

**APPENDIX A**  
**Regulatory Impact Review and Initial Regulatory Flexibility Analysis**

**Sea Turtle Mitigation Measures: Gear and Handling  
Requirements; Protected Species Workshop Attendance;  
and Shallow-setting Restrictions**

**A Regulatory Amendment to the Fishery Management Plan  
for the Pelagic Fisheries of the Western Pacific Region**

**April 19, 2005**

**I. INTRODUCTION**

In order to meet the requirements of Executive Order 12866 (EO 12866) the National Marine Fisheries Service (NMFS) 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 addition, the Regulatory Flexibility Act, 5 U.S.C. 601 et seq. (RFA) requires government agencies to assess the impact of their regulatory actions on small businesses and other small organizations via the preparation of Regulatory Flexibility Analyses.

This document examines the costs and benefits of regulatory actions proposed for the domestic pelagic fisheries under the Fishery Management Plan for the Pelagic Fisheries of the Western Pacific Region (FMP). Besides the economic impacts of a regulatory action, an IRFA also requires the following elements in an analysis of the impacts on affected small businesses and other small organizations

1. A description of the reasons why action by the agency is being considered (see Section II)
2. A succinct statement of the objectives of, and legal basis for, the proposed rule (see Sections II and III).
3. A description and, where feasible, an estimate of the number of small entities to which the proposed rule will apply (see Sections III and V).
4. A description of the project reporting, record keeping and other compliance requirements of the proposed rule including an estimate of the classes of small entities which will be subject to the requirements of the report or record (see Sections IV and VI).
5. An identification, to the extent practicable, of all relevant Federal rules, which may duplicate, overlap, or conflict with the proposed rule (see Section VI).

6. A description of any significant alternatives to the proposed rule which accomplish the stated objectives of applicable statutes and which minimize any significant economic impact of the proposed rule on small entities (see Section IV).

## **II. PROBLEM STATEMENT AND NEED FOR ACTION**

The four measures considered in this document focus on reducing and mitigating interactions between pelagic fishing vessels managed under the Fishery Management Plan for the Pelagic Fisheries of the Western Pacific (Pelagics FMP) and sea turtles. The majority of these interactions involve Hawaii-based longline vessels, however there is the potential for interactions with other types of pelagic fishing vessels as well.

Following a long series of legal and regulatory actions, the National Marine Fishery Service's (NMFS, also known as NOAA Fisheries) Office of Protected Resources completed a section 7 consultation under the Endangered Species Act on a range of regulatory and conservation measures to reduce and mitigate interactions between sea turtle and the Hawaii-based longline fishery. The result of this consultation was a Biological Opinion that was issued by NMFS on February 23, 2004.

The 2004 Opinion concluded that under those regulatory and conservation measures the fisheries managed under the Fishery Management Plan for the Pelagic Fisheries of the Western Pacific were not likely to jeopardize the continued existence of sea turtles or other species listed as threatened or endangered under the Endangered Species Act.

Included in the action considered under the Biological Opinion were several measures required by a previous (November 15, 2002) Biological Opinion on the Pelagics FMP fisheries which were vacated on April 1, 2004 by a Court order invalidating that opinion. The measures (Measures 1-3 below) are included as terms and conditions of the 2004 Biological Opinion. The Council is now considering the implementation of these measures, as well as a related fourth issue (Measure 4 below).

Measure 4 is intended to implement the new technologies (circle hooks with mackerel-type bait and the use of dehookers) recently mandated for use by the shallow-setting sector of the Hawaii-based longline fleet when fishing north of the equator for use on other longline vessels managed under the Pelagics FMP. These technologies have been found to be highly effective in reducing sea turtle interactions in the Atlantic longline fishery and are anticipated to be equally effective in the Pacific. Although there is no history of shallow-setting effort north of the equator by non-Hawaii based longline vessels managed under the Pelagics FMP, the lack of parallel requirements has created a regulatory loophole that could be exploited under certain conditions.

Measure 1. To require annual attendance at a NMFS Protected Species Workshop by operators of general longline vessels (vessels registered to general longline permits and those that in the future will be registered to American Samoa limited entry longline permits) - with consideration of mechanisms for remote attendance.

Measure 2. To require operators of general longline vessels (vessels registered to general longline permits and those that in the future will be registered to American Samoa limited entry longline permits) to carry and use dip nets, line clippers, and bolt cutters and follow turtle resuscitation and release guidelines, with an exemption from carrying a dipnet or long-handled line clipper for small longline vessels with freeboard less than or equal to 3 ft. (however they would need to carry an instrument capable of cutting trailing fishing line).

Measure 3. To require operators of non-longline pelagic vessels targeting Pelagic Management Unit Species with hooks to remove trailing gear from accidentally caught turtles and to follow turtle resuscitation and release guidelines within EEZ waters of the Western Pacific Region.

Measure 4. To require operators of longline vessels registered to general longline permits (vessels registered to general longline permits and those that in the future will be registered to American Samoa limited entry longline permits) to use circle hooks and mackerel-type bait and dehookers when shallow-setting north of the equator. Small longline vessels (those with a freeboard less than or equal to 3 ft.) would be exempted from carrying long-handled dehookers however they would need to carry and use short-handled dehookers described in Table 4A.

### **III. DESCRIPTION OF THE FISHERIES**

The Pelagics FMP manages unique and diverse fisheries. Hawaii-based longline vessels are capable of traveling long distances to high-seas fishing grounds, while the smaller handline, troll, charter and pole-and-line fisheries—which may be commercial, recreational or subsistence—generally occur within 25 miles of land, with trips lasting only one day. These fisheries are discussed below, by gear type within each of the four island areas.

