



**WESTERN  
PACIFIC  
REGIONAL  
FISHERY  
MANAGEMENT  
COUNCIL**

## **EXCERPT FROM**

**Background Paper for Amendment 14  
to the Pelagics Fishery Management Plan  
to Address Overfishing of Bigeye in the Pacific Ocean**

**May 9, 2005**

#### **4. MANAGEMENT OPTIONS FOR PACIFIC BIGEYE TUNA**

The goal of the Council is to eliminate overfishing of bigeye tuna in a cost-effective and equitable manner. Several options for bigeye management, often in combination with yellowfin management have been discussed and proposed for the Western Central, and Eastern Pacific Ocean. Following a general discussion, management measures for each of these regions are discussed separately as each is subject to different management authorities (the WCPF in the Western and Central Pacific, and the IATTC in the Eastern Pacific).

##### **4.1 General management measures and needs for Pacific bigeye tuna**

- There is a need to apply management measures to both longline and purse seine fisheries, targeting those fisheries with greatest impact to bigeye mortality.
- Surplus capacity is clearly a problem in both WCPO longline and purse seine fisheries. Addressing capacity issues is critical and relevant to both bigeye and yellowfin management and the economic viability of the fisheries.
- Management measures for surface fisheries are necessary to restrict FADs and purse seine fleets that specialize in floating object and anchored FAD sets .
- Management measures should focus on regions of highest bigeye catches and areas most important to critical life history stages (e.g. the equatorial spawning grounds and MULTIFAN-CL Areas 2 and 3).
- Management measures should be science-based, consider historical participation, and provide for sustained participation by local communities.

- Management measures should be consistent between authorities (e.g. WCPO and EPO) to the greatest extent possible.
- Managers should consider exempting fleets that catch less than 1% of the fishery total from some or all measures.
- Need to determine consistent science-based reference points that are appropriate for management use.
- Need to dramatically increase and strengthen fishery monitoring programs and mechanisms (e.g. observer programs, port sampling program, vessel registries, fishermen training).
- Need to better understand mechanisms of recruitment in tropical tunas in relation to oceanography, decadal and larger-scale environmental shifts and ocean basin effects.
- Need improved species specific reporting of bigeye and yellowfin catches in all fisheries, with particular application to the domestic fisheries of the Philippines and Indonesia.
- Need to examine the particular gear and fishing characteristics of vessels with above-average bigeye CPUE as a means to identify ways to regulate bigeye fishing mortality.
- Need to develop a detailed vessel registry system for the WCPO with a standardized and verified unit of capacity, e.g. fish hold space and method of storage.
- Need to better define and collect vessel and gear attributes useful for effort standardization for all fleets.
- Need to better define total costs of management on governments and participants, identify and implement cost-effective measures.
- Need to test and improve estimates of recruitment for stock assessments.
- Need to better understand mechanisms of aggregation to floating objects and the impact of both drifting and anchored FADs on the behavior and vulnerability of tropical tunas in mixed species aggregations.

#### **4.2 Council Management Process for Pacific bigeye tuna**

1. The Council ensures its representation on US delegations to Regional Fishery Management Organizations (RFMO) in Pacific Ocean and inclusion in all pre and post meetings and negotiations.
2. 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.

