

## NATIONAL MARINE FISHERIES SERVICE (NMFS) REPORT

Mr Mark Helvey, National Marine Fisheries Service (NMFS) Southwest Region, will review any regulatory activities related to highly migratory species that have occurred since the last Council meeting and Dr. Gary Sakagawa is scheduled to provide an update on NMFS Southwest Fisheries Science Center activities. NMFS Southwest Region commissioned Drs. Laurs and Powers to prepare a 'White Paper' discussing the status and biology of North Pacific albacore and potential management measures the Council may wish to consider for the U.S. west coast troll/baitboat fishery. They will make a presentation of the paper's contents.

### **Council Task:**

#### **Discussion.**

#### Reference Materials:

1. Agenda Item F.1.a, Attachment 1: North Pacific Albacore 'White Paper' Report.

#### Agenda Order:

- a. Regulatory Activities
  - b. Fisheries Science Center Activities
  - c. North Pacific Albacore 'White Paper'
  - d. Reports and Comments of Management Entities and Advisory Bodies
  - e. Public Comment
  - f. Council Discussion and Comments
- Mark Helvey  
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PFMC  
10/16/09

Draft Report<sup>1</sup>

**North Pacific Albacore ‘White Paper’**

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Prepared for

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## **North Pacific Albacore White Paper**

### **1. Purpose**

The purpose of this ‘White Paper’ is to provide the Pacific Fishery Management Council (PFMC) with information that may assist it in initiating deliberations for initiating a framework process to maintain or limit fishing effort by the West Coast albacore fishery. The document includes a summary of management measures that are in place for the fishery and an analysis of management options that could be considered for maintaining or reducing effort in the fishery. Information is also presented regarding the albacore resource and the fisheries operating on it. An outcome of the analysis of management options is that it later may serve as the basis of the National Environmental Policy Act (NEPA) process and thus serve as the building blocks that could be formulated into a range of rational management options for the U.S. West Coast albacore fishery.

### **2. Background Information**

The North Pacific albacore resource is distributed in ocean areas that encompass multiple zones of national jurisdiction, as well as the high seas, and are exploited by fisheries of many Nations. As such, international agreement is necessary to conserve North Pacific albacore tuna stocks and to ensure the viability of the fisheries. Article 64 of the United Nations Law of the Sea Convention mandates States to cooperate directly or through appropriate international organizations to ensure the conservation of tunas. International management of the North Pacific albacore tuna resource and fisheries operating on it are shared under the auspices of the Inter American Tropical Tuna Commission (IATTC) and the Western and Central Pacific Fisheries Commission (WCPFC). The Commissions formulate overarching resolutions based on recommendations from scientific committees or staff. Member states negotiate agreements on management mechanisms and once agreed upon, the actual implementation is left to the individual member and cooperating countries.

The PFMC has the lead to adopt management actions regarding the U.S. West Coast albacore fishery. Stock assessments indicate that presently the North Pacific albacore tuna resource is not overexploited. However, the assessment concludes that fishing effort may be above levels that are not sustainable in the long term. The status of the stocks and evidence supporting the need to cap fishing effort on the North Pacific resource are presented in Section 7 of this document.

In 2005 the IATTC and the WCPFC adopted resolutions, which have been continued through the present time, for conservation of North Pacific albacore based on concerns that recent fishing effort may be above levels that are sustainable in the long term. Resolutions adopted by both Commissions call upon their members and cooperating parties to take necessary measures to ensure that the level of fishing effort by their vessels fishing for North Pacific albacore is not increased beyond current levels, and to report all catches of North Pacific albacore to the Commissions at 6-month intervals. The WCPFC resolution requires that fishing effort be reported by gear type annually

“... in terms of the most relevant measures for a given gear type, including at a minimum for all gear types, the number of vessel-days fished.”