#### **Hawaii**

Hawaii's pelagic fisheries are small in comparison with other Pacific pelagic fisheries, but comprise the largest fishery sector in the State of Hawaii (Pooley 1993) (Tables 1 & 2). Tuna, billfish and other tropical pelagic species supply most of the fresh pelagic fish consumed by Hawaii residents and support popular recreational fisheries (Boggs and Kikawa 1993).

The Hawaii-based pelagic longline fleet is the largest fishery managed by the FMP. 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. These sets must be placed by use of a line shooter to provide slack in the line which allows it to sink.

The longline fishery accounted for the majority of Hawaii's commercial pelagic landings (17.3 million lb) in 2003 (Table 1). The 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 permit moratorium.

**Table A-1. Hawaii-based longline fishery landings 1999-2003 (Source: NMFS, PIFSC, published and unpublished data)**

Item	1999	2000	2001	2002	2003
Area Fished	EEZ and high seas				
Total Landings (million lbs)	28.3	23.8	15.6	17.5	17.3
Catch Composition*					
Tuna	41%	41%	52%	52%	65%
Swordfish	9%	9%	1%	1%	2%
Miscellaneous	32%	32%	36%	37%	31%
Sharks	18%	18%	11%	10%	2%
Season	All year				
Active Vessels	119	125	101	100	110
Total Permits	164	164	164	164	164
Total Trips	1137	1103	1034	1164	1216
Total Ex-vessel Value (nominal) (\$millions)	\$47.4	\$50.2	\$33.0	\$37.5	\$37.5

\* Number of fish

The Hawaii-based skipjack tuna, or *aku* (skipjack tuna) fishery, is also known as the pole-and-line fishery or the bait boat fishery because of its use of live bait. The *aku* fishery is a labor-intensive and highly selective operation. Live bait is broadcast to entice the primary targets of skipjack and juvenile yellowfin tuna to bite on lures made from barbless hooks with feather skirts. Tuna are hooked on lines and in one motion swung onto the boat deck by crew members. The *aku* fishing fleet has declined from a maximum of 32 vessels in the 1950s to only 2-3 vessels. This fleet currently lands about 700,000 lbs of fish (Table 3).

Pelagic handline fishing is used to catch yellowfin and bigeye tunas with simple gear and small boats. Handline gear is set below the surface to catch relatively small quantities of large, deep-swimming tuna that are suitable for *sashimi* markets. This fishery continues in isolated areas of the Pacific and is the basis of an important commercial fishery in Hawaii (Table 3).

Three methods of pelagic handline fishing are practiced in Hawaii, the *ika-shibi* (nighttime) method, the *palu-ahi* (daytime) method and seamount fishing (which combines both handline and troll methods).

Troll fishing is conducted by towing lures or baited hooks from a moving vessel, using big-game-type rods and reels as well as hydraulic haulers, outriggers and other gear. Up to six lines rigged with artificial lures or live bait may be trolled when outrigger poles are used to keep gear from tangling. When using live bait, trollers move at slower speeds to permit the bait to swim “naturally.” The majority of Hawaii-based commercial troll production (Table 3) is generated by part time fishermen, however, some full-time commercial trollers do exist.

**Table A-2. Fishery information for Hawaii’s non-longline pelagic fisheries for 2002 (Sources: Adapted from WPRFMC, 2002)**

<b>Gear/Vessel Type</b>	<b>Troll/Handline</b>	<b>Pole-and-line Fishery (Aku Fishery)</b>
Area Fished	Inshore and EEZ	Inshore and EEZ
Total Landings	3.4 million pounds	696,000 pounds
Catch Composition	48% yellowfin 18% mahimahi 10% wahoo 8% albacore 7% blue marlin	99.6% skipjack tuna <1% <1% <1% <1%
Season	All year	All year
Active Vessels	1455	6
Total Permits	NA	NA
Total Trips	18700	198
Total Ex-vessel Value	\$8 million	\$1.1 million

Hawaii’s charter fisheries primarily troll for billfish. Big game sportfishing rods and reels are used, with four to six lines trolled at any time with outriggers. Both artificial and natural baits are used. In addition to lures, trollers occasionally use freshly caught skipjack tuna and small yellowfin tuna as live bait to attract marlin, the favored landings for charter vessels, as well as yellowfin tuna.

The recreational fleet primarily employs troll gear to target pelagic species. Although their

motivation for fishing is recreational, some of these vessel operators sell a portion of their landings to cover fishing expenses and have been termed “expense” fishermen (Hamilton 1999). While some of the fishing methods and other characteristics of this fleet are similar to those described for the commercial troll fleet, a survey of recreational and expense fishermen showed substantial differences in equipment, avidity and catch rates compared to commercial operations. Vessel operators engaged in subsistence fishing are included in this recreational category.

A summary of recreational catches in Hawaii is given in the Council’s 2002 Pelagic Fisheries Annual Report (WPRFMC 2004). The total recreational catch for Hawaii was estimated to be 12,932,744 lbs, of which about 95% in terms of weight was caught from boats, and pelagic fish in total account for about 90% by weight of the recreational catch.

### **American Samoa, Guam and Northern Mariana Islands Fisheries**

A summary of the pelagic fisheries in American Samoa, Guam and CNMI is given in Table 3. CNMI has an active commercial trolling fleet and several charter sportfishing vessels, as is Guam although production declined markedly following a December 2002 super typhoon. Until the mid-1990s, pelagic fishery production in American Samoa was also generated by trolling vessels. Longline fishing has grown markedly in American Samoa since 1994, and landed in excess of 15 million pounds of fish in 2002 and 11.2 million pounds in 2003. Troll fishery production has declined in American Samoa with the advent of longlining, as many of the vessels previously troll fishing converted to small-scale longlining. Troll fishing in American Samoa in 2003 amounted to just over 30,000 lb. American Samoa has a bimodal longline fleet, comprising 30-45 ft outboard-powered catamarans, and conventional large (>50ft) monohull longliners. The longline fleet targets primarily albacore, a species found in surface schools in cooler sub-tropical and temperate waters, but requiring fishing at depths of 100 to 200 meters in the near equatorial waters of American Samoa. American Samoa longline vessels currently fish under a general permit, but a limited entry program for this fishery is currently nearing implementation.

