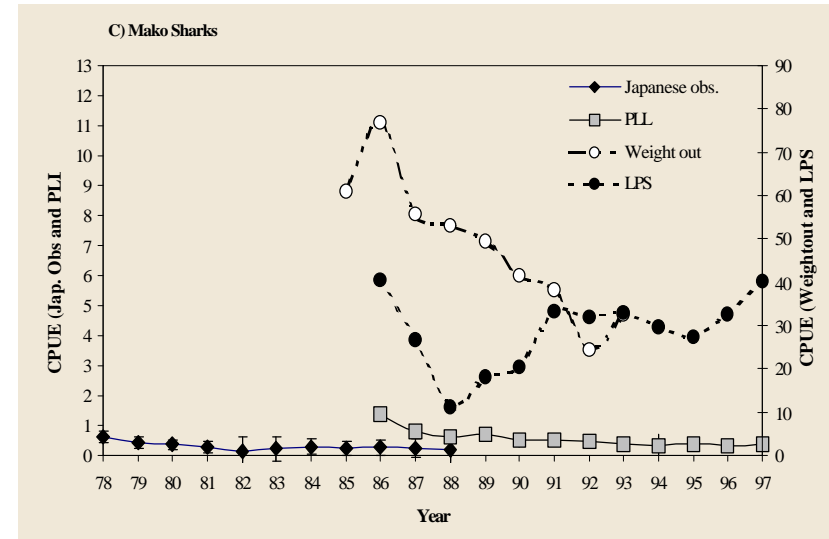
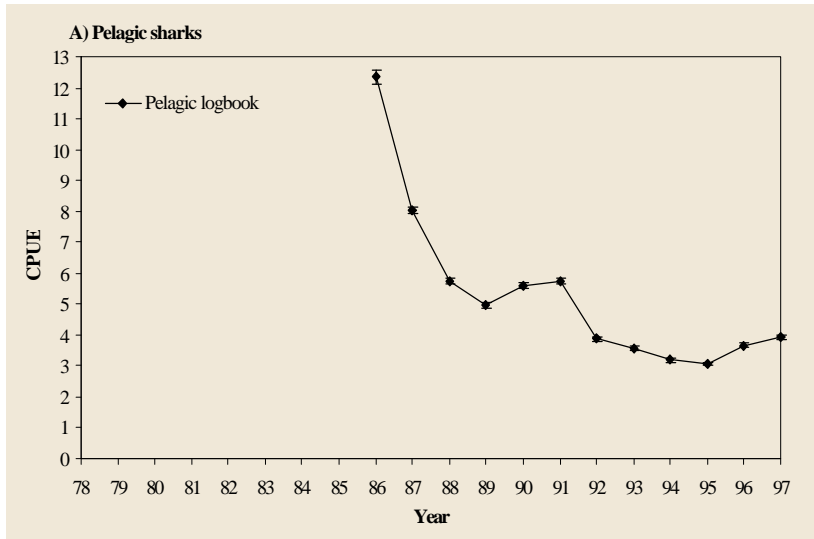
General

This alternative would maintain the current management structure and allocations based on the pelagic shark management unit as a single group.

Ecological Impacts

Pending additional scientific analyses, it cannot be determined whether current levels of fishing mortality are sustainable. Aggregate pelagic shark catch rates suggest that the rapid declines seen in the mid 1980s to early 1990s have slowed. However, for transoceanic species like the blue shark, catch rate indices from U.S. fisheries alone may not track even relative population abundance trends with any accuracy. Therefore, to the extent that current fishing mortality levels are sustainable, this alternative would not result in negative ecological impacts. If current fishing mortality rates are too high, this alternative may contribute to stock declines. However, other preferred alternatives in this document, including a recreational minimum size limit for all sharks and counting dead discards against the commercial quota, may reduce the mortality of pelagic sharks.

Figure 3.1. Catch per unit effort series for Pelagic sharks. Note change in scale. Source: NMFS, 1998 (SEW Report).



It is important to note that expansions of the harvesting capacity of the fishing fleet (vessel length, horsepower, hold capacity) and the number of participants in the fishery would be limited under the proposed limited access system for both the Atlantic swordfish and shark commercial fisheries. However, the proposed limited access would not limit fishing effort (number of trips, length of trips, amount of gear fished) and fishing mortality rates may increase.

Economic Impacts

This alternative would not have any marginal economic impacts in the short-term. In the long-term, this alternative may have significant impacts if the stock declines.

Social Impacts

This alternative would likely have little social impacts as fishers and fishing communities are currently operating under these restrictions.

Conclusion

This alternative is not preferred because of concerns regarding the sustainability of current fishing mortality rates and the potential for increased fishing effort on those species known to have limited capacity to withstand fishing pressure (e.g., porbeagle sharks). Additionally, this alternative, in concert with the preferred alternative to count dead discards against the commercial quota, would likely result in the pelagic shark commercial fishery being eliminated as blue shark dead discards would likely exceed a reduced commercial quota such that all pelagic sharks would become regulatory discards, contrary to intent of NS 9.

Alternative 2. Interim Reduced Commercial Quota Pending Assessment

General

This alternative would reduce the commercial allowable catches as a precautionary measure to ensure that fishing mortality rates are sustainable, pending further stock assessments.

Ecological Impacts

The ecological impacts of this alternative would depend on the magnitude of reductions in the commercial quota. If pelagic shark stocks are at OY levels, this alternative would exceed NS 1 guidelines to preventing overfishing but would likely increase bycatch if the reduced quota resulted in fishery closures and regulatory discards. If pelagic shark stocks are below OY levels, this alternative would facilitate rebuilding and potentially minimize any harvest restrictions in the future.

Economic Impacts

This alternative may have short-term economic impacts depending on the quota reduction and the length of time until an assessment.

Social Impacts

This alternative may have social impacts depending on the magnitude of reductions in the commercial quota. If such reductions resulted in fishery closures, derby fishing conditions may develop with associated market gluts, unstable markets, and safety concerns. However, pelagic sharks are not the targeted species for these fisheries and, while increasing regulatory discards would likely have a “psychological cost,” the loss of income from pelagic shark landings is unlikely to have a substantial impact. To the extent that pelagic shark stocks are declining under current harvest levels, this alternative would mitigate any adverse social impacts in the future by potentially minimizing the need for future harvest restrictions.

Conclusion

This alternative is not preferred due to the lack of scientific basis to reduce the commercial quota. As the pelagic shark TAC is based on average U.S. landings, no comparison of current fishing mortality rates or catch levels to MSY or OY can be made. However, NMFS believes that other preferred alternatives within this document, including a separate porbeagle commercial quota, a reduction in the recreational bag limit, and counting dead discards against the commercial quota, will reduce fishing mortality rates and catch levels, consistent with the precautionary approach.

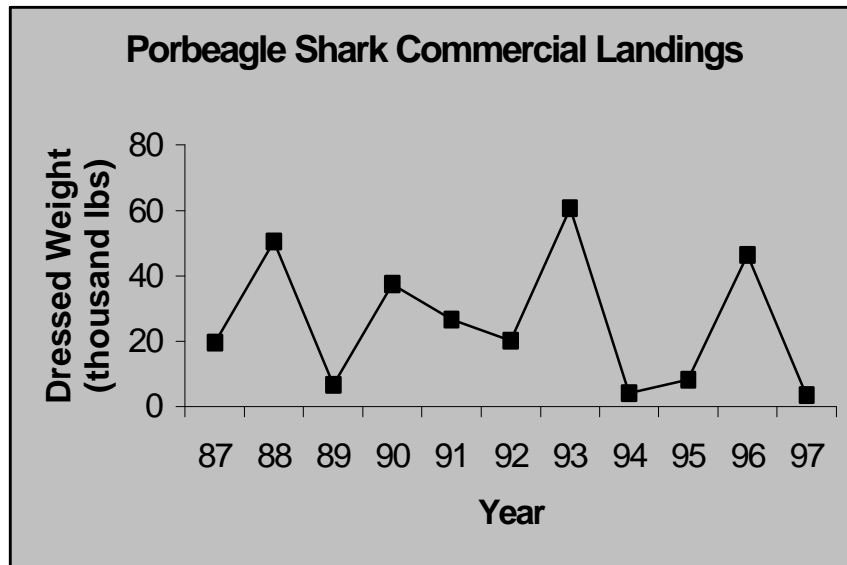
Alternative 3. Establish a Species-specific Quota for Porbeagle Sharks of 30 mt dw; Reduce Pelagic Shark Quota by 30 mt dw to 550 mt dw.
[PREFERRED ALTERNATIVE]

General

This alternative would establish a separate quota of 30 mt dw for porbeagle sharks and would reduce the pelagic shark quota accordingly. The proposed quota is approximately ten percent higher than the highest porbeagle landings and would allow limited opportunities for fishery expansion but would establish separate controls on this segment of the pelagic shark commercial fishery.

Porbeagle shark landings have fluctuated substantially during the period 1986 to 1997 (Figure 3.2) and appear strongly cyclical. For example, peak landings occurred in 1993 with 27.5 mt dw (60,718 lbs) and the next year's landings were only two mt dw (4,262 lbs). Similar patterns of high landings followed the next year by much lower landings are seen in the years 1988 to 1989 and 1996 to 1997. It is unknown whether these cyclical landings patterns are related to porbeagle shark stock status.

Figure 3.2 Porbeagle Shark Commercial Landings Sources: Poffenberger, 1996; Scott et al., 1998.



Ecological Impacts

Pending additional scientific analyses, it cannot be determined whether current levels of fishing mortality on porbeagle sharks are sustainable. If porbeagle shark stocks are at OY levels, this alternative would be consistent with NS 1 guidelines to preventing overfishing but may increase bycatch if the separate quota resulted in fishery closures and regulatory discards. If porbeagle shark stocks are below OY levels, this alternative would not contribute to rebuilding and may result in harvest restrictions in the future.

Economic Impacts

This alternative would likely have little economic impacts as fishers and fishing communities are currently operating below these catch levels. This alternative would limit the potential for expansion of directed fishing for porbeagle sharks, and depending on the incidental catches and landings of porbeagle sharks in other fisheries, may result in decreases in directed porbeagle fishing opportunities.

Social Impacts

This alternative may have social impacts depending on the magnitude of incidental catches and landings in other fisheries. If a separate quota resulted in directed fishery closures due to high incidental catches, derby fishing conditions may develop with associated market gluts, unstable markets, and safety concerns. However, porbeagle sharks are not the targeted species for most pelagic fisheries and, while increasing regulatory discards would likely have a “psychological cost,” the loss of income from incidental porbeagle shark catches is unlikely to have a substantial impact. To the extent that porbeagle shark stocks are declining under current harvest levels, this alternative would not mitigate any adverse social impacts in the future.

Conclusion

This alternative is preferred because porbeagle sharks are known to be highly susceptible to overfishing and because shifts in fishing effort may result in increased fishing mortality on species not previously targeted. Due to the limited potential for porbeagle sharks to sustain large-scale directed fishing mortality, this alternative would maintain the traditional directed fishery while preventing increases in landings from current levels.