In response to the IATTC and WCPFC resolutions, the PFMC tasked its Highly Migratory Species Management Team (HMSMT) to examine recent levels of U.S. albacore fishing effort on North Pacific albacore in order to establish the current effort level and enable decision makers to meet the requirements of the IATTC and WCPFC resolutions. Scientists of NOAA Fisheries’ Southwest Fisheries Science Center (SWFSC), working in cooperation with the Council’s HMSMT and HMS Advisory Subpanel (HMSAS), compiled fishery statistics and analyzed trends in North Pacific albacore catch and effort for U.S. commercial fisheries. The analyses included information for the West Coast troll/bait fishery and the Hawaii-based longline fishery, which catches albacore incidentally. The findings of the analyses, which are discussed in Section 6.1.2 of this document, are contained in a report issued in May 2007, *Characterization of Recent U.S. North Pacific Albacore Commercial Fishing Effort*.

In summary, the intent of this ‘White Paper’ is to provide the PFMC with information that may assist it in deliberations regarding the initiation of a framework process to maintain or limit fishing effort by the West Coast albacore fishery.

### **3. Management Measures Presently in Place on the U.S. West Coast Fishery**

The U.S. West Coast albacore fishery, which is one of the few remaining open access fisheries on the West Coast, is managed under the PFMC HMS Fishery Management Plan (HMS FMP). The management measures presently in place on the fishery, which apply to vessels fishing for albacore in the EEZ off the West Coast as well as when fishing on the high seas and landing their catch in West Coast states, include the following:

- A Pacific HMS fishing permit with an endorsement for a specific gear and other accompanying provisions, is required by all commercial and recreational charter fishing vessels fishing for albacore. Permits are issued to the owner of a specific vessel for a 2-year term and are renewable.
- All Pacific HMS permit holders must maintain and submit to NMFS a daily logbook of catch and effort and catch disposition.
- The HMS FMP prohibits all pelagic longline fishing within the West Coast EEZ as well as shallow-set longline fishing in the adjacent high seas areas.
- All U.S. fishing vessels operating in HMS fisheries may be required to carry a NMFS certified observer on board to collect scientific data when directed to do so by the NMFS Regional Administrator.
- A control date of March 9, 2000 has been established.
- A U.S./Canada Albacore Tuna Treaty that allows, with conditions, fishing vessels of both countries to fish for North Pacific albacore in the respective EEZ waters outside 12 miles of the other country and to access certain ports to obtain supplies and services and to land their catch (see Section 3.1.1 of this document )
- The recreational fishery is managed by daily bag limits of 10 albacore per angler south and 25 albacore per angler north of Point Conception, CA.

- The State of California has a 7 pound minimum size limit for albacore on the books, which was decreased from 9 pounds in 1957. The size limit was apparently put in place for processing efficiency.

### **3.1 U.S. /Canada Albacore Tuna Treaty**

The U.S./Canada Albacore Treaty was initially put into effect in 1981, amended in 2002, and codified by law in April 2004. U.S. and Canadian delegations met in 2008 to re-negotiate future and specific aspects of the Treaty

#### **3.1.1 Provisions of the Treaty**

The Treaty allows, with conditions, fishing vessels of both countries to fish for North Pacific albacore in the respective EEZ waters outside 12 miles of the other country and to access certain ports to obtain supplies and services and to land their catch. U. S. vessels have access to British Columbia ports in Coal Harbor, Port Hardy, Prince Rupert, Victoria, Vancouver, and Ucluelet. Canadian vessels have access to ports in: Bellingham and Westport, Washington; Astoria, Newport, and Coos Bay, Oregon; and Eureka, California. The Treaty also establishes regulations regarding vessel marking, record keeping, and reporting requirements when operating in each other country's waters; and calls for exchange of fisheries data between the governments of the two Nations. In addition, the Treaty provides for agreed fishing limits on reciprocal fishing access. Negotiations conducted in 2008 for a new 3-year fishing regime included limiting the number of Canadian vessels to 110, none of which can be pole-and-line vessels and the number of U.S. vessels fishing in Canada to remain within historical levels; defining the vessel access period as starting June 15 and ending October 31; and that either country may terminate the new regime in the event that international or domestic management measure are adopted.