American Samoa vessels could conceivably fish north of the equator and make shallow sets for swordfish but have no history of doing so. To date, there has been no fishing north of the equator by American Samoa based domestic longline vessels (Figure 1). Moreover, the American Samoa fleet targets primarily albacore for the two fish canneries in Pago Pago, and there is little to no market for fresh swordfish in American Samoa. More importantly, there is no easy access to markets elsewhere on the U.S. mainland, unlike Hawaii, where most of the swordfish catch was sent. Two general longline permits have been issued in the Mariana Islands, one in Guam and the other in Commonwealth of the Northern Mariana Islands (CNMI). Neither permit is being used to conduct longline fishing from these locations. Further, based on historical data from other fleets, any longline fishing conducted around the Marianas would target tunas and not swordfish.

**Table A-3. Summary of Pelagic Fishery Information for American Samoa, Guam, and CNMI, 2003. (Source: Adapted from WPRFMC, 2004)**

Island Area	American Samoa		Guam	CNMI
Gear	Longline	Troll/Charter	Troll/Charter	Troll/Charter
Area Fished	Inshore and EEZ	Inshore and EEZ	Inshore and EEZ	Inshore and EEZ
Total Landings	11121704	30952	643149	226,164*
Catch Composition	72% albacore tuna 8% yellowfin tuna < 5% all others	74% skipjack tuna 6% barracuda 4% yellowfin tuna < 4% all others	31% mahimahi 23% skipjack tuna 19% yellowfin tuna	70% skipjack tuna 11% mahimahi 8% dogtooth tuna 6% yellowfin tuna
Season	All year	All year	All year	All year
Active Vessels	50	19	416	107
Total Permits	88 (open access)	NA	NA	NA
Total Trips	888	283	6962	2084
Total Ex-vessel Value	\$10,263,160	\$29,094	\$641,081**	\$441,515

Notes:\*Landings for CNMI are recorded commercial landings, but not all commercial landings are recorded (D. Hamm, NMFS SWSFC-HL, pers. comm., November 3, 2000).

\*\*Total ex-vessel value of landings in Guam are estimated from commercial landings, which are less than 50 percent of total landings.

#### IV. DESCRIPTION OF THE ALTERNATIVES

Measure 1. Protected species workshop attendance:

- Alternative 1A - No Action: do not require annual workshop attendance by operators of vessels registered to general longline permits (vessels registered to general longline permits and those that in the future will be registered to American Samoa limited entry longline permits).
- Alternative 1B - Require annual workshop attendance by vessel operators.
- Alternative 1C - Require annual workshop attendance by both vessel operators and vessel owners, with consideration of mechanisms for remote attendance. **(preferred)**

Measure 2: Sea turtle mitigation gear (dip nets, line clippers, and bolt cutters):

- Alternative 2A - No Action: do not require operators vessels registered to general longline permits (vessels registered to general longline permits and those that in the future will be registered to American Samoa limited entry longline permits) to carry and use dip nets, line clippers, and bolt cutters to release hooked or entangled sea turtles.
- Alternative 2B - Require that operators of general longline vessels carry and use dip nets, line clippers, and bolt cutters (longline vessels with less than 3' freeboard such as alias would not have to carry dip nets or long handled line clippers, however they would need to carry an instrument capable of cutting trailing fishing line) to disengage any hooked or entangled sea turtles with the least harm possible to the sea turtles, and if it is done by cutting the line, any trailing fishing line must be cut as close to the hook as possible. **(preferred)**
- Alternative 2C - Require operators of general longline vessels to carry and use dip nets, line clippers, and bolt cutters to release hooked or entangled sea turtles with no exceptions for longline vessels with less than 3' freeboard.

Measure 3: Non-longline vessel sea turtle handling requirements:

- Alternative 3A - No action: do not require operators of non-longline vessels managed under the Pelagics FMP and using hooks to target pelagic species to follow any sea turtle handling requirements including removing trailing gear.
- Alternative 3B - Require operators of non-longline vessels managed under the Pelagics FMP and using hooks to target pelagic species to follow sea turtle handling requirements, as specified in 50 CFR 223.206(d)(1) (i) and (iii) below:

*(i) Any specimen taken incidentally during the course of fishing or scientific research activities must be handled with due care to prevent injury to live specimens, observed for activity, and returned to the water according to the following procedures:*

*(A) Sea turtles that are actively moving or determined to be dead as described in paragraph (d)(1)(i)(C) of this section must be released over the stern of the boat. In addition, they must be released only when fishing or scientific collection gear is not in use, when the engine gears are in neutral position, and in areas where they are unlikely to be recaptured or injured by vessels.*

*(B) Resuscitation must be attempted on sea turtles that are*

*comatose, or inactive, as determined in paragraph (d)(1) of this section, by: (1) Placing the turtle on its bottom shell (plastron) so that the turtle is right side up and elevating its hindquarters at least 6 inches (15.2 cm) for a period of 4 up to 24 hours. The amount of the elevation depends on the size of the turtle; greater elevations are needed for larger turtles. Periodically, rock the turtle gently left to right and right to left by holding the outer edge of the shell (carapace) and lifting one side about 3 inches (7.6 cm) then alternate to the other side. Gently touch the eye and pinch the tail (reflex test) periodically to see if there is a response. (2) Sea turtles being resuscitated must be shaded and kept damp or moist but under no circumstance be placed into a container holding water. A water-soaked towel placed over the head, carapace, and flippers is the most effective method in keeping a turtle moist. (3) Sea turtles that revive and become active must be released over the stern of the boat only when fishing or scientific collection gear is not in use, when the engine gears are in neutral position, and in areas where they are unlikely to be recaptured or injured by vessels. Sea turtles that fail to respond to the reflex test or fail to move within 4 hours (up to 24, if possible) must be returned to the water in the same manner as that for actively moving turtles.*

*(C) A turtle is determined to be dead if the muscles are stiff (rigor mortis) and/or the flesh has begun to rot; otherwise the turtle is determined to be comatose or inactive and resuscitation attempts are necessary,*

*(iii) Any specimen taken incidentally during the course of fishing or scientific research activities must not be consumed, sold, landed, offloaded, transshipped, or kept below deck.*

Vessel operators must also disengage any hooked or entangled sea turtles with the least harm possible to the sea turtles including cutting any trailing fishing line as close to the hook as possible, when fishing in the EEZ.

