

DRAFT

ENVIRONMENTAL ASSESSMENT

REGULATORY IMPACT REVIEW

AND

INITIAL REGULATORY FLEXIBILITY ACT ANALYSIS

FOR A

PROPOSED RULE

TO IMPLEMENT SWORDFISH MANAGEMENT MEASURES THAT WILL FACILITATE
THE ABILITY OF U.S. VESSELS TO FULLY HARVEST THE ICCAT-RECOMMENDED
DOMESTIC SWORDFISH QUOTA

November 2006

United States Department of Commerce
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Office of Sustainable Fisheries
Highly Migratory Species (HMS) Management Division
1315 East-West Highway
Silver Spring, Maryland 20910

Proposed Rule to Revise Swordfish Retention Limits and Modify HMS Limited Access Vessel Upgrading Restrictions to Facilitate the Ability of U.S. Vessels to Fully Harvest the Domestic Swordfish Quota Recommended by the International Commission for the Conservation of Atlantic Tunas (ICCAT)

Framework Adjustment to the Consolidated Atlantic Highly Migratory Species Fishery Management Plan

- Proposed Actions:** This action would revise North Atlantic swordfish retention limits and modify the current vessel upgrading restrictions on vessels issued limited access HMS permits. The purpose is to provide a reasonable opportunity for U.S. vessels to fully harvest the domestic swordfish quota, in recognition of the improved stock status of North Atlantic swordfish.
- Type of Statement:** Proposed Rule Documents: Environmental Assessment, Initial Regulatory Flexibility Analysis, and Regulatory Impact Review
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- Abstract:** The U.S. Atlantic swordfish quota allocation is derived from recommendations of the International Commission for the Conservation of Atlantic Tunas (ICCAT), and is implemented under the authority of the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) and the Atlantic Tunas Convention Act (ATCA). The Magnuson-Stevens Act specifies that NMFS shall provide a reasonable opportunity for U.S. vessels to harvest HMS quotas that are managed under international agreement. For the past several years, the U.S. Atlantic swordfish fishery has not fully harvested the available quota allocated by ICCAT. These proposed regulations would facilitate the ability of U.S. vessels to fully harvest the domestic swordfish quota by modifying swordfish retention limits and limited access vessel upgrading restrictions. These actions are necessary to revitalize the domestic fishery while continuing to minimize bycatch to the extent practicable, so that that swordfish are harvested in a sustainable yet economically viable manner. Impacts resulting from these actions are not expected to be significant.

**FINDING OF NO SIGNIFICANT ENVIRONMENTAL IMPACT
TO REVISING SWORDFISH RETENTION LIMITS AND MODIFYING HMS
LIMITED ACCESS VESSEL UPGRADING RESTRICTIONS TO FACILITATE THE
ABILITY OF U.S. VESSELS TO FULLY HARVEST THE ICCAT-RECOMMENDED
DOMESTIC SWORDFISH QUOTA ALLOCATION**

National Marine Fisheries Service
November 2006

The HMS Management Division of the Office of Sustainable Fisheries submits the attached Environmental Assessment (EA) for Secretarial review under the procedures of the Magnuson-Stevens Fishery Conservation and Management Act. The proposed regulations would revise incidental and recreational retention limits for North Atlantic swordfish and modify HMS limited access pelagic longline (PLL) vessel upgrading restrictions to facilitate the ability of U.S. vessels to fully harvest the domestic swordfish quota allocation, while continuing to minimize bycatch to the extent practicable, so that that swordfish are harvested in a sustainable yet economically viable manner. This EA was developed as an integrated document that includes a Regulatory Impact Review (RIR). Copies of the proposed rule and the EA and RIR are available from NMFS at the following address:

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This EA considers information contained in the Environmental Impact Statement (EIS) associated with the 2006 Consolidated Highly Migratory Species Fishery Management Plan (2006 FMP), and the EA prepared for the May 19, 2006, final rule (71 FR 29087) modifying the 2005 quotas for North and South Atlantic swordfish. All of the information used is herein incorporated by reference.

National Oceanic and Atmospheric Administration Administrative Order 216-6 (NAO 216-6) (May 20, 1999) contains criteria for determining the significance of the impacts of a proposed action. In addition, the Council on Environmental Quality (CEQ) regulations at 40 C.F.R. 1508.27 indicate that the significance of an action should be analyzed both in terms of “context” and “intensity.” Each criterion listed below is relevant to making a finding of no significant impact and has been considered individually, as well as in combination with the others. The significance of this action is analyzed based on the NAO 216-6 criteria and CEQs “context” and “intensity” criteria.

These include:

1. Can the action be reasonably expected to jeopardize the sustainability of any target species that may be affected by the action?

No. The proposed actions would increase incidental and recreational swordfish retention limits and modify limited access upgrading restrictions for PLL vessels. In 2002, ICCAT established an overall total allowable catch (TAC) (14,000 mt ww) for the North Atlantic swordfish stock. This TAC was estimated to have greater than a 50 percent chance of rebuilding the stock to MSY by the end of 2009. That rebuilding goal has very nearly been achieved. A North Atlantic swordfish stock assessment conducted in October 2006 by the ICCAT Standing Committee on Research and Statistics (SCRS) estimated the biomass of North Atlantic swordfish at the beginning of 2006 (B_{2006}) to be at 99 percent of the biomass necessary to produce maximum sustainable yield (B_{msy}). The 2005 fishing mortality rate (F_{2005}) was estimated to be 0.86 times the fishing mortality rate at maximum sustainable yield (F_{msy}). In other words, in 2006, the North Atlantic swordfish stock is almost fully rebuilt and fishing mortality is low. The SCRS also indicated that the stock condition of South Atlantic is good, although there were divergent views of stock status depending upon the data used in the forecast model. The proposed measures are likely to increase domestic landings of swordfish, but the resultant landing levels are expected to be well within the U.S. ICCAT recommended swordfish quota and the overall North Atlantic swordfish TAC. Additionally, NMFS has implemented a number of restrictions on the pelagic longline fleet over the past several years, such as closed areas, that are expected to continue to help prevent overfishing of swordfish. Therefore, the proposed actions are not expected to jeopardize the sustainability of the North or South Atlantic swordfish stocks.

2. Can the action be reasonably expected to jeopardize the sustainability of any non-target species?

No. The pelagic longline fleet has several management measures in place that will continue to control fishing effort and catch. These include limited access permits, time/area closures, circle hook requirements, bait restrictions, careful release protocols, VMS requirements, quotas, retention limits, minimum size limits, landing restrictions, commercial billfish possession prohibition, authorized gears, observer requirements, and dealer and vessel logbook reporting. NMFS does not expect the proposed actions to jeopardize the sustainability of any non-target species due to these management restrictions. These restrictions have been effective at reducing bycatch and controlling overall fishing effort, both in terms of numbers of hooks fished and numbers of active PLL vessels. There is a possibility that fishing effort may increase under this action, but any increase is likely to be mitigated by existing management measures and limits within each alternative. The proposed actions are intended to provide a reasonable opportunity for domestic vessels to harvest the U.S. swordfish quota, while continuing to conserve target, non-target and protected species.

3. Can the action be reasonably expected to allow substantial damage to the ocean and coastal habitats and/or essential fish habitat (EFH) as defined under the Magnuson-Stevens Act and identified in FMPs?

No. The proposed actions would impact only the pelagic longline fleet and the recreational swordfish fishery. Pelagic longline gear and recreational swordfish gear are suspended in the

water column and do not contact the bottom substrate. Because of the nature of these gears, it is unlikely that the habitat for any prey species would be altered. Additionally, as the proposed actions are not expected to significantly change fishing practices or effort, this proposed rule is not expected to change the impact of pelagic longline and recreational swordfish gear on EFH.

4. Can the action be reasonably expected to have a substantial adverse impact on public health and safety?

No. These actions could have the effect of improving safety at sea by allowing pelagic longline vessel owners to make moderate upgrades to their vessels, and by allowing some commercial fishermen to land more swordfish. Like all offshore fisheries, pelagic longlining can be dangerous. Fishermen have pointed out that, due to decreasing profit margins, they may have to fish with less crew or less experienced crew, or may not have the time or money to complete necessary maintenance tasks. By allowing for larger vessel upgrades and additional swordfish landings, it might be more feasible to carry additional crew, utilize larger vessels, and increase ex-vessel revenues. The alternatives addressing recreational retention limits are not expected to impact public health or safety. Safety factors were strongly considered in selecting the preferred alternatives. NMFS has concluded that the proposed alternatives are not likely to adversely affect public health or safety at sea.

5. Can the action be reasonably expected to have an adverse impact on endangered or threatened species, marine mammals, or critical habitat of these species?

No. NMFS does not expect the proposed measures to have an adverse impact on endangered or threatened species, marine mammals, or critical habitat of these species. The pelagic longline fleet has several management measures in place that will continue to control fishing effort and bycatch. These include limited access permits, time/area closures, circle hook requirements, bait restrictions, careful release protocols, VMS requirements, quotas, retention limits, minimum size limits, landing restrictions, commercial billfish possession prohibition, authorized gears, observer requirements, and dealer and vessel logbook reporting. NMFS does not expect the proposed actions to jeopardize the sustainability of any protected species due to these management restrictions. These restrictions have been effective at reducing bycatch and controlling overall fishing effort, both in terms of numbers of hooks fished and numbers of active PLL vessels. The proposed recreational management measures are not expected to have an adverse effect on protected species, as the current per person limit would remain in effect. Only a small percentage of recreational trips currently land the three fish vessel limit, and far fewer are expected to approach the proposed limits. Further, the 2001 BiOp indicated that anticipated takes in the HMS rod and reel and handgear fisheries are low. Overall there is a possibility that fishing effort may increase under this action, but any increase is likely to be mitigated by existing management measures and limits within each alternative.

6. Can the action be expected to have a substantial impact on biodiversity and ecosystem function within the affected area (e.g. benthic productivity, predator-prey relationships, etc.)?

No. The proposed action is not expected to have a substantial impact on biodiversity and ecosystem function because restrictions on pelagic longline gear will remain the same. There is

a possibility that fishing effort may increase under this action, but any increase is likely to be mitigated by existing management measures and limits within each alternative.

7. Are significant social or economic impacts interrelated with significant natural or physical environmental effects?

No. NMFS does not expect any significant social or economic impacts from increasing incidental and recreational swordfish retention limits, and modifying PLL vessel upgrading restrictions. In fact, net positive economic and social impacts are anticipated. Increasing incidental retention limits will enable vessel operators to land swordfish that otherwise may have been discarded. HMS charter and headboat operators may benefit from an increased willingness-to-pay on behalf of recreational anglers taking for-hire trips. Finally, modifying PLL vessel upgrading restrictions may provide vessel owners with more flexibility to increase the size of their vessels based upon their business needs.

8. To what degree are the effects on the quality of the human environment expected to be highly controversial?

The effects on the quality of the human environment are not expected to be highly controversial, because a significant change in fishing effort or fishing practices is not anticipated. There may be some controversiality from environmental organizations and other interested parties that are opposed to any potential increase in fishing effort. However, the intent of this action is to demonstrate in the short-term that conservation measures can go hand-in-hand with an economically viable PLL fishery. This could potentially yield long-term benefits to populations of sea turtles, billfish, and other protected or overfished species throughout the Atlantic basin.

9. Can the proposed action be reasonably expected to result in substantial impacts to unique areas, such as historic or cultural resources, park land, prime farmlands, wetlands, wild and scenic rivers or ecologically critical areas?

No. This proposed action does not apply to any of the unique areas listed.

10. To what degree are the effects on the human environment likely to be highly uncertain or involve unique or unknown risks?

The proposed action is not likely to be highly uncertain or involve unique or unknown risks, but there is some degree of uncertainty involved. Because the decision to upgrade a fishing vessel is personal, it is not possible to precisely quantify the overall impact of the upgrading modifications because it is dependent upon the decisions of hundreds of business owners. However, NMFS does not intend to change most of the current fishery management measures that have been in place for several years (*i.e.*, limited access permits, time/area closures, circle hook requirements, bait restrictions, careful release protocols, VMS requirements, quotas, retention limits, minimum size limits, landing restrictions, commercial billfish possession prohibition, authorized gears, and dealer and vessel logbook reporting). Additionally, the number of active vessels in the PLL fleet has declined by nearly 50 percent since 1999. Therefore, modifying retention limits and upgrading provisions is not likely to increase fishing effort to levels approaching historic levels.

11. Is the action related to other actions with individually insignificant, but cumulatively significant impacts?

The proposed alternative is in keeping with management recommendations from the 2002 meeting of ICCAT for the North and South Atlantic swordfish stocks, and the 2004 recommendation for the North Atlantic swordfish stock. Taking into consideration the management measures implemented through the 1999 HMS FMP, the August 2000 bycatch and time/area rule, the July 2004 rule implementing the Biological Opinion measures, and the 2006 Consolidated HMS FMP, NMFS expects no adverse cumulative impacts from this proposed rule. The cumulative economic impact from these previous actions has contributed to a precipitous decline in the number of active pelagic longline vessels. The intent of this action is to provide a reasonable opportunity for domestic vessels to harvest the U.S. swordfish quota, while continuing to conserve target, non-target and protected species. This proposed action, when considered with previous and reasonably foreseeable actions, is not expected to result in cumulatively significant impacts.

12. Is the proposed action likely to adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historical resources.

This proposed action would not adversely affect any of the locations listed.

13. Can the proposed action be reasonably expected to result in the introduction or spread of a non-indigenous species?

No. The proposed action intends to modify swordfish retention limits and vessel upgrading restrictions, and therefore would not result in the introduction or spread of any non-indigenous species.

14. Is the proposed action likely to establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration?

No. This action carefully balances the economic needs of the swordfish fishery with the conservation needs of the environment. It provides short-term remedy to address persistent underharvests of the domestic swordfish quota while longer-term measures may be considered and additional information can be obtained. Although swordfish landings and fishing effort may increase, landings are expected to remain well within the ICCAT recommended quota, and other management measures to mitigate fishing effort will remain in effect. Balancing ecological and economic needs is typically an integral part of any fishery management considerations, and is not precedent setting.

15. Can the proposed action be reasonably expected to threaten a violation of Federal, State, or local law or requirements imposed for the protection of the environment?

No. NMFS has determined preliminarily that these regulations would be implemented in a manner consistent to the maximum extent practicable with the enforceable policies of those coastal states on the Atlantic including the Gulf of Mexico and Caribbean that have approved coastal zone management programs. Letters will be sent to the relevant states asking for their concurrence when the proposed rule is filed with the Federal Register.

16. Can the proposed action reasonably be expected to result in cumulative adverse effects that could have a substantial effect on the target species or non-target species?

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1.0 PURPOSE AND NEED FOR ACTION

1.1 Management History

The National Marine Fisheries Service (NMFS) under the authority of the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) and the Atlantic Tunas Convention Act (ATCA) manages the U.S. fishery for North and South Atlantic swordfish. Under ATCA, the United States is obligated to implement recommendations of the International Commission for the Conservation of Atlantic Tunas (ICCAT), including Atlantic swordfish quotas. ICCAT is an inter-governmental fishery organization, currently consisting of 42 contracting parties, which is responsible for the conservation of tunas and tuna-like species (including swordfish) in the Atlantic Ocean and its adjacent seas. The next ICCAT meeting is scheduled to occur in November 2006. In addition to being consistent with ICCAT recommendations, swordfish management measures must also comply with the Magnuson-Stevens Act, the Endangered Species Act (ESA), and other domestic laws. For additional information about the management history of the North and South Atlantic swordfish stocks, please refer to Section 1.2 below (Need for Action and Objectives) and the Final Consolidated Atlantic Highly Migratory Species Fishery Management Plan (Consolidated HMS FMP) (NMFS, 2006).

1.2 Need for Action and Objectives

The purpose of this action is to implement management measures that will help to provide a reasonable opportunity for U.S. vessels to fully harvest the ICCAT-recommended domestic swordfish quota, in recognition of the improved stock status of North Atlantic swordfish. The preferred alternatives would modify current swordfish incidental and recreational retention limits and pelagic longline (PLL) limited access vessel upgrading restrictions, consistent with the 2006 Consolidated HMS FMP, Magnuson-Stevens Act, ATCA, and other domestic regulations.

In 2001, ICCAT established its “Criteria for the Allocation of Fishing Possibilities” (ICCAT Recommendation 01-25) that included 15 separate criteria to be considered when allocating quota within the ICCAT framework. The first two criteria relate to the past and present fishing activity of qualifying participants. These criteria specify that “historical catches” and “the interests, fishing patterns and fishing practices” of qualifying participants are to be considered when making allocation recommendations. Other criteria, including conservation measures, economic importance of the fishery, geographical occurrence of the stock, compliance with ICCAT management measures, and dependence on the stocks, must also be considered when allocating quota.

The ICCAT Standing Committee on Research and Statistics (SCRS) conducted a stock assessment for North Atlantic swordfish in October 2006. The 2006 assessment indicated that North Atlantic swordfish biomass had improved, possibly due to strong recruitment in the late 1990’s combined with reductions in reported catch since then. The SCRS estimated the biomass of North Atlantic swordfish at the beginning of 2006 (B_{2006}) to be at 99 percent of the biomass necessary to produce maximum sustainable yield (B_{msy}). The 2005 fishing mortality rate (F_{2005}) was estimated to be 0.86 times the fishing mortality rate at maximum sustainable yield (F_{msy}). In

other words, in 2006, the North Atlantic swordfish stock is almost fully rebuilt and fishing mortality is low.

At its 2002 meeting, ICCAT established an annual Total Allowable Catch (TAC) for North Atlantic swordfish of 14,000 mt (ww) for the years 2003, 2004, and 2005 (ICCAT Recommendation 02-02). A 14,000 mt (ww) TAC was later established for 2006 (ICCAT Recommendation 04-02). 1,185 mt (ww) of the TAC was allocated to “other contracting parties and others,” with the remainder being distributed to the European Community (52.42 percent), United States (30.49 percent), Canada (10.52 percent), and Japan (6.57 percent), using the allocation criteria described above. This resulted in a baseline U.S. North Atlantic swordfish quota of 3,907 mt (ww) for the period 2004 – 2006. In November 2006, ICCAT is expected to review swordfish management measures and quota allocations at its annual meeting, and may develop new management recommendations based on the 2006 stock assessment and other information relevant to the allocation criteria discussed above. ICCAT may consider, among other factors, historical catches and fishing patterns when discussing the allocation of the North Atlantic swordfish TAC for 2007 and beyond.

An examination of historical catches reveals that U.S. North Atlantic swordfish catches, as reported to ICCAT, have declined by approximately 40 percent from 4,026 mt (ww) in 1995 to 2,424 mt (ww) in 2005¹, although they have stabilized since 2001. As a percent of the ICCAT-recommended U.S. quota, the decline in U.S. North Atlantic swordfish landings is even more apparent. The United States has landed less than its ICCAT-recommended “baseline” and “adjusted” swordfish quota since 1997. Because landings below the baseline quota (an “underage”) in one year may be added to the subsequent year’s baseline quota, the “adjusted” U.S. North Atlantic swordfish quota has continued to increase. Based on reported landings to ICCAT, the United States went from exceeding its “baseline” quota in 1996 to landing only 29 percent of its “adjusted” quota in 2005. As indicated above, reported catches in 2005 were 2,424 mt (ww) versus a 2005 “adjusted” quota of 8,319 mt (ww). This trend is likely to continue in 2006 because the “adjusted” quota is significantly higher (9,803 mt (ww)). U.S. North Atlantic swordfish landings have also been less than the unadjusted “baseline” ICCAT-recommended quota since 1997. In fact, the United States landed approximately 62 percent (2,424 mt (ww)) of its unadjusted North Atlantic swordfish “baseline” quota (3,907 mt (ww)) in 2005.

NMFS has implemented several important management measures in recent years, primarily to reduce the bycatch of undersized swordfish, non-target species, and protected species. These actions have been very effective at reducing bycatch, but they may also have had the unintended consequence of contributing to persistent underharvests of the U.S. swordfish quota, and a precipitous decline in the number of active PLL vessels (“active” is defined as vessels that report landings in the HMS logbook). Some of these measures include: Year-round closures in the Desoto Canyon and East Florida Coast areas; seasonal closures in the Charleston Bump and Northeastern areas; limited access vessel permits; mandatory utilization of Vessel Monitoring Systems (VMS); mandatory circle hook and bait requirements; possession and utilization of release and disentanglement gear; utilization of non-stainless hooks; and a live bait prohibition in the Gulf of Mexico (GOM). In this action, NMFS prefers alternatives that would modify some other management measures (swordfish retention limits and vessel upgrading provisions) to

¹ 2005 catch statistic also includes dead discards.

increase domestic swordfish landings and revenues, but would retain the most critical bycatch reduction provisions. The preferred alternatives will demonstrate that the United States is committed to revitalizing its historical swordfish fishery, and help to maintain or increase the historical U.S. North Atlantic swordfish quota allocation.

Among other requirements, the Magnuson-Stevens Act specifies that NMFS shall provide a “reasonable opportunity” for U.S. vessels to harvest HMS quotas that are managed under international agreements, such as ICCAT. For many years, the United States has been at the international forefront in implementing measures that have effectively reduced bycatch in pelagic longline fisheries. U.S. fishing operations have shouldered the economic impacts associated with these conservation measures without fully realizing the benefits that can be achieved from a nearly rebuilt swordfish stock and continued low bycatch rates. For these reasons, it is necessary to facilitate the ability of U.S. vessels to fully harvest the ICCAT-recommended domestic swordfish quota. The anticipated near-term increase in fishing effort for North Atlantic swordfish, which are at 99 percent of Bmsy, is expected to be mitigated by management measures that will continue to conserve undersized swordfish, non-target, and protected species. The objective of this rulemaking, therefore, is to demonstrate in the short-term that conservation measures can go hand-in-hand with an economically viable PLL fishery. This will ultimately yield long-term benefits to the domestic swordfish fishery, and possibly to populations of sea turtles, billfish, and other protected or overfished species throughout the Atlantic basin.

The alternatives analyzed in this Environmental Assessment are intended to provide short-term remedy to assist in increasing domestic swordfish landings by the domestic swordfish fleet. However, NMFS is also cognizant that a comprehensive long-term strategy is needed to address more far-reaching obstacles that may have contributed to persistent underharvests of the U.S. North Atlantic swordfish quota allocated by ICCAT. Therefore, additional management measures and other actions may be considered in the future as more information regarding the fishery becomes available. NMFS presently believes that a precautionary approach is needed when considering additional management measures to prevent undoing the gains that have resulted in a nearly rebuilt swordfish stock, and to prevent unacceptable increases in bycatch from occurring. For this reason, it is likely that implementation of future, long-term measures may possibly require the development of an FMP amendment and an environmental impact statement (EIS). Some measures may also require interagency cooperation to enable their implementation. Suggestions for future consideration by NMFS based upon the recommendations put forth by Atlantic swordfish fishing interests and the public at six meetings conducted during September 2006, and at the HMS Advisory Panel meeting in October 2006 are described in Section 4.9, entitled “Cumulative Impacts.”

In this EA/RIR, NMFS considers the biological, social, and economic impacts of modifying the current swordfish retention limits and upgrading restrictions on vessels issued HMS limited access permits based on reviews of landings, logbook, and other data. The preferred alternatives and regulations are in accordance with the National Environmental Policy Act (NEPA) and other applicable laws. The preferred alternative has been selected due to its consistency with the objectives of the 2006 Consolidated HMS FMP, the Magnuson-Stevens Act, ATCA, and other domestic regulations.

2.0 SUMMARY OF THE ALTERNATIVES

This section provides a summary and a basis for the alternatives considered in this rulemaking. The ecological, economic, and social impacts of these alternatives are discussed in later chapters. The alternatives are divided into two topics; swordfish retention limits, and HMS limited access vessel upgrading restrictions. Within these two topics, the alternatives are not mutually exclusive and may be combined with other alternatives. The objective is to prefer one or more alternatives within each topic to facilitate the ability of U.S. vessels to fully harvest the domestic swordfish quota allocation, in recognition of the improved stock status of North Atlantic swordfish. The bases for the preferred alternatives is to provide a reasonable opportunity for U.S. vessels to harvest the ICCAT recommended U.S. swordfish quota allocation, as specified in the Magnuson-Stevens Act, while maintaining compliance with other provisions in the Magnuson-Stevens Act, the Endangered Species Act (ESA), and other domestic laws. The No Action alternatives address the impacts if no regulatory changes are implemented.

Topic 1 – North Atlantic Swordfish Retention Limits

Alternative 1a: No Action

This alternative would maintain the status quo. Vessels issued valid Incidental swordfish limited access permits, other than those in the squid trawl fishery, would continue to be allowed to retain, possess or land no more than two swordfish per vessel per trip in or from the Atlantic Ocean north of 5° N. lat. Vessels issued valid Incidental swordfish limited access permits and participating in the squid trawl fishery would continue to be allowed to retain, possess, or land no more than five swordfish per trip from the same area. HMS Angling and Charter/headboat (CHB) vessel permit holders would continue to be allowed to retain one North Atlantic swordfish per person, up to three per vessel per trip.

Alternative 1b: Remove the North Atlantic swordfish retention limit for vessels issued valid Incidental swordfish limited access permits, except that vessels issued valid Incidental swordfish permits and participating in the squid trawl fishery would be increased to ten, until 70 percent of the adjusted domestic semi-annual North Atlantic swordfish quota is projected to be landed, after which the Incidental swordfish retention limit will revert back to two swordfish per trip, and five swordfish per trip for squid trawl vessels, for the remainder of the semi-annual period

This alternative would remove the current two-fish incidental swordfish retention limit for vessels issued valid Incidental swordfish limited access permits, except that the incidental limit would be increased to ten for vessels issued valid Incidental swordfish limited access permits which participate in the squid trawl fishery, until the date at which 70 percent of the adjusted domestic semi-annual North Atlantic swordfish quota is projected to be landed. From the projected date until the end of the semi-annual period, the incidental swordfish retention limit would revert back to two swordfish per vessel per trip, and five swordfish per trip for squid trawl vessels. For the period of time during which there is no incidental retention limit, landings from swordfish Incidental permit holders would be counted against the semi-annual directed fishery

quota. This alternative would allow vessels issued valid Incidental swordfish limited access permits, other than those participating in the squid trawl fishery, to direct effort on swordfish, but would provide a buffer to help ensure that the adjusted semi-annual domestic North Atlantic swordfish quota is not exceeded. NMFS would monitor North Atlantic swordfish landings and publish a notice in the *Federal Register* at least two weeks prior to the projected date at which the incidental swordfish retention limit would revert back to two swordfish per vessel per trip, and five swordfish for vessels issued valid Incidental swordfish limited access permits and participating in the squid trawl fishery.

Alternative 1c: *Increase the North Atlantic swordfish retention limit for vessels issued valid Incidental swordfish limited access permits to 30 fish per vessel per trip, and increase the limit for vessels issued valid Incidental swordfish limited access permits which participate in the squid trawl fishery to 15 swordfish per vessel per trip – Preferred Alternative*

This alternative would increase the North Atlantic swordfish retention limit for vessels issued valid Incidental swordfish limited access permits to 30 fish per vessel per trip, and increase the limit for vessels issued valid Incidental swordfish limited access permits which participate in the squid trawl fishery to 15 fish per vessel per trip. This alternative would allow vessels issued valid Incidental swordfish limited access permits to land incidentally caught swordfish that might otherwise be discarded under the current two-fish limit. It would retain the incidental characteristic associated with the permit, but potentially provide additional economic opportunities and reduce regulatory discards associated with the current retention limit. Landings by Incidental permit holders would continue to be counted against the Incidental North Atlantic swordfish quota. Therefore, if this alternative were selected, NMFS may need to increase the Incidental swordfish quota allocation from the current 300 mt (dw) allocation to accommodate increased landings under this category. Any adjustment to the Incidental swordfish category quota would be performed after the 2006 ICCAT meeting in conjunction with the implementation of future swordfish quotas.

Alternative 1d: *Increase the North Atlantic swordfish retention limit for vessels issued valid Incidental swordfish limited access permits to 15 fish per vessel per trip, and increase the limit for vessels issued valid Incidental swordfish limited access permits which participate in the squid trawl fishery to ten swordfish per vessel per trip*

This alternative would Increase the North Atlantic swordfish retention limit for vessels issued valid Incidental swordfish limited access permits to 15 fish per vessel per trip, and increase the limit for vessels issued valid Incidental swordfish limited access permits and participating in the squid trawl fishery to ten fish per vessel per trip. This alternative would allow Incidental swordfish permit holders to land incidentally caught swordfish that might otherwise be discarded under the current two-fish limit. It would retain the incidental characteristic associated with the permit, but potentially provide additional economic opportunities and reduce regulatory discards associated with the current retention limit. Landings by Incidental permit holders would continue to be counted against the Incidental North Atlantic swordfish quota. Therefore, if this alternative were selected, NMFS may need to increase the Incidental swordfish quota allocation

to accommodate increased landings under this category. Any adjustment to the Incidental swordfish category quota would be performed after the 2006 ICCAT meeting, in conjunction with the implementation of future swordfish quotas.

Alternative 1e: *Implement a North Atlantic swordfish retention limit for HMS Charter/headboat (CHB) vessels of one fish per paying passenger, up to six swordfish per trip for charter vessels and 15 swordfish per trip for headboat vessels – Preferred Alternative*

This alternative would implement a swordfish retention limit for HMS CHB vessels of one fish per paying passenger (i.e., not including the captain or crew), up to six swordfish per trip for charter vessels and 15 swordfish per trip for headboat vessels. This alternative would maintain the current recreational limit of one swordfish per person, but increase the allowable upper retention limit (from three fish per vessel). Therefore, a charter vessel possessing an HMS CHB permit with six paying passengers onboard would be limited to possessing or retaining no more than six swordfish. An HMS headboat vessel with 15 paying passengers onboard would be limited to possessing or retaining no more than 15 swordfish. However, if either of these types of vessels had, for example, five paying passengers onboard, the vessel would be limited to possessing or retaining no more than five swordfish.

Alternative 1f: *Implement a North Atlantic swordfish recreational retention limit for HMS Angling category vessels of one fish per person per trip, up to four swordfish per vessel per trip – Preferred Alternative*

This alternative would implement a swordfish retention limit for HMS Angling category vessels of one fish per person, up to four swordfish per vessel per trip. This alternative maintains the current recreational limit of one swordfish per person, but increases the upper retention limit from three fish to four fish per vessel per trip. Thus, a vessel possessing an HMS Angling category permit with three persons onboard would be limited to possessing or retaining no more than three swordfish, a vessel with four persons onboard would be limited to no more than four swordfish, and a vessel with five or more persons onboard would be limited to no more than four swordfish.

Alternatives Considered but not Further Analyzed

Alternative 1g: Allow HMS General category tuna vessels to retain and sell North Atlantic swordfish

This alternative would allow General category tuna vessels to retain and sell North Atlantic swordfish. This alternative is not further analyzed because, currently, the commercial swordfish fishery is a limited access fishery, whereas the General category tunas permit is not. At the present time, the Agency is concerned that an unrestricted expansion of the number of vessels that are eligible to sell swordfish could result in unanticipated short-term economic and ecological consequences. NMFS may consider modification of the current HMS permitting

structure in its longer-term strategy to revitalize the swordfish fishery, but this alternative is beyond the scope of this rulemaking.

Topic 2 – HMS Limited Access Vessel Upgrading Restrictions

Alternative 2a: No Action

This alternative would maintain the status quo. Vessels possessing a limited access shark, limited access swordfish, or Atlantic tunas longline permit would continue to be subject to the current vessel upgrading and permit transfer upgrading restrictions. These restrictions specify that owners may upgrade vessels or transfer permits to another vessel only if the vessel upgrade or permit transfer does not result in an increase in horsepower (HP) of more than 20 percent, or an increase of more than 10 percent in length overall (LOA), gross registered tonnage (GRT), or net tonnage (NT) relative to the respective specifications of the first vessel issued the initial limited access permit (the baseline vessel). If any of the three vessel size specifications is increased, any increase in the other two must be performed at the same time. The regulations also specify that vessel horsepower and vessel size may be increased only once. However, an increase in vessel size may be performed separately from an increase in vessel horsepower. These regulations have been in effect since 1999 when HMS limited permits were first issued. The current HMS limited access vessel upgrading restrictions at 50 CFR Part 635 are largely consistent with the current vessel upgrading restrictions at 50 CFR Part 648 for vessels issued Northeastern U.S. limited access fishery permits.

Alternative 2b: Waive HMS limited access vessel upgrading and permit transfer upgrading restrictions for all vessels that are authorized to fish with pelagic longline gear for swordfish and tunas for 10 years, after which a new vessel baseline will be established and the 10 percent LOA, GRT, NT; and 20 percent HP restrictions would go back into effect

This alternative would remove, for a period of 10 years, the current vessel upgrading and permit transfer upgrading restrictions only for those vessels that are allowed to fish for swordfish and tunas with pelagic longline gear (*i.e.*, vessels that possess an Atlantic tunas longline permit, as well as limited access permits for swordfish and sharks). After 10 years (approximately 2017), a new vessel baseline would be established and the current upgrading and permit transfer upgrading restrictions would go back into effect. This alternative would allow owners of vessels that are authorized to fish with pelagic longline for swordfish and tunas (*i.e.*, vessels that possess an Atlantic tunas longline permit, as well as limited access permits for swordfish and sharks) to upgrade their vessels or to transfer permits without any upgrading restrictions for a 10-year period, according to their needs and abilities. After 10 years, vessels possessing all three permits (limited access shark, limited access swordfish, and Atlantic tunas longline permits) would again be subject to the current vessel upgrading and permit transfer restrictions which specify that owners may upgrade vessels or transfer permits to another vessel only if the vessel upgrade or permit transfer does not result in an increase in horsepower (HP) of more than 20 percent, or an increase of more than 10 percent in length overall (LOA), gross registered tonnage (GRT), or net tonnage (NT) relative to the newly-established baseline vessel. If any of the three vessel size specifications is increased, any increase in the other two must be performed at the same time.