3. Council reviews information from RFMO, NMFS, and other sources concerning stock assessment, area of consideration, fishery issues and data supporting determinations
4. NMFS provides formal notice and time frame for Council action with MSFMCA and RFMO frameworks.
5. Council refers information to its Pelagics Plan Team, Advisory Panel(s), SSC and other advisors for review and advice with focus on:
  - a. Condition of the stock or other fishery management issue (e.g., bycatch, allocation, etc.)
  - b. Possible reasons for the situation including fishery and environmental conditions that may be relevant to the stock condition or other management concern
  - c. Relative role of US fisheries in overall stock harvests and management situation
  - d. Existing conservation and management measures of the RFMO with jurisdiction over the stock or fishery
  - e. Possible measures to avoid or end overfishing, rebuild the stock, or resolve other management concerns
6. Council's PPT, AP, SSC and other advisory recommend possible domestic and international fishery conservation and management measures, including
  - a. Comparison and evaluation of alternative measures including distinction between Pacific-wide, regional, and local measure's effects and effectiveness
7. Council makes initial decision on how to address problem
8. Draft decision document is distributed for public review and advice
9. Council makes formal recommendations to NMFS and the Department of State on:
  - a. domestic regulations
  - b. international actions.
10. 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).
11. Council presents its position within the US delegation to the RFMO.
12. Regional fishery management organization meets and acts on fishery conservation and management needs in the international arena
13. Council considers RFMO actions, US government positions and requirements under applicable treaties and MSFCMA
14. Council determines appropriate regulatory response for domestic fisheries consistent with international agreements and MSFCMA.
15. Council takes final action (if any) for NMFS implementation
16. NMFS implements recommendations

### **4.3 General measures for management of bigeye tuna in the WCPO**

The Interim Secretariat to the WCPFC prepared a document for consideration by PrepCon VI to address these issues. The resulting paper, *Management Options for Bigeye and Yellow Tuna in the Western and Central Pacific Ocean* (Anon 2004), was available for discussion during PrepCon VI in Bali, Indonesia. However, due to a lack of time available for substantive discussion, PrepCon VI requested the SCG to:

“Advise on the further analyses to support the consideration by PrepCon VII and the first session of the Commission of management options and how these analyses can be carried out in a timely and effective manner.”

The SCG3 convened in Majuro, Marshall Islands from August 19 to 21, 2004 and identified the data requirements and likely analyses that could be used to evaluate each management option identified in the paper (WCPFC/PrepCon/WP.24). The SCG3 assessed the feasibility of such analyses based on the availability of data and the scientific achievability. Operational and implementation issues relating to each management option were not considered in the determinations of the feasibility. A total of 17 management options were examined. The SCG3 determined that a detailed analysis was not feasible for 9 of these due to the lack of availability of current data<sup>4</sup>. The report of SCG3 (WCPFC/PrepCon/41) includes a summary of the feasibility of the analyses for each option provided in WCPFC/PrepCon/WP.24. This summary is reproduced as **Appendix I**. To summarize, the options examined included:

- I) NO ACTION
- II) OUTPUT CONTROLS
  - A) Catch limits
    - (2) Competitive overall or regional quotas
    - (3) Individual vessel or fleet catch limits
- III) INPUT CONTROLS
  - A) Capacity
    - (4) Number of vessels
    - (5) Size or power of vessels
    - (6) Limit hold size
    - (7) Limit overall or regional limits (e.g. hooks, sets, days fished)
    - (8) Area/seasonal closures
- IV) TECHNICAL MEASURES
  - A) Gear restrictions
    - (9) Gear restrictions (e.g. net size/depth, longline length)
    - (10) Method restrictions (e.g. time of set, soak times,
  - B) Size restrictions
    - (11) Limit on size of fish retained
    - (12) Compulsory retention
  - C) Restrictions on operational efficiency
    - (13) Limitations on use of electronics
    - (14) Restrictions on auxiliary vessels (e.g. tender vessels, refrigerated carrier vessels, light vessels)
  - D) FAD restrictions
    - (15) Prohibition or restrictions on FAD sets on a time/area basis
    - (16) Limit the number of FADs deployed
    - (17) Regulations on FAD design

---

<sup>4</sup> Some options could be analyzed by making assumptions where data are not available. These analyses may be more feasible in the long term after the necessary data are obtained.

It should be noted that the definition of FAD sets used in the analysis includes all floating object sets, both natural log and drifting FAD and any other floating object sets combined.