Alternative 3C -

Require operators of non-longline vessels managed under the Pelagics FMP and using hooks to target pelagic species to follow sea turtle handling requirements as specified in 50 CFR 223.206(d)(1) (i) and (iii) and described in Alternative 3B, including disengaging any hooked or entangled sea turtles with the least harm possible to the sea turtles and cutting any trailing fishing line as close to the hook as possible, when fishing in the EEZ and when fishing on the high seas for stocks managed by the Council.  
**(preferred)**

Measure 4: Shallow-setting north of the equator.

- Alternative 4A- No action: do not require vessels registered to general longline permits (vessels registered to general longline permits and those that in the future will be registered to American Samoa limited entry longline permits) to shallow-set north of the equator to use circle hooks with a 10° offset (a circle hook sized 18/0 or larger is one whose outer diameter at its widest point is no smaller than 1.97 inches (50 mm) when measured with the eye of the hook on the vertical axis and perpendicular to the horizontal axis. A 10° offset is measured from the barbed end of the hook and is relative to the parallel plane of the eyed-end, or shank, of the hook when laid on its side) , mackerel-type bait (mackerel-type bait means a whole fusiform fish with a predominantly blue, green, or grey back and predominantly grey, silver, or white lower sides and belly).
- Alternative 4B - Require vessels registered to general longline permits to shallow-set north of the equator only if the circle hooks (as described above), mackerel-type bait (as described above) and dehookers currently required by vessels registered to Hawaii longline permits are used. **(preferred)**
- Alternative 4C- Prohibit shallow-setting north of the equator by vessels registered to general longline permits.

**Table A-4. List of required equipment and sample models that meet requirements for the use of dehookers**

Required Item	Sample model
(i) Long-handled dehooker for ingested hooks	ARC Pole Model Deep-Hooked Dehooker (Model BP11)
(ii) Long-handled dehooker for external hooks	ARC Model LJ6P (6 ft (1.83 m)); ARC Model LJ36; or ARC Pole Model Deep-Hooked Dehooker (Model BP11); ARC 6 ft (1.83 m) Pole Big Game Dehooker (Model P610)
(iii) Long-handled device to pull an “inverted V”	ARC Model LJ6P (6 ft); Davis Telescoping Boat Hook to 96 inch (2.44 m) (Model 85002A); West Marine #F6H5 Hook and #F6-006 Handle
(iv) Tire	Any standard automobile tire free of exposed steel belts
(v) Short-handled dehooker for ingested hooks	ARC 17–inch (43.18–cm) Hand-Held Bite Block Deep-Hooked Turtle Dehooking Device (Model ST08)
(vi) Short-handled dehooker for external hooks	ARC Hand-Held Large J-Style Dehooker (Model LJ07); ARC Hand-Held Large J-Style Dehooker (Model LJ24); ARC 17–inch (43.18–cm) Hand-Held Bite Block Deep-Hooked Turtle Dehooking Device (Model ST08); Scotty’s Dehooker
(vii) Long-nose or needle-nose pliers	12–inch (30.48–cm) S.S. NuMark Model #030281109871; any 12–inch (30.48–cm) stainless steel long-nose or needle-nose pliers
(ix) Monofilament line cutters	Jinkai Model MC-T
(x) Mouth openers and gags (at least two from A-G):	
(A) Block of hard wood	Any block of hard wood meeting the standards, including Great American Manufacturing Inc. Curved Shoe Handle Wire Brush with Beveled Scraper (Model SS0416), with wires and scraper removed; Olympia Tools Long-Handled Wire Brush and Scraper (Model 974174), with wires and scraper removed.
(B) Set of three canine mouth gags	Jorvet Model #4160, 4162, and 4164
(C) Set of two sturdy canine chew bones	Nylabone (a trademark owned by T.F.H. Publications, Inc.); Gumabone (a trademark owned by T.F.H. Publications, Inc.); Galileo (a trademark owned by T.F.H. Publications, Inc.)
(D) Set of two rope loops covered with hose	Any set of two rope loops covered with hose meeting standards
(E) Hank of rope	Any size soft braided nylon rope, provided it creates a hank of rope 2 - 4 inches (5.08 cm - 10.16 cm) in thickness
(F) Set of four PVC splice couplings	A set of four Standard Schedule 40 PVC splice couplings (1–inch (2.54–cm), 1 1/4–inch 3.175–cm), 1 1/2 inch (3.81–cm), and 2–inch (5.08–cm)
(G) Large avian oral speculum	Webster Vet Supply (Model 85408); Veterinary Specialty Products (Model VSP 216–08); Jorvet (Model J–51z); Krusse (Model 273117)

At its 125<sup>th</sup> meeting held on January 26, 2005 the Council reviewed concerns expressed by NMFS that an inappropriate section of the CFR was discussed for inclusion (223.206 vs. 660.32) at the Council’s 122<sup>nd</sup> and 123<sup>rd</sup> meetings, and that there was no exemption in preferred alternative 4B from the requirement to use long-handled dehookers on small longline fishing vessels shallow-setting north of the equator. Although the likelihood of such fishing is extremely remote, such an exemption would require operators of these vessels to carry and use short-handled dehookers and would be consistent with the 2004 BiOP as well as with preferred

alternative 2B described above. Because these concerns were not raised at the previous Council meetings, NMFS directed that another Council meeting be held to resolve them.