The regulations that would go back into effect after 2017 also specify that vessel horsepower and vessel size may be increased only once. However, an increase in vessel size may be performed separately from an increase in vessel horsepower.

Alternative 2c: Waive HMS limited access swordfish Handgear vessel upgrading and permit transfer upgrading restrictions for 10 years, after which a new baseline will be established and the 10% LOA, GRT, NT and 20% HP restrictions would go back into effect

This alternative would remove, for a period of 10 years, the current vessel upgrading and permit transfer upgrading restrictions only for vessels that have been issued HMS limited access swordfish Handgear permits. After 10 years (approximately 2017), a new vessel baseline would be established and the current vessel upgrading and permit transfer upgrading restrictions would go back into effect. This alternative would allow swordfish handgear vessel owners to upgrade their vessels or transfer permits without any upgrading restrictions for a 10-year period, according to their needs and abilities. After 10 years, vessels possessing swordfish Handgear permits would again be subject to the current vessel upgrading restrictions which specify that owners may upgrade vessels or transfer permits to another vessel only if the vessel upgrade or permit transfer does not result in an increase in horsepower (HP) of more than 20 percent, or an increase of more than 10 percent in length overall (LOA), gross registered tonnage (GRT), or net tonnage (NT) relative to the respective specifications of the newly-established baseline vessel. If any of the three vessel size specifications is increased, any increase in the other two must be performed at the same time. The regulations that would go back into effect after 2017 also specify that vessel horsepower and vessel size may be increased only once. However, an increase in vessel size may be performed separately from an increase in vessel horsepower.

Alternative 2d: Waive all HMS limited access vessel upgrading and permit transfer upgrading restrictions for 10 years, after which a new vessel baseline will be established and the 10 percent LOA, GRT, NT; and 20 percent HP restrictions would go back into effect.

This alternative would remove the current vessel upgrading and permit transfer upgrading restrictions for all vessels that have been issued an HMS limited access shark, swordfish or Atlantic Tunas longline permit. After 10 years (approximately 2017), a new vessel baseline would be established and the current vessel upgrading and permit transfer upgrading restrictions would go back into effect. This alternative would allow all HMS limited access permit holders to upgrade their vessels or transfer permits without any upgrading restrictions for a 10-year period, according to their needs and abilities. After 10 years, all HMS limited access vessels would again be subject to the current vessel upgrading restrictions which specify that owners may upgrade vessels or transfer permits to another vessel only if the vessel upgrade or permit transfer does not result in an increase in horsepower (HP) of more than 20 percent, or an increase of more than 10 percent in length overall (LOA), gross registered tonnage (GRT), or net tonnage (NT) relative to the respective specifications of the newly-established baseline vessel. If any of the three vessel size specifications is increased, any increase in the other two must be performed at the same time. The regulations that would go back into effect after 2017 also specify that

vessel horsepower and vessel size may be increased only once. However, an increase in vessel size may be performed separately from an increase in vessel horsepower.

Alternative 2e: *Establish new HMS limited access vessel upgrading and permit transfer upgrading restrictions only for HMS vessels that are authorized to fish with pelagic longline gear for swordfish and tunas, equivalent to 35 percent LOA, GRT, and NT, as measured relative to the baseline vessel specifications (i.e., the specifications of the vessel first issued an HMS limited access permit), and remove HP upgrading and permit transfer upgrading restrictions for these vessels – Preferred Alternative*

This alternative would establish new HMS limited access vessel upgrading and permit transfer upgrading restrictions only for vessels that are authorized to fish for HMS with pelagic longline gear (i.e., vessels that possess an Atlantic tunas longline permit, as well as limited access permits for swordfish and sharks), and remove HP upgrading and permit transfer upgrading restrictions for these vessels. The new restrictions would specify that owners may upgrade their vessels or transfer permits to another vessel only if the vessel upgrade or permit transfer does not result in an increase of more than 35 percent in length overall (LOA), gross registered tonnage (GRT), or net tonnage (NT) relative to the baseline vessel (i.e., the vessel first issued an HMS limited access permit). Therefore, if a vessel has already been upgraded in LOA by 10 percent, any additional upgrade as a result of this rule could not exceed 25 percent. Under this alternative there would be no restrictions on increases in vessel horsepower. All other associated upgrading restrictions would remain in effect. These include regulations specifying that vessel size (LOA, GRT, and NT) may be increased only once, subsequent to the issuance of a final rule. Also, if any of the three vessel size specifications is increased, any increase in the other two must be performed at the same time. This preferred alternative would retain, and not modify, current upgrading restrictions for all other HMS limited access permitted vessels (including swordfish handgear; swordfish-only; and shark-only vessels).

3.0 DESCRIPTION OF AFFECTED ENVIRONMENT

Detailed descriptions of the life histories and population status of the species managed by NMFS are presented in Section 3.2 of the 2006 SAFE Report Final, which is incorporated in the Consolidated HMS FMP (NMFS, 2006), and are not repeated here. Detailed information on catch and bycatch of HMS by fishery are also provided in Sections 3.4 and 3.8, respectively, of the 2006 SAFE Report in the Final Consolidated HMS FMP (NMFS, 2006), and are not repeated here.

3.1 Status of the Stocks

North Atlantic Swordfish

North Atlantic swordfish are considered overfished, but overfishing is not occurring. A 2006 stock assessment by the SCRS (SCRS, 2006) indicated that North Atlantic swordfish biomass had improved, possibly due to strong recruitment in the late 1990's combined with reductions in reported catch since then. The SCRS estimated the biomass of North Atlantic swordfish at the beginning of 2006 (B_{2006}) to be at 99 percent of the biomass necessary to produce maximum

sustainable yield (B_{msy}). The 2005 fishing mortality rate (F_{2005}) was estimated to be 0.86 times the fishing mortality rate at maximum sustainable yield (F_{msy}). In other words, in 2006, the North Atlantic swordfish stock is almost fully rebuilt and fishing mortality is low. Although there is some uncertainty with this conclusion, almost half of the estimates of current biomass were greater than or equal to B_{msy} . The SCRS felt that if the current TAC management strategy is maintained, the stock is likely to remain near the level that would produce MSY.

South Atlantic Swordfish

The stock status of South Atlantic swordfish is considered to be good. The current estimated fishing mortality rate is likely below that which would produce MSY, and the current biomass is likely above that which would result from fishing at F_{msy} in the long term. The estimated MSY is 33 percent higher than current reported landings. While the SCRS believes the southern swordfish stock appears to be in a healthy condition at present, it is unclear if substantially higher catches than currently envisioned by ICCAT could be sustained in the long term, due to divergent views of stock status when using targeted and bycatch fisheries indicators in a simple production model.

3.2. Fishery Participants, Gear Types, and Affected Area

Additional information about the operation of U.S. HMS fisheries can be found in the 2006 SAFE Report in the Final Consolidated HMS FMP (NMFS, 2006). The Final Consolidated HMS FMP provides detailed information about the operation and management of the various commercial swordfish fisheries (pelagic longline, handgear, and other gears), and the recreational HMS fishery, including international and domestic management measures, and permitting and reporting requirements.

3.3. Habitat

The 2006 SAFE Report included in the Final Consolidated HMS FMP address the habitat utilized by the various species targeted by the pelagic longline fishery. Typically, the fisheries targeting swordfish exist offshore in deeper waters within the water column, so there is no interaction with bottom substrate or other essential fish habitat.

3.4. Protected Species

For the most recent information on Biological Opinions (BiOps) for HMS fisheries and specifically the pelagic longline swordfish fishery, please refer to the Final Consolidated HMS FMP (NMFS, 2006). The Final Consolidated HMS FMP also provides a description of the Reasonable and Prudent Measures and Terms and Conditions implemented pursuant to the BiOps for sea turtles. Additionally, the Final Consolidated HMS FMP discusses marine mammal interactions with HMS fisheries and the impact of the Marine Mammal Protection Act (MMPA) on HMS management.

4.0 ENVIRONMENTAL CONSEQUENCES OF ALTERNATIVES CONSIDERED

NMFS, under the authority of the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) and the Atlantic Tunas Convention Act (ATCA), manages the U.S.

fishery for North and South Atlantic swordfish. Under ATCA, the United States is obligated to implement recommendations of the International Commission for the Conservation of Atlantic Tunas (ICCAT), including Atlantic swordfish quotas. The preferred alternatives discussed below would be fully compliant with ICCAT swordfish Total Allowable Catch (TAC) recommendations adopted to achieve by 2009, with greater than 50 percent probability, stock and catch levels consistent with the objectives of the ICCAT Convention. In addition to being consistent with ICCAT recommendations, swordfish management measures must also comply with the Magnuson-Stevens Act, the Endangered Species Act (ESA), and other domestic laws.

The alternatives discussed below are intended to provide U.S. vessels with a reasonable opportunity to harvest the U.S. North Atlantic swordfish quota allocation, as required under the Magnuson-Stevens Act. The preferred alternatives are also in keeping with several management objectives contained in the 2006 Final Consolidated HMS FMP. Objective 5 specifies that NMFS should minimize, to the extent practicable, adverse social and economic impacts during the transition from overfished fisheries to healthy ones consistent with other objectives. Objective 7 specifies that NMFS should manage HMS fisheries for continuing optimum yield so as to provide the greatest overall benefit to the Nation, particularly with respect to providing food production for commercial fisheries, enhancing recreational opportunities, preserving traditional fisheries to the extent practicable, and/or taking into account protection of marine ecosystems. Finally, Objective 17 indicates that NMFS should create a management system to make fleet capacity commensurate with resource status so as to improve both economic efficiency and biological conservation, and provide access for traditional gears and fishermen, consistent with the other objectives of the FMP. It is within the intent of these HMS FMP management objectives and the Magnuson-Stevens Act that the following alternatives are being considered. The environmental and economic consequences of these alternatives are discussed below.

4.1. North Atlantic Swordfish Retention Limits

As described in Section 2, the alternatives being considered for North Atlantic swordfish retention limits include:

- 1a No Action
- 1b Remove the North Atlantic swordfish retention limit for vessels issued valid Incidental swordfish limited access permits, except that vessels issued valid Incidental swordfish permits which participate in the squid trawl fishery would be increased to ten, until 70 percent of the adjusted domestic semi-annual North Atlantic swordfish quota is projected to be landed, after which the Incidental swordfish retention limit would revert back to two swordfish per trip, and five swordfish per trip for squid trawl vessels, for the remainder of the semi-annual period
- 1c *Increase the North Atlantic swordfish retention limit for vessels issued valid Incidental swordfish limited access permits to 30 fish per vessel per trip, and increase the limit for vessels issued valid Incidental swordfish limited access permits which participate in the squid trawl fishery to 15 fish per vessel per trip – Preferred Alternative*

- 1d Increase the North Atlantic swordfish retention limit for vessels issued valid Incidental swordfish limited access permits to 15 fish per vessel per trip, and increase the limit for vessels issued valid Incidental swordfish limited access permits which participate in the squid trawl fishery to ten fish per vessel per trip
- 1e *Implement a North Atlantic swordfish retention limit for HMS CHB vessels of one fish per paying passenger, up to six swordfish per trip for charter vessels and 15 swordfish per trip for headboat vessels – Preferred Alternative*
- 1f *Implement a North Atlantic swordfish recreational retention limit for HMS Angling category vessels of one fish per person per trip, up to four swordfish per vessel per trip – Preferred Alternative*

Ecological Impacts

Under Alternative 1a (No Action), NMFS would maintain the status quo. Incidental swordfish limited access permit holders with valid permits (*i.e.*, vessels that also possess a limited access shark permit and an Atlantic tunas longline permit), other than those in the squid trawl fishery, would continue to be allowed to retain, possess or land no more than two swordfish per trip in or from the Atlantic Ocean north of 5° N. lat. Vessels issued valid Incidental swordfish limited access permits and participating in the squid trawl fishery would continue to be allowed to retain, possess, or land no more than five swordfish per trip from the same area. HMS Angling and Charter/headboat (CHB) vessel permit holders would continue to be allowed to retain one North Atlantic swordfish per person, up to three per vessel per trip.

The No Action alternative would likely maintain current North Atlantic swordfish stock levels, domestic swordfish landings, swordfish discards, and bycatch of protected and non-target species. The ICCAT Standing Committee on Research and Statistics (SCRS) conducted a stock assessment for North Atlantic swordfish in October 2006. The 2006 assessment indicated that North Atlantic swordfish biomass had improved, possibly due to strong recruitment in the late 1990's combined with reductions in reported catch since then. The SCRS estimated the biomass of North Atlantic swordfish at the beginning of 2006 (B_{2006}) to be at 99 percent of the biomass necessary to produce maximum sustainable yield (B_{msy}). The 2005 fishing mortality rate (F_{2005}) was estimated to be 0.86 times the fishing mortality rate at maximum sustainable yield (F_{msy}). In other words, in 2006, the North Atlantic swordfish stock is almost fully rebuilt and fishing mortality is low. The No Action alternative would be consistent with the current rebuilding plan, and would likely keep the U.S. well within, or below, its ICCAT-recommended North Atlantic swordfish quota during the rebuilding period. Domestic swordfish landings would not be expected to change appreciably under this alternative.

The No Action alternative is not expected to appreciably change levels of PLL fishing effort, landings, and bycatch in HMS fisheries, of which all have generally declined in recent years. The 2006 Consolidated HMS FMP shows that landings of North and South Atlantic swordfish and bigeye, albacore, yellowfin, and skipjack (BAYS) tunas experienced sizeable reductions from 1999 – 2004, with bluefin tuna (BFT) being the exception. These declines may be the cumulative result of many HMS management measures that have been implemented since 1999 including, but not limited to, limited access permits, quotas, minimum size restrictions, vessel monitoring system (VMS) requirements, gear restrictions (large circle hooks, gangion length

specifications, non-stainless hooks, etc.), dealer and vessel logbook reporting, a live bait prohibition in the GOM, landing restrictions, and large closed areas for PLL and BLL gear. An analysis prepared for the 2006 Consolidated HMS FMP indicates that the PLL time/area closures have resulted in large declines in fishing effort and bycatch from the 1997 – 1999 period to the 2001 – 2003 period. Overall effort, expressed as the number of hooks set, declined by 15 percent between the two time periods. Declines in discards attributable to the closures are even more sizeable. For example, the overall number of reported discards of swordfish, bluefin tuna, bigeye tuna, pelagic sharks, blue marlin, white marlin, sailfish and spearfish have all declined by more than 30 percent. Discards of blue and white marlin declined by more than 50 percent, and sailfish discards declined by almost 75 percent. Also, the reported number of sea turtles caught and released declined by almost 28 percent due to the time/area closures. In addition to the time/area closures, NMFS implemented mandatory circle hook requirements for all PLL vessels in 2004. The mandatory circle hook requirements were estimated to provide significant conservation benefits to sea turtles, including a 50 percent reduction in leatherback sea turtle interactions outside the Northeast Distant Gear Restricted Area (approximately the Grand Banks). Circle hooks also contribute to a reduction in post-hooking release mortality for sea turtles. For these reasons, the No Action alternative would be expected to continue having positive ecological impacts on undersized, target, non-target and protected species. However, several species including bluefin tuna, white marlin, blue marlin, sandbar sharks, and dusky sharks are still in need of rebuilding. In addition, bycatch and bycatch mortality of endangered leatherback and threatened loggerhead sea turtles in PLL fisheries remains a concern.

It is important to emphasize that all of the management measures described above which have produced positive ecological benefits under the No Action alternative, including time/area closures and circle hooks, would remain in effect under all of the alternatives addressed in this document. The remainder of this discussion on the No Action alternative focuses specifically on HMS retention limits.

Current HMS regulations at 50 CFR 635.4(f)(4) state that “Unless the owner has been issued a swordfish handgear permit, a limited access permit for swordfish is valid only when the vessel has on board a valid limited access permit for shark and a valid Atlantic Tunas Longline category issued for such vessel.” Approximately 56 percent (48 vessels) of the 86 vessels issued Incidental swordfish limited access permits hold a valid swordfish permit because they also possess the necessary Atlantic Tunas Longline category permit and a shark limited access permit (as of September 29, 2006). The remaining 39 vessels with Incidental swordfish limited access permits hold some combination of shark, king mackerel, Spanish mackerel, dolphin/wahoo, reef fish, and snapper/grouper permits. Thus, without the appropriate combination of HMS permits, the Incidental swordfish permits that these vessels have been issued are not valid.

Under Alternative 1a, swordfish landings and swordfish discards by Incidental swordfish permit holders would likely remain similar to the patterns reported in recent years. From 2002 – 2005, there were a total of 865 trips reported from Incidental swordfish permit holders in the HMS logbook. The HMS logbook data indicates that the majority of these trips (54% or 471 trips) did not land any swordfish and did not report any swordfish discards. Overall, 703 trips (81%) reported no swordfish discards, and 554 trips (64%) reported no swordfish landings. In total,

162 trips out of 865 trips (19%) by Incidental swordfish permit holders reported discarding swordfish.

Figure 1 below indicates the number of swordfish discards reported by Incidental swordfish permit holders for the 554 trips in which no swordfish were reported as landed. The graph shows that 471 of these trips reported no discards. 15 percent of trips that did not land swordfish reported discards (83 trips).

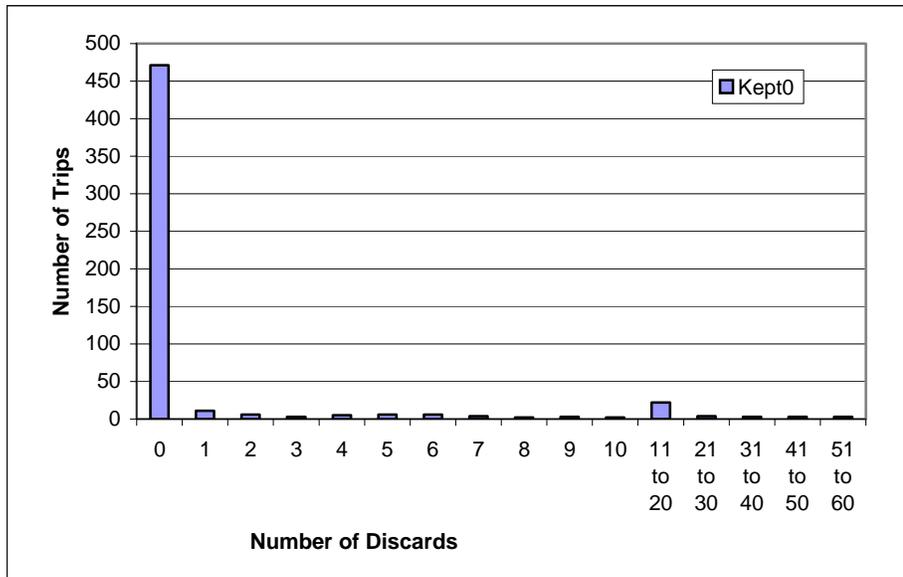


Figure 1. Number of Incidental Trips and Number of Swordfish Discards for Trips Reporting No Swordfish Kept from 2002 – 2005. Source: NMFS HMS Logbook.

Figure 2 below shows the same data as Figure 1, but with the trips reporting no discards removed. This graph indicates that, of those trips in the HMS logbook, 2002 – 2005, 83 trips (15%) reported discards of swordfish but no landings. 48 trips reported from 1 – 10 discards, 22 trips reported from 11 – 20 discards, 4 trips reported from 21 – 30 discards, and 9 trips reported from 30 – 60 discards. The maximum number of reported discards was 52.

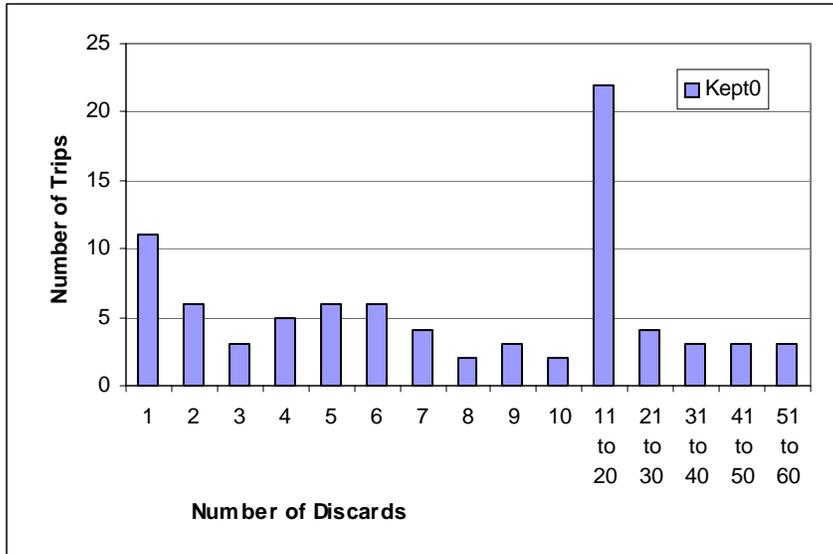


Figure 2. Number of Incidental Trips and Number of Swordfish Discards for Trips Reporting No Swordfish Kept from 2002 – 2005 (with trips reporting 0 discards removed).
 Source: NMFS HMS Logbook.

Figure 3 below shows the numbers of Incidental swordfish trips from vessels reporting swordfish landings, along with the associated number of swordfish reported kept and discarded. It indicates that 281 trips (32%) reported landing one or two swordfish, while 30 trips (4%) reported landing more than three swordfish. Figure 3 further indicates that, among trips reporting swordfish landings, 233 trips out of 311 trips (75%) reported discarding no swordfish. The majority (68%) of Incidental trips landing swordfish kept 1-2 swordfish and reported no discards. Of the 25% of Incidental trips that landed swordfish and had reported discards, the maximum number of discards was 12 swordfish.

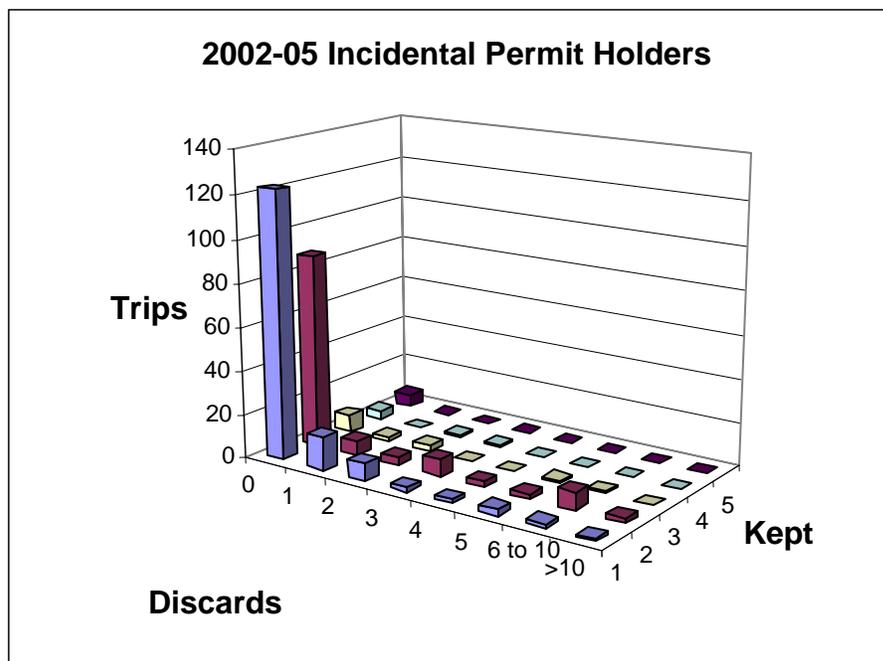


Figure 3. Numbers of Incidental Trips from Vessels Reporting Landings Showing the Numbers of Reported Swordfish Kept and Discarded from 2002 – 2005. Source: NMFS HMS Logbook.

With regards to vessels possessing valid Incidental swordfish permits and participating in the squid/mackerel/butterfish trawl fishery, an examination of the HMS logbook from 2002 – 2005 indicates that approximately 83 percent of these trips reported no swordfish discards. Out of 60 reported trips in the HMS logbook, 33 trips (55%) reported keeping one or two swordfish and no discards. 15 trips (25%) reported keeping between three to five swordfish and no discards. The highest level of reported discards in the squid trawl fishery was two swordfish. Table 1 indicates the amount of swordfish landed by U.S. squid trawl vessels from 1998 – 2004. This table shows that squid trawl vessels landed, on average, 6.3 mt (ww) of swordfish per year or approximately two percent of the 300 mt Incidental swordfish quota, and less than one percent of the overall U.S. swordfish quota. It is not known if, or to what extent, underreporting in the HMS logbook may be occurring by vessels participating in this fishery.

Table 1 Incidental Swordfish Landings (mt ww) for Squid Trawl Vessels, 1998 – 2004. Source: NMFS 2005.

	1998	1999	2000	2001	2002	2003	2004
Swordfish	5.9	7.5	10.9	2.5	3.9	6.0	7.6

To summarize, the above data indicates that, under the No Action alternative, the majority of trips (54%) taken by vessels with Incidental swordfish permits do not land swordfish and do not report any swordfish discards. The majority of incidental trips (75 %) that reported landing swordfish did not report any discards. However, 162 trips out of 865 trips (19%) taken by Incidental swordfish permit holders from 2002 – 2005 reported swordfish discards. The highest number of reported discards (52) came from a vessel that did not land swordfish, whereas vessels

that landed swordfish reported significantly fewer discards (a maximum of 12). It is not possible to accurately determine if these swordfish discards were attributable to exceeding the current incidental retention limits, minimum size limits, or to other factors. Also, it is not known if, or to what extent, underreporting of swordfish discards may be occurring in the HMS logbook.

With regards to HMS Charter/Headboat and Angling category permit holders, an examination of the HMS Non-Tournament Recreational Reporting Database indicates that it is not uncommon for these permit holders to land more than one swordfish per trip. Approximately 25 percent of the swordfish reported landed by CHB vessels, and approximately seven percent of the swordfish reported landed by HMS Angling category vessels, were in groups of three fish that were landed on the same date. Because the number of anglers onboard is not recorded, it is not possible to determine the precise number of trips that achieved the recreational retention limit of one swordfish per person, up to three per vessel per trip. Also, discards and releases have not been reported until recently, so this information is not available. Nevertheless, the available information suggests that a sizeable percentage of CHB vessel permit holders have reported landing up to three swordfish on a trip. HMS Angling category permit holders also regularly land more than one swordfish per trip, as well. In 2005, landings by HMS CHB vessels accounted for approximately 32 percent of all the swordfish reported landed in the HMS non-tournament recreational reporting database, with HMS Angling category permit holders landing the remaining 68 percent. Anecdotal information suggests that the level of recreational swordfishing has increased in recent years, as the stock has rebuilt.

In conclusion, the overall suite of HMS management measures that have been implemented in recent years have had a very positive ecological impact on most non-target and protected species. However, the No Action alternative for swordfish retention limits may be contributing to unnecessary swordfish discards. Approximately 19 percent of Incidental trips have reported at least one discard. A small number of owners of vessels holding valid Incidental swordfish permits have reported discarding as many as 10 to 52 swordfish on a single trip. Information on swordfish discards in recreational fisheries is not available. Although excessive discarding as a result of the current retention limits does not appear to be widespread, regulatory swordfish discards resulting from overly restrictive retention limits should be minimized, to the extent practicable, especially given the persistent underharvest of the ICCAT recommended U.S. North Atlantic swordfish quota and the Magnuson-Stevens Act requirement to provide U.S. fishing vessels with a reasonable opportunity to harvest such quota.

Under Alternative 1b, NMFS would remove the North Atlantic swordfish retention limit for vessels possessing valid Incidental swordfish limited access permits, except that the Incidental limit for such vessels participating in the squid trawl fishery would be increased to ten, until 70 percent of the adjusted domestic semi-annual North Atlantic swordfish quota is projected to be landed, after which the Incidental swordfish retention limit would revert back to current limits for the remainder of the semi-annual period. This alternative could potentially have the most severe adverse ecological impacts compared to the other alternatives or, conversely, it could produce negligible ecological impacts, depending upon whether owners of vessels possessing valid Incidental swordfish permits choose to fish for swordfish instead of their current target species or to augment their existing fishing effort with additional effort on swordfish.

As mentioned under the analysis for Alternative 1a, approximately 56 percent (48 vessels) of the 86 vessels issued Incidental swordfish limited access permits hold valid permits because they also possess the necessary Atlantic Tunas Longline category permit and a shark limited access permit (as of September 29, 2006). It is presumed that these 48 vessels fish primarily for yellowfin tuna with PLL gear, because that is the other primary target species in the PLL fishery. By removing the incidental swordfish retention limit, these vessel owners would likely have to decide whether to continue fishing primarily for tunas with possibly a few additional swordfish sets, or to switch entirely to directed swordfish fishing. If they choose to exert additional fishing effort on swordfish beyond their current tuna fishing effort, some adverse ecological impacts could result on non-target and protected species. Conversely, if they substitute swordfish fishing for tuna fishing, there would likely be few additional ecological impacts as the overall level of fishing effort would be expected to remain constant. The decision to continue to fish for tuna or to switch to swordfish fishing would vary by vessel, and would be dependent upon ex-vessel prices for the two species, distance to the fishing grounds, the amount of hold space in the vessel to carry additional swordfish, and any costs associated with refitting the vessel.

In effect, Alternative 1b would allow vessels issued valid Incidental swordfish permits to direct fishing effort onto swordfish, because there would be no retention limit. Table 2 presents information regarding trips by vessels issued Swordfish Directed limited access permits from 2002 - 2005. It shows that swordfish landings by these vessels ranged from zero fish up to 605 swordfish landed on a single trip in 2003. During that period, approximately half of the vessels issued Swordfish Directed limited access permits landed less than 36 fish on a single trip. The average number of swordfish kept during this period by vessels issued Swordfish Directed permits ranged from 60 fish to 77 fish. This indicates that there is a large degree of variability of landings among these vessels. Some vessels land hundreds of swordfish per trip, but just over half of these vessels land less than 50 swordfish per trip.

Table 2 **Swordfish Landings by U.S. Vessels Issued Limited Access Directed Swordfish Permits, 2002 - 2005.** Source: NMFS HMS Logbook.

YEAR	Total Number SWO Kept	Total Lb. SWO Kept	Average Number of SWO Kept/Trip	Median* SWO Kept/Trip	Min. SWO Kept/Trip	Max. SWO Kept/Trip	Mean wt. (lb) of SWO Kept
2002	18,293	617,020	72	40	0	545	68.6
2003	24,406	961,798	77	45	0	605	65.7
2004	25,604	901,267	65	33	0	557	68.9
2005	21,196	745,463	60	28	0	394	75.7

* Median refers to level at which 50% of trips reported landing more and 50% of trips reported landing less.

If owners of tuna PLL vessels issued valid Incidental swordfish permits choose to augment their current fishing effort with additional swordfish sets under Alternative 1b, any adverse ecological impacts on non-target and protected species are expected to be more significant than the other alternatives but still be relatively minor. Although additional fishing hooks could be deployed, all 48 of these PLL vessels are required to utilize circle hooks and to carry release and disentanglement gear to reduce sea turtle interactions and mortalities. In addition, PLL vessels in the Gulf of Mexico are prohibited from using live bait to reduce billfish bycatch. Furthermore, large portions of the Gulf of Mexico and the Atlantic coast would remain closed to PLL gear

under this alternative, which further reduces the likelihood of significant increases in bycatch or other adverse ecological impacts associated with this alternative.

Alternative 1b would also increase the swordfish retention limit to 10 fish for vessels issued valid Incidental swordfish limited access permits and participating in the squid trawl fishery, until projections indicate that 70 percent of the adjusted domestic semi-annual North Atlantic swordfish quota will be landed. This provision is not expected to cause significant adverse ecological impacts. As discussed above under Alternative 1a, most trips by squid trawl vessels that were reported in the HMS logbook indicated keeping one or two swordfish with no discards. However, it is not known if, or to what extent, underreporting in the HMS logbook may be occurring by squid trawl vessels. It is possible that some squid trawl trips are not being reported in the HMS logbook because they encountered no swordfish. Nevertheless, doubling the retention limit from five to ten swordfish for squid trawl vessels will likely have the effect of enabling these vessels to land additional swordfish that otherwise would have been discarded. From 1998 – 2004, squid trawl vessels landed an average of 6.3 mt (ww) of swordfish per year. Increasing the limit for squid trawl vessels by five swordfish could potentially increase annual landings by squid trawl vessels to 12.6 mt (ww) per year. However, NMFS does not expect that squid trawl vessels will increase their fishing effort or deliberately target swordfish because the limit has been increased under Alternative 1b. These vessels are primarily designed to fish for, and land, small pelagic species such as squid, mackerel and butterfish. Swordfish catches are incidental to catches of these target species.

In summary, Alternative 1b would likely have the most sizeable adverse ecological impacts on non-target and protected species when compared to the other alternatives. However, the impacts associated with this alternative are expected to be minor. The alternative would remove the current two-fish incidental swordfish retention limit for vessels issued valid limited access Incidental swordfish permits, and would increase the incidental limit for squid trawl vessels to ten, until the date at which 70 percent of the adjusted domestic semi-annual North Atlantic swordfish quota is projected to be landed. For the period of time during which there is no incidental retention limit, landings from swordfish Incidental permit holders would be counted against the semi-annual directed fishery quota. This alternative would allow vessels issued valid Incidental swordfish permits, other than squid trawl vessels, to direct effort on swordfish, but provide a buffer to help ensure that the U.S. North Atlantic swordfish quota is not exceeded. This alternative would affect 48 Incidental swordfish permit holders that also possess Atlantic Tunas longline category permits and shark limited access permits. If these PLL vessel owners choose to exert additional fishing effort onto swordfish beyond their existing effort, increases in bycatch could occur. However, current requirements for PLL vessels to deploy circle hooks, carry release and disentanglement gear, utilize specific baits, and prohibitions on fishing in PLL closed areas are expected to largely mitigate any adverse impacts. Increasing the limit for squid trawl vessels by five swordfish could potentially increase annual landings by squid trawl vessels to 12.6 mt (ww) per year. However, squid trawl vessels are not anticipated to alter their current fishing practices to land a few additional swordfish, but rather will have the opportunity under this alternative to retain fish that otherwise may have been discarded.