#### **3.1.2 Amount of U.S. and Canadian Albacore Caught in Each Others EEZ**

The percentage of U.S. catch caught in Canada's EEZ during 2004 – 2008 ranged from one to four percent. However, in earlier years when the availability of albacore was high in 'northern' waters and there was a much larger U.S. pole-and-line albacore fleet, the U.S. catch in the Canadian EEZ was considerably more, up to 30 percent and higher. The distribution of U.S. albacore catch and effort is shown in Figure 1 and the monthly use by U.S. and Canadian vessels in each other's EEZ is given in Table 1. The annual total of Canadian albacore catch and total amount caught in the U.S. EEZ, and the values of the catch in Canadian dollars are given in Figures 2a and 2b, respectively. There has been a large increase in the Canadian total catch of albacore, as well as the amount caught in U.S. EEZ waters beginning in the late 1990s. During 2003 to 2007 Canadian catch made in the U.S. EEZ ranged from 1,725 to 3,891 mt. or approximately 60 to 80 percent of the total Canadian annual catch. The value in Canadian dollars during this period ranged from approximately C\$3.65 million to C\$13.65 million. In addition to the apparent benefit to U.S. coastal processors of albacore landed by Canadian fishermen in west coast ports, the Canadian stopovers may also benefit local communities through expenditures for fuel and supplies while they are in port. A Canadian government survey that sampled a subsection of their fishermen that fished in the U.S. EEZ during 2002 – 2007 estimated that approximately \$700K to \$800K in expenditures were made annually by Canadian fishermen

while in U.S. ports. No information was available on the amounts of expenditures by U.S. fishers during stopovers in Canadian ports.

#### **4. Potential Management Options For Consideration**

Fisheries management options are broadly classified as 1) output controls which control the catch through, for example, TACs; 2) input controls which regulate the extent and kind of effort that is prosecuted; examples are gear restrictions, minimum sizes and area restrictions; and 3) the access programs in which particular entities are allowed to fish. If fishing mortality needs to be limited, then ultimately some form of input and/or output controls will be needed in conjunction with access decisions on who can fish. The discussion (below) of potential management options for the U.S. West Coast albacore fishery centers around decisions about access programs: Limited Access Privilege Programs (LAPP); limited entry; and open access. Then options for input/output controls are discussed in the context of access..

##### **4.1 Open Access**

Most U.S. fisheries were managed under open access until the end of the 20th century. Under this system of management, lucrative fisheries have often become over-capitalized resulting in excess capacity and over-exploitation of the resource. At some point to halt the over-exploitation, an authority often would establish input and/or output controls on the fishery, e.g., vessel size, limit number days fished, catch limits, restrictions to fishing effort, limit the characteristics (normally size or breeding status) of individual fish that may be taken legally or other similar options. In many cases input controls by themselves eventually have proved to be ineffective due to the development of technological changes to overcome them. Conversely output controls are often not effective due to poor governance structures, imperfect implementation and enforcement and by choosing too risky TAC levels. However, there are many cases where TACs combined with input controls have been effective. For example TACs, country-specific allocations, a minimum size and seasonal closures of small-fish areas were used to recover the over-exploited swordfish stock in the North Atlantic

##### **4.1.1 Possible Input and/or Output Controls Applied to an Open Access the U.S. West Coast Albacore Fishery**

Some possible specific input and/or output controls for consideration for application to the U.S. West Coast albacore fishery and the pros and cons of each are summarized in Table 2. The implications of this approach are the last open access fishery on the West Coast would not be closed to new entrants. If management action is required, many fishers and others in the albacore fishing industry, including some recreational albacore fishing charter vessels, favor some sort of unspecified input and/or output controls to other management options that limit their participation.

There a number of disadvantages to using input and/or output options to limit or maintain fishing effort in the U.S. West Coast albacore fishery, including:

- Catch limits, trip limits, or reducing the amount of gear that may be fished would at least initially result in a reduction of effective fishing effort, but would create serious disruptions to the fishery resulting in severe economic inefficiencies.