At its 125<sup>th</sup> meeting the Council recommended that the previously preferred alternative 3B be modified to read as follows:

*In the event of an interaction, an operator of a vessel not using longlines but using hooks (i.e. handline, troll and pole-and-line vessels) to target PMUS, must handle the turtle in a manner to minimize injury and promote post-hooking survival as outlined in CFR 660.32 (c) and (d), and remove trailing gear when fishing in the EEZ and when fishing on the high seas for stocks managed by the Council. In addition, dead sea turtles may not be consumed, sold, landed, offloaded, transhipped or kept below deck, but must be returned to the ocean after identification unless NOAA Fisheries requests the turtle be kept for further study.*

The Council further recommended at its 125<sup>th</sup> meeting that the previously preferred alternative 4B be modified to read as follows:

*Require vessels registered to general longline permits (and those that in the future will be issued to participants in the American Samoa longline limited entry program) to shallow-set north of the equator only if the circle hooks (as described above), mackerel-type bait (as described above) and dehookers currently required by vessels registered to Hawaii longline permits are used. Longline vessels with less than 3' freeboard such as alias would not have to carry long-handled dehookers, provided that there in concurrence from NMFS Office of Protected Resources.*

This concurrence was received on April 1, 2005. The sections of the CFR referenced in revised alternative 3B are not significantly from those in 223.206 and are as follows:

*660.32(c) Resuscitation. If the sea turtle brought aboard appears dead or comatose, the sea turtle must be placed on its belly (on the bottom shell or plastron) so that the turtle is right side up and its hindquarters elevated at least 6 inches (15.24 cm) for a period of no less than 4 hours and no more than 24 hours. The amount of the elevation depends on the size of the turtle; greater elevations are needed for larger turtles. A reflex test, performed by gently touching the eye and pinching the tail of a sea turtle, must be administered by a vessel operator, at least every 3 hours, to determine if the sea turtle is responsive. Sea turtles being resuscitated must be shaded and kept damp or moist but under no circumstance may be placed into a container holding water. A water-soaked towel placed over the eyes, carapace, and flippers is the most effective method in keeping a turtle moist. Those that revive and become active must be returned to the sea in the manner described in paragraph (d) of this section. Sea turtles that fail to revive within the 24-hour period must also be returned to the sea in the manner described in paragraph (d)(1) of this section.*

*660.32(d) Release. Live turtles must be returned to the sea after handling in accordance with the requirements of paragraphs (b) and (c) of this section:*

- (1) By putting the vessel engine in neutral gear so that the propeller is disengaged and the vessel is stopped, and releasing the turtle away from deployed gear; and*
- (2) Observing that the turtle is safely away from the vessel before engaging the propeller and continuing operations.*

*(b) Handling requirements. (1) All incidentally hooked or entangled sea turtles must be handled in a manner to minimize injury and promote post-hooking or post-entangling survival.*

*(2) When practicable, comatose sea turtles must be brought on board immediately, with a minimum of injury, and handled in accordance with the procedures specified in paragraphs (c) and (d) of this section.*

*(3) If a sea turtle is too large or hooked or entangled in a manner as to preclude safe boarding without causing further damage/injury to the turtle, the items specified in paragraphs (a)(2) and (a)(4) of this section must be used to cut the line and remove as much line as possible prior to releasing the turtle.*

### ***Skills Necessary to Meet Compliance Requirements***

No special skills would be required to comply with the proposed requirements. All affected entities already have the skills necessary to comply with the proposed longline gear-related requirements, however NMFS may provide additional training in the proper use of the required dehookers through the protected species workshops that owners and operators of longline vessels would be required to attend and complete each year. There are no recordkeeping or reporting requirements associated with this rule.

### ***Identification of Duplicating, Overlapping, and Conflicting Federal rules***

The inclusion of existing text on turtle handling requirements from 50 CFR 660.32 (c) and (d) is largely duplicative of text in 50 CFR 223.206, however 223.206 only applies to threatened species of sea turtles. This rule would extend handling requirements to interactions between Pelagics FMP fishing vessels and all sea turtles. To the extent practicable, it has been determined that there are no other Federal rules that may duplicate, overlap, or conflict with this proposed rule.

## **V. DESCRIPTION OF SMALL BUSINESSES TO WHICH THE RULE WOULD APPLY**

Table 5 presents data for 2003 for the number of fishing vessels in the Western Pacific that may target pelagic management unit species (PMUS) with hooks. Apart from the Hawaii-based longline vessels, Table 5 enumerates where possible those vessels that would be affected by the alternatives. The American Samoa longline fleet currently fishes under the Western Pacific general longline permit, but a limited entry program is expected to be implemented for this

fishery in late 2004 or early 2005. There are two general longline permits issued for Guam and CNMI but neither of these have been used to conduct longline fishing.

Less information is available on the small vessel non-longline fleets in the Western Pacific. Some vessels, such as the alia catamarans in American Samoa are flexible fishing platforms and can be rigged for longlining, trolling or bottomfishing as circumstances dictate. usually, the alia catamarans are used primarily for longline fishing, but when longline catches decline they will be quickly rigged for troll or bottomfishing. Small non-longline vessels landing pelagic fish in American Samoa, Guam and CNMI may be used for commercial (including charter fishing) or recreational fishing, since no permits are required for commercial fishing. Permits are required for fishing in Hawaii, making it easier to specify the size of the non-longline commercial fleet targeting pelagic fish. Less is known about recreational trollers and handliners, although the size of the total pleasure craft fleet is known from the State of Hawaii vessel registration database. McConnell & Haab (2001) have estimated that 6,600 or about 50% of small pleasure craft are used for recreational fishing

The majority of commercial fishing vessels are owner operated however some individuals hold permits for more than one vessel, or own more than one vessel. Maximum fleet (vessel) percentage ownership by any one individual or entity is believed to be less than 10%. All these small vessel fishing operations are believed to be small businesses; that is, they have gross revenues of less than \$3.5 million annually, they are independently owned and operated, and they are not dominant in their field. The same also applies to recreational fishing vessels, which may occasionally sell some catch, since their gross revenues are less than \$3.5 million annually (Hamilton & Huffman, 1997).

