

## BIGEYE TUNA OVERFISHING RESPONSE

National Marine Fisheries Service (NMFS) notified the Council that it must take action to address overfishing of bigeye tuna by June 14, 2005. A similar notification was given to the Western Pacific Fishery Management Council (WPFMC). At the June 2005 meeting, the Council moved to begin work on an amendment to the Fishery Management Plan (FMP) for U.S. West Coast Fisheries for Highly Migratory Species (HMS) as the proper response to address this issue. At the March 2006 meeting, NMFS recommended that before preparing the FMP amendment, the Council should first develop a position for consideration at the June 25–30 Inter-American Tropical Tuna Commission (IATTC) meeting. The Council could then develop an FMP amendment consistent with whatever action is taken by the IATTC relative to bigeye tuna.

At the March Council meeting, NMFS provided a Draft Analysis of Management Options for Development of a Plan to End Overfishing of Pacific Bigeye Tuna (Agenda Item J.2.a, Attachment 1, March 2006). This document was intended to provide the Council with the information needed to form a position that has the potential to influence any new conservation and management decisions adopted by the relevant international bodies governing bigeye tuna stocks in the eastern Pacific in future years. This draft paper was reviewed by the Council and its advisory bodies, recognizing that the Council would take final action to identify their recommendations at the April Council meeting. Based on this advice, the Council requested several clarifications in the description of the options, including how fleets would be defined for the purpose of the 1 percent exemption proposed under the options and measures applied to purse seine vessels. Similarly, it was recommended that the options be more explicit about whether proposed measures would apply to all U.S. vessels in the convention area (i.e., including Hawaii-based vessels) or just to West Coast vessels permitted under the HMS FMP. Agenda Item G.1.a, Attachment 1 is a revised version of the Draft Analysis intended to address these concerns.

It was also noted that the WPFMC has taken action on an FMP amendment to address bigeye overfishing. One option not considered in the Draft Analysis presented in April would be to adopt the WPFMC recommendations, or substantially similar recommendations, as this Council's overfishing response. This would facilitate an analysis of the effects of that proposal on Pacific Council-managed fisheries and a comparison of that proposal with the other options presented in the Draft Analysis. Agenda Item G.1.a, Attachment 2 excerpts sections from the WPFMC's Amendment 14 to their Pelagics FMP, addressing bigeye and yellowfin tuna overfishing. Section 4.2 describes the development of this amendment. Although the WPFMC took final action on this amendment at their May 31–June 2, 2005, meeting, subsequent information about the status of yellowfin tuna prompted them to delay transmittal so that a response could include this species. Section 8.0 describes their response for international fisheries, which is directly relevant to action by this Council. Although not directly applicable, Section 9.0, containing recommendations for domestic WPFMC fisheries, is included as supplemental information.

**Council Task:**

1. **Adopt Final Recommendations to the IATTC and provide further guidance, if necessary at this time, on the development of an FMP amendment.**

**Reference Materials:**

1. Agenda Item G.1.a, Attachment 1: Analysis of Management Options for Development of a Plan to End Overfishing of Pacific Bigeye Tuna
2. Agenda Item G.1.a, Attachment 2: Excerpts from Draft Amendment 14 to the WPFMC Pelagics FMP

**Agenda Order:**

- a. Agenda Item Overview
- b. NMFS Report
- c. Reports and Comments of Advisory Bodies
- d. Public Comment
- e. **Council Action:** Adopt Final Recommendations to the IATTC

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# Analysis of Management Options for Development of a Plan to End Overfishing of Pacific Bigeye Tuna in the Eastern Pacific Ocean

## PREFACE

Pacific bigeye tuna are subject to overfishing Pacific-wide and this document sets out alternatives that potentially could be used to end overfishing. Bigeye tuna, like other highly migratory species (HMS) are nomadic in behavior, thus do not recognize boundaries that management, policy, or science have established. Bigeye tuna are fished by many nations in addition the United States, thus future efforts to reduce fishing mortality on bigeye tuna in the Eastern Pacific Ocean (EPO) will require coordination and communication among all relevant regional fisheries stakeholders. The capacity for unilateral action by the United States to prevent overfishing, as required under National Standard 1 of the Magnuson-Stevens Act (16 U.S.C. 1851(a)(1), is limited, as is the capacity of the Pacific Fishery Management Council (Council), which is required to develop a plan to end overfishing, under 50 CFR 600.310(e)(4)(i).

Pacific-wide, the U.S. annually lands approximately 10,000 metric tons (mt) (Table 3), or about five percent of the total bigeye catch. The Pacific-wide catch for bigeye tuna in the EPO between years 1999 and 2003 was between 88,000 mt and 142,000 mt. The U.S. West Coast commercial catch for this period was less than one percent; hence any unilateral action by U.S. fisheries to end overfishing would have little effect on the stock. Multilateral management action is essential to ensure that overfishing on bigeye tuna in the Pacific Ocean ends.

The current resolution that places conservation and management measures on fishing nations in the EPO for bigeye tuna is set to expire in 2006; for that reason this document provides future management options that would address overfishing of Pacific bigeye tuna in the EPO. The Council will choose a West Coast position to advance to the U.S. delegation to the Inter-American Tropical Tuna Commission (IATTC), as domestic management for 2007 and beyond depends on international management actions to reduce fishing on bigeye tuna stocks.

## 1.0. PURPOSE AND NEED FOR ANALYSIS

### 1.1 *Purpose and Need*

This document is intended to provide the Council with information needed to form a position on how to control fishing mortality on Pacific bigeye tuna in the EPO. Management and conservation options are a shared responsibility of both domestic and international fisheries management entities, and thus the requirement to reduce fishing mortality will dictate that the United States find an appropriate balance between protecting the resource and achieving sustainable utilization of the resource within its straddling jurisdictions. Once the Council approves a strategy to reduce fishing mortality it will be presented to the U.S. delegation for consideration by the IATTC. Any new conservation and management measures adopted by the IATTC, as a result of its June 2006 meeting will be implemented domestically.

After consideration of this document, the Council will determine its preferred strategy for the conservation and management of bigeye tuna in the EPO. In the event that regulatory action is considered, the Council will direct the preparation of a management document for public review, including environmental analysis consistent with the National Environmental Policy Act (NEPA). This will ensure

adequate consideration of the impacts of a broad range of alternatives as the Council formulates recommendations.

## **1.2 History of Action**

NOAA's National Marine Fisheries Service (NMFS) notified the Council that it must take action to address overfishing of bigeye tuna by June 14, 2005. A similar notification was given to the Western Pacific Fishery Management Council. At the June 2005 meeting, the Council moved to begin work on Amendment 1 to the FMP for U.S. West Coast Fisheries for HMS as the proper response to address this issue. NMFS Southwest Region agreed to take lead responsibility on developing the amendment package for Council consideration. At its November 2005 meeting, the Council was to have adopted a preliminary range of alternatives for public review. However, because of time constraints at that meeting, the agenda item was deferred for a future meeting. This has also allowed NMFS staff, who initiated the preparation of an environmental assessment (EA) containing the alternatives and analysis of them, to provide a more complete document for the Council to review.

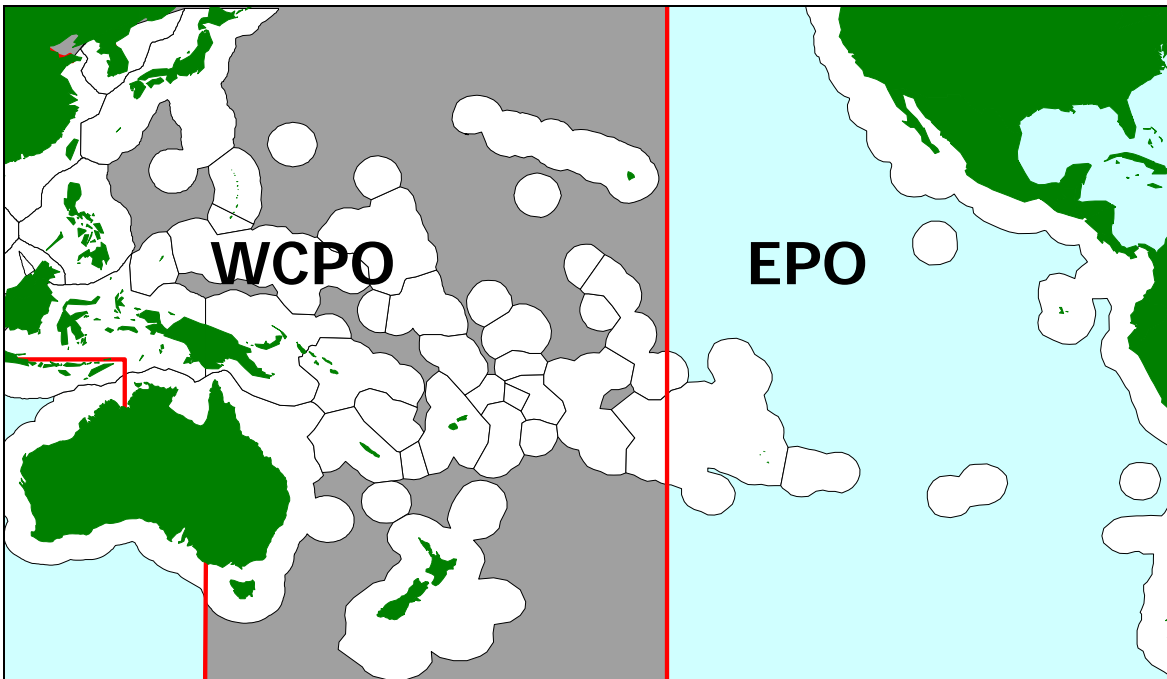
Shortly after NMFS staff began the development of the EA, it was determined that no regulatory action would result from an amendment since future actions are dependent on conservation and management measures adopted internationally. Therefore, at this juncture, a management options analysis for the development of a West Coast position on how to control fishing mortality on Pacific bigeye tuna in the eastern Pacific is a more relevant approach than is an environmental effects analysis of proposed conservation and management measures. The management options analysis will provide the Council with the information needed to form a position, which has the potential to influence any new conservation and management decisions adopted by the relevant international bodies governing bigeye tuna stocks in the eastern Pacific, in future years.