- Limiting the amount of gear fished, e.g., the number of jigs that could be trolled or poles that could be fished likely could not be enforced unless there is 100 percent observer coverage.
- Evaluating the effectiveness of limiting the amount of gear that could be fished would be problematical since fishers normally only ‘pull’ and land albacore caught on short lines when fishing activity and catches are very high.
- Establishing a total allowable catch (TAC) is strongly opposed by many U.S. fishers and fish buyers, but supported by a few fishers.
- The highly migratory nature of the species and the high inter- and intra-annual variability in its seasonal distribution and availability in waters off the west coast of North America would generally contribute to reducing the effectiveness of utilizing input or output controls.
- Closed areas would be very tricky to establish and almost impossible to enforce due to the large swings in inter- and intra-annual variability of albacore distribution, availability, and vulnerability to capture, all of which are markedly influenced by spatial and temporal variability in ocean conditions.
- Establishing a minimum fish size (age) limit where only mature fish could be landed would not work because the fishery is based exclusively on pre-adult 2, 3, and 4 year-old fish.
- Allowing only male albacore to be landed is not feasible because dissection is required to distinguish the gender of albacore.
- Technological changes most often overcome the effectiveness of input and/or output controls in controlling fishing effort.

#### **4.2 Rights-Based Management Programs**

Rights-based management programs include Limited Access (LA) and Limited Access Privilege Programs (LAPPs) for managing fisheries resources.

##### **4.2.1 Limited Access (LA) Programs**

Limited access (LA) programs are commonly used to regulate entry into a fishery in order to promote the conservation and sustained management of the stock, and maintain or enhance the economic health and stability of the fishing industry. They are a simple rights-based input controls, which provided the rights are guaranteed for a long time, give those with the right an interest in conservation, but on its own does not promote economic rationalization (Allen et al in press). The effectiveness of LA’s for holding harvest at safe levels depends on a multitude of factors including the number of permits relative to safe harvest limits, the types of other management controls that are put in place, and on the potential for input substitution in the fishing process. Also, limited entry or limited access simply limits entry, but does not limit use or catch, nor does it take into account technological changes in fishing.

##### **4.2.1.2 Applying Limited Access to the U.S. West Coast Albacore Fishery**

There are a number of advantages to adopting a limited access or limited entry fishery regulatory measure for managing the U.S. West Coast albacore fishery.

- Would allow the Council to act in a precautionary manner by developing a framework process to maintain or limit fishing effort at the present time and avoid the risks of having to do so if the fishery is determined to be *overfished* in about 2015 as is indicated will happen

by stock assessment results if effort is not capped.

- Would provide both short-term and long-term benefits to the fishery in maintaining its viability.
- Initiating a LA program at the present time would likely not eliminate U.S. vessels in the fishery, since the number of U.S. vessels active in the fishery has been relatively stable during the recent 5 or more years.
- LA program would contribute towards preserving the health of the North Pacific albacore resource. The full effect of which requires that all Nations harvesting North Pacific albacore stock(s) keep fishing effort in check. According to WCPFC International Scientific Committee (ISC) documents, Japanese longline and baitboat fleets that target albacore are subject to strict capacity and other controls, and North Pacific albacore catch by these fleets is declining. Taiwan is constraining North Pacific albacore fishing effort to 2004 levels and the Canadian troll fleet has decreased. Korea reports that it is no longer targeting North Pacific albacore, but some albacore catches are made incidental to longline fishing for tropical tunas in the North Pacific.
- Undertaking the option before there is a possible 'emergency situation would likely allow increased opportunities for fishers and other stakeholders to play more active roles in the formulation a LA program.
- A control date of March 9, 2000 is in place for the fishery, which may or may not be considered final in regard to the adoption of a LA.
- A program likely can be set up to allow permit transfers.
- It may be possible to structure a LA process that could accommodate the vessels from other West Coast fisheries that have a history of entering the albacore fishery when there are limited opportunities in their respective fisheries.
- Setting up a LA program for the U.S. albacore fishery conceptually could be relatively straight forward since it is a single species fishery.
- Costs to plan and implement a LA program would likely be relatively low.
- Would ensure that the U.S. meets its responsibilities related to North Pacific albacore regarding U.N. Article 64.
- Adopting a LA program for the albacore fishery would also establish an assemblage of participants for future management measures should they be needed, possibly including stronger forms of rights-based management.

There are a number of actions that the Council could take leading to the adoption of a LA program for the U.S. West Coast albacore fishery. These are listed, with pros and cons, in Table 3.

There are several disadvantages for adopting a limited entry or limited access fishery management program for the U.S. West Coast fishery at this time.