Alternative 4. Prohibit Possession of Blue Sharks; Establish a Separate Dead Discard Quota for Blue Sharks of 273 mt dw (545 mt ww); Reduce Pelagic Shark Quota by Overages in Blue Shark Dead Discard Quota.
[PREFERRED ALTERNATIVE]

General

This alternative would address concerns regarding the high numbers of blue sharks caught and discarded in the pelagic longline fisheries by creating an incentive to reduce blue shark discards (especially dead discards) while mitigating the potential development of the “vicious cycle” discussed earlier. This alternative would prohibit possession of blue sharks (an easily identified species) and establish a separate allowance for dead discards of blue sharks. This alternative would result in all blue sharks becoming regulatory discards; however, blue shark landings have averaged approximately one mt dw during the period 1987 to 1997. The proposed 273 mt dw dead discard quota for blue sharks is equivalent to the average weight of blue sharks discarded dead by longline fisheries targeting tunas and swordfish for the period 1987 to 1997 (Table 3.5). If blue shark dead discards were to exceed the proposed 273 mt dw, then that overage would be deducted the following year from the pelagic shark quota.

This alternative may substantially reduce the available commercial quota because current estimates of blue shark dead discards can constitute a large proportion of the pelagic shark quota (62 percent in 1996 versus 19 percent in 1997, see above). However, this alternative would mitigate the reductions in the pelagic shark quota as a result of blue shark dead discards by establishing a separate dead discard quota for that species, thereby lessening the reduction required. Nevertheless, this alternative may still reduce the available pelagic shark quota because the magnitude of blue shark catches can still result in blue shark dead discard estimates higher than the proposed dead discard quota. Additionally, catches of blue sharks are unlikely to decrease because they are not the target species but are caught incidentally to fishing operations targeting tunas and swordfish. Thus, counting overages of the blue shark dead discard quota against the available pelagic quota could contribute to the “vicious cycle” in which the pelagic quota could essentially become regulatory discards. Without changes in fishing patterns (areas fished, gear, bait) in those other fisheries, blue sharks will continue to be caught and some discarded dead. To the extent that effort restrictions in those fisheries (quota reductions, time/area closures) reduce the incidental catches of blue sharks, dead discards may decrease.

Ecological Impacts

The ecological impacts of prohibiting possession of blue sharks are unlikely to be significant because less than one percent of blue sharks encountered are currently landed. The fact that high proportions of the discarded blue sharks are discarded alive indicates that prohibiting possession of blue sharks would not result in increased dead discards of blue sharks. To the extent that this alternative would prevent a directed fishery for blue sharks from developing or preventing a market for blue sharks from developing, this alternative would have positive ecological impacts.

Economic Impacts

This alternative may have substantial economic impacts as blue shark dead discards may exceed the proposed dead discard quota and can constitute a significant portion of the current pelagic quota. If dead discards of blue sharks exceed the dead discard quota and the pelagic shark quota was reduced significantly, this alternative would shorten the fishing season and may put some fishers out of business, cause market gluts, and lower ex-vessel prices. It may also increase variable costs and decrease gross revenues by pushing fishers out of areas where blue sharks are abundant and into areas where the target species are less abundant. In the long-term, however, this may increase the number of pelagic sharks available and contribute to a viable fishery.

Social Impacts

This alternative may have social impacts if the available pelagic shark quota is reduced to the point that fishery closures result in derby fishing conditions. However, blue sharks and pelagic sharks are not the targeted species for these fisheries and, while increasing regulatory discards would likely anger and frustrate fishers, the loss of income from blue shark landings is expected to be negligible and the loss of income from pelagic shark landings is unlikely to have a substantial impact.

Conclusion

This alternative is preferred because it represents a compromise between the need to monitor and account for all sources of mortality and NS 9 to reduce bycatch and minimize the mortality of unavoidable bycatch. Prohibiting possession of blue sharks should not increase the mortality of blue sharks because the majority of blue sharks are released alive. Establishing a blue shark dead discard quota and reducing the pelagic shark quota by any overages of the blue shark dead discard quota should create an incentive to maximize the survival of blue sharks encountered. Furthermore, this alternative would reduce the likelihood that incidental catches of blue sharks would preclude a pelagic shark fishery as discussed under Section 2.5(A) and as discussed above under Alternative 1.

3.4.1.2 Recreational Fishery

The impacts of the status quo and several potential changes to pelagic shark recreational harvest restrictions are discussed under the LCS recreational bag limits section (see Section 2.5.1(3)).

3.4.2 Small Coastal Sharks

The National Marine Fisheries Service has not conducted a stock assessment for those species included in the small coastal shark management unit since the assessment that supported the FMP in 1993 primarily due to the lack of time series. Until recently, small coastal sharks were incidental catch in commercial fisheries, and commonly used for bait. Since 1995, commercial landings of small coastal sharks have increased dramatically from nine mt dw in 1994 to 326 mt dw in 1997 (Table 3.6), with Atlantic sharpnose, blacknose, and finetooth sharks comprising 90 percent of the landings. Limited recreational fisheries for small coastal sharks, particularly Atlantic sharpnose sharks, have existed for several years. Recreational landings have fluctuated around 100,000 to 150,000 fish per year since the mid 1980s, with Atlantic sharpnose comprising about 65 percent of the catches (Tables 3.6 and 3.7).

Observer data indicate that SCS landings represent two percent, 19 percent, and 72 percent of the total observed mortality of the SCS catches in the directed shark longline fishery for the North Carolina, West Florida, and South Atlantic Bight regions, respectively (see Table 6, Branstetter and Burgess, 1997). These data indicate that approximately 98 percent, 81 percent, and 28 percent, respectively, of the SCS catch in those regions was not landed but was used for bait. Note that observer data for the North Carolina and western Florida areas suggest that cryptic mortality of SCS is high; however, the volume of SCS catches in those areas is minor. Nevertheless, SCS landings statistics may considerably underestimate SCS mortality in this fishery.

Species-specific catch rate data only exist for Atlantic sharpnose and bonnethead sharks. Atlantic sharpnose sharks, which dominate the SCS catch rate information (two extensive time series), appear to be relatively stable, with a slightly increasing trend in the early 1990s and a slightly decreasing trend since 1995 (Figure 3.3). Bonnethead shark catch rate data (one extensive time series) exhibit strongly cyclical and decreasing trends from the early 1970s to the early 1980s and a low but relatively stable trend since the early 1980s (Figure 3.3).

Table 3.6 Small Coastal Sharks commercial and recreational landings. Numbers and weights are converted to weights and numbers using an average size.

Year	Commercial landings (lb dw)	Recreational landings (lb dw)	Total landings (lb dw)	Commercial landings (Number)	Recreational landings (Number)	Total landings (Number)
1986	NA	256614	256614	NA	34923	34923
1987	NA	462257	462257	NA	48751	48751
1988	NA	804639	804639	NA	82375	82375
1989	NA	596546	596546	NA	62335	62335
1990	NA	603306	603306	NA	47281	47281
1991	1164	1151499	1152663	NA	137018	137018
1992	NA	674675	674675	NA	116163	116163
1993	7766	538329	546095	NA	78680	78680
1994	20510	733289	753799	3717	103193	106910
1995	40010	953970	993980	4125	135085	139210
1996	460667	795993	1256660	143958	112715	256673
1997*	719341	685162	1404503	224794	97021	321815

Sources: Scott et al., 1996; Poffenberger, 1996; Scott et al., 1998

Figure 3.3. Catch per unit effort series for Small Coastal sharks. Source: NMFS, 1998 (SEW Report).

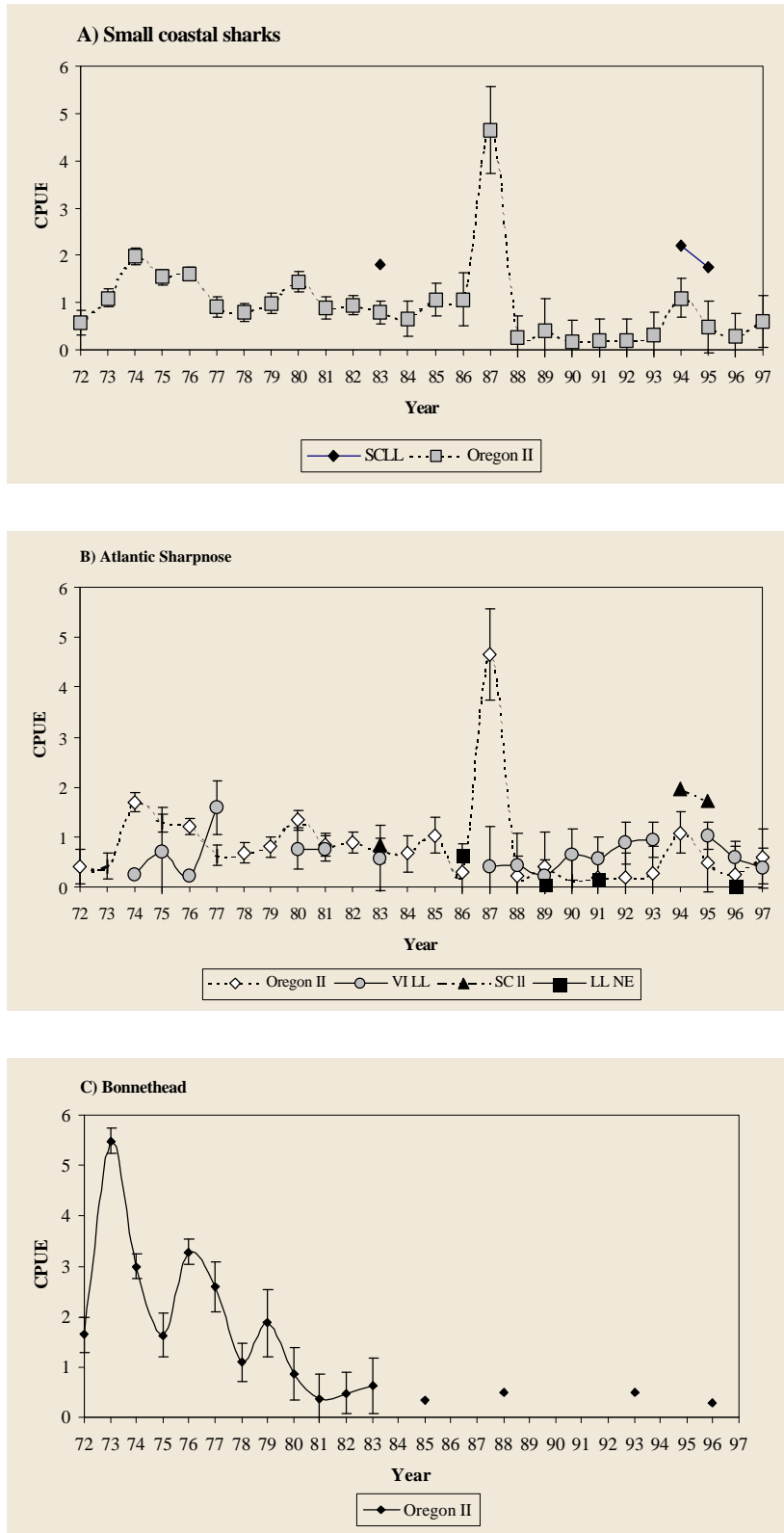


Table 3.7 Estimated harvest estimates of Small Coastal Sharks in commercial and recreational fisheries for 1996 and 1997. Note: commercial landings are in pounds dressed weight and recreational landings are in numbers of fish. Note: landings of fins are included in the commercial estimate.

Species	Commercial Landings		Recreational Landings	
	1996	1997	1996	1997
Atlantic angel			3,814	
Atlantic sharpnose	165,171	256,632	73,018	65,530
Blacknose	140,790	202,781	11,737	10,761
Bonnethead	60,694	75,787	21,996	15,730
Caribbean sharpnose	876			
Finetooth	92,980	184,141	1,602	5,000
Smalltail			548	
Unclassified	4			
TOTAL	460,515	719,341	112,715	97,021

*1997 data are preliminary
Source: Scott et al., 1998.