Alternative 1c, a preferred alternative, would increase the North Atlantic swordfish retention limit for vessels holding valid Incidental swordfish limited access permits to 30 fish per vessel

per trip, except that the incidental limit for those vessels participating in the squid trawl fishery would be increased to 15 fish per vessel per trip. This alternative is intended to provide the opportunity to land swordfish that might otherwise be discarded, but prevent a large increase in additional directed fishing effort on swordfish. While a minor increase in fishing effort and swordfish landings is possible under this alternative, the ecological impacts are expected to be limited. As discussed above, from 2002 – 2005, HMS logbook data indicates that 162 trips out of 865 trips (19%) by Incidental swordfish permit holders reported discarding swordfish. Of the trips that reported discards, the highest numbers have come from vessels that did not report any swordfish landings. Thirty-five of these trips reported landing no swordfish and discarding more than 10 swordfish. In fact, the highest number of reported discards (52) came from a vessel that did not land any swordfish, whereas the highest number of reported discards for vessels that did land swordfish was 12. This may indicate that the opportunity to land additional swordfish could reduce the amount and level of swordfish discards, although it is not possible to determine if the reported discards were attributable to exceeding the current incidental retention limits, minimum size limits, or to other factors. Also, it is not known if, or to what extent, underreporting of swordfish discards may be occurring in the HMS logbook.

In contrast to Alternative 1b, this alternative is not likely to create a situation where Incidental swordfish permit holders could choose between directed swordfish fishing or their current fishing practices. A limit of 30 swordfish was selected for this alternative based on public comment, discussions at the October 2006 HMS Advisory Panel (HMS AP) meeting, and data contained in Figure 2 showing that 90 percent of the swordfish discarded by Incidental swordfish permit holders on trips that did not land swordfish could be retained if the limit were increased to 30 fish. It has also been suggested that an incidental limit of two swordfish does not generate enough volume for vessel operators and dealers to develop reliable marketing channels needed to handle and sell swordfish. Alternative 1c would allow Incidental swordfish vessel permit holders to retain and sell swordfish that otherwise may have been discarded in order to provide a more consistent flow of product to the market. As shown in Table 2 above, a retention limit of 30 swordfish is just below the median amount ($\frac{1}{2}$ of all trips reported less and $\frac{1}{2}$ reported more) of swordfish that are landed by vessels possessing a limited access Directed Swordfish permit. As such, this level (30 fish) is expected to provide a viable option for Incidental Swordfish permit holders to supplement their income, while retaining the incidental nature of the permit.

Figure 4 below indicates that the majority of trips reported by incidental swordfish permit holders caught no swordfish from 2002 - 2005. A comparatively small number of trips have been reported that caught (landings and discards) more than the current incidental limit of two swordfish.

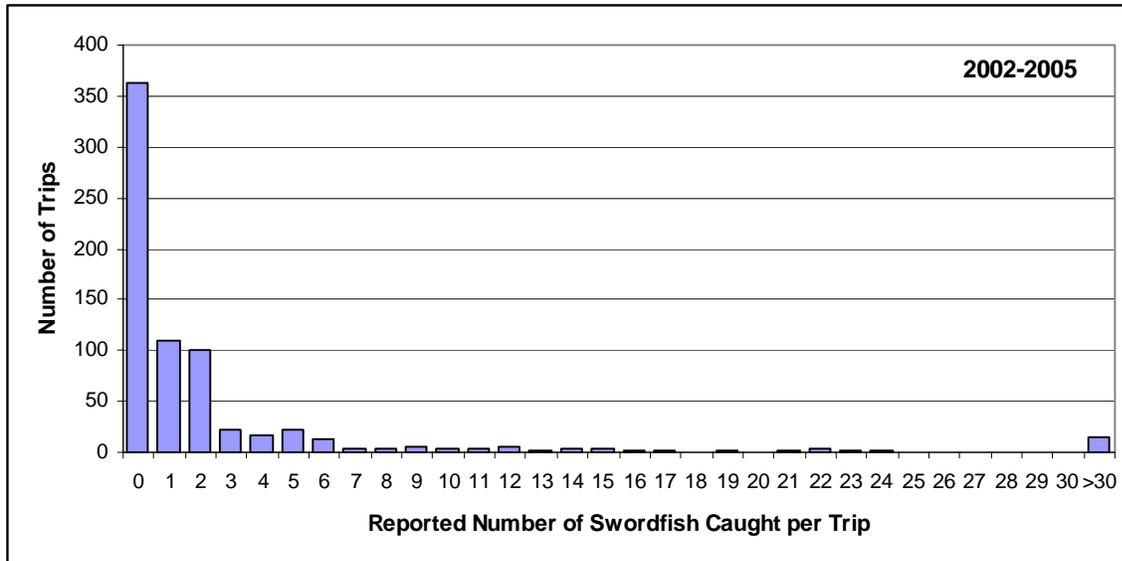


Figure 4. Distribution of the number of reported trips and number of swordfish caught (kept plus discards) by incidental permit holders, 2002-2005. Source: HMS Logbook data

Assuming that the swordfish discarded are due to the current retention limit and not due to the minimum size limit, these discards could be converted into landings by increasing the retention limit. If these discards were converted into landings up to the proposed limit of 30 swordfish, the projected total pounds (dw) landed by incidental permit holders would have increased from 10,787 to 34,879 pounds (dw) in 2005 (Table 3). These projected landings would represent approximately 5.3 percent of the annual 300 mt (dw) Incidental swordfish quota. Figure 5 shows the projected increase in landings that could be achieved by converting the discards reported from 2002 – 2005 into landings, up to a 30 fish limit.

Table 3. Reported and projected landings (numbers of fish unless otherwise noted) based on an increased retention limit of 30 swordfish for incidental permit holders (assumes that all swordfish caught were of legal size). Source HMS Logbook Data

Year	Reported landings	Reported discards	Total Reported catch	Projected landings ¹	Projected discards ²	Reported pounds (dw)	Projected pounds (dw)	Incidental Quota (lbs dw)	% Incidental Quota
2002	113	428	541	461	80	7,432	52,384.4	656,807	8
2003	131	365	496	418	78	8,119	42,190.4	656,807	6.4
2004	123	208	331	331	0	7,510	26,433.6	656,807	4
2005	163	298	461	428	33	10,787	34,878.8	656,807	5.3

¹ Projected landings were estimated by converting the reported discards per trip into landed fish up to the proposed limit (30 fish)

² Projected discards represent that portion of the reported catch per trip over the proposed limit.

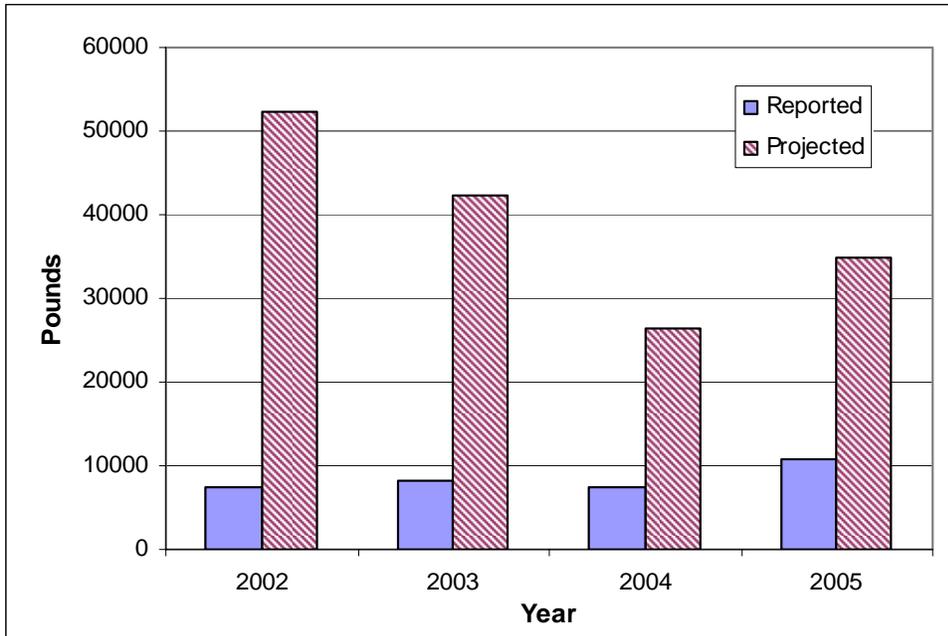


Figure 5. Projected landings of swordfish by incidental permit holders under a 30 fish retention limit based on converting reported discards into landings, 2002-2005.

Given that the North Atlantic swordfish stock has been rebuilding over the last few years, swordfish may be more available to fishermen in the next few years. If that is the case, catches could be different from what has been reported in the recent years. If the incidental limit were raised to 30 fish per trip and this amount of fish was caught, overall landings could be increased from 10,787 lb. to 445,116 lb., as shown in Table 4. Based on the number of trips reported by incidental permit holders from 2002-2005, projected swordfish landings could be on the order of one-half to two thirds of the annual incidental quota of 300 mt dw (656,807 lbs) (Table 4).

Table 4. Number of trips reported by incidental permit holders and projected landings of swordfish based on full retention of 30 fish/trip limit.

Year	Number of reported trips	Proposed limit	Projected landings (numbers)	Mean wt (directed)	Projected pounds (dw)	Percent of Incidental Quota
2002	169	30	5,070	68.6	347,802	52.9
2003	151	30	4,530	65.7	297,621	45.3
2004	187	30	5,610	68.9	386,529	58.9
2005	196	30	5,880	75.7	445,116	67.8

Mean wt = mean weight (dw lbs) of the reported directed landings for that year

These two scenarios indicate that, with a 30 fish retention limit, Incidental permit holders may catch from approximately five to 70 percent of the 300 mt (dw) Incidental swordfish quota under current fishing effort patterns (Figure 6). The analyses and projections for this alternative are based on the currently reported catch and effort. The increases in projected landings are based on existing effort levels and allowing fishermen to land previously discarded fish. Given the

resurgence in the North Atlantic swordfish population, increases in effort by Incidental permit holders in the future are possible.

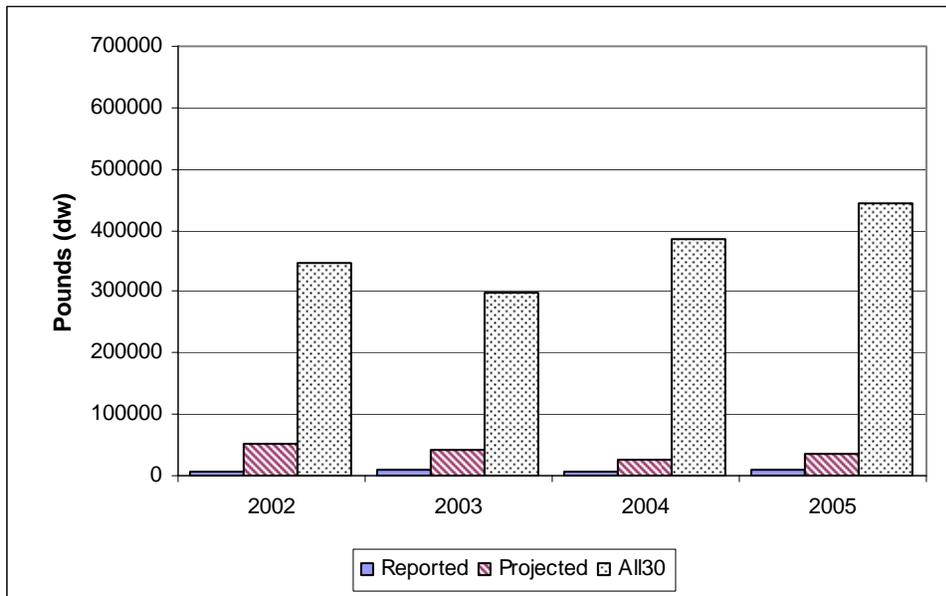


Figure 6. Reported and projected swordfish landings by incidental permit holders, 2002-2005, based on the number of reported discards (Projected) and full retention of proposed 30 fish limit (All30).

As mentioned in the discussion regarding Alternative 1b, approximately 56 percent (48 vessels) of the 86 vessels issued Incidental swordfish limited access permits hold valid swordfish permits because they also possess the requisite Atlantic Tunas Longline category permit and a shark limited access permit. It is presumed that these 48 vessels fish primarily for yellowfin tuna with pelagic longline gear, for the reasons discussed in alternative 1b. Some of these PLL vessel operators may choose to deploy additional sets to capture swordfish. However, the potential additional effort to land 28 more swordfish is not expected to significantly alter fishing practices, and only a minor increase in fishing effort is anticipated for some of the 48 vessels. All of these PLL vessels are required to utilize large circle hooks, possess and utilize release and disentanglement gear, and abide by other gear restrictions to reduce sea turtle interactions and mortalities. In addition, PLL vessels in the Gulf of Mexico are prohibited from using live bait to reduce billfish bycatch. Furthermore, large portions of the Gulf of Mexico and the Atlantic coast would remain closed to PLL gear under this alternative, which further reduces the likelihood of significant increases in bycatch or other adverse ecological impacts associated with Alternative 1c.

Alternative 1c would also increase the retention limit to 15 swordfish for vessels with valid Incidental swordfish permits that are participating in the squid trawl fishery. This is not expected to cause significant adverse ecological impacts. As discussed above, most trips by squid trawl vessels that were reported in the HMS logbook kept one or two swordfish and did not discard any. However, it is not known if, or to what extent, underreporting in the HMS logbook may be occurring by squid trawl vessels. It is possible that some squid trawl trips are erroneously not being reported in the HMS logbook because they encountered no swordfish. Nevertheless, increasing the retention limit from five to 15 swordfish for squid trawl vessels will likely enable

these vessels to land additional swordfish that otherwise would have been discarded. From 1998 – 2004, squid trawl vessels landed an average of 6.3 mt (ww) of swordfish per year. Increasing the limit for squid trawl vessels by ten swordfish could potentially increase annual landings by squid trawl vessels to 18.9 mt (ww) per year. However, NMFS does not expect that squid trawl vessels will increase their fishing effort, or deliberately target swordfish, because the limit has been increased to 15 fish under Alternative 1c. These vessels are primarily designed to fish for, and land, small pelagic species such as squid, mackerel and butterfish, and swordfish catches are incidental to catches of these target species.

In summary, Alternative 1c could result in a minor increase in fishing effort and swordfish landings for the 48 vessels that hold valid Incidental swordfish limited access permits. This alternative is intended to provide an opportunity to land swordfish that might otherwise be discarded, but prevent a large increase in additional directed swordfish fishing effort. While a small increase in fishing effort is possible, only limited ecological impacts on target, non-target, and protected species are anticipated because PLL vessels are required to deploy only large circle hooks, utilize specific baits, carry and use release and disentanglement gear, comply with quotas, comply with VMS, abide by minimum size restrictions, and comply with large PLL closed area restrictions, among other measures. As described in the No Action alternative, these measures have significantly reduced bycatch in the PLL fishery since 2000. Available HMS logbook information indicates that swordfish discards occur on approximately 19 percent of all trips taken by incidental swordfish permit holders. As many as 52 swordfish discards have been reported on a single trip. Increasing the incidental retention limit to 30 swordfish will allow 90 percent of all swordfish discards on trips that do not keep swordfish to be converted into landings, if they are above the legal minimum size. This will reduce the amount of wasteful discarding that occurs, and provide an additional opportunity for U.S. fishermen to land the ICCAT recommended U.S. swordfish quota. In 2005, 10,787 lb (dw) of swordfish were reported landed by Incidental permit holders. Increasing the incidental retention limit to 30 fish could increase swordfish landings by Incidental permit holders to between 34, 879 lb. (dw) and 445,116 lb (dw), based on current levels of fishing effort. Increasing the limit for squid trawl vessels by ten swordfish could potentially increase annual landings by squid trawl vessels to from 10,443 lb. (dw) (6.3 mt ww) to 31,328 lb. (dw) (18.9 mt ww) per year. However, squid trawl vessels are not expected to alter current fishing practices to land 15 swordfish, but will have the opportunity under this alternative to retain swordfish that otherwise may have been discarded.

Alternative 1d, would increase the North Atlantic swordfish retention limit for vessels issued valid Incidental swordfish limited access permits, except for squid trawl vessels, to 15 fish per vessel per trip, and increase the incidental limit for these vessels participating in the squid trawl fishery to 10 fish per vessel per trip. Similar to Alternative 1c, this alternative is intended to provide an opportunity to land swordfish that otherwise might be discarded, but prevent a large increase in additional directed fishing effort on swordfish. Under this alternative, the ecological impacts are expected to be limited. A limit of 15 swordfish was selected for this alternative based on public comment, discussions at the October 2006 HMS AP meeting, and data contained in Figure 2 showing that 70 percent of the swordfish discarded by Incidental swordfish permit holders on trips that did not land swordfish could be retained if the limit were increased to 15 fish. A 15 fish limit would not accommodate the larger numbers of discards that have been reported, but this number is expected to be high enough to generate sufficient volume for vessel

operators and dealers to develop the marketing channels needed to handle and sell swordfish by providing a more consistent flow of product to the market.

Figure 7 below indicates that the majority of trips reported by incidental swordfish permit holders catch no swordfish. A comparatively small number of trips have been reported that caught (landings and discards) more than the current incidental limit of two swordfish.

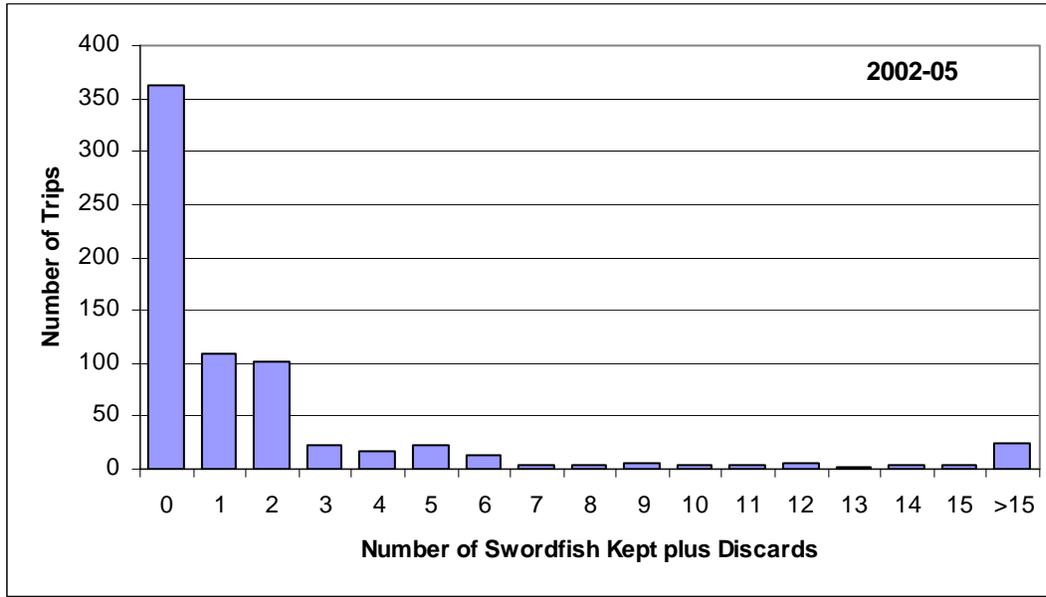


Figure 7. Distribution of the number of reported trips and number of swordfish caught (kept plus discards) by incidental permit holders, 2002-2005. Source: HMS Logbook data

Assuming that the swordfish discarded are due to the current retention limit and not due to the minimum size limit, these discards could be converted into landings by increasing the retention limit. If these discards were converted into landings up to the proposed limit of 15 swordfish, the projected total pounds (dw) landed by incidental permit holders would have increased from 10,787 to 30,350 pounds (dw) in 2005 (Table 5). These projected landings would represent approximately 4.6 percent of the 300 mt (dw) annual Incidental quota. Figure 8 shows the projected increase in landings that could be achieved by converting the discards reported from 2002 – 2005 into landings, up to a 15 fish limit.

Table 5. Reported & projected landings (numbers of fish unless otherwise noted) based on an increased retention limit of 15 swordfish for incidental permit holders (assumes all swordfish caught were of legal size).

Year	Reported landings	Reported discards	Total Reported catch	Projected landings ¹	Projected discards ²	Reported pounds (dw)	Projected pounds (dw)	Incidental Quota (lbs dw)	% of Incidental Quota
2002	113	428	541	348	193	7,432	39,659.4	656,807	6
2003	131	365	496	326	170	8,119	32,968.8	656,807	5
2004	123	208	331	316	15	7,510	25,247.8	656,807	3.8
2005	163	298	461	373	88	10,787	30,349.9	656,807	4.6

¹ Projected landings estimated by converting reported discards per trip into landed fish up to proposed limit (15 fish)

² Projected discards represent that portion of the reported catch per trip over the proposed limit.

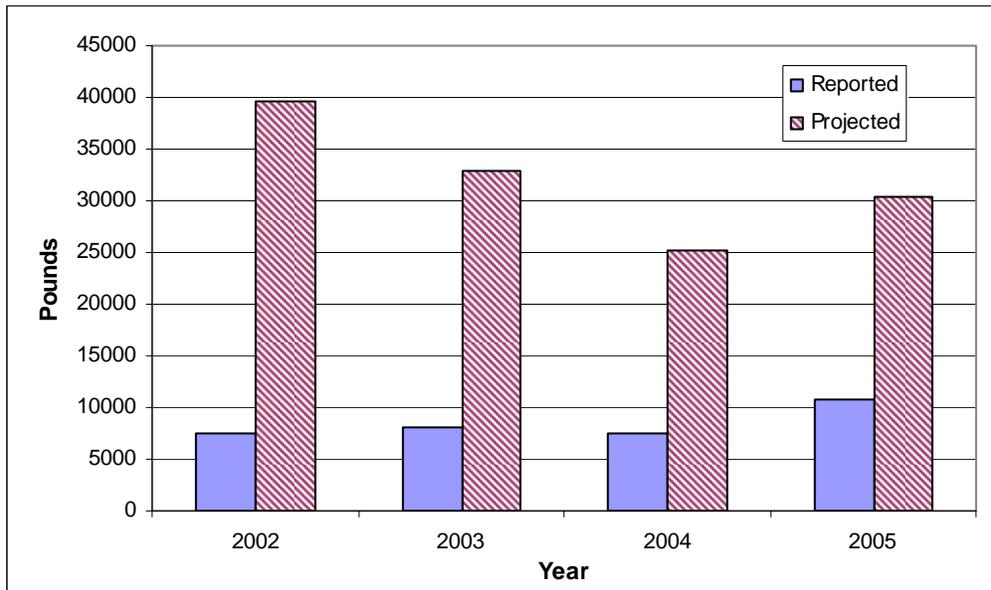


Figure 8. Projected landings of swordfish by incidental permit holders under a 15 fish retention limit based on converting reported discards into landings, 2002-2005.

Given that the North Atlantic swordfish stock has been rebuilding over the last few years, swordfish may be more available to fishermen in the next few years. If that is the case, catches could be different from what has been reported in the recent years. If the incidental limit were raised to 15 fish per trip and this amount of fish was caught, overall landings could be greater than the projected landings in Table 5. Based on the number of trips reported by incidental permit holders from 2002-2005, projected swordfish landings could be on the order of one-quarter to one-third of the annual incidental quota of 300 mt dw (656,807 lbs) (Table 6).

Table 6. Number of trips reported by incidental permit holders and projected landings of swordfish based on full retention of 15 fish/trip limit.

Year	Number of reported trips	Proposed limit	Projected landings (numbers)	Mean wt (directed)	Projected pounds (dw)	% Incidental Quota
2002	169	15	2,535	68.6	173,901	26.5
2003	151	15	2,265	65.7	148,811	22.7
2004	187	15	2,805	68.9	193,265	29.4
2005	196	15	2,940	75.7	222,558	33.9

Mean wt = mean weight (dw lbs) of the reported directed landings for that year

These two scenarios indicate that, with a 15 fish retention limit, Incidental permit holders may catch from approximately four to 34 percent of the 300 mt (dw) Incidental swordfish quota under current fishing effort patterns (Figure 9). The analyses and projections for this alternative are based on the currently reported catch and effort. Given the resurgence in the North Atlantic swordfish population, increases in effort by Incidental permit holders in the future are possible.

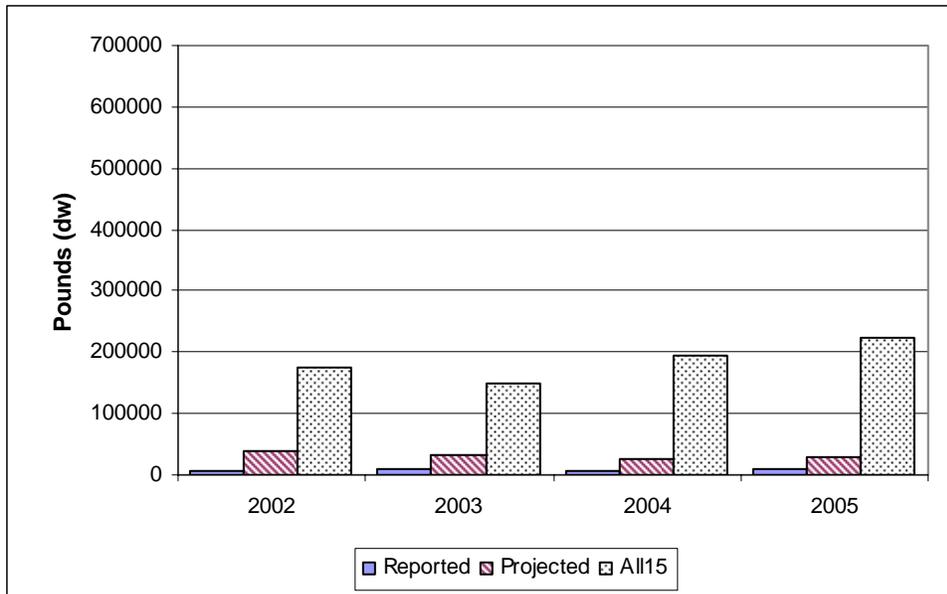


Figure 9. Reported and projected swordfish landings by incidental permit holders, 2002-2005 based on reported discards (projected) and full retention of proposed 15 fish limit (All15).

The ecological impacts associated with Alternative 1d would be similar, but somewhat less, than those described above for Alternative 1c. While a small increase in fishing effort by PLL vessels is possible, only limited ecological impacts on target, non-target, and protected species are anticipated because PLL vessels are required to deploy circle hooks, utilize release and disentanglement gear, utilize specific baits, and may not fish in PLL closed areas. As described in the No Action alternative, these measures have significantly reduced bycatch in the PLL fishery since 2000. In 2005, 10,787 lb (dw) of swordfish were reported landed by Incidental permit holders. Increasing the incidental retention limit to 15 fish could increase swordfish landings by Incidental permit holders to between 25,248 lb and 222,558 lb (dw), based on current levels of fishing effort. Increasing the limit for squid trawl vessels by five swordfish could potentially increase annual landings by squid trawl vessels from 6.3 mt (ww) to 12.6 mt (ww) per year. However, squid trawl vessels are not anticipated to alter their current fishing practices. These vessels are primarily designed to fish for, and land, small pelagic species such as squid, mackerel and butterfish.

Alternative 1e, a preferred alternative, would implement a North Atlantic swordfish retention limit for HMS CHB vessels of one fish per paying passenger, up to six swordfish per trip for charter vessels and 15 swordfish per trip for headboat vessels. This alternative would maintain the current recreational limit of one swordfish per person, but increase the allowable upper retention limit (from three fish per vessel). Therefore, a charter vessel possessing a HMS CHB permit with six paying passengers onboard would be limited to possessing or retaining no more than six swordfish. An HMS headboat vessel with 15 paying passengers onboard would be limited to possessing or retaining no more than 15 swordfish. However, if either of these types of vessels had, for example, five paying passengers onboard, the vessel would be limited to possessing or retaining no more than five swordfish.

This alternative recognizes that charter and headboat vessels may carry many paying passengers. A six-fish upper vessel retention limit for charter vessels was the only alternative analyzed for this sector, besides the no action alternative, because these vessels are licensed to carry a maximum of six passengers per trip. Although headboats can carry upwards of 50 passengers, a 15-fish retention limit was analyzed because it would provide a better opportunity for anglers on headboats to land a swordfish while maintaining a recreational aspect to the charter/headboat fishery. In addition, given the lack of data for swordfish retention by anglers, a 15 fish limit is in keeping with a precautionary approach in that this limit is five times the limit now allowed, but is still conservative enough so as to preclude potential negative effects on the swordfish stock.

HMS CHB permit holders may fish for swordfish only with rod & reel and handline. Under the Marine Mammal Protection Act (MMPA), NMFS produces an annual list of fisheries (LOF) that classifies domestic commercial fisheries by gear type, relative to their rates of incidental mortality or serious injury of marine mammals. The final 2006 MMPA LOF, published on August 26, 2006 (71 FR 48802), indicated that the Atlantic, Gulf of Mexico, and Caribbean commercial passenger fishery (CHB fishery) was a Category III fishery, meaning that it has a remote likelihood of serious injury or mortality to marine mammals. Under the Endangered Species Act (ESA), a 2001 Biological Opinion that included handgear found the potential for takes in the fishery was low. Increasing the allowable upper limit on the amount of swordfish that may be retained by charter and headboat vessels is not expected to change the findings regarding protected species for the handgear fishery.

As of February 1, 2006, there were 4,173 HMS CHB permits issued. During fishing year 2005 (June 1, 2005 – May 31, 2006), approximately 80 charter and 3 headboat trips reported landing at least one swordfish. Charter trips were reported as landing approximately 127 swordfish (32%) out of 394 swordfish reported in the HMS non-tournament recreational database. Four swordfish (1%) were landed on headboat trips, of which two came from the same trip. As described in Alternative 1a, approximately 25 percent of the swordfish reported landed by CHB vessels in the HMS non-tournament recreational reporting database were in groups of three fish on the same date. Because the number of anglers onboard is not recorded, it is not possible to determine the actual number of trips that achieved the recreational retention limit. However, at a minimum, 32 swordfish (127×0.25) equating to approximately ten charter trips (at three per trip) landed the current three-fish limit during the 2005 fishing year, and no headboats reported landing the limit. At a lower range, assuming that charter vessels continue these patterns of landing the retention limit, an additional 32 swordfish landed on ten trips would be expected if the limit is doubled to six fish for charter vessels. Because no headboats reported landing the current three fish limit during fishing year 2005, it is projected that no headboats will approach a 15 fish limit. These projections assume that the same numbers of vessels will continue to land the retention limit. At the upper range, assuming that all 80 reporting charter trips and all reporting headboat trips land the new limits of 6 and 15 fish, respectively, a total of 409 additional swordfish could be landed ($80 \text{ charter trips} \times 6 \text{ fish} + 4 \text{ headboat vessels} \times 15 \text{ fish} - 131 \text{ fish landed in 2005}$). Both of these projections, 32 and 409 additional swordfish, assume that all CHB vessels reported all of their swordfish landings during fishing year 2005. It is not known if, or how many, charter and headboat vessel operators did not report. Also, although the per person limit would not change under this alternative, it is possible that the opportunity to

land more swordfish per vessel could increase the number of CHB trips targeting swordfish. This could increase swordfish landings by an unknown amount.

In summary, Alternative 1e is not expected to have significant adverse ecological impacts on target, non-target, and protected species. The Atlantic CHB fishery is a Category III fishery that has only a remote likelihood of serious injury or mortality to marine mammals. The 2001 Biological Opinion issued for this fishery determined that there would be no jeopardy from its continued operation. Projected swordfish landings are expected to range from 32 to 409 additional fish, based on reported landings during the 2005 fishing year. It is not known if, or how many, charter and headboat permit holders did not report swordfish landings in the 2005 fishing year. If the number of CHB trips targeting swordfish were to increase as a result of this alternative, swordfish landings could similarly increase by an unknown amount. This alternative is preferred because it will help to provide a reasonable opportunity for U.S. vessels to harvest the domestic swordfish quota, with no significant adverse impacts on target, non-target, and protected species.

Alternative 1f, a preferred alternative, would implement a North Atlantic swordfish recreational retention limit for HMS Angling category vessels of one fish per person per trip, up to four swordfish per vessel per trip. It would maintain the current recreational limit of one swordfish per person, but increase the upper retention limit from three fish to four fish per vessel per trip. Thus, a vessel possessing an HMS Angling category permit with three persons onboard would be limited to possessing or retaining no more than three swordfish, a vessel with four persons onboard would be limited to no more than four swordfish, and a vessel with five or more persons onboard would also be limited to four swordfish.

A four-fish upper vessel retention limit for angling vessels was the only alternative analyzed for this sector, besides the no action alternative, because it would provide a modest increase in the opportunity to land a swordfish, while maintaining a recreational aspect to the fishery. Because there were 25,238 vessels issued HMS Angling category permits, as of February 1, 2006, an increase in the upper retention limit of more than one fish per angling vessel was considered but rejected due to concerns about potentially excessive recreational landings. HMS Angling category vessels do not carry paying passengers, so a higher limit based on the number of paying passengers onboard was not considered.