## **1.3 Current Management Controls**

Primary management of Pacific bigeye tuna occurs internationally by the IATTC in the EPO and by the Convention on the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean (WCPFC). The IATTC was established by international convention in 1950 and is responsible for the conservation and management of tuna fisheries and other species taken by tuna fishing activity in the EPO. The organization consists of a Commission in which each member country may be represented by up to four commissioners and a Director of Investigations, or the Director who is responsible for drafting research programs, budgets, administrative support, directing technical staff, coordination with other organizations and preparing reports to the Commission.

Staff scientists at the IATTC coordinate and conduct research, observer programs, and the collection, compilation, analysis and dissemination of fishery data and scientific findings. The work of the IATTC research staff is divided into two main groups: The IATTC Tuna-Billfish Program and the IATTC Tuna-Dolphin Program. Current membership of the IATTC includes Costa Rica, Ecuador, El Salvador, France, Guatemala, Japan, Mexico, Nicaragua, Panama, Peru, Spain, USA, Vanuatu, Venezuela, and Korea. Canada, China, the European Union, Honduras, and Chinese Taipei are Cooperating Non Parties or Cooperating Fishing Entities.

On September 5, 2000, the WCPFC was adopted. The Convention, which is subject to ratification, establishes a Commission that would adopt management measures for HMS throughout their ranges. The U.S. has yet to deposit its instrument of ratification of the Convention, but is participating as a cooperating non-member. Both Commissions affect West Coast-based HMS fisheries. Figure 1 illustrates the geographical delineation of the WCPO and the EPO.



**Figure 1. The geographical delineation of the Western and Central Pacific from the Eastern Pacific Ocean for statistical purposes.**

The West Coast HMS FMP provides a management context to carry out recommendations of the IATTC. In particular and of interest to the FMP, regulations are in place to collect data on vessels harvesting HMS in the Convention Area, with the intent of assisting the IATTC in monitoring international fisheries as well as enforcing conservation measures. The vessels register system is also intended to assist the Council in monitoring West Coast based HMS fisheries north Pacific albacore, yellowfin, bigeye, skipjack, Pacific bluefin, common thresher shark, pelagic thresher, bigeye thresher, shortfin mako, blue shark, striped marlin, Pacific swordfish and dolphinfish.

In June of 2004, the IATTC adopted Resolution C-04-09 on Tuna Conservation Measures. The resolution established a multi-annual program to protect tuna in the EPO for years 2004 through 2006. The resolution includes conservation measures for yellowfin, bigeye, and skipjack tunas. Purse seine vessels fishing in the EPO are affected by these conservation measures. The conservation resolution includes a national choice of one of two possible six week closures of the Convention Area. The possible choices are either a six-week closure in the summer or winter. Longline vessels fishing for bigeye tuna will be restricted to a national catch not to exceed their national catch for the year 2001. The 2004 conservation resolution introduced a precedent-setting multi-year management framework with a review of the stock(s) response in 2005 and 2006. The multi-annual plan allows the industry to plan and minimize economic impacts. Pole-and-line and sportfishing vessels are not subject to this resolution. Also, members of the IATTC agreed to compliance measure prohibiting landings, transshipments, and commercial transactions involving tunas caught in contravention of the conservation measures in this resolution.

#### **1.4 Management Option Process**

**March 2006 Council Meeting:** Management Options for a West Coast Strategy to Address Overfishing of Bigeye Tuna in the Eastern Pacific Ocean document goes out for Council and public review. At this time the Council reports on its preferred management option.

**April 2006 Council Meeting:** Report on Public Comment.

**April 2006 – May 15<sup>th</sup> 2006:** Finalize document.

**May 16<sup>th</sup>:** Submission to the GAC for their review, contemplation, and consideration as an agenda item for their June 1<sup>st</sup> meeting.

The expectation here is that the GAC will embrace the Council's preferred strategy in part or whole as a part of their strategy and advice to the U.S. Section of the IATTC, which meets in late June to discuss future management options for bigeye tuna.

**June 1<sup>st</sup> 2006:** 5<sup>th</sup> meeting of the GAC.

**June 22 – 30<sup>th</sup> 2006:** IATTC meeting in Korea. Any new multi-year resolution adopted would need to be implemented via the Tuna Conventions Act or with an amendment to the West Coast HMS FMP.

## **2.0 SUMMARY OF THE MANAGEMENT OPTIONS**

### **2.1 Management Objective**

The Council will choose a strategy for the establishment of a West Coast position to end overfishing of bigeye tuna in the EPO. The strategy should include measures that meet requirements to end overfishing contained in the MSA as well as meet international obligations. Conservation and management measures to explore include time/area closures for fishing effort in the EPO; limits on mortality of juvenile bigeye associated with fishing on floating objects; and finally, if successful, the United States would then implement the IATTC program for bigeye tuna through quotas and/or time/area closures.

As specified in the West Coast HMS FMP, the Council has the option to provide analysis and documentation to NMFS and the Department of State supporting its recommendation for action under any new international agreement to end or prevent overfishing (Ch. 8, Pg. 4). It is expected that the Department of State and U.S. delegation, in coordination with NMFS, will consider the Council's preferred management option in developing U.S. positions for presentation to the IATTC, and will keep the Council informed of actions by the IATTC to end or prevent overfishing. These actions will be taken into account by the Council in completing its rebuilding plan, and in developing its recommendation to NMFS as to what additional U.S. regulations, if any, may be necessary to end or prevent overfishing. The Council's rebuilding plan will reflect traditional participation in the fishery, relative to other nations, by fishers of the United States, consistent with Section 304(e)(4)(C) of the Magnuson-Stevens Act, 16 U.S.C. §1854(e)(4)(C).

### **2.2 Description of Vessels/fleets Utilizing Tuna Fisheries in the EPO**

Within the IATTC, the usage of "fleet" describes a Nation's fleet. For each nation Party to the IATTC, a fleet consists of all of that nation's vessels no matter the size or gear type. Thus far, within specific resolutions longline and purse seine vessels are defined for the tuna fisheries. The IATTC does maintain a record of each nation's fleet fishing for tropical tunas, such as bigeye. Table 1 summarizes information about national purse seine fleets.

**Table 1. Active purse seine vessels targeting tropical tuna in the EPO (IATTC, 2006).**

<b>Nation</b>	<b># of vessels</b>	<b>Range of Length (m)</b>
Bolivia	1	32.9
Columbia	12	32.9 - 74.7 m
Ecuador	89	16.2 – 78.0 m
El Salvador	5	50.3 – 91.9 m
Guatemala	3	66.1 – 77.3 m
Honduras	4	51.6 -62.7
Mexico	73	25.0 – 79.9
Nicaragua	6	52.3 – 69.0
Panama	26	35.7 – 116.0
Spain	3	72.6 – 105.0
United States	3	22.3 – 65.2
Vanuatu	2	56.5 – 69.2
Venezuela	21	59.1 – 107.5

Additionally the IATTC adopted Resolution C-03-07 which established in 2003 a requirement to maintain a list of longline fishing vessels larger than 24 meters overall length (i.e., large-scale tuna longline fishing vessels or “the LSTLFV List”). For the purposes of this resolution, LSTLFVs not included in the LSTLFV Record are deemed not to be authorized to fish for, retain on board, transship or land tuna and tuna-like species in the eastern Pacific Ocean (EPO). Also, the initial LSTLFV List consists of the LSTLFVs of IATTC Parties, cooperating non-Parties, entities, fishing entities or regional economic integration organizations (collectively "CPCs") on the IATTC Regional Vessel Register. The LSTLFV List shall include the following information for each vessel:

1. Name of vessel, registration number, previous names (if known), and port of registry;
2. A photograph of the vessel showing its registration number; and
3. Previous flag (if known and if any);

Table 2 is a summary of the LSTLFVs targeting tropical tunas in the EPO.