The original shark FMP did not establish a commercial quota but did establish a recreational bag limit of five SCS per person per day. In 1997, NMFS established a precautionary commercial quota of 1,760 mt dw based on the assessment in the FMP and combined the recreational bag limit into an all-shark limit of two fish per vessel per trip with an allowance for two Atlantic sharpnose sharks per person per trip. The SCS recreational bag limit was combined into an all-shark limit due to concerns that juvenile LCS were being misidentified as SCS and the additional allowance for Atlantic sharpnose sharks was intended to allow anglers on charterboat and partyboats the opportunity to land a shark. Concerns have been raised by members of the HMS AP and the public that the assessment in the FMP was overly optimistic in its estimation of SCS intrinsic rates of increase and the subsequent levels of fishing mortality that this group can withstand, and that the SCS quota which is based on this assessment is too high and should be reduced.

3.4.2.1 Commercial Fishery

Alternative 1: Status Quo (1,760 mt dw or 68 percent of the SCS TAC)

General

This alternative would maintain the current management structure and allocations as established in 1997 based on the assessment that supported the original FMP in 1993.

Ecological Impacts

To the extent that the SCS assessment in the original FMP is overly optimistic, this alternative would allow potential overfishing to continue. However, to the extent that the assessment is correct, this alternative would maintain the quota at MSY levels, inconsistent with the NSG that OY levels be reduced from MSY levels.

Economic Impacts

No additional economic impacts in the short-term. There may be long-term impacts if the stock declines.

Social Impacts

This alternative would likely have little social impacts as fishers and communities are already operating under these restrictions. However, as the commercial quota has not been reached to date, this alternative would allow for expansion into this fishery for fishers that may be displaced from other fisheries, including other shark fisheries. The increase in landings since 1995 support that such an expansion is occurring. To the extent that the SCS TAC and therefore the SCS quota are too high, this alternative would allow for expansion of fishing effort that may not be sustainable in the long-term.

Conclusion

This alternative is not preferred because the current quota is based on the estimated MSY levels for SCS in the original FMP and is inconsistent with the NSG that require that OY levels be reduced from MSY levels.

Alternative 2: Interim Reduced Commercial Quota Pending Assessment

General

This alternative would reduce the SCS quota as a precautionary measure to ensure that fishing mortality rates are sustainable, pending further stock assessments.

Ecological Impacts

The ecological impacts of this alternative would depend on the magnitude of reductions in the commercial quota. If SCS stocks are at OY levels, this alternative would exceed NS 1 guidelines to preventing overfishing but would likely increase bycatch if the reduced quota resulted in fishery closures and regulatory discards. If SCS stocks are below OY levels and the SCS quota is too high, this alternative would facilitate rebuilding and potentially minimize any harvest restrictions in the future. This alternative may not affect total mortality of SCS because this alternative would affect SCS landings only and would not restrict the ability of fishers to use SCS as bait. Additional measures such as increasing observer coverage to obtain better estimates

of cryptic mortality or requiring fishers to report the catch and disposition of all SCS in addition to SCS landings may be warranted to address this issue.

Economic Impacts

This alternative may have small short-term economic impacts depending on the quota reduction and the length of time until an assessment.

Social Impacts

This alternative may have social impacts depending on the magnitude of reductions in the commercial quota. If such reductions resulted in fishery closures, derby fishing conditions may develop with associated market gluts, unstable markets, and safety concerns. To the extent that SCS stocks are declining under current harvest levels, this alternative would mitigate any adverse social impacts in the future by potentially minimizing the need for future harvest restrictions.

Conclusion

This alternative is not preferred because of the expectation of greater ecological benefits under Alternative 3, which would cap any increases in SCS landings and mitigate any reductions needed in the future.

Alternative 3. Cap Commercial SCS Quota at 10 percent higher than 1997 levels (359 mt dw) as an Interim Measure Pending Future Assessment
[PREFERRED ALTERNATIVE]

General

This alternative would reduce the SCS quota by 80 percent to 359 mt dw, which is ten percent higher than 1997 landings of 326 mt dw, as an interim measure pending future assessment. This alternative follows a similar approach to that used in developing a separate quota for porbeagle sharks of ten percent higher than recent landings.

Ecological Impacts

This alternative will have minor ecological impacts as the SCS fishery will not be reduced. As the proposed quota would still be higher than 1997 landings, there is still opportunity for expansion of the current fishery. To the extent that the SCS quota is too high, this alternative may substantially mitigate any reductions needed in the future. This alternative would likely not affect total mortality of SCS because this alternative would affect SCS landings only and would not restrict the ability of fishers to use SCS as bait. Additional measures such as increasing observer coverage to obtain better estimates of cryptic mortality or requiring fishers to report the catch and disposition of all SCS in addition to SCS landings may be warranted to address this issue.

Economic Impacts

This alternative may have negative economic impacts even though the proposed quota is higher than current landings because of the loss of substantial fishery expansion that fishers may desire due to proposed restrictions in both the LCS and SCS fisheries.

Social Impacts

This alternative may have negative social impacts because those fishers that appear to have begun targeting SCS in recent years would have fewer opportunities for expanding their current operations. Additionally, proposed restrictions in both the LCS and SCS fisheries may result in the need for fishers to diversify their operations and this alternative would further restrict one of the fisheries previously thought to have expansion opportunities. However, the proposed limited access system should limit the number of fishermen in all shark fisheries and moderate any expansion in participants into the SCS fishery.

Conclusion

This alternative is preferred because the SCS commercial fishery landings may substantially underestimate due to cryptic mortality and that the current SCS quota may not be sustainable. This alternative would still allow for a limited degree of fishery expansion but would eliminate the potential for excessive growth. This alternative would facilitate maintenance of SCS at optimum levels until future stock assessments can be conducted.

3.4.2.2 Recreational Fishery

The impacts of the status quo and several potential changes to small coastal shark recreational harvest restrictions are discussed under the LCS recreational bag limits section (see Section 2.5.1(3)).

3.5 Monitoring, Permitting, and Reporting Alternatives

Collecting ecological, economic and sociological information about HMS fisheries enables NMFS to perform important management functions, including: monitoring compliance with existing regulations; evaluating the effectiveness of current regulations; and analyzing alternatives for improving future HMS management. Current permitting and reporting requirements are described in Section 5.13. Both the Magnuson-Stevens Act (16 U.S.C. 1801) and ATCA (16 U.S.C. 971) authorize the Secretary of Commerce to collect information for a variety of HMS management purposes. For example, National Standard 9 directs NMFS to conduct “a review, and where necessary, an improvement of data collection methods, data sources, and applications of [bycatch] data.” Similar improvements to data collection efforts are necessary for other HMS fisheries parameters, as discussed in Section 3.8 of this document. The benefits of obtaining new information, however, entail costs that must be considered – particularly in terms of the costs imposed on the regulated community. This section presents analyses of proposed alternatives to change permitting and reporting requirements in HMS fisheries; the analyses discuss the

ecological and social and economic impacts of the proposed alternatives.

Generally speaking, the ecological impacts of increased permitting and reporting requirements are expected to be positive. Better information about effort, catch, bycatch, and other fishery characteristics can only improve NMFS' ability to manage HMS species sustainably, and in a way that minimizes bycatch and bycatch mortality. The social and economic impacts, on the other hand, are mixed. The burden imposed on fishermen by increased permitting and reporting requirements (e.g., permit fees, labor required to complete logbooks, travel expenditures to attend workshops) is clearly a negative social and economic impact. However, increased permitting and reporting requirements may also have longer-term socioeconomic consequences that will be positive. For example, new permitting and reporting requirements could improve the long-term stability of HMS fishing communities to the extent that newly collected information contributes to achievement of sustainable catch levels which will reinforce the stability of fishing-dependent incomes and activities. More equitable allocation among competing user groups is another positive socioeconomic outcome that may result from improved information about HMS fisheries. Also, collection of social and economic information helps to assess the effects of various alternatives for improved information on which to base management decisions.

Alternative 1. Status Quo.

Ecological Impacts

The data collected under the current permitting and reporting requirements provide NMFS with important information about the commercial and recreational HMS fisheries. (Current permitting and reporting requirements are summarized in Section 5.13.) Many of these current requirements will remain in effect after the FMP is finalized. However, increasing the quality and scope of information collected would improve NMFS' ability to manage HMS fisheries. As discussed in following alternatives, implementing Alternative 1 without any changes could adversely affect efforts to rebuild and maintain healthy HMS stocks, minimize bycatch in HMS fisheries, and address other issues regarding conduct and impacts of HMS fisheries.

Social and Economic Impacts

While continuing the status quo permitting and reporting requirements would impose no additional burden on the regulated community, it may contribute to substantial negative social and economic impacts. If lack of adequate data were to result in continued problems with overfishing and/or bycatch, for example, the negative long-term economic consequences could be substantial for fishery participants.

Conclusion

Alternative 1 is rejected because current data collection needs to be improved. Failure to collect additional data will hinder effective HMS management, and thus may have significant negative ecological and social and economic consequences.

Alternative 2. Require Charter/Headboat Vessels to Obtain an Annual Vessel Permit and Submit Logbooks for All HMS Trips. **[PREFERRED ALTERNATIVE]**

This alternative would require all Charter/Headboat operators to obtain a vessel permit in order to fish for, or possess HMS. A fee may be charged for this permit in order to recover the administrative costs incurred by NMFS. Once a permit was obtained, vessel owners would be responsible for submitting regular logbook reports, including trip summaries, with catch and effort, and discard information. Logbooks would be required to be completed before offloading of HMS species in the case of one-day trips, or within 24 hours of each day's fishing activity in the case of multi-day trips. Some charter/headboat vessels that fish for HMS already submit logbooks for other fisheries and/or maintain private logbooks to record their fishing activity.

Ecological Impacts

This alternative would enable NMFS to more accurately monitor recreational landings, and catch and release statistics for all recreational highly migratory species, thereby enhancing HMS management and research efforts. The universe of recreational fishermen, and their effort, catch and bycatch is poorly known at present. Estimates of some of these parameters are currently being made using survey instruments, such as the Large Pelagic Survey and the Marine Recreational Fisheries Statistics Survey, as well as voluntary reporting from tournaments. A charter permit system will greatly improve information available to NMFS regarding the recreational HMS fisheries by providing an accurate measure of participation, effort, catch and bycatch from one of its most significant components.

The charter logbooks would collect information similar to that currently collected from the billfish tournament reporting form and the pelagic logbook used for commercial gear: fishing location; gear; measures of effort (number of lines, hours fished, etc.); and number and disposition of catch (discarded dead, discarded alive, tagged, or kept) for each tuna, shark, swordfish, or billfish caught (this alternative is also preferred in Amendment 1 to the Atlantic Billfish FMP). Information such as the vessel's name and permit number serve to identify the fisherman. Information on the number and size is used to assess total and average weight of the target species being harvested. The effort expended allows estimation of catch per unit effort, an important component of scientific stock assessments. All collected information will be kept confidential. Charter vessels will be required to complete the HMS recreational logbook if selected by the Science and Research Director; NMFS may select, at least initially, all permitted vessels.

