

## **Modify Federal Regulations for Swordfish Trip Limits the Deep-set Tuna Longline Fishery**

(Action Pursuant to Modification of Routine Management Measures under the Framework in the Fishery Management Plan for U.S. West Coast Fisheries for Highly Migratory Species)

### **Decision Support Document**

November 2010

#### **1.0 Proposed Action, Purpose and Need**

The proposed action is to amend regulations at 50 CFR 600.705(s), 50 CFR 660.705(mm), 50 CFR 660.712(a)(10), 50 CFR 660.712(a)(11), and 50 CFR 223.206(d)(9)(iii) so as to make them consistent with a recommendation made by the Western Pacific Fishery Management Council (WPFMC) for vessels operating under a western Pacific longline permit. The WPFMC recommendation is to establish a 25 swordfish trip limit for deep-set longline vessels targeting tuna using circle hooks, and 10 swordfish per trip for vessels using tunahooks (J hooks), if vessels are not carrying observers. If an observer is being carried by a deep-set tuna vessel then there is no limit to the amount of swordfish that can be retained by a longline vessel, nor any mandatory requirement to use circle hooks.

According to the WPFMC the 10 swordfish limit was originally established for the Hawaii fishery to “prevent vessels departing ostensibly to fish with deep set longlines to catch bigeye and yellowfin tuna, from switching to shallow set gear and targeting swordfish while on the same trip.” However, there are a number of other regulations that prohibit both Hawaii and west coast longline vessels from targeting swordfish, unless authorized to do so. Parallel Hawaii and west coast regulations define deep-set longline by specifying the following requirements: no light sticks on the fishing vessel, minimum float line length of 20 m (65.6 ft or 10.9 fm), no fewer than 15 branch lines may be set between any 2 floats, and the deepest point of the main longline between any 2 floats must be at a depth greater than 100 m (328.1 ft or 54.6 fm) below the sea surface.

Although prohibited for west coast vessels, the WPFMC has authorized a Hawaii-based shallow-set longline fishery targeting swordfish. Since 2004, shallow-set swordfish longlining has been regulated with required gear (18/0 circle hooks, mackerel type bait), 100 percent observer coverage, hard limits on loggerhead (17) and leatherback (16) turtle interactions, and a limit of 2,120 sets of shallow-set fishing effort per season (50 percent of the average pre 2000 level), with set certificates distributed to the longline fishermen. In 2009, the WPFMC amended the Pelagics Fishery Ecosystem Plan to remove the set limits on the swordfish longline fishery for the fishing year 2010 onwards and modified the hard limit for incidental takes from 17 to 46 loggerhead turtles, while maintaining the current limit of 16 leatherback takes (74 FR 65460).

The WPFMC provided the following reasons for increasing the swordfish retention limit:

- Since an expanded shallow-set longline fishery is now in effect, there is less incentive for vessels making a deep-set trip to fish in a manner that increases their swordfish catch.
- According to the most recent assessments<sup>1</sup> North Pacific swordfish stocks in the Western and Central Pacific and Eastern Pacific are in healthy condition; thus, there is not a concern that any modest increases in catch resulting from this change would adversely affect the stock.
- The current 10 swordfish retention limit contributes to regulatory discards. Observer data from the Hawaii deep-set fishery show that only half of the swordfish are brought to vessel alive and 22 percent are discarded dead.

## 2.0 Alternatives

The Council adopted the following alternatives at their September 11-16, 2010 meeting in Boise, Idaho:

- Alternative 1 (No Action): Do not amend the regulations, retain the following current regulations:
  - 50 CFR 600.705(s): In addition to the general prohibitions specified in Sec. 600.725 of this chapter, it is unlawful for any person to do any of the following: ... Possess more than 10 swordfish on board a longline vessel from a fishing trip where any part of the trip included fishing west of 150° W. long. and north of the equator (0° lat.) in violation of Sec. 660.712(a)(9).
  - 50 CFR 660.705(mm): In addition to the general prohibitions specified in Sec. 600.725 of this chapter, it is unlawful for any person to do any of the following: ... Except when fishing under a western Pacific longline limited entry permit issued under Sec. 660.21, possess more than 10 swordfish on board a longline vessel from a fishing trip where any part of the trip included fishing on the high seas of the Pacific Ocean west of 150° W. long. north of the equator in violation of Sec. 660.720 (a)(iii).
  - 50 CFR 660.712(a)(10). Owners and operators of longline vessels registered for use of longline gear may land or possess no more than 10 swordfish from a fishing trip where any part of the trip included fishing west of 150° W. long. and north of the equator (0° N. lat.).
  - 50 CFR 660.712(a)(11). Owners and operators of longline vessels registered for use of longline gear are subject to the provisions at 50 CFR part 223 prohibiting shallow sets to target swordfish in waters beyond the U.S. EEZ and east of 150° W. long. and establishing that no more than 10 swordfish may be landed by a longline vessel registered for use of longline gear from a trip if any sets of longline gear were made on that trip in those waters.
  - 50 CFR 223.206(d)(9) (iii). An operator of a longline vessel subject to this section may land or possess no more than 10 swordfish from a fishing trip where any part of the trip included fishing east of 150° W. long. and north of the equator (0° N. lat.).

