

TO: PACIFIC FISHERY MANAGEMENT COUNCIL

PURPOSE: The purpose of this paper is to assist the Council in its decision about management of the West Coast longline fishery by providing information about how the Endangered Species Act (ESA) will be applied in considering the Fishery Management Plan for West Coast Highly Migratory Species Fisheries (HMS FMP) when that FMP is submitted.

BACKGROUND: The Council voted in late 2002 to adopt the FMP for submission to the Secretary for review and implementation. The FMP would have allowed longline vessels to target swordfish in waters east of 150° West longitude (W. long.). The Council was presented with additional information in March and agreed to defer submission of the HMS FMP to allow time for scientists at the Southwest Fisheries Science Center (SWC) to assess whether sea turtle rates east and west of 150° W. long. were statistically different. This is a very important question because, if the rates are identical or similar, then the proposal to allow swordfish targeting by longline vessels east of 150° W. long. should be reconsidered due to the likelihood that sea turtle takes would be in excess of levels consistent with the ESA.

The HMS Plan Development Team (PDT), HMS Advisory Subpanel (ASP), and HMS Subcommittee of the Scientific and Statistical Committee were to meet and discuss with the SWC analysts the results of the review and possibly recommend adjustments in the management measures. The analysis by the SWC scientists indicated that there was no statistically significant difference in sea turtle interaction rates east and west of 150° W. long. Each of the Council's advisory groups will make recommendations based on the discussions following the SWC analysis.

ESA Requirements

1. Once the FMP is submitted by the Council, the Southwest Region Sustainable Fisheries Division will initiate a Section 7 consultation under the ESA with the Southwest Region Protected Resources Division. The Sustainable Fisheries Division will provide a Biological Assessment that will estimate the number of sea turtle takes and potential mortalities resulting from the fisheries as they would be expected to operate under the management measures recommended by the Council. The Protected Resources Division will analyze the results and prepare a Biological Opinion that will evaluate the anticipated impacts of the fisheries to determine if the fisheries would jeopardize the continued existence of any listed species
2. The consultation will consider the past and present management programs for highly migratory species fisheries and fishery conditions and the effects on turtles of the full range of activities that are affecting turtles throughout their range in the Pacific as the environmental baseline for the evaluation of the impacts of the sea turtle takes and mortalities ultimately expected from the fisheries operating under the Council's management plan.
3. The consultation will consider the extent to which each fishing sector in the West Coast fisheries interact with sea turtles as well as assess the impacts on sea turtle populations from the

combined take from all fishery sectors. Incidental take allowances (to the extent appropriate) will be specified by fishery sector.

4. If a jeopardy conclusion is reached, a Reasonable and Prudent Alternative will be identified. If there is no jeopardy, the Biological Opinion may still identify Reasonable and Prudent Measures and Conservation Recommendations to reduce adverse impacts or risk to the listed species.

Estimation of Sea Turtle Takes under Longline Management Alternatives

As indicated above, the Sustainable Fisheries Division will estimate sea turtle takes. This will be derived by multiplying 1) expected levels of fishing effort by fishing sector times 2) expected rates of sea turtle interactions. The focus in this paper is on expected longline fishing effort.

A review of vessel activity patterns by SWC staff indicates that about 1.55 million hooks were deployed by longline vessels operating out of the West Coast in 2002. Fishing is typically concentrated in the 1st and 4th quarters and limited fishing would be expected to occur in other portions of the year. It has been reported by industry representatives that the vessels normally move west of 140° W. long. following the fish in the 1st quarter but this has not been confirmed by a review of logbook records. If the fishery is not constrained, it appears reasonable to expect that there would be a continuation of the 2002 effort level. If constraints are imposed, some reduction of effort might occur as vessels could either shift to different fishing strategies or fisheries or shift to other areas (e.g., return to Hawaii).

In considering the options, it would be very helpful for the Council to discuss and estimate whether the 2002 level of effort is likely to continue or would be lower under alternative management decisions. For purposes of discussion, potential scenarios are presented below.

Comparison of Management Alternatives and Associated Estimated Fishing Levels

Alternative 1: No limit on swordfish targeting (ASP recommendation)

If swordfish targeting were permitted everywhere beyond the EEZ, it might reasonably be estimated that fishing effort by West Coast longline vessels would remain at the 1.55 million hook level distributed across all areas, from just outside the West Coast EEZ to waters north of Hawaii. While there might be some increase because the availability of the swordfish targeting option might attract some vessels from Hawaii, there has not been a substantial shift of vessels to California after the initial shift when the swordfish controls were imposed in the western Pacific about two years ago. The Council should consider if this is a reasonable estimate of effort if it were to propose that there be no limit on swordfish sets.

Alternative 2: Allow swordfish targeting east of 150° W. long. (now in FMP)

If swordfish targeting were permitted outside the EEZ and east of 150° W. long., it might be expected that fishing by West Coast vessels would remain at the 1.55 million hook level

distributed across this area to take advantage of this swordfish fishing opportunity. Vessels that have fished as far west as north of Hawaii will relocate recent effort to waters where swordfish targeting is permitted rather than leave the West Coast, or will shift to tuna inside or outside the area. The Council should consider if this is a reasonable estimate of effort if it were to maintain its recommendation that swordfish targeting be permitted east of 150° W. long.

Alternative 3: Limit swordfish targeting to waters east of 140° W. long. (PDT recommendation)

If swordfish targeting were limited to waters east of 140° W. long., then West Coast vessels might be expected to deploy less than 1.55 million hooks in these open waters. The Council should consider and estimate how much fishing would likely occur in waters east of 140° W. long. if the Council were to choose this alternative.