**Table 2. Active large longline vessels targeting tropical tuna in the EPO (IATTC, 2006).**

<b>Nation</b>	<b># of Vessels</b>	<b>Range in Length (m)</b>
China	89	35.1 – 50.8
Chinese Taipei	138	27.3 – 59.2
Costa Rica	11	24.0 – 27.0
Ecuador	21	24.0 – 55.2
France	14	24.8 – 33.2
Honduras	4	32.8 – 44.2
Japan	530	30.0 – 57.0
Korea	202	39.0 – 49.9
Mexico	9	24.4 – 46.8
Nicaragua	1	24.0
Panama	77	24.0 – 91.5
Peru	1	55.6
Spain	107	25.7 – 49.0
United States	25	24.0 – 50.7
Vanuatu	48	37.5 – 53.5

### **2.3 Management Option 1 (No Action)**

NMFS and the Council would not develop and implement controls necessary to end overfishing by Pacific-wide fishermen, nor submit comments or actively participate in the development of input and recommendations on the conservation and management of Pacific bigeye to the U.S. delegation to the IATTC.

**Comments and Considerations:** IATTC staff scientists determined that under the current exploitation patterns, and assuming recruitment at recent average levels, yields of bigeye tuna are expected to decline in the near future to levels below the average maximum sustainable yield, potentially leading to an overfished condition.

#### **Impact Summary**

By implementing the no action management option (i.e. failure to implement measures that end overfishing) it is likely that a continued decline in Pacific bigeye stocks would result. If the Council chooses management option 1 as their strategy (no action), the stock could become overfished. Additionally, no action would be contrary to requirements in international agreements and to requirements of the MSA.

### **2.4 Management Option 2**

The impact of purse seine and longline fisheries on Pacific bigeye is considered to be highly significant. An analysis by IATTC scientists suggests that the initial declines in stock biomass were caused by longline fishing, but accelerated declines since 2000 are mainly attributable to floating-object-based purse seine fishing. Under a current model, Spawning Biomass Ratio (SBR) levels are predicted to remain at very low levels for many years unless fishing mortality is significantly reduced or recruitment increases for several years.

IATTC scientists suggest large (50%) reductions in bigeye effort from the purse-seine fishery to allow the stock to rebuild towards the AMSY level in ten years. According to IATTC scientists, restrictions applied to a single fishery (e.g. longline or purse-seine), particularly restrictions on longline fisheries, are predicted to be insufficient to allow the stock to rebuild to levels that will support the AMSY. Therefore restrictions on both longline and purse-seine fisheries are necessary to rebuild the stock to the AMSY level in ten years. Simulations suggest that the restrictions imposed by the 2003 Resolution on the Conservation of Tuna in the EPO will not be sufficient to rebuild the stock.

IATTC scientists suggested a combination of the following management options as a means to rebuild the stock.

- 1) **Closure of the purse seine fishery in the EPO for six consecutive weeks.**

**Comments and Considerations:** The current resolution adopted by the IATTC allows member nations to choose between two different consecutive six week periods to close their purse seine fishery in the Convention Area. The closure dates begin either August 1, 2004, or November 20, 2004. The closure is intended to target fishing activity that results in high catches of juvenile tuna, and thus the closure should result in improved yields from the stock in subsequent years.

- 2) **Reduce the purse seine fishing effort on Pacific bigeye by 50 percent in 2007, and possibly beyond, with one or more of the following management options:**

- a) Close the purse seine fishery for six consecutive months in the area between 8°N and 10°S west of 95°W (this closure would not be intended to occur simultaneously with the two month EPO closure in (1)); and/or
- b) Close the purse seine fishery on floating objects for six consecutive months in the area west of 95°W (this closure is not intended to occur simultaneously with the two month EPO closure); and/or
- c) Limit the total annual catch of bigeye by each purse seine vessel that is required to carry an observer to 500 metric tons, estimated either by the observer or, at the request of the fishing vessels Captain, by scientific sampling of the vessel's catch conducted by IATTC staff at the time of unloading. If this latter option is chosen, the vessel would be responsible for the costs of the sampling.

**Comments and Considerations:** Management Option 2 contains recommendations by IATTC scientist who have indicated that large (50%) reductions in effort (on bigeye tuna) from the purse-seine fishery will allow the stock to rebuild towards the average maximum sustainable yield (AMSY) level, but restrictions on both longline and purse-seine fisheries will be necessary to rebuild the stock to the AMSY level in ten years. Simulations suggest that the restrictions imposed by the 2003 Resolution on the Conservation of Tuna in the EPO will not be sufficient to rebuild the stock. Projections indicate that, if fishing mortality rates continue at their recent (2002 and 2003) levels, longline catches and spawning biomass ration will decrease to extremely low levels.

The particular closure contained in option (a) above is due to the high percentage of juvenile bigeye known to occur in that area and (b) is an area where a large amount of bigeye associated with floating objects are caught. Closing these areas will reduce bigeye tuna mortality.

As Table 3 illustrates, four major fleets are contributing to the majority of the longline catch in the EPO. Fishing mortality from the U.S. and other smaller fleets are an insignificant fraction of the total catch. Also, the U.S. longline fleet does not have freezers, such as those used in the lucrative Japanese sashimi market. Japanese vessels are equipped to fish at sea for many months and are not limited by having to return to port to offload fresh, iced bigeye. The fishing power of the large Asian fleets is thus enhanced by the use of vessels containing freezing capabilities.

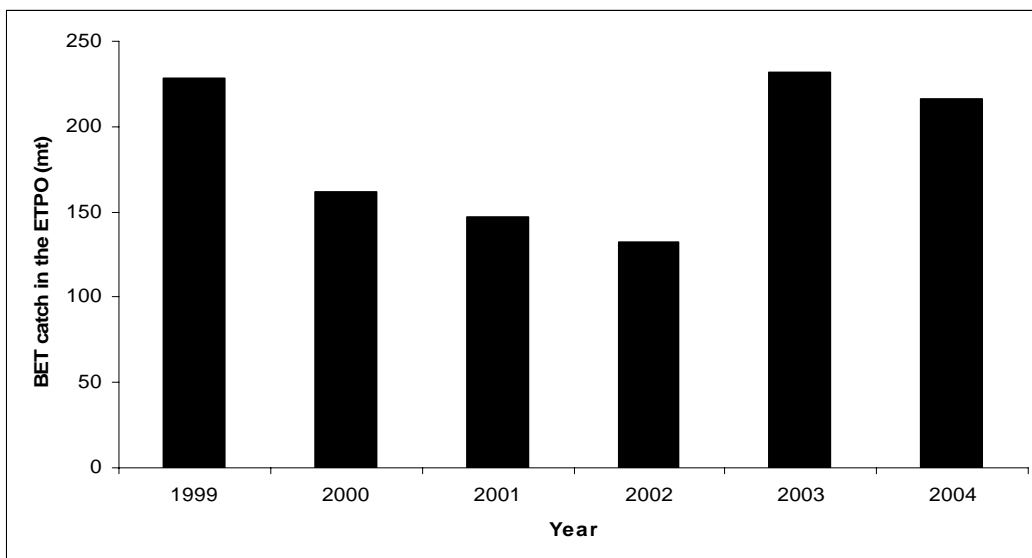
### 3) **Reduce longline catches in the EPO to 1999 levels.**

**Comments and Considerations:** Capping bigeye catches at the 1999 level would significantly reduce the volume of longline bigeye by 40-50% of present catches (see Figure 2). This would achieve significant conservation benefits to the stock. Additionally, the current bigeye quota set for U.S. vessels comes from the year 2001, which was a year when the U.S. catch level was at a lower than average, due to litigation and management measures regarding sea turtle conservation.

## **Impact Summary**

*Impacts on target and non-target stocks:* As discussed previously, West Coast fisheries for bigeye tuna are small compared to other fishing nations and often are not a main target species. If management option 2 were adopted as part of the U.S. position to reduce fishing mortality of bigeye tuna, domestic fishing mortality on bigeye could be reduced through regulatory controls, such as time/area closures. Additional controls on domestic fisheries for bigeye tuna would reduce future impacts to bigeye in the EPO; however, this action may overly burden U.S. fishermen that have a relatively minor role in bigeye tuna fishing mortality.

**Figure 2. Annual catch of bigeye tuna in the EPO by U.S. (Hawaii & California-based) vessels (Source: NMFS PIFSC)**



Because bigeye landings by West Coast fisheries are so small relative to Pacific-wide fishing nations, none of the regulatory controls considered here would be anticipated to have measurable impacts on bigeye stocks. Similarly, because landings of all non-target species are small relative to Pacific-wide landings, and options are not expected to adversely affect the catches of any of these fisheries, they are not anticipated to result in measurable impacts on non-target stocks.

### **Impact Summary**

*Impacts on marine habitat:* Purse seine and longline fisheries operations do not involve contact with the seabed, and because measures under management option 2 are not expected to alter these fishing operations, no adverse impacts on marine habitat are anticipated.

*Impacts on biodiversity and ecosystem functions:* The overall West Coast catch of bigeye tuna is less than 1 percent of the total Pacific-wide catch, thus adverse impacts to the tropical and subtropical pelagic ecosystems and biodiversity are not expected to occur.

*Impacts to public health and safety:* None of the measures contained in management option 2 are expected to require participants to fish in ways noticeably outside of historical patterns, and thus no impacts on public health and safety are anticipated.