HMS Angling category permit holders may fish for swordfish only with rod & reel and handline. Because it is not a commercial fishery, it is not categorized under the MMPA. The 2001 Biological Opinion issued for the HMS angling fishery found that it may have adverse impacts, but there was no jeopardy from its continued operation. Increasing the allowable upper limit on the amount of swordfish that may be retained by HMS Angling category permit holders is not expected to change these findings.

As of February 1, 2006, there were 25,238 HMS Angling category permits issued. During fishing year 2005 (June 1, 2005 – May 31, 2006), approximately 209 HMS Angling trips reported landing at least one swordfish. Angling category trips were reported as landing

approximately 267 swordfish (68%) out of 394 swordfish reported in the HMS non-tournament recreational database. As described in Alternative 1a, approximately 7 percent of the swordfish reported landed by Angling category vessels in the HMS non-tournament recreational reporting database were in groups of three fish on the same date. Because the number of anglers onboard is not recorded, it is not possible to precisely determine the actual number of trips that achieved the recreational retention limit. However, at a minimum, 18 swordfish (267×0.07) equating to approximately six angling trips (at three per trip) landed the current three-fish limit during the 2005 fishing year. At the lower range, assuming that HMS Angling category vessels continue these patterns of landing the retention limit, an additional six swordfish landed on six trips would be expected if the limit is increased by one fish for HMS Angling category vessels. This projection assumes that the same numbers of vessels will continue to land the retention limit. At the upper range, assuming that all 209 reporting Angling trips land the new limit of four fish, a total of 569 additional swordfish could be landed ($209 \text{ Angling trips} \times 4 \text{ fish} - 267 \text{ fish landed in 2005}$). Both of these projections, 18 and 569 additional swordfish, assume that all HMS Angling vessels reported all of their swordfish landings during fishing year 2005. It is not known if, or how many, HMS Angling category permit holders did not report. Also, although the per person limit would not change under this alternative, it is possible that the opportunity to land more swordfish per vessel could increase the number of HMS Angling trips targeting swordfish. This could increase swordfish landings by an unknown amount. This alternative is preferred because it will help to provide a reasonable opportunity for U.S. vessels to harvest the domestic swordfish quota, with no significant adverse impacts on target, non-target, and protected species.

Social and Economic Impacts

Under Alternative 1a (No Action), NMFS would maintain the status quo. Accordingly, there would be no change in the current baseline economic and social impacts associated with previously implemented North Atlantic swordfish retention limit regulations.

The current swordfish incidental retention limits are not having a substantial economic or social impact on the fishing sector based on permit and logbook records. There are 48 vessels that currently hold valid Incidental Swordfish permits. As indicated previously in the ecological impacts section, 81 percent of incidental trips did not report any discards. Furthermore, 64 percent of trips did not land any swordfish. Therefore, the majority of Incidental Swordfish permitted vessels did not land or discard swordfish.

However, the percentage of trips that reported keeping no swordfish generally had the highest swordfish discards. In fact, one trip that did not keep swordfish reported 52 discards. If any discards were attributable to exceeding the current two fish incidental limit, then this could potentially represent lost revenues associated with the current incidental trip limit.

Discards associated with the current incidental trip limit for swordfish may be contributing to the persistent underharvest of the domestic swordfish quota. This may also be impacting associated shore-side businesses. Federal Atlantic swordfish dealer permits have declined from 321 in 2002 to 285 in 2006. Potential reductions in shore-side business activities associated with domestic swordfish handling and processing may be resulting in local economic impacts.

The communities most affected by the current incidental swordfish limit are expected to be located where Incidental Swordfish permit holders are concentrated. Figure 9.7 from the Final Consolidated HMS FMP (2006) depicts the geographic distribution of Swordfish Permit holders as of February 2006. In addition, the Final Consolidated HMS FMP also includes profiles of many of the communities most actively involved in the fishery.

The No Action alternative would also maintain the current HMS Angling and Charter/headboat (CHB) retention limit of one North Atlantic swordfish per person, up to three per vessel per trip. This limit may potentially be lowering the demand for Charter and headboat boat trips, especially on trips with more than three people, since each person on the boat is not afforded the ability to retain a swordfish.

Under Alternative 1b, NMFS would remove the North Atlantic swordfish retention limit for vessels possessing valid Incidental Swordfish limited access permits, except that the Incidental limit for such vessels participating in the squid trawl fishery would be increased to ten, until 70 percent of the adjusted domestic semi-annual North Atlantic swordfish quota is projected to be landed, after which the Incidental swordfish retention limit would revert back to current limits for the remainder of the semi-annual period. This alternative would allow incidental permit holders to land unlimited amounts of swordfish, and thus allow them greater flexibility in their overall operations. However, this alternative could potentially have the most significant adverse ecological impacts if vessel owners with Incidental Swordfish permits alter their strategies and choose to deploy additional sets to target swordfish.

For example, an Incidental Swordfish permit holder fishing for tuna during the day could choose to fish for swordfish at night under Alternative 1b. If they simply switch to swordfish fishing and abandon tuna fishing, the overall amount of effort is expected to remain relatively constant. The decision to supplement their tuna revenues with swordfish revenues or to switch to swordfish all together would likely depend on prices, location of fishing grounds, the amount of hold space in the vessel to carry additional swordfish, and any costs associated with refitting their vessel. Given the relatively higher ex-vessel prices for tuna, it is not likely that many vessels would switch completely to swordfish if the relative costs associated with targeting either species are similar to the cost of effort associated with swordfish fishing.

The potential economic gain from this alternative (1b) would be associated with increased landing from two swordfish per trip up to as many as 605 swordfish per trip (highest number reported landed by a directed vessel) minus what vessels could make tuna fishing during the same time if they switch entirely to swordfish fishing. Using the mean weight of swordfish landed in 2005 of 75.7 lbs and the mean ex-vessel price of \$3.71 in 2005, the estimated value of potentially retaining up to an additional 603 swordfish could be as high as \$ 169,351 per trip. However, this should only be considered an upper bound, especially since it does not take into account reductions in the retention of other species that might have to occur in order to make room for the swordfish on the vessel. More typically, vessels issued Swordfish Directed permits during the period from 2002 to 2005 averaged 60 to 77 swordfish kept per trip. That would equate to potentially \$16,289 to \$21,064 in additional revenue per trip for Incidental Swordfish permit holders that decide to direct on swordfish, assuming they share a similar capability to harvest swordfish as the Direct Swordfish permit holders. This alternative would affect the 48

Incidental Swordfish permit holders that possess Atlantic Tuna longline category permits and shark limited access permits.

If incidental permit holders choose to supplement their tuna fishing, then any economic returns from swordfish above the previous two fish limit would be positive. If, instead, incidental permit holders make no changes to fishing practices except landing swordfish that were previously discarded, then that level of fish previously discarded would generate economic benefits from additional revenues. Figure 2 shows the levels of discards that have occurred.

Alternative 1b would also increase the swordfish retention limit to 10 swordfish for vessels issued valid Incident Swordfish limited access permits that participate in the squid trawl fishery. This effectively doubles the current retention limit for these vessels. From 1998 – 2004, squid trawl vessels landed an average of 6.3 mt (ww) per year. Increasing the limit for squid trawl vessels by an additional five swordfish per trip could potentially increase annual landings by squid trawl vessels to 12.6 mt (ww) per year. Overall, this increase of 6.3 mt (ww) of swordfish would be worth \$38,743 per year, distributed amongst all squid trawl vessels, based on the 2005 average ex-vessel price of swordfish of \$3.71 and a ratio of whole weight to dress weight of 1.33.

Alternative 1c, a preferred alternative, would increase the North Atlantic swordfish retention limit for non-squid trawl vessels holding valid Incidental swordfish limited access permits to 30 fish per vessel per trip, and increase the incidental limit for these vessels participating in the squid trawl fishery to 15 fish per vessel per trip. This alternative is intended to provide the opportunity to land swordfish that might otherwise be discarded, but prevent a large increase in additional directed fishing effort on swordfish. As previously indicated, this alternative would have only limited adverse ecological impacts.

A 30 fish limit is just below the median number of swordfish landed by directed permit holders (36 fish). The potential economic benefits associated with this alternative are estimated by taking difference between the value of two swordfish and the value of 30 swordfish. Using the mean weight of swordfish landed in 2005 of 75.7 lbs and the mean ex-vessel price of \$3.71 in 2005, the estimated value of potentially retaining an additional 28 swordfish under this alternative is \$7,864 per trip.

Using logbook records from 2005, it is projected that total annual landings of swordfish will increase from 10,787 lb to 34,879 lb under a 30 fish per vessel incidental trip limit, assuming that all fish previously discarded are converted into landings. Using the average ex-vessel price of \$3.71 for 2005, the estimated total value of these additional landings would be \$89,381 per year.

Alternative 1c would allow Incidental Swordfish permit holders to convert discards into landings, and possibly result in some vessels deploying a few additional swordfish sets. However, vessels are not anticipated to switch entirely to swordfish fishing under this alternative for the opportunity to land 28 additional swordfish. This alternative could potentially provide some economic return by allowing the retention of swordfish that otherwise would have been discarded, and because vessel operators could possibly deploy a few swordfish sets if prices,

costs, swordfish availability, and time make it worthwhile. The economic gain would be from two swordfish per trip up to 30 swordfish per trip minus any costs associated with travel, ice, etc. If they choose to supplement their tuna fishing, then any economic returns from swordfish above two fish would be positive. If they make no changes to fishing practices except for landing swordfish that were previously discarded, then that level of fish previously discarded would be economic benefits. Figure 2 shows the levels of discards that have occurred.

Under Alternative 1c, Incidental Swordfish permit holders participating in the squid trawl fishery would be allowed to retain up to 15 swordfish per vessel per trip. This would triple the current limit. Based on the current average annual landings of 6.3 mt (ww) of swordfish by the squid trawl fishery, it might be reasonable to assume that landings could increase by 12.6 mt (ww) per year under this alternative. That would result in an estimated increase in annual revenues of approximately \$77,487, amongst all squid trawl vessels, based on 2005 average ex-vessel price of \$3.71 per pound of swordfish and a 1.33 whole weight to dress weight ratio.

Alternative 1d would increase the North Atlantic swordfish retention limit for non-squid trawl vessels holding valid Incidental swordfish limited access permits to 15 fish per vessel per trip, and increase the incidental limit for these vessels participating in the squid trawl fishery to 10 fish per vessel per trip. This alternative is intended to provide the opportunity to land swordfish that might otherwise be discarded, but prevent a large increase in additional directed fishing effort on the swordfish. As previously indicated, this alternative would have only limited adverse ecological impacts.

A 15 fish limit is significantly below the mean number of swordfish landed by directed permit holders (36 fish), but still much higher than the current limit of 2 fish. The economic benefits associated with this alternative are estimated by taking difference between the value of two swordfish and the value of 15 swordfish. Using the mean weight of swordfish landed in 2005 of 75.7 lbs and the mean ex-vessel price of \$3.71 in 2005, the estimated value of potentially retaining an additional 13 swordfish under this alternative is \$3,651 per trip.

Using logbook records from 2005, it is projected that total annual landings of swordfish will increase from 10,787 lbs. to 30,350 lbs. under a 15 fish per vessel incidental trip limit, assuming that all fish previously discarded are converted into landings. Using the average ex-vessel price of \$3.71 for 2005, the estimated total value of these additional landings would be \$72,579 per year.

This alternative would allow Incidental Swordfish permit holders to convert discards into landings, and possibly result in vessels deploying a few additional swordfish sets. However, vessel operators are not likely to switch entirely to swordfish fishing for the opportunity to land 13 additional swordfish. Alternative 1d could potentially provide some economic return by allowing the retention of swordfish that otherwise would have been discarded, and because they could possibly deploy a few swordfish sets if prices, costs, swordfish availability, and time make it worthwhile. The economic gain would be from two swordfish per trip up to 15 swordfish per trip minus any costs associated with travel, ice, etc. If they choose to supplement their tuna fishing, then any economic returns from swordfish above two fish would be positive. If they make no changes to fishing practices except for landing swordfish that were previously

discarded, then that level of fish previously discarded would be economic benefits. Figure 2 shows the levels of discards that have occurred.

Alternative 1d would also increase the swordfish retention limit to 10 swordfish for vessels issued valid Incident Swordfish limited access permits that participate in the squid trawl fishery. This effectively doubles the current retention limit for these vessels. From 1998 – 2004, squid trawl vessels landed an average of 6.3 mt (ww) per year. Increasing the limit for squid trawl vessels by an additional five swordfish per trip could potentially increase annual landings by squid trawl vessels to 12.6 mt (ww) per year. This increase of 6.3 mt (ww) of swordfish would be worth \$38,743 per year, amongst all squid trawl vessels, based on the 2005 average ex-vessel price of swordfish of \$3.71 and a ratio of whole weight to dress weight of 1.33.

Alternative 1e, a preferred alternative, would implement a North Atlantic swordfish retention limit for HMS CHB vessels of one fish per paying passenger, up to six swordfish per trip for charter vessels and 15 swordfish per trip for headboat vessels. This alternative would maintain the current recreational limit of one swordfish per person, but increase the allowable upper retention limit (from three fish per vessel). Therefore, a charter vessel possessing a HMS CHB permit with six paying passengers onboard would be limited to possessing or retaining no more than six swordfish. An HMS headboat vessel with 15 paying passengers onboard would be limited to possessing or retaining no more than 15 swordfish. However, if either of these types of vessels had, for example, five paying passengers onboard, the vessel would be limited to possessing or retaining no more than five swordfish.

Some charter boats landed up to the three-fish limit in 2005. Approximately 25 percent of the swordfish reported landed by CHB vessels in the HMS non-tournament recreational reporting database were in groups of three fish on the same date. Even though a quarter of trips may have been limited in the amount of swordfish retained under the existing vessel trip limit, the benefits of raising the limit could extend beyond those trips. The economic benefit would be due to more bookings of charter trips because the perceived value of a trip for an angler is increased due to the ability to land more fish. The 2004 average daily HMS charterboat rates for day trips was \$1,053. The willingness-to-pay for swordfish charterboat and headboat trips is likely to be much higher than this value. Increased bookings could lead to some positive economic multiplier impacts to tackle shops, boat dealers, hotels, fuel suppliers, and other associated local and regional businesses.

Alternative 1f, a preferred alternative, would implement a North Atlantic swordfish recreational retention limit for HMS Angling category vessels of one fish per person per trip, up to four swordfish per vessel per trip. It would maintain the current recreational limit of one swordfish per person, but increase the upper retention limit from three fish to four fish per vessel per trip. Thus, a vessel possessing an HMS Angling category permit with three persons onboard would be limited to possessing or retaining no more than three swordfish, a vessel with four persons onboard would be limited to no more than four swordfish, and a vessel with five or more persons onboard would also be limited to four swordfish.

Some angling trips have landed up to the three-fish limit in 2005. As discussed previously, approximately seven percent of the swordfish reported landed by Angling category vessels in the

HMS non-tournament recreational reporting database were in groups of three fish on the same day. Therefore, the increase from three to four swordfish per vessel per trip under this alternative is not likely to affect many trips.

There would be some economic benefit associated with Alternative 1f. The economic benefit would be derived from an increased perceived value of a trip for an angler due to the ability to land more fish. Recreational anglers might take more trips, which could lead to some multiplier benefits to tackle shops, boat dealers, hotels, fuel suppliers, and other related businesses. The average expenditure on HMS related trips is estimated to be \$122 per person per day based on the recreational fishing expenditure survey add-on to the National Marine Fisheries Service's Marine Recreational Fisheries Statistical Survey (MRFSS). Swordfish trips may be more expensive if they occur further offshore or are taken overnight. The expenditure data include the costs of tackle, food, lodging, bait, ice, boat, fuel, processing, transportation, party/charter fees, access/boat launching, and equipment rental.

However, some of the potential benefit associated with this alternative could be minimized by an increasing trend in the catch-and-release ethic of many recreational anglers. Anglers may not take advantage of the four fish per vessel limit, and may instead decide to release their catch. Moreover for some recreational anglers, the proposed increase in the angling category recreational limit could actually decrease their perceived benefits if they are avid catch-and-release fishermen. These catch-and-release fishermen might consider the proposed marginal increase in the recreational trip limit to be diminishing their future angling quality for swordfish.

Conclusion

In conclusion, NMFS does not expect significant adverse ecological impacts from any of these alternatives. Currently, North Atlantic swordfish are classified as overfished; however, the ICCAT Standing Committee on Research and Statistics' (SCRS) 2006 stock assessment found that the population's biomass has almost fully recovered, and is currently at 99 percent of Bmsy. Adjusting the U.S. swordfish incidental limits would be in compliance with the ICCAT rebuilding plan because none of the alternatives are expected to result in an exceedance of either the overall U.S. North Atlantic swordfish quota, or the domestic incidental swordfish quota allocation.

The ecological impacts of adopting Preferred Alternatives 1c, 1e, and 1f will vary based on the resulting level of fishing effort. Currently, the U.S. swordfish fleet has been unable to catch the entire U.S. swordfish quota causing significant amounts to be carried over to the subsequent fishing years. As mentioned under the description for Alternative 1a, the decrease in effort might be attributable to several restrictions that have been implemented since 1999, including, but not limited to, limited access permits, quotas, minimum size restrictions, vessel monitoring system (VMS) requirements, gear restrictions (large circle hooks, gangion length specifications, non-stainless hooks, etc.), dealer and vessel logbook reporting, a live bait prohibition in the GOM, landing restrictions, and large closed areas for PLL and BLL gear. These have been very effective at reducing bycatch, but they may also have had the consequence of reducing landings of swordfish more than intended. Adjusting incidental and recreational swordfish retention limits will allow swordfish that otherwise may have been discarded to be landed, but is not

expected to significantly increase fishing effort because the other restrictions will remain in place.

The social and economic impacts associated with the preferred alternatives would vary based upon the amount of swordfish kept minus any additional costs associated with catching the additional swordfish. The potential economic benefits associated with Alternative 1c are estimated by taking difference between the value of two swordfish and the value of 30 swordfish. Using the mean weight of swordfish landed in 2005 of 75.7 lbs and the mean ex-vessel price of \$3.71 in 2005, the estimated value of potentially retaining an additional 28 swordfish under this alternative is \$7,864 per trip. For Alternatives 1e and 1f, the economic benefit would be derived from an increased perceived value of a for-hire or private trip for an angler, due to the ability to land more fish. Recreational anglers might take more trips, which could also lead to some multiplier benefits to tackle shops, boat dealers, hotels, fuel suppliers, and other related businesses. It is possible that avid catch-and-release fishermen might consider the proposed marginal increase in the recreational trip limit to be diminishing their future angling quality for swordfish.

4.2. HMS Limited Access Vessel Upgrading Restrictions

As described in Section 2, the alternatives being considered for HMS Limited Access Vessel Upgrading Restrictions include:

Alternative 2a: No Action

Alternative 2b: Waive HMS limited access vessel upgrading and permit transfer upgrading restrictions for all vessels that are authorized to fish with longline gear for swordfish and tunas for 10 years, after which a new vessel baseline would be established and the 10 percent LOA, GRT, NT; and 20 percent HP restrictions would go back into effect

Alternative 2c: Waive HMS limited access swordfish handgear vessel upgrading and permit transfer upgrading restrictions for 10 years, after which a new baseline would be established and the 10% LOA, GRT, NT and 20% HP restrictions would go back into effect

Alternative 2d: Waive all HMS limited access vessel upgrading and permit transfer upgrading restrictions for 10 years, after which a new vessel baseline would be established and the 10 percent LOA, GRT, NT; and 20 percent HP restrictions would go back into effect.

Alternative 2e: *Establish new HMS limited access vessel size upgrading and permit transfer upgrading restrictions only for HMS vessels that are authorized to fish with pelagic longline for swordfish and tunas, equivalent to 35 percent LOA, GRT, and NT, as measured relative to the baseline vessel specifications (i.e., the specifications of the vessel first issued an HMS*

limited access permit), and remove HP upgrading and HP permit transfer upgrading restrictions for these vessels – Preferred Alternative

Ecological Impacts

Alternative 2a (No Action) would maintain the status quo. Current regulations specify that owners of vessels issued HMS limited access permits may upgrade vessels or transfer permits to another vessel only if the vessel upgrade or permit transfer does not result in an increase in horsepower (HP) of more than 20 percent, or an increase of more than 10 percent in length overall (LOA), gross registered tonnage (GRT), or net tonnage (NT) relative to the respective specifications of the first vessel issued the initial limited access permit (the baseline vessel). If any of the three vessel size specifications is increased, any increase in the other two must be performed at the same time. The regulations also specify that vessel horsepower and vessel size may be increased only once. However, an increase in vessel size may be performed separately from an increase in vessel horsepower. These regulations have been in effect since 1999.

There are six different HMS limited access permits: 1) directed swordfish; 2) incidental swordfish; 3) swordfish handgear; 4) directed shark; 5) incidental shark; and, 6) tuna longline. Swordfish directed and incidental permits are valid only if the permit holder also holds both a tuna longline and a shark permit. Similarly, the tuna longline permit is valid only if the permit holder also holds both a limited access swordfish (directed or incidental, not handgear) and a shark permit. Swordfish handgear and shark permits are valid without another limited access permit. As of February 2006, there were 1,131 total HMS commercial fishing permits (191 directed swordfish, 86 incidental swordfish, 88 swordfish handgear, 240 directed shark, 312 incidental shark, and 214 tuna longline). However, there were only 604 permit holders since permit holders may hold more than one permit.

As of September 26, 2006, there were 176 vessels that were authorized to fish with longline gear for swordfish and tunas (*i.e.*, the vessel possessed a tuna longline permit and the appropriate limited access permits for swordfish and sharks). However the number of “active” PLL vessels in 2005 was 110. An “active” PLL vessel is considered to be a vessel that reported PLL activity in the HMS logbook. The number of active HMS PLL vessels has been precipitously decreasing since 1994. Table 7 lists the number of active PLL vessels from 1990 to 2005.

Table 7. The Number of Vessels that Reported Fishing with Pelagic Longline Gear in the HMS Logbook. Source HMS Logbook.

Year	Number of Active Vessels
1990	416
1991	333
1992	337
1993	434
1994	501
1995	489

Year	Number of Active Vessels
1996	367
1997	350
1998	268
1999	224
2000	199
2001	161
2002	148
2003	126
2004	116
2005	110

The No Action alternative (2a) would maintain the current HMS limited access vessel upgrading restrictions. Aside from limiting overall fleet capacity, the rationale for selecting the current restrictions (10 percent LOA, GRT, & NT; and 20 percent HP) in 1999 was based, in part, on maintaining consistency with existing limited access upgrading restrictions that were, and still are, in place for vessels issued limited access permits for fisheries of the Northeastern United States. As of September 25, 2006, 25 percent of vessels issued limited access Incidental or Directed swordfish permits, and 45 percent of vessels issued limited access swordfish Handgear permits, also possessed a limited access permit for fisheries of the Northeastern United States.

As discussed under Alternative 1a and above, the ecological impacts associated with the No Action alternative have been positive due to the cumulative effects of the many HMS management measures that have been implemented since 2000. These measures include, but are not limited to, limited access permits, quotas, minimum size restrictions, vessel monitoring system (VMS) requirements, gear restrictions (large circle hooks, gangion length, non-stainless hooks, etc.), dealer and vessel logbook reporting, a live bait prohibition in the GOM, a shark finning prohibition (implemented in 1993), landing restrictions, and large closed areas for PLL and BLL gear. As a result, PLL landings of most target species have been in decline since 1999. The North Atlantic swordfish stock is 99 percent rebuilt, and bycatch and bycatch mortality of protected and non-target species have been reduced. In addition, the number of active PLL vessels has steadily declined. However, several HMS species including bluefin tuna, white marlin, blue marlin, sandbar sharks, and dusky sharks are still in need of rebuilding. In addition, bycatch and bycatch mortality of endangered leatherback and threatened loggerhead sea turtles in PLL fisheries remains a concern.

Similar to Topic 1, all of the management measures described above which have produced positive ecological benefits under the No Action alternative, including time/area closures and circle hooks, would remain in effect under all of the other alternatives considered. The remainder of this section focuses specifically on HMS limited access vessel upgrading restrictions.

Figures 4 and 5, below, show the length and horsepower distribution of vessels issued Directed and Incidental limited access swordfish permits. Figures 6 and 7, below, show the same information for vessels issued limited access swordfish Handgear permits. Under No Action alternative 2a, these vessel specifications are expected to remain relatively static (although vessels that have not already been upgraded could increase by 10 percent in LOA, GRT & NT; and 20 percent in HP). These figures indicate that the preponderance of vessels possessing either an Incidental or Directed swordfish limited access permit are between 40 – 80 feet in length and between 200 – 500 horsepower. Eleven vessels are greater than 80 feet in length, and 36 vessels are greater than 500 horsepower. The preponderance of vessels possessing a limited access swordfish Handgear permit are between 20 – 40 feet in length and between 200 – 500 horsepower. Thirty-five of these vessels are greater than 40 feet in length, and 29 of these vessels are greater than 500 horsepower. The number of vessels that have been upgraded since 1999 was not available for inclusion in this document.

Based on the data in Figures 4 – 7, it is difficult to characterize an “average” swordfish vessel. However, for purposes of analysis, an “average” Directed or Incidental swordfish limited access vessels may be approximately 55 feet in length and 425 horsepower. Similarly, an “average” swordfish Handgear vessel may be approximately 35 feet in length and 400 horsepower. The No Action alternative would be expected to maintain these specifications. Fleet capacity would remain approximately at, or below, 1999 levels.

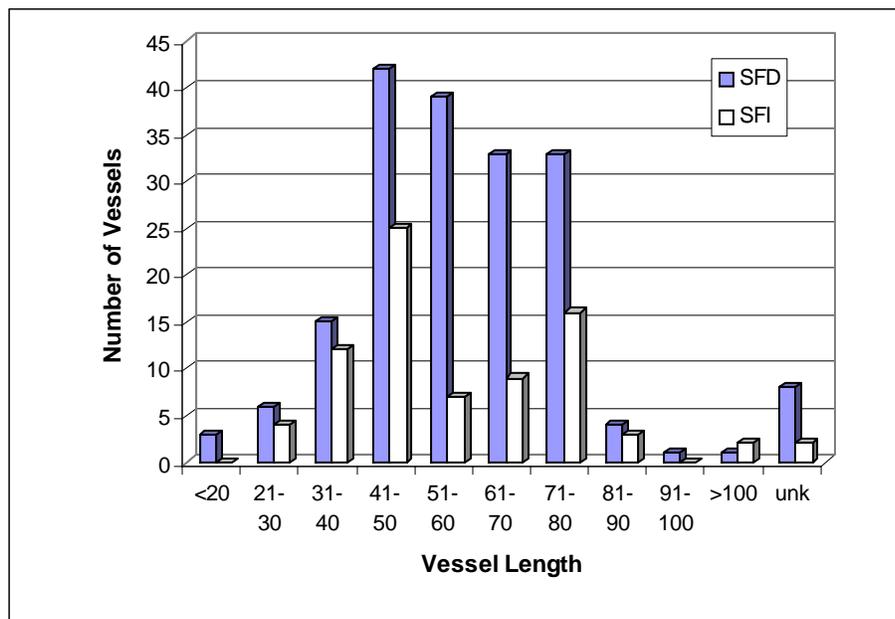


Figure 10. Range of Lengths (LOA) for Vessels Possessing Limited Access Directed and Incidental Swordfish Permits as of September 19, 2006. Source: NMFS Southeast Regional Office Permits Database.

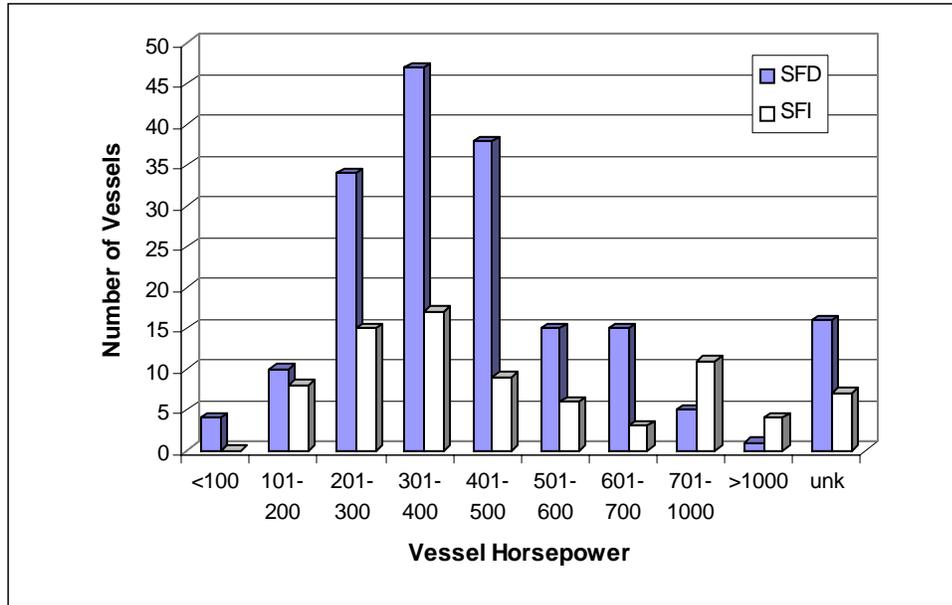


Figure 11. Range of Horsepower for Vessels Possessing Limited Access Directed and Incidental Swordfish Permits as of September 19, 2006. Source: NMFS Southeast Regional Office Permits Database.

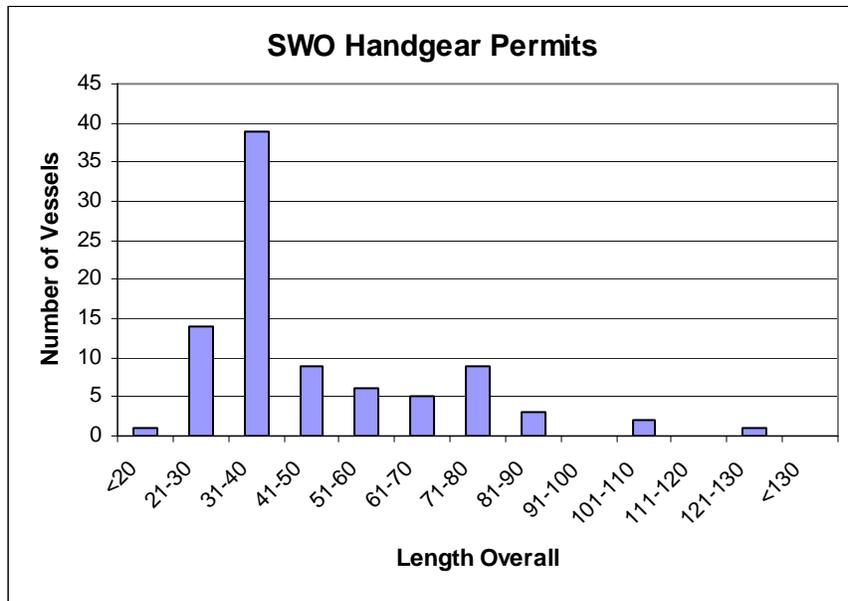


Figure 12. Range of Lengths (LOA) for Vessels Possessing Limited Access Swordfish Handgear Permits as of September 19, 2006. Source: NMFS Southeast Regional Office Permits Database

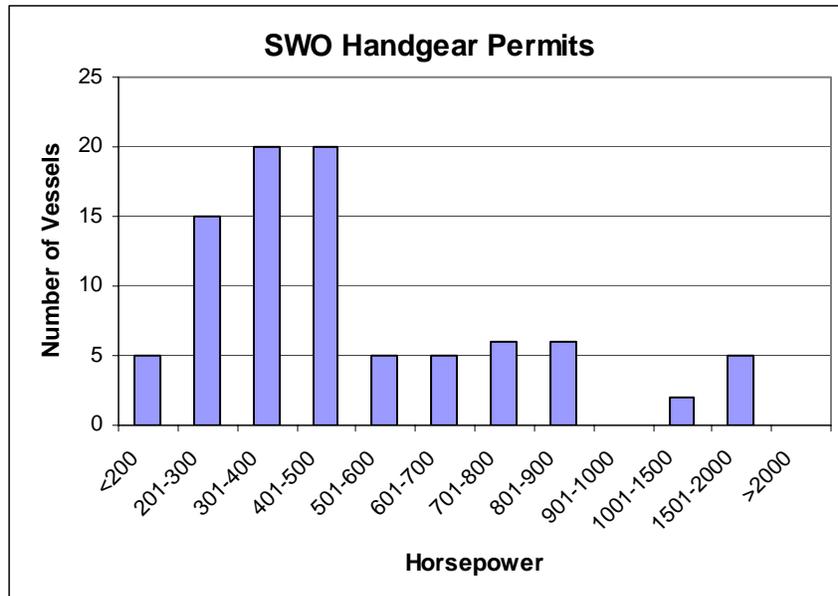


Figure 13. Range of Horsepower for Vessels Possessing Limited Access Swordfish Handgear Permits as of September 19, 2006. Source: NMFS Southeast Regional Office Permits Database.

The No Action alternative may cause some indirect adverse ecological impacts that are not readily apparent. During public meetings addressing the domestic swordfish fishery conducted in September 2006, it was mentioned that the current upgrading restrictions affect the ability to carry observers onboard vessels, due to inadequate bunk or berthing space. The current regulations specify that NMFS may select any vessel issued a commercial HMS permit for at-sea observer coverage. Vessels that would otherwise be required to carry an observer, but are inadequate for purposes of carrying an observer and allowing for operation of normal observer functions, are prohibited from fishing without observer coverage. The HMS regulations require the owner or operator of a vessel on which a NMFS-approved observer is embarked to provide accommodations for observers that are equivalent to those provided the crew. Observers are not required to board, or stay aboard, a vessel that is unsafe or inadequate. In some situations, the HMS vessel upgrading restrictions may be inadvertently preventing vessel owners from enlarging their vessels so that they can carry observers. Valuable Agency resources may be expended selecting vessels, deploying observers, and then later determining that the vessel's accommodations are not adequate. This process may impact the collection and analysis of important observer data.

