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ENVIRONMENTAL IMPACT STATEMENT

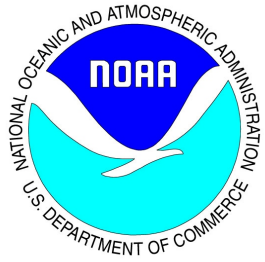
SEABIRD INTERACTION MITIGATION METHODS

Under The
FISHERY MANAGEMENT PLAN
PELAGICS FISHERIES OF THE WESTERN PACIFIC REGION

and

PELAGIC SQUID FISHERY MANAGEMENT

Under The
FISHERY MANAGEMENT PLAN
PELAGICS FISHERIES OF THE WESTERN PACIFIC REGION
and the
HIGH SEAS FISHING COMPLIANCE ACT



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Draft Environmental Impact Statement

Seabird Interaction Mitigation Methods
Under the
Fishery Management Plan
Pelagics Fisheries of the Western Pacific Region

and

Pelagic Squid Fishery Management
Under the
Fishery Management Plan
Pelagics Fisheries of the Western Pacific Region
and
High Seas Fishing Compliance Act

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Abstract: Two disparate actions with unrelated objectives affecting two fisheries currently prosecuted under different authorities are assessed in this document. The first action is intended to reduce interactions with seabirds in the Hawaii-based longline fishery. Hawaii-based pelagic longline fishing operations hook and kill black-footed albatrosses and Laysan albatrosses that nest in the Northwestern Hawaiian Islands. They potentially interact with the endangered short-tailed albatross. Historically, seabird interactions were most frequent with fishing vessels targeting broadbill swordfish (shallow-sets) or a mixture of swordfish and tuna (mixed-sets), and fishing near known seabird nesting (Northwestern Hawaiian Islands) or foraging areas. Vessels targeting bigeye tuna using deep-sets had about an order of magnitude lower seabird interaction rates than those targeting swordfish using shallow or mixed-sets. The swordfish sector of the fishery was closed in 2001 because of excessive interactions with endangered and threatened sea turtles, but was reopened in April of 2004 under new regulations implementing measures shown to significantly reduce sea turtle interactions in Atlantic tests. This EIS analyzes alternatives to reduce seabird interactions in the Hawaii-based longline fleet. Various seabird interaction mitigation methods, singly and in combination, are analyzed for efficacy in reducing seabird interactions, operational practicability, ease of enforcement, and cost.

The second action assessed in this document is management of the nascent U.S. high seas squid jigging fishery. Two independent sets of alternatives for management of this fishery are evaluated that would effect management regimes authorized under the High Seas Fishing Compliance Act and the Magnuson-Stevens Fishery Conservation and Management Act, respectively. Thus, this action has both regional objectives (management of squid jigging or landing of product within the U.S. EEZ in the Western Pacific Region) and national objectives (NEPA compliance for the U.S. high seas squid jigging fishery).

Executive Summary

Purpose and Need

Two disparate actions with unrelated objectives affecting two fisheries currently prosecuted under different authorities are assessed in this document. The first action is intended to reduce the adverse effects of interactions with seabirds in the Hawaii-based longline fishery. The management regime for that fishery recently changed to permit a model swordfish fishery to operate. In 2001, that sector (shallow-set longline) of the fishery was closed due to excessive takes of endangered and threatened sea turtles. That sector of the fishery also had about an order of magnitude greater incidence of interactions with seabirds than did the deep-set, tuna-targeting sector of the fishery, which continued to operate. The new model swordfish fishery will employ several measures expected to greatly minimize interactions with endangered sea turtles, however, effects of these measures on the rates and consequences of interactions with seabirds are uncertain. Additional protections to seabirds may be afforded by changes to required or optional seabird deterrent methods suggested by the results of recent sea trials.

The second action assessed in this document is management of the nascent U.S. high seas squid jigging fishery. Although high seas squid jigging is a very large international fishery, U.S. participation has been minimal to date, with but four vessels participating in the fishery since 2001. For several reasons however, assessment of the impacts of various potential management regimes for this fishery is appropriate at this time. The National Marine Fisheries Service (NMFS or NOAA Fisheries) and the regional fishery management councils established under the Magnuson Stevens Act (MSA) are moving towards ecosystem-based management of fisheries. As squid form an important prey base for many pelagic species including protected marine mammals and seabirds, as well as tunas and billfish, it may be appropriate to include squid in fishery management plans (FMP) for pelagic species. In response to reports of squid jigging occurring within the U.S. Exclusive Economic Zone (EEZ) around the Hawaiian Islands and the landing of squid in Honolulu, The Western Pacific Regional Fishery Management Council (WPRFMC or Council) is considering management of squid species under the Pelagics FMP.