Social and Economic Impacts

There will be an economic impact associated with the charter vessel permit and logbook system. The charter vessel owner will be charged a fee for the vessel permit (probably \$20 to \$40) to cover administrative costs. The logbook will cost the charter captain time to fill out and send to the appropriate NMFS office. However, public comment at scoping meetings and at HMS AP meetings has indicated significant support for this alternative among charter boat captains. Many captains already fill out such logbooks and many view faxing their report to NMFS a small burden when weighed against the benefit of supporting more effective HMS

management. In addition there will be administrative costs associated with processing permits and logbook information, as well as enforcement costs in ensuring that charter vessels are complying with permit and logbook requirements. In terms of sociological impacts, charter vessel captains and/or owners may have a negative reaction to a management alternative that requires additional paperwork and regulatory burden on their business operation.

Conclusion

This alternative is preferred because it will greatly improve NMFS' collection of data from a significant segment of the recreational HMS fishery at a relatively small social and economic cost. However, NMFS proposes to delay implementation of this alternative for six months from the date of implementation of the FMP in order to assess the extent to which HMS charter/headboat vessels already use NMFS logbooks, to streamline the reporting process, and to avoid unnecessary duplication of effort by vessel captains.

Alternative 3. Implement Observer Coverage of All HMS Charter/Headboat Vessels and in the Bluefin Tuna Purse Seine and Harpoon Fisheries.
[PREFERRED ALTERNATIVE]

This alternative would implement at-sea observer coverage of charter/headboat vessels and of vessels operating in the bluefin tuna Purse Seine and Harpoon fisheries. Current regulations allow NMFS to select any vessel in the Atlantic tuna fisheries to carry an observer. This alternative would expand that practice as a matter of policy in all HMS charterboat fisheries and expand observer coverage for bluefin tuna to the Purse Seine and Harpoon fisheries. While this measure would ensure regulatory authority for such expanded observer coverage, actual levels of implementation would be subject to the availability of funding.

Ecological Impacts

This alternative is expected to have beneficial ecological effects for both HMS and other living marine resources that interact with HMS. Observers are deployed on fishing vessels to gather biological information about the composition and character of the total catch, both landed and discarded. This information supplements logbooks, call-in reporting, and dealer reporting and is particularly valuable for collecting information about that portion of the catch that is not brought to shore. This alternative also supports NMFS' implementation of NS 9 in HMS fisheries because it allows for collection of information about discarded catch. Data collected under this alternative will allow NMFS to explore management measures that support requirements of the Magnuson-Stevens Act as well as the objectives of this FMP. These data enhance stock assessments as well as improved management measures.

Social and Economic Effects

This alternative bears some cost to vessel operators. Under this alternative, vessel operators are required to house and feed observers at the same standard provided to the rest of the crew. The bulk of the cost of this alternative is borne by NMFS in training and employing observers. A

single day of observer coverage costs approximately \$600 although that cost is variable depending on the characteristics of the fishery and the observer program. Safety at sea, for both observers and crew, must be a consideration in developing an observer program. This concern may be mitigated somewhat for the purse seine and charter/headboat categories under this alternative. The purse seine fishery operates under an individual vessel quota program that does not provide any incentive for vessel operators to go to sea in inclement weather in a “race for fish.” The charter/headboat fleet has a disincentive to fish in dangerous or adverse conditions that might deter customers from returning.

At the HMS AP meeting in Warwick, Rhode Island in August 1998, several AP members expressed concern about the status of observers on charter vessels. Specifically, they were concerned that the observer would be counted as a passenger-for-hire or as a crew member, both of which have economic impacts. According to the U.S. Coast Guard, an observer is considered neither a passenger nor a crew member. However, the presence of the observer cannot place the vessel above its maximum carriage allowance, and the safety gear aboard (e.g., life jackets or personal flotation devices) must be sufficient for everyone aboard, including the observer. For example, the owner of a six-pack (a vessel that can carry six customers) would still be able to carry six passengers-for-hire as well as the observer, as long as the vessel’s capacity was not exceeded and the vessel carried the correct amount of lifesaving equipment.

HMS AP members voiced an additional concern about the economic impacts of this alternative; there is a possibility that paying customers would not wish to have an additional person present on their outing. NMFS believes that, in view of the fact that captain and crew must be present on charter boat outings, this concern does not outweigh the expected ecological benefits of this alternative. Collection of comparable information from different sectors of the fishery and collection of information on total catch and discards are clear requirements of the Magnuson-Stevens Act, and this alternative supports achievement of those requirements.

Conclusion

This alternative is preferred because it allows for collection of information that is important to rebuilding overfished HMS, managing discards and discard mortality, and meeting the objectives of this FMP.

Alternative 4. Require Tournament Registration for All Shark, Swordfish, and Tuna Recreational Tournaments. [PREFERRED ALTERNATIVE]

This alternative would require tournament operators to notify NMFS of the purpose, dates, and location of any tournament involving score-keeping or awards for the capture of Atlantic tunas, swordfish, and sharks at least four weeks prior to commencement of the tournament.

Ecological Impacts

This alternative would allow NMFS to improve monitoring of recreational fishing effort and bycatch for tunas, swordfish, and sharks by requiring tournament operators to provide

notification. It would also ensure statistically appropriate levels of data collection to enhance monitoring of recreational HMS landings. This alternative was proposed in the HMS Consolidated Rulemaking which has not yet been finalized. It was implemented as an interim rule for Atlantic billfish (63 FR 14030; March 24, 1998). This alternative would allow NMFS to select tournaments for mandatory reporting as well as registration. In this respect, NMFS can select times/areas to collect bycatch information to more accurately characterize bycatch in tournaments, which do not reflect non-tournament fishing patterns.

Social and Economic Impacts

At the present time, this alternative is in effect as an interim measure for Atlantic billfish tournaments. As a result, no additional compliance burden would be placed on the operators or participants of billfish events. Additional burden would be imposed on shark and tuna tournament operators. Implementation of this alternative will help NMFS collect information on this important sector of HMS fisheries.

Conclusion

This alternative is preferred because it will greatly improve NMFS' collection of data from a significant segment of the recreational HMS fishery at a relatively small social and economic cost.

Alternative 5. Require Completion of Logbook Forms Before Offloading (for One-Day Trips) or Within 24 Hours of Each Day's Fishing Activities (for Multi-Day Trips) [PREFERRED ALTERNATIVE]

For those vessels required to fill out logbooks, this alternative would require completion of the logbook forms before offloading of HMS in the case of one-day trips, or within 24 hours of the completion of a day's fishing activities in the case of multi-day trips. Longline vessels frequently soak gear overnight and haul in the morning. This alternative would require that the logbook be completed for a particular set within 24 hours of haulback, no matter what time of the day haulback occurs. This alternative is expected to increase the enforceability of HMS regulations, particularly in the case of at-sea boardings, and to reduce error in reporting.

Currently, longline vessel operators are required to submit logbook forms within seven days after the sale of swordfish offloaded after a trip, or within five days after the sale of shark offloaded after a trip. As described in the introduction to section 3.2, NMFS proposes to extend the logbook requirement to tuna fishery participants who are permitted to use longline, hand gear, and purse seine gear. Extension of the logbook requirement to tuna permittees was initially proposed in the proposed consolidation of HMS regulations (61 FR 57361; November 6, 1996) and public comment has already been solicited on this proposed measure. The proposed consolidation of regulations was not finalized and is, in substance, re-proposed in the rule that accompanies this draft FMP. The proposed rule for implementation of this draft FMP (and current regulations for longline vessels) require that those vessels that are selected by NMFS must submit logbooks. NMFS commonly selects 100 percent of longline vessels for reporting. It is

anticipated that a smaller number of tuna permittees, perhaps 10 percent, would initially be selected for logbook reporting in order to assess the efficiency and effectiveness of the new requirement.

Ecological Impacts

Enforcement is a key component of HMS management. This alternative would increase enforceability of all pelagic and bottom longline fishery management regulations by facilitating inspection of logbooks during at-sea or dockside inspections. This alternative facilitates at-sea and dockside enforcement efforts. On occasion, there is a need for a law enforcement officer to observe the logbook of a pelagic or bottom longline vessel during or immediately following a trip. Under current regulations, however, the logbook must be submitted not later than the seventh day after sale of the swordfish off-loaded from a trip or no later than the fifth day after sale of the shark off-loaded from a trip. This alternative is also likely to discourage fraudulent data reporting, and reduce erroneous discard reporting that may occur due to poor recollection of when and how many fish were caught on a particular set during a multi-day fishing trip.

Social and Economic Impacts

Fishery participants are currently required to retain information for logbooks and submit their logbooks within a certain time after offloading. Thus, the proposed alternative does not impose any additional reporting requirements. This measure may cause some additional inconvenience by requiring more immediate completion of the logbook form, however, it is not likely to substantially increase the reporting burden for fishery participants.

Conclusion

This alternative is preferred. Implementation of this alternative will result in more timely and accurate reporting of catch and bycatch in the pelagic and bottom longline fishery. It will also facilitate enforcement both at sea and at the dock.

Alternative 6. Require Vessel Operator Education Workshops for All Recreational HMS Vessel Operators.

This alternative would require all recreational HMS vessel operators to attend an educational workshop once every two years and to possess a certificate from that workshop on board at all times.

Ecological Impacts

This alternative could benefit overfished stocks of HMS by increasing post-release survival of fish captured and discarded in the recreational fishery. Current levels of bycatch and bycatch mortality in recreational HMS fisheries are not known. This alternative would be expected to: 1) reduce bycatch by teaching operators handling and release techniques for finfish; and 2) improve the accuracy of bycatch reporting to dockside and telephone surveyors.

Social and Economic Impacts

Educational workshops would be conducted by NMFS. Therefore, the only cost incurred by the fishermen would be travel and time to attend the workshops. To minimize this cost to fishermen, workshops would be offered at several locations near HMS fishing ports. Workshops would also be held during the non-fishing season (in appropriate fisheries), thus minimizing lost fishing time. NMFS would rotate the locations of workshops over a two-year period in an attempt to reduce the regulatory burden of this alternative for fishermen.

Existing data collection programs for the recreational fishery are under active review and it might be premature to implement this highly burdensome alternative before other, less costly and burdensome, measures could be developed. Because there is not currently a permitting system for all recreational HMS vessels, the universe of affected vessels is unknown. As a result, there is no reliable way to either communicate the requirements to the affected universe or enforce the alternative. In addition, the resources required to implement a mandatory education workshop are difficult to estimate.

Possible Topics for Voluntary Recreational Fishery Workshops are as follows:

1. Educate participants about the Magnuson-Stevens Act and bycatch minimization requirements;
2. Provide information on safe handling techniques for released fish;
3. Promote the use of circle hooks;
4. Promote the use of de-hooking equipment and provide instruction on its use; and
5. Educate fishery participants about current regulations.

Conclusion

This alternative is rejected. While there could be positive ecological benefits of this alternative for overfished HMS, implementation as a regulatory mechanism may be both premature and, ultimately, unnecessary. However, NMFS may conduct these workshops on a voluntary basis, possibly in conjunction with public hearings, to achieve further improvements in recreational HMS bycatch reduction and reporting.

Alternative 7. Require Vessel Permits for All U.S. Registered Vessels Fishing Recreationally for Atlantic Highly Migratory Species.

Ecological Impacts

Information collected from permit applications could be used by NMFS to monitor participation in HMS fisheries. The vessel permit would also provide essential information for domestic recreational fishery management policy. For example, a recreational HMS permit database would provide NMFS with a sampling frame that is the basis for fleet size calculations

used for catch and effort estimates in fisheries that do not require mandatory reporting. This information would also aid in fishery enforcement. Finally, information on the vessel owners participating in HMS recreational fisheries is needed to enable NMFS to analyze impacts of management measures on small businesses.