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<sup>1</sup> International Scientific Committee for Tuna and Tuna-like Species in the North Pacific Ocean (ISC). 2010. Report of the Tenth Meeting, Plenary Session. Victoria, B.C., Canada. July 21-26, 2010.

- Alternative 2: Amend regulations related to swordfish retention by deep-set longline vessels (cited above) so as to make them consistent with a recommendation made by the WPFMC for vessels operating under a western Pacific longline permit.
  - Owners and operators of longline vessels registered for use of longline gear may land or possess no more than 10 swordfish from a fishing trip if using tuna hooks (J hooks) and not carrying a fishery observer.
  - Owners and operators of longline vessels registered for use of longline gear may land or possess no more than 25 swordfish from a fishing trip if using circle hooks and not carrying a fishery observer.
  - Owners and operators of longline vessels registered for use of longline gear and carrying a fishery observer are not limited on the number of swordfish they may land or possess on any trip.

Regulations at 50 CFR 660.712(a)(2), 50 CFR 660.712(a)(11), and 50 CFR 223.206(d)(9) prohibit west coast longline vessels from making shallow sets to target swordfish. These regulations would remain in place.

### 3.0 Evaluation

Currently a single west coast based vessel fishes with deep-set longline gear on the high seas. Data confidentiality provisions in the Magnuson-Stevens Act prohibit reporting information when three or fewer vessels are involved in order to protect confidential business information. Therefore, the incidental swordfish catches by this single vessel can only be used to evaluate the possible effects of the proposed action if the person submitting the information can authorize its release.<sup>2</sup>

The WPFMC prepared a document, *Potential modification of the Hawaii deep-set tuna longline swordfish trip limit; a regulatory amendment to the Fishery Ecosystem Plan for Pelagic Fisheries of the Western Pacific Region including a Draft Environmental Assessment*, which provides information on incidental catches in the Hawaii deep-set tuna fishery. This information can be used as a gauge for the potential effects of the proposed regulatory change. In addition, the NMFS Southwest Region has drafted an environmental assessment (EA) for the west coast deep-set longline fishery.<sup>3</sup> This EA characterizes the fishery and anticipates that at most five vessels would participate in the fishery under current conditions.

#### 3.1 Swordfish Catch in the Hawaii Deep-set Longline Fishery

The WPFMC draft EA reports both logbook and observer data on swordfish catch in the Hawaii deep-set longline fishery. There are discrepancies between the two data sources in terms of reported rates of swordfish catch and retention. The fishery is subject to approximately 20 percent observer coverage. Therefore, logbooks records provide a larger pool of data, but this information appears to be subject to particular forms of bias, primarily under-reporting of non-target species.

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<sup>2</sup> Approval for release of this information is pending and if granted will be provided supplementally.