**Table A-5. Number of pelagic fishing vessels in the Western Pacific, 2003**

<b>Island</b>	<b>Number of longline permits</b>	<b>Number of active longline vessels</b>	<b>Number of commercial small (non-longline) vessels</b>	<b>Number of “recreational” small vessels</b>
<b>Hawaii</b>	164 <sup>1</sup>	126	1,615	13,000 <sup>4</sup>
<b>American Samoa</b>	65 <sup>2</sup>	48	20	85
<b>Guam</b>	1 <sup>3</sup>	0	371	140 <sup>5</sup>
<b>CNMI</b>	1 <sup>3</sup>	0	73	445 <sup>5</sup>
<b>Total potentially affected</b>	67	48	2,079	9,416 <sup>4</sup> -15,816

- 
1. Limited entry permits
  2. General longline permits, with limited entry program to be implemented in 2004
  3. General longline permits
  4. Total number of vessels registered as pleasure craft. Not all vessels may be used for fishing or pelagic fishing. McConnell & Haab (2001) estimate 6,600 "recreational" fishing vessels in Hawaii.
  5. Vessels reporting no sales in 2003

With the exception of Hawaii-based longline vessels, all (9,416 to 15,816) active and future fishing vessel operations in Table 5 will be potentially affected by this rule.

## **VI. ECONOMIC IMPACTS OF THE ALTERNATIVES ON SMALL BUSINESSES**

### **Impact on Hawaii-based Longline Vessel Operations**

The measures contained in the preferred alternatives are not expected to have any impacts on Hawaii-based longline vessels, which are already required to comply with the measures described in this document.

### **Impacts on American Samoa-based Longline Vessel Operations**

Measures 1, 2 and 4 could potentially affect the operations of these vessels. For all three measures, the impacts of all No Action alternatives (Alternative 1) would be most highly negative as they would likely cause the fishery to be out of compliance with the Endangered Species Act and thus any fishery participant that interacted with a sea turtle could be personally prosecuted and subject to resultant penalties. It is difficult to predict the number of individuals that would continue fishing, interact with sea turtles and be prosecuted under this scenario. The type and amount of penalties that would be imposed on such individuals is also unknown. However these would clearly be adverse impacts on fishery participants. In a worse case scenario the No Action alternatives could result in a fishery closure while NMFS and the Council considered and pursued the appropriate course of action to get the fishery back into compliance. Such actions would result the loss of all ex-vessel revenues for these fisheries, as well as the loss of the unquantified social and economic benefits that extend to fishery participants, fishery support services, and other individuals and businesses that indirectly support, rely on, or benefit from these fisheries.

Measure 1's Alternatives 1B and 1c would both require attendance at protected species workshops. Alternative 1B would only apply this to operators of non-Hawaii based longline vessels. It is presumed that NMFS would offer this workshop where the vessels are based (at this time the only non-Hawaii based longline vessels are based in American Samoa and workshops are being offered in both places) and thus the maximum cost for vessel operators to attend would be the unquantified opportunity cost of a lost half-day of fishing or other activities. The preferred alternative (Alternative 1C) would also include the owners of these vessels in this requirement. Under this alternative, a substantial cost may be incurred for vessel owners residing outside of Hawaii and American Samoa. Although vessel owners would presumably be allowed to receive interim training through the receipt of a computer compact disk with protected species

information as is allowed for the Hawaii-based fleet, annual (in person) certification would be required, and thus under this alternative vessel owners living beyond Hawaii and American Samoa would incur the costs of travel to attend the workshops unless provisions for remote attendance and certification are established. It is difficult to predict how many individuals would have to make special trips to one of these locations to attend annual workshops or what their travel costs would be, but they could be significant in some cases. It is estimated that 15% of the owners of American Samoa-based longline vessels live outside of American Samoa and Hawaii.

Measure 2's Alternative 2B would require operators of general permit longline vessels to carry and use dipnets, long-handled line clippers and bolt cutters. These measures were previously implemented under the Pelagics FMP but were removed when the regulations were vacated on April, 1, 2004. Most longline vessels therefore already have this gear on board. However, should vessels need to re-equip themselves, the costs are not expected to exceed \$100. The preferred alternative (Alternative 2C) recognizes that small longliners like alia catamarans would not be required to carry a dip net or long-handled line clippers (however they would need to carry an instrument capable of cutting trailing fishing line), as they can simply retrieve and release the turtle from the side of the vessel without risk of additional injury to the animal. Operators of these vessels are believed to routinely carry instruments capable of cutting through both fishing line and fish hooks and thus would not need to acquire any additional equipment and would not be expected to experience any social or economic impacts under this alternative.