*Impacts on fishery participants and fishing communities:* Anticipated impacts to affected participants would vary widely according to the severity of any new fishery management reduction in quota or fishing opportunities. However, because West Coast bigeye tuna fishery participants are not highly dependent on bigeye for a majority of their landings the effects of any fishing restrictions could potentially be offset over time with increased landings of other species.

If management option 2 were adopted it would provide for the sustained participation of fishing communities by helping to ensure the long-term availability of bigeye tuna, on the other hand there would likely be a short-term reduction in economic benefits from the fisheries until the stock recovers.

*Impacts on data collection and monitoring:* Under this management option no new data collection or monitoring requirements are required.

## 2.5 Management Option 3

Management Option 3 would include all management options contained in alternative 2, plus would exempt fleets<sup>1</sup> that catch 1 percent or less of the total Pacific bigeye tuna landings in the EPO and establish an annual international fishing quota (total allowable catch) of which the amount is to be divided among all nations in the EPO fishing on the stock. Each nation's quota would be based on historical effort. Additionally, this option would explore possible minimum size limitations on juvenile bigeye.

**Comments and Considerations:** Table 3 shows that the main contribution to EPO longline bigeye catches are made by fleets from China, Japan, Korea and Taiwan. Catches by these Asian fleets are two orders of magnitude larger than U.S. vessels landing bigeye. Catches by other South American longline fleets are comparable to the U.S. landings. Measures directed at the smaller fleets would have little conservation effect on bigeye stocks in the EPO, while at the same time incurring administrative costs that likely exceed the value of the small volume of bigeye landed.

**Table 3. EPO longline catches of bigeye tuna (mt) (IATTC, 2005).**

Year	Japan	South Korea	Taiwan	China	Other fleets	USA	Total
1999	22,224	9,431	910	660	961	228	34,414
2000	27,929	13,280	5,214	1,320	3,719	162	51,624
2001	37,493	12,576	7,953	2,639	4,169	147	64,977
2002	33,794	10,358	16,692	7,351	3,597	132	71,924
2003	20,517	10,272	12,501	10,065	1,292	232	54,879
<b>Total</b>	141,957	55,917	43,270	22,035	13,738	901	277,818
<b>Percent of total</b>	51.1%	20.13%	15.57%	7.93%	4.94%	0.32%	100%

### Impact Summary

*Impacts on target and non-target stocks:* See Management Option 2 *Comments and Considerations*. Additionally, any measure that imposes minimum size limits on bigeye could potentially have a positive impact on the population by reducing fishing mortality on juvenile species. Management option 3 would also consider minimum size regulations on juvenile bigeye, which would prevent fishing nations from retaining and/or landing fish below a determined minimum size. Minimum size regulations are intended to conserve juvenile fish in three ways. First, prohibition on landing and/or sale prevents development of a commercial market for small fish, thereby discouraging fishermen from targeting them. Secondly, some of the small fish that are discarded will survive and mature to reproduce and contribute to the stock biomass. Third, a minimum size results in fewer fish being retained per mt than would be otherwise. However, to the extent that fishermen cannot control the size composition of the fish they catch, minimum sizes can result in significant discards of undersized fish. The objective to minimize bycatch and bycatch mortality, and the requirement to end overfishing should be considered when evaluating this management option.

<sup>1</sup> The IATTC does not define a fleet, but rather leaves it up to individual nations to impose their own fleet restrictions on a domestic basis. The current IATTC resolution applicable in 2004, 2005 and 2006 simply applies to “purse-seine vessels” fishing for yellowfin, bigeye, and skipjack tunas, and to “longline vessels.” Pole-and-line and sportfishing vessels are not subject to this resolution.

Overall, greater restrictions on purse seine FAD fishing combined with minimum size limits would likely have a measurable beneficial impact on bigeye tuna conservation.

*Impacts on marine habitat:* See Management Option 2 *Comments and Considerations*.

*Impacts on biodiversity and ecosystem function:* See Management Option 2 *Comments and Considerations*.

*Impacts on public health and safety:* See Management Option 2 *Comments and Considerations*.

*Impacts of fishery participants and fishing communities:* See Management Option 2 *Comments and Considerations*. Additionally, if fleets that catch 1 percent or less of the total Pacific bigeye tuna in the EPO are exempted then the focus of management and conservation would be on the fisheries with the greatest impacts and on the regions of highest catches. An exemption recognizes the need to avoid overly burdening those fleets and countries which are peripheral in generating fishing mortality for bigeye tuna.  
*Impacts on data collection and monitoring:* See Management Option 2 *Comments and Considerations*.

## **2.6 Management Option 4**

Same as Management option 3 plus either use the existing control date or re-establish a more current control date to notify present and potential participants that a limited entry and/or another management program may be considered by the Council for West Coast fisheries in the EPO so as to avoid excess capacity.

**Comments and Discussion:** See Management Option 2 *Comments and Discussion*.

This control date would not bind the Council to establishing limited access or other management programs for these fisheries, but it would notify current and prospective fishery participants that additional management measures may be taken by the Council for these fisheries. The implementation of a control date would be in recognition of the fact that unlimited expansion of purse seining and longline fishing is untenable with the conservation of bigeye tuna.

## **2.7 Management Option 5**

Close all fisheries under the Council's jurisdiction that target Pacific bigeye tuna in the EPO.

**Comments and Discussions:** Closure of all fisheries under the Council's jurisdiction that catch bigeye tuna in the EPO would appear to address the contribution to overfishing from U.S. vessels in the eastern Pacific. However, this unilateral action would place an unfair burden on U.S. fishermen by threatening their livelihoods without any significant impact on reducing bigeye fishing mortality. This would not be consistent with the Council objective of addressing overfishing in a cost-effective and equitable manner and for that reason this alternative was not analyzed in detail.

## **2.8 Management Option 6**

The Pacific Council adopts recommendations for international fisheries consistent with those described in Western Pacific Fishery Management Council's Pelagics FMP Amendment 14 as their Pacific-wide response to bigeye tuna overfishing. These recommendations could be adopted in addition to any adopted under options 2-4

**Comments and Discussions:** For additional details on Pelagics FMP Amendment 14 see Agenda Item G.1.a, Attachment 2, April 2006.

Amendment 14 creates a mechanism and a timetable for the Council to review the status of stocks, to consider and advise on impending RFMO actions, to deliberate on the Council's own proposals for conservation and management, to inform NMFS and the Department of State about the Council's positions and concerns, to participate in international meetings, and to apply their expertise in the subsequent implementation of any resultant agreements.

**Specific recommendations for the Western and Central Pacific Ocean include:**

- a) Short term: cap and roll back fishing effort (e.g. number of vessels) to 1999 levels)
- b) Long term: reduce levels of fishing mortality to sustainable levels. If quotas are established they should transferable within countries.
- c) Require that fish aggregating devices used by purse seiners be registered and limited in number.
- d) Give consideration to allow for the development of emerging Pacific Island fisheries.

Recommendations a-c are concerned with reducing fishing effort and hence fishing mortality. Given the volume of overfishing on bigeye and yellowfin tunas, it is unlikely that wholesale reductions in the order described above can be achieved in the short term, hence the need, as outlined in a, to establish a reasonable short term target to ensure that overfishing on bigeye and yellowfin tuna does not increase by unconstrained expansion of fishing. This should be followed by sustained reduction in fishing for bigeye, likely through attrition of fleets, although mindful that some expansion of fishing is also likely by emergent fishing nations in the Pacific Islands. As noted earlier, the use of FADs by purse seiners targeting skipjack is known to be a significant contribution to bigeye fishing mortality, especially on juvenile bigeye and yellowfin. Restricting FAD use will therefore have significant reduction of fishing mortality on the bigeye and yellowfin stock as a whole. Allowing for expansion of emerging Pacific Islands fisheries appears to be at odds with the overall conservation objectives that need to be adopted for bigeye and yellowfin tuna. However, the text of the convention establishing the WCPFC explicitly recognizes the aspirations of the Pacific Islands to participate in tuna fisheries, rather than simply be resource owners. Balancing these aspirations and the expansion of Pacific Island fisheries (which is already happening) will be difficult challenge for the new Commission. However, it may be possible to match this expansion with controlling the additional deployment of FADs to minimize the volumes of juvenile bigeye and yellow tuna catch.

The Council recommendations regarding quotas include a provision that would allow quotas to be transferred within countries between fishing vessels or fleets, this allows countries to implement and allocate their quotas according to domestic objectives and conditions.

**Specific recommendations for the Eastern Pacific Ocean include:**

- a) Set EPO bigeye tuna longline catch quotas at 1999 levels.
- b) Exempt fleets that take less than 1 percent of the total bigeye tuna catch in the EPO.
- c) Exempt fleets that catch less than 550 mt of bigeye tuna annually in the EPO.

- d) Provide the U.S. longline fleet with a quota of 250 mt of EPO bigeye tuna.
- e) All recommendations include a provision in whatever management measures are adopted to permit the landing of a small volume of bigeye (e.g. 20-25 fish) when quotas are exceeded to minimize bycatch and waste by longliners not targeting bigeye. They also include a provision that whatever management measures are adapted should incorporate flexibility for nations to administer the longline quota in accordance with national legislation and sovereignty. This will allow the Council to apply their expertise to the allocation and implementation of domestic quotas as they apply to vessels operating under or in the Council's management authority.