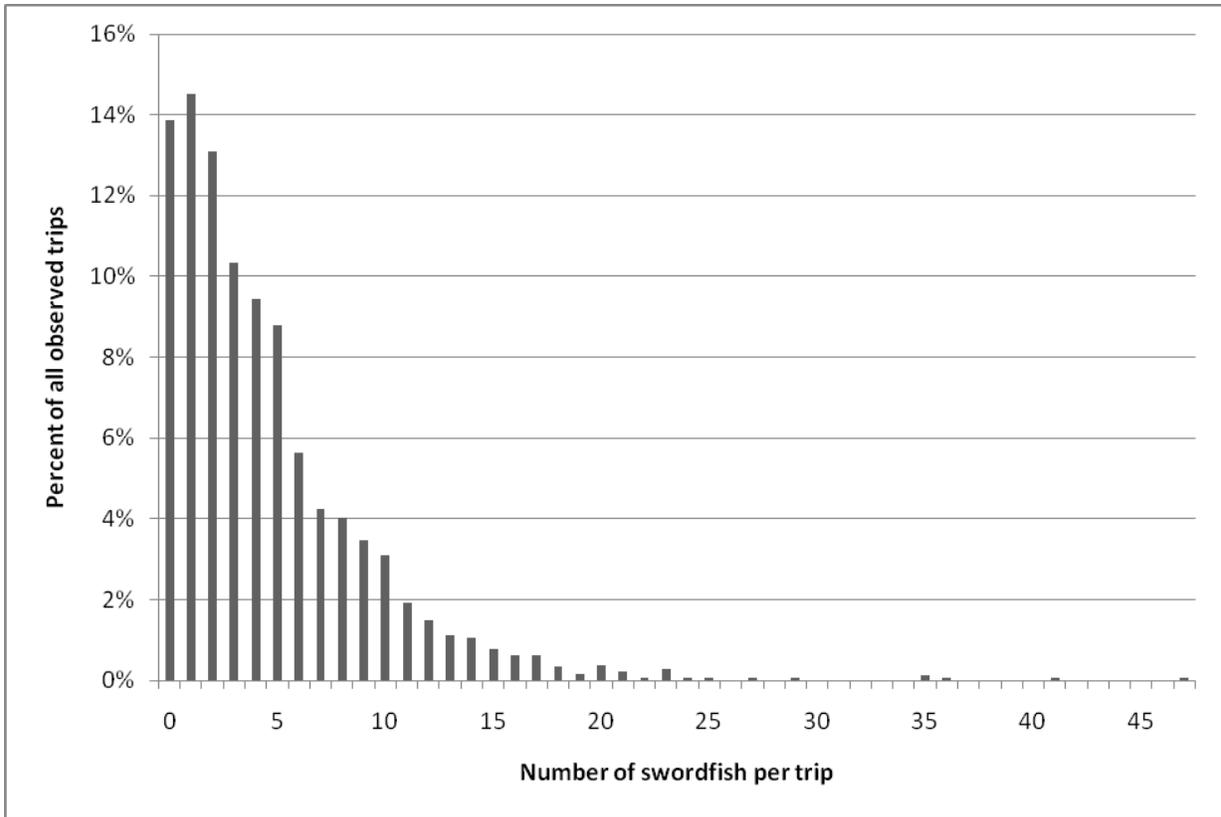
<sup>3</sup> Although the EA has been completed, it is not considered final, pending the signing of the Finding of No Significant Impact (FONSI), which is contingent on completion of the required biological opinion pursuant to Section 7 of the Endangered Species Act.

Table 1 present an extract of observer data reported in the WPFMC draft EA showing swordfish caught on deep-set trips and the disposition (kept or discarded) of swordfish caught. The EA also presents logbook data, but since that data source appears less reliable it is not reproduced here. It can be seen that on average fewer than 10 swordfish are caught per observed trip in the Hawaii fishery. However, the distribution of swordfish caught per trip is highly skewed, as shown in Figure 1. Figure 1 shows a frequency distribution of the number of swordfish caught per trip by percentage of all observed trips in the 5-year period, 2004-2009. These data show that more than 10 swordfish were caught on 9.4 percent of these trips. Of all the swordfish caught on these trips 32 percent were in excess of the 10 fish per trip limit. Put another way, if there were no economic discards, about one third of the swordfish caught on all these trips would be discarded due to the trip limit.

**Table 1. Observed swordfish catch in the Hawaii deep-set tuna fishing tuna fishery, observed sets 2004-2009. (Source: Table 4 in WPFMC draft EA).**

Year	Observed Swordfish Kept	Observed Swordfish Released	Observed Swordfish Total	Observed Trips	Percent of Swordfish Kept	Average Swordfish Caught per Trip	Average Swordfish Kept per Trip
2004	876	825	1,701	337	51.5%	5.0	2.6
2005	834	638	1,472	369	56.7%	4.0	2.3
2006	772	401	1,173	283	65.8%	4.1	2.7
2007	719	696	1,415	276	50.8%	5.1	2.6
2008	1,028	408	1,436	293	71.6%	4.9	3.5
2009*	709	292	1,001	225	70.8%	4.4	3.2
<b>Total</b>	<b>4,938</b>	<b>3,260</b>	<b>8,198</b>	<b>1,783</b>	<b>60.2%</b>	<b>4.6</b>	<b>2.8</b>

\*2009 data does not include data for November and December.



**Figure 1. Frequency distribution (as a percent of all observed trips, 2004-2009) of the number of swordfish caught per trip by Hawaii deep set longline vessels, from observer records (Source: Figure 4 in WPFMC draft EA; data obtained from NMFS Pacific Islands Fishery Science Center)**

It can be seen in Table 1 that overall 40 percent of the swordfish were discarded (60 percent were retained). Since, 32 percent would have been discarded due to the trip limit, this suggests that at least an additional 8 percent are discarded for economic reasons. However, it can't be known whether economic discards are actually greater than 8 percent; all that can be said is that economic discards may account for between 8 and 40 percent of the swordfish catch. A variety of factors likely contribute to a decision on retention, including the size and condition of each fish, at what point on the trip it is caught (contributing to landed quality if the vessel relies on ice), and the tradeoff between hold space and the comparative market value of swordfish versus tuna.