Measure 4's Alternative 4B would require general permit longline vessels to use the circle hooks, mackerel-type bait and de-hookers currently required on Hawaii-based vessels when shallow-setting north of the equator (with an exemption from the requirement to use long-handled dehookers applied to longline vessels with 3 ft or less of freeboard). This would incur additional costs in terms of re-rigging longlines with 18/0 circle hooks plus swivels, at a cost of \$1.50/hook and with longlines typically setting 2000-2,600 hooks (Sean Martin, Pacific Ocean Producers, pers. comm.) at a start up cost of \$3,450. American Samoa-based vessels would also be required to use mackerel-type bait for shallow set fishing north of the equator, at a cost of between \$0.25-0.30/hook (Sean Martin, Pacific Ocean Producers, pers. comm.). American Samoa-based vessels usually employ sardine or sanma bait, which conform to the definition of 'mackerel-type bait' (a whole fusiform fish with a predominantly blue, green, or grey back and predominantly grey, silver, or white lower sides and belly). However, the requirement for a larger circle hook may mean that a larger bait would be required to be retained on the hook. In summary, switching to shallow-set longlining north of the equator would incur additional costs to American Samoa longline vessels of between about \$2,500 to \$3,500 per vessel. There would also be an additional costs of about \$500 per vessel for the approved dehookers and associated equipment as detailed in Table A4 (Tom Graham, NMFS PIRO, pers comm.). In addition the results of trials suggests that although this gear does not lead to a decrease in catch or revenues when making shallow sets to target swordfish a 80% reduction in bigeye catch rates was observed compared to conventional J-hooks and squid bait (Watson et al. 2004). Thus this alternative could have a significant impact on affected vessels' ex-vessel revenues when making shallow sets targeting yellowfin tuna, by reducing the catch rates of incidentally caught bigeye tuna. Measure 4's Alternative 4C would prohibit all shallow-setting north of equator by these vessels. Although no potentially affected

vessels are known to have made shallow sets north of the equator to date, this alternative would foreclose that opportunity and all future social and economic returns that might result.

### **Impacts on Guam and CNMI Longline Vessel Operations**

As for the American Samoa-based longline vessels, Measures 1, 2 and 4 could potentially affect the operations of these vessels. However, although two general longline permits have been issued by NMFS for longline operations based in Guam and CNMI, neither vessel is active at this time.

For all three measures, the impacts of all No Action alternatives (Alternative A) would potentially be most highly negative as they would likely cause any future fishery to be out of compliance with the Endangered Species Act and thus any fishery participant that interacted with a sea turtle could be personally prosecuted and subject to resultant penalties. It is difficult to predict the number of individuals that would begin fishing, interact with sea turtles and be prosecuted under this scenario. The type of amount of penalties that would be imposed on such individuals is also unknown. However these would clearly be adverse impacts on fishery participants. In a worse case scenario the No Action alternatives could result in fishery closures while NMFS and the Council considered and pursued the appropriate course of action to get the fisheries back into compliance. Such actions would result the loss of all potential ex-vessel revenues for these fisheries, as well as the loss of the potential and unquantified potential social and economic benefits that could extend to fishery participants, fishery support services, and other individuals and businesses that would indirectly support, rely on, or benefit from these fisheries.

Measure 1's Alternatives 1B and 1C would both require attendance at protected species workshops. Alternative 1B would only apply this to operators of non-Hawaii based longline vessels. It is presumed that NMFS would offer this workshop where the vessels are based (at this time the only non-Hawaii based longline vessels are based in American Samoa and workshops are being offered in both places) and thus the maximum cost for vessel operators to attend would be the unquantified opportunity cost of a lost half-day of fishing or other activities. The preferred alternative (Alternative 1C) would also include the owners of these vessels in this requirement. Under this alternative, a substantial cost may be incurred for vessel owners residing outside of Hawaii and American Samoa. Fifteen percent of the vessels that fish in American Samoa under longline permits have owners that reside outside of American Samoa and Hawaii. Although vessel owners would presumably be allowed to receive interim training through the receipt of a computer compact disk with protected species information as is allowed for the Hawaii-based fleet, annual (in person) certification would be required, and thus under this alternative vessel owners living beyond Hawaii and American Samoa would incur the costs of travel to attend the workshops unless provisions for remote attendance and certification are established. Given that there are no active vessels, it is difficult to predict how many individuals would have to make special trips to one of these locations to attend annual workshops or what their travel costs would be, but they could be significant in some cases.

Measure 2's Alternative 2B would require operators of general permit longline vessels to carry and use dipnets, long-handled line clippers and bolt cutters. Costs for these materials are not

expected to exceed \$100. The preferred alternative (Alternative 2C) recognizes that small longliners like American Samoa's alia catamarans would not be required to carry a dip net or long-handled line clippers (however they would need to carry an instrument capable of cutting trailing fishing line), as they can simply retrieve and release the turtle from the side of the vessel without risk of additional injury to the animal. Operators of these vessels are believed to routinely carry instruments capable of cutting through both fishing line and fish hooks and thus would not need to acquire any additional equipment and would not be expected to experience any social or economic impacts under this alternative.

Measure 4's Alternative 4B would require general permit longline vessels to use the circle hooks, mackerel-type bait and de-hookers currently required on Hawaii-based vessels when shallow-setting north of the equator (with an exemption from the requirement to use long-handled dehookers applied to longline vessels with 3 ft or less of freeboard). Re-rigging longlines with 18/0 circle hooks plus swivels would cost approximately \$1.50/hook, a large (> 75 ft) longline vessel generally deploys 2,000-2,500 hooks/set, so the cost per vessel of that size would be \$3,000 to \$3,750. American Samoa-based longline vessels already use sardine or sanma bait, so there would be no additional cost for the bait requirement for these vessels. There would also be an additional costs of about \$500 per vessel for the approved dehookers and associated equipment as detailed in TableA- 4 (Tom Graham, NMFS PIRO, pers comm.). Thus the total cost to rig a vessel registered with a longline general permit to shallow-set north of the equator is estimated to be between \$3,500 and \$4,250. An ongoing additional replacement cost of .20 per hook would also be required as circle hooks are slightly more expensive than typical J-hooks.