During public meetings conducted in September 2006, it was also mentioned that the current vessel upgrading restrictions might prevent operators from fishing further offshore. Smaller vessels are limited in the distances they can travel offshore due to concerns about safety, comfort, fuel capacity, and hold capacity. This can result in excessive fishing effort in nearshore nursery areas, and potential gear conflicts. Larger vessels have the ability to travel further offshore and may be more adept at targeting larger swordfish, avoiding other users, and dispersing their fishing effort.

To summarize, the No Action alternative has been effective at limiting capacity in HMS fisheries. In addition to the suite of other HMS management measures that have been implemented in recent years, the vessel upgrading restrictions have contributed to reductions in fishing effort, bycatch, and landings of target species. However, the vessel upgrading restrictions may also have unintentionally affected the collection of observer data and prevented vessels from accessing offshore fishing grounds.

Alternative 2b would waive vessel upgrading and permit transfer upgrading restrictions for PLL vessels (*i.e.*, vessels that possess an Atlantic tunas longline permit, as well as limited access permits for swordfish and sharks) for 10 years, after which a new vessel baseline would be established and the 10 percent LOA, GRT, NT; and 20 percent HP restrictions would go back into effect. This alternative could potentially have adverse ecological impacts, although it is not possible to quantify the magnitude of impacts.

The decision to upgrade a fishing vessel, or to purchase a new vessel and transfer the permits, is personal. Similarly, the desired size and capacity of the new or upgraded vessel is personal. As with any major purchase, a variety of factors must be considered. Some of these include, but are not limited to, the cost of the new or upgraded vessel, the ability to obtain financing, profitability and condition of the existing vessel, operating costs associated with a larger vessel, anticipated future economic returns from the new or upgraded vessel, whether the vessel is limited by upgrading restrictions for other fisheries (*i.e.*, Northeastern fisheries), and even the age of the owner. Inevitably, each situation is unique. A young owner of a small boat with high future expectations for the fishery and a good credit history might be more inclined to upgrade a vessel or to purchase a larger vessel than an older boat owner who might choose to keep the existing vessel and minimize costs before exiting the fishery. Also, if the vessel possesses limited access permits for Northeastern fisheries, a business decision would have to be made as to whether it is better to upgrade for HMS fisheries and potentially forfeit the ability to participate in Northeastern fisheries, or to keep the vessel within the Northeastern specifications. Therefore, it is not possible to accurately predict how many vessels will be upgraded, or the anticipated future capacity of the fishery, because the prediction is dependent upon the personal choices of many individual boat owners.

Alternative 2b would not impose an upper limit on the magnitude of upgrades, and is restricted only to vessels that possess the permits necessary to fish for tunas and swordfish with longline gear. For purposes of analysis, the optimal size for Incidental and Directed swordfish vessels is assumed to range from 40 – 80 feet, based on the data in Figure 4. The smaller vessels range from 40 – 60 feet, and the larger vessels range from 60 – 80 feet. Assuming that all owners of smaller vessels (40 – 60 ft.) would consider upgrading to bigger vessels (60 – 80 ft), Figure 4 would indicate that up to 113 vessels might be increased in size by 1 – 100 percent. However, because only 65 percent of swordfish permit holders possess the requisite permits needed to fish with longline gear, up to 73 vessel owners would be likely to consider upgrading their vessels by 1 – 100 percent under this alternative. Finally, because 25 percent of swordfish Incidental and Directed permit holders also hold permits for Northeastern fisheries and may choose not to upgrade in order to retain their eligibility for these fisheries, it is projected that approximately 55 vessels might be upgraded by 1 – 100 percent under this alternative. At the opposite end of the

spectrum, for the reasons discussed above, it is also possible that all PLL vessels could increase by an unlimited amount or, conversely, none of the PLL vessels would be upgraded.

It is more likely than not that a larger PLL vessel would exert more effort, in terms of numbers of hooks fished, than a smaller vessel. However, some vessels may be upgraded for reasons other than increased productivity such as comfort, stability, safety, and transiting speed. Nevertheless, for this analysis it is assumed that, in general, larger vessels deploy more hooks.

Assuming that larger vessels deploy more fishing hooks, this alternative could produce adverse ecological impacts resulting from more interactions with target, non-target, and protected species. However, while fishing effort is anticipated to increase by an unknown amount, the ecological impacts would be limited, especially in the short term. This is because PLL vessels will still be required to deploy circle hooks, utilize release and disentanglement gear, utilize specific baits, and be prohibited from fishing in large PLL closed areas. As described in the No Action alternative, these measures have significantly reduced bycatch in the PLL fishery since 2000. Also, any adverse impacts associated with this alternative would not be realized in the short term. It would likely be months, and probably years, before the full impacts reach fruition. This is because PLL vessel upgrading, construction, and/or purchases take a long time to secure financing, place orders, and complete the necessary work. The most immediate impacts would result from vessel purchases and permit transfers to existing vessels.

Positive ecological benefits may result from this alternative if vessels are upgraded and operators fish further offshore, thus dispersing effort and potentially reducing fishing activity in nearshore areas which are often spawning or nursery areas, or populated with juveniles. If more vessels fish further offshore, this could reduce potential gear conflicts. This alternative could also increase swordfish landings and help to achieve the ICCAT-recommended domestic swordfish quota. If adverse ecological impacts remain in check, including interactions with sea turtles, protected, and non-target species, this alternative could have the positive benefit of demonstrating to other nations that sound conservation measures and an economically viable PLL fishery can go hand-in-hand. Finally, in the long-term, positive benefits could result in improved collection and analysis of observer data.

In summary, Alternative 2b is anticipated to result in some adverse ecological impacts over the long term, because there would be no limit on the size to which vessels could be upgraded. It is not possible to accurately predict, however, the magnitude of impacts because the decision to upgrade is personal. Given these caveats, a rudimentary projection indicated that 55 vessels in the 40 – 60 foot range might be upgraded to between 60 – 80 feet. Caution is urged in relying too heavily on this projection because of the uncertainty regarding business owner's decisions. If many HMS vessels are upgraded, there could be an increase in fishing effort and interactions with target, non-target and protected species. These, however, would not be fully realized in the short term as purchase and/or construction would take months, if not years, to complete. A potentially positive benefit of this alternative would be to provide additional opportunities for commercial PLL vessels to fish further offshore, thus relieving fishing effort on nearshore spawning, nursery, or juvenile grounds. Also, if PLL vessels are able to land more swordfish while minimizing bycatch and bycatch mortality as a result of this alternative, it could have long-

term positive benefits internationally. Finally, the collection and analysis of observer data could improve.

Alternative 2c would waive HMS upgrading and permit transfer upgrading restrictions for vessels issued Swordfish handgear permits for 10 years, after which a new baseline would be established and the 10 percent LOA, GRT, NT and 20 percent HP restrictions would go back into effect. This alternative could potentially have adverse ecological impacts, although it is not possible to quantify the magnitude of impacts. For the same reasons that were discussed in Alternative 2b, it is not possible to accurately predict how many vessels would be upgraded, or the anticipated future capacity of the fishery, because the prediction is dependent upon the personal choices of many individual boat owners.

Alternative 2c would not impose an upper limit on the magnitude of upgrades, and is restricted only to vessels that possess limited access swordfish Handgear permits. For purposes of analysis, the optimal size for swordfish Handgear vessels is assumed to range from 20 – 40 feet, based on the data in Figure 4. The smaller vessels range from 20 – 30 feet, and the larger vessels range from 30 – 40 feet. Assuming that all owners of smaller vessels (20 – 30 ft.) would consider upgrading to bigger vessels (30 – 40 ft), Figure 4 would indicate that up to 14 vessels might be increased in size by 1 – 100 percent. However, because 45 percent of swordfish Handgear permit holder also hold permits for Northeastern fisheries and may choose not to upgrade in order to retain their eligibility for these fisheries, it is projected that approximately eight vessels might be upgraded by 1 – 100 percent under this alternative. It was mentioned during public meetings conducted during September 2006, that HP is an important factor for swordfish Handgear vessel operators to take more and longer fishing trips. Again, Figure 4 would indicate that approximately 15 vessel might be increased from 200 HP to between 300 – 400 HP. However, because 45 percent of these vessels also possess permits for Northeastern fisheries and may choose not to upgrade in order to retain their eligibility for these fisheries, it is projected that approximately eight vessels might be upgraded by 1 – 100 percent in HP under this alternative. At the opposite end of the spectrum, for the reasons discussed above, it is also possible that all swordfish Handgear vessels could increase by an unlimited amount or, conversely, none of the Handgear vessels would be upgraded.

It is more likely than not that a larger swordfish Handgear vessel would exert more effort, primarily due to the ability to take more frequent and longer trips. However, some vessels may be upgraded for reasons other than increased productivity such as comfort, stability, safety, and transiting speed. Nevertheless, for this analysis it is assumed that, in general, larger vessels deploy more hooks by taking longer and more frequent trips.

Assuming that larger vessels deploy more fishing hooks, it is possible that this alternative could produce some adverse ecological impacts resulting from more interactions with target species, especially in areas that are closed to PLL gear. Interactions with non-target and protected species are not expected to be significant as the handgear fishery primarily uses rod & reel and, to a lesser extent, buoy gear. However, a significant expansion of the commercial handgear fishery, especially in the East Florida Coast PLL closed area, could result in increased bycatch and discards of undersized swordfish. Bycatch mortality could also increase, as this fishery is

not required to deploy circle hooks or utilize release and disentanglement gear. Additionally, the buoy gear fishery is relatively new. The full extent of the ecological impacts associated with the fishery are not known, although limits on the amount of buoy gear that may be deployed and other requirements were recently implemented in the Consolidated HMS FMP (2006). Any adverse impacts associated with this alternative would not be realized in the short term. It would likely be months before the full impacts reach fruition. This is because vessel upgrading, construction, and/or purchases take time to secure financing, place orders, and complete the necessary work. The most immediate impacts would result from vessel purchases and permit transfers to existing vessels. The Handgear fleet may be able to accomplish these activities sooner than the PLL fleet because more suitable boats may be available and, if HP is the primary constraint, because HP can generally be increased relatively quickly. Nevertheless, it would still be some time before noticeable impacts are actually realized on the water.

Due to its proximity to the East Florida Coast PLL closed area, the swordfish handgear fishery is currently most active in the Straits of Florida, according to anecdotal information. This is the same area that has experienced a recent resurgence in recreational swordfish fishing. Therefore, unlike Alternative 2b, this alternative is not expected to increase the amount of fishing further offshore or reduce impacts in spawning or nursery areas, or areas populated with juvenile swordfish. It is anticipated that this alternative could increase gear conflicts with recreational anglers.

This alternative could increase swordfish landings and help to achieve the ICCAT-recommended domestic swordfish quota. In the long-term, positive benefits could result in improved collection and analysis of observer data, which would be especially beneficial for the swordfish handgear fishery.

In summary, this alternative would likely be effective at increasing domestic swordfish landings and more fully harvesting the U.S. swordfish allocation. In the long-term, positive benefits could result due to improved collection and analysis of observer data, which would be especially beneficial for the swordfish handgear fishery. However, alternative 2b is not preferred because it could result in adverse ecological impacts because there would be no limit on the size to which swordfish Handgear vessels could be upgraded. It is not possible to accurately predict the magnitude of impacts because the decision to upgrade is personal. Given these caveats, a rudimentary projection indicated that approximately 14 vessels in the 20 – 30 foot range might be upgraded to between 30 – 40 feet, and up to 300 – 400 HP. Caution is urged in relying too heavily on this projection because of the uncertainty regarding business owner's decisions. If many swordfish Handgear vessels are upgraded, there could be an increase in fishing effort and interactions with undersized swordfish. It is possible that this alternative also could increase gear conflicts with recreational anglers. These impacts, however, would not be fully realized in the short-term as purchase and/or construction would likely take months to complete. The Agency is concerned about potential adverse impacts and, at the present time, prefers to proceed precautiously with the development of a burgeoning commercial swordfish handgear fishery. As data becomes available regarding the newly authorized buoy gear fishery, the Agency may consider modifying the upgrading restrictions for swordfish Handgear permit holders in the

future, as part of a longer term strategy to address persistent underharvests of the U.S. swordfish allocation.

Alternative 2d would waive all HMS limited access vessel upgrading and permit transfer upgrading restrictions for 10 years, after which a new vessel baseline would be established and the 10 percent LOA, GRT, NT; and 20 percent HP restrictions would go back into effect. This alternative could potentially have the most severe adverse ecological impacts compared to the other alternatives because the universe of affected vessels is substantially larger, however it is not possible to precisely quantify the magnitude of impacts for the reasons discussed above.

Alternative 2d would not impose an upper limit on the magnitude of upgrades, and is inclusive of all vessels that possess an HMS limited access permit. As mentioned above, there are six different HMS limited access permits: 1) directed swordfish; 2) incidental swordfish; 3) swordfish handgear; 4) directed shark; 5) incidental shark; and, 6) tuna longline. Swordfish directed and incidental permits are valid only if the permit holder also holds both a tuna longline and a shark permit. Similarly, the tuna longline permit is valid only if the permit holder also holds both a limited access swordfish (directed or incidental, not handgear) and a shark permit. Swordfish handgear and shark permits are valid without another limited access permit. As of February 2006, there were 1,131 total HMS commercial fishing permits (191 directed swordfish, 86 incidental swordfish, 88 swordfish handgear, 240 directed shark, 312 incidental shark, and 214 tuna longline). However, there were only 604 actual permit holders since vessel owners may hold more than one permit.

Alternatives 2b and 2c were limited to vessels eligible to fish for swordfish and tunas with longline gear, and swordfish Handgear vessels, respectively. Alternative 2d includes those vessels, as well as all vessels that are eligible to fish for sharks. Therefore, approximately 376 additional vessels could be eligible for unlimited upgrades under this alternative (240 directed shark + 312 incidental shark – 176 vessels that eligible to fish with longline gear for tunas and swordfish). The analyses for Alternatives 2b and 2c indicated that approximately 55 or more PLL vessels, and approximately eight swordfish handgear vessels, might be upgraded by 1 – 100 percent under those alternatives. Information on the size and HP distribution for vessels possessing shark permits was not available for this document; therefore, no description is provided regarding the number and likely magnitude of any increases. It is assumed that all of these additional shark vessels could be upgraded under this alternative, but that few would take immediate advantage of the opportunity given current uncertainties in the domestic shark fishery. Also, Incidental shark permit holders are governed by retention limits for LCS, SCS and pelagic sharks. Directed shark permit holders are governed by retention limits for LCS. Unless a vessel's size prohibits the landing of these retention limits, or a Directed shark permit holder intends to land more SCS, a shark permit holder may not need to enlarge their vessel.

A recent stock assessment conducted in 2005 and 2006 found that the large coastal shark (LCS) stock status is unknown. Similarly, the stock status of Atlantic blacktip sharks is unknown. Gulf of Mexico blacktip sharks are not overfished and overfishing is not occurring. Sandbar sharks are overfished and overfishing is occurring. Finally, dusky sharks were found to be heavily exploited. A stock assessment for small coastal sharks (SCS) is anticipated for 2007. A 2002

stocks assessment for SCS found the biomass in any given year from 1972 – 2000 to exceed the biomass producing maximum sustainable yield (MSY). Relative fishing mortality (F/F_{msy}) was generally below one for the SCS complex, except for finetooth shark for which the values of F were above the level of F corresponding to MSY. Results of recent stock assessments for pelagic sharks are considered preliminary, due to limitations on quality and quantity of catch data. See the 2006 HMS Consolidated HMS FMP for a more complete description of these stock assessments. Given these recent stocks assessments and changes in the status of several species, NMFS is initiating an amendment to the domestic shark regulations. Until completion of that amendment, participants in the shark fishery may choose to wait on any major capital expenditures.

As indicated above, it is more likely than not that larger vessels would exert more fishing effort than smaller vessels, although that may not always be the case. Sharks, in particular, are governed by incidental retention limits, and directed limits for LCS, so larger vessels may not exert more effort if they are already able to land up to the retention limits. However, for this analysis it is assumed that, in general, larger vessels deploy more fishing hooks. Assuming that larger vessels deploy more fishing hooks, it is possible that Alternative 2d could produce adverse ecological impacts resulting from more interactions with target, non-target, and protected species. These impacts would include all of those, positive and negative, that were discussed for Alternatives 2b and 2c above. In addition, this alternative could result in impacts on sharks. Because the status of several shark species or complexes is unknown, it is difficult to characterize the impacts. Given their overfished status, any increased fishing effort on sandbar, dusky, or finetooth sharks would be considered negative. Some ecological impacts on target and protected species associated with this alternative might be mitigated by the Mid-Atlantic shark BLL closed area and pending requirements for shark BLL vessels to possess and utilize careful release and disentanglement equipment. Any adverse impacts associated with this alternative would not be realized in the short term. It would likely be months, if not years, before the full impacts reach fruition. This is because vessel upgrading, construction, and/or purchases take time to secure financing, place orders, and complete the necessary work. The most immediate impacts would likely result from vessel purchases and permit transfers to existing vessels.

This alternative could increase swordfish landings and help to achieve the ICCAT-recommended domestic swordfish quota because it incorporates all HMS limited access permits, including those discussed in Alternatives 2b and 2c. In the long-term, positive benefits could result in improved collection and analysis of observer data.

In summary, Alternative 2d is anticipated to result in the most severe adverse ecological impacts compared to the other alternatives because the universe of affected vessels is substantially larger, and because there would be no limit on the size to which all HMS limited access vessels could be upgraded. It is not possible to accurately predict, however, the magnitude of impacts that may result from this alternative because the decision to upgrade is personal. Given these caveats, rudimentary projections indicated that approximately 55 PLL vessels in the 40 – 60 foot range might be upgraded to between 60 – 80 feet; approximately 14 swordfish Handgear vessels in the 20 – 30 foot range might be upgraded to between 30 – 40 feet, and up to 300 – 400 HP; and, a

small number of the approximately 376 additional vessels with shark limited access permits would upgrade their vessels, given current uncertainties regarding the shark fishery such as upcoming SCS stock assessments and the upcoming amendment to the shark regulations. Again, caution is urged in relying too heavily on these projections because the previously discussed uncertainties regarding business owner's decisions. If many HMS limited access vessels are upgraded, there could be an unquantifiable increase in fishing effort and interactions with target, non-target and protected species. These impacts, however, would not be fully realized in the short-term as purchase and/or construction would likely take time to complete. This alternative would likely be effective at increasing domestic swordfish landings and more fully harvesting the U.S. swordfish allocation. Finally, in the long-term, positive benefits could result due to improved collection and analysis of observer data.

Alternative 2e, a preferred alternative, would establish new HMS limited access vessel upgrading and permit transfer upgrading restrictions only for HMS vessels that are authorized to fish with pelagic longline for swordfish and tunas, equivalent to 35 percent LOA, GRT, and NT, as measured relative to the baseline vessel specifications (i.e., the specifications of the vessel first issued an HMS limited access permit), and would remove HP upgrading and HP permit transfer upgrading restrictions for these vessels. Except for the No Action alternative, Alternative 2e is anticipated to have the lowest degree of adverse ecological impacts because it establishes an upper limit on vessel size and because it is restricted only to PLL vessels. However, for the same reasons discussed above in Alternative 2b, it is not possible to accurately predict how many vessels would be upgraded, or the anticipated future capacity of the fishery, because the prediction is dependent upon the personal choices of many individual boat owners.

Alternative 2e would impose an upper limit on the magnitude of vessel size upgrades (LOA, GRT, & NT) but not HP, and is restricted only to vessels that possess the permits necessary to fish for tunas and swordfish with pelagic longline gear (i.e., vessels that possess an Atlantic tunas longline permit, as well as limited access permits for swordfish and sharks). For purposes of analysis, the optimal size for Incidental and Directed swordfish vessels is assumed to range from 40 – 80 feet, based on the data in Figure 4. The smaller vessels range from 40 – 60 feet, and the larger vessels range from 60 – 80 feet. Assuming that all owners of vessels 40 – 70 ft. would consider upgrading to bigger vessels, Figure 4 indicates that up to 155 vessels might be increased in size by 25 to 35 percent (note: vessels that have already been upgraded by 10 percent would only be eligible for a 25 percent increase under this alternative). However, because only 65 percent of swordfish permit holders possess the requisite permits needed to fish with longline gear, up to 101 vessel owners would be likely to consider upgrading their vessels by 25 – 35 percent under this alternative. Finally, because 25 percent of swordfish Incidental and Directed permit holders also hold permits for Northeastern fisheries and may choose not to upgrade in order to retain their eligibility for these fisheries, it is projected that approximately 76 vessels might be upgraded. For an “average” 55-foot swordfish vessel, this would result in 69 – 74 foot vessel, depending upon whether the vessel has already been upgraded. At the opposite end of the spectrum, for the reasons discussed above, it is also possible that all PLL vessels could increase by 25 – 35 percent or, conversely, none of the PLL vessels would be upgraded.

As indicated above, it is more likely than not that larger vessels would exert more fishing effort than smaller vessels, although that may not always be the case. For this analysis it is assumed that, in general, larger vessels deploy more hooks.

Assuming that larger vessels deploy more fishing hooks, this alternative could produce adverse ecological impacts resulting from more interactions with non-target, and protected species. However, while fishing effort may increase by an unknown amount, the ecological impacts would be limited, especially in the short term. This is because PLL vessels will still be required to abide by quotas, deploy only large circle hooks, utilize specific baits, abide by minimum size restrictions, carry and utilize release and disentanglement gear, abide by retention limits, comply with vessel monitoring system requirements (VMS), and comply with large PLL closed area restrictions, among other measures. As described in the No Action alternative, these measures have significantly reduced bycatch in the PLL fishery since 2000. Also, any adverse impacts associated with this alternative are not likely to be realized in the short term. It may be months, and probably years, before the full impacts reach fruition. This is because PLL vessel upgrading, construction, and/or purchases take a long time to secure financing, place orders, and complete the necessary work. The most immediate impacts will likely result from vessel purchases and permit transfers to existing vessels.

Some positive ecological benefits could result from this alternative if vessels are upgraded and operators fish further offshore, thus dispersing effort and potentially reducing fishing activity in nearshore areas which are often spawning or nursery areas, or populated with juveniles. If more PLL vessels fish further offshore, potential gear conflicts could be reduced. This alternative could also increase swordfish landings and help to achieve the ICCAT-recommended domestic swordfish quota. If adverse ecological impacts remain in check, including interactions with sea turtles, protected, and non-target species, this alternative could have the positive benefit of demonstrating to other nations that sound conservation measures and an economically viable PLL fishery can go hand-in-hand. Finally, in the long-term, positive benefits could result in improved collection and analysis of observer data.

In summary, Alternative 2e is expected to have the lowest degree of adverse ecological impacts among all of the alternatives, except for Alternative 2a. To the degree that fishing effort correlates with vessel size, any adverse ecological impacts would be limited by the 35 percent restriction on size (LOA, GRT, & NT) that this alternative would impose. Also, because this alternative is restricted only to PLL vessel, any adverse ecological impacts would be mitigated by existing PLL management measures that have significantly reduced bycatch in recent years, including large PLL closed areas, circle hook and bait restrictions, minimum size restrictions, commercial quotas, retention limits, VMS requirements, and requirements to possess and utilize release and disentanglement equipment, among other measures. Caution is urged in relying too heavily on any projections under this alternative because of the uncertainty regarding business owner's decisions. Given these caveats, a rudimentary projection indicated that 76 PLL vessels in the 40 – 70 foot range might be upgraded to between 54 – 94 feet. For an “average” 55-foot swordfish vessel, this would result in 69 – 74 foot vessel, depending upon whether the vessel has already been upgraded. Unlimited HP upgrades would be allowed under this alternative, but HP is not a major factor influencing fishing effort in commercial longline fisheries. If many HMS

vessels are upgraded, there could be a corresponding increase in fishing effort and an increase in interactions with non-target and protected species. Existing PLL management measures that would remain in effect, however, would mitigate these. Also, any ecological impacts would not be fully realized in the short-term as vessel purchase and/or construction would take months, if not years, to complete. A potentially positive benefit associated with this alternative would be to provide additional opportunities for commercial PLL vessels to fish further offshore, thus relieving fishing effort on nearshore spawning, nursery, or juvenile grounds. Also, if PLL vessels are able to land more swordfish while minimizing bycatch and bycatch mortality as a result of this alternative, it could have positive long-term benefits internationally throughout the Atlantic basin. Finally, the collection and analysis of observer data could improve.

Social and Economic Impacts

Alternative 2a (No Action) would maintain the status quo. Under this No Action alternative, there would be no change in the current baseline economic and social impacts associated with previously implemented North Atlantic swordfish vessel upgrade restriction regulations.

The baseline of effected entities includes 604 unique HMS limited access permit holders. As of September 26, 2006, there were 176 vessels that were authorized to fish with longline gear for swordfish and tunas (*i.e.*, the vessel possessed a tuna longline permit and the appropriate limited access permits for swordfish and sharks). Of these 176 permitted vessels, only 110 reported PLL activity in the HMS logbook in 2005. As shown in Table 7, the number of active PLL vessels has decreased by about 50 percent since the upgrade restriction regulations became effective in 1999. Vessel upgrade restriction may have contributed to this decline by limiting vessel owners' ability to optimally configure their vessels to maximize their profits given changing ecological, regulatory, and market conditions.

Figures 4 and 5 provide the range of various length and horsepower configurations currently in use. Based on current permit data, it appears that a typical Directed or Incidental swordfish limited access vessel is approximately 55 feet in length and has a 425 horsepower engine. Similarly, a typical swordfish Handgear vessel may be approximately 35 feet in length and have 400 horsepower.

Aside from limiting overall fleet capacity, the rationale for selecting the current restrictions was based, in part, on maintaining consistency with existing limited access upgrading restrictions that were, and still are, in place for vessels issued limited access permits for fisheries of the Northeastern United States. As of September 25, 2006, 25 percent of vessels issued limited access Incidental or Directed swordfish permits, and 45 percent of vessels issued limited access swordfish Handgear permits, also possessed a limited access permit for fisheries of the Northeastern United States. Therefore, even if current upgrade restrictions are changed for HMS swordfish permit holders, many of these permit holders may be constrained in their ability to upgrade vessels if they wish to maintain their limited access permits for fisheries of the Northeastern United States.

Maintaining the status quo would continue several negative economic impacts associated with upgrading restrictions. First, as previously mentioned, vessels may not be optimally configured for current market conditions, and therefore profits may be less than optimal. Operators of smaller vessels and vessels with lower horsepower have indicated that they would be more inclined to fish more distant locations if they were allowed to upgrade their vessels. This message was conveyed during public meetings conducted in September 2006. Other vessel operators may wish to increase hull and fuel cell capacity to fish longer without offloading, and some may wish to increase their speed in order to reduce time at sea spent reaching and returning from fishing grounds.

Second, current upgrade restrictions may affect the ability of some vessels to carry observers onboard vessels, due to inadequate bunk or berthing space. Vessels that would otherwise be required to carry an observer, but are inadequate for purposes of carrying an observer and allowing for operation of normal observer functions, are prohibited from fishing without observer coverage. Observers are not required to board, or stay aboard, a vessel that is unsafe or inadequate. In some situations, the HMS vessel upgrading restrictions may be inadvertently preventing vessel owners from enlarging their vessels so that they can carry observers. This may result in lost earnings for those vessels selected for observer coverage that are not adequately equipped to carry an observer.

Third, some fishing vessels may wish to enhance their crew quarters in order to better attract and retain labor. Anecdotally, NMFS has heard that it has been increasingly difficult for vessel owners to retain crews. Enhancing crew quarters to more modern standards could help to attract and retain crewmembers and reduce labor costs by improving the quality of life at sea for crew and captains. However, current vessel upgrade restrictions may prevent these enhancements from occurring.

Finally, limitations on vessel upgrading may affect safety at sea. In general, a larger vessel is oftentimes more seaworthy than a smaller vessel, especially in rough seas. Current restraints on vessel size may also affect the ability to modernize or purchase new vessels.

Without some modification to the current upgrading restrictions, the swordfish fleet might continue to be limited in the ability to modernize, thus impacting its ability to retain crew, carry observers, and fish further offshore. The number of active PLL vessels could continue to decline along the current trajectory, and under harvests of the annual swordfish quota may continue to accrue. The following other alternatives considered may allow for greater flexibility, and provide for more efficient deployment of the swordfish fleet.

The potential economic benefits of the vessel upgrades would largely depend on future harvests, ex-vessel prices, fuel prices, and labor costs. These factors fluctuate, often dramatically, with market forces from year to year making any estimated benefits difficult to assess. Independent of those factors, however, vessel owners will gain the economic benefits associated with having the increased flexibility of adjusting the vessel configurations in terms of length and horsepower to best fit their business. In addition, vessel owners under this alternative would be able to better address the requirement to be able to safely take on observers, and thus avoid lost fishing time.

The potential to make vessel upgrades for expansion of bunk and berthing areas associated could enhance the quality of life for crew and captains providing intangible benefits and also potentially reducing the actual costs of retaining labor. Finally, the potential to lengthen vessels and upgrade engine horsepower might have important positive safety implications, especially for smaller vessels operating far offshore in areas prone to extreme weather.

Under each of the alternatives, vessel owners will have to weigh the costs of potentially upgrading the length or horsepower of their vessels by the potential economic benefits associated with an upgrade. Many vessel owners may choose not to upgrade, even with relaxed upgrade restrictions, because of the capital costs associated with upgrading. The main economic benefit associated with the following alternatives will likely be from not having to acquire a permit from a larger vessel, including the associated transaction costs, when an owner wishes to increase vessel size or horsepower.

The capital costs associated with potential upgrades are difficult to estimate. Large vessel length upgrades are not likely to occur by modifying existing vessels, according to several marine engineers and shipyards that NMFS contacted. They are more likely to result from the purchase of another vessel and the subsequent transfer of permits to that vessel. Horsepower upgrades are more likely to occur on existing vessels in conjunction with an engine replacement due to capital depreciation.

NMFS contacted several shipyards regarding the potential costs of new vessels and upgrades to existing vessels. The shipyards agreed that it is probably more economical to perform large vessel length increases by acquiring another larger vessel, than by modifying existing vessels. However, the estimated cost of building a new vessel is uncertain because few new vessels have been built since the upgrade restrictions were implemented in 1999, according to the shipyards contacted. The overall cost of upgrading would largely depend on the current size of the vessel, the age of the vessel, where the work will be done, financing costs, and whether an existing used vessel is available with the desired specifications, versus constructing a new vessel. For example, a 68 foot PLL vessel over 20 years old recently had a sales price of \$245,000, according to a vessel broker list. To better quantify the associated costs and potential scope of vessel upgrades, NMFS seeks comments from the public on the current market costs of upgrading PLL and swordfish Handgear vessels.

Alternative 2b would waive vessel upgrading and permit transfer upgrading restrictions for PLL vessels (*i.e.*, vessels that possess an Atlantic tunas longline permit, as well as limited access permits for swordfish and sharks) for 10 years, after which a new vessel baseline would be established and the 10 percent LOA, GRT, NT; and 20 percent HP restrictions would go back into effect. This alternative would likely have positive economic benefits for PLL vessel owners.

As discussed above under ecological impacts, approximately 176 vessels possess the requisite permits needed to fish with longline gear for swordfish. Of these, there are only 73 vessels that are 40 to 80 feet in length, which is likely the optimal size for swordfish vessels. Because 25 percent of swordfish Incidental and Directed permit holders also hold permits for Northeastern fisheries and may choose not to upgrade in order to retain their eligibility for these fisheries, it is projected that approximately 55 vessels might upgrade under this alternative. As discussed

above under the ecological impacts, the decision to upgrade a fishing vessel, or to purchase a new vessel and transfer the permits, would be a unique decision for each business based on their individual circumstances. The decision to upgrade or to not upgrade will largely depend on whether the returns expected from an upgrade outweigh the costs of planning the upgrade, construction, financing, time to complete the necessary work, age of their current vessel, and the forgone revenues associated with being out of the fishery while vessel work is being completed.

There could be some economic costs associated with expansion of capacity in the swordfish longline fleet. Any ecological impacts could potentially result in diminished quality of recreational fishing for swordfish or other species impacted by swordfish longline fishing. In addition, gear conflicts could arise if the declines in the commercial swordfish fleet reverse themselves due to any improved profitability of commercial longline vessels resulting from this proposed alternative. These factors could result in decreases in recreational anglers' willingness-to-pay to participate in recreational fishing and potentially a decline in demand for charter and headboat services. However, since larger swordfish PLL vessels are more likely to operate farther from shore, especially after upgrades, any potential gear conflicts with recreational anglers might be reduced under this alternative.

There could also be reductions in the value of limited access permits as a result of lifting the upgrade restrictions. The supply of usable permits for vessel owners that wish to upgrade under the current limited access regulations is restricted, since permits had to have sufficient length and horsepower characteristics in order to be transferred to a different or new vessel. The lifting of these restrictions would give a potential new entrant into the fishery a larger selection of permits to choose from since they would be able to select from a larger pool of potential permits for sale. This increased supply would reduce the value of limited access permits. However, any improvements in the profitability of the fishery might increase demand for permits and thus potentially offset any decreases in value as a result of the increased supply of usable permits.

Waiving vessel upgrade restrictions for vessels operating with longline gear would also have secondary and regional economic impacts. Shoreside support businesses such as shipyards, marine architects, and other commercial vessel suppliers could receive increased business from vessel owners wanting to upgrade under Alternative 2b. Fish dealers may need to expand their operations to handle any greater supplies of swordfish that could result from upgrades. However, if recreational fisheries are negatively impacted by any increases in pelagic longline vessel activity, shoreside support business for the recreational sector such as bait and tackle stores, hotels, and restaurants may see declines in business.