## REFERENCES

- Inter-American Tropical Tuna Commission. 2006. Vessel Database. Accessed March 2006.  
<http://www.iattc.org/VesselListsENG.htm>.
- National Marine Fisheries Service. 1999. Final Fishery Management Plan for Atlantic Tuna, Swordfish, and Sharks, Including the Revised Final Environmental Impact Statement, the Final Regulatory Impact Review, the Final Regulatory Flexibility Analysis, and the Final Social Impact Assessment. National Marine Fisheries Service, Office of Sustainable Fisheries, Highly Migratory Species Management Division. Silver Spring, MD.
- National Marine Fisheries Service. 2005. Draft Strategy to end overfishing of bigeye tuna in the Pacific Ocean. National Marine Fisheries Service, Southwest Regional Office and Pacific Islands Regional Office. Long Beach, CA. and Honolulu, Hawaii.
- Pacific Fishery Management Council. 2003. Fishery Management Plan and Environmental Impact Statement for U.S. West Coast Fisheries for Highly Migratory Species. Portland, Oregon.
- Pacific Fishery Management Council. 2005. Status of the U.S. West Coast Fisheries for Highly Migratory Species through 2004, Stock Assessment and Fishery Evaluation (SAFE). Pacific Fishery Management Council. Portland, Oregon.
- Western Pacific Fishery Management Council. 2005. Management Measures for Bigeye Tuna in the Pacific Ocean, Amendment 14 to the Pelagics Fishery Management Plan including an Environmental Assessment. Western Pacific Fishery Management Council. Honolulu, Hawaii.

**Excerpts From**  
**Management Measures for Bigeye and Yellowfin**  
**Tunas in the Pacific Ocean**

**DRAFT**  
**Amendment 14**  
**to the**  
**Pelagics Fishery Management Plan**

**February 2006**

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**4.2 Public Review Process and Schedule**

In response to the identification of overfishing by the Secretary of Commerce, at its 126<sup>th</sup> meeting held March 14-17, 2005 in Honolulu the Council reviewed a background document on Pacific bigeye fisheries, listened to public comments and took initial action to direct its staff to continue its development of an amendment to the Pelagics FMP containing comprehensive background information and analyses as well as recommendations for international management and a range of alternatives for the management of domestic fisheries.

The Council's Pelagics Plan Team reviewed and commented on the draft analyses and recommendations at a public meeting held May 3-5, 2005 in Honolulu. This was followed by additional reviews and discussion at public meetings of the Council's Science and Statistical Committee (Honolulu, May 17-19, 2005) and Advisory Panels (Honolulu, May 20, 2005). A summary document of the measures considered to date and their anticipated impacts was then mailed to over 1,500 holders of Hawaii Commercial Marine Licenses as well as other interested parties on the Council's mailing list, to solicit their comments. Included in this mailing was an agenda for the Council's 127<sup>th</sup> meeting, as well an announcement of upcoming public meetings to be held in the major ports for those fishery participants most likely to be affected by new

requirements, namely the pelagic handline port in Hilo, Hawaii (May 13, 2005) and in Honolulu (May 19, 2005) which includes a major port for offshore handliners and is the urban center of Oahu where approximately 80% of Hawaii's population is located. All of these meetings were also advertised in Hawaii newspapers. At its 127<sup>th</sup> meeting (Honolulu, May 31- June 2, 2005) the Council reviewed a background paper containing the information presented in this amendment, and comments from each of the above meetings, and held a public hearing. The Council then took final action to recommend a suite of non-regulatory measures for the international management of fisheries which harvest bigeye tuna. The Council also reviewed and recommended a range of regulatory and non-regulatory measures for fisheries managed under the Pelagics FMP.

In August 2005, the Scientific Committee of the Western and Central Pacific Fishery Commission reviewed stock assessments for Western and Central Pacific bigeye, yellowfin and skipjack tunas, and South Pacific albacore tuna. The conclusion for bigeye tuna remained more or less unchanged, but yellowfin was found to be likely being subjected to overfishing, although the biomass of the stock was still well above the biomass at MSY. Subsequently, National Marine Fisheries Service (NMFS) Pacific Islands Fisheries Science Center (PIFSC) advised the NMFS Pacific Islands Regional Office (PIRO) that yellowfin tuna was being subjected to unsustainably high levels of fishing mortality in the Pacific. At its 129<sup>th</sup> Council meeting in Guam in November 2005, the Council adopted the following recommendation:

**In anticipation of currently available data, the Council anticipates NMFS will determine that overfishing of yellowfin tuna is occurring in the Pacific Ocean. Therefore, the Council recommended applying to fishing for yellowfin tuna the management measures in draft Amendment 14 to the PFMP that the Council recommended for bigeye, be applied to address overfishing for yellowfin tuna. The Council directed staff to revise Amendment 14 accordingly and transmit the revised Amendment to NMFS for review, approval and implementation,**

This iteration of Amendment 14 has therefore been revised to include yellowfin, as recommended by the Council.

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## **8.0 Management Recommendations for International Fisheries**

The goal of the Council is to take appropriate action to address its statutory requirement under the Magnuson Stevens Act to address overfishing of Pacific bigeye and yellowfin tunas in a cost-effective and equitable manner. Following general management, research and monitoring recommendations for Pacific bigeye yellowfin tunas, management recommendations for the WCPO and the EPO are discussed separately below as each is subject to different management authorities (the WCPFC in the Western and Central Pacific and the IATTC in the Eastern Pacific). Recommendations for domestic fisheries are discussed in Section 9.0. The Council recommends that the United States promote the following measures in the international arena.

## **8.1 General Recommendations for the Management, Monitoring and Research of Bigeye and Yellowfin Tunas in the Pacific Ocean**

These recommendations are consistent with requirements of the MSA and its National Standards. For example, providing consistency between the Western and Central Pacific Ocean (WCPO) and Eastern Pacific Ocean (EPO) is appropriate under National Standards 3, 5, and 7. Further it is essential to avoid confusion and potential conflict between the Western and Central Pacific Fishery Commission and the Inter-American Tropical Tuna Commission (IATTC) with respect to management measures regarding bigeye and yellowfin tuna. Moreover, the areas of competence of these two Regional Fishery Management Organizations (RFMOs) overlap in the South Pacific so it is essential that management measures are harmonized as far as possible.

Recommendations such as focusing on the fisheries with the greatest impacts and on the regions of highest catches and spawning areas, reducing surplus capacity and restricting the use of purse seine FADs are designed to identify those measures that will have a measurable impact on bigeye and yellowfin tuna conservation. Similarly, an exemption for those fleets that catch less than 1% of the total from some or all measures recognizes the need to avoid overly burdening those fleets and countries which are peripheral in generating fishing mortality for bigeye tuna

Reduction of fishing capacity is a recognized goal and NMFS has stated that its target is to eliminate or significantly reduce overcapacity in 25% of federally managed fisheries by the end of 2009 and in a substantial majority of fisheries in the following decade (NMFS 2004)<sup>1</sup>. There is known to be an excess of purse seine capacity for skipjack tuna, as recognized by a 2001 resolution by the World Tuna Purse Seine Organization to a 35% reduction in fishing effort by member countries. Although the purse seine vessels are targeting skipjack rather than bigeye tuna, they are a major contributor to fishing mortality through catches of juveniles around FADs. Consequently reduction of purse seine fishing capacity overall would likely have a marked conservation benefit for bigeye and yellowfin tuna. In this regard, the IATTC promulgated resolutions in 2000 and 2003 to limit fishing capacity of purse seine vessels operating in the Eastern Pacific. The IATTC established a target of 158,000 m<sup>3</sup> (well volume) for the total purse seine fleet in the Eastern Pacific, but which took into account stock status and the rights of coastal States and other States with a longstanding and significant interest in the tuna fisheries of the Eastern Pacific to develop and maintain their own tuna fishing industries.

Restricting the use of FADs by purse seine vessels in the Pacific, to aggregate skipjack tuna, will reduce the overall catch of bigeye and yellowfin tunas, and specifically the catches of juvenile bigeye and yellowfin tunas, which also aggregate beneath FADs. It is expected that this reduction in juvenile bigeye catch will likely improve recruitment of bigeye tuna to the longline fishery, where fish are caught at larger sizes and at higher value. It is also likely that a reduction in FAD-associated harvests of juvenile and sub-adult yellowfin tuna will improve recruitment of yellowfin to longline fisheries and purse seine landings of larger, higher value yellowfin. Improvements to spawning stock biomass for both species would also result. Similarly, any measure designed to develop time/area closures in spawning grounds or areas of high juvenile

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<sup>1</sup> United States National Plan Of Action For The Management Of Fishing Capacity  
August 2004 Department of Commerce National Oceanic and Atmospheric Administration National Marine Fisheries Service

bigeye and yellowfin tuna densities would reduce fishing mortality on spawning fish and reduce the catch of juvenile fish before they had a chance to recruit to the longline fishery. The area of the southern Philippines, Indonesia and Papua New Guinea (PNG) are highly relevant as they have large-scale longline and FAD-based surface fisheries and are situated in the core area of WCPO spawning and juvenile development for both species. While fishery data collection and reporting mechanisms are well developed in PNG, significant improvements to species specific catch and effort data in the Philippines and Indonesia are urgently required.