Currently, high seas squid jigging by U.S. vessels is managed under the High Seas Fishing Compliance Act (HSFCA), and vessels participating in that fishery carry HSFCA permits. A recent court decision requires that NMFS bring all high seas fisheries authorized under the HSFCA into full compliance with provisions of NEPA, the ESA and the Marine Mammal Protection Act (MMPA). Although some of the fisheries permitted under the HSFCA are currently in compliance with those laws, others are not. Specifically, the U.S. high seas squid jigging fishery has not been assessed under NEPA, and further permitting of vessels in that fishery cannot be done until requirements of NEPA (and the ESA and MMPA) are fulfilled. Thus, the second action assessed in this document has both regional objectives (management of squid jigging or landing of product within the U.S. EEZ in the Western Pacific Region) and national objectives (NEPA compliance for the U.S. high seas squid jigging fishery).

Objectives

The specific objectives for the two actions assessed in this EIS are taken from preliminary action documents of the Western Pacific Regional Fishery Management Council (WPRFMC or Council) and repeated here, as follows:

1. The primary objective of the seabird management action is the cost-effective further reduction of the potentially harmful effects of fishing by Hawaii-based longline vessels on the short-tailed albatross, but the overarching goal is to reduce the potentially harmful effects of fishing by Hawaii-based longline vessels on all seabirds, and
2. The objective of the squid fishery management action is to establish appropriate mechanisms for the monitoring and management of pelagic squid harvest by domestic vessels, whether fishing under the authority of the MSA (Council fisheries) or the High Seas Fishing Compliance Act (high seas fisheries).

Because of the two authorities contained in this objective, two sub-objectives were defined by the Council as follows:

Sub-objective A. To establish appropriate mechanisms for the monitoring and management of pelagic squid fishing activities by domestic vessels currently regarded as within the Western Pacific Fishery Management Council's authority (i.e., vessels fishing for squid or landing squid in ports within the U.S. Western Pacific EEZ). Implementation of an alternative under this sub-objective would be done under the authority of the MSA.

Sub-objective B. To establish appropriate mechanisms for the monitoring and management of pelagic squid fishing activities by domestic vessels not currently regarded as subject to any Council's jurisdiction (i.e., vessels fishing for squid outside of the U.S. EEZ and making landings in ports outside of the U.S. EEZ). Implementation of an alternative under this sub-objective would be done under the authority of the HSFCA.

Alternatives

Seabird Alternatives

There are numerous seabird mitigation methods developed by fishermen and scientists that are aimed at keeping or deterring albatrosses from baited longline hooks. In 1991, Brothers had a fishing master deploy a diversion steamer line and found that it reduced bait loss to birds by 69% (Brothers 1991). Prior to 1991, fishing masters had tried towing buoys, throwing explosives, towing artificial lures and adding weights to sink baits faster (Brothers 1991). Since then additional mitigation methods have been invented (Alexander et al., 1997; Brothers et al., 1999ab; McNamara et al., 1999; Boggs, 2001; Melvin et al., 2001; Gilman et al., 2002, 2003;). All mitigation methods, regardless of the details of their design or implementation methodologies, attempt to do one of the following in order to keep albatrosses away from baits or minimize the effects of their being hooked:

1. Make baits difficult for birds to detect;
2. Make baits difficult for birds to reach;

3. Frighten, physically deter or draw birds away from baits;
4. Reduce the chance of a bird being hooked if it does swallow a bait;
5. Reduce the number of birds congregating around the fishing vessel; and
6. Increase the survival of hooked birds.

The characteristics of individual seabird mitigation methods were considered in formulating alternatives. The potential methods include those that were specified by the USFWS in its 2000 Biological Opinion on effects of the fishery (thawed blue-dyed bait, strategic offal discard, line shooter with weighted branch lines, seabird handling techniques, protected species workshop, night setting), a deterrent that has proven effective elsewhere in other fisheries (towed deterrent), and two more recently developed "hardware" solutions (setting chute and side-setting).

Individual seabird mitigation methods were combined to determine if there were combinations of methods that worked substantially better than a single method alone. In general, combinations involving side setting faired best, but every combination had liabilities of one sort or another. Specifically, combinations employing blue bait suffered from the decreased performance of the dye on fish (now required to be used as bait as a result of mitigation of sea turtle interactions) as compared with squid. Strategic offal discards may ultimately serve to attract more birds to the vicinity of the longline vessels. Line shooters work well for deep-sets, but are inappropriate for shallow-sets. Towed deterrents can be problematic operationally. Night setting is appropriate for shallow-sets but not for deep-sets. For the setting chute to be a reliable, convenient method, additional design development is required to resolve the difficulties encountered in testing of the prototypes.

The best combination appears to be side setting at night, followed respectively by side setting with a line shooter, side setting with blue bait, side setting with strategic offal discard and night setting with a line shooter. For the reasons given above however, each of these combinations has liabilities. In developing alternatives, three conclusions emerged from this analysis:

1. Side setting appears to be the single best deterrent measure and it is not improved much by adding other deterrent methods in combination,
2. The suite of measures currently required by or optionally permitted by the 2000 USFWS BiOp and current regulations for the deep and shallow sectors of the Hawaii-based longline fishery is a good default package of deterrents for vessels unable to employ side setting; and
3. Because of operational liabilities, consideration should be given to eliminating blue-dyed bait and strategic offal discards from the default suite of measures.