- The last open access fishery on the West Coast would be closed needlessly if the scientific warnings are wrong that the fishery will become *overfished* in about 2015 if effort is not capped.
- Concerns exist that the U.S. albacore fishery would be at a disadvantage if the U.S. takes action to cap fishing effort and other Nations do not.
- Possible complications could arise related to vessels that may move in and out of the albacore fishery from other West Coast fisheries, e.g., Dungeness crab, salmon and/or

- groundfish fisheries, in years when conditions in these fisheries are unfavorable.
- There could be complications regarding the U.S./Canada Albacore Tuna Treaty.

#### **4.2.2 Limited Access Privilege Programs**

Limited Access Privilege programs (LAPPs) are market-based or rights-based fishery management programs whereby an individual fisherman, community, or other entity is granted the privilege to catch a specified portion of the Total Allowable Catch (TAC) of a fishery stock. Originally LAPPs were referred to as Individual Fishing Quotas (IFQs) or Individual Transferable Quotas (ITQs) where an individual fisher is granted a specified portion of the TAC, where the ITQ could be transferred to another user. Over time the concept of IFQs and ITQs has been expanded and is referred to as a LAPP in the amended Magnusson-Stevens Act (MSA) (Public Law 109-479). MSA specifies mandatory conditions and other provisions for designing LAPP fishery management programs. MSA also is clear that any LAPP is only a permit to harvest and does not confer any right to compensation and that there are no rights, title, or interest in any fish until it is harvested. LAPPs are generally designed by Fishery Management Councils, while NMFS implements and monitors them. The NMFS/Office of Policy has issued a comprehensive publication, *The Design and Use of Limited Access Privilege Programs* (Anderson and Holliday eds. 2007), to assist Regional Councils and NOAA NMFS in the design and implementation of LAPPs. This publication also includes summary information on ten current LAPPs in the U.S.

A LAPP type rights-based fisheries management program is believed by Joseph (2003) and Allen et al (in press) to be the most viable solution available for the international management of global tuna stocks to address the problems of excess capacity and over-exploitation. Allen et al. (in press) state that “...*Unlimited entry into tuna fisheries must now change. Failing this, the inevitable outcome will be overexploitation of the world’s tuna stocks. Rights-based management, (the concept upon which LAPPs are based) wherein catches are allocated to participants and fleets are limited in numbers, can bring this change and provide incentives to fishers to maintain fleets at optimal levels. To accomplish this requires a change in mind set and political will of many nations whose citizens participate in world tuna fisheries, both on the high seas and in coastal zones.*”

New Zealand introduced the first major ITQ program in 1986. Other foreign countries with ITQ or LAPP-like management programs include Australia, Canada, Iceland, Italy, the Netherlands, and South Africa. Although this is not a comprehensive list of all non-US ITQ programs, it indicates that ITQ management is widely used internationally. Some foreign countries, e.g., New Zealand and Australia, may apply more restrictive criteria for deciding if an ITQ or LAPP-like program is an appropriate measure for managing a fishery, including: 1) the sustainability of the overall catch, 2) adverse harvest effects on the aquatic environment or the sustainability of other species and/or biological diversity, and 3) issues of allocation between commercial and non-commercial users or inefficient utilization or under utilization of catches. Whereas, usually the only criterion for deciding if a LAPP is an appropriate measure for managing a fishery in the U.S. is if there is a concern of overexploitation of the fishery and that it is *overfished*.

Relatively early in the period when the U.S. began using ITQs for managing fisheries, the National Council for Science and the Environment conducted a thorough review of the measure

for managing U.S. fisheries (Buck, 1995). A summary of Pros and Cons of ITQ programs taken from Buck's (1995) review is given in Table 4; the Pros and Cons from Buck also generally apply to LAPPs. Information in Table 4 indicates that LAPPs provide an option in fisheries management that can promote conservation of stocks, improve market conditions, promote safety in the fishing fleet, slow or eliminate the 'race to fish' and minimize overcapitalization. However, there can also be many disadvantages to the programs and they are not ideal, appropriate, or desired for every fishery or region

#### **4.2.2.1 Examples of Management Programs of Foreign Albacore and Other Tuna Fisheries Using LAPP-like and Other Measures**

A summary table prepared by staff at the NMFS SWR Division of Sustainable Fisheries that lists several foreