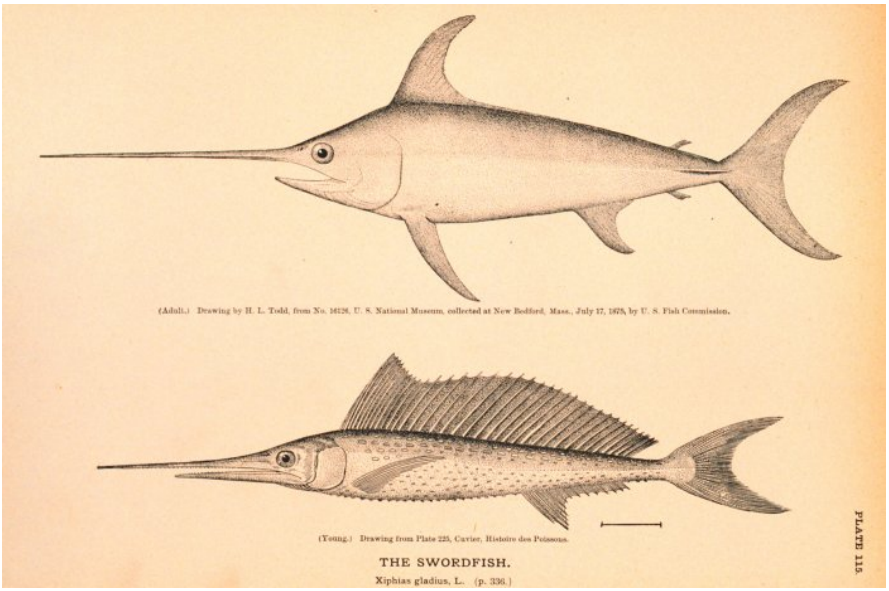
WESTERN PACIFIC REGIONAL FISHERY MANAGEMENT COUNCIL

Regulatory Amendment to the Pacific Pelagics Fishery Management Plan to Allow Immediate Closure of the Shallow-set Swordfish Fishery upon Reaching a Sea Turtle Interaction Cap

Including an Environmental Assessment



December 21, 2006

Western Pacific Regional Fishery Management Council
1164 Bishop Street, Suite 1400
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1.0 Summary

The swordfish sector of the Hawaii-based longline fishery experienced relatively high numbers of sea turtle interactions shortly after the opening of the 2006 fishing season. Under existing regulations when one of the annual limits for sea turtle/gear interactions is reached, the fishery is closed after a 7-day waiting period. This grace period was intended to allow permit holders and vessel operators sufficient time to be notified of the closure. However, it became apparent that waiting seven days to close the fishery in March, 2006, could have resulted in exceeding the loggerhead turtle cap of 17. Therefore, an emergency rule was promulgated by National Marine Fisheries service (NFMS) which enabled them to close the fishery immediately for the remainder of the 2006 calendar once a turtle cap was reached, i.e. it removed the 7-day waiting period. Consequently, the closure notice was issued on March 20, 2006, and the fishery was immediately closed via this emergency rule. At the time of closure, only 40 percent of the allocated shallow-set certificates had been used.

At the 131st meeting of the Western Pacific Fishery Management Council (Council) held March 14-16, 2006, in Honolulu, Hawaii, the Council directed staff to review existing and possible mechanisms for quickly closing the swordfish fishery, without relying on emergency rule-making, when turtle caps are reached. To meet these objectives, Council staff constructed four alternatives for consideration by the Council. A discussion of the background, the alternatives, and the potential impacts of the alternatives was presented to the Council and is included in this document.

At the 133rd Council meeting held June 13-15, 2006, in American Samoa, the Council recommended adoption of the alternative which would modify existing regulations to close the fishery immediately upon reaching either turtle cap, effectively making permanent the emergency rule used in 2006.

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3.0 Introduction and Background

3.1 Responsible Agencies

The Council was established by the Magnuson-Stevens Fishery Conservation and Management Act (MSA) to develop Fishery Management Plans (FMPs) for fisheries in offshore waters around American Samoa, Guam, Hawaii and Commonwealth of the Northern Mariana Islands and the U.S. possessions in the Pacific.[1] Once an FMP is approved by the Secretary of Commerce, it is implemented by federal regulations which are enforced by the National Marine Fisheries Service and the U.S. Coast Guard, in cooperation with state, territorial and commonwealth agencies. For further information contact:

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3.2 List of Preparers and Agencies and Persons Consulted

This Amendment document was prepared by the following people:

- Staff of the Western Pacific Fishery Management Council; and
- Staff of the NMFS Pacific Islands Regional Office.

Staff of the Council, NMFS PIRO, and NMFS PIFSC provided information for, authored, and/or reviewed these analyses.

The preferred alternative and its associated analyses (contained herein) were developed and proposed by the Council with the assistance of its Pelagics Plan Team and Scientific and Statistical Committee.

Several public meetings were held regarding this action, including the following:

- 131st Council Meeting, March 14-16, 2006, Honolulu, HI
- Pelagics Plan Team Meeting, May 2-4, 2006, Honolulu, HI
- 92nd SSC Meeting, May 30-June 1, 2006, Honolulu, HI
- 133rd Council Meeting, June 12-15, 2006, Pago Pago, AS
- 93rd SSC Meeting, October 3-5, 2006, Honolulu, HI
- 135th Council Meeting, October 16-19, 2006, Honolulu, HI

[1] Howland, Baker, Jarvis, Wake and Johnston Islands, Palmyra and Midway Atolls and Kingman Reef.

3.3 Background to this Action

In November 2003, the Council recommended that NMFS amend the Fishery Management Plan for the Pelagic Fisheries of the Western Pacific Region (Pelagics FMP) to re-open the swordfish sector of the Hawaii-based longline fishery as a model fishery to demonstrate the use of circle hooks and mackerel-type bait in reducing interactions with sea turtles. Under this recommendation certificates for no more than 2,120 annual shallow sets targeting swordfish (50 percent of the fishery's historical number of sets) would be distributed in equal numbers to all interested permit holders. Permit holders could then buy, sell, or otherwise transfer the certificates to each other.

Also in effect for this fishery is a requirement for 100 percent observer coverage. Information from the observer program is used to determine the shallow-set fishery's activity relative to the turtle interaction limits. And all vessels in the shallow- and deep-set fisheries must carry a NMFS vessel monitoring system (VMS) unit, and submit logbooks with fishing data at the completion of every trip, per pre-existing requirements.

In addition to the annual limit on the number of allowable shallow sets, the swordfish sector is limited in the number of fishery interactions with sea turtles allowed each year. These turtle limits were set by NMFS in their biological opinion (BiOp) issued in February 2004 following a consultation on this action under section 7 of the Endangered Species Act (ESA). The fleet is utilizing sea turtle protective gear, including circle hooks and mackerel bait, which was tested in Atlantic waters and found to reduce interactions with leatherback and loggerhead sea turtles by 67 and 92 percent, respectively. This gear and other requirements came into effect when the fishery was re-opened in 2004 and are described in detail in the March 2004 regulatory amendment to the FMP. According to the 2004 BiOp, the expected annual numbers of sea turtle interactions are 16 leatherback and 17 loggerhead, with two and three, respectively, expected to result in mortalities; these expected numbers are the established annual limits. The fishery is also limited to five encounters with olive ridley sea turtles with one expected mortality. These limits are based on calendar years and when one of the limits is reached the Hawaii-based shallow-set swordfish sector is closed for the remainder of the year. If any of the annual interaction limits are exceeded PIRO's Sustainable Fisheries Division must request reinitiation of consultation pursuant to section 7 of the ESA and a new BiOp would need to be prepared.

Since implementation of the new requirements for shallow-set vessels in 2004 the fishery has experienced significantly lower turtle capture rates. The combined turtle species, loggerhead, and leatherback capture rates declined by 89.1%, 90.0%, and 82.8%, respectively, from the period prior to the new regulations to the period after the new regulations came into effect (Gilman et.al. 2006). For the period before the new regulations went into effect 99% of turtle captures (all species' combined) were alive and after the new regulations went into effect 100% of turtles were alive (Gilman et al. 2006). Of the leatherback turtles that were incidentally caught, before the regulations went into effect 84% were observed to be lightly hooked and after the regulations, 100% were light hooked (Gilman et.al. 2006). Thus, the new shallow-set regulations appear to have reduced the number of captures and enhanced the survivability of the turtles that are incidentally-caught.

3.3.1 Purpose and Need for this Action

Current regulations set forth at §665.33(b)(2) developed as part of the March 2004 regulatory amendment prescribe that "As soon as practicable, the Regional Administrator will file for publication at the Office of the Federal Register a notification of the sea turtle interaction limit having been reached [and that]…. the longline fishery shall be closed …..not earlier than 7 days after the date of filing of the notification of the closure for public inspection at the Office of the Federal Register, until the end of the calendar year in which the sea turtle interaction limit was reached."

In April 2004 the swordfish sector was reopened under the above recommendations and regulations, but did not reach its set limit or either of its turtle limits by December 31 of that year. Similarly in 2005 the swordfish sector opened on January 1 and closed on December 31 without reaching any of its limits. Preliminary information suggests that in 2004, there were only 140 sets made by the swordfish fleet with a sea turtle interaction rate of 0.017 per 1,000 hooks for a total of 2 total interactions (1 loggerhead and 1 leatherback). Whereas in 2005, there were 1,641 sets made by the swordfish fleet with a sea turtle interaction rate of 0.015 per 1,000 hooks for a total of 20 total interactions (12 loggerhead and 8 leatherback). In 2006, there were 19 interactions recorded from 851 sets, with 15 loggerheads, 2 unknown hard-shell turtles (included in the loggerhead total) and two leatherback turtles, or an overall interaction rate of 0.028 per 1000 hooks. No sea turtle mortalities were reported during this time (PIRO 2006, 2005).

During January through March 2006, the shallow-set fishery experienced higher than anticipated fishery activity and turtle interactions. It became apparent that waiting seven days after a turtle limit was reached to close the fishery could result in exceeding that cap. Therefore, an emergency rule was promulgated to allow NFMS to immediately close the fishery for the remainder of the 2006 calendar if a turtle limit was reached (71 FR 14416; March 22, 2006); the effective date of this rule was extended until March 19, 2007, via a subsequent temporary rule (71 FR 54769; September 19, 2006). On March 20, 2006 the cap was reached and the fishery was immediately closed via a temporary rule (71 FR 14824; March 24, 2006) which closes the fishery through December 31, 2006. During the 2006 fishing year only 40 percent of the allocated shallow set certificates were used leaving 60 percent remained unused when the fishery was closed. This situation could repeat itself in future years and closing the fishery could cause undue stress on the fleet having to cut short their trips, possibly flooding the market with swordfish as all vessels return to port, and potentially wasting fuel due to steaming back to port prior to completion of intended sets. In 2006, the sudden closure did flood the market with swordfish causing prices to drop, and a lack of shipment space resulted in vessels having to wait to unload their catches with concomitant economic impacts.

The purpose and need for this action is to ensure in future years, should a turtle cap be reached while shallow-sets are still being utilized to target swordfish, an efficient mechanism exists to expeditiously close the fishery immediately without the need for emergency rulemaking and by maximizing protection to sea turtles by not exceeding the annual interaction limit.

3.4 Initial Actions

The Council directed staff to review existing and possible mechanisms for closing the swordfish fishery through regular rulemaking when turtle caps are reached at its 131st meeting held March 14-16, 2006 in Hawaii. This action was taken by the Council because emergency rules are only effective for 180 days (with the possibility of an extension for an additional 180 days), and are not intended to be used for recurrent actions, such as fishery closures, therefore, the Council felt it prudent to seek a permanent and effective solution.

The Council discussed the desirability of an approach that would achieve three objectives:

1. to ensure the turtle caps are not exceeded;
2. to create a system whereby the fishery may be expeditiously closed in a smooth and timely manner; and
3. to manage the shallow-set fishery in a manner which allows fishery participants the opportunity to utilize all of their allotted certificates in a manner beneficial to the seafood market and the fishery participants.

The first two objectives are likely to be met through the implementation of a rule largely identical to the emergency rule. The third objective is the most challenging as it requires balancing turtle interactions (which appear to be most common in the first quarter of each year) with the late winter/early spring fishing season when swordfish are most abundant and market prices are generally at their peak. Deferring swordfish effort to later in the year would reduce the rate of turtle interactions and increase the likelihood that the fleet would be able to use all of its shallow set certificates, however this would mean that fishery participants would be forced to fish during a sub-optimal time period when swordfish catch rates and prices are relatively low.

Council staff developed a suite of four alternatives to meet the three objectives listed above which are described in the next section. At its 133rd Council meeting held June 13-15, 2006 in American Samoa, the Council took initial action to recommend adoption of Alternative 2 which would modify existing regulations to close the fishery immediately upon reaching either turtle cap.

4.0 Management Alternatives

This section lists a range of alternatives for appropriate mechanisms to expeditiously implement a shallow-set fishery closure through regular rulemaking. The following section compares the alternatives and analyzes their potential impacts.

There were four alternatives considered by the Council, as follows:

Alternative 1. No action: Manage under current regulations which include the 7-day waiting period to close the fishery.

Alternative 2. Modify existing regulations to close the fishery immediately upon reaching the turtle cap.[Preferred]

Alternative 3. Modify existing regulations to close the fishery immediately upon reaching the turtle cap plus change the fishing year with regards to monitoring the cap on sea turtle interactions.

Alternative 4. Modify existing regulations to close the fishery immediately upon reaching the turtle cap plus utilize short-term time/area closures to decrease the number of turtle interactions and effectively lengthen the fishing season.

5.0 Comparison and Analysis of the Environmental Consequences of the Alternatives

This section discusses the reasonably foreseeable environmental impacts on the human environment of the proposed alternatives. The purpose of this action is to ensure that sea turtles are afforded the greatest protection possible under the current system of limits on interactions with shallow-set fishing gear, and to create a system to close the fishery immediately when a turtle interaction limit is reached.

With this goal in mind, the context of impact to the human environment would be (1) operational, concerning regulation of the fishery closure; (2) biological, including the impact on sea turtles and fish; and (3) economic, in terms of the effects of the timing of the fishery closure on the industry. Within these contexts, the proposed alternatives have little intensity of impact as discussed in each of the following sections.

5.1 Alternative 1. No-Action

Under Alternative 1 the Council would take no action and the Hawaii-based longline swordfish fishery would continue to operate under existing regulations.

Selection of this alternative is the simplest course of action. In support of maintaining the status quo, it may be that the 2006 fishing year was an anomaly and the fleet may not encounter sea turtles with the frequency and within the time span they did this year in future years. If no action was taken and the sea turtle interaction pattern in 2007 did resemble the situation of 2006 with the fleet again reaching the turtle cap, however, the fishery would need to be closed quickly or else there would be potential to exceed the cap during the 7-day waiting period, and again there would be no efficient mechanism in place to do so.

Selection of this alternative could have some impact on administrative requirements if the fishery needed to be closed rapidly once again. However, it would not impact fishery operations, but it would also not meet the purpose and need of this action. Also, with this alternative there is potential for adverse impacts to sea turtles if vessels continue to fish during the seven days after notification of closure. As such, Alternative 1 offers no method of preventing additional interactions between shallow-set vessels and sea turtles during the delay period.

5.2 Alternative 2. Modify Regulations to Close Fishery Immediately

Under Alternative 2 current regulations would be modified to allow the fishery to be closed immediately upon reaching one of the sea turtle caps without the need for emergency

rulemaking. This is important because emergency rules are temporary in nature and are not intended for recurrent actions such as fishery closures.

The high degree of loggerhead turtle interactions which occurred in the first three months of the 2006 fishing year may prove to be an anomaly and the new regulations will not be needed, however, should the fishery need to be closed quickly in the future it would be prudent for the mechanism to do so, be in place. With implementation of this alternative, sea turtle populations would be afforded enhanced protection through timely closure of the fishery and avoidance of the possibility of exceeding the interaction limit. Once the shallow-set fishery is closed, fishing effort is reduced to zero by eliminating activity of 32-35 vessels (2005 and 2006 participation levels) and further potential impacts to sea turtles, marine mammals, seabirds, and other bycatch species are precluded.

Also under Alternative 2, the targeted species (swordfish) could be conserved by immediate closure of the fishery, although, there is no indication that the stock needs increased conservation. The biological impacts to the swordfish stock may be evaluated in terms of the potential reduction in swordfish landings by elimination of the 7-day advance notice provision when closing the fishery. Using the swordfish catch rate and vessel participation from 2006 (both higher than in 2005), the potential range of the beneficial impacts on swordfish would be from 0 to 180.6 fish per day, or 0 to 1,264 fish if all 35 vessels continued to fish for seven days.

Selection of this alternative would have minimal impact on administrative operations, and would impact fishery operations only in that fishing could be curtailed from 0-7 days (depending on individual vessel operations) sooner than if fishing were conducted during the current 7-day delay before closure.

5.3 Alternative 3. Modify Regulations plus Change the Start of the Fishing Year

Under Alternative 3, current regulations would be modified as described in Alternative 2. In addition, the start of the fishing year in terms of how the turtle caps are monitored would be changed to more closely correspond with the timing of the swordfish season, i.e. peak catch rates, rather than being tied to a calendar year. A transition to Alternative 3 would be required within a single fishing year, requiring coordinated administrative efforts.

Swordfish landings show a strong seasonal nature with most of the landings during the winter and spring months. The 2006 fishing year only lasted from January 1 through March 20, effectively cutting short the fishing season and perhaps causing the fleet to miss out on periods of typically high landings. The average percent landings per month from the years 1985 through 2005 shows that the months with the highest landings are March, April, May and June as shown in Figure 1. Economic factors needing to be considered include the price of swordfish, highest in the 1st quarter (January – March), which also corresponds to the highest CPUE for this fishery.

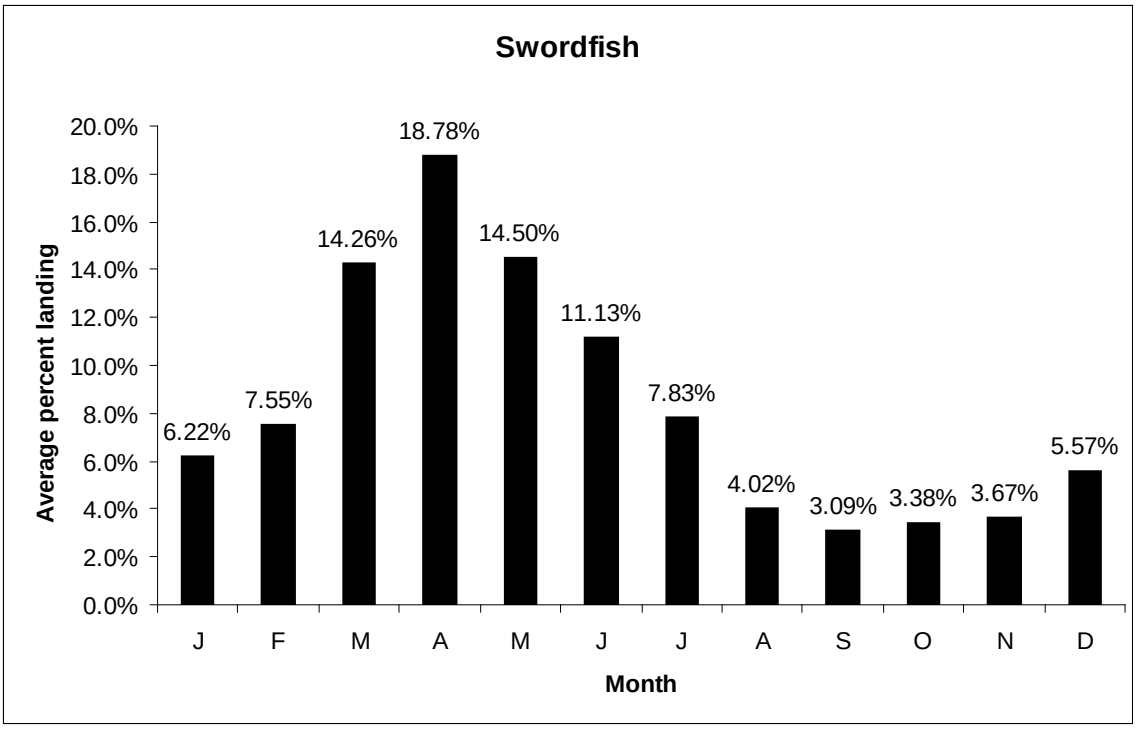

Figure 1: Percent of Annual Swordfish Landings by Month (1985-2005 average)
Source: WPacFIN

Logbook data for 2005 for the entire Hawaii longline fleet shows the catch rates (i.e. CPUE) of swordfish per 1,000 hooks to be highest during the first and second quarters of 2005, i.e. from January through June, as shown in Figure 2.

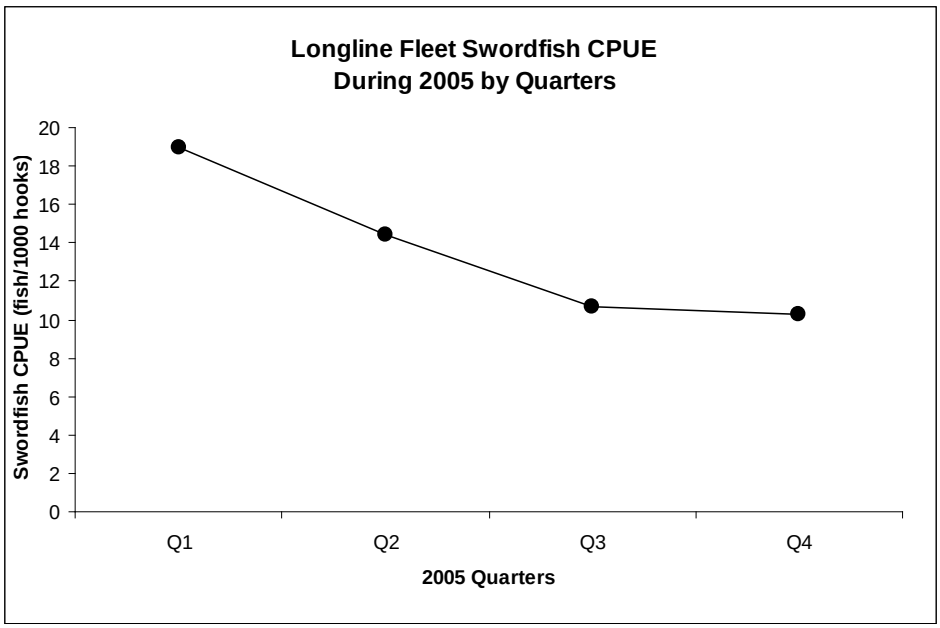

Figure 2: Swordfish CPUE for 2005.
Source: NMFS PIFSC

Under this alternative swordfish vessels could begin fishing [and the turtle cap count would begin] in late fall/ early winter to take advantage of the timing of peak catch rates of swordfish, i.e. allowing inclusion of November and December. This may lengthen the fishing season and spread out the landings to a greater degree to avoid flooding the market which would benefit the fishery participants. Figure 3 shows the timing of longline gear interactions with loggerheads from 1994 through the 2006 fishing year. Figure 3 represents actual recorded interactions from observer data and does not account for variations in the levels of fishing activity during each of the quarters.

This alternative could also potentially have negative impacts to the fishery. If, for example, the fishing year started in Q2 (April – June) and a turtle cap was reached before Q1 (January - March) fishery participants may miss out on the time of highest CPUE [if future years resemble 2005] indicating that fish would be caught using more effort, thus more expense (time, gear) yielding lower returns. However, because the fishery only re-opened in 2004 there is only limited data from which to determine patterns.

The risks of this alternative include that a turtle cap may be reached just as quickly and the fishing season may be shortened as it was in 2006 causing fishery participants and markets to have no swordfish-derived earnings potential for much of the year. Changing the time from which interactions are counted would not require reinitiating section 7 consultation, however, the limits could not be exceeded in the calendar year during the transition (or after). To avoid having to reinitiate consultation the Council may prefer to wait until a year with fewer interactions so there are effectively enough allowable interactions remaining to restart the clock without exceeding the cap in any given year.