The MSA's National Standard 1 established a process for the use of biomass based reference points and fishing mortality limits to determine whether fisheries are overfished or subject to overfishing. In the absence of existing reference points from the RFMO's, the Council's reference points for bigeye and yellowfin tunas should be advanced for consideration by the WCPFC and the IATTC. This will be useful to the Council as, at this time, outputs from these stock assessments generate the reference points used in the Council's overfishing control rule. In addition, the Pacific Council also has similar status reference points for highly migratory species such as bigeye and yellowfin tunas in the Eastern Pacific Ocean. Moreover, the United States as a member of regional fishery management organizations should establish and adhere to general principles to guide the U.S. in developing and promoting conservation and management programs and associated monitoring and compliance, The Council recommends the following:

*General recommendations for management and monitoring:*

- i. Use science-based measures that consider historical participation, and provide for sustained participation by local communities**
- ii. Strive for consistent measures (e.g. WCPO and EPO) where possible**
- iii. Focus on fisheries with greatest impacts**
- iv. Focus on regions of highest catches and spawning areas**
- v. Reduce surplus capacity**
- vi. Restrict the use of purse seine FADs**
- vii. Consider exempting fleets that catch less than 1% of the total from some or all measures**
- viii. Improve species specific fishery monitoring**
- ix. Establish standardized vessel registry system for the WCPO**
- x. To the extent practicable the US should seek RFMO decisions that are consistent with National Standard 1 of the MSA and its guidelines as codified**

Half of the elements in this list, (ii-vi) are concerned with minimizing fishing mortality of bigeye and yellowfin tunas in the Western and Central Pacific Ocean, while the remainder are concerned with participation, monitoring and management of pelagic fishing. With respect to principles and priorities for research and data collection, the Council recommends that the US should also promote the following:

*General recommendations for research:*

- i. Determine consistent science-based reference points that are appropriate for management use. In the absence of international reference points, promote the establishment and application of MSY based reference points and associated control rules with respect to preventing and ending overfishing**

- ii. **Improve stock assessments through better use of region specific information and better understanding of recruitment**
- iii. **Promote pan-Pacific assessments that provide region specific information**
- iv. **Improve understanding of population responses and fishery impacts of FADs**
- v. **Investigate gear and fishing characteristics of vessels with above-average CPUE**
- vi. **Collect and define vessel and gear attributes useful for effort standardization for all fleets**
- vii. **Define total costs of management on governments and participants**

## **8.2 Council Management Protocol for Pacific Bigeye and Yellowfin Tunas**

The role of Pacific-based US domestic fishery management Councils has become particularly important with the advent of the Western and Central Pacific Fisheries Commission in 2004, as the entire Western Pacific Region's EEZ waters are contained within the boundaries of the WCPFC area of management competence, although some longline fishing by Hawaii-based longline vessels does occur in the EPO. The Inter-American Tropical Tuna Commission has already begun to implement management measures for bigeye tuna, commencing with seasonal closures of purse seine fishing and bigeye tuna quotas for US longline vessels (both Hawaii-based and California-based) for the years 2004-2006. A formal Council management protocol for the development of input and recommendations that will be provided to the U.S. delegations and U.S. representatives to the RFMOs, in support of U.S. proposals for international management agreements is needed to ensure that both the WPFMC and PFMC are informed and afforded the opportunity to substantively participate in all of the activities leading up to the development and implementation of U.S. proposals for international management<sup>2</sup>.

The adoption of a formal management protocol creates a mechanism and a timetable for the Council to review the status of stocks, to consider and advise on impending RFMO actions, to deliberate on the Council's own proposals for conservation and management, to inform NMFS and the Department of State about the Council's positions and concerns, to participate in international meetings, and to apply their expertise in the subsequent implementation of any resultant agreements. The amendment is intended to provide a solid basis for collaboration of the Council with its partners (NMFS, DOS) to ensure

- effective involvement of the Council on behalf of its constituents and members in the development of U.S. positions in RFMOs;
- a good track record for the Council's use in generating inputs to the U.S. positions and for the Council's subsequent use in determining what if any conservation and management measures are needed; and
- a process that NMFS and DOS can point to as having obtained solid advice from constituents in carrying out U.S. obligations under international treaties.

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<sup>2</sup> . During the drafting of this amendment the staff from the Western Pacific Regional Fishery Management Council were included in the delegations to the June 2005 meeting of the IATTC and the Western & Central Pacific Fishery Commission's second meeting in December 2005.

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This management protocol must be synchronized with both RFMO and Council meetings to ensure adequate review prior to and following RFMO meetings. Without such a process, the Council would have to continue to respond in an *ad hoc* manner to fishery management requirements stemming from RFMOs in the Pacific. The Council would still seek the opportunity to review and comment on management proposals and to advance its own recommendations for US proposals to RFMOs, but an *ad hoc* process is inefficient and untimely, and runs the risk of marginalizing the Councils' role in developing proposals for international management. Moreover, an *ad hoc* process does not provide a framework for collaboration between the DoS, NMFS and the Councils that is necessary to ensure that the Council's views are fully considered.

The following issues and criteria were considered in the development of the protocol

- Likelihood of Effectiveness in RFMOs
- Timeliness
- Completeness of Inputs
- Transparency of Decision Making
- Linkage of International and MSA Authorities
- Credibility with Stakeholders

### *Council management protocol for international management of Pacific highly migratory pelagic species:*

- a. The Council participates on US delegations to Regional Fishery Management Organizations (RFMOs e.g. IATTC and WCPFC) in the Pacific Ocean and is included in all pre and post meetings and negotiations.**
- b. The Council and NMFS monitor RFMO meetings and actions and relevant fisheries, Council becomes aware of a need for management action or receives notice from NMFS or the RFMO directly of a need for such action, with supporting documentation.**
- c. Council reviews information from RFMO, NMFS, and other sources concerning stock assessment, area of consideration, fishery issues and data supporting determinations, and the role of US fisheries in causing or contributing to overfishing.**
- d. NMFS provides formal notice and time frame for Council action within MSFMCA and RFMO frameworks.**
- e. Council refers information to its Pelagics Plan Team, Advisory Panel(s), SSC and other advisors for review and advice with focus on:**
  - **Definition and condition of the stock or other fishery management unit, and the issue of concern (e.g., overfishing, bycatch, allocation, etc.),**
  - **Possible reasons for the situation including fishery and environmental conditions that may be relevant to the stock condition or other management concern,**

- **Relative role of US fisheries in overall stock harvests and management situation,**
  - **Existing conservation and management measures of the RFMO with jurisdiction over the stock or fishery involved,**
  - **Possible multi-lateral measures to avoid or end overfishing, rebuild the stock, or resolve other management concerns,**
- f. Council's PPT, AP, SSC and other advisory bodies recommend possible domestic and international fishery conservation and management measures, including a comparison and evaluation of alternative measures including distinctions between Pacific-wide, regional, and local measure's effects and effectiveness.**
- g. Council makes initial decision on how to address problem (initial action).**
- h. Draft document is distributed for public review and advice.**
- i. Council makes formal recommendations to NMFS and the Department of State on:**
- **domestic regulations**
  - **international actions**
- j. Council drafts a position paper on how RFMOs should address the situation (the position paper should clearly and forcefully state the Council's recommendation on every substantial issue).**
- k. Council presents its position within the US delegation to the RFMO.**
- l. RFMO meets and acts on fishery conservation and management needs in the international arena.**
- m. Council considers RFMO actions, US government positions and requirements under applicable treaties and MSA.**
- n. Council determines appropriate regulatory response for domestic fisheries consistent with international agreements and MSA.**
- o. Council takes final action (if any) to recommend regulations for NMFS' approval and implementation**
- p. NMFS implements approved recommendations**

### **8.3 Recommendations to Reduce Bigeye and Yellowfin Tuna Fishing Mortality in the WCPO**

The international Convention on the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean was opened for signature on September 5, 2000. The objective of the Convention is to assure the long-term conservation and sustainability of pelagic resources in the WCPO. The Convention entered into force on April 19, 2004 and the

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first session of the Commission was held in Pohnpei, Federated States of Micronesia December 9-10, 2004. The Convention establishes a Commission for the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean, now more commonly referred to as the Western and Central Pacific Fishery Commission (WCPFC). Initial staffing for the Commission is in progress at its site in Pohnpei, FSM. A noteworthy aspect of the Convention is the fact that it will exercise management control into the high seas zones outside national EEZs in contrast to some other regional fishery management organizations.

At this point, the United States has not yet fully ratified the convention, and is participating as a cooperating non-member. The Senate ratified the terms of the Convention establishing the new Commission but Congress and the President have yet to sign the implementing legislation before the articles of association can be lodged with the depository (Government of New Zealand) and full membership achieved.