Alternative 2c would waive HMS upgrading and permit transfer upgrading restrictions for vessels issued Swordfish handgear permits for 10 years, after which a new baseline would be established and the 10 percent LOA, GRT, NT and 20 percent HP restrictions would go back into effect. This alternative would likely have positive economic benefits for swordfish handgear vessel owners. For the same reasons discussed in Alternative 2b, it is not possible to accurately predict how many vessels will be upgraded, or the anticipated future capacity of the fishery, because the prediction is dependent upon the personal choices of many individual boat owners.

The decision to upgrade a fishing vessel, or to purchase a new vessel and transfer the permits, would be a unique decision for each business based on their individual circumstances. This decision will largely depend on whether the returns expected from an upgrade outweigh the costs of planning the upgrade, construction, financing, time to complete the necessary work, age of their current vessel and the forgone revenues associated with being out of the fishery while vessel work is being completed.

Using the same assumptions discussed above under ecological impacts, it is estimated that this alternative would only potentially result in eight swordfish Handgear permit holders that might consider upgrading the length of their vessels, and eight that may potentially consider upgrading the horsepower of their vessels. Based on public comment during the September 2006 public meetings, it appears that horsepower is an important factor for swordfish Handgear vessel operators that want to take longer fishing trips.

The potential economic benefits of any vessel upgrades would largely depend on future harvests, ex-vessel prices, fuel prices, and labor costs. These factors fluctuate, often dramatically, with market forces from year to year making any estimated benefits difficult to assess. Independent of those factors, however, vessel owners will gain the economic benefits associated with having the increased flexibility of adjusting the vessel configurations in terms of length and horsepower to best fit their business. In addition, vessel owners under this alternative would be able to better address the requirement to be able to safely take on observers, and thus avoid lost fishing time. The potential to make vessel upgrades for the expansion of bunk and berthing areas could enhance the quality of life for crew and captains providing intangible benefits, and also potentially reducing the actual costs of retaining labor. Finally, the potential to lengthen vessels and upgrade engine horsepower might have important positive safety implications, especially for smaller vessels operating in areas prone to extreme weather.

Due to its proximity to the East Florida Coast PLL closed area, the swordfish handgear fishery is currently most active in the Straits of Florida, according to anecdotal information. This is the same area that has experienced a recent resurgence in recreational swordfish fishing. Therefore, unlike Alternative 2b, this alternative is not expected to increase the amount of fishing that occurs further offshore. Any ecological impacts from the commercial handgear fishery could potentially result in diminished quality of recreational fishing for swordfish or other species. In addition, gear conflicts could arise if the declines in the commercial swordfish fleet reverse themselves due to any improved profitability of commercial handgear vessels. These factors could result in decreases in recreational anglers' willingness-to-pay to participate in recreational fishing, and potentially a decline in the demand for charter and headboat services.

Waiving vessel upgrade restrictions for vessels operating with handgear under Alternative 2c would also have secondary and regional economic impacts. Shoreside support businesses such as shipyards, marine architects, and other commercial vessel suppliers could receive increased business from vessels owners wanting to upgrade under Alternative 2c. Fish dealers may need to expand their operations to handle any greater supplies of swordfish that may result from upgrades. However, if recreational fisheries are negatively impacted by any increases in

swordfish handgear vessel activity, shoreside support business for the recreational sector such as bait and tackle stores, hotels, and restaurants may see declines in business.

Alternative 2c would likely be effective at increasing domestic swordfish landings and more fully harvesting the U.S. swordfish allocation. However, there could be negative economic impacts on the recreational sector of the fishery and associated support industries. In addition, ecological impacts of increased activity by handgear vessels in more sensitive ecological areas may significantly reduce the overall net benefits of this alternative. However, the overall impact of this alternative is uncertain because it is difficult to predict to what extent swordfish handgear vessel owners would decide to upgrade their vessels.

Alternative 2d would waive all HMS limited access vessel upgrading and permit transfer upgrading restrictions for 10 years, after which a new vessel baseline will be established and the 10 percent LOA, GRT, NT; and 20 percent HP restrictions would go back into effect. This alternative could potentially have the most severe adverse ecological impacts compared to the other alternatives because the universe of affected vessels is substantially larger, however it is not possible to precisely quantify the magnitude of impacts for the reasons discussed above.

Alternatives 2b and 2c were limited to vessels eligible to fish for swordfish and tunas with longline gear, and swordfish Handgear vessels, respectively. Alternative 2d includes those vessels, as well as all vessels that are eligible to fish for sharks. Therefore, approximately 376 additional vessels could be eligible for unlimited upgrades under this alternative (240 directed shark + 312 incidental shark – 176 vessels that eligible to fish with longline gear for tunas and swordfish). It is assumed that all of these additional shark vessels could be upgraded under this alternative, but that few would take immediate advantage of the opportunity given current uncertainties in the domestic shark fishery. Also, Incidental shark permit holders are governed by retention limits for LCS, SCS, and pelagic sharks. Directed shark permit holders are governed by retention limits for LCS. Unless a vessel's size prohibits the landing of these retention limits, or a Directed shark permit holder intends to land more SCS, a shark permit holder may not need to enlarge their vessel.

Other economic benefits and costs are similar to Alternatives 2b and 2c including any secondary economic impacts to shoreside industries associated with fishing.

Alternative 2e, a preferred alternative, would establish new HMS limited access vessel upgrading and permit transfer upgrading restrictions only for HMS vessels that are authorized to fish with pelagic longline for swordfish and tunas, and remove HP upgrading and HP permit transfer upgrading restrictions for these vessels. Alternative 2e is anticipated to have slightly lower economic benefits to permit holders than Alternative 2d, but would likely have a very similar benefits as Alternative 2b, except that a few dramatic upgrades would not qualify under this alternative and there would be no reversion back to the current regulations after 10 years. However, for the same reasons discussed previously, it is not possible to accurately predict how many vessels would be upgraded, or the anticipated future capacity of the fishery, because the prediction is dependent upon the business decisions of many individual boat owners.

Alternative 2e would impose an upper limit on the magnitude of vessel size upgrades (LOA, GRT, & NT) but not HP, and is restricted only to vessels that possess the permits necessary to fish for tunas and swordfish with pelagic longline gear (*i.e.*, vessels that possess an Atlantic tunas longline permit, as well as limited access permits for swordfish and sharks). For purposes of analysis, as described above under the ecological impacts associated with this alternative, it was projected that approximately 76 PLL vessels might be upgraded. For an “average” 55-foot swordfish vessel, this would result in 69 – 74 foot vessel, depending upon whether the vessel has already been upgraded. At the opposite ends of the spectrum, for the reasons discussed above, it is also possible that all PLL vessels could increase by 25 – 35 percent or, conversely, none of the PLL vessels would be upgraded.

The potential economic benefits of the vessel upgrades would largely depend on future harvests, ex-vessel prices, fuel prices, and labor costs. These factors fluctuate, often dramatically, with market forces from year to year making any estimated benefits difficult to assess. Independent of those factors, however, vessel owners will gain the economic benefits associated with having some increased flexibility of adjusting the vessel configurations in terms of length and horsepower to best fit their business. However, that flexibility will be capped for increases in vessel length, gross tonnage, and net tonnage, unlike Alternatives 2b, 2c, and 2d. In addition, vessel owners under this alternative would be able to better address the requirement to be able to safely take on observers, and thus avoid lost fishing time. The potential to make vessel upgrades, such as the expansion of bunk and berthing areas, would still likely be possible within the 35 percent restriction, which could enhance the quality of life for crew and captains, thereby providing intangible benefits and possibly reducing the actual costs of retaining labor. The potential to lengthen vessels and upgrade engine horsepower might have important positive safety implications, especially for smaller vessels operating far offshore in areas prone to extreme weather. Finally, improving the ability of PLL vessels to fish further offshore could relieve fishing pressure in ecologically sensitive areas and reduce gear conflicts, which would benefit the recreational sector.

There could be some economic costs associated with expanding capacity in the swordfish fleet. Any adverse ecological impacts associated with alternative 2e, such as increased commercial swordfish landings, could potentially diminish the quality of recreational fishing for swordfish or other species. This could result in decreases in recreational anglers’ willingness-to-pay to participate in recreational fishing and potentially a decline in demand for charter and headboat services.

There could also be some small reductions in the value of limited access permits as a result of relaxing the upgrading restrictions. The supply of usable permits for vessel owners that want to upgrade under the current limited access regulations is restricted, since permits had to be of sufficient length and horsepower characteristics in order to be transferred to a different or new vessel. Removing the horsepower restriction and increasing the size upgrade allowance would give a potential new entrants into the fishery a larger selection of permits to choose from since they would be able to select from a larger pool of potential permits for sale. This increased supply would reduce the value of limited access permits. However, any improvements in the profitability of the fishery might increase demand for permits and thus potentially offset any decreases in value as a result of the increased supply of usable permits.

Modifying vessel upgrade restrictions for vessels operating with pelagic longline gear under Alternative 2e would also have secondary and regional economic impacts. Shoreside support businesses such as shipyards, marine architects, and other commercial vessel suppliers could receive increased business from vessels wanting to upgrade under this alternative. Fish dealers may need to expand their operations to handle any greater supplies of swordfish that may result from upgrades. However, if recreational fisheries are negatively impacted by any increases in pelagic longline and handgear vessel activity, shoreside support business for the recreational sector such as bait and tackle stores, hotels, and restaurants may see declines in business.

Conclusion

In conclusion, fishing effort could increase under any of the alternatives considered for modifications to the limited access vessel upgrading restrictions, except for the No Action alternative. However, it is not possible to quantify the extent of any potential increase because it is dependent upon the decisions of hundreds of individual vessels owners. Preferred Alternative 2e is expected to have the lowest degree of adverse ecological impacts, except for the No Action alternative, because it imposes a limit of 35 percent on size (LOA, GRT, & NT) and is restricted only to PLL vessels. Any potential adverse ecological impacts would be mitigated by existing PLL management measures that have significantly reduced bycatch in recent years, including large PLL closed areas, circle hook and bait restrictions, a commercial billfish possession prohibition, minimum size restrictions, limited access permits, commercial quotas, retention limits, authorized gears, VMS requirements, dealer and vessel logbook reporting, and requirements to possess and utilize release and disentanglement equipment, among other measures. Potential impacts on target, non-target, and protected species are not likely to be realized for months, and possibly years, because of the time necessary to complete vessel upgrading. For these reasons, NMFS does not expect significant adverse ecological impacts from the preferred alternative.

The overall social and economic impacts associated with the upgrading alternatives are similarly not possible to quantify, because they depend upon the decisions of vessels owners to upgrade. However, in general, positive social and economic impacts are anticipated. Vessel owners would gain economic benefits by having increased flexibility to adjust their vessel configurations to better fit their business. In addition, they would have a better ability to safely carry observers, and could avoid lost fishing time. The ability to upgrade could also enhance the quality of life for crew and captains by providing larger, more comfortable, and more modern vessels. Finally, the potential to lengthen vessels and upgrade engine horsepower might have important positive safety implications, especially for smaller vessels operating far offshore in areas prone to extreme weather. The preferred alternative is not expected to adversely affect recreational fishing, as larger PLL vessels may be more likely to fish further offshore and away from ecologically sensitive nearshore areas.

4.3. Impacts on Essential Fish Habitat

The Magnuson-Stevens Act requires NMFS to evaluate the potential adverse effects of fishing activities on EH. If NMFS determines that fishing gears are having an adverse effect on HMS EFH, or other species EFH, then NMFS must include management measures that minimize adverse effects to the extent practicable. At this time, there is no evidence to suggest that any of

the preferred alternatives or proposed management measures in this Environmental Assessment are affecting EFH to the extent that detrimental effects can be identified on the habitat or fisheries. No HMS gear, other than potentially bottom longline gear, is considered to have an adverse effect on EFH. New information presented in the Gulf of Mexico and Caribbean Fishery Management Council EFH FEIS's (2004) suggest that bottom longline gear may have an adverse affect on coral reef habitat, which serves as EFH for certain reef fishes. As a result, NMFS has made a preliminary determination that bottom longline gear may have an adverse effect on EFH for other federally managed species. An assessment of whether HMS bottom longline gear used primarily to target LCS is fished in coral reef areas and, if so, the intensity, extent, and frequency of such impacts, including any measures to minimize potential impacts, will be addressed in a subsequent rulemaking. The following measures considered in this Environmental Assessment are not expected to adversely impact HMS EFH, or EFH from other Federal or non-Federally managed species

Preferred Alternative 1c would increase swordfish retention limits for vessels issued a limited access Incidental swordfish permit. Swordfish are commercially caught primarily on pelagic longline gear. As described in the Consolidated HMS FMP, pelagic longline gear is suspended in the water column and does not touch the bottom substrate (NMFS, 2006). Because of the nature of PLL fishing gear and because the proposed action is not expected to significantly change fishing practices or effort, it is unlikely that this alternative would alter the habitat for prey species or essential fish habitat.

Preferred Alternatives 1e and 1f would increase the vessel limit for swordfish caught on HMS CHB vessels, and Angling category vessels, respectively. These alternatives would not change the per person limit. Swordfish are recreationally caught primarily using rod & reel and handlines. This gear is suspended in the water column and does not touch the bottom substrate. Because of the nature of recreational swordfish fishing gear and because the proposed action is not expected to significantly change fishing practices or effort, it is unlikely that these alternatives would alter the habitat for prey species or essential fish habitat.

Preferred Alternative 2e would modify upgrading restrictions for vessels that are eligible to fish with pelagic longline gear for tunas and swordfish (*i.e.*, vessels that possess an Atlantic tunas longline permit, as well as limited access permits for swordfish and sharks). As described in the Consolidated HMS FMP, pelagic longline gear is suspended in the water column and does not touch the bottom substrate (NMFS, 2006). Because of the nature of PLL fishing gear, it is unlikely that this alternative would significantly alter the habitat for prey species or essential fish habitat. However, because each of these vessels also possess a shark permit, it is possible that some increase in BLL fishing activity could occur. If bottom longline gear becomes hung or entangled on bottom substrates such as rock, and hard and soft corals, it could have some adverse impacts. An assessment of whether HMS bottom longline gear used primarily to target LCS is fished in coral reef areas and, if so, the intensity, extent, and frequency of such impacts, including any measures to minimize potential impacts, will be addressed in a subsequent rulemaking. The 1999 NMFS EFH Workshop categorized the impact of bottom longline gear on mud, sand, and hard-bottom as low. As a precautionary measure, NMFS recommends that fishermen take appropriate steps to identify and avoid bottom obstructions in order to mitigate

any adverse impacts on EFH. The other gear types used to target sharks, such as gillnet or pelagic longline, are unlikely to have any impact on EFH.

4.4. Impacts on Other Finfish Species

PLL fishing effort, in terms of the number of active vessels, has precipitously declined since 1994, as shown in Table 7 above. The preferred management measures discussed in this document are not expected to closely approach the historical levels of fishing effort that have occurred, but rather are intended to provide a reasonable opportunity for U.S. vessels to harvest the ICCAT recommended domestic swordfish quota as required by the Magnuson-Stevens Act and ATCA.

As described in the sections above, the preferred alternatives for Incidental and recreational swordfish retention limits are not expected to significantly alter fishing practices or effort, but rather will allow fishermen to retain swordfish that otherwise would have been discarded due to current retention limits. If PLL vessel operators deploy additional sets to retain 28 additional swordfish, a modest increase in fishing effort is possible. However, only limited ecological impacts on non-target species are anticipated because PLL vessels are required to deploy only large circle hooks, utilize specific baits, carry release and disentanglement gear, comply with quotas, comply with VMS, abide by minimum size restrictions, and may not fish in large PLL closed areas, among other measures. As described above under Alternative 1a in Section 4.1, these measures have significantly reduced bycatch in the PLL fishery since 2000, and would be expected to continue to mitigate impacts on other finfish species.

The preferred alternative that would modify vessel upgrading requirements for vessels that possess an Atlantic tunas longline permit, as well as limited access permits for swordfish and sharks, may increase fishing effort in the long term, and could result in additional interactions with other finfish species. However, while fishing effort may increase by an unquantifiable amount, the ecological impacts are expected to be limited, especially in the short term. This is because PLL vessels will continue to be required to abide by quotas, deploy only large circle hooks, utilize specific baits, abide by minimum size restriction, possess and utilize release and disentanglement gear, abide by retention limits, comply with VMS requirements, and be prohibited from fishing in large PLL closed areas, among other measures. As described under Alternative 1a in Section 4.1, these measures have significantly reduced bycatch in the PLL fishery since 2000, and are expected to continue to mitigate impacts on other finfish species. Further, any adverse impacts associated with this alternative are not likely to be realized in the short term. It may be months, and probably years, before the full impacts reach fruition. This is because PLL vessel upgrading, construction, and/or purchases take a long time to secure financing, place orders, and complete the necessary work.

4.5. Impacts on Protected Species Listed under the Endangered Species Act or Marine Mammal Protection Act

As described above in this section, the preferred alternatives in this document are not expected to significantly alter fishing practices or fishing effort. As shown in Table 7, overall PLL fishing effort, in terms of the number of active vessels, has precipitously declined since 1994. The preferred management measures in this document are not expected to result in levels of fishing effort that closely approach the historical levels shown in Table 7. Rather, the preferred alternatives are intended to provide a reasonable opportunity for U.S. vessels to harvest the ICCAT recommended domestic swordfish quota, as required by the Magnuson-Stevens Act and ATCA.

The preferred measures for Incidental and recreational swordfish retention limits would allow fishermen to retain swordfish that otherwise would have been discarded due to the existing low incidental and recreational swordfish retention limits. If PLL vessel operators deploy additional sets to retain 28 additional swordfish, a modest increase in fishing effort could result. However, only limited ecological impacts on non-target species and protected species are anticipated because PLL vessels will continue to be required to deploy only large circle hooks, utilize specific baits, utilize release and disentanglement gear, comply with quotas, comply with VMS, abide by minimum size restrictions, and comply with large PLL closed area restrictions, among other measures. As described in the two No Action alternatives, these measures have significantly reduced bycatch in the PLL fishery since 2000, and are expected to continue to mitigate impacts on non-target and protected species if the preferred alternatives are implemented.

The preferred alternative that would modify vessel upgrading requirements for vessels that possess an Atlantic tunas longline permit, as well as limited access permits for swordfish and sharks, may increase fishing effort in the long term, and could result in additional interactions with protected species. However, while fishing effort may increase by an unquantifiable amount, the ecological impacts are expected to be limited, especially in the short term. This is because PLL vessels will continue to be required to abide by quotas, deploy only large circle hooks, utilize specific baits, abide by minimum size restriction, possess and utilize release and disentanglement gear, abide by retention limits, comply with VMS requirements, and be prohibited from fishing in large PLL closed areas, among other measures. These measures have significantly reduced bycatch in the PLL fishery since 2000, and are expected to continue to mitigate impacts on non-target and protected species. Further, any adverse impacts associated with this alternative would not likely to be realized in the short term. It could be months, and probably years, before the full impacts reach fruition. This is because PLL vessel upgrading, construction, and/or purchases take a long time to secure financing, place orders, and complete the necessary work.

Thus, NMFS believes that these alternatives do not change the conclusion of, nor would they result in effects that have not been considered in, the June 2001 and June 2004 BiOps. In addition to the many management measures that have been implemented since 2000 to reduce bycatch and bycatch mortality in PLL fisheries, the overall number of active PLL vessels has precipitously declined since those BiOps were developed by approximately 45 percent since 2000, and by 16 percent since 2003. Similarly, for these same reasons, the proposed alternatives

in this document are not expected to increase the number or rate of interactions with marine mammals. The Office of Sustainable Fisheries is currently consulting with Office of Protected Resources and has asked for concurrence with the determination that the proposed action is not likely to further impact endangered species or marine mammals.

4.6. Environmental Justice Concerns

Executive Order 12898 requires that Federal actions address environmental justice in the decision-making process. In particular, the environmental effects of the actions should not have a disproportionate effect on minority and low-income communities. The proposed actions in this document would not have any effects on human health. Additionally, the proposed actions are not expected to have any social or economic effects and should not have a disproportionate effect on minority and low-income communities.

4.7. Coastal Zone Management Act Concerns

NMFS has preliminarily determined that the proposed regulations would be implemented in a manner consistent to the maximum extent practicable with the enforceable policies of those Atlantic, Gulf of Mexico, and Caribbean coastal states that have approved coastal zone management programs. The proposed regulations will be submitted to the responsible state agencies for their review under Section 307 of the Coastal Zone Management Act upon filing with the Federal Register.

4.8. Comparison of the Alternatives

Table 8 compares the impacts of the various alternatives considered in this document. The symbols “+”, “-”, and “0” refer to positive, negative, and zero impacts, respectively. Minor impacts, and impacts that are possible but unlikely, are denoted with a single plus or minus sign. Moderate impacts are denoted with a double plus or minus sign, and significant impacts are denoted with a triple plus or minus sign. Please refer to the preceding sections for additional explanations of the impacts associated with each alternative.

Table 8. Comparison of the Alternatives

Alternative	Ecological Impacts	Economic Impacts	Social Impacts
Topic 1 – North Atlantic Swordfish Retention Limits			
1a (no action)	+	--	--
1b (waive incidental SWO limits until 70% of quota, & 10 SWO for squid)	--	++	++
<i>1c – Preferred (30 incidental & 15 squid)</i>	-	+	+
1d (15 incidental & 10 squid)	-	+	+
<i>1e – Preferred (1 per person up to 6 charter & 15 headboat)</i>	0/-	++	++
<i>1f – Preferred (1 per person up to 4 Angling)</i>	0/-	0	++
Topic 2 – HMS Limited Access Vessel Upgrading Restrictions			
2a (no action)	+	--	--
2b (waive for PLL 10 yr.)	--	++	++
2c (waive for Handgear 10 yr.)	--	++	+
2d (waive for all 10 yr.)	---	++	+
<i>2e – Preferred (size 35% waive HP)</i>	-	+	+

4.9. Cumulative Impacts

The proposed alternatives are intended to address cumulative economic impacts, particularly on the domestic PLL fishery, that have resulted from several years of restrictive management measures and had the unintended effect of preventing the U.S. from harvesting its full ICCAT recommended domestic swordfish quota. Taking into consideration the management measures implemented through the 1999 HMS FMP, the August 2000 bycatch and time/area closure rule, the July 2004 rule implementing the BiOp measures (*i.e.*, circle hooks, release gears, etc.), and the 2006 Consolidated HMS FMP, NMFS does not expect any adverse cumulative ecological impacts from this proposed rule. The previous actions were implemented primarily to reduce bycatch and bycatch mortality in the PLL fishery. As discussed under the ecological impacts section, they have been very effective, but have also contributed to large domestic quota underages for both the North and South Atlantic swordfish quotas since 2000. The proposed actions would relax some management measures and provide a reasonable opportunity for U.S. fishermen to fully harvest the domestic swordfish quota, but they are not expected to create large changes in fishing practices or effort, or cause significant ecological, economic, or social impacts. This is because the most critical bycatch reduction and fishery management measures (time/area closures, circle hooks, quotas, LCS retention limits, reporting requirements, minimum sizes, etc.) would remain in effect. NMFS will continue to monitor effort levels in the PLL fishery and will take action as needed if effort levels, and therefore interactions with protected

species or other bycatch, increase. In all, the proposed actions would continue to prevent overfishing and facilitate rebuilding of swordfish stocks, while relieving some cumulative adverse economic and social impacts that have resulted from previous management actions.

There are three preferred alternatives for swordfish retention limits (1c, 1e and 1f). Based on the number of trips reported by incidental permit holders from 2002-2005, under alternative 1c, if incidental swordfish permit holder choose only to retain fish that were previously discarded (up to 30 fish), swordfish landings could increase from 10,787 lb (dw) to 34, 879 lb (dw). If all incidental swordfish permit holders choose to retain 30 fish, swordfish landings could increase from 10,787 lb (dw) to 445, 116 lb (dw). Also, under alternative 1c, landings by squid trawlers could increase from 10,443 lb (dw) (6.3 mt ww) to 31,328 lb (dw) (18.9 mt ww). Thus, alternative 1c is not expected to result in an exceedance of the current 656,807 lb (dw) incidental swordfish quota allocation, based on current levels of fishing effort (trips).

Preferred alternative 1e would implement a North Atlantic swordfish retention limit for HMS CHB vessels of one fish per paying passenger, up to six swordfish per trip for charter vessels and 15 swordfish per trip for headboat vessels. Assuming that the same proportion of trips continue to land the retention limit as in 2005, an additional 32 to 409 swordfish would be landed.

Preferred alternative 1f, would implement a North Atlantic swordfish retention limit for HMS Angling category vessels of one fish per person, up to four swordfish per trip. Assuming that the same proportion of trips continue to land the retention limit as in 2005, an additional 18 to 569 swordfish would be landed.

It is not possible to quantify anticipated swordfish landings that might as a result of modifying PLL vessel upgrading restrictions under preferred alternative 2e, because the prediction is dependent upon the personal choices of many individual boat owners. However, it is possible that approximately 76 vessels might be upgraded. For an “average” 55-foot swordfish vessel, this would result in 69 – 74 foot vessel, depending upon whether the vessel has already been upgraded. At the opposite end of the spectrum, it is also possible that all PLL vessels could increase by 25 – 35 percent or, conversely, none of the PLL vessels would be upgraded. In all of these scenarios, the swordfish PLL fishery would continue to be regulated by existing management measures.

There are several activities in the foreseeable future that may have an impact on the management of North and South Atlantic swordfish. In November 2006, ICCAT is scheduled to meet and, based on the results of the new stock assessment, may approve new management and quota recommendations. This could necessitate a future rulemaking.

As described in Section 1.2, NMFS may also consider additional future actions as part of a long-term strategy to revitalize the swordfish fishery. It is likely that implementation of these measures would require the development of an FMP amendment and an environmental impact statement (EIS). Other measures could require interagency cooperation to enable their implementation. The following suggestions were put forth for consideration by NMFS at six meetings conducted during September 2006, and at the HMS Advisory Panel meeting in October 2006:

Time/Area Closures – The current PLL time/area closures were implemented based upon catch and discard data when the fleet was using J-hooks. Since then, circle hooks have become mandatory in the PLL fleet. Therefore, additional information from controlled experiments comparing catch and bycatch rates between circle hooks and J-hooks would be beneficial. Using this data and data obtained from logbooks since the implementation of circle hooks, NMFS intends to analyze alternatives regarding time/area closures.

Vessel Upgrading Restrictions – Based upon information obtained from the proposed action, including landings and discard data, NMFS could consider additional modifications to HMS limited access vessel upgrading restrictions, if warranted.

Live Bait Prohibition in the GOM - Current prohibitions on the use live bait in the Gulf of Mexico PLL fishery were established based upon data obtained when the fleet was using J-hooks. Since then, circle hooks have become mandatory in the PLL fleet. Therefore, additional information from controlled experiments to evaluate bycatch levels using live bait and circle hooks would be beneficial. Based on this data, NMFS could analyze alternatives regarding the use of live bait in the GOM.

HMS Permits: Modifications, including gear-based permits, reopening limited access permits, and modifying the qualification criteria for HMS limited access permits, may be considered.

Individual Transferable Quotas (ITQs) and Individual Fishing Quotas (IFQs) – ITQs or IFQs for swordfish and other HMS may be considered.

In addition to these HMS management measures, other recommendations put forth by the public as part of a long-term strategy to revitalize the swordfish industry would likely require interagency, congressional, or industry action. These include: financial assistance (fuel subsidy, loans for vessel upgrading); marketing assistance (seafood promotion, press releases, product certification); and, action to examine the effects of swordfish imports on the domestic industry.

5.0 MITIGATION AND UNAVOIDABLE ADVERSE IMPACTS

5.1 Mitigating Measures

This action does not propose any new mitigating measures for increasing Incidental and recreational swordfish retention limits or modifying PLL vessel upgrading restrictions. However, each of the preferred alternatives would impose some limitations on the management measures being considered to prevent an uncontrolled expansion of effort in the fishery. For example, an incidental retention limit of 30 swordfish is proposed, which is just below the median level of landings in the directed fishery. This may prevent additional directed fishing on swordfish, and would retain the incidental characteristic of the permit. In the recreational fishery, the current one fish per person swordfish limit would remain in effect, but the upper vessel limit would be modified to accommodate vessels that may carry more than three people. With regards to vessel upgrading restrictions, the preferred alternative would apply only to PLL vessels, and is limited to no more than a 35 percent increase in vessel size (relative to the baseline vessel). NMFS currently has several restrictions in place that are expected to continue

to successfully mitigate any potential increases in interactions with target, non-target, and protected species such as time/area closures, limited access permits, landing restrictions, VMS requirements, quotas, minimum size limits, dealer and vessel reporting requirements, circle hook requirements, bait restrictions, and sea turtle handling and release protocols.

An analysis prepared for the 2006 Consolidated HMS FMP indicated that the PLL time/area closures alone have resulted in large declines in fishing effort and bycatch from the 1997 – 1999 period to the 2001 – 2003 period. Overall effort, expressed as the number of hooks set, declined by 15 percent between the two time periods. Declines in discards attributable to the closures have been even more sizeable. For example, the overall number of reported discards of swordfish, bluefin tuna, bigeye tuna, pelagic sharks, blue marlin, white marlin, sailfish and spearfish have all declined by more than 30 percent. Discards of blue and white marlin declined by more than 50 percent, and sailfish discards declined by almost 75 percent. Also, the reported number of sea turtles caught and released declined by almost 28 percent due to the time/area closures alone. In addition, the number of active fishing vessels has declined precipitously by approximately 45 percent since 2000. For these reasons, NMFS does not expect that the modest relief provided by the preferred alternatives would have major adverse ecological, economic, or social impacts so no mitigating measures are proposed. NMFS will continue to monitor the pelagic longline fishery and will take appropriate action if interactions with protected species, or other bycatch, increase.

5.2. Unavoidable Adverse Impacts

The proposed alternatives will assist NMFS in achieving the objective of this rulemaking and the Magnuson-Stevens Act, but will have some unavoidable adverse impacts resulting from a potential limited increase in fishing effort, including potential sea turtle and marine mammal interactions. Because the proposed measures are not expected to substantially alter fishing practices or fishing effort, NMFS expects that the bycatch and bycatch mortality of endangered species or marine mammals would remain within the estimated mortalities of the incidental take statement considered in the June 2001 Biological Opinion (BiOp) on Atlantic HMS Fisheries and the June 2004 BiOp for the HMS pelagic longline fisheries.

5.3. Irreversible and Irretrievable Commitment of Resources

The proposed alternative would assist NMFS in achieving the objective of this rulemaking and the Magnuson-Stevens Act and are not expected to have any irreversible or irretrievable commitments of resources.

6.0 ECONOMIC EVALUATION

This section assesses the economic impacts of the alternatives presented in this document. Additional economic and social considerations and information are discussed in Chapters 3, 4, 7, 8, and 9 of this document.

6.1. Number of Fishing and Dealer Permit Holders

In order to examine the baseline universe of entities potentially affected by the preferred alternatives, NMFS analyzed the number of permits that were issued as of February 2006 in conjunction with HMS fishing activities. The following tables provide data on sectors that the proposed alternatives may impact.

As of February 2006, there were a total of 365 commercial permit holders in the Atlantic swordfish fishery (191 directed, 86 incidental permits, and 88 handgear). As of September 26, 2006, approximately 176 of these of these vessels had “valid” swordfish permits because they possessed the requisite three limited access permits for swordfish, shark and tunas longline permits. Of those, approximately 48 vessels possess “valid” Incidental swordfish permits. Table 6.1 provides a summary of these permit holders by year. Further detail regarding commercial permit holders is provided in the HMS FMP.

Table 9. Swordfish Limited Access Permits Between 2002 and 2006. Data for 2001-2005 are as of October 1 for each year.

Year	# Directed Swordfish	# Incidental Swordfish	# Swordfish Handgear
2006*	191	86	88
2005	190	91	92
2004	195	99	96
2003	206	99	95
2002	205	110	94

* Totals for 2006 are as of February 1, 2006

Table 10. HMS CHB Permits by State as of February 1, 2006.

State	CHB permits	State	CHB Permits
AL	76	NH	47
CT	91	NJ	643
DE	129	NV	--
FL	673	OH	2
GA	31	PA	11
LA	93	PR	27
MA	557	RI	163

State	CHB permits	State	CHB Permits
MD	198	SC	141
ME	64	TN	--
MI	2	TX	166
MS	32	VA	142
NC	465	VI	18
NY	373	Other	23
Total		4,173	

The number of HMS Angling category permits was 25,238 as of February 1, 2006. There is no specific swordfish angling permit, so it is not possible to determine the number of recreational anglers that specifically target swordfish.

The preferred alternatives analyzed for this proposed rule could impact Directed and Incidental swordfish permit holders, as well as HMS CHB and Angling category permit holders. The tables and numbers presented above indicate that a total of 29,411 HMS CHB and Angling permit holders could be directly affected by the proposed alternatives regarding CHB and Angling swordfish retention limits; approximately 48 vessel owners possessing valid Incidental swordfish permits could be affected by the proposed alternative regarding incidental swordfish retention limits; and, approximately 176 vessel owners possessing valid swordfish permits could be affected by the preferred alternative regarding PLL vessel upgrading restrictions. In total, the proposed actions could impact approximately 29,587 HMS permit holders. 4,397 of these permit holders are considered small entities.

6.2. Gross Revenues of Fishermen

NMFS calculates gross revenues by combining current federal permit holders with their reported logbook landings for 1999 to 2005. These landings are then multiplied by average prices (by region) for swordfish obtained from dealer reporting.