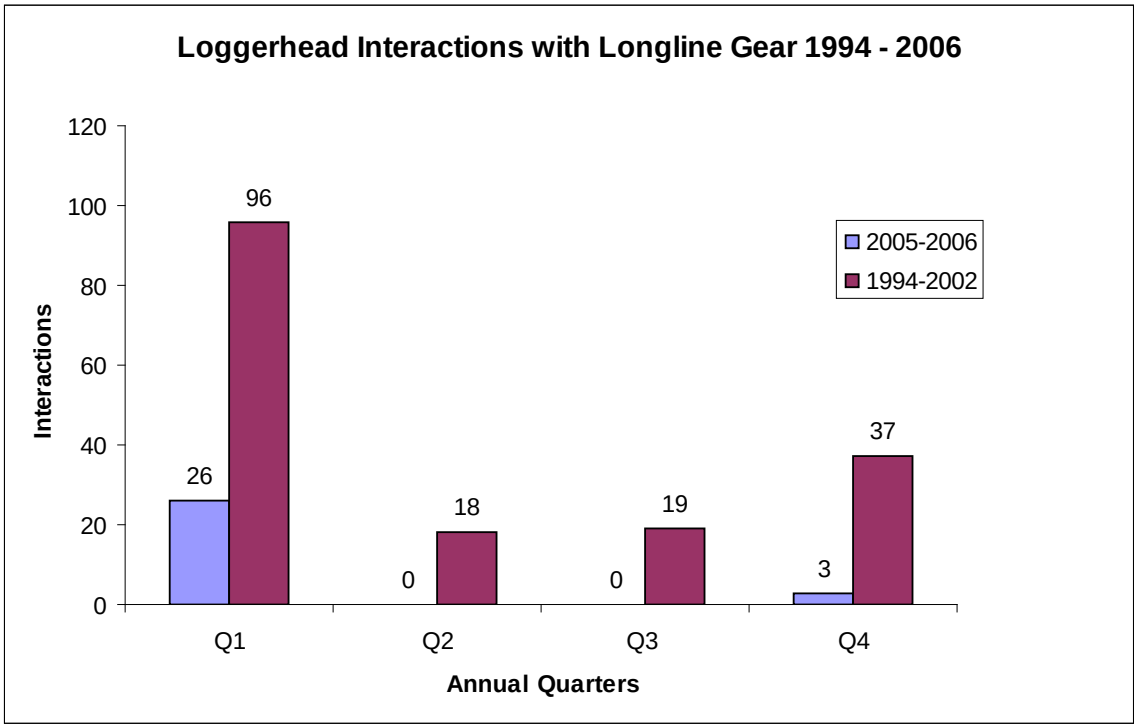

Figure 3: Total Longline Gear Interactions with Loggerhead Turtles 1994-2006.

Source NMFS PIRO

5.4 Alternative 4. Modify Regulations plus Utilize Time/Area Closures

Under Alternative 4, current regulations would be modified as described in Alternative 2. In addition, current regulations would be modified to implement short-term time/area closures during the fishing season to decrease the number of turtle interactions and effectively lengthen the fishing season. These new management measures would need to be defined, implemented and enforced. There would be potential positive operational impacts on the fishery in that the time/area closures could decrease the number of turtle interactions and effectively lengthen the fishing season. There would be other, indeterminate operation impacts possibly related to travel time to reach open grounds, changing gear during closed seasons, etc.

Sea turtle interaction rates with the shallow-set swordfish gear were highest during the 1st and 4th quarters for the 2005 fishing year, i.e. during the winter months. Figure 4 plots the sea turtle interaction rates and the swordfish catch-per-1,000 hooks for the 2005 fishing year.

In the north Pacific Ocean, locations of sea turtles and swordfish are believed to overlap in swordfish 'hotspots' because they congregate in common foraging areas based on oceanographic conditions including fronts, eddies, and geostrophic currents. Results of a study by Polovina et al. (2004) indicated that juvenile loggerheads in the north Pacific travel westward, exhibit seasonal movement patterns north and south primarily through 28 – 40°N, and occupy SST of 15 - 25°C. This study also found the tracked loggerheads to be in the same area where most of the sea turtle/ longline gear interactions occurred (between 30 - 34° N), primarily during the 1st and 2nd quarters of the year, with a gradual movement northward. The locations of the sea turtle interactions that occurred during the 1st quarter of the 2006 swordfish season supported the findings of Polovina's study.

The benefits of this alternative include that a short-term time and area closure may be able to effectively reduce the number of sea turtle interactions such that the limit is not reached prior to the end of the optimal fishing season. This could allow participants the opportunity to use all their allotted certificates and may minimize the chance of flooding the market. Also, a closure would affect all vessels equally and may avoid any economic impacts which can arise from the market becoming flooded as the fishery is closed and all vessels return to port. A time/area closure may result in fewer interactions with sea turtles which would better protect loggerhead and leatherback sea turtles as needed to allow for full recovery of these species'.

Well-designed time and/or area closures may also provide additional benefits to seabirds, marine mammals, and other pelagic species. Such closures would reduce the intensity of fishing effort in those areas or during those times. This reduction in fishing effort could prevent possible interactions with seabirds, marine mammals, and other pelagic species that share common foraging grounds and migration routes. Additionally, the reduced fishing effort may conserve targeted and related fish species, in those areas or during those times where the shallow-set fishing was prohibited.

The risks of this alternative include that determining the optimal time/area to maximize avoiding interactions between gear and turtles may be difficult to pinpoint as currently available data show the loggerheads to be occupying a vast area of the North Pacific Ocean. Closing the whole area would effectively shut down the entire fishery unnecessarily. In addition, an in-season closure may cause undue burden on fishery participants by closing down the fishery during periods of peak landings.

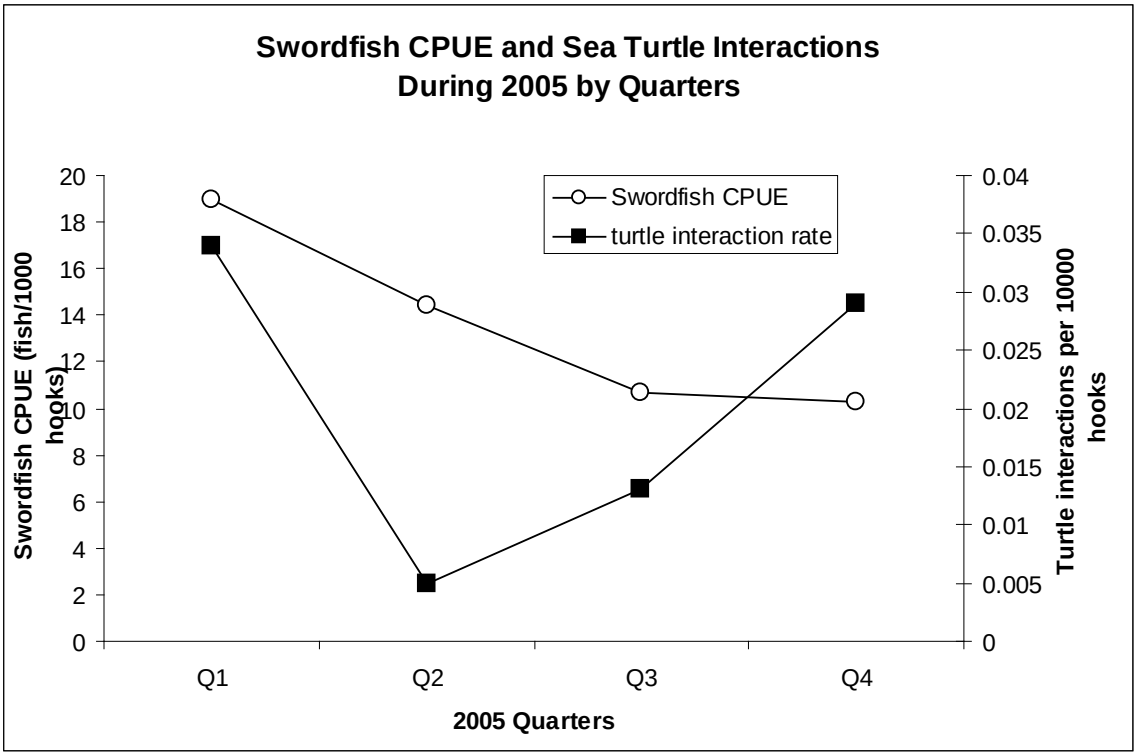

Figure 4: Swordfish CPUE and Sea Turtle Interactions, 2005.
Source: NMFS PIFSC & NMFS PIRO

5.5 Economic Impacts

Anticipated economic impacts are potential and dependent on whether the longline fishery closes before the end of the calendar year. Economic impacts of the early closure of the longline fishery have been analyzed for that Federal action (69 FR 17330; April 2, 2004). This preferred alternative is administrative in nature, therefore, potential economic impacts of a longline fishery closure (when turtle interaction limits are met) are insignificant because of their lack of intensity within the context of the wider pelagic fishing sector.

Significance for economic impact may be evaluated in terms of the intensity in context; that is, the amount of loss in revenue (by elimination of the 7-day advance notice provision for the fishery closure) is relatively small in the context of the wider pelagic fishing sector. Fishery

participants may choose to start or continue a shallow-set fishing trip during the seven days when the fishery closure's effectiveness is delayed. If participants chose not to fish during this week, there would be no loss in revenue. If participants chose to fish during this interim week, and assuming a participating vessel makes one set per day, the potential range in maximum loss in revenues to individual swordfish vessels would be $0 to $21,693 (based on $3,099 net revenue estimated per set).

This loss in revenues could be mitigated by providing vessels with an early warning of projected closures. This notification would allow the affected vessels to better plan their fishing operations which would prevent unnecessary trip preparation and provide an opportunity to change gear configuration to fish in an alternative longline fishery, such as the deep-set (tuna) longline fishery.

5.6 Cumulative Impacts

The magnitude and significance of the environmental consequences of the preferred alternative is analyzed in the context of the cumulative effects of other past, present, and reasonably foreseeable future actions. Verifying the cumulative environmental consequences of the preferred alternative requires delineating the relationship between multiple actions and the resources, ecosystems, and human communities of concern. The cumulative effects of the preferred alternative are analyzed by combining (a) the direct effects of the alternatives, and (b) the indirect effects of the alternatives with (c) the effects of exogenous factors, as modified by (b). The preferred alternative is not expected to significantly compound the cumulative effects from an operational perspective, from a biological perspective (considering seabirds, marine mammals, species listed under the ESA, targeted species, or other pelagic species), or from an economical perspective. Therefore, there are no foreseeable significant additive or interactive effects as a result of the preferred alternative.

In terms of context and intensity, the preferred alternative is not anticipated to have any significant effects on the subject marine ecosystem, marine species or human community involved, due to the administrative nature of the preferred alternative. The action only changes the procedures by which the shallow-set fishery is closed when a sea turtle interaction limit is reached. A more effective means of providing notification to fishermen now exists because NMFS observers carry satellite telephones that enable effective communications between NMFS and each shallow-set vessel at sea. Consequently, an efficient mechanism exists to immediately close the fishery (elimination of the 7-day delay between notification and closure). This will increase the likelihood that turtles will be afforded greater protection as designed in the February 2004 Biological Opinion.

In reference to past Federal actions, the preferred alternative prescribes no new or additional substantive measures for the shallow-set longline fishery. The Pelagics FMP, previous FMP amendments, and regulatory amendments established all current fishing restrictions in the shallow-set fishery. These requirements did result in operational, economic and biological impacts on the fishery. The preferred alternative maintains the following Federal management measures: fishing operations, number of participating vessels, gear configurations, geographical

limits, time/area closures, sea turtle interaction limits, monitoring requirements, observer coverage, and sea turtle avoidance, handling and release procedures.

The preferred alternative requires no new restrictions or operational adjustments to the fishery and, as such, is not anticipated to have any significant impacts that combine with previous impacts described in the above sections. When combined with the past and potential future management efforts, the overall direct and indirect effects of the preferred alternative do not produce significant cumulative impacts in the operational, biological, or economic context of the swordfish fishery. No actions are envisioned in the reasonably foreseeable future that would add any impacts beyond those discussed in this assessment.

5.7 Reasons for Choosing Alternative 2

The impetus behind this regulatory amendment is to allow the Hawaii-based swordfish fishery to operate on an economically sustainable basis while ensuring the fishery is in compliance with the Endangered Species Act.

The need for this amendment came to light during the 2006 shallow-set swordfish fishing season when the fleet encountered high numbers of sea turtles in a relatively short time. It was apparent during the 2006 season that the regulations currently governing the fishery closure procedure were insufficient to guarantee the cap wouldn't be exceeded during the seven-day grace period. This amendment effectively makes these emergency rule measures permanent such that if future fishing seasons are comparable to 2006, a mechanism will be in place to implement a timely closure of the fishery. This will provide a net benefit to the fishery participants and will result in enhanced protection of sea turtles by minimizing the impacts of incidental take that may result from this fishery.