At its meetings in 2005, the Council recommended a reduction in fishing effort to 1999 levels, although the WCPFC, at its second meeting in December 2005 subsequently selected the base year as either 2004 or the average of 2001-2004 for longliner catch and purse seine fishing effort. Rolling back fishing effort to 1999 levels in the Western and Central Pacific would not have had a major impact on US pelagic fisheries in the region. The Hawaii-based longline fishery has operated under a limited entry program since 1994, while the actual number of vessels operating in 1999 was about 120, the same as at present. However, longline bigeye catch was only 2,717 mt, compared to 4,159 mt in 2004. The fleet of US purse seiners operating in the Western and Central Pacific comprised 36 vessels in 1999 versus only 14 vessels operating in 2005. However, the one fleet where participation increased significantly from 1999 onwards was the American Samoa longline fishery, which increased from 22 vessels to 61 vessels by 2001. However, this fleet does not target bigeye and yellowfin tunas, which it catches in relatively modest quantities, currently amounting to about 227 mt and 888 mt respectively in 2004. Moreover, the convention that established the WCPFC also contained provisions for management measures to take into account the desire of small island nations and territories developing their pelagic fisheries. Any rollback to 1999 levels of fishing effort would therefore have to consider these factors for American Samoa.

The following recommendations recognize the need for immediate reductions in bigeye and yellowfin fishing mortality, in conjunction with in larger reductions on a phased approach. The objective of the short term goal is to keep the fishery at MSY and minimize overfishing. Reducing biomass below  $B_{\text{current}}/B_{\text{msy}}$  does not mean the stock is overfished, since the overfishing reference point is set at some fraction of  $B_{\text{current}}/B_{\text{msy}}$ . However, unlike the biomass element of the overfishing control rule, there is no buffer zone for fishing mortality (F). Should  $F/F_{\text{msy}}$  be exceeded then overfishing on the stock is occurring. Moreover, there are currently no controls in place on fishing mortality in either the Western and Central Pacific or Eastern Pacific, requiring control mechanisms to be implemented to cap and then reduce F. In the Western and Central Pacific fishing mortality for bigeye is about 20% higher than  $F_{\text{msy}}$  and the equivalent long term average catches consistent with  $F_{\text{msy}}$  are about 67% of current catch levels (WCPFC 2005). Similarly fishing mortality for yellowfin in the Western and Central Pacific is about 18% higher than  $F_{\text{msy}}$  and the equivalent long term average catches consistent with  $F_{\text{msy}}$  are about 65% of current catch levels. When a fishery is overfished, the MSA requires a rebuilding plan with a

specified time limit which must not exceed 10 years except where circumstances dictate a longer time period. There is no similar time limit requirement to end overfishing on a still healthy stock, and therefore the length of time required to end overfishing will be contingent on whatever management actions are taken. However, taking the 10 year time limit as a benchmark, analyses presented in WCPFC 2005 suggest that restrictions on sets on floating objects such as fish aggregating devices (FADs) and logs in the equatorial and tropical western Pacific, if implemented in the near future could potentially lead to the recovery of the bigeye and yellowfin stocks within 5-10 years..

***Recommendations for WCPO management measures***

- a. Short term: cap and roll back fishing effort (e.g. number of vessels) to 1999 levels<sup>3</sup>**
- b. Long term: reduce levels of fishing mortality to sustainable levels. If quotas are established they should transferable within countries<sup>4</sup>.**
- c. Require that fish aggregating devices used by purse seiners be registered and limited in number<sup>5</sup>.**
- d. Give consideration to allow for the development of emerging Pacific Island fisheries<sup>6</sup>.**

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<sup>3</sup> . As noted in the text, the WCPFC decided at its second meeting in December 2005 not to set caps for longline effort, electing instead to cap catches for the period 2006-2008 at the 2004 levels for China and the USA and the annual average of 2001-2004 catches for the other CCMs. The WCPFC required CCMs to ensure that purse seine effort levels between 2006 and 2008 do not exceed either 2004 levels or the average of 2001-2004 levels in waters under their national jurisdiction. The WCPFC undertook to implement compatible measures to ensure that purse seine do not exceed 2004 levels on the high seas in the Convention Area or the total fishing capacity will not increase in the Convention Area. Pacific Islands countries who are Parties to the Nauru Agreement (PNA), will implant the purse seine effort limits by a Vessel Day Scheme that will limit days fished to a level no greater than 2004 levels and will be fully implemented by 1 December 2007. Other non-PNA member countries will implement similar measures to limit purse seine effort in waters under their jurisdiction to no greater than 2004 levels, or to the average of 2001 to 2004 levels. Further, in order to achieve the overall reduction in catch and effort required for bigeye and yellowfin tuna, in accordance with advice and recommendations received from the Scientific Committee, the WCPFC Executive Director will work with CCMs during 2006 to develop a proposal for consideration at the Third Session of the Commission that is consistent with the IATTC arrangements that allow for a system of temporary purse seine closures.

<sup>4</sup> . The longline catch limits set for bigeye by WCPFC in 2005 and IATTC in 2004 were at the national level and it is each country's prerogative how these might be divided up between national fleets.

<sup>5</sup> . At the WCPFC meeting in December 2005, the WCPFC also required CCMs to develop management plans for the use of FADs (anchored and drifting) within waters under national jurisdiction which shall be submitted to the Commission, which will include registration and may include limits on numbers deployed. However, this falls far short of the management advice given to WCPFC from the Science Committee meeting in August 2005, which recommended major redirection of purse seine effort from FAD sets to unassociated schools.

<sup>6</sup> . The conservation and management decisions adopted by the WCPFC in December 2005 for bigeye, yellowfin and albacore tunas contain language which states that nothing in the language of these measures prejudice the legitimate rights and obligations of those small island state Members and participating territories in the Convention Area seeking to develop their own domestic fisheries.

Recommendations a-c are concerned with reducing fishing effort and hence fishing mortality. Given the volume of overfishing on bigeye and yellowfin tunas, it is unlikely that wholesale reductions in the order described above can be achieved in the short term, hence the need, as outlined in a, to establish a reasonable short term target to ensure that overfishing on bigeye and yellowfin tuna does not increase by unconstrained expansion of fishing. This should be followed by sustained reduction in fishing for bigeye, likely through attrition of fleets, although mindful that some expansion of fishing is also likely by emergent fishing nations in the Pacific Islands. As noted earlier, the use of FADs by purse seiners targeting skipjack is known to be a significant contribution to bigeye fishing mortality, especially on juvenile bigeye and yellowfin. Restricting FAD use will therefore have significant reduction of fishing mortality on the bigeye and yellowfin stock as a whole. Allowing for expansion of emerging Pacific Islands fisheries appears to be at odds with the overall conservation objectives that need to be adopted for bigeye and yellowfin tuna. However, the text of the convention establishing the WCPFC explicitly recognizes the aspirations of the Pacific Islands to participate in tuna fisheries, rather than simply be resource owners. Balancing these aspirations and the expansion of Pacific Island fisheries (which is already happening) will be difficult challenge for the new Commission. However, it may be possible to match this expansion with controlling the additional deployment of FADs to minimize the volumes of juvenile bigeye and yellow tuna catch.

The Council recommendations regarding quotas include a provision that would allow quotas to be transferred within countries between fishing vessels or fleets, this allows countries to implement and allocate their quotas according to domestic objectives and conditions.

#### **8.4 Recommendations to Reduce Bigeye and Yellowfin Fishing Mortality in the EPO**

As discussed above, in 2004 the IATTC implemented measures to conserve bigeye and yellowfin tunas in the Eastern Pacific Ocean in 2004. This includes two six week periods in the year when purse seine fishing is closed and a quota for US and other longline fleets when fishing in the EPO. The purse seine closures extend from 1 August to 11 September; or from 0000 hours on 20 November to 31 December. Purse seine fleets from Bolivia, Ecuador, El Salvador, Honduras, Peru elected to close their fisheries in the August-September closure, while fleets from Guatemala Mexico, Nicaragua, Panama, Spain, United States, Vanuatu, Venezuela elected not to fish during the November-December closure.

The fleet-wide longline quotas were based on each country's 2001 longline catch, however 2001 US longline catches in the EPO were at almost record low levels (Table 1) due to litigation and management measures regarding sea turtle conservation, which minimized swordfish longline fishing and at one stage shut the entire Hawaii-based longline fishery for two weeks.

**Table 1. EPO longline catches of bigeye tuna (metric tons IATTC).**

<b>Year</b>	<b>Japan</b>	<b>South Korea</b>	<b>Taiwan</b>	<b>China</b>	<b>Other fleets</b>	<b>USA</b>	<b>Total</b>
<b>1999</b>	22,224	9,431	910	660	961	228	34,414
<b>2000</b>	27,929	13,280	5,214	1,320	3,719	162	51,624
<b>2001</b>	37,493	12,576	7,953	2,639	4,169	147	64,977
<b>2002</b>	33,794	10,358	16,692	7,351	3,597	132	71,924
<b>2003</b>	20,517	10,272	12,501	10,065	1,292	232	54,879
<b>Total</b>	141,957	55,917	43,270	22,035	13,738	901	277,818
<b>Percent of total</b>	51.1%	20.13%	15.57%	7.93%	4.94%	0.32%	100%

Successful implementation of quotas require real time monitoring of catches coupled with the ability to quickly recall fishing vessels when the quota is reached. The US does not have any system of real time reporting of catches, which are reported through logbooks. The vessels of other fleets, particularly those of Japan, China and Taiwan make daily reports to their companies so that quotas can be monitored in real time. Real time reporting of US catches could be possible if there was daily catch reporting by Hawaii longline vessels or 100% observer coverage on all vessels. However, the imposition of this quota on US longline fisheries whose catch has averaged less than 1% of EPO longline catches has little conservation benefit for bigeye tuna in the EPO, while exacting a considerable cost to monitor the quota. As was demonstrated in 2004, this can be difficult as the US fishery was not closed until three months after the 150 mt limit was reached, and with an eventual total catch in excess of 180 mt..