Social and Economic Impacts

A measure to permit HMS anglers could increase the regulatory burden on recreational fishermen, by requiring that they participate in an annual permit process. However, the regulatory burden for both anglers and NMFS could be significantly reduced if HMS permitting were incorporated into the Angling category permit for Atlantic tunas, or expanding the database to include other recreational angler alternatives. Many saltwater fishers target multiple HMS; for example, some who target billfish also catch other large pelagic species like tuna and sharks. Tuna anglers are already required to hold a recreational permit. By including other HMS in the recreational tuna permit, fisheries scientists would have access to the universe of participants in the HMS fishery, and the additional permitting burden on those fishers who seek billfish will be negligible.

Annual permit issuance/renewal would not have a significant impacts on small businesses. The renewal process would be automated, eliminating paperwork and mailing time for forms. The universe of affected anglers could include the following: the 9,792 vessel owners currently holding Atlantic tunas permits in the Angling (recreational) category and approximately 10,000 billfish anglers (minimum estimate based on the number of billfish tournament anglers from Fisher and Ditton, 1992). The extent of overlap between these three groups is unknown, but is likely to be significant. Thus, the universe of affected vessel owners is likely to be smaller than the sum of the above estimates, as only one permit would be required for participation in any HMS recreational fishery.

Conclusion

This alternative is rejected at this time. NMFS currently requires permits in the recreational Atlantic tunas fishery. In addition, there is currently very little recreational effort directed at swordfish. Finally, NMFS believes that other preferred alternatives will adequately address the recreational shark fishery. While NMFS rejects this alternative, it will likely be subject to further consideration by NMFS and the HMS Advisory Panel in the future.

Permitting and Reporting Alternatives Included in the Framework

The following alternatives were not selected as a preferred alternatives; however, they are included in the framework for future consideration.

1. Establish a single permit for all HMS recreational fisheries and a single permit for all HMS commercial fisheries.
2. Require electronic logbook reporting for all HMS fisheries.

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3. Establish a tagging system for HMS caught in recreational fisheries.
 4. Extend the tuna call-in system to all tunas, swordfish and sharks.
 5. Establish a fax reporting system for tunas, swordfish and sharks caught in recreational fisheries.

3.6 Fishing Year

Alternative 1. Status Quo.

This is the no action alternative. Under this alternative, the fishing year for sharks and Atlantic tunas would remain January 1 through December 31. The swordfish fishing year would remain June 1 through May 31. For Atlantic tunas, the General and Harpoon categories do not open until June 1, and the Purse Seine category does not open until August 15, but the “fishing year” ends December 31 for these categories as well.

Ecological Impacts

The shark fishing year is currently split into two semi-annual seasons, January 1 through June 30 and July 1 through December 31. The quota is generally split evenly between the semi-annual seasons, although the Assistant Administrator for Fisheries may deduct quota overages and add quota underages from one semi-annual season from the quota for the following semi-annual season, within the fishing year. Overages or underages are not carried across fishing years.

The North Atlantic swordfish fishing year is currently split into two semi-annual seasons, June 1 through November 31 and December 1 through May 31. The longline/harpoon quota is split evenly between the seasons with an annual Incidental quota and an annual driftnet quota. The AA may deduct quota overages and add quota underages to the following fishing year or semi-annual season, whichever is reasonable (i.e., deduct first semi-annual overage from second semi-annual season, deduct second semi-annual season overage from following fishing year). SCRS assessments are completed and new TAC and other measures are recommended by ICCAT in November, allowing time to implement measures prior to the start of the following fishing year in June 1. NMFS is proposing a time/area closure for swordfish longline fishermen in the Florida Straits for July-September. Therefore, those vessels will be able to take advantage of the beginning of the semi-annual season (June) and if there is no closure, they will be able to fish in that area for the end of the semi-annual season (October, November).

The fishing year for Atlantic tunas begins January 1, although the General and Harpoon categories for BFT open June 1, and the Purse Seine category for BFT opens August 15. The Angling and Incidental categories do open January 1, and the ICCAT schedule makes it difficult to implement ICCAT recommendations by the start of the fishing year.

Economic Impacts

This alternative is the status quo. Without sufficient time to implement ICCAT recommendations before the start of the fishing year for some fisheries, it can be difficult for fishermen to plan, and participate in the process of implementation of ICCAT recommendations.

Conclusions

This alternative is rejected. The fishing years for the various fisheries start at various times, causing confusion when referring to fishing years, especially those managed through ICCAT. In addition, with the fishing year for Atlantic tunas beginning January 1, there is currently not enough time to implement ICCAT recommendations in time for the following fishing year after the Commission meeting in November.

Alternative 2. Fishing Year Begins June 1 and Ends May 31 for Tunas and Swordfish; Fishing Year Begins January 1 and Ends December 31 for Sharks. **[PREFERRED ALTERNATIVE]**

This alternative makes one change from the status quo: switching the beginning of the fishing year for Atlantic tunas from January 1 to June 1. Each November, the United States participates in negotiations at ICCAT to manage the tuna, swordfish, and billfish fisheries. In the following months, NMFS issues regulations or takes other action to implement ICCAT recommendations. In many instances, it is necessary to conduct analyses, draft regulations and accompanying documents, and hold a series of public hearings, before an ICCAT recommendation can be implemented. It is difficult to complete those tasks thoroughly in sufficient time for fishery participants to be aware of how the regulations may change for the upcoming fishing year, particularly if the fishing year commences almost immediately after the ICCAT meeting (January 1). This alternative would shift the start of the fishing year for tunas to June 1, giving both NMFS and fishery participants adequate time to develop and consider conservation and management measures that will implement ICCAT recommendations effectively.

Ecological Impacts

This alternative is not expected to have biological impacts. It would not necessarily change any time of the year or areas that fish are caught.

Social and Economic Impacts

This alternative is expected to have beneficial social and economic impacts on participants in the Atlantic tunas fisheries. This alternative will allow fishery participants more time to plan their fishing activities, and thus should lend more predictability to fishing-dependent business and income.

Conclusion

This alternative is preferred, based on the management considerations outlined above.

3.7 Safety of Human Life At Sea

National Standard 10 of the Magnuson-Stevens Act emphasizes the requirement that conservation and management measures shall, to the extent practicable, promote the safety of human life at sea. Fishing is an inherently dangerous occupation where not all hazardous situations can be foreseen or avoided. Fishermen are continuously exposed to high risk in the workplace during transit and while fishing. They are required to work extremely long, unregulated hours, often under very severe environmental conditions. Professional fishermen identified inexperience, inattention, and fatigue as the most likely contributors to safety problems (NRC, 1991). Many HMS fishermen fish in multiple geographical areas throughout the year. This interregional activity greatly increases the local knowledge needed by vessel captains to operate safely. Fishery management measures may constrain fishermen to fish under conditions that they would otherwise prefer to avoid. This FMP will be reviewed by the HMS AP and HMS Consulting Parties, including the U.S. Coast Guard, during development of alternatives and regulations, to ensure that fishery managers recognize any impact on the safety of human life at sea and minimize or mitigate those impacts where practicable.

As domestic management measures become more restrictive and commercial and recreational fishermen are faced with escalating costs and a near-stable or declining resource base, fishermen are sometimes forced to minimize maintenance, which has implications for safety. Cutbacks may mean less attention to preventive maintenance of fishing gear or to the vessel itself. Because many vessels that participate in HMS fisheries travel great distances from shore, selection of management measures must take into consideration economic losses and the potential effects on the safety of human life at sea. Some form of insurance is needed by commercial fishing vessel owners to protect themselves against loss or damage to their vessels and potential financial liabilities that can result from injuries or damage to others, including their own crew members. Increased vessel loss and crew claims increase insurance costs for all fishermen. Recognizing these economic considerations should be a major motivation to address vessel safety issues (NRC, 1991).

The following safety considerations have been considered in evaluating the management measures outlined in this FMP.

- Operating environment:* An FMP should try to avoid creating situations that result in vessels going out farther, fishing longer, or fishing in weather worse than they generally would have in the absence of management measures.
- Gear and vessel loading:* An FMP should consider the safety and stability of fishing vessels when requiring specific gear or requiring the removal of gear from the water.
- Limited season and area:* An FMP should attempt to mitigate the effects caused by “derby” fisheries, and avoid them in new management regimes.

The primary responsibility for safety resides with the vessel operator in both recreational and commercial fisheries. NMFS does not have information regarding losses of recreational vessels. In 1996, 31 deaths and 69 vessel losses were documented by the U.S. Coast Guard resulting from fishing trips in the Atlantic Ocean and Gulf of Mexico (USCG, 1996). Casualty data from 1997 were specific to the type of vessel and illustrate the relatively low rate of casualties in the Atlantic longline fishery. In 1997, there were two Atlantic longline vessels that sank and were reported by the USCG. One vessel sank as a result of a collision, but the three persons on board did not use survival craft. The other vessel caught fire which was attributed to a battery spark and the four crew members were picked up in a life raft. One vessel was reported as a loss and the other vessel was later salvaged (USCG, 1997). In general, collisions stand out as a safety problem on the Gulf Coast while material failure incidents are high along the North Atlantic coast (NRC, 1991). Weather has been cited as a particular problem for the isolate distant water fleet. HMS fisheries tend to have less machinery on board than the larger processing vessels or trawling vessels.

Accidents that can occur on longline vessels involve crew that are hooked and pulled overboard or injured by a “springing” leader resulting from the release of a fish. It is estimated there are an average of one or two hook-related accidents per year in the pelagic longline fleet. Damage to vessels in storms may result in personal injury from broken windows. Releasing fish or protected species (large sea turtles or marine mammals) is difficult in rough seas and can result in personal injury, especially back injuries. NMFS advises vessel operators to avoid unsafe conditions, have regular U.S. Coast Guard inspections, purchase and maintain safety equipment, educate and train crew members, and be prepared for emergencies. Further, NMFS encourages HMS fishermen to use monitoring systems such as a vessel monitoring system (VMS) for additional safety and communication benefits.

3.7.1 Fishery Access and Weather-Related Vessel Safety

The following fishery management regulations have raised concerns by the fishermen in that they directly or indirectly pose a hazard to the crew or vessel safety under adverse weather or ocean conditions. Such measures particularly may affect, or have the potential to affect, the operation of fishing vessels and safety risks taken by vessel operators under adverse weather or ocean conditions. The limited entry program that is outlined in Chapter 4 of this document may reduce the potential for an increased derby fishery targeting sharks and swordfish.

Safety Concern: Derby conditions as a result of limited quota.

Mitigating Factors: NMFS has proposed limited access in the shark and swordfish fisheries which would limit the potential for further participants to enter these fisheries. NMFS has also implemented a 4,000 lb shark trip limit which may prevent small vessels from overloading their holds and becoming unstable.

Safety Concern: Minimum size for sharks: AP members felt that recreational and commercial fishermen could injure themselves, or the shark, in attempting to measure and, if necessary, discard sharks to comply with the minimum size requirement.

Mitigating Factors: The minimum size for sharks in the recreational fishery is not part of the preferred alternative. Partly out of concern for safety issues, the preferred alternative is a catch and release fishery only, with a bag limit of one pelagic shark/vessel/trip and an Atlantic sharpnose allowance for charter/headboat vessels. Should a minimum size be implemented in the recreational shark fishery, workshops and widespread dissemination of information about proper handling techniques and the responsibilities of catch-and-release fishing would likely help reduce hazards to personal safety.