The other alternatives described in this document were not chosen at this time primarily due to the uncertainty surrounding what constitutes a "normal" fishing year in this newly re-opened fishery. To implement any of the other alternatives may prove to be premature and based on very limited data. There are only three years of data available (since the re-opening of the shallow-set fishery) with 2004 having a low level of fishing activity towards the end of the year and just two sea turtle interactions. Fishing for swordfish occurred throughout 2005 with 10 loggerhead and 8 leatherback interactions, while in 2006 the loggerhead limit of 17 turtles was reached in less than three months. No turtle mortalities were recorded in any of the three years. Figure 5 shows the Hawaii-based fleet's monthly reported commercial landings of swordfish which highlights the differences between 2005 and 2006 in terms of length of fishing year. The number of sea turtle interactions also differentiates the two years; however, which year is most representative of the future of the fishery is not known.

In light of the available information, the 133rd Council meeting resulted in a recommendation to adopt the preferred alternative while continuing to monitor trends in the fishery in terms of mapping locations of sea turtle interactions, swordfish catches, and oceanographic features which will be discussed in a working group. Other important factors to be monitored include CPUE of swordfish and market trends.

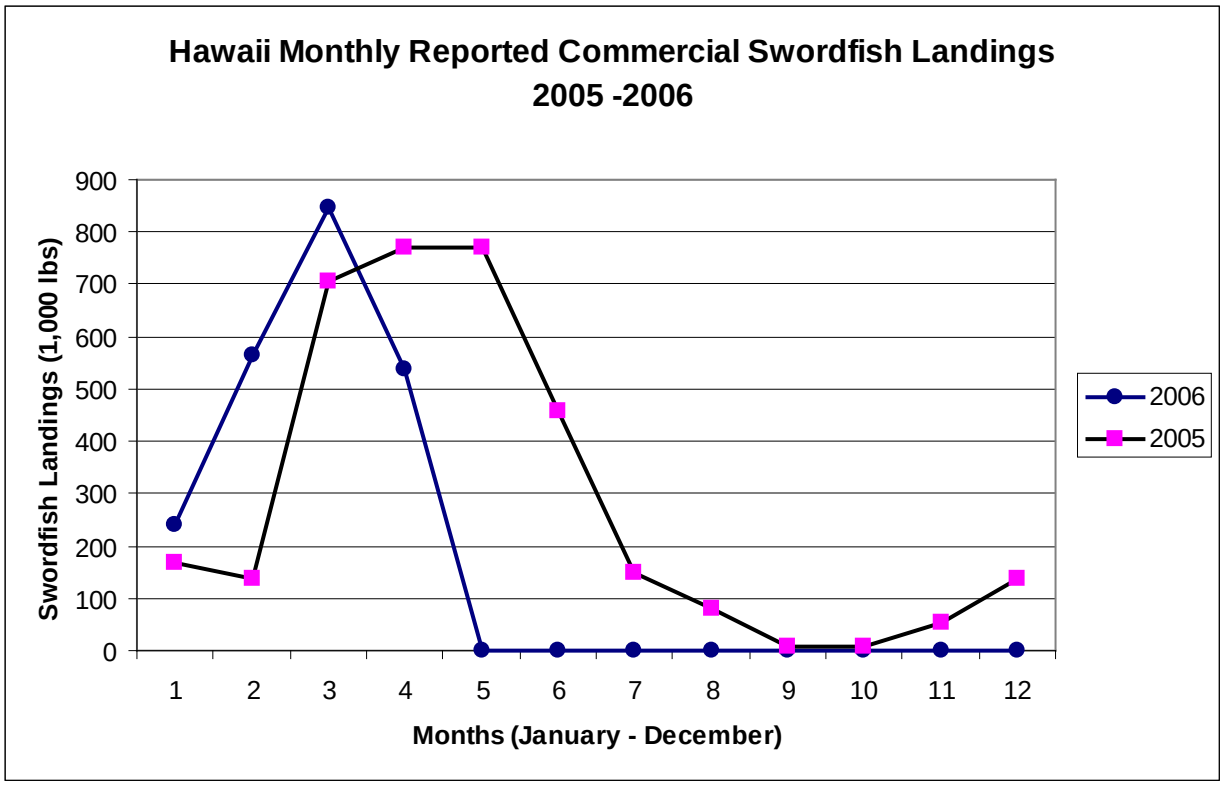

Figure 5: Hawaii Monthly Reported Commercial Landings of Swordfish, 2005-6.
Source: WPacFin
(Found at: http://www.pifsc.noaa.gov/wpacfin/hi/Data/Landings_Charts/hr4b3.htm)

The potential impacts of these alternatives evaluated relative to the issues are summarized in Table 1.

Table 1: Matrix of issues and alternatives considered.

Note: Under all alternatives, in addition to closing the fishery if either sea turtle (leatherback or loggerhead) interaction limit was reached, the fishery would also be closed in the event that all shallow-set certificates were used, whichever came first.

	Alternatives.			
Issue	**Alternative 1:** No Action	**Alternative 2 (Preferred Alternative):** Modify regulations to eliminate delay in effectiveness when closing fishery upon reaching turtle interaction limit	**Alternative 3:** Modify regulations to eliminate delay in effectiveness when closing fishery upon reaching turtle limit, plus shift fishing year	**Alternative 4:** Modify regulations to eliminate delay in effectiveness when closing fishery upon reaching turtle interaction limit, plus implement short-term time and/or area closures
Immediate closure of fishery upon reaching turtle interaction limit	**NO** 7-day delay in effectiveness exists between notification and fishery closure	**YES** Regulations would be modified to remove the delay in closing the fishery.	**YES** Regulations would be modified to remove the delay in closing the fishery.	**YES** Regulations would be modified to remove the delay in closing the fishery.
Possibility that sea turtle interaction limit would be exceeded.	**YES** Risk exists of exceeding interaction limit during delay in effectiveness between notification and fishery closure, possibly exposing turtles to adverse impacts and causing reinitiation of Section 7.	**NO** Fishery would close immediately upon reaching either turtle interaction limit.	**NO** Fishery would close immediately upon reaching either turtle interaction limit.	**NO** Fishery would close immediately upon reaching either turtle interaction limit.
Current delay in effectiveness removed by regular rulemaking	**NO** Emergency rule needed to remove the delay so that the fishery could be closed immediately.	**YES** Current regulations would be modified to remove the delay so that the fishery could be closed immediately.	**YES** Current regulations would be modified to remove the delay so that the fishery could be closed immediately.	**YES** Current regulations would be modified to remove the delay so that the fishery could be closed immediately.

Turtle interaction limits tracked according to the calendar year	**YES** Turtle interaction count starts in January and is tracked through December.	**YES** Turtle interaction count would start in January and be tracked through December.	**NO** Turtle interaction count would start in October or November, corresponding with modified fishing year.	**YES** Turtle interaction count would start in January and be tracked through December.
Start of longline fishing year at beginning of peak landing season	**NO** Fishing year is calendar year.	**NO** Fishing year would be calendar year.	**YES** Fishing year would begin in October or November to increase likelihood that fishery would be open during peak landing season, however, this may not be the most profitable season.	**NO** Fishing year would be calendar year.
Implementation of short-term time and/or area closures in longline fishery	**NO** Fishery would remain open until turtle interaction limit or shallow-set certificate limit is reached.	**NO** Fishery would remain open until turtle interaction limit or shallow-set certificate limit is reached.	**NO** Fishery would remain open until turtle interaction limit or shallow-set certificate limit is reached.	**YES** Short-term time and/or area closures would be implemented to reduce potential interactions during times or in areas that turtles and swordfish presence overlapped.

6.0 Affected Environment

6.1 The Hawaii-based Longline Fishery

The Hawaii-based limited access longline fishery is the largest fishery managed by the Council. This fishery accounted for the majority of Hawaii's commercial pelagic landings (8,700 t or 18.9 million lb) in 2003. The Hawaii longline fishery is by far the most important economically, accounting for 77 percent of the estimated ex-vessel value of the total commercial fish landings in the state in 2003 (WPRFMC 2004).

The Hawaii-based longline fleet includes a few wood and fiberglass vessels, and many newer steel longliners that were previously engaged in fisheries off the U.S. mainland. None of the vessels are over 101 ft in length and the total number is limited to 164 vessels by a limited entry program. The longline fleet has historically operated in two distinct modes based on gear deployment: deep-set longline by vessels that target primarily tuna and shallow-set longlines by those that target swordfish or have mixed target trips including albacore and yellowfin tuna. Swordfish and mixed target sets are buoyed to the surface, have few hooks between floats, and are relatively shallow. These sets use a large number of lightsticks since swordfish are primarily targeted at night. Tuna sets use a different type of float placed much further apart, have more hooks per foot between the floats and the hooks are set much deeper in the water column. Hawaii-based tuna longline vessels typically deploy about 34 horizontal miles of mainline in the water and use a line shooter. The line shooter increases the speed at which the mainline is set, which causes the mainline to sag in the middle (more line between floats), allowing the middle hooks to fish deeper. The average speed of the shooter is nine knots with an average vessel speed of about 6.8 knots. No light sticks are used and float line lengths average 22 m (72 feet) with branch line lengths averaging 13 m (43 feet). The average number of hooks deployed is 1,690 hooks per set with an average of 27 hooks set between floats. There are approximately 66 floats used during each set. The average target depth is 167 m, and gear is allowed to soak during the day, with total fishing time typically lasting about 19 hours, including the setting and hauling of gear.

The Hawaii-based pelagic fishery began around 1917 and was based on fishing techniques brought to Hawaii by Japanese immigrants. The early Hawaiian sampan-style flagline boats targeted large yellowfin and bigeye tuna using traditional basket gear with tarred rope mainline. This early phase of Hawaii longline fishing declined steadily into the 1970s due to low profitability and lack of investment in an ageing fleet (Boggs and Ito 1993).

During the 1980s, tuna longline effort began to expand to supply developing domestic and export markets for high quality fresh and sashimi grade tuna. In the late 1980s and early 1990s, the nature of the fishery changed completely with the arrival of swordfish and tuna targeting fishermen from longline fisheries of the Atlantic and Gulf States. Longline effort increased rapidly from 37 vessels in 1987 to 138 vessels in 1990 (Ito and Machado 2001). In 1985, the longline fishery surpassed landings of the skipjack pole-and-line fleet and has remained the largest Hawaii-based fishery to date. Swordfish

landings rose rapidly from 600,000 lbs in 1989 to 13.1 million pounds in 1993 (WPRFMC 2003). The influx of large, modern longline vessels promoted a revitalization of the fishery, and the fleet quickly adopted new technology to better target bigeye tuna at depth. The near-full adoption of monofilament mainline longline reels further modernized the fleet and improved profitability.

In 1991, an emergency moratorium was placed on the rapidly expanding pelagic longline fishery. Pelagic longline fishing was also restricted within a buffer zone surrounding the main Hawaiian Islands to reduce gear interaction between small and large-scale fishing methods. Further buffer zones were established within a 50 nmi radius of the Northwest Hawaiian Islands to minimize interactions with the endangered Hawaiian monk seals. A limited access program was established in 1994 allowing for a maximum of 164 transferable longline permits for vessels ≤101 feet in overall length that is administered by NMFS. During the same year, the Hawaii Longline Observer Program was initiated, primarily to monitor interactions with protected species.

The relative importance of swordfish to the fishery declined during the mid 1990s following a 47 percent decrease in landings in 1994. The latter part of 1994 saw a stabilization of swordfish landings at close to 6.5 million pounds/year, a significant increase in shark take, primarily blue shark fins, and a gradual increase in tuna fishing effort and landings. Effort continued to shift away from swordfish and back to tuna targeted trips throughout the latter 1990s (WPRFMC 2004). In fact, most of the fishery always simply continued to fish tuna and bigeye remains a primary target species and mainstay of the fishery. During this period, the fishery was often described as consisting of three components; a core tuna group, a swordfish targeting sector, and vessels that were classified as “mixed”; switching between swordfish and tuna throughout the year or even within a single trip. Generally, tuna vessels set deep gear with more than 15 hooks between floats in the morning, began hauling gear in the late afternoon or dusk, usually used a line shooter to deepen the set, preferred saury or sardine bait and made relatively short trips within 500 miles of home port. Swordfish boats were typically larger than tuna boats, set shallow gear at dusk with an average of 4 hooks between floats, used chemical light sticks, hauled gear at dawn, never used a line shooter, preferred large squid bait and made much longer trips beyond 700 miles from port. The primary swordfish grounds lie far to the north of the Hawaiian Islands.