Given that this would be a new requirement, it is assumed that longline vessels based in Guam and CNMI would also need to re-rig and would encounter similar costs. In addition the results of trials suggests that although this gear does not lead to a decrease in catch or revenues when making shallow sets to target swordfish a 80% reduction in bigeye catch rates was observed compared to conventional J-hooks and squid bait (Watson et al. 2004). Thus this alternative could have a significant impact on affected vessels' ex-vessel revenues when making shallow sets targeting yellowfin tuna, by reducing the catch rates of incidentally caught bigeye tuna. Measure 4's Alternative 4C would prohibit all shallow-setting north of equator by these vessels. Although no potentially affected vessels are known to have made shallow sets north of the equator to date, this alternative would foreclose that opportunity and all future social and economic returns that might result.

### **Impacts on Small Boat Fisheries**

Only Measure 3 would potentially impact these fisheries. The impact of Measure 3's No Action alternative (Alternative 3A) would be most highly negative as it would likely cause the fisheries to be out of compliance with the Endangered Species Act and thus any fishery participant that interacted with a sea turtle could be personally prosecuted and subject to resultant penalties. It is difficult to predict the number of individuals that would continue fishing, interact with sea turtles and be prosecuted under this scenario. The type of amount of penalties that would be imposed on such individuals is also unknown. However these would clearly be adverse impacts on fishery participants. In a worse case scenario the No Action alternative could result in fishery closures

while NMFS and the Council considered and pursued the appropriate course of action to get the fisheries back into compliance. Such actions would result the loss of all ex-vessel revenues for these fisheries, as well as the loss of the unquantified social and economic benefits that extend to fishery participants, fishery support services, and other businesses that indirectly support, rely on, or benefit from these fisheries. Fishery participants that would be affected by Measure 3's Alternatives 3B and 3C are believed to routinely carry the instruments required to cut through trailing fishing line and thus would not be expected to experience any economic impacts under either of these alternatives. However they may potentially experience difficulties in complying with some the handling requirements included in both of these alternatives, specifically the requirement that comatose or inactive sea turtles be brought onboard and held in a shaded place for 4 to 24 hours. Many of the vessels affected by this measure are small trollers or handliners (18'-25' in length overall) which lack sufficient deck space to accomplish this. In addition many take trips of 6 to 12 hours which do not allow for holding sea turtles for longer time periods. A second operational problem that may arise is the normal rear location of these vessels' motors means that the release of a sea turtle over the stern of these vessels may be problematic. It remains unclear what vessel operators would be expected to do, or would actually do in these situations. Fortunately interactions between these vessels and sea turtles are believed to be rare to non-existent.

## **VII. IMPACTS OF THE PREFERRED ALTERNATIVES ON NATIONAL COSTS AND BENEFITS**

The implementation Measure 4's preferred alternative would allow longline vessels with general permits to make shallow sets in the North Pacific while according turtles a strong measure of protection through the mackerel-type bait and circle hook gear combination. Swordfish targeting longliners are currently limited in the Western Pacific to Hawaii-based vessels, with the American Samoa fleet targeting primarily deep swimming albacore tunas. However, shallow-set longline fishing can also be used to target tunas such as yellowfin in low latitudes, and domestic longline fisheries in Guam and NMI may at some point in the future commence with the objective of targeting yellowfin in equatorial latitudes, or swordfish at higher latitudes.

Preferred alternatives for Measures 1-3 represent added protection and benefits to turtles. This and the flexibility to target deep or shallow swimming pelagic fish in the North Pacific represent the primary net benefits to the nation from this action.

All alternatives have associated, unquantified enforcement costs. In addition, Alternative 1B would require attendance at annual protected species workshops for longline vessel operators with an associated annual management cost of \$30,000. Alternative 1C (preferred) would included vessel owners in this requirement, with an associated annual management cost of \$35,000.

The implementation of the preferred alternatives would also likely to have implications beyond those on management costs, small businesses and entities participating in the affected fisheries. Non-use values, also referred to as passive-use or existence values, do not involve personal

consumption of derived products nor *in situ* contact. (Bishop, 1987). Non-use values may, nevertheless, be the most important benefit derived from some endangered species, simply because such species are [so] few in number that many people are unlikely to have seen them or to have had very much tangible experience regarding them. The most visible manifestation of existence values is the donation of funds to private organizations that support activities to preserve endangered species. However, whether people enjoy existence values of resources is not contingent upon whether they donate money to support a cause. Any impact of non-use values would be a hedonic (non-market) effect.

Particularly in the United States and western Europe, there are those who consider that certain marine species represent a special group of animals that should not be killed, deliberately or incidentally, under any circumstances. Certain marine animals are viewed symbolically as unique or majestic creatures – “charismatic megafauna” – similar to African big game. From this perspective, every incidental catch of such a species would be a severe problem.

The perceived need for conservation of such species may be independent of any impact caused by fishing or of its stock status. This perception may also influence the response of resource managers to bycatch management issues. For example, the case of three ice-entrapped gray whales in Alaska might be seen as an example of where the ecological impact is minimal but where public perception and political attractiveness may lead to disproportionate effort. Such views are strongly culture-dependent (Hall, 1998).

Numerous studies have been conducted on the value of endangered species (e.g., Loomis and White 1996) and several studies provide estimates of the value of protected species in Hawaii, including the Hawaiian monk seal (WPRFMC, 2000). Metrick and Weitzman (1996) were unable to identify a satisfactory measure of charisma in the context of endangered species but they note that eye-size or eye-body ratio have been suggested. Another possible component of existence value is the degree to which a species is considered to be a higher form of life and possibly possess (anthropomorphic) capabilities for feeling, thought and pain (Metrick and Weitzman, 1996; Kellert, 1986). There may also be existence value for the contribution of particular species to biodiversity (Metrick and Weitzman, 1996). However, no valuation studies have been conducted specifically for sea turtles in the western Pacific region and for other species of interest in FMP-managed fisheries. As a result, new research would be needed to understand the non-use value of these species and how such values would be affected by the alternatives.