### **3.2 Estimated Catch and Retention with Regulatory Change**

The draft EA prepared for the west coast deep-set longline EA assumes that a vessel will make up to five trips per year and, as mentioned, the fleet could potentially expand from the current single vessel up to five vessels. These assumptions are used in Table 2 to scale the frequency distribution shown in Figure 1 to a range of trip numbers to suggest how many swordfish could be retained under the current 10 fish trip limit, a 25 fish trip limit, and unlimited retention. The upper panel assumes no economic discards (all fish below the trip limits are retained) while the lower panel assumes a 60 percent retention rate to account for economic considerations (60 percent is the average retention rate from Table 1 and is applied to the distribution of swordfish catch per trip).

It should be noted that the current single vessel in the west coast fishery is subject to 100 percent observer coverage. The vessel owner also testified before the Council that he uses circle hooks exclusively in his fishing operations. Assuming the 100 percent observer coverage is ongoing, swordfish retention would not be limited.

**Table 2. Potential annual swordfish retention (number of fish) based on scaling the frequency distribution in Figure 1.**

	Number of trips per year in the fishery				
	5	10	15	20	25
<b>Assuming a 100% retention rate</b>					
<b>Swordfish retained with 10 fish trip limit</b>	16	31	47	62	78
<b>Swordfish retained with 25 fish trip limit</b>	22	44	66	89	111
<b>Swordfish retained with no trip limit</b>	23	46	69	91	114
<b>Assuming a 60% retention rate</b>					
<b>Swordfish retained with 10 fish trip limit</b>	9	19	28	37	47
<b>Swordfish retained with 25 fish trip limit</b>	13	27	40	53	66
<b>Swordfish retained with no trip limit</b>	14	27	41	55	69

### 3.3 Summary of Potential Environmental Impacts

**North Pacific swordfish:** As noted above, the most recent swordfish stock assessment, completed by the ISC in 2010, shows that the stock is above  $B_{MSY}$  and the fishing mortality rate is below  $F_{MSY}$ . Because the west coast fishery currently comprises a single vessel, and the best estimate is that the fleet is unlikely to enlarge beyond five vessels in foreseeable future, any increase in catch due to the regulatory change is negligible in comparison to stockwide catch (averaging 13,349 mt, 2000-2008). If the regulatory change doesn't prompt any behavioral changes (e.g., changes in timing and location of fishing to increase swordfish catch rate), the result of the action would be to convert some fraction of current bycatch into retained catch. However, since bycatch mortality is not 100 percent (i.e., some fraction of swordfish survive an encounter with the gear) a transfer from bycatch to retained catch would result in a small increase in effective fishing mortality.

**Protected species:** The draft EA on the deep-set fishery presents estimates of potential takes of marine mammals and sea turtles for the range of fishery sizes discussed above (one to five vessels). The likelihood of a marine mammal take is very low for the current fishery size of up to five vessels, based on scaling observed take rates in the Hawaii deep-set fishery. Similarly, that EA estimates sea turtle takes for a 3-year period of one each of green, leatherback, and loggerhead sea turtles and three olive ridley sea turtles. However, the owner-operator of the current single vessel in the fishery has testified before the Council that he has had a single take of an olive ridley sea turtle since he began the fishery. The likelihood of protected species takes is unlikely to change as a consequence of the proposed regulatory change, unless it prompted some change in fishing behavior affecting that likelihood. The WPFMC circle hook recommendation is based on a recommendation from the False Killer Whale Take Reduction Plan Team<sup>4</sup> to reduce mortality and serious injury to that marine mammal. There is not

<sup>4</sup> [http://www.nmfs.noaa.gov/pr/pdfs/interactions/fkwtrp\\_draft.pdf](http://www.nmfs.noaa.gov/pr/pdfs/interactions/fkwtrp_draft.pdf)

scientific consensus on the benefits of using circle hooks in deep-set tuna longline fisheries. It could decrease the chance of a sea turtle becoming hooked when taking bait, but in comparison to shallow-set fishing, turtles that become hooked are more likely to drown if they cannot reach the surface and a long time passes before the gear is retrieved. As noted, the single vessel in the fishery currently is subject to 100 percent observer coverage, so any protected species interactions would be fully monitored. Regulations would continue to prohibit shallow-set longline targeting swordfish for west coast vessels.

**Socioeconomic effects:** The proposed action would have a modest socioeconomic benefit commensurate with any increase in the number of swordfish that are retained because of the regulatory change. The data presented above from the Hawaii deep-set fishery suggest some level of economic discards and it isn't possible to distinguish what fraction of the discards can be attributed to economic factors and which fraction is discarded solely because of the regulatory limit. Thus, it is difficult to predict to what degree retention and related ex-vessel revenue would increase under the proposed action.

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