Beginning in 1999, a series of events related to protected species interactions and litigation with environmental non-governmental organizations (NGOs) have had a profound effect on the Hawaii longline fishery. Issues related to the incidental take, interaction or threat of interaction of longline gear with sea turtles, seabirds, oceanic sharks and marine mammals have lead to a number of changes in the fishery. In 2000, State legislation was passed that was later supported by Federal action (the Shark Finning Prohibition Act) to prohibit the possession or landing of shark fin without the corresponding shark carcass, virtually eliminating the practice of finning sharks at sea.

During the period 2000 – 2005, the fishery has experienced periodic time/area closures, retention limits on swordfish and been required to adopt various gear and operational

changes to fishing related activities. Regulations imposed in 2001 temporarily prohibited swordfish targeted longline fishing for Hawaii-based vessels due to concerns of interactions with sea turtles. Subsequently a suite of regulations were adopted to minimize interactions and facilitate the safe release of accidentally hooked sea turtles and seabirds.

As a result of restrictions on swordfish-targeted longline fishing by Hawaii-based boats, a number of vessels left Hawaii to exploit the same swordfish stocks from bases in California. Other swordfish boats converted gear to remain in Hawaii and target bigeye tuna. In April 2004, the Hawaii-based swordfish fishery re-opened in Hawaii under the quota system and the new regulations. Integral to this program has been the requirement for 100 percent observer coverage. Additional operational requirements also apply including the use of large circle hooks and mackerel-type bait instead of squid. Many of the swordfish boats that had moved to California have now returned, but tuna-directed effort remains high. All vessels carry mandatory VMS monitored by the NMFS and must submit mandatory logsheet data at the completion of every trip.

The limited access program allows for 164 vessels in the fishery, but active vessel participation has been closer to 115 during the past decade. In 2003, 110 vessels actively participated in the fishery (WPRFMC 2004). Vessel sizes range up to nearly the maximum 100 foot limit, but the average size is closer to 65 – 70 ft. The majority of vessels are of steel construction and use flake ice to hold their catch in fresh/chilled condition. A few older wooden boats persist in the fishery. Some of the boats have mechanical refrigeration that is used to conserve ice, but catch is not frozen in this fishery.

The physical and operational characteristics of Hawaii-based longliners were summarized from interviews and NMFS data by O'Malley and Pooley (2003) during the 2000 season. Based on their interviews, swordfish vessels were newer than tuna boats on average (14 vs 23 years), were slightly larger (average 74 vs 65 feet), had larger fish hold capacities (mean 37,765 vs 33,967 pounds), carried more fuel and had more powerful engines compared to tuna targeting vessels. Swordfish vessels made fewer, longer trips, set more times per trip and traveled much further than tuna vessels. Tuna targeting vessels averaged 11 trips per year, made 11 sets per trip, set gear that averaged 29 hooks per basket and set an average of 2069 hooks per set on 33 miles of monofilament mainline. Swordfish targeting boats set only 4 or 5 hooks per basket at night. Based on interview data, Hamilton et al. (1996) found that tuna vessels operated with an average of 3.7 – 4 crewmen, while swordfish vessels required a larger crew of 4 – 5 persons (both figures excluding the captain).

Tuna vessels may range out to 1,000 nmi but generally make trips within 500 nmi from the home port of Honolulu. Prime tuna fishing grounds lie to the south of the main Hawaiian Islands and towards Johnston Atoll. The swordfish grounds center around the sub-tropical convergence zone that forms north of the Hawaiian archipelago near 35EN.

6.3 North Pacific Swordfish Stock

There is considerable debate concerning the stock structure of swordfish in the Pacific; it is not known whether there is a single Pacific-wide stock or if there are separate stocks partitioned geographically (Ward and Elscot 2000). A stock assessment for north Pacific swordfish was undertaken by Kleiber and Yokowa (2002) using the Multifan-CL length-based, age-structured model. Results of this assessment suggest that the population in recent years is well above 50% of the unexploited biomass, implying that swordfish are not over-exploited, but are relatively stable at the current levels of fishing (WPRFMC 2004). However, recent analyses of CPUE based on data from Japanese longline vessels now show declining trends mainly driven by declines in CPUE in the northwest portion of the study area (north of 10° N and west of 170° E)(ISC 2004).

6.4 Leatherback and Loggerhead Sea Turtles

NMFS's February 2004 BiOp (NMFS 2004) describes the biology and distribution of sea turtles in the Pacific, and the effects of the shallow-set fishery on leatherback and loggerhead turtles. The leatherback turtle is listed as endangered under the ESA throughout its global range. Leatherback turtles are the largest of the marine turtles, and are morphologically and physiologically distinct from other sea turtles. Leatherback turtles have the most extensive range of any living reptile and have been reported in all pelagic waters of the Pacific Ocean between 71° N and 47° S, and in all other major pelagic ocean habitats (NMFS and USFWS 1998). For this reason, studies of their abundance, life history and ecology, and pelagic distribution are challenging.

Leatherback turtles lead a completely pelagic existence, foraging widely in temperate waters except during the nesting season, when females return to tropical beaches to lay eggs. Satellite telemetry studies indicate that adult leatherback turtles follow bathymetric contours over their long pelagic migrations and typically feed on pelagic zooplankton cnidarians (e.g., jellyfish, siphonophores, and tunicates). Surface feeding by leatherbacks has been reported in U.S. waters, but foraging may also occur at depth. Because leatherback turtles are highly migratory and stocks mix in high seas foraging areas, and based on genetic analyses of samples collected by both Hawaii-based and west coast-based longline observers, leatherback turtles inhabiting the northern and central Pacific Ocean are comprised of individuals originating from nesting assemblages located south of the Equator in the western Pacific, e.g., Indonesia, Solomon Islands, and in the eastern Pacific along the Americas, e.g., Mexico, Costa Rica (Dutton et al. 2000).

For their first years of life, loggerheads forage in open ocean pelagic habitats. Both juvenile and subadult loggerheads feed on pelagic crustaceans, mollusks, fish, and algae. Loggerheads in the North Pacific are opportunistic feeders that target items floating at or near the surface and utilize surface convergent forage habitat to capture their prey which float along currents and congregate at fronts. A study by Polovina et al. (2004) indicated that tagged loggerheads spend approximately 40 percent of their time in the top meter and 90 percent of their time in waters shallower than 40 meters. There were also several

strong surface temperature fronts the turtles were associated with, one at 20° C near 28° N and another of 17° C near 32° N.

The loggerhead turtle is listed as threatened under the ESA throughout its range, primarily due to direct take, incidental capture in various fisheries, and the alteration and destruction of its habitat. In the Pacific Ocean, loggerhead turtles are represented by a northwestern Pacific nesting aggregation that is located in Japan (Hatase et al. 2002) and a smaller southwestern nesting aggregation that occurs in eastern Australia (Great Barrier Reef and Queensland) and New Caledonia (NMFS SEFSC 2001). There are no reported loggerhead nesting sites in the eastern or central Pacific Ocean basin. From nesting data collected by the Sea Turtle Association of Japan since 1990, the latest estimates of nesting females on almost all of the rookeries are as follows: in 1998 - 2,479 nests; in 1999 - 2,255 nests; in 2000 - 2,589 nests. Considering the multiple nesting estimates, Kamezaki et al. (2003), estimate that fewer than 1,000 female loggerheads may be returning to Japanese beaches per nesting season. It appears that, based on genetic samples, the loggerhead turtles which may interact with the Hawaii longline fishery (deep- and shallow-set) are from Japan origins (P. Dutton, pers. comm.). During the last half of the 20th century, there has been a substantial decline (50-90%) in the size of the annual nesting population in Japan (observed over fewer than three generations) (Kamezaki et al. 2003).

In eastern Australia, an estimated 3,500 loggerheads nested annually during the late 1970s (Limpus and Riemer 1994). Since that time, there has been a substantial decline in nesting populations across all Australian sites. Currently, it is estimated that fewer than 500 female loggerheads nest annually in eastern Australia, representing an 86% reduction within less than one generation (Limpus and Limpus 2003).

6.5 Turtle Interactions with the Shallow-set Longline Fishery

Interactions with the shallow-set fishery longline gear may include entanglements and hookings. Leatherbacks and loggerheads forage on migrating zooplankton, mostly siphonophore and salp colonies, as well as pyrosomes, which can be self-illuminated at night. Chemical light sticks which may be used on a shallow sets at night to attract target species by mimicking prey species, can also attract turtles by stimulating their preferred prey. This can result in external or internal hookings. Similarly, turtles may concurrently be foraging in or migrating through an area where the longline is set and can become entangled or hooked during the setting, soaking, or hauling process.

Historically, most of the loggerhead turtles that have interacted with the fishery were hooked, either internally or externally. The tendency for loggerheads to be hooked was likely a result of their diet. Loggerhead turtles are opportunistic omnivores, feeding both by swallowing floating prey whole, or biting off prey items from larger floating objects. Floats that are used on the shallow-set longline gear may also attract leatherback and loggerhead sea turtles, based on this foraging behavior. A preference for brightly-colored floating objects has been observed in loggerhead turtles (Arenas and Hall 1992). Thus, the floats typically used during swordfish-style sets, which are bright orange, bullet-shaped, and slightly submerged, may increase the potential for turtle interactions.

Understanding the migration and foraging areas of sea turtles may aid future efforts to reduce interactions between turtles and longline fishing gear. In the North Pacific, the ranges of loggerhead and leatherback sea turtles and swordfish are believed to overlap geographically in "hot spots," because they congregate in common foraging areas based on oceanographic conditions including fronts, eddies, and geostrophic currents. Swordfish are caught in association with frontal zones where ocean currents or water masses meet to create turbulence and sharp gradients of temperature and salinity. Swordfish also make vertical migrations through the water column, rising near to the surface at night from deep waters. Thus, while searching for concentrations of swordfish, longliners set their gear across these temperature gradients indicative of intersecting water masses, and when sea turtles are associated with these fronts, interactions are more likely.

Vessels fishing around Hawaii generally observe leatherback turtles beyond the 100-fathom isobath. Two areas where observations have been reported are off the north coast of Oahu, the west coast of the Island of Hawaii, and in the area of the seamounts above the Northwestern Hawaiian Islands (Skillman and Balazs 1992). Leatherback turtles are thought to use the pelagic zone surrounding the Hawaiian Islands as foraging habitat and migratory pathways. Further to the north of the Hawaiian Islands, leatherback turtles are known to aggregate at 35° N, between 175° W and 180° W, which overlaps with the areas where the Hawaii-based swordfish fishery operates.

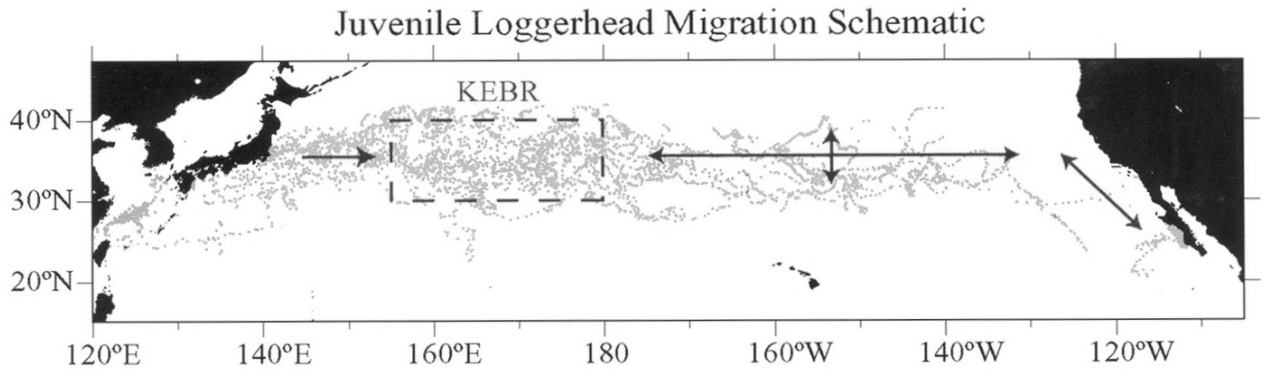

Figure 6: Juvenile Loggerhead Migration Schematic from Satellite Telemetry Research.
Source:Polovina 2004; figure from WPRFMC 2006

In 2004, the Hawaii Longline Observer Program began 100 percent observer monitoring for interactions with protected species. Following the reopening of the fishery in 2004, turtle interaction rates dropped dramatically. For the 2005 fishing year, turtle interactions with the shallow-set gear were highest during the first and fourth quarters, that is, during the winter months. Fig. 3 shows the timing of longline gear interactions with loggerheads from 1994 through the 2006 fishing year and represents actual recorded interactions from observer data and does not account for variations in the intensity or locations of fishing

activity during each of the quarters. The recent history of turtle interactions with the shallow-set fishery is outlined in Tables 2 and 3. Table 3 shows the highest CPUE for swordfish coincides with the highest sea turtle interaction rate which occurred during the 1st quarter (January – March). Table 2 also points out the small amount of data that exists, on the swordfish fishery with only one full fishing year (2005) since the new regulations were introduced, from which to make conclusions concerning the frequency, locations, and degree of sea turtle interactions. Therefore, it is prudent to continue monitoring the fishery for some time before proposing significant changes to its management.