Of these 7, the first two (Options 2, 3) are essentially the determination of a total allowable catch (TAC) that is then parsed in different ways. The next five (Options 4 – 8 under input controls) involve the determination of a total allowable effort (TAE) and justification for area/seasonal closures. Finally, the nine alternatives listed under “technical measures” deal with size and retention limits and limitations on gear, vessel efficiency or use of fish aggregation devices (FADs) and drifting objects.

#### **4.4 Specific management measures for bigeye tuna in the WCPO**

A primary consideration in the effective implementation of any measures is the management area under the Commission’s jurisdiction. Given that the majority of WPCO equatorial waters (and much of its remaining area) consist of the Exclusive Economic Zones of a large number of Pacific island nations, few if any measures implemented by the Commission will effectively reduce overfishing of bigeye tuna in the WCPO if these signatory nations are not committed to their enforcement. This discussion assumes that signatory nations agree to implement these measures within their sovereign waters – a factor which must be resolved prior to any final decisions on these management measures. The following alternatives represent a range of possible actions and are not necessarily mutually exclusive.

##### 1. Limited entry

- 1A. Limit entry (and capacity) as of some date so that fishing effort is capped and rely on attrition to reach levels associated with the elimination of overfishing
- 1B. Limit entry (and capacity) as of some date so that fishing effort is rolled back to immediately reach levels associated with the elimination of overfishing.

##### 2. Time/area closures

- 2A. Close spawning areas and/or seasons
- 2B. Close high catch areas and/or seasons
- 2C. Close high juvenile catch areas and/or seasons

##### 3. Quotas

- 3A. Implement domestically transferable country quotas that allow trading between domestic fisheries
- 3B. Implement internationally transferable country quotas that allow trading with and between foreign fisheries
- 3C. Implement domestically transferable fleet or vessel quotas (e.g. US purse seine) that allow trading within fleets
- 3D. Implement internationally transferable fleet or vessel quotas (e.g. US purse seine) that allow trading with and between foreign fleets

#### 4. Gear restrictions

- 4A. Prohibit the use of purse seine FAD sets
- 4B. Prohibit the use of purse seine FAD sets in certain areas/seasons
- 4C. Limit the number of purse seine FADs deployed

#### **4.5 Management measures for bigeye in the EPO**

In the short-term, the IATTC appears intent on managing EPO bigeye tuna through the use of fleet specific quotas. Following are some alternatives for determining and implementing these quotas. These were constructed as part of a white paper written by the Council for consideration by the IATTC at their June, 2005 meeting.

1. Exempt longline fleets that take less than 1% of the total BET catch in the ETPO because they are not a significant component of the problem. Most of the vessels in these smaller marginal fleets do not have freezers and would not be regarded as industrial or large-scale fisheries
2. Exempt fleets that catch less than 500 mt of BET annually in the ETPO
3. US longline fleet receives a quota of 250 mt.
4. Cap BET longline catch quotas at the 1999 level in the ETPO.
5. Include a provision in whatever management measures are adopted to permit the landing of a small volume of BET (20-25 fish?)<sup>5</sup> when quotas are exceeded to minimize waste by longliners not targeting BET.
6. Include a provision in whatever management measures are adapted to incorporate flexibility for nations to administer the longline quotas in accordance with national legislation and sovereignty.

#### **4.6 Management measures for bigeye tuna in Hawaii's coastal fisheries**

The following measures have been discussed by the Council and its advisory bodies for management of coastal fisheries that target bigeye around Hawaii.

1. No action
2. Implement a federal permit and reporting program for all pelagic small boat fishermen
3. Implement a federal permit and reporting program for offshore mixed-line fishermen (Cross Seamount, NOAA Moorings, FADs)

---

<sup>5</sup> An average of 24 BET 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.