In consideration of the above, a wide variety of alternatives were examined. These alternatives are generally of the form where vessels may use the current suite of measures or one of the individual methods above, but alternatives are offered which also consider requiring side setting and dropping blue-dyed bait and strategic offal discard from the default suite of measures.

Squid Fishery Management Alternatives

There were two sets of squid fishery management alternatives corresponding to the sub-objectives stated above. In addition to the no action alternatives, each set of alternatives included

an alternative to enlist the voluntary collection of data by participants and placement of observers on their vessels. These alternatives include development of an accessible, centralized database of information on the fishery. Each set also included alternatives that would make these measures mandatory. Additional alternatives considered placement of the pelagic squid jigging fishery under an existing or a new Fishery Management Plan. Finally, alternatives were considered to promote international management of pelagic squid resources.

Preferred Alternatives

The Council's preliminary preferred alternatives are as follows.

Seabird Mitigation Preferred Alternative

"Alternative SB7C: Swordfish (shallow-setting) vessels use "current" mitigation measures except thawed blue-dyed bait, or use side setting, or use an underwater setting chute that has a minimum of 2.9m of its shaft underwater, or use a tori line (e.g., paired streamer lines), in all areas. Tuna (deep-setting) vessels use "current" mitigation measures except thawed blue-dyed bait, or use side setting in conjunction with a line shooter and weighted branch lines, or use an underwater setting chute that has a minimum of 2.9m of its shaft underwater, or use a tori line (e.g., paired streamer lines) in conjunction with a line shooter and weighted branch lines, when fishing north of 23°N."

Under this alternative operators of Hawaii longline vessels targeting swordfish (shallow-setting) could elect to (a) use the measures currently required for vessels fishing north of 23°N as described above except the requirement to use thawed blue-dyed bait, or (b) employ side setting with 60g swivels within 1m of the hook according to the specifications, below, or (c) use an underwater setting chute that has a minimum of 2.9m of its shaft underwater, or (d) employ one or more tori bird-scaring lines according to the design used by McNamara et al. (1999) and Boggs (2001), in all areas.

Operators of Hawaii longline vessels targeting tuna (deep-setting) could elect to (a) use the measures currently required for vessels fishing north of 23°N as described above except the requirement to use thawed blue-dyed bait, or (b) employ side setting with 60g swivels within 1m of the hook according to the specifications above in conjunction with a line shooter with weights of at least 45 g placed within one meter of each hook, or (c) use an underwater setting chute that has a minimum of 2.9m of its shaft underwater, or (d) employ one or more tori bird-scaring lines according to the design used by McNamara et al. (1999) and Boggs (2001), when fishing north of 23°N.

Squid Fishery Management Preferred Alternatives

The Council's preliminary preferred alternatives for the respective sub-objectives are as follows.

"SQA.3. Improve mandatory monitoring and establish mechanisms for management by including pelagic squid in the Council's existing Pelagics Fishery Management Plan. Replace HSFCA logbooks currently used with logbooks specifically designed for squid harvesting, and require

operators of squid vessels permitted under the HSFCA to also include any EEZ fishing activities in this logbook. Require vessels that harvest pelagic squid solely in EEZ waters to either use this logbook or to participate in local reporting systems. Centralize this data into a database easily available to resource managers."

"SQB.4 Improve mandatory monitoring by replacing the HSFCA logbooks currently used with required logbooks specifically designed for squid harvesting. Centralize this data into a database easily available to resource managers. In addition, revise HSFCA permit applications to indicate the specific fisheries (including both gears and target species) in which permittees anticipate fishing on the high seas (e.g., jigging for pelagic squid)."

Issues to be Resolved

Many of the seabird mitigation alternatives have variations in which the measures apply when fishing north of 23°N or in all areas. The original selection of this latitude above which to apply mitigation measures was based on the southernmost siting of a short-tailed albatross. Further analysis of NMFS observer data is required to determine if this latitude is the most appropriate threshold above which to require mitigation methods for all seabirds.

There is not enough observer data yet in the newly authorized swordfish fishery to determine the effects of the new turtle mitigation measures (circle hooks, mackerel-type bait) on seabird interactions.

Adequate abundance data for nonbreeding and subadult seabirds is lacking, inhibiting conclusions about long-term population trajectories.

Much of the basic biology of squid species and information regarding the status of the stocks is currently unknown. Additional research is needed in these areas.

With regard to the squid fishery management issue, it has not been determined if fishery management councils would be authorized to manage high seas fisheries if neither fishing operations nor landing of catch took place in areas under council authority.

Areas of Controversy

With respect to the status of pelagic management unit species, there is currently a lively controversy about the claims that the abundance of top predators in the world's oceans has decreased by some 90%, despite the high levels of tuna landings and recruitment.

Use of the black-footed albatross as a proxy in modeling the short-tailed albatross population has been criticized as inappropriate.