Table 11. Estimates of the total ex-vessel annual revenues of Atlantic Swordfish HMS fishery.
Sources: NMFS, 2006 and HMS Dealer Reporting forum.

Year	Ex-vessel \$/lb (dw)	Weight lb (dw)	Fishery Revenue
1999	\$3.38	5,942,839	\$20,104,498
2000	\$3.51	4,832,384	\$16,974,346
2001	\$3.74	5,662,350	\$21,153,927
2002	\$3.20	5,985,489	\$19,150,819
2003	\$3.13	4,668,466	\$14,600,627

Year	Ex-vessel \$/lb (dw)	Weight lb (dw)	Fishery Revenue
2004	\$3.57	4,317,369	\$15,391,422
2005	\$3.71	TBD	TBD

Of all Atlantic HMS fisheries, swordfish brings in the highest total gross revenues (~\$15.4 million total in 2004) for any single species. If gross revenues from the swordfish fishery are averaged across the approximately 110 active PLL vessels, then the average annual gross revenue from swordfish fishing is just under \$140 thousand per vessel per year. In recent years, swordfish ex-vessel prices and total revenues have gradually been recovering from a low in 2004.

Table 12 provides data on the prices swordfish fishermen received at the dock. Mean values for ex-vessel prices were derived from the HMS Dealer reporting forms submitted to the NMFS Southeast Regional Office (SERO) and Northeast Regional Office (NERO). Table 12 reports ex-vessel prices by region and year for swordfish.

The ex-vessel price data indicates fairly stable national average ex-vessel prices since 1999, with prices fluctuating between \$3.13 and \$3.74. However, prices have not risen over time to keep up with inflation. Over the past two years however, it appears that ex-vessel prices are beginning to trend upward.

Table 12. Swordfish ex-vessel prices by region. Source: HMS Dealer reports submitted to the South East Regional Office (SERO) and Northeast Regional Office (NERO).

Region	Year						
	1999	2000	2001	2002	2003	2004	2005
North Atlantic	\$3.45	\$3.87	\$4.67	\$3.47	\$3.33	\$4.06	\$3.78
Mid Atlantic	\$3.47	\$3.67	\$3.53	\$3.25	\$2.97	\$3.37	\$3.70
South Atlantic	\$3.27	\$3.24	\$3.43	\$3.14	\$3.26	\$3.52	\$3.80
Gulf of Mexico	\$3.35	\$3.25	\$3.31	\$2.91	\$2.95	\$3.31	\$3.44
All Regions	\$3.38	\$3.51	\$3.74	\$3.20	\$3.13	\$3.57	\$3.71

6.3. Variable Costs and Net Revenues

In 2003, NMFS initiated mandatory cost-earnings reporting for selected vessels to improve the economic data available for all HMS fisheries. In the past, most of the studies regarding pelagic longline variable costs and net revenues that were available to NMFS analyzed older data from 1996 and 1997. The HMS FMP provides a summary of several past studies on the variable costs and net revenues of longline fleets.

An analysis of the 2004 HMS logbook cost-earnings data provides updated information regarding the costs and revenue of a cross section of vessels operating in the HMS fisheries. The

data contains a total of 579 trips taken by 51 different vessels. As described in Larkin *et al.* (2000), median values are reported. Median gross revenues per trip for 2004 were approximately \$12,112. Median total costs per trip were \$4,345 (compared to \$3,320 in the Larkin *et al.* (2000) study), with fuel costs making up \$567 (13 percent) of those costs. Median net revenue in this sample was \$6,728 per trip (compared to \$8,624 in the Larkin *et al.* (2000) study). The typical trip was nine days long and involved six sets. The median number of crew was three and the average share paid to crew was 11 percent of net revenue (\$740 per trip). The captain's share of net revenue was 20 percent (\$1,346) and the owner's share was reported to be 50 percent (\$3,364). The 2004 cost earnings information is similar to the findings of the 1996 study, but gross revenues appear to be lower than the Porter *et al.* (2001) study of 1997 operations.

6.4. Expected Economic Impacts of the Alternatives Considered

NMFS considered and analyzed two major topics for revitalizing the North Atlantic swordfish fishery. This first topic considered alternatives to address the North Atlantic swordfish retention limits. Six alternatives were considered for swordfish retention limits, including a No Action alternative. The second topic focused on alternatives to address HMS limited access vessel upgrading restrictions. NMFS analyzed five alternatives regarding HMS limited access vessel upgrading restrictions. The following sections below discuss the economic impacts of the various alternatives considered.

Alternative 1a

Under Alternative 1a (No Action), NMFS would maintain the status quo. Under this no action alternative, there would be no change in the current baseline economic and social impacts associated with previously implemented North Atlantic swordfish retention limit regulations.

The current swordfish incidental retention limits are not having a substantial economic or social impact on the fishing sector based on permit and logbook records. There are 48 vessels that currently hold valid Incidental Swordfish permits (*i.e.*, they possess limited access swordfish, shark, and tuna longline permits). As indicated previously in the ecological impacts section, 81 percent of incidental trips did not report any discards. Furthermore, 64 percent of trips did not land any swordfish. Therefore, the majority of Incidental Swordfish permitted vessels did not land or discard swordfish.

However, the percentage of trips that reported keeping no swordfish generally had the highest swordfish discards. In fact, one trip that did not keep swordfish reported 52 discards. If any discards were attributable to exceeding the current two fish incidental limit, then this could potentially represent lost revenues associated with the current incidental trip limit.

Discards associated with the current incidental trip limit for swordfish may be contributing to the persistent underharvest of the domestic swordfish quota. This may also be impacting associated shore-side businesses. Federal Atlantic swordfish dealer permits have declined from 321 in 2002 to 285 in 2006. Potential reductions in shore-side business activities associated with domestic swordfish handling and processing may be resulting in local economic impacts.

The communities most affected by the current incidental swordfish limit are expected to be located where Incidental Swordfish permit holders are concentrated. Figure 9.7 from the Final HMS FMP (2006) depicts the geographic distribution of Swordfish Permit holders as of February 2006. In addition, the Final HMS FMP also includes profiles of many of the communities most actively involved in the fishery.

The No Action alternative would also maintain the HMS Angling and Charter/headboat (CHB) retention limit of one North Atlantic swordfish per person, up to three per vessel per trip. This limit may potentially be lowering the demand for Charter boat trips, especially with mixed parties, since each person in a party of six is not afforded the ability to retain a swordfish.

Alternative 1b

Under Alternative 1b, NMFS would remove the North Atlantic swordfish retention limit for vessels possessing valid Incidental Swordfish limited access permits, except that the Incidental limit for such vessels participating in the squid trawl fishery would be increased to ten, until 70 percent of the adjusted domestic semi-annual North Atlantic swordfish quota is projected to be landed, after which the Incidental swordfish retention limit would revert back to current limits for the remainder of the semi-annual period. This alternative would allow incidental permit holders to land unlimited amounts of swordfish, and thus allow them greater flexibility in their overall operations. However, this alternative could potentially have the most significant adverse ecological impacts if vessel owners with Incidental Swordfish permits alter their strategies and choose to deploy additional sets to target swordfish.

For example, an Incidental Swordfish permit holder fishing for tuna during the day could choose to fish for swordfish at night under Alternative 1b. If they simply switch to swordfish fishing and abandon tuna fishing, the overall amount of effort is expected to remain relatively constant. The decision to supplement their tuna revenues with swordfish revenues or to switch to swordfish all together would likely depend on prices, location of fishing grounds, the amount of hold space in the vessel to carry additional swordfish, and any costs associated with refitting their gear. Given the relatively higher ex-vessel prices for tuna, it is not likely many vessels will switch over completely to swordfish if the relative costs associated with targeting either species are similar to the cost of effort associated with swordfish fishing.

The potential economic gain from this alternative (1b) would be associated with increased landing from two swordfish per trip up to as many as 605 swordfish per trip (highest number reported landed by a directed vessel) minus what vessels could make tuna fishing during the same time if they switch entirely to swordfish fishing. Using the mean weight of swordfish landed in 2005 of 75.7 lbs and the mean ex-vessel price of \$3.71 in 2005, the estimated value of potentially retaining up to an additional 603 swordfish could be as high as \$ 169,351 per trip. However, this should only be considered an upper bound, especially since it does not take into account reductions in the retention of other species that might have to occur in order to make room for the swordfish on the vessel. More typically, vessels issued Swordfish Directed permits during the period from 2002 to 2005 averaged 60 to 77 swordfish kept per trip. That would equate to potentially \$16,289 to \$21,064 in additional revenue per trip for Incidental Swordfish permit holders that decide to direct on swordfish assuming they share a similar capability to

harvest swordfish as the Direct Swordfish permit holders. This alternative would affect the 48 Incidental Swordfish permit holders that also possess Atlantic Tuna longline category permits and shark limited access permits.

If incidental permit holders choose to supplement their tuna fishing, then any economic returns from swordfish above the previous two fish limit would be positive. If instead incidental permit holders make no changes to fishing practices except landing swordfish that were previously discarded, then that level of fish previously discarded would generate economic benefits from additional revenues. Figure 2 shows the levels of discards that have occurred.

Alternative 1b would also increase the swordfish retention limit to 10 swordfish for vessels issued valid Incident Swordfish limited access permits that participate in the squid trawl fishery. This effectively doubles the current retention limit for these vessels. From 1998 – 2004, squid trawl vessels landed an average of 6.3 mt (ww) per year. Increasing the limit for squid trawl vessels by an additional five swordfish per trip could potentially increase annual landings by squid trawl vessels to 12.6 mt (ww) per year. This increase of 6.3 mt (ww) of swordfish would be worth \$38,743 per year based on the 2005 average ex-vessel price of swordfish of \$3.71 and a ratio of whole weight to dress weight of 1.33.

Alternative 1c

Alternative 1c, a preferred alternative, would increase the North Atlantic swordfish retention limit for non-squid trawl vessels holding valid Incidental swordfish limited access permits to 30 fish per vessel per trip, and increase the incidental limit for these vessels participating in the squid trawl fishery to 15 fish per vessel per trip. This alternative is intended to provide the opportunity to land swordfish that might otherwise be discarded, but prevent a large increase in additional directed fishing effort on the swordfish. As previously indicated, this alternative would have only limited adverse ecological impacts.

A 30 fish limit is just below the median number of swordfish landed by directed permit holders (36 fish). The economic benefits associated with this alternative are estimated by taking difference between the value of two swordfish and the value of 30 swordfish. Using the mean weight of swordfish landed in 2005 of 75.7 lbs and the mean ex-vessel price of \$3.71 in 2005, the estimated value of potentially retaining an additional 28 swordfish under this alternative is \$7,864 per trip.

Using logbook records from 2005, it is projected that total annual landings of swordfish will increase from 10,787 lbs. to 34,879 lbs. under 30 fish per vessel incidental trip limit. Using the average ex-vessel price of \$3.71 for 2005, the estimated total value of these additional landings would be \$89,381 per year.

This alternative would allow Incidental Swordfish permit holders to convert discards into landings, and possibly result in vessels deploying a few additional swordfish sets. They are not likely to switch entirely to swordfish fishing for the opportunity to land 28 additional swordfish though. This alternative could potentially provide some economic return by allowing the retention of swordfish that otherwise would have been discarded, and because they could

possibly deploy a few swordfish sets if prices, costs, swordfish availability, and time make it worthwhile. The economic gain would be from two swordfish per trip up to 30 swordfish per trip minus any costs associated with travel, ice, etc. If they choose to supplement their tuna fishing, then any economic returns from swordfish above two fish would be positive. If they make no changes to fishing practices except for landing swordfish that were previously discarded, then that level of fish previously discarded would be economic benefits. Figure 2 shows the levels of discards that have occurred.

Under this alternative, Incidental Swordfish permit holders participating in the squid trawl fishery would be allowed to retain up to 15 swordfish per vessel per trip. This would triple the current limit. Based on the current average annual landings of 6.3 mt (ww) of swordfish by the squid trawl fishery, it might be reasonable to assume that landings could increase by 12.6 mt (ww) per year under Alternative 1c. That would result in an estimated increase in annual revenues of approximately \$77,487 based on 2005 average ex-vessel price of \$3.71 per pound of swordfish and a 1.33 whole weight to dress weight ratio.

Alternative 1d

Alternative 1d would increase the North Atlantic swordfish retention limit for non-squid trawl vessels holding valid Incidental swordfish limited access permits to 15 fish per vessel per trip, and increase the incidental limit for these vessels participating in the squid trawl fishery to 10 fish per vessel per trip. This alternative is intended to provide the opportunity to land swordfish that might otherwise be discarded, but prevent a large increase in additional directed fishing effort on the swordfish. As previously indicated, this alternative would have only limited adverse ecological impacts.

A 15 fish limit is significantly below the mean number of swordfish landed by directed permit holders (36 fish), but still much higher than the current limit of 2 fish. The economic benefits associated with this alternative are estimated by taking difference between the value of two swordfish and the value of 15 swordfish. Using the mean weight of swordfish landed in 2005 of 75.7 lbs and the mean ex-vessel price of \$3.71 in 2005, the estimated value of potentially retaining an additional 13 swordfish under this alternative is \$3,651 per trip.

Using logbook records from 2005, it is projected that total annual landings of swordfish will increase from 10,787 lbs. to 30,350 lbs. under a 15 fish per vessel incidental trip limit. Using the average ex-vessel price of \$3.71 for 2005, the estimated total value of these additional landings would be \$72,579 per year.

This alternative would allow Incidental Swordfish permit holders to convert discards into landings, and possibly result in vessels deploying a few additional swordfish sets. They are not likely to switch entirely to swordfish fishing for the opportunity to land 13 additional swordfish though. This alternative could potentially provide some economic return by allowing the retention of swordfish that otherwise would have been discarded, and because they could possibly deploy a few swordfish sets if prices, costs, swordfish availability, and time make it worthwhile. The economic gain would be from two swordfish per trip up to 15 swordfish per trip minus any costs associated with travel, ice, etc. If they choose to supplement their tuna fishing,

then any economic returns from swordfish above two fish would be positive. If they make no changes to fishing practices except for landing swordfish that were previously discarded, then that level of fish previously discarded would be economic benefits. Figure 2 shows the levels of discards that have occurred.

Alternative 1d would also increase the swordfish retention limit to 10 swordfish for vessels issued valid Incident Swordfish limited access permits that participate in the squid trawl fishery. This effectively doubles the current retention limit for these vessels. From 1998 – 2004, squid trawl vessels landed an average of 6.3 mt (ww) per year. Increasing the limit for squid trawl vessels by an additional five swordfish per trip could potentially increase annual landings by squid trawl vessels to 12.6 mt (ww) per year. This increase of 6.3 mt (ww) of swordfish would be worth \$38,743 per year based on the 2005 average ex-vessel price of swordfish of \$3.71 and a ratio of whole weight to dress weight of 1.33.

Alternative 1e

Alternative 1e, a preferred alternative, would implement a North Atlantic swordfish retention limit for HMS CHB vessels of one fish per paying passenger, up to six swordfish per trip for charter vessels and 15 swordfish per trip for headboat vessels. This alternative would maintain the current recreational limit of one swordfish per person, but increase the allowable upper retention limit (from three fish per vessel). Therefore, a charter vessel possessing a HMS CHB permit with six paying passengers onboard would be limited to possessing or retaining no more than six swordfish. An HMS headboat vessel with 15 paying passengers onboard would be limited to possessing or retaining no more than 15 swordfish. However, if either of these types of vessels had, for example, five paying passengers onboard, the vessel would be limited to possessing or retaining no more than five swordfish.

A few charter boats have landed up to the three fish limit in 2005. Approximately 25 percent of the swordfish reported landed by CHB vessels in the HMS non-tournament recreational reporting database were in groups of three fish on the same date. Even though a quarter of trips may have been limited in the amount of swordfish retained under the existing vessel trip limit, the benefits of raising the limit could extend beyond those trips. The economic benefit would be due to more bookings of charter trips because the perceived value of a trip for an angler is increased due to the ability to land more fish. The 2004 average daily HMS charterboat rate for day trips was \$1,053. The willingness-to-pay for swordfish charterboat trips is likely to be much higher than this value. Increased bookings could lead to some positive economic multiplier impacts to tackle shops, boat dealers, hotels, fuel suppliers, and other associated local and regional businesses.

Alternative 1f

Alternative 1f, a preferred alternative, would implement a North Atlantic swordfish recreational retention limit for HMS Angling category vessels of one fish per person per trip, up to four swordfish per vessel per trip. It would maintain the current recreational limit of one swordfish per person, but increase the upper retention limit from three fish to four fish per vessel per trip. Thus, a vessel possessing an HMS Angling category permit with three persons onboard would be limited to possessing or retaining no more than three swordfish, a vessel with four persons

onboard would be limited to no more than four swordfish, and a vessel with five or more persons onboard would also be limited to four swordfish.

Only a few angling trips have landed up to the three fish limit in 2005. As discussed previously, approximately seven percent of the swordfish reported landed by Angling category vessels in the HMS non-tournament recreational reporting database were in groups of three fish on the same day. Therefore, the increase from three to four swordfish per vessel per trip under this alternative is not likely to affect many trips.

There would be some economic benefits from this alternative to increase the recreational retention limit for HMS Angling category vessels. The economic benefit would be derived from an increased perceived value of a trip for an angler due to the ability to land more fish. Recreational anglers might take more trips, which could lead to some multiplier benefits to tackle shops, boat dealers, hotels, fuel suppliers, and other related businesses. The average expenditure on HMS related trips is estimated to be \$122 per person per day based on the recreational fishing expenditure survey add-on to the National Marine Fisheries Service's Marine Recreational Fisheries Statistical Survey (MRFSS). The expenditure data include the costs of tackle, food, lodging, bait, ice, boat, fuel, processing, transportation, party/charter fees, access/boat launching, and equipment rental.

However, some of the potential benefits of this alternative may be minimized by the increasing trend in the catch-and-release ethic of many recreational anglers. Anglers may not take advantage of the four fish per vessel limit, and may instead decide to release their catch. Moreover for some recreational anglers, the proposed increase in the angling category recreational limit could actually decrease their perceived benefits if they are ardent catch-and-release fishermen who may consider even this proposed marginal increase in the recreational trip limit to be diminishing their future angling quality for swordfish.

Alternative 2a

Alternative 2a (No Action) would maintain the status quo. Current regulations specify that owners of vessels issued HMS limited access permits may upgrade vessels or transfer permits to another vessel only if the vessel upgrade or permit transfer does not result in an increase in horsepower (HP) of more than 20 percent, or an increase of more than 10 percent in length overall (LOA), gross registered tonnage (GRT), or net tonnage (NT) relative to the respective specifications of the first vessel issued the initial limited access permit (the baseline vessel). If any of the three vessel size specifications is increased, any increase in the other two must be performed at the same time. The regulations also specify that vessel horsepower and vessel size may be increased only once. However, an increase in vessel size may be performed separately from an increase in vessel horsepower. These regulations under the status quo alternative have been in effect since 1999. Under this No Action alternative, there would be no change in the current baseline economic and social impacts associated with previously implemented North Atlantic swordfish vessel upgrade restrictions.

The baseline of affected entities includes 604 unique HMS limited access permit holders. As of September 26, 2006, there were 176 vessels that were authorized to fish with longline gear for

swordfish and tunas (*i.e.*, the vessel possessed a tuna longline permit and the appropriate limited access permits for swordfish and sharks). Of these 176 permitted vessels, only 110 reported PLL activity in the HMS logbook in 2005. As shown in Table 7, the number of active PLL vessels has decreased by approximately 50 percent since the upgrade restriction regulations became effective in 1999. Vessel upgrade restriction may have contributed to this decline by limiting vessel owners' ability to optimally configure their vessels to maximize their profits given changing ecological, regulatory, and market conditions.

Figures 10 and 11 provide the range of various length and horsepower configurations currently in use. Based on current permit data, it appears that a typical Directed or Incidental swordfish limited access vessel is approximately 55 feet in length and has a 425 horsepower engine. Similarly, a typical swordfish Handgear vessel may be approximately 35 feet in length and have 400 horsepower.

Aside from limiting overall fleet capacity, the rationale for originally selecting the current restrictions was based in part, on maintaining consistency with existing limited access upgrading restrictions that were, and still are, in place for vessels issued limited access permits for fisheries of the Northeastern United States. As of September 25, 2006, 25 percent of vessels issued limited access Incidental or Directed swordfish permits, and 45 percent of vessels issued limited access swordfish Handgear permits, also possessed a limited access permit for fisheries of the Northeastern United States. Therefore, even if current upgrade restrictions are changed for HMS swordfish permit holders, many vessel owners may be constrained in their ability to upgrade their vessels if they wish to maintain their limited access permits for fisheries of the Northeastern United States.

Maintaining the status quo on upgrade restrictions will continue several negative economic impacts associated with upgrade restrictions. First, as previously mentioned, vessels may not be optimally configured for current market conditions, and therefore profits may be less than optimal. Operators of smaller vessels and vessels with lower horsepower have indicated that they would fish more distant locations if they were allowed to upgrade their vessels. This message was conveyed during public meetings conducted in September 2006. Other vessels may wish to increase hull capacity to fish longer without offloading and some may wish to increase their speed in order to reduce time at sea spent reaching and returning from fishing grounds.

Second, current upgrade restrictions may affect the ability of some vessels to carry observers onboard vessels, due to inadequate bunk or berthing space. Vessels that would otherwise be required to carry an observer, but are inadequate for purposes of carrying an observer and allowing for operation of normal observer functions, are prohibited from fishing without observer coverage. Observers are not required to board, or stay aboard, a vessel that is unsafe or inadequate. In some situations, the HMS vessel upgrading restrictions may be inadvertently preventing vessel owners from enlarging their vessels so that they can carry observers. This could result in lost earnings for those vessels selected for observer coverage that are not adequately equipped to carry an observer.

Third, some fishing vessels may wish to enhance their crew quarters in order to better attract labor. Anecdotally, NMFS has heard that it has been increasingly difficult for vessel owners to

retain crews. Enhancing crew quarters to more modern standards could help attract crewmembers and reduce labor costs by improving the quality of life at sea for crew and captains. However, vessel upgrade restrictions currently in place may prevent these enhancements from occurring.

Finally, limitations on vessel upgrading may affect safety at sea. In general, a larger vessel is oftentimes more seaworthy than a smaller vessel, especially in rough seas. Current restraints on vessel size may also affect the ability to modernize or purchase new vessels.

Without changes to upgrading restrictions, the swordfish fleet may continue to decline along its current trend and under harvests of the annual swordfish quota may continue to accrue. The following other alternatives considered may allow for greater flexibility in a more efficient deployment of the swordfish fleet.

Under each of the alternatives, vessel owners will have to weigh the costs of potentially upgrading the length or horsepower of their vessels by the potential economic benefits associated with an upgrade. Many vessel owners may choose not to upgrade, even with relaxed upgrade restrictions, because of the capital costs associated with upgrading. The main economic benefit associated with the following alternatives will likely be from not having to acquire a permit from a larger vessel, including the associated transaction costs, when an owner wishes to increase vessel size or horsepower.

The capital costs associated with potential upgrades are difficult to estimate. Large vessel length upgrades are not likely to occur by modifying existing vessels, according to several marine engineers and shipyards that NMFS contacted. They are more likely to result from the purchase of another vessel and the subsequent transfer of permits to that vessel. Horsepower upgrades are more likely to occur on existing vessels in conjunction with an engine replacement due to capital depreciation.

NMFS contacted several shipyards regarding the potential costs of new vessels and upgrades to existing vessels. The shipyards agreed that it is probably more economical to perform large vessel length increases by acquiring another larger vessel, than by modifying existing vessels. However, the estimated cost of building a new vessel is uncertain because few new vessels have been built since the upgrade restrictions were implemented in 1999, according to the shipyards contacted. The overall cost of upgrading would largely depend on the current size of the vessel, the age of the vessel, where the work will be done, financing costs, and whether an existing used vessel is available with the desired specifications, versus constructing a new vessel. For example, a 68 foot PLL vessel over 20 years old recently had a sales price of \$245,000, according to a vessel broker list. To better quantify the associated costs and potential scope of vessel upgrades, NMFS seeks comments from the public on the current market costs of upgrading PLL and swordfish Handgear vessels.

Alternative 2b

Alternative 2b would waive vessel upgrading and permit transfer upgrading restrictions for PLL vessels (*i.e.*, vessels that possess an Atlantic tunas longline permit, as well as limited access

permits for swordfish and sharks) for 10 years, after which a new vessel baseline would be established and the 10 percent LOA, GRT, NT; and 20 percent HP restrictions would go back into effect. This alternative would likely have positive economic benefits for PLL vessel owners. However, this alternative is not preferred because it could potentially result in sizeable long term adverse ecological impacts because there would be no limit on the size that PLL vessels could be upgraded to.

As discussed earlier, only 176 vessels possess the requisite permits needed to fish with longline gear for swordfish. Of these, there are only 73 vessels that are 40 to 80 feet in length, which is likely the optimal size for swordfish vessels. Because 25 percent of swordfish Incidental and Directed permit holders also hold permits for Northeastern fisheries and may choose not to upgrade in order to retain their eligibility for these fisheries, it is projected that approximately 55 vessels might upgrade under this alternative. The decision to upgrade a fishing vessel, or to purchase a new vessel and transfer the permits, would be a unique decision for each business based on their individual circumstances. The decision to upgrade or to not upgrade will largely depend on whether the returns expected from an upgrade outweighing the costs of planning the upgrade, construction, financing, time to complete the necessary work, age of their current vessel and the forgone revenues associated with being out of the fishery while vessel work is being completed.

The potential economic benefits of the vessel upgrades would largely depend on future harvests, ex-vessel prices, fuel prices, and labor costs. These factors fluctuate, often dramatically, with market forces from year to year making any estimated benefits difficult to assess. Independent of those factors, however, vessel owners will gain the economic benefits associated with having the increased flexibility of adjusting the vessel configurations in terms of length and horsepower to best fit their business. In addition, vessel owners under this alternative would be able to better address the requirement to be able to safely take on observers, and thus avoid lost fishing time. The potential to make vessel upgrades for expansion of bunk and berthing areas associated could enhance the quality of life for crew and captains providing intangible benefits and also potentially reducing the actual costs of retaining labor. Finally, the potential to lengthen vessels and upgrade engine horsepower might have important positive safety implications, especially for smaller vessels operating far offshore in areas prone to extreme weather.

There could be some economic costs associated with expansion of capacity in the swordfish longline fleet. Any ecological impacts could potentially result in diminished quality of recreational fishing for swordfish or other species impacted by swordfish longline fishing. In addition, gear conflicts could arise if the declines in the commercial swordfish fleet reverse themselves due to any improved profitability of commercial longline vessels resulting from this alternative. These factors could result in decreases in recreational anglers' willingness-to-pay to participate in recreational fishing, and potentially a decline in demand for charter and headboat services. However, since swordfish PLL vessels are likely to operate farther from shore, especially after upgrades, any potential gear conflicts with recreational anglers may be reduced under this alternative.

There could also be reductions in the value of limited access permits as a result of waiving the upgrade restrictions. The supply of usable permits for vessel owners that want to upgrade under

the current limited access regulations is restricted, since permits had to have sufficient length and horsepower characteristics to be transferred to a different vessel. Lifting upgrading restrictions would give a potential new entrant into the fishery a larger selection of permits to choose from, since they would be able to select from a larger pool of potential permits for sale. This increased supply could reduce the value of limited access permits. However, any improvements in the profitability of the fishery might increase demand for permits and thus potentially offset any decreases in value.

Waving vessel upgrade restrictions for vessels operating with longline gear would also have secondary and regional economic impacts. Shoreside support businesses such as shipyards, marine architects, and other commercial vessel suppliers could receive increased business from owners wanting to upgrade their vessels under Alternative 2b. Fish dealers may need to expand their operations to handle any greater supplies of swordfish that may result from increased fleet capacity. However, if recreational fisheries are negatively impacted by any increases in pelagic longline vessel activity, shoreside support business for the recreational sector such as bait and tackle stores, hotels, and restaurants may see declines in business.

Alternative 2c

Alternative 2c would waive HMS upgrading and permit transfer upgrading restrictions for vessels issued Swordfish handgear permits for 10 years, after which a new baseline will be established and the 10% LOA, GRT, NT and 20% HP restrictions would go back into effect. This alternative would likely have positive economic benefits for swordfish handgear vessel owners. For the same reasons discussed in Alternative 2b, it is not possible to accurately predict how many vessels will be upgraded, or the anticipated future capacity of the fishery, because the prediction is dependent upon the personal choices of many individual boat owners.

The decision to upgrade a fishing vessel, or to purchase a new vessel and transfer the permits, would be a unique decision for each business based on their individual circumstances. The decision to upgrade or to not upgrade will largely depend on whether the returns expected from an upgrade outweighing the costs of planning the upgrade, construction, financing, time to complete the necessary work, age of their current vessel and the forgone revenues associated with being out of the fishery while vessel work is being completed.

Using assumptions that were discussed earlier, it is estimated that this alternative would only potentially result in eight swordfish Handgear permit holders that might consider upgrading the length of their vessels and also eight that may potentially consider upgrading the horsepower of their vessels. Based on public comment during the September 2006 public meetings, it appears that horsepower is an important factor for swordfish Handgear vessel operators that wish to take longer fishing trips.

The potential economic benefits of any vessel upgrades would largely depend on future harvests, ex-vessel prices, fuel prices, and labor costs. These factors fluctuate, often dramatically, with market forces from year to year making any estimated benefits difficult to assess. Independent of those factors, however, vessel owners will gain the economic benefits associated with having the increased flexibility of adjusting the vessel configurations in terms of length and horsepower

to best fit their business. In addition, vessel owners under this alternative would be able to better address the requirement to be able to safely take on observers, and thus avoid lost fishing time. The potential to make vessel upgrades for expansion of bunk and berthing areas associated could enhance the quality of life for crew and captains providing intangible benefits and also potentially reducing the actual costs of retaining labor. Finally, the potential to lengthen vessels and upgrade engine horsepower might have important positive safety implications, especially for smaller vessels operating in areas prone to extreme weather.

Due to its proximity to the East Florida Coast PLL closed area, the swordfish handgear fishery is currently most active in the Straits of Florida, according to anecdotal information. This is the same area that has experienced a recent resurgence in recreational swordfish fishing. Therefore, unlike Alternative 2b, this alternative is not expected to increase the amount of fishing further offshore or reduce impacts in spawning or nursery areas, or areas populated with juvenile swordfish. It is possible that this alternative could increase gear conflicts with recreational anglers.

There could be some economic costs associated with expansion of capacity resulting from upgrades of the swordfish handgear fleet. Any ecological impacts could potentially result in diminished quality of recreational fishing for swordfish or other species impacted by swordfish handgear fishing. In addition, gear conflicts could arise if the declines in the commercial swordfish fleet reverse themselves due to any improved profitability of commercial handgear vessels resulting from this proposed alternative. These factors could result in decreases in recreational anglers' willingness-to-pay to participate in recreational fishing and potentially a decline in demand for charter and headboat services.

Waving vessel upgrade restrictions for vessels operating with handgear would also have secondary and regional economic impacts. Shoreside support businesses such as shipyards, marine architects, and other commercial vessel suppliers could receive increased business from vessels wanting to upgrade under Alternative 2c. Fish dealers may need to expand their operations to handle any greater supplies of swordfish that may result from upgrades. However, if recreational fisheries are negatively impacted by any increases in swordfish handgear vessel activity, shoreside support business for the recreational sector such as bait and tackle stores, hotels, and restaurants may see declines in business.

This alternative would likely be effective at increasing domestic swordfish landings and more fully harvesting the U.S. swordfish allocation. However, there could be negative economic impacts on the recreational sector of the fishery and associated support industries. In addition, ecological impacts of increased activity by handgear vessels in more sensitive ecological areas may significantly reduce the overall net benefits of this alternative. However, the overall impacts of this alternative are very uncertain because it is difficult to predict to what extent swordfish handgear vessel owners would decide to upgrade their vessels.

Alternative 2d

Alternative 2d would waive all HMS limited access vessel upgrading and permit transfer upgrading restrictions for 10 years, after which a new vessel baseline will be established and the

10 percent LOA, GRT, NT; and 20 percent HP restrictions would go back into effect. This alternative could potentially have the most severe adverse ecological impacts compared to the other alternatives because the universe of affected vessels is substantially larger, however it is not possible to precisely quantify the magnitude of impacts for the reasons discussed above.

As of February 2006, there were 1,131 total HMS commercial fishing permits (191 directed swordfish, 86 incidental swordfish, 88 swordfish handgear, 240 directed shark, 312 incidental shark, and 214 tuna longline). However, there were only 604 actual permit holders since vessel owners may hold more than one permit.

Alternatives 2b and 2c were limited to vessels that are eligible to fish for swordfish and tunas with longline gear, and swordfish Handgear vessels, respectively. Alternative 2d includes those vessels, as well as all vessels that are eligible to fish for sharks. Therefore, approximately 376 additional vessels could be eligible for unlimited upgrades under this alternative (240 directed shark + 312 incidental shark – 176 vessels that eligible to fish with longline gear for tunas and swordfish). It is assumed that all of these additional shark vessels could be upgraded under this alternative, but that few would take immediate advantage of the opportunity given current uncertainties in the domestic shark fishery. Also, Incidental shark permit holders are governed by retention limits for LCS, SCS and pelagic sharks. Directed shark permit holders are governed by retention limits for LCS. Unless a vessel's size prohibits the landing of these retention limits or a Directed shark permit holder intends to land more SCS, a vessel owner may not need to enlarge their vessel.

Given the potentially reduced opportunities in the shark fisheries, it is unlikely that shark vessel owners will commit to long-term financing for vessel upgrades. Nevertheless, because many shark species are overexploited, the potential for adverse ecological impact on these species does exist under this alternative.