Safety Concern: Effort controls in the General category for the bluefin tuna fishery such as monthly quotas and “restricted-fishing days” may encourage fishermen to fish in conditions which they generally would avoid. These regulations can result in concentrated fishing effort at the beginning of the month until the quota is reached. Restricted-fishing days can exacerbate derby conditions since the fishing effort is concentrated on the open fishing days. A continuous season, without monthly or time-period subquotas or restricted-fishing days, may partially alleviate the derby nature of the fishery as well some safety concerns. This issue has been discussed by the HMS AP and by the public at numerous public hearings.

Mitigating Factors: While derby fishing conditions and weather-related access issues exist in this fishery, to date they have not appeared to pose a substantial threat to safety at sea. Safety concerns are considered in developing all effort control regulations. In past years, NMFS has reopened a fishery when adverse weather conditions prevented fishers from harvesting the quota. Effort control regulations have been developed with the assistance of fishery participants, and NMFS and the public have regular opportunities to review these regulations through annual effort control specifications, public hearings, and the AP process.

Safety Concern: Nearshore time/area closures to reduce bycatch of undersized swordfish in the pelagic longline fishery that are being considered in this FMP may result in fishermen shifting their fishing effort to areas that are farther from shore than they would ordinarily travel. This concern is especially serious if vessels are not allowed to transit the closed area, even with gear stowed. Also, with a fixed quota, the swordfish fleet is likely to actively pursue swordfish early in the season, despite bad weather conditions, until the quota is reached.

Mitigating Factors: Use of VMS (which is also proposed in this FMP) could allow vessels to travel through closed areas with their fishing gear stowed. VMS allows on-shore enforcement agents to monitor the travel pattern of a vessel. Travel pattern can indicate if a longline vessel is simply transiting an area, or if it is setting gear, waiting through the soak time, and hauling the gear back. VMS also increases a vessel’s ability to communicate with shore, providing added safety assurances in the case of bad weather.

Safety Concern: To date, vessels have been required to have all fish landed by the time of the season closure. This can place time constraints on fishing activities and travel back to shore, perhaps providing an incentive for vessels to take risks with adverse weather or

fatigue that are not in the best interests of safety.

Mitigating Factors: Under the VMS delayed offloading provision, vessels must cease fishing at the time of the closure but may offload at any time after the closure or in a defined period established to improve market conditions. Implementation of an offloading window is under consideration. NMFS invites public comment on this issue.

Safety Concern: Reductions in available quota can destabilize traditional fishing patterns and may encourage vessel captains to fish in unfamiliar waters and/or with unfamiliar gear. These practices can pose a safety threat to the captains and crews of those vessels.

Mitigating Factors: NMFS proposes to limit access to the directed and incidental shark and swordfish fisheries in this FMP, in part to encourage stabilization of the commercial fisheries. Industry representatives have emphasized to NMFS the importance of defining and limiting the universe of participants, partly to allow effective dissemination of safety information and to allow development of a stable, experienced fishing fleet.

3.7.2 Procedures for Consideration of Management Adjustments

The views of fishery users are obtained by the Highly Migratory Species Management Division through regularly scheduled HMS AP meetings as well as the ICCAT Advisory Committee, public hearings, public meetings, and constituent input through letters and phone calls. Scoping meetings were held for the development of this FMP and public hearings are held regularly on rulemakings. All HMS Consulting Parties are consulted during the public comment period of rulemakings. These Consulting Parties include the

Department of State, the U.S. Coast Guard, the ICCAT Commissioners, fishery management councils, and other entities listed in the proposed HMS Process (NMFS, 1997b). These fora provide NMFS an opportunity to consider the implications of proposed management measures, including their safety implications. Procedures to adjust the management measures are described in section 3.12. NMFS will provide flexibility to adjust measures for safety concerns to the degree possible (e.g., add weather and ocean conditions as factors to consider in framework measures when making in-season adjustments).

3.7.3 Procedures

To date, safety issues have been considered by the full HMS AP. Under the Statement of Operating Procedures for the HMS AP, NMFS may establish a sub-panel of the HMS AP. For some proposed management measures, this sub-panel would be established to monitor, evaluate, and report on the effect of management measures on vessel or crew safety, particularly under adverse weather or ocean conditions.

3.7.4 Other Safety Issues

There are other issues beyond fishery access and weather-related vessel safety that need to be considered in this HMS FMP. Avoiding management measures that require hazardous at-sea inspections or enforcement if other comparable enforcement could be accomplished as effectively. VMS allows some fishery management regulations to be enforced from a base station staffed by the NMFS Office of Enforcement. This may reduce the need for at-sea enforcement.

Gear and deployment restrictions proposed for the pelagic longline fishery in the Atlantic Offshore Cetacean Take Reduction Plan (AOCTRP) to reduce bycatch may raise safety concerns (Section 2.4.4). For instance, requiring fishermen to haul their gear in the order it was set may force many vessel to operate on the margin of fuel consumption or carry more fuel in order to maintain the length of the trip despite extra travel time to the beginning of the mainline for hauling. The reverse haulback alternative is rejected, partly out of concern for safety at sea. Conversely, the proposed mandatory workshops for vessel operators in the pelagic longline fishery could serve as platforms to remind vessel operators of their safety requirements and caution them about safety concerns. This alternative is preferred in the FMP.

3.8 Scientific Data and Research Needs

NMFS has developed a comprehensive research and monitoring plan to support the conservation and management of Atlantic HMS as required by § 971(i)(b) of the Atlantic Tunas Convention Act (ATCA). This plan is consistent with the legal requirements of ATCA and with the NMFS Strategic Plan (May 1997) and the Strategic Plan for Fisheries Research (February 1998). It was developed after consultation with relevant Federal and State agencies, scientific and technical experts, commercial and recreational fishermen, and other interested persons, public and private. The objective of this comprehensive research and monitoring plan is to ensure that NMFS science is of the highest quality and that it advances the agency's ability to make sound management decisions.

ATCA directs the Secretary of Commerce to develop and implement a comprehensive research and monitoring program to support the conservation and management of Atlantic bluefin tuna and other highly migratory species that shall identify and define the range of stocks of highly migratory species in the Atlantic Ocean, including Atlantic bluefin tuna; and provide for appropriate participation by nations which are members of the Commission. This research program provides for, but is not limited to:

- statistically designed cooperative tagging studies;
- genetic and biochemical stock analyses;
- population censuses carried out through aerial surveys of fishing grounds and known migration areas;
- adequate observer coverage and port sampling of commercial and recreational fishing activity;
- collection of comparable real-time data on commercial and recreational catches and

landings through the use of permits, logbooks, landings reports for charter operations and fishing tournaments, and programs to provide reliable reporting of the catch by private anglers;

- studies of the life history parameters of Atlantic bluefin tuna and other highly migratory species;
- integration of data from all sources and the preparation of data bases to support management decisions; and
- other research as necessary.

In developing this program, the Secretary must ensure that the personnel and resources of each regional research center have substantial participation in the stock assessments and monitoring of highly migratory species that occur in the region. The plan shall provide for comparable monitoring of all U.S. fishermen, subject to the authority of ATCA, with respect to fishing effort and the species composition of catch and discards. Finally, ATCA specifies that through the Secretary of State, the Secretary of Commerce shall encourage other member nations to adopt a similar research and monitoring program for Atlantic HMS.

In developing this program, the Secretary must ensure that the personnel and resources of each regional research center have substantial participation in the stock assessments and monitoring of highly migratory species that occur in the region. The plan shall provide for comparable monitoring of all U.S. fishermen, subject to the authority of ATCA, with respect to fishing effort and the species composition of catch and discards. Finally, ATCA specifies that through the Secretary of State, the Secretary of Commerce shall encourage other member nations to adopt a similar research and monitoring program for Atlantic HMS.

Section 303 (a)(8) of the Magnuson-Stevens Act requires NMFS to specify the scientific data needed for effective implementation of this FMP. NMFS intends to focus significant effort on improving catch estimates in several areas. The agency is working to resolve problems associated with the historical landings records for Atlantic bigeye, albacore, yellowfin, and skipjack tuna (BAYS), particularly for yellowfin tuna. A study conducted at the SEFSC in 1997 reviewed commercial landings databases and identified the need to choose among different data set values if the United States is to report revised estimates of yellowfin landings to ICCAT. This work is not yet complete, as trip-specific comparisons between carcass weight files and vessel trip data from the Northeast will be a time-intensive endeavor.

3.9 Development of Fishery Resources

This section of the Atlantic HMS FMP identifies fishery resources associated with tuna, swordfish, and shark stocks and their potential for future development by commercial or recreational commercial fishing operations. Most stocks associated with Atlantic HMS are already utilized to some degree in commercial and recreational fisheries, and some of these species are designated as fully fished (yellowfin tuna (SCRS, 1997)) or overfished (Atlantic blue marlin, Atlantic white marlin, bluefin tuna, large coastal sharks, and north Atlantic swordfish

(NMFS, 1997c); bigeye tuna (SCRS, 1997)). There is insufficient information available to assess the status of other HMS target stocks, such as skipjack tuna and spearfish (SCRS, 1997). The precautionary approach to management suggests that management should be conservative in the absence of stock assessment data.

Billfish, dolphin (mahi mahi), tuna species (blackfin, bonito, little tunny), oilfish, and wahoo are often caught as incidental catch in directed commercial and recreational fisheries for Atlantic swordfish, sharks, bluefin tuna, and BAYS tunas. Dolphin landings have historically been dominated by the recreational fishery with a limited directed commercial fishery. However, in the past few years, there has been an increase in commercial dolphin catches by longline vessels that have adapted their gear to simultaneously target dolphin and focus more effort on dolphin after shark and swordfish quotas are met (SAFMC, 1997). Commercial landings have increased from a level of approximately 45,000 pounds per year between 1970 and 1988, to around 200,000 pounds per year from 1989 to 1994, to current annual landings that exceed 450,000 pounds per year (GMFMC, 1996). In 1995, dolphin constituted nearly 16 percent of the estimated catch by U.S. pelagic longline and driftnet vessels. Dolphin are fast growing, early maturing fish that spawn virtually year-round and have a relatively short life span of about four years. These life history characteristics make them unlikely candidates for becoming overfished and likely able to withstand high fishing rates. The primary concern with the commercial fishery for dolphin, particularly by longline vessels, is local depletion and associated bycatch, which includes Atlantic tunas, swordfish, sharks, and billfish. Uncontrolled increases in targeted dolphin longlining could slow the recovery of overfished stocks by causing increased discards of these incidental species. High discard rates by dolphin targeting longline vessels could be exacerbated if access to the directed and incidental shark and swordfish fisheries is implemented (see Chapter 2). In addition to concerns regarding associated overfished populations and bycatch, competition among user groups is also a potential problem. The relative movement closer to shore in recent years by pelagic longline vessels, reportedly to target dolphin, has commercial entities in direct competition with offshore recreational fishermen and charter vessels (Daniel, 1998).

Management measures for dolphin have been considered previously in the public hearing drafts for Amendments 5 and 8 to the FMP for Coastal Pelagic Resources, managed jointly by the South Atlantic Fishery Management Council (SAFMC) and the Gulf of Mexico Fishery Management Council (GMFMC). In each case, after reviewing public hearing testimony, both Councils have chosen to forgo any management for these species due to lack of public support for any specific measures. However, the issue of dolphin management has resurfaced as a result of increased effort for this species in South Carolina and the increases in commercial catch per trip and maximum catches throughout the South Atlantic.