	April–December 2004	January–December 2005	January– March 2006
Number of shallow sets made	140	1,641	851
Turtle interaction limit reached?	No	No	Interaction limit met March 20, 2006- fishery closed.
Sea turtle interactions per 1,000 hooks	0.017	0.015	0.028
Turtle details	1 loggerhead, and 1 leatherback	12 loggerheads, and 8 leatherbacks	17 loggerheads (incl. two unidentified hard-shell turtles), and 2 leatherbacks

Table 2: Number of Sets and Turtle Interactions in the Shallow-set Fishery, 2004-06.

	Month											
	J	**F**	**M**	**A**	**M**	**J**	**J**	**A**	**S**	**O**	**N**	**D**
Average percentage of total fish landings, 1985–2005	6.22	7.55	14.26	18.78	14.50	11.13	7.83	4.02	3.09	3.38	3.67	5.57
Fish catch per unit effort in 2005 (number of fish per 1,000 hooks)	~19			~14.5			~11			~10		
Loggerhead turtle interactions in 2005–06	26			0			0			3		
Loggerhead turtle interactions in 1994–2002	96			18			19			37		

Table 3: Percentage of Fish Catch and Loggerhead Turtle Interactions by Month and Quarter, 2005-06 and 1994-2002.

6.6 Economic Characteristics

Economically, the Hawaii-based limited access permit longline fishery (including deep- and shallow-set sectors) is the largest western Pacific fishery managed by NMFS and the Council. Under federal regulations, no more than 2,120 shallow-set certificates can be distributed annually by NMFS, as equal shares to all interested permit holders. Permit holders may buy, sell, or otherwise transfer the certificates to each other. Almost all of the Hawaii-based longline catch is sold at the United Fishing Agency auction in Honolulu. Very little of the longline catch is considered to be marketed directly to retailers or exported by the fishermen.

For this action, all affected vessels are considered to be small economic entities, and the cumulative revenue of these small economic entities characterizes the swordfish sector economy. Given that there are 2,120 annual shallow sets available, their value may be estimated to suggest the potential net revenue of the swordfish sector. Assuming that each shallow set has the potential for $3,099 net revenue (NMFS PIFSC, unpublished data), the potential net revenue for all shallow sets certificates issued is $6,569,880. However, since new longline fishing regulations were introduced in 2004, the fishery has never used all of the available shallow-set certificates within any given year. Only 1,641 sets were made in 2005, the only full fishing year since new regulations were introduced. The 2005 approximate net revenue for the fishery sector was $5,085,489 (note: this figure is a rough estimate). The approximate net revenue of the shallow-set fishery sector must be considered in regards to the seasonal nature of the swordfish fishery.

Swordfish landings are highly seasonal in nature, which affects swordfish market price. That is, the late winter/early spring fishing seasons are when swordfish are most abundant and market prices are generally at their peak. As shown in Fig. 3-4, the highest catch per unit effort occurs in the first and second quarters of the year, which corresponds to the high season for swordfish landings.

7.0 Consistency with the MSA and Other Laws

7.1 Consistency with National Standards

Section 301 of the Magnuson-Stevens Act requires that regulations implementing any FMP or amendment be consistent with the ten national standards listed below.

National Standard 1 states that conservation and management measures shall prevent overfishing while achieving, on a continuing basis, the optimum yield from each fishery for the United States fishing industry.

The preferred alternative contained in this amendment would have no significant effect on the amount or level of fishing. The Hawaii-based longline fishery is a limited entry fishery with an annual cap on the number of shallow sets allowed to target swordfish set at 2,120, which is

approximately one-half the historic number of sets this fishery utilized. A stock assessment of the north Pacific stock of swordfish, undertaken in 2002, suggested that the population in recent years is well above 50 percent of the unexploited biomass, implying that swordfish are not over-exploited, but are relatively stable at the current levels of fishing. In addition, the action this amendment is taking would simply allow for ease in closing the fishery for the remainder of any calendar year if a turtle cap is reached.

National Standard 2 states that conservation and management measures shall be based upon the best scientific information available.

The preferred alternative being considered in this amendment is based on the best currently available information from a number of different sources. This included swordfish landings data from the commercial fleet's reporting requirements, data from the NMFS observer program, investigations on the oceanography of the North Pacific Ocean, and research on the life history and ecology of loggerhead and leatherback turtles conducted by NMFS and other researchers.

National Standard 3 states that, to the extent practicable, an individual stock of fish shall be managed as a unit throughout its range, and interrelated stocks of fish shall be managed as a unit or in close coordination.

The preferred alternative being considered in this amendment is not expected to have a significant effect on the management of fish stocks as a unit. The alternative is intended only to facilitate rapid closure of the fishery if required by reaching one of the turtle caps.

National Standard 4 states that conservation and management measures shall not discriminate between residents of different States. If it becomes necessary to allocate or assign fishing privileges among various United States fishermen, such allocation shall be (A) fair and equitable to all such fishermen; (B) reasonably calculated to promote conservation; and (C) carried out in such manner that no particular individual, corporation, or other entity acquires an excessive share of such privileges.

The preferred alternative being considered in this amendment does not discriminate between residents of different States or allocate fishing privileges among fishermen. All of the alternatives that were under consideration would impact Hawaii shallow-set limited access permit holders and no other states.

National Standard 5 states that conservation and management measures shall, where practicable, consider efficiency in the utilization of fishery resources; except that no such measure shall have economic allocation as its sole purpose.

The preferred alternative being considered in this amendment includes consideration of efficiency in the utilization of the swordfish and sea turtle resources of the western Pacific region. The goal of the amendment is to efficiently close the fishery when needed to avoid exceeding the sea turtle interaction limits which would increase efficiency through increasing sustainability of the resources for all.

National Standard 6 states that conservation and management action shall take into account and allow for variations among, and contingencies in, fisheries, fishery resources and catches.

The preferred alternative being considered in this amendment does not impact variation among fisheries as this is a limited entry fishery and the goal of the amendment is to reduce the administrative burden of implementing an emergency rule while helping to reduce any possibility of exceeding the annual sea turtle interaction rate.

National Standard 7 states that conservation and management measures shall, where practicable, minimize costs and avoid unnecessary duplication.

The preferred alternative under consideration would not duplicate other fishery regulations or add undue costs to fishing operations. The goal of the amendment is to reduce the administrative burden of implementing an emergency rule while helping to reduce any possibility of exceeding the annual sea turtle interaction rate.

National Standard 8 states that conservation and management measures shall, consistent with the conservation requirements of this Act (including the prevention of overfishing and rebuilding of overfished stocks), take into account the importance of fishery resources to fishing communities in order to (A) provide for the sustained participation of such communities, and (B) to the extent practicable, minimize adverse economic impacts on such communities.

National Standard 8 requires the consideration of impacts fishery dependent communities where a fishing community is "a community which is substantially dependent on or substantially engaged in the harvesting or processing of fishery resources to meet social and economic needs, and includes fishing vessel owners, operators, and crew of U.S. fish processors that are based in such community." The preferred alternative considered in this amendment would not have an impact on fishing communities except to possibly protect the shallow-set swordfish fishery participants and shore-based user of the product from negative impacts which could arise from exceeding one of the turtle caps.

National Standard 9 states that conservation and management measures shall, to the extent practicable, (A) minimize bycatch and (B) to the extent bycatch cannot be avoided minimize the mortality of such bycatch.

The preferred alternative being considered is expected to result in little or no change in the overall catch of pelagic species', is not expected to substantially affect bycatch of any other species, and should help to reduce any possibility of exceeding the annual sea turtle interaction limits.

National Standard 10 states that conservation and management measures shall, to the extent practicable, promote the safety of human life at sea.

The preferred alternative being considered is not expected to have any substantial implications to safety at sea during fishing operations. It would not alter the method of fishing or the type of

gear being used, rather would only cause changes in the administrative procedure used to close the fishery if one of the turtle caps are reached.

7.2 Consistency with Other Laws

7.2.1 Executive Order 12866

Executive Order 12866 (E.O. 12866) requires that a Regulatory Impact Review (RIR) be prepared for all regulatory actions that are of public interest. This review provides an overview of the problem, policy objectives, and anticipated impacts of regulatory actions, and ensures that management alternatives are systematically and comprehensively evaluated such that the public welfare can be enhanced in the most efficient and cost effective way.

In accordance with E.O. 12866, the following is set forth: (1) This rule is not expected to have an annual effect on the economy of more than $100 million or to adversely affect in a material way the economy, a sector of the economy, productivity, jobs, the environment, public health or safety; or state, local or tribal governments or communities; (2) This rule is not likely to create any serious inconsistencies or otherwise interfere with any actions taken or planned by another agency; (3) This rule is not likely to materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights or obligations of recipients thereof; (4) This rule is not likely to raise novel or policy issues arising out of legal mandates, or the principles set forth in the Executive Order. Based on these findings, this rule is determined to not be significant under E.O. 12866.

7.2.2 Administrative Procedures Act

All federal rulemaking is governed under the provisions of the Administrative Procedures Act (APA) (5 U.S.C. Subchapter II) which establishes a “notice and comment” procedure to enable public participation in the rulemaking process. Under the APA, NOAA Fisheries is required to publish notification of proposed rules in the Federal Register and to solicit, consider and respond to public comment on those rules before they are finalized. This amendment complies with the provisions of the APA through the Council’s extensive use of public meetings, requests for comments, and consideration of comments. The proposed rule associated with this amendment will have request for public comments which complies with the APA.

7.2.3 Coastal Zone Management Act

The Coastal Zone Management Act requires a determination that a recommended management measure has no effect on the land or water uses or natural resources of the coastal zone or is consistent to the maximum extent practicable with an affected state’s approved coastal zone management program. A copy of this document will be submitted to the appropriate state government agency in Hawaii for review and concurrence with a determination that the recommended measure is consistent, to the maximum extent practicable, with the state coastal zone management program.

7.2.4 Information Quality Act

Public Law 106-443 which took effect October 1, 2002, directed the Office of Management and Budget (OMB) to issue government-wide guidelines that "provide policy and procedural guidance to federal agencies for ensuring and maximizing the quality, objectivity, utility, and integrity of information disseminated by federal agencies." OMB directed each federal agency to issue its own guidelines, establish administrative mechanisms allowing affected persons to seek and obtain correction of information that does not comply with OMB guidelines, and report periodically to OMB on the number and nature of complaints.

The NOAA Section 515 Information Quality Guidelines require a series of actions for each new information product subject to Public Law 106-443. This document has used the best available information and made a broad presentation thereof. The process of public review of this document provides an opportunity for comment and challenge to this information, as well as for the provision of additional information. The information used in this document includes swordfish landings data from the commercial fleet's reporting requirements, data from the NMFS observer program, investigations on the oceanography of the North Pacific Ocean, and research on the life history and ecology of loggerhead and leatherback turtles conducted by NMFS and other researchers which were peer-reviewed.

7.2.5 Paperwork Reduction Act (PRA)

This regulatory amendment does not establish any new permitting or reporting requirements and is therefore not subject to the provisions of the PRA.

7.2.6 Endangered Species Act

This regulatory amendment will assist in better compliance with the terms and conditions of the 2004 biological opinion, pursuant to the ESA, to ensure that the annual limit of sea turtle interactions is not exceeded which is protective of ESA-listed sea turtles.

7.2.7 Marine Mammal Protection Act

The Marine Mammal Protection Act (MMPA) prohibits, with certain exceptions, the take of marine mammals in U.S. and by U.S. citizens on the high seas, and the importation of marine mammals and marine mammal products into the United States. The MMPA gives the Secretary authority and duties for all cetaceans (whales, dolphins, and porpoises) and pinnipeds (seals and sea lions, except walruses). The MMPA requires NMFS to prepare and periodically review stock assessments of marine mammal stocks.