4. Implement a federal permit and reporting program for recreational pelagic small boat fishermen
5. Implement voluntary reporting by recreational pelagic small boat fishermen
6. Expand the Hawaii Marine Recreational Fisheries Survey
7. Implement other management measures (quotas and bag limits, minimum sizes, gear restrictions)
8. Assist the State of Hawaii to improve its fishermen and dealer reporting systems

The Council will consider the information and options presented here, as well as other information, at their 127<sup>th</sup> meeting and may take final action regarding recommended management measures for Pacific bigeye tuna.

**Appendix I. Determination of the Feasibility of Analysis of Management Options for the Conservation and Management of Tuna in the Western and Central Pacific Ocean (Anon 2004)**

<b>Control Type</b>	<b>Management Option</b>	<b>Feasibility Statement</b>
NO CONTROLS	<u>Status-quo:</u> No attempt is made to control fishing mortality	Analysis is feasible in the immediate term and could represent an analysis against which other analyses are compared.
OUTPUT CONTROLS	<u>Catch limits (a):</u> Competitive overall or regional catch limits.	Analysis is feasible in the immediate term contingent on management advice: overall or regional catch limits.
	<u>Catch limits (b):</u> Allocated overall or regional catch limits.	Analysis is feasible in the immediate term contingent on management advice: overall or regional catch limits.
	<u>Catch limits (c):</u> Vessel Limits	Analysis is feasible in the immediate term contingent on management advice: vessel catch limits.
INPUT CONTROLS	<u>Capacity (a):</u> Limit/restriction on the number of vessels. This could be general reductions or directed at those fleets catching most bigeye and yellowfin.	Analysis is feasible in the immediate term contingent on the provision of information on: number and type of vessels.
	<u>Capacity (b):</u> Limit size or power of vessels	Analysis is not feasible in the immediate term due to data limitation, but maybe feasible in the long term.
	<u>Capacity (c):</u> Limit size of fish hold.	Analysis is not feasible in the immediate term due to data limitation, but maybe feasible in the long term.
	<u>Total effort limits:</u> Setting overall or regional limits for some measure of effort (e.g. sets, hooks, days fished).	Analysis is feasible in the immediate term contingent on management advice: overall or regional effort limits.
	<u>Area/seasonal closures:</u> Restricting fishing effort in particular area/seasonal strata	Analysis is feasible in the immediate term contingent on management advice: the area/seasonal closures.
TECHNICAL MEASURES	<u>Gear restrictions (a):</u> Restrictions on various gear configurations (e.g. net size/depth, longline length)	Analysis is not feasible in the immediate term due to data limitation, but maybe feasible in the long term.
	<u>Gear restrictions (b):</u> Method restrictions (e.g. time of set, soak time)	Analysis is not feasible in the immediate term due to data limitation, but maybe feasible in the long term.
	<u>Size restrictions:</u> Limits on the sizes of fish that can	Analysis is feasible in the immediate term contingent on management advice: size

	be retained. Compulsory retention (no discards allowed).	limits and species and fleets to which they apply.
	<u>Restrictions on operational efficiency (a):</u> Banning or limiting power of vessel electronics.	Analysis is not feasible in the immediate term due to data limitation, but maybe feasible in the long term.
	<u>Restrictions on operational efficiency (b):</u> Restrictions on auxiliary vessels, e.g. tender vessels or light vessels. Regulations on transshipment.	Analysis is not feasible in the immediate term due to data limitation, but maybe feasible in the long term.
	<u>FAD restrictions (a):</u> Prohibition of FAD sets on a time and/or area basis. Restrictions of the number of sets allowed on FADs.	Analysis is feasible in the immediate term contingent on management advice: areas/seasons where FAD sets will be restricted and the specific FAD types.
	<u>FAD restrictions (b):</u> Limit number of FADs deployed	Analysis is not feasible in the immediate term due to data limitation, but maybe feasible in the long term.
	<u>FAD restrictions (c):</u> Regulations on the design of FADs	Analysis is not feasible in the immediate term due to data limitation, but maybe feasible in the long term.