During the latter part of 1996 and early 1997, the SAFMC received correspondence expressing concern over increased landings of dolphin by longliners and decreased recreational catches off South Carolina. In August 1997, the SAFMC approved a motion to begin development of an FMP for dolphin and wahoo. On September 11, 1997 the SAFMC requested that NMFS' Regional Administrator designate the SAFMC as the Regional Fishery Management Council responsible for preparation of an FMP and subsequent amendments for the fisheries for dolphin and wahoo throughout their range in the exclusive economic zone (EEZ) of the Atlantic

Ocean, including the Gulf of Mexico and the Caribbean Sea. A Federal Register notice of the SAFMC's request was published on March 9, 1998 (63 FR 11422) with a comment period to end on April 8, 1998. On April 13, 1998 an additional 45 days were added to the comment period, at the request of the GMFMC, to allow more time to fully consider the issues and impacts and develop and submit more specific and extensive comments on the proposal. A dolphin and wahoo management workshop was held on May 6 through 8, 1998, in Charleston, South Carolina, at which panel members from the Caribbean and southeast United States discussed the current status of dolphin and wahoo research. The SAFMC has created a Dolphin/Wahoo Committee and Advisory Panel to begin looking at possible management measures.

Blue sharks account for approximately 15 percent, by number, of the 1995 total estimated catch by U.S. longline and gillnet vessels. Despite the large number caught, 98 percent of blue sharks are discarded. The meat of blue sharks is not valuable due to its high urea content. In the Pacific, many blue sharks are utilized only for their fins. After finning the sharks, the carcasses are usually discarded, a practice that is prohibited for Atlantic sharks. Blue sharks can also be marketed for their cartilage, and are used in several medicinal and food products in Asia (Rose, 1996). In the Atlantic, however, where both carcasses and fins must be landed, most blue sharks are discarded whole because the value of their fins is not worth the space their carcasses take up on a vessel. Generally, sharks are vulnerable to overfishing because they produce few offspring, mature late in life, and live many years. Blue sharks are thought to be somewhat more resilient to fishing pressure than some other shark species, however they share some of these basic life history traits. As opportunistic surface feeders, they are subject to high encounter rates with fishing operations and may be vulnerable to overfishing in this way.

In addition to potential overfishing problems with development of a blue shark market, conflicts between commercial and recreational fishermen could also pose a potential problem. Blue sharks are often targeted by tournament anglers in the mid-Atlantic states and southern New England, and anglers also generally discard their blue shark catches. Finally, other nations also exert heavy fishing pressure on Atlantic blue sharks and an assessment of the population has not been conducted since 1992. The precautionary approach suggests that development of a directed blue shark fishery would be inappropriate in the absence of more complete information about total fishing effort and trends in the status of the stock.

Oilfish are taken in the pelagic longline fishery and represent a little over two percent of the total 1995 estimated catch, by number, by U.S. pelagic longline and gillnet vessels. There are two different species reported under this common name. With roughly 40 percent of oilfish caught discarded, they also appear to be underutilized. However, in 1992 the Food and Drug Administration (FDA) issued a recommendation to all U.S. fish dealers to not market oilfish in interstate commerce following several complaints of their purgative properties. Consequently, development of oilfish markets could be very difficult.

Opportunities for development of recreational fisheries associated with Atlantic HMS are equally limited. Atlantic billfish, which are the subject of another FMP, are targeted by private recreational fishing vessels as well as in sport tournaments. Billfish are also captured incidentally in the directed tuna/swordfish longline and drift gillnet fisheries. Retention of Atlantic billfish by

commercial fishing vessels is prohibited in the U.S. EEZ, thus, there is no potential for development of a directed commercial fishery for billfish. Expansion of the recreational fishery for billfish is also unlikely. Blue marlin and white marlin have been designated as overfished and there is little information available about the status of the spearfish population. Furthermore, the United States is currently implementing measures to meet an ICCAT recommendation to reduce landings of blue and white marlin by 25 percent from 1996 levels.

While recreational fishermen attest there is no substitute for the experience of catching a blue marlin, new billfish regulations could lead to decreased angler satisfaction and possibly shift angler preferences toward other species. In a study of resident and non-resident participants in Puerto Rican billfish tournaments, based on information collected through a mail question-naire (Ditton and Clark, 1994), 76 percent of respondents listed blue marlin and the generic category of marlin as their most preferred first choice species to catch. Dolphin was the only other species specifically targeted by more than 10 percent of billfish anglers as their first choice. Second choices were most frequently listed by billfish anglers as dolphin (38 percent) and sailfish (20 percent), while dolphin (26 percent) and wahoo (24 percent) were anglers' most frequently listed third preference. Therefore, potential decreases in angler satisfaction or loss of angler participation in the billfish fishery could potentially impact the dolphin and wahoo recreational fisheries.

In summary, opportunities for development of fishery resources associated with Atlantic HMS are very limited. Even if a related species could sustain increased fishing pressure, bycatch effects on already overfished associated stocks could be detrimental and would be contrary to the objectives of this FMP and to the precautionary approach to fisheries management.

3.10 Total Allowable Level of Foreign Fishing (TALFF)

Title II of the Magnuson-Stevens Act establishes the system for the regulation of foreign fishing within the U.S. EEZ. These regulations are published in 50 CFR 611. The regulations provide for the setting of a total allowable level of foreign fishing (TALFF) for specific species based on the portion of the optimum yield that will not be caught by U.S. vessels. At the present time, no TALFF is available, since the United States has the capacity to harvest up to the level of optimum yield of all species subject to this fishery management plan. One objective of this FMP is to match domestic fleet capacity with resource status (and thus, available quota) suggesting that no TALFF is likely to be available during or following rebuilding of overfished HMS stocks.

Atlantic swordfish and tunas are managed internationally by ICCAT. Once the United States has accepted a quota as recommended by ICCAT, NMFS may not change the quota allocated to U.S. fishers. U.S. fishers have the capacity to harvest the entire U.S. quota for these species. Therefore, none of the U.S. quota for these species is available for foreign fishing. Large coastal sharks are overfished and the fishery severely overcapitalized such that U.S. fishers have the capacity to harvest over the optimum yield for these species. Pelagic sharks and small coastal sharks are fully fished, and any increases in yield from foreign fishing would be expected to result in overfishing. Therefore, no Atlantic sharks are available for foreign fishing. U.S. fish

processors have the capacity to process all of the U.S. quota for Atlantic swordfish and bluefin tuna, and to process all of the optimum yield of Atlantic sharks and BAYS tunas.

3.11 Relationship to International Agreements, Applicable Laws and Other Fishery Management Plans

The following section discusses the relationship between management of Atlantic tunas, swordfish, and sharks under this FMP and requirements of international agreements and other applicable laws. It also discusses the relationship between this FMP and the existing management program for Atlantic tunas, swordfish, and sharks. While the Magnuson-Stevens Act, the ATCA, the Marine Mammal Protection Act, and the Endangered Species Act guide most basic fishery management, these management programs must also be consistent with several other laws, including the National Environmental Policy Act (NEPA), the Regulatory Flexibility Act (RFA), and the Paperwork Reduction Act (PRA). Because they are fished by many nations, Atlantic HMS are also subject to international agreements and their domestic implementing legislation. This section discusses the relationship between management under this FMP and requirements of these statutes, and is organized as follows:

- 3.11.1 The International Commission for the Conservation of Atlantic Tunas (ICCAT) and its relationship to the Atlantic Tunas Convention Act (ATCA) and the Magnuson-Stevens Act
- 3.11.2 The United Nations Agreement on Straddling Fish Stocks and HMS
- 3.11.3 Other fishery management plans
- 3.11.4 Existing HMS management

3.11.1 The International Commission for the Conservation of Atlantic Tunas (ICCAT) and its relationship to ATCA and the Magnuson-Stevens Act

U.S. fisheries for Atlantic HMS are managed by NMFS, acting for the Secretary of Commerce under authority of the Atlantic Tunas Convention Act and the Magnuson-Stevens Fishery Conservation and Management Act. Since 1966, the International Commission for the Conservation of Atlantic Tunas has been responsible for international conservation and management of tuna and tuna-like fishes. ICCAT's stated objective is to "cooperate in maintaining the populations of these fishes at levels which will permit the maximum sustainable catch for food and other purposes." All of the Atlantic HMS including tunas, swordfish and billfish, but with the exception of the shark species, are currently subject to ICCAT management authority. Research recommendations for sharks are considered by ICCAT's Subcommittee on Bycatch.

The conservation and management recommendations of ICCAT include total allowable catches, sharing arrangements for member countries, minimum size limits, effort controls, time/area closures, trade measures, and monitoring and inspection programs. If the United States

accepts an ICCAT recommendation, ATCA provides the Secretary of Commerce with the necessary authority to implement these binding ICCAT recommendations in the United States. However, no regulation promulgated under ATCA may have the effect of increasing or decreasing any allocation or quota of fish or fishing mortality level that the United States agreed to pursuant to a recommendation of ICCAT.

Similarly, the Magnuson-Stevens Act specifies that NMFS must provide fishing vessels of the United States with a reasonable opportunity to harvest any allocation or quota of an ICCAT species that has been agreed to by the United States. The FMP or amendment must specify a time period for ending overfishing and rebuilding the fishery that shall:

- i. be as short as possible, taking into account the status and biology of the stock of fish, the needs of fishing communities, recommendations by international organizations in which the United States participates, and the interaction of the overfished stock within the marine ecosystem; and
- ii. not exceed ten years, except in cases where the biology of the stock of fish, other environmental conditions, or management measures under an international agreement in which the United States participates dictate otherwise.

Further, the Magnuson-Stevens Act requires NMFS to allocate both overfishing restrictions and recovery benefits fairly and equitably among sectors of the fishery. Fisheries managed under an international agreement must reflect traditional participation in the fishery, relative to other nations, by fishermen of the United States. In preparing any FMP or amendment for Atlantic HMS, NMFS must “evaluate the likely effects, if any, of conservation and management measures on participants in the affected fisheries, and minimize, to the extent practicable, any disadvantage to United States fishermen in relation to foreign competitors.”

To date, Atlantic tunas have been managed under the authority of the ATCA and no FMP is in existence for Atlantic tunas. However, the Secretary may exercise dual authority in Atlantic tuna management and issue regulations under both ATCA and the Magnuson-Stevens Act. This FMP and its implementing regulations will incorporate all existing management measures for Atlantic tunas. In the future, the Secretary will implement Atlantic tunas regulations under the dual authority of the Magnuson-Stevens Act and ATCA, whenever possible. Swordfish will continue to be managed under dual authority of ATCA and the Magnuson-Stevens Act following implementation of the combined HMS FMP. Since sharks are not subject to ICCAT management recommendations, they are managed solely under authority of the Magnuson-Stevens Act.

3.11.2 The United Nations Agreement on Straddling Fish Stocks and HMS

On December 4, 1995, the United States signed the Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea relating to the

Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks. The Agreement has its origins in Agenda 21, the detailed plan of action adopted by the 1992 U.N. Conference on Environment and Development. It builds upon certain fisheries-related provisions of the 1982 U.N. Convention on the Law of the Sea, and reaffirms the central role of the Convention as the accepted foundation and framework for this critical body of international law. While all States have the right to engage in fishing on the high seas, the Convention qualifies this right with the duty to conserve high seas resources and to cooperate with other States in conservation efforts. In fulfillment of these obligations, multilateral fishery agreements and organizations such as ICCAT have been established to conserve and manage high seas fisheries.