Alternative 4: Prohibit swordfish targeting in all areas (original preferred alternative)

If no swordfish targeting were permitted, some West Coast vessels would likely leave the area altogether; others would likely shift to other gear (although they might test tuna targeting at certain times or in certain areas during the year) or to other fisheries. Zero effort would be expected to be directed at swordfish, though some fishing effort might be directed at tuna.

Other: If some other option to allow swordfish targeting east of 150° W. long. were proposed, the Council needs to estimate the level of fishing effort that would be expected under that option.

Historic interaction rates (per 1,000 hooks)

The Protected Resources Division will establish the sea turtle interaction rates to use. There are two sets of data from which rates of sea turtle interactions with longline gear could be derived: a) pooled data from placements of observers on Hawaii vessels that fished east of 150° W. long. and from placements of observers on vessels that fished out of California; and b) data from only the vessels that fished out of California. The Protected Resources Division has concluded that the pooled data are more likely to be representative of the interaction rates that could be expected than the California-only data. These data cover more cumulative fishing effort, a longer time period, and a broader distribution of effort. There is no sound scientific or statistical basis for using only a subset of the available scientific data and it would be inappropriate to ignore the fact that observations of loggerhead sea turtles were taken in all areas in which fishing was observed. Using both data sets provides more power to examine take rates.

Pooled Hawaii and California observer records

| | | | | |
|-----------------------|-----------------|------|------------------|------|
| east of 150° W. long. | Loggerhead (LH) | .126 | Leatherback (LB) | .034 |
| east of 140° W. long. | Loggerhead (LH) | .044 | Leatherback (LB) | .033 |

Estimated Takes at Different Effort Levels

The derived estimates of the number of sea turtle takes that would occur using these pooled rates and varying levels of fishing effort as follows:

| | 1.55 million hooks | | 1 million hooks | | .5 million hooks | |
|-----------------|--------------------|----|-----------------|----|------------------|----|
| | LH | LB | LH | LB | LH | LB |
| East of 150° W. | 198 | 53 | 126 | 34 | 63 | 17 |
| East of 140° W. | 69 | 52 | 44 | 33 | 22 | 17 |

Differing levels of fishing effort would result in proportionately differing estimates of takes.

The Council's action in 2002 would likely have resulted in continuation of 2002 fishing levels and thus in takes of sea turtles at the levels indicated in column 1. There is no doubt that these take levels would lead to a jeopardy conclusion based on past consultations.

Applicable Mortality Rates

NOAA Fisheries has adopted as national policy the mortality rates to use for different types of sea turtle interactions as follows:

| | |
|---|-----|
| Entanglement, no hooking, release with no apparent injury | 0 |
| Any external hooking, with or without entanglement | .27 |
| Internal hooking (mouth or ingested) | .42 |

A detailed review of observer records would be conducted to determine the percentages of interactions of each type observed for application to the interaction levels estimated for the management measure proposed by the Council. An initial review suggests that most observed takes of loggerhead turtles involve some form of hooking, while leatherback takes are principally entanglements with some involving external hooking. Thus, an average mortality rate of at least .27 might be applied to all takes for an initial estimation of mortalities.

Advisory Comments

1. The incidental allowable take for the drift gillnet fishery is an estimated take of 9 leatherback turtles in 3 years and 5 of loggerhead sea turtles in any El Nino year; the incidental take allowance for the western Pacific longline fishery is an estimated 8 takes of leatherback turtles and 14 takes of loggerhead turtles per year.

2. The Council should expect that any proposal that would allow higher number of takes in the West Coast longline fishery than allowable takes in other permitted fisheries (drift gillnet or western Pacific longline) would likely result in a jeopardy opinion and would require modification before being approvable.
3. Allowing swordfish targeting by the California longline fishery without restrictions beyond the EEZ would be expected to result in at least a continuation of the 2002 fishing effort and subsequently in takes of turtles at about the levels shown in columns 1 and 2 (p.4). The Council should expect that this would result in a jeopardy conclusion and would not be approved.
4. The Council should expect that allowing swordfish targeting east of 150° W. long. would result in a jeopardy conclusion and not be approved. Sea turtle takes would be estimated to reach the levels shown in columns 1 and 2 (p. 4) unless it could be demonstrated that expected effort should be much lower than historic levels (e.g., less than 500,000 hooks per year) and that ensuing sea turtle takes would be lower than levels authorized for other fisheries. The Council should discuss and document for the record the rationale if it adopts this position.
5. The Council should recognize that allowing swordfish targeting east of 140° W. longitude has a substantial risk of resulting in a jeopardy conclusion and not being approved unless the Council can demonstrate that fishing effort will be well below the recent effort (1.55 million hooks) and that ensuing sea turtle takes would be less than levels authorized for other fisheries. If the Council chooses this option, it should be because the Council has reason to believe that actual effort under this alternative would be low and that ensuing sea turtle takes would be lower than estimated above. The Council should discuss for the record its rationale if it chooses this alternative.
6. The original preferred alternative (prohibiting swordfish targeting by the California fleet) would result in low likelihood of sea turtle interactions as no longline fishing would be directed at swordfish, though some could occur that would be directed at tuna. No tuna trips have been observed by observers placed in California, but data collected by observers on Hawaii-based vessels suggest that sea turtle interactions in such sets are less frequent.