Under section 118 of the Marine Mammal Protection Act (MMPA), NMFS must publish, at least annually, a List of Fisheries (LOF) that classifies U.S. commercial fisheries into one of three categories. These categories are based on the level of serious injury and mortality of marine mammals that occurs incidental to each fishery. Specifically, the MMPA mandates that each fishery be classified according to whether it has frequent, occasional, or a remote likelihood of or no known incidental mortality or serious injury of marine mammals. The Hawaii longline

swordfish fishery is a Category I fishery (69 FR 48407, August 10, 2004), however, this regulatory amendment makes no changes to allowable amount or methods of fishing and is only administrative in nature, therefore, it does not require a MMPA category redesignation or other action.

7.2.8 Essential Fish Habitat (EFH)

The proposed management measure is not expected to have adverse impacts on EFH or habitat areas of particular concern (HAPC) for species managed under the Pelagics Fishery Management Plan. EFH and HAPC for these species groups has been defined as presented in Table 1. The measures will not adversely affect EFH or HAPC for any managed species as they are administrative in nature and would not lead to any physical, chemical, or biological alterations to the habitat, or result in loss of, or injury to, these species or their prey. For the same reason, the preferred alternative is not anticipated to cause any damage to the ocean and coastal habitats.

Based on the above information, the preliminarily preferred alternative is not expected to have adverse impacts on essential fish habitat (EFH) or habitat areas of particular concern (HAPC) for species managed under the Pelagics, Bottomfish and Seamount Groundfish, Precious Corals, Crustaceans, or Coral Reef Ecosystems Western Pacific Fishery Management Plans. EFH and HAPC for these species groups has been defined as presented in Table 2. The preliminarily preferred alternative will not adversely affect EFH or HAPC for any managed species as it is not likely to lead to substantial physical, chemical, or biological alterations to the habitat, or result in loss of, or injury to, these species or their prey. For the same reason, the preliminarily preferred alternative is not anticipated to cause substantial damage to the ocean and coastal habitats.

Table 2. Essential Fish Habitat (EFH) and Habitat Areas of Particular Concern (HAPC) for species managed under the Pelagics, Crustaceans, Bottomfish and Seamount Groundfish, Precious Corals, Crustaceans, and Coral Reef Ecosystems, Western Pacific Fishery Management Plans. All areas are bounded by the shoreline, and the outward boundary of the EEZ, unless otherwise indicated.

SPECIES GROUP (FMP)	EFH (juveniles and adults)	EFH (eggs and larvae)	HAPC
Pelagics	water column down to 1,000 m	water column down to 200 m	water column down to 1,000 m that lies above seamounts and banks.
Bottomfish	water column and bottom habitat down to 400 m	water column down to 400 m	all escarpments and slopes between 40-280 m, and three known areas of juvenile opakapaka habitat

Seamount Groundfish	(adults only): water column and bottom from 80 to 600 m, bounded by 29°-35°N and 171°E -179°W	(including juveniles): epipelagic zone (0-200 nm) bounded by 29°-35°N and 171°E - 179°W	not identified
Precious Corals	Keahole, Makapuu, Kaena, Wespac, Brooks, and 180 Fathom gold/red coral beds, and Milolii, S. Kauai and Auau Channel black coral beds	not applicable	Makapuu, Wespac, and Brooks Bank beds, and the Auau Channel
Crustaceans	bottom habitat from shoreline to a depth of 100 m	water column down to 150 m	all banks within the Northwestern Hawaiian Islands with summits less than 30 m
Coral Reef Ecosystems	water column and benthic substrate to a depth of 100 m	water column and benthic substrate to a depth of 100 m	all Marine Protected Areas identified in FMP, all PRIAs, many specific areas of coral reef habitat (see FMP)

7.2.9 National Environmental Policy Act

This document includes an environmental assessment (EA) which complies with the requirements of the National environmental Policy Act of 1969 (NEPA) to assess the impacts of this management measure on the human environment. The EA contained in this amendment document examines the purpose and need for the action, a range of alternatives, and contains a table of contents, list of preparers, list of agencies, the public review process and schedule, and list of references. Because the action is administrative in nature it would not have any significant impacts not already assessed in the March 2004 Final Supplemental Environmental Impact Statement on Regulatory Amendment 3 to the Pelagics FMP.

8.0 Draft Regulations

PART 665--FISHERIES IN THE WESTERN PACIFIC

1. The authority citation for part 665 reads as follows:

Authority: 16 U.S.C. 1801 et seq.

2. In Sec. 665.22, paragraphs (ss) and (tt) are added to read as follows:

Sec. 665.22 Prohibitions.

* * * * *

(ss) Engage in shallow-setting from a vessel registered for use under a Hawaii longline limited access permit after the shallow-set component of the longline fishery has been closed pursuant to Sec. 665.33(b), in violation of Sec. 665.33(i).

(tt) Fail to immediately retrieve longline fishing gear upon receipt of actual notice that the shallow-set component of the longline fishery has been closed pursuant to Sec. 665.33(b), in violation of Sec. 665.33(i).

* * * * *

3. In Sec. 665.33, paragraphs (b)(2)(iii) and (iv) are removed and paragraphs (b)(2)(i) and (ii) are revised to read as follows:

Sec. 665.33 Western Pacific longline fishing restrictions.

* * * * *

(b) * * *

(2) * * *

(i) As soon as practicable, the Regional Administrator will sign the closure notice and provide actual notice via telephone, satellite telephone, radio, electronic mail, facsimile transmission, or

post, to all vessel operators and holders of Hawaii longline limited access permits, that the shallow-set component of the longline fishery is closed and that shallow-set longline fishing north of the equator by vessels registered for use under Hawaii longline limited access permits will be prohibited beginning on a specified date and time, and that all such fishing gear must be immediately removed from the water and the fishing trip terminated. As soon as practicable, the Regional Administrator will also file for publication at the Office of the Federal Register the notification that the sea turtle interaction limit has been reached. The notification will indicate that the Hawaii-based shallow-set component of the longline fishery is closed, and shallow-set longline fishing north of the equator by vessels registered for use under Hawaii longline limited access permits was prohibited beginning on the specified date and time when notice was provided, until the end of the calendar year in which the sea turtle interaction limit was reached.

(ii) Beginning on the fishery closure date and time indicated by the Regional Administrator in the notification provided to vessel operators and permit holders and published in the Federal Register under paragraph (b)(3)(iii) of this section, until the end of the calendar year in which the sea turtle interaction limit was reached, the Hawaii-based shallow-set component of the longline fishery shall be closed.

* * * * *

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10.0 APPENDIX 1: Initial Regulatory Flexibility Analysis (IRFA)

Attached is the IRFA prepared by National Marine Fisheries Service, Pacific Islands Regional Office.

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Initial Regulatory Flexibility Analysis

Removing the Delay in Effectiveness When Closing the Hawaii-Based Shallow-set Longline Fishery as a Result of Reaching a Sea Turtle Interaction Limit

July 17, 2019

Description of the Reasons Why Action by the Agency is Being Considered

Under current Federal regulations, the Hawaii-based shallow-set pelagic longline fishery targeting swordfish (the "shallow-set" fishery) has a limit on two species of sea turtle interactions. The limit is consistent with the Endangered Species Act (ESA) that requires the National Marine Fisheries Service (NMFS) to assess fishery impacts to listed species. When the annual interaction limit on either turtle species is reached within a calendar year, the fishery is closed. Current regulations require a 7-day delay in effectiveness for closing the fishery after notice. The delay in effectiveness offered by the advance notice provision was deemed necessary at the time to give permit holders and vessel operators time to receive notice of the closure and return to port or otherwise plan fishing operations related to the fishery closure. At the time, NMFS observers placed aboard these vessels were not issued satellite telephones, and other communications methods were considered ineffective for notifying the fleet of a closure. Currently, however, NMFS observers carry satellite telephones that enable effective communications between NMFS and each shallow-set vessel at sea.

The proposed action provides a mechanism to close the shallow-set longline fishery immediately, by eliminating the 7-day delay in effectiveness, requiring vessels to cease fishing upon direct notification of the closure, and publication of the notice in the *Federal Register*, that a turtle interaction limit has been reached. The need for this regulatory amendment arose in 2006 when the fishing fleet encountered high numbers of sea turtles in a relatively short time. It became apparent that waiting seven days to close the fishery after a turtle limit was reached could result in adverse impacts to sea turtles. An emergency rule was promulgated to allow NMFS to suspend the seven day delay when closing the fishery for the remainder of the 2006 calendar year if a turtle interaction limit was reached (71 FR 14416; March 22, 2006). On March 20, 2006, the loggerhead turtle limit was reached and the fishery was closed via a temporary rule (71 FR 14824; March 24, 2006) that extends through December 31, 2006. The emergency rule was extended into March 2007 (71 FR 54769; September 19, 2006).

Statement of Objectives and Legal Basis for the Rule

The management objectives of the proposed action are to ensure that sea turtles are protected, via a system that limits turtle interactions and closes the shallow-set fishery immediately, if necessary.

Estimate of the Number of Small Entities Affected by this Rule

Based on recent levels of participation in the shallow-set longline fishery, it is estimated that approximately 35 shallow-set vessels may be affected by this rulemaking. All are considered to be small entities as defined by the Small Business Administration. Any fish-harvesting business is a small business if it is independently-owned and operated, not dominant in its field of operation, and has annual receipts not in excess of $4 million.

Recordkeeping and Reporting

There are no recordkeeping or reporting requirements contained in the proposed rule associated with the proposed rule.

Overlapping Federal Rules

There are no Federal rules which duplicate, overlap, or conflict with the proposed rule.

Alternatives Considered

> **Alternative 1. (No action)**. Manage the fishery under current regulations that include the 7-day delay in effectiveness when closing the fishery after notification to fishermen.
>
> **Alternative 2 (Preferred Alternative)**. Modify existing regulations to close the fishery immediately upon notice to fishermen of reaching a turtle interaction limit. No change to the fishing year. No short-term time/area closures to decrease the number of turtle interactions and effectively lengthen the fishing season.
>
> **Alternative 3**. Modify existing regulations to close the fishery immediately upon notice to fishermen of reaching the turtle limit, plus change the fishing year with regards to monitoring the limit on sea turtle interactions.
>
> **Alternative 4**. Modify existing regulations to close the fishery immediately upon notice to fishermen of reaching the turtle limit, plus utilize short-term time/area closures to decrease the number of turtle interactions and effectively lengthen the fishing season.

Economic Impacts to Small Entities

All vessels are considered to be small entities, so there are no disproportionate economic impacts between small and large vessels resulting from this proposed rule. Furthermore, there are no

disproportionate impacts among the affected population of small entities based on vessel size, fishing gear, or geographical considerations (e.g., home port).

Based upon an estimated net revenue of $3,099 per set, and assuming that one set per day is the norm, the range of potential reduction in net revenues to individual shallow-set vessels resulting from the implementation of the proposed Alternative 2 would be from $0 to $21,693 per closure, associated with a potential loss of 0-7 fishing days per boat, respectively. The relative impact of a closure upon annual returns from the shallow-set fishery would depend on how quickly the fishery is closed in any one year. For example, if the fishery were closed after 63 days, there would be an estimated 10 percent reduction in potential annual net revenues. If the fishery was closed after 133 days, there would be an estimated 5.0 percent reduction. After 273 days, an estimated 2.5 percent reduction would result, and so on. These projections assume that all shallow-set certificates were being utilized.

The loss in revenues could be mitigated by providing vessels with an early warning of projected closures, thus allowing the affected vessels to better plan their fishing operations. Better planning would avoid unnecessary preparations and allow the opportunity to change gear for fishing in alternative longline fisheries, such as the deep-set (tuna) longline fishery. Alternative 1 (no action) would prevent direct economic losses to affected vessels. However, this alternative could not be chosen since it would not be consistent with the Endangered Species Act, and does not provide adequate protection to sea turtles. Alternatives 3 and 4 could partially mitigate the economic impacts to small entities associated with the proposed alternative by lengthening the fishing season and distributing landings to avoid flooding the market and allowing for price stability. The small entities also would be better able to plan their fishing operations, especially if they participate in another fishery when not targeting swordfish. This might mitigate adverse economic impacts such as unreasonably low prices which can arise from the market becoming flooded as the fishery is closed and all vessels return to port.

11.0 APPENDIX 2 Regulatory Impact Review (RIR)

Attached is the RIR prepared by National Marine Fisheries Service, Pacific Islands Regional Office.