The U.N. Agreement is designed to strengthen and make more specific the provisions of the Convention, and back the provisions with effective enforcement techniques and compulsory dispute settlement. This should give the international community mechanisms to reverse overfishing trends and create an opportunity to ensure sustainable marine fisheries. While the Agreement recognizes that most of the actual conservation and management work for highly migratory fish stocks must be carried out through regional fisheries organizations (e.g., ICCAT), it recommends some specific measures to strengthen the operations of such organizations. For example, Article 8(3) requires any State whose fishermen wish to harvest a stock that is governed by such an organization either to join or to agree to apply the conservation and management measures established by the organization. This rule, if properly implemented, could greatly reduce the problems associated with “non-party” fishing.

The U.N. Agreement sets forth general principles for fishery conservation and management, including obligations to:

- ensure the long-term sustainability of these stocks;
- take measures that are based on the best scientific information available;
- assess relevant environmental impacts;
- adopt conservation and management measures for other stocks belonging to the same ecosystem;
- minimize catch of non-target species; and
- take measures to prevent or eliminate overfishing and excess fishing capacity.

3.11.3 Other Fishery Management Plans

The fisheries for Atlantic swordfish and Atlantic sharks are currently managed under FMPs published in 1985 and 1993, respectively. This draft HMS FMP will replace those management plans, incorporating all existing management measures that have been implemented under the authority of the Magnuson-Stevens Act and the appropriate FMP. As discussed above, existing regulations for Atlantic tunas will be incorporated into this FMP.

This FMP was developed in coordination with the Billfish FMP Amendment. The billfish

fishery has unique characteristics that were best served under a separate management plan. However, HMS fisheries are multi-species fisheries, with overlapping participants, target species, and management concerns. Thus, NMFS will consider the Billfish FMP when developing and implementing management measures under this FMP.

Management of the mahi mahi fishery also affects management of HMS under this FMP. The mahi mahi fishery is currently managed under the Coastal Migratory Pelagics of the Gulf of Mexico and South Atlantic FMP, prepared jointly by the South Atlantic and Gulf of Mexico Fishery Management Councils.

3.1.1.4 Relationship of this FMP to Existing HMS Management

This FMP incorporates all existing management measures for Atlantic tunas and North Atlantic swordfish that have been issued previously under the authority of the Atlantic Tunas Convention Act. It also incorporates all existing management measures for north Atlantic swordfish and Atlantic sharks that have been issued previously under the authority of the Magnuson-Stevens Act. This FMP replaces the existing FMPs for Atlantic swordfish and sharks and establishes an FMP for Atlantic tunas. Notable modifications or additions to the existing management program are discussed in this document. All existing management measures are retained under this FMP; modifications to some measures are explicitly discussed below. Should NMFS determine that further changes are necessary, they will be made through the FMP amendment process or through rulemaking as described in the framework provisions (section 3.12).

3.12 Framework Adjustment Regulatory Procedure

3.12.1 Introduction

The activities involved in continuing fishery management include monitoring, evaluation, adjustment and revision. There are two primary methods that can be used to change management measures included in an FMP: framework regulatory adjustment and FMP amendment. The framework regulatory adjustment procedure provides for timely annual changes to the management measures in the regulations in response to new information about the fishery. Framework adjustment lends flexibility and efficiency to the regulatory process by allowing NMFS to make time-critical changes in the regulations, such as in-season adjustments, without engaging in the lengthy and cumbersome process of amending the FMP. Framework adjustment is not intended to circumvent the FMP amendment process that must take place when circumstances in the fishery change substantially or when a different management philosophy or objectives are adopted, triggering significant changes in the management system. Rather, framework adjustment is intended to make it possible to manage fisheries more responsively under conditions requiring timely management actions. Significant actions would require an FMP amendment. Both framework adjustment measures and proposed FMP amendments must go through extensive public and analytical review, including development and review by the APs.

NS 2 of the Magnuson-Stevens Act requires that NMFS take into account the best scientific information available in developing FMPs and implementing regulations. The guidelines for implementation of NS 2 require preparation of an annual Stock Assessment and Fishery Evaluation (SAFE) report that provides a summary of the best available scientific information concerning the biological condition of the species in the fishery management unit, and the social and economic condition of the recreational and commercial fishing interests and fish processing industries, and the past, present, and likely future condition of the stocks and fisheries. The SAFE report will be used by NMFS to develop and evaluate regulatory adjustments under the framework procedure. This information will provide the basis for determining annual harvest levels from each stock, documenting significant trends or changes in the resource and fishery over time, and assessing the relative success of existing state and Federal fishery management programs. In addition, the SAFE report will be used to update or expand previous environmental and regulatory impact documents, and ecosystem and habitat descriptions.

3.12.2 Advisory Panel and Continuing Fishery Management

The Assistant Administrator is responsible for implementing, monitoring, and amending the HMS FMP and its implementing regulations. As required by section 302(g)(4) of the Magnuson-Stevens Act, NMFS established an HMS AP to assist in the collection and evaluation of information relevant to the development of the HMS FMP and any subsequent amendments. Decisions and recommendations of the AP are advisory in nature. Following publication of the annual SAFE report in January or February, NMFS will convene the AP to evaluate management measures relative to the objectives of the FMP. If NMFS, with the assistance of the AP, concludes that the FMP must be amended, NMFS will follow the HMS process for amending an FMP. Alternatively, NMFS may determine that it is not necessary to amend the FMP but that a regulatory amendment is appropriate under framework provisions of the FMP. NMFS may also convene meetings of the AP at other appropriate times throughout the year.

3.12.3 Procedure for Adjusting the Management Measures

Based on the annual SAFE report, deliberations of the AP, and other relevant factors, NMFS will determine whether any adjustments to management measures contained within the FMP are necessary in order to achieve the management objectives stated in this FMP. Adjustments may include changes in:

- (a) commercial quotas;
- (b) commercial trip limits;
- (c) recreational bag limits;
- (d) MSYs;
- (e) species size limits;
- (f) management unit;
- (g) permitting and reporting requirements;
- (h) composition of the species groups;
- (i) fishing year or season;

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- (j) time/area restrictions;
 - (k) target catch requirements;
 - (l) allocation among user groups;
 - (m) gear restrictions;
 - (n) effort restrictions; and
 - (o) actions to implement recent ICCAT recommendations, if appropriate.

The goal is to implement regulatory changes by the start of the new fishing year. If NMFS determines that adjusting the management measures is necessary, it will prepare a regulatory package including a discussion of the need for action; the proposed adjustments to the management measures; analyses as required by applicable law of the social, economic, environmental, and biological impacts of the proposed measures; and the proposed rule. The comment period on the proposed rule will generally be 45 days, but may be extended or reduced as appropriate. If the adjustments include the implementation of ICCAT recommendations, NMFS will hold at least one hearing on the proposed rule.

After reviewing public comments and additional information or data that may be available, NMFS will, if appropriate, make final determinations regarding consistency of the proposed conservation and management measures with the objectives of the FMP, the National Standards, and other applicable law. Within 30 days of the close of the public comment period on the proposed rule, the Assistant Administrator will publish a final rule in the Federal Register.

If circumstances warrant during the year, NMFS may take regulatory action independent of the SAFE report. NMFS will subsequently follow the procedures outlined above.

References

Atlantic Tunas Convention Act. 16 U.S.C. 971. 1996.

Beideman, N. Blue Water Fishermen's Association, Barnegat Light, NJ, personal communication.

Branstetter, S. and G. Burgess. 1997. Commercial Shark Fishery Observer Program 1996 Final Report. MARFIN Award NA57FF0286. Gulf and South Atlantic Fisheries Development Foundation and University of Florida. 1996 SEW Document SB-III-1 and 1998 SEW Document SB-IV-1.

Cramer, J. 1996. Estimates of the numbers and metric tons of sharks discarded dead by pelagic longline vessels. 1996 SEW Document SB-III-4. 21 pp.

Cramer, J., A. Bertolino, and G.P. Scott. 1997. Estimates of Recent Shark Bycatch by U.S. Vessels Fishing for Atlantic Tuna and Tuna-like Species. 1998 SEW Document SB-IV-22.

Cramer, J. and H. Adams. 1998. Large Pelagic Logbook Newsletter - 1996, NOAA Tech. Memo. NMFS-SEFSC-407, 61 pp.

Cramer, J. and H. Adams. 1998. Pelagic longline bycatch. Sustainable Fisheries Division Contribution SFD-97/98-06. 29 pp.

Ditton, R. B and D.J. Clark. 1994. Characteristics, Attitudes, Catch and Release Behavior, and Expenditures of Billfish Tournament Anglers in Puerto Rico. Report to the Billfish Foundation, Miami, Florida.

Daniel, L. 1997. Finfish Committee Information Paper on the Longline Fishery. April 16, 1997.

Final Environmental Impact Statement, July 20, 1995, p. 129, table 3.16

Fisher, R.B. and J.R. Ditton. 1992. A Social and Economic Study of the Winter Recreational Atlantic Bluefin Tuna Fishery in Hatteras, North Carolina. 81 pp.

Gulf of Mexico Fishery Management Council (GMFMC), 1996. Amendment 8 to the FMP for Coastal Migratory Pelagics Residing in the Gulf of Mexico, Including an Environmental Assessment, Regulatory Impact Review, and Initial Regulatory Flexibility Analysis. Tampa, FL. August, 1996

Magnuson-Stevens Act. 16 U.S.C. 1801. 1996.

NMFS (1995) Final Environmental Impact Statement for a Regulatory Amendment for the Western Atlantic Bluefin Tuna Fishery. July 1995. Silver Spring, MD.

NMFS, 1997a. National Report of the United States to the International Commission for the Conservation of Atlantic Tunas. October 1997. Silver Spring, MD.

NMFS 1997b. Draft Administrative Process for the Management of Atlantic Highly Migratory Species.

NMFS 1997c. Report to Congress on the Status of Fisheries. September 1997. Silver Spring, MD.

NMFS. 1998. Shark Evaluation Workshop. 109 pp.

National Research Council (NRC) 1991. Fishing Vessel Safety: Blueprint for a National Program, Washington, DC: National Academy Press.

Poffenberger, J. 1996. Commercial Shark Landings. 1996 SEW Document SB-III-6.

Restrepo, V.R., G.G. Thompson, P.M. Mace, W.L. Gabriel, L.L. Low, A.D. MacCall, R.D. Methot, J.E. Powers, B.L. Taylor, P.R. Wade, and J.F. Witzig. 1998. Technical Guidance on the Use of Precautionary Approaches to Implementing National Standard 1 of the Magnuson-Stevens Fishery Conservation and Management Act. NOAA Technical Memorandum NMFS-F/SPO-31. July 17, 1998.

Rose, D.A. 1996. An overview of world trade in sharks and other cartilaginous fishes. TRAFFIC International. 106 pp.

South Atlantic Fishery Management Council (SAFMC), 1997. Options paper for management of dolphinfish. Charleston, SC. August, 1997.

Standing Committee on Research and Statistics (SCRS), 1997. Report of the Standing Committee on Research and Statistics to the International Commission for the Conservation of Atlantic Tunas. COM/97/17. October 1997.

Scott, G., P. Phares, and B. Slater. 1996. Recreational Catch, Average Size and Effort Information for Sharks in U.S. Atlantic and Gulf of Mexico Waters. 1996 SEW Document SB-III-5.

Scott, G., J. Bennett, B. Slater, and P. Phares. 1998. Recent Recreational and Commercial Catches of Sharks Along the U.S. East and Gulf of Mexico Coasts. 1998 SEW Document SB-IV-12.

Strategic Plan for Fisheries Research. National Marine Fisheries Service, February 1998

USCG, 1996. Commercial Fishing Vessel Deaths and Losses

USCG, 1997. Commercial Fishing Industry Casualty Data.