Other economic benefits and costs are similar to Alternatives 2b and 2c, including any secondary economic impacts to shoreside industries associated with fishing.

Alternative 2e

Alternative 2e, a preferred alternative, would establish new HMS limited access vessel upgrading and permit transfer upgrading restrictions only for HMS vessels that are authorized to fish with longline for swordfish and tunas, equivalent to 35 percent LOA, GRT, and NT, as measured relative to the baseline vessel specifications (i.e., the specifications of the vessel first issued an HMS limited access permit), and remove HP upgrading and permit transfer upgrading restrictions for these vessels. Alternative 2e is anticipated to have slightly lower economic benefits to permit holders than Alternative 2d, but would likely have a very similar outcome to Alternative 2b, except that a few dramatic upgrades would not qualify under this alternative and there would be no reversion back to the current regulations after 10 years. However, for the same reasons discussed previously, it is not possible to accurately predict how many vessels will be upgraded, or the anticipated future capacity of the fishery, because the prediction is dependent upon the business decisions of many individual boat owners. This alternative is preferred because it would improve the ability of U.S. vessels to fully harvest the domestic ICCAT

recommended swordfish quota, but would impose some limits on vessel upgrading by restricting the universe of potentially impacted entities to PLL vessels only, and limiting the magnitude of allowable upgrades.

Alternative 2e would impose an upper limit on the magnitude of vessel size upgrades (LOA, GRT, & NT) but not HP, and is restricted only to vessels that possess the permits necessary to fish for tunas and swordfish with longline gear (*i.e.*, vessels that possess an Atlantic tunas longline permit, as well as limited access permits for swordfish and sharks). For purposes of analysis, the optimal size for Incidental and Directed swordfish vessels is assumed to range from 40 – 80 feet, based on the data in Figure 10. The smaller vessels range from 40 – 60 feet, and the larger vessels range from 60 – 80 feet. Assuming that all owners of vessels 40 – 70 ft. would consider upgrading to bigger vessels, Figure 10 indicates that up to 155 vessels might be increased in size by 25 to 35 percent (note: vessels that have already been upgraded by 10 percent would only be eligible for a 25 percent increase under this alternative). However, because only 65 percent of swordfish permit holders possess the requisite permits needed to fish with longline gear, up to 101 vessel owners would be likely to consider upgrading their vessels by 25 – 35 percent under this alternative. Finally, because 25 percent of swordfish Incidental and Directed permit holders also hold permits for Northeastern fisheries and may choose not to upgrade in order to retain their eligibility for these fisheries, it is projected that approximately 76 vessels might be upgraded. For an “average” 55-foot swordfish vessel, this would result in 69 – 74 foot vessel, depending upon whether the vessel has already been upgraded. At the opposite ends of the spectrum, for the reasons discussed above, it is also possible that all PLL vessels could increase by 25 – 35 percent or, conversely, none of the PLL vessels would be upgraded.

The potential economic benefits of the vessel upgrades would largely depend on future harvests, ex-vessel prices, fuel prices, and labor costs. These factors fluctuate, often dramatically, with market forces from year to year making any estimated benefits difficult to assess. Independent of those factors, however, vessel owners will gain the economic benefits associated with having some increased flexibility of adjusting the vessel configurations in terms of length and horsepower to best fit their business. However, that flexibility will be capped for increases in vessel length, gross tonnage, and net tonnage unlike in Alternatives 2b, 2c, and 2d. In addition, vessel owners under this alternative would be able to better address the requirement to be able to safely take on observers, and thus avoid lost fishing time. The potential to make vessel upgrades for the expansion of bunk and berthing areas could enhance the quality of life for crew and captains and, thereby, provide intangible benefits and potentially reduce the actual costs of retaining labor. The potential to lengthen vessels and upgrade engine horsepower could have important positive safety implications, especially for smaller vessels operating far offshore in areas prone to extreme weather. Finally, improving the ability of PLL vessels to fish further offshore could relieve fishing pressure in ecologically sensitive areas and reduce gear conflicts, which would benefit the recreational sector.

There could be some economic costs associated with expansion of capacity in the swordfish fleet. Any adverse ecological impacts associated with alternative 2e, such as increased commercial swordfish landings, could potentially diminish the quality of recreational fishing for swordfish or other species. This could result in decreases in recreational anglers’ willingness-to-

pay to participate in recreational fishing and potentially a decline in demand for charter and headboat services.

There could also be some small reductions in the value of limited access permits as a result of relaxing the upgrade restrictions. The supply of usable permits for vessels that wished to upgrade under the current limited access regulations was restricted, since permits had to have sufficient length and horsepower characteristics in order to be transferred to a different or new vessel. The lifting of the horsepower restriction and increasing the size upgrade allowance would give a potential new entrant into the fishery a larger selection of permits to choose from since they would be able to select from a larger pool of potential permits for sale. This increased supply would reduce the value of limited access permits. However, any improvements in the profitability of the fishery might increase demand for permits and thus potentially offset any decreases in value as a result of the increased supply of usable permits.

Easing vessel upgrade restrictions for vessels operating with longline gear would also have secondary and regional economic impacts. Shoreside support businesses such as shipyards, marine architects, and other commercial vessel suppliers could receive increased business from vessels wanting to upgrade under this alternative. Fish dealers may need to expand their operations to handle any greater supplies of swordfish that may result from upgrades. However, if recreational fisheries are negatively impacted by any increases in pelagic longline and handgear vessel activity, shoreside support business for the recreational sector such as bait and tackle stores, hotels, and restaurants may see declines in business.

7.0 REGULATORY IMPACT REVIEW

The Regulatory Impact Review (RIR) is conducted to comply with Executive Order 12866 (E.O. 12866) and provides analyses of the economic benefits and costs of each alternative to the nation and the fishery as a whole. Certain elements required in an RIR are also required as part of an environmental impact statement (EIS). Thus, this section should be considered only part of the RIR; the rest of the RIR can be found throughout this document.

7.1 Description of the Management Objectives

Please see Chapter 1 for a description of the management objectives associated with these management actions.

7.2 Description of the Fishery

Please see Chapter 3 and the Final Consolidated HMS FMP (NMFS, 2006) for a description of the fisheries that could be affected by this rulemaking.

7.3 Statement of the Problem

Please see Chapter 1 for a description of the problem and need for these management actions.

7.4. Description of Each Alternative

Please see Chapter 2 for a summary of each alternative and Chapter 4 for a complete description of each alternative and its expected ecological, social, and economic impacts. Chapter 6 and 8 provide additional information related to the impacts of the alternatives.

7.5. Economic Analysis of Expected Effects of Each Alternative Relative to the Baseline

NMFS does not believe that the national net benefits and costs would change significantly in the long run as a result of implementation of the preferred alternatives compared to the baseline of no action. The actions considered in this document address the current underharvest of the U.S. ICCAT recommended swordfish quota by increasing Incidental and recreational swordfish retention limits (Topic 1), and increasing HMS PLL vessel upgrading restrictions (Topic 2). It is anticipated that the present value of gross and net revenues for the swordfish fishery at the ex-vessel level could increase, but that would ultimately depend upon the extent to which fishermen increase their swordfish landings. Table 13 indicates possible changes as a result of each alternative. Alternative 1a maintains the status quo for swordfish retention limits. Alternative 1b removes the Incidental swordfish retention limit until 70 percent of the directed swordfish is projected to be landed. Alternative 1c increases the Incidental swordfish limit from two fish to 30 fish, and the squid trawl limit from five fish to 15 fish. Alternative 1d increases the Incidental swordfish limit from two fish to 15 fish, and the squid trawl limit from five fish to 10 fish. Alternatives 1e and 1f modify recreational swordfish retention limits by increasing the per vessel limits. Alternative 2a maintains the status quo for vessel upgrading. Alternative 2 b would remove vessel upgrading restrictions for PLL vessels only, for 10 years. Alternative 2 c would remove vessel upgrading restrictions for swordfish Handgear vessels only, for 10 years. Alternative 2 c would remove vessel upgrading restrictions for all HMS limited access vessels, for 10 years. Finally, Alternative 2 e would modify vessel upgrading restrictions for PLL vessels only, by removing HP restrictions and increasing vessel size restrictions (LOA, GRT, & NT) from 10 percent to 35 percent, with no sunset data. These measures are intended to provide U.S. fishermen a reasonable opportunity to harvest the ICCAT recommended U.S. swordfish quota, as required under the Magnuson-Stevens Act. Table 13 provides a summary of the net economic benefits and costs associated with each alternative.

Table13. Net Economic Benefits and Costs for each Alternative.

Alternatives	Net Economic Benefits	Net Economic Costs
Alternative 1a No Action.	<i>Long-term:</i> Potential increased swordfish abundance. <i>Short-term:</i> None.	<i>Long-term:</i> Economic losses from regulatory discards. <i>Short-term:</i> Economic losses from regulatory discards

Alternatives	Net Economic Benefits	Net Economic Costs
<p>Alternative 1b Remove the North Atlantic swordfish retention limit for vessels issued valid Incidental swordfish limited access permits, except that vessels issued valid Incidental swordfish permits and participating in the squid trawl fishery would be increased to ten, until 70 percent of the adjusted domestic semi-annual North Atlantic swordfish quota is projected to be landed, after which the Incidental swordfish retention limit will revert back to two swordfish per trip, and five swordfish per trip for squid trawl vessels, for the remainder of the semi-annual period</p>	<p><i>Long-term:</i> Largest potential projected benefits from increased swordfish landings</p> <p><i>Short-term:</i> Largest potential projected benefits from increased swordfish landings</p>	<p><i>Long-term:</i> Potential increase in bycatch, Potential decrease in swordfish abundance.</p> <p><i>Short-term:</i> Potential increase in bycatch, Potential decrease in swordfish abundance.</p>
<p>Alternative 1c <i>Increase the North Atlantic swordfish retention limit for vessels issued valid Incidental swordfish limited access permits to 30 fish per vessel per trip, and increase the limit for vessels issued valid Incidental swordfish limited access permits and participating in the squid trawl fishery to 15 fish per vessel per trip – Preferred Alternative.</i></p>	<p><i>Long-term:</i> Moderate projected benefits from converting swordfish discards to landings.</p> <p><i>Short-term:</i> Moderate projected benefits from converting swordfish discards to landings</p>	<p><i>Long-term:</i> Potential increase in bycatch, but mitigated by other measures.</p> <p><i>Short-term:</i> Potential increase in bycatch, but mitigated by other measures.</p>

Alternatives	Net Economic Benefits	Net Economic Costs
<p>Alternative 1d Increase the North Atlantic swordfish retention limit for vessels issued valid Incidental swordfish limited access permits to 15 fish per vessel per trip, and increase the limit for vessels issued valid Incidental swordfish limited access permits and participating in the squid trawl fishery to ten fish per vessel per trip.</p>	<p><i>Long-term:</i> Minor projected benefits from converting swordfish discards to landings.</p> <p><i>Short-term:</i> Minor projected benefits from converting swordfish discards to landings</p>	<p><i>Long-term:</i> Potential minor increase in bycatch, but mitigated by other measures.</p> <p><i>Short-term:</i> Potential minor increase in bycatch, but mitigated by other measures.</p>
<p>Alternative 1e <i>Implement a North Atlantic swordfish retention limit for HMS CHB vessels of one fish per paying passenger, up to six swordfish per trip for charter vessels and 15 swordfish per trip for headboat vessels – Preferred Alternative.</i></p>	<p><i>Long-term:</i> Increased demand for CHB trips. Benefits for shoreside businesses</p> <p><i>Short-term:</i> Increased demand for CHB trips. Benefits for shoreside businesses</p>	<p><i>Long-term:</i> Potential minor decrease in swordfish abundance.</p> <p><i>Short-term:</i> None.</p>
<p>Alternative 1f <i>Implement a North Atlantic swordfish recreational retention limit for HMS Angling category vessels of one fish per person per trip, up to four swordfish per vessel per trip – Preferred Alternative</i></p>	<p><i>Long-term:</i> Increased benefits for shoreside businesses if Angling trips increase</p> <p><i>Short-term:</i> Increased benefits for shoreside businesses if Angling trips increase.</p>	<p><i>Long-term:</i> Potential minor decrease in swordfish abundance.</p> <p><i>Short-term:</i> None.</p>
<p>Alternative 2a No Action</p>	<p><i>Long-term:</i> Potential increased swordfish abundance.</p> <p><i>Short-term:</i> None.</p>	<p><i>Long-term:</i> Potential decline in numbers of swordfish vessels, continued underharvest of quota. Reduced safety at sea.</p> <p><i>Short-term:</i> continued underharvest of quota. Reduced safety at sea.</p>

Alternatives	Net Economic Benefits	Net Economic Costs
<p>Alternative 2b Waive HMS limited access vessel upgrading and permit transfer upgrading restrictions for all vessels that are authorized to fish with longline gear for swordfish and tunas for 10 years, after which a new vessel baseline will be established and the 10 percent LOA, GRT, NT; and 20 percent HP restrictions would go back into effect.</p>	<p><i>Long-term:</i> Increased flexibility to upgrade. Modernization of PLL swordfish fleet. Improved potential to harvest swordfish quota. Improved safety at sea</p> <p><i>Short-term:</i> Increased flexibility to upgrade. Modernization of PLL swordfish fleet. Improved potential to harvest swordfish quota, improved safety at sea.</p>	<p><i>Long-term:</i> Potential excess capacity in fishery. Potential increase in bycatch.</p> <p>.</p> <p><i>Short-term:</i> Potential increase in bycatch..</p>
<p>Alternative 2c Waive HMS limited access swordfish handgear vessel upgrading and permit transfer upgrading restrictions for 10 years, after which a new baseline will be established and the 10% LOA, GRT, NT and 20% HP restrictions would go back into effect.</p>	<p><i>Long-term:</i> Increased flexibility to upgrade. Modernization of PLL swordfish fleet. Improved potential to harvest swordfish quota. Improved safety at sea</p> <p>.</p> <p><i>Short-term:</i> Increased flexibility to upgrade. Modernization of PLL swordfish fleet. Improved potential to harvest swordfish quota. Improved safety at sea</p>	<p><i>Long-term:</i> Potential increase in gear conflicts. Potential increases in bycatch. Impacts on undersized swordfish</p> <p>.</p> <p><i>Short-term:</i> Potential increase in gear conflicts. Potential increases in bycatch. Impacts on undersized swordfish</p>
<p>Alternative 2d Waive all HMS limited access vessel upgrading and permit transfer upgrading restrictions for 10 years, after which a new vessel baseline will be established and the 10 percent LOA, GRT, NT; and 20 percent HP restrictions would go back into effect.</p>	<p><i>Long-term:</i> Increased flexibility to upgrade. Modernization of PLL swordfish fleet. Improved potential to harvest swordfish quota. Improved safety at sea</p> <p><i>Short-term:</i> Increased flexibility to upgrade. Modernization of PLL swordfish fleet. Improved potential to harvest swordfish quota. Improved safety at sea</p>	<p><i>Long-term:</i> Potential impacts on shark populations. Potential increase in gear conflicts. Potential increases in bycatch. Adverse impacts on undersized swordfish</p> <p><i>Short-term:</i> Adverse impacts on shark populations. Potential increase in gear conflicts. Potential increases in bycatch. Adverse impacts on undersized swordfish..</p>

Alternatives	Net Economic Benefits	Net Economic Costs
<p>Alternative 2e <i>Establish new HMS limited access vessel upgrading and permit transfer upgrading restrictions only for HMS vessels that are authorized to fish with longline for swordfish and tunas, equivalent to 35 percent LOA, GRT, and NT, as measured relative to the baseline vessel specifications (i.e., the specifications of the vessel first issued an HMS limited access permit), and remove HP upgrading and permit transfer upgrading restrictions for these vessels</i> – Preferred Alternative</p>	<p><i>Long-term:</i> Increased flexibility to upgrade. Modernization of PLL swordfish fleet. Improved potential to harvest swordfish quota. Improved safety at sea .</p> <p><i>Short-term:</i> Increased flexibility to upgrade. Modernization of PLL swordfish fleet. Improved potential to harvest swordfish quota. Improved safety at sea</p>	<p><i>Long-term:</i> Potential minor increase in bycatch, but mitigated by existing measures.</p> <p>.</p> <p><i>Short-term:</i> Potential minor increase in bycatch, but mitigated by existing measures.</p>

7.6. Summary

Under E.O. 12866, a regulation is a “significant regulatory action” if it is likely to: (1) have an annual effect on the economy of \$100 million or more or adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or state, local, or tribal governments or communities; (2) create a serious inconsistency or otherwise interfere with an action taken or planned by another agency; and (3) materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the legal mandates, the President’s priorities, or the principles set forth in the Executive Order. The preferred alternatives described in this document do not meet the above criteria. Therefore, under E.O. 12866, the preferred alternatives described in this document have been determined to be not significant for the purposes of E.O. 12866. A summary of the expected net economic benefits and costs of each alternative, which are based on supporting text in Chapters 4 and 6, can be found in Table 13.

8.0 INITIAL REGULATORY FLEXIBILITY ANALYSIS

The Initial Regulatory Flexibility Analysis (IRFA) is conducted to comply with the Regulatory Flexibility Act (5 USC 601 et. seq.) and provides a description of the economic impacts of the various alternatives on small entities. Certain elements required in an IRFA are also required as part of an environmental impact statement (EIS). Therefore, the IRFA incorporates the economic impacts identified in the EIS.

8.1. Description of the Reasons Why Action is Being Considered

Please see Chapter 1 for a description of the need for action.

8.2. Statement of the Objectives of, and Legal Basis for, the Proposed Rule

Please see Chapter 1 for a description of the objective of the proposed rule.

8.3. Description and Estimate of the Number of Small Entities to Which the Proposed Rule Would Apply

NMFS considers all HMS commercial permit holders to be small entities because they either had gross receipts less than \$3.5 million for fish-harvesting, gross receipts less than \$6.0 million for charter/headboats, or 100 or fewer employees for wholesale dealers. These are the SBA size standards for defining a small versus large business entity in this industry. A description of the fisheries affected, the categories and number of permit holders can be found in Chapter 6.

8.4. Description of the Projected Reporting, Record-keeping, and Other Compliance Requirements of the Proposed Rule, Including an Estimate of the Classes of Small Entities Which Would Be Subject to the Requirements of the Report or Record

None of the alternatives considered for this proposed rule would result in additional reporting, record-keeping, and compliance requirements that would require new Paperwork Reduction Act filings.

8.5. Identification of All Relevant Federal Rules Which May Duplicate, Overlap, or Conflict with the Proposed Rule

Fishermen, dealers, and managers in these fisheries must comply with a number of international agreements, domestic laws, and other FMPs. These include, but are not limited to, the Magnuson-Stevens Act, the Atlantic Tunas Convention Act, the High Seas Fishing Compliance Act, the Marine Mammal Protection Act, the Endangered Species Act, the National Environmental Policy Act, the Paperwork Reduction Act, and the Coastal Zone Management Act. NMFS strives to ensure consistency among the regulations with Fishery Management Councils and other relevant agencies. NMFS does not believe that the proposed regulations would conflict with any relevant regulations, federal or otherwise.

8.6. Description of Any Significant Alternatives to the Proposed Rule That Accomplish the Stated Objectives of Applicable Statutes and That Minimize Any Significant Economic Impact of the Proposed Rule on Small Entities

One of the requirements of an IRFA is to describe any alternatives to the proposed rule which accomplish the stated objectives and which minimize any significant economic impacts. These impacts are discussed below and in Chapters 4 and 6 of this document. Additionally, the Regulatory Flexibility Act (5 U.S.C. § 603 (c) (1)-(4)) lists four general categories of

“significant” alternatives that would assist an agency in the development of significant alternatives. These categories of alternatives are:

1. Establishment of differing compliance or reporting requirements or timetables that take into account the resources available to small entities;
2. Clarification, consolidation, or simplification of compliance and reporting requirements under the rule for such small entities;
3. Use of performance rather than design standards; and,
4. Exemptions from coverage of the rule for small entities.

In order to meet the objectives of this proposed rule, consistent with Magnuson-Stevens Act and the Endangered Species Act (ESA), NMFS cannot exempt small entities or change the reporting requirements only for small entities. Thus, there are no alternatives discussed that fall under the first and fourth categories described above. In addition, none of the alternatives considered would result in additional reporting or compliance requirements (category two above). NMFS does not know of any performance or design standards that would satisfy the aforementioned objectives of this rulemaking while, concurrently, complying with the Magnuson-Stevens Act. As described below, NMFS analyzed six different alternatives for retention limits, and five different alternatives for upgrading, in this proposed rulemaking and provides justification for the selection of the preferred alternative to achieve the desired objective.

Two major topics were addressed for revitalizing the swordfish fishery. Topic 1 examined the North Atlantic Swordfish Retention Limits. Topic 2 examined the HMS limited access vessel upgrading restrictions.

The alternatives considered for modifying the North Atlantic swordfish retention limits included: no action (Alternative 1a); removing the retention limit for Incidental swordfish limited access permit holders, except that the Incidental limit for vessels participating in the squid trawl fishery would be increased to ten, until 70 percent of the adjusted domestic semi-annual quota is projected to be landed (Alternative 1b); increasing the North Atlantic swordfish retention limit for Incidental swordfish limited access permits to 30 fish per vessel per trip and increase the limit for squid trawl vessels with Incidental swordfish permits to 15 fish per vessel per trip (Alternative 1c); increasing the North Atlantic swordfish retention limit for Incidental swordfish limited access permits to 15 fish per vessel per trip and increase the limit for squid trawl vessels with Incidental swordfish permits to 10 fish per vessel per trip (Alternative 1d); implement the swordfish retention limit for HMS CHB vessels of one fish per paying passenger, up to six swordfish per trip for charter vessels and 15 swordfish per trip for headboat vessels (Alternative 1e); and implement a swordfish recreational retention limit for HMS Angling category vessels of one fish per person per trip, up to four swordfish per vessel per trip (Alternative 1f). The Incidental swordfish limit of 30 per vessel per trip, except for squid trawl vessels that are limited to 15, is the preferred alternative (Alternative 1c). In addition, increasing the HMS CHB limit to six swordfish per charter vessel, 15 for headboat vessels (Alternative 1e), and four per vessel for Angling category vessels (Alternative 1f) are also preferred alternatives.

All of the alternatives, except the no action alternative, provide positive economic impacts to small businesses. Alternative 1b could potentially result in greater benefits to small entities.

However, the ecological impacts are likely to be greater than the preferred Alternative 1c. In addition, the uncertainty associated with potentially achieving 70 percent of the adjusted domestic quota during a semi-annual season could make business planning more uncertain and diminish the benefits of this less restrictive alternative.

The alternatives considered for modifying HMS limited access vessel upgrading and permit transfer upgrading restrictions included: no action (Alternative 2a); waiving HMS limited access vessel upgrading and permit transfer upgrading restrictions for all vessels that are authorized to fish with longline gear for swordfish and tunas for 10 years (Alternative 2b); waiving HMS limited access swordfish handgear vessel upgrading and permit transfer upgrading restrictions for 10 years (Alternative 2c); waiving all HMS limited access vessel upgrading and permit transfer upgrading restrictions for 10 years (Alternative 2d); and establishing new HMS limited access vessel upgrading and permit transfer upgrading restrictions only for HMS vessels that are authorized to fish with pelagic longline for swordfish and tunas equivalent to 35 percent LOA, GRT, and NT, as measured to baseline vessel specifications, and remove horsepower upgrading and permit transfer upgrading restrictions for these vessel (Alternative 2e). The last alternative, which would restrict vessel size upgrades to 35 percent and remove horsepower upgrading restrictions, is the preferred alternative (Alternative 2e).

All of the alternatives, except the no action alternative, provide positive economic impacts to small businesses. Alternatives 2b, 2c, and 2d would provide greater flexibility than the preferred alternative. However, it is unlikely that many vessels would need to utilize greater than a 35 percent increase in size based on LOA, GRT, and NT. The ten-year period associated with Alternatives 2b, 2c, and 2d may, or may not, provide all fishery participants with enough time to acquire the capital and complete desired upgrades greater than 35 percent in length. The preferred alternative does not have a time restriction, and therefore may provide more flexibility in financing and completing upgrades in the future. Preferred alternative 2e also ensures that capacity in the fishery would not increase by an unlimited amount. If capacity were to increase by an unlimited amount under the non-preferred alternatives, swordfish prices and vessel profitability could decline in the long-term depending upon swordfish landings, and potentially create unquantifiable adverse ecological consequences.

9.0 COMMUNITY PROFILES

This chapter serves as a brief overview and determination of the social impacts associated with the proposed swordfish revitalization regulations. A more comprehensive review of community profiles for all HMS fisheries can be found in Section 9 of the Final Consolidated HMS FMP (NMFS, 2006).

9.1 Introduction

Mandates to conduct social impact assessments come from both the NEPA and the Magnuson-Stevens Act. NEPA requires federal agencies to consider the interactions of natural and human environments by using a “systematic, interdisciplinary approach, which would ensure the integrated use of the natural and social sciences...in planning and decision-making” (§102(2)(A)). Moreover, agencies need to address the aesthetic, historic, cultural, economic, social, or health effects, which may be direct, indirect, or cumulative. Consideration of social

impacts is a growing concern as fisheries experience increased participation and/or declines in stocks. With an increasing need for management action, the consequences of these actions need to be examined in order to mitigate the negative impacts experienced by the populations concerned.

Social impacts are generally the consequences to human populations that follow from some type of public or private action. They may include alterations to the ways people live, work or play, relate to one another, and organize to meet their needs. In addition, cultural impacts, which may involve changes in values and beliefs that affect people's way of identifying themselves within their occupation, communities, and society in general, are included under this interpretation. Social impacts analyses help determine the consequences of policy action in advance by comparing the status quo with the projected impacts. Although public hearings and scoping meetings provide input from those concerned with a particular action, they do not constitute a full overview of the affected constituents.

NMFS does not anticipate that the preferred alternative would result in significant social impacts. In fact, there could likely be some positive social impacts as a result of potentially increasing incidental trip limits for swordfish and relaxing upgrading restrictions for HMS limited access vessels under the proposed alternatives. In general, a minor increase in swordfish fishing effort and, possibly, boat building activity could result and have positive impacts on some communities. Thus, this regulation would comply with the National Standards of the Magnuson-Stevens Act (see Chapter 9).

Figure 14 and Table 14 shows the top five states that have the highest number of directed and/or incidental swordfish permit holders (Florida, New Jersey, Louisiana, Massachusetts and New York). These would likely be the states that may most benefit from the proposed swordfish revitalization alternatives. However, if there were any negative social impacts associated with this rulemaking, they would most likely occur in communities with high numbers of recreational anglers targeting swordfish, since increased commercial swordfish harvesting could impact recreational fishing. The East Coast of Florida is one of the regions that would be sensitive to any potential impacts on the recreational swordfish sector. It is possible that modifying upgrading restrictions for PLL vessels will may allow PLL vessels to fish further offshore, and thereby relieve fishing effort in nearshore areas.

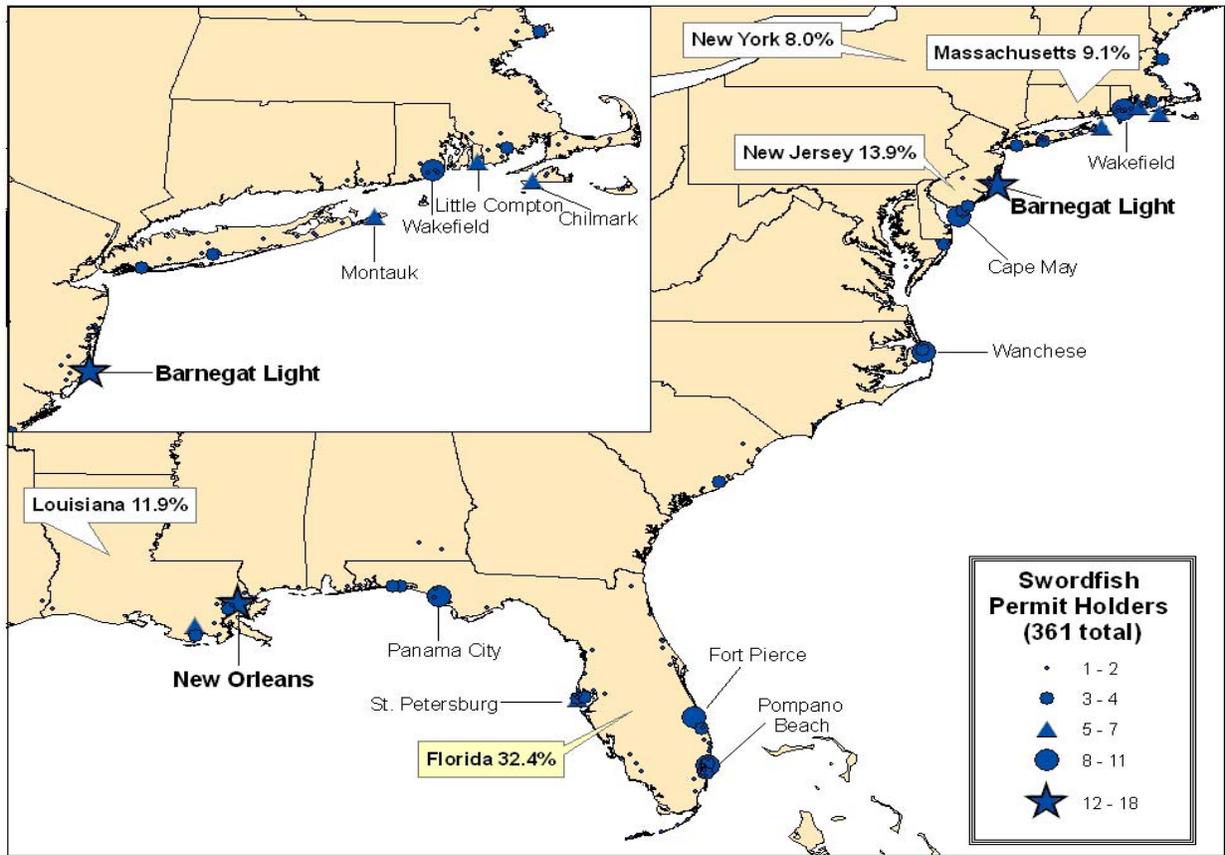


Figure 14. Location of the Swordfish Permit Holders as of February 2006 and the percentage of swordfish permit holders for the top five states Source: NMFS Southeast Regional Office Permits Database.

Table 14. Number and Percentage of Commercial Swordfish Permit Holders by State as of February 2006.

Swordfish Permits		
State	Total	%
Florida	117	32.4%
New Jersey	50	13.9%
Louisiana	43	11.9%
Massachusetts	33	9.1%
New York	29	8.0%
Rhode Island	27	7.5%
North Carolina	20	5.5%
Maryland	7	1.9%
South Carolina	7	1.9%
Texas	7	1.9%
Virginia	5	1.4%
Maine	4	1.1%
Alabama	3	0.8%
California	2	0.6%
Connecticut	2	0.6%

Mississippi	2	0.6%
Delaware	1	0.3%
New Hampshire	1	0.3%
Virgin Islands	1	0.3%
Grand Total	361	100%

9.2. State and Community Profiles

Section 9.4 of the Consolidated HMS FMP provides a comprehensive summary of the states and communities that participate in HMS fisheries and are affected by HMS regulations.

10.0 OTHER CONSIDERATIONS

10.1. National Standards

The analyses in this document are consistent with the National Standards (NS) set forth in the 50 CFR part 600 regulations.

According to the latest stock assessment, North Atlantic swordfish are nearly rebuilt. This proposed rule is consistent with NS 1, in that it would continue to prevent overfishing of swordfish in the Atlantic Ocean. Because the alternatives are based on the results of the 2006 ICCAT SCRS stock assessment, the alternatives considered are based on the best scientific information available (NS 2), including self-reported, observer, and stock assessment data which provide for the management of the species throughout its ranges (NS 3). The proposed alternatives do not discriminate against fishermen in any state (NS 4) nor do they alter the efficiency in utilizing the resource (NS 5). With regard to NS 6, the proposed alternative takes into account any variations that may occur in the fishery and the fishery resources. Additionally, NMFS considered the costs and benefits of these management measures economically and socially under NS 7 and 8 in sections 6, 7, 8, and 9 of this document. The proposed measure would ensure that bycatch is accounted for in the Atlantic swordfish fisheries and that NMFS has considered the impact of the proposed action on protected species (NS 9). Finally, this proposed rule would not require fishermen to fish in an unsafe manner but, rather, may improve safety at sea (NS 10).

10.2. Paperwork Reduction Act

This action does not contain any new collection-of-information requirements for purposes of the Paperwork Reduction Act.

10.3. Federalism

This action does not contain regulatory provisions with federalism implications sufficient to warrant preparation of a Federalism Assessment under E.O. 13132.

11.0 LIST OF PREPARERS

A team of individuals prepared this document from the Highly Migratory Species Management Division, Office of Sustainable Fisheries (F/SF1), NMFS, including

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12.0 LIST OF AGENCIES AND PERSONS CONSULTED

Discussions pertinent to the formulation of the proposed actions involved input from a variety of scientific and constituent interest groups including the U.S. delegation to ICCAT (including commercial and recreational fishermen, and environmental advocates), ICCAT's SCRS, ICCAT (35 member states), staff from the International Fisheries Division of NMFS, and the NOAA's General Counsel for Fisheries.

13.0 REFERENCES

NMFS. 1999. Fishery Management Plan for Atlantic Tunas, Swordfish, and Sharks. U.S. Department of Commerce, National Oceanographic and Atmospheric Administration, Silver Spring, MD.

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SCRS. 2006. Report of the Standing Committee on Research and Statistics, PLE-014/2006, ICCAT SCRS, Madrid Spain, October 2 to 6, 2006.

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Drafted by Rick Pearson 11/02/2006