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Regulatory Impact Review

Removing the Delay in Effectiveness When Closing the Hawaii-Based Shallow-set Longline Fishery as a Result of Reaching a Sea Turtle Interaction Limit

December 14, 2006

This proposed action would removing the provision that requires a week advance notice to permit holders when closing the Hawaii-based shallow-set longline fishery as a result of reaching a sea turtle interaction limit. This Regulatory Impact Review (RIR) provides an assessment of the costs and benefits of this proposed action and other alternatives in accordance with Executive Order 12866 (E.O. 12866) and its guidelines established in OMB Circular A-4. E.O. 12866 states:

> Federal agencies should promulgate only such regulations as are required by law, are necessary to interpret the law, or are made necessary by compelling public need, such as material failures of private markets to protect or improve the health and safety of the public, the environment, or the well-being of the American people. In deciding whether and how to regulate, agencies should assess all costs and benefits of available regulatory alternatives, including the alternative of not regulating. Costs and benefits shall be understood to include both quantifiable measures (to the fullest extent that these can be usefully estimated) and qualitative measures of costs and benefits that are difficult to quantify, but nevertheless essential to consider. Further, in choosing among alternative regulatory approaches, agencies should select those approaches that maximize net benefits (including potential economic, environmental, public health and safety, and other advantages; distributive impacts; and equity), unless a statute requires another regulatory approach.

Background and Statement of the Problem

Under current regulations, the Hawaii-based shallow-set longline fishery for swordfish (the "shallow-set fishery") has a limit on interactions with sea turtles. The limit is consistent with the Endangered Species Act (ESA) that requires the National Marine Fisheries Service (NMFS) to protect sea turtles, specifically by placing a limit on interactions with loggerhead (*Carreta carreta*) and leatherback (*Dermochelys coriacea*) sea turtles. When the annual interaction limit on either turtle species is reached within a calendar year, the fishery is closed. Current regulations require a 7-day advance notice to permit holders (delay in effectiveness after notice) of the fishery closure. The delay in effectiveness offered by the advance notice provision was deemed necessary at the time to give permit holders and vessel operators time to return to port or otherwise plan operations related to the fishery closure. At the time this regulation was

implemented, NMFS observers placed aboard these vessels were not issued satellite telephones, and other communications methods were considered ineffective for notifying the fleet of a closure. Currently, however, NMFS observers carry satellite telephones that enable effective communications between NMFS and each vessel at sea.

The proposed action provides a mechanism to close the shallow-set fishery immediately, requiring vessels to cease fishing operations upon direct notification of the closure, and publication of the notice in the *Federal Register*, that a sea turtle interaction limit has been reached. The need for this regulatory amendment arose in 2006 when the fishing fleet encountered high numbers of sea turtles in a relatively short time, making it apparent that waiting seven days to close the fishery after a turtle limit was reached could impact sea turtles. An emergency rule was promulgated to suspend the delay when closing the fishery (71 FR 14416; March 22, 2006). On March 20, 2006, the loggerhead turtle limit was reached and the fishery was immediately closed via a temporary rule (71 FR 14824; March 24, 2006) that extends through December 31, 2006. The emergency rule that suspended the 7-day delay in effectiveness was extended into March 2007 (71 FR 54769; September 19, 2006).

Management Objectives

The management objectives of the action are to ensure that sea turtle populations are protected via a system that limits turtle interactions, and closes the fishery immediately, if necessary.

Description of the Fishery

The Hawaii-based pelagic longline fishery (including deep- and shallow-set components) accounts for the majority of Hawaii's commercial pelagic landings. A limited access program established in 1994 allows for a maximum of 164 transferable longline permits, and vessels may be no more than 101 feet in overall length. During the same year, the Hawaii Longline Observer Program was initiated to monitor interactions with protected species, and collect other scientific information from the fishery. Vessel sizes range up to nearly the maximum 101 ft limit, but the average size range is about 65-70 ft. Most vessels are of steel construction and use flake ice to hold their catch in fresh/chilled condition. A few older wooden boats remain in the fishery. Some of the boats have mechanical refrigeration that is used to conserve ice, but catch is not frozen in this fishery. In 2003, landings totaled 8,700 t (18.9 million lb).

The longline fleet has historically operated in two distinct modes based on gear deployment and target species: deep-set longlines by vessels that target primarily tuna, and shallow-set longlines by those that target swordfish (or have mixed target trips that include albacore and yellowfin tuna). All pelagic longline gear is buoyed to the surface. In contrast to deep sets, shallow sets have relatively few hooks between floats, and the hooks are set relatively shallow. Because swordfish are targeted primarily at night, shallow-set longlining use light sticks attached to branch lines.

Based on interviews of fishermen during the 2000 fishing season, several comparisons can be made between shallow-set vessels and deep-set vessels. Shallow-set vessels were newer than deep-set vessels on average (14 vs. 23 yr), were slightly larger (average 74 vs. 65 ft), had larger fish hold capacities (mean 37,765 lb vs. 33,967 lb), carried more fuel and had more powerful

engines compared to tuna vessels. Shallow-set vessels made fewer, longer trips, set more times per trip, and traveled further than deep-set vessels. Deep-set vessels averaged 11 trips per year, made 11 sets per trip, set gear that averaged 29 hooks between floats, and set an average of 2,069 hooks per set on 33 mi of monofilament mainline. Swordfish-targeting boats set only 4 or 5 hooks between floats, and fished at night. Tuna vessels operated with an average of 3-4 crewmen, while swordfish vessels required a larger crew of 4-5, both figures excluding the captain.

In 1999, increased concerns about interactions between protected species and the Hawaii-based longline fishery prompted a series of management changes. Shallow-set fishery regulations have changed rapidly since 1999, and recent management requirements include retention limits on swordfish and various recent gear and operational regulations. Regulations implemented in 2001 (66 FR 31561; June 12, 2001) temporarily prohibited swordfish targeting for Hawaii-based vessels due to interactions with sea turtles. Subsequently, a suite of regulations were adopted to minimize interactions and facilitate the safe handling and release of accidentally-hooked sea turtles.

Even though the longline limited access program allows for 164 vessels in the fishery, active vessel participation has been less, e.g., during 2005, 124 vessels actively participated in the fishery. In April 2004, the Hawaii-based swordfish fishery re-opened in Hawaii under an effort-limitation and other new regulations. Integral to this program has been the requirement for 100 percent observer coverage on shallow-set fishing trips. Additional operational requirements include the use of large circle hooks and mackerel-type bait instead of squid. All vessels have also been required since the mid-1990s to carry NMFS VMS units, and to submit NMFS logsheets upon the completion of every trip.

The shallow-set effort limitation program, implemented in the April 2004 regulations, dictates that certificates for no more than 2,120 annual shallow sets shall be distributed annually as equal shares to all interested permit holders. Notably, the annual 2,120 shallow sets are about 50 percent of the fishery's historical amount of annual sets. Permit holders may buy, sell, or otherwise transfer the certificates to each other.

During January through March 2006, the shallow-set fishery experienced relatively high numbers of turtle interactions, relatively early in the fishing season. It became apparent that waiting seven days after a turtle limit was reached to close the fishery could result in increased likelihood of adverse impacts to sea turtles. Thus, an emergency rule was promulgated to suspend the 7-day delay in effectiveness after notification when closing the fishery (71 FR 14416, March 22, 2006). On March 20, 2006, the loggerhead turtle interaction limit was reached and the fishery was closed without delay via direct notice to fishermen, and a temporary rule (71 FR 14824, March 24, 2006), which is effective through December 31, 2006. The emergency rule that suspended the 7-day delay in effectiveness was extended into March 2007 (71 FR 54769; September 19, 2006).

During the 2006 fishing year, 35 vessels participated in the shallow-set longline fishery. Some 40 percent of the allocated shallow set certificates were used, leaving 60 percent unused when the fishery was closed. In 2006, the relatively early and prompt closure of the fishery did flood the

market with swordfish causing prices to drop, and a lack of shipment space resulted in vessels having to wait to unload their catches, with concomitant economic impacts.

Alternatives Considered

> **Alternative 1. (No action)**. Manage the fishery under current regulations that include the 7-day delay in effectiveness when closing the fishery after notification to fishermen.
>
> **Alternative 2 (Preferred Alternative)**. Modify existing regulations to close the fishery immediately upon notice to fishermen of reaching a turtle interaction limit. No change to the fishing year. No short-term time/area closures to decrease the number of turtle interactions and effectively lengthen the fishing season.
>
> **Alternative 3**. Modify existing regulations to close the fishery immediately upon notice to fishermen of reaching the turtle limit, plus change the fishing year with regards to monitoring the limit on sea turtle interactions.
>
> **Alternative 4**. Modify existing regulations to close the fishery immediately upon notice to fishermen of reaching the turtle limit, plus utilize short-term time/area closures to decrease the number of turtle interactions and effectively lengthen the fishing season.

Economic Impacts of the Alternatives Relative to No Action

Alternative 1

The no-action alternative would potentially result in an economic loss resulting from a loss in use and non-use values associated with healthy and sustainable populations of sea turtles, assuming that the turtle interaction limit is met in a given year, and the fishery is closed. Use values include those values associated with turtle observing trips or other viewing opportunities. Non-use values include those values placed on knowing that sea turtles remain for future generations (bequest value) and values placed on knowing that sea turtles will continue to survive (existence value).

The costs of increasing the risk of sea turtle interactions in the shallow-set fishery could be considerable. Because longline fishing gear is a significant anthropogenic cause of sea turtle interactions, adopting measures to reduce the incidences of sea turtle interactions will aid in the recovery of threatened and endangered sea turtles.

Alternative 2 (Proposed)

In 2006, 35 vessels recorded landings from shallow-set trips. Based upon a net revenue estimate of $3,099 per set, and assuming that one set per day is the norm, the range of potential direct costs to individual swordfish vessels resulting from this alternative would be from $0 to $21,693 per closure associated with a range of 0-7 fishing days, respectively. Based on a directed fishery comprised of 35 vessels, the range of direct costs to the shallow-set fishery is estimated to be from $0 to $759,255 per closure, depending on the number of days and number of vessels

affected. Considering market values, individual income and employment in fishing communities, and changes in input and output values, the total cumulative impacts to the shallow-set fishery are expected to be greater than individual vessel impacts. Using a multiplier of 1.48, reflecting both backward and forward linkages to the State of Hawaii, for the shallow-set fishery, the range of potential economic impacts could be from $0 to $1.12 million. Additionally, there are potential monitoring, enforcement, or administrative costs to the government associated with this action. The benefits to the Nation from implementing this alternative would come in the form of use and non-use values associated with the existence of healthy and sustainable populations of sea turtles. Benefits from this alternative are assumed to be substantial, and NMFS has concluded that this alternative could yield net economic benefits by reducing the likelihood of sea turtle interactions.

Alternative 3

The net national costs and benefits analyzed under Alternative 2 would also occur under this alternative. In addition, shallow-set vessels would be allowed to begin fishing (and the turtle interaction count would begin) in late fall or early winter (November and December) to take advantage of the peak swordfish catch rate months. This may lengthen the fishing season and spread out the landings to a greater degree which may avoid flooding the market, benefiting both fishery participants and the economy as a whole. Thus, Alternative 3 may mitigate the adverse economic effects of a closure early in a fishing season while still adequately protecting sea turtles.

Alternative 4

The net national cost and benefits could occur under this alternative. In addition, current regulations would be modified to implement short-term time/area closures during the fishing season to decrease the number of turtle interactions and potentially lengthen the fishing season. Sea turtle interaction rates with the shallow-set gear were highest during the first and fourth quarters for the 2005 fishing year, that is, during the winter months.

The benefits of this alternative would be that vessels could more easily plan their fishing operations, particularly if they also participate in the longline tuna fishery when they are not targeting swordfish, and a closure would affect all vessels equally. Moreover, if there was a fishery closure, Alternative 4 would help avoid potential negative economic impacts that would arise from the market becoming flooded as vessels return to port. Implementation of this alternative could reduce the impact of the action to zero and allow vessels to maintain annual profitability, thus maintaining net national benefits associated with closures, including protection for sea turtles.

Conclusion

Based on the above analyses, in accordance with E.O. 12866, the following is set forth: (1) This rule is not expected to have an annual effect on the economy of more than $100 million or to adversely affect in a material way the economy, a sector of the economy, productivity, jobs, the environment, public health or safety; or state, local or tribal governments or communities; (2)

This rule is not likely to create any serious inconsistencies or otherwise interfere with any actions taken or planned by another agency; (3) This rule is not likely to materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights or obligations of recipients thereof; (4) This rule is not likely to raise novel or policy issues arising out of legal mandates, or the principles set forth in the Executive Order. Based on these findings, this rule is determined to not be significant under E.O. 12866.