Given that the IATTC appears committed to the use of quotas for the foreseeable future, the Council made the following recommendations. These recommendations are designed to target management measures on those fleets and countries that have significant impacts on bigeye mortality and to avoid overly burdening those that do not. The exemption from the quota in options b and c will have no impact on ending or minimizing bigeye tuna overfishing, but are designed to minimize the burden of requiring real-time monitoring of bigeye tuna catches.

Maunder & Hoyle (2005) state that the average MSY of bigeye in the EPO could be maximized if the age-specific selectivity pattern were similar to that for the longline fishery that operates south of 15°N because it catches individuals close to the critical size. All analyses considered suggest that at the start of 2004 the spawning biomass was below the level that would be present if the stock were producing the average MSY. The average MSY and the fishing mortality (F) multiplier are sensitive to how the assessment model is parameterized, the data that are included in the assessment, and the periods assumed to represent average fishing mortality, but under all scenarios considered, fishing mortality is well above the level that will produce the average MSY. Presently the purse-seine fishery on floating objects has the greatest impact on the bigeye tuna stock. Restrictions that apply only to a single fishery (e.g. longline or purse-seine), particularly restrictions on longline fisheries, are predicted to be insufficient to allow the stock to rebuild to levels that will support the average MSY. Large (50%) reductions in effort (on bigeye tuna) from the purse-seine fishery will allow the stock to rebuild towards the average MSY level, but restrictions on both longline and purse-seine fisheries are necessary to rebuild the stock to the

average MSY level in ten years. Simulations suggest that the restrictions imposed by the 2003 Resolution on the Conservation of Tuna in the EPO will not be sufficient to rebuild the stock. Projections indicate that, if fishing mortality rates continue at their recent (2002 and 2003) levels, longline catches and spawning biomass ratio (SBR) will decrease to extremely low levels. As the base case does not include a stock recruitment relationship, recruitment will not decline, so purse-seine catches are predicted to decline only slightly from recent levels under this model.

For yellowfin tuna, Hoyle & Maunder (2005) state that under the 2004 levels of effort, biomass is not predicted to change significantly over the next 5 years. The spawning biomass ratio (SBR) is predicted to remain below the level that will produce the average MSY, though the confidence intervals on the future SBR include the SBR level at average MSY. The impacts of the purse seine closures implemented by the IATTC in 2004 are predicted to result in slightly higher biomass and SBR than would otherwise have been the case. If a stock-recruitment relationship is assumed in the stock assessment, then the results suggests that effort levels are greater than those corresponding to the average MSY, however the yield at this effort level is still only 6% less than the average MSY.

***Recommendations for EPO management measures***

- a. Set EPO bigeye tuna longline catch quotas at 1999 levels.**
- b. Exempt fleets that take less than 1% of the total bigeye tuna catch in the EPO.**
- c. Exempt fleets that catch less than 550 mt of bigeye tuna annually in the EPO.**
- d. Provide the US longline fleet with a quota of 250 mt. of EPO bigeye tuna.**
- e. All recommendations include a provision in whatever management measures are adopted to permit the landing of a small volume of bigeye (e.g. 20-25 fish)<sup>7</sup> when quotas are exceeded to minimize bycatch and waste by longliners not targeting bigeye. They also include a provision that whatever management measures are adapted should incorporate flexibility for nations to administer the longline quota in accordance with national legislation and sovereignty. This will allow the Council to apply their expertise to the allocation and implementation of domestic quotas as they apply to vessels operating under or in the Council's management authority.**

## **9.0 Management Recommendations for Domestic WPRFMC Fisheries**

Sections 9 through 11 have been prepared as an Environmental Assessment in accordance with the requirements of the National Environmental Policy Act (NEPA) of 1969, to assess the impacts on the human environment that may result from the proposed action. As required by the Magnuson-Stevens Act, the purpose of this amendment is for the Council to take appropriate action to address bigeye and yellowfin tuna overfishing within one year of the notification by the

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<sup>7</sup> An average of 24 bigeye tuna were caught per swordfish trip by Hawaii-based longline vessels. Source: Ito, R.Y. & W.A. Machado. 2001. Annual report of the Hawaii-based longline fishery for 2000. NMFS SWFSC Admin. Rep. H-01-07.

Secretary that overfishing is occurring. With recognition of the limited capacity of the domestic fisheries to end overfishing, the need is for the Council to recommend an amendment or regulatory amendment to the Pelagics Fishery Management Plan to address this overfishing.

### **9.1 Recommendations for WPRFMC Pelagic Longline and Purse Seine Fisheries**

Longline vessels managed by the WPRFMC (those based in Hawaii and American Samoa) caught approximately 2% of total reported Pacific bigeye landings in 2003 (see Table 16) and 0.15% of total Pacific yellowfin catches. This is largely because both of these fisheries are managed under limited entry programs including caps on the numbers of vessels as well as on vessel lengths. In addition, US longline vessels fishing in the EPO have been subject to a 150 mt annual bigeye quota since 2004. No foreign fishing is allowed in EEZ waters under the Council's jurisdiction and portions of EEZ waters around Hawaii and Guam are closed to domestic longliners. Given these regulatory controls in place for these fisheries (and associated low bigeye and yellowfin catch levels), and the fact that the necessary international actions required to end Pacific-wide overfishing are underway, the Council determined that it should continue to seek substantive participation (see Section 8.1) in the international management fora that are necessary to develop effective solutions to the Pacific-wide overfishing of bigeye. The Council also determined that further unilateral management actions for these domestic fisheries would be premature and would not have a meaningful effect on the Pacific-wide overfishing problem. However, given the potential for the development of domestic longline fisheries based in Guam or CNMI, as well as the potential for domestic purse seiners to fish in WPRFMC EEZ waters, the Council made the following recommendation:

**Establish a control date of June 2, 2005 for domestic longline and purse seiners fishing in US EEZ waters in the Western Pacific region, including developing longline fisheries in Guam and CNMI.<sup>8</sup>**

This control date does not bind the Council to establishing limited access or other management programs for these fisheries, but it does notify current and prospective fishery participants that additional management measures may be taken by the Council for these fisheries. The implementation of a control date is in recognition of the fact that unlimited expansion of purse seining and longline fishing is untenable with the conservation of bigeye and yellowfin tuna.

### **9.2 Recommendations for Other WPRFMC Pelagic Fisheries**

Regarding small boat pelagic fisheries (i.e. non-longline and non-purse seine) managed by the Council in the Western Pacific region, based on their low catches of bigeye (0.11% of Pacific-wide longline and purse seine catches, see Table 16) and yellowfin (0.10% of Pacific-wide catches), the Council made no new recommendations regarding the activities of these fisheries. However, although reported and estimated bigeye and yellowfin tuna catches by Hawaii-based small boats are low; data for some sectors is believed to be incomplete due to non-reporting and is certainly often many months behind in collection, inputting, processing and availability to fishery scientists and managers. Thus the Council also considered a range of regulatory and non-

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<sup>8</sup> This control date has already been published in the Federal Register, Vol. 70, No. 156 Monday, August 15, 2005 / 47782 - 47783

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regulatory measure designed to improve the available data regarding bigeye and yellowfin catch and effort by these fisheries. In sum, the Council considered the following alternatives for the management of the region's pelagic small boat fisheries:

**1. No action**

**2. Implement management measures (quotas and bag limits, minimum sizes, gear restrictions) for small boat pelagic fisheries in the Western Pacific region.**

**3. Implement a federal permit and reporting program for all Hawaii-based pelagic small boat fishermen.**

**4. Implement a federal permit and reporting program for Hawaii-based offshore (Cross Seamount, NOAA Moorings, FADs) mixed-line pelagic small boat fishermen.**

**5. Implement a federal permit and reporting program for Hawaii-based recreational pelagic small boat fishermen.**

**6. Expand the Hawaii Marine Recreational Fisheries Survey for Hawaii-based boats.**

**7. Assist the State of Hawaii to improve its fishermen and dealer reporting systems.**

**8. Implement a targeted survey of all Hawaii-based pelagic small boat owners/ operators to obtain information on their fishing effort and catches (preferred).**

**9. Implement a voluntary reporting system for Hawaii-based recreational pelagic small boat fishermen (preferred).**

**10. Implement a federal permit and reporting program for Hawaii-based commercial pelagic small boat fishermen (preferred).**

**11. Establish a control date of June 2, 2005 for commercial pelagic Hawaii-based small boat fisheries (preferred).<sup>9</sup>**

Although the Council considered the above alternatives in a comprehensive context (i.e. wherever such vessels operate) legal counsel has stated that the Council's authority does not extend into state waters and thus any resultant regulations would not apply in those areas.

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<sup>9</sup> This control date has already been published in the Federal Register, Vol. 70, No. 156 Monday, August 15, 2005, 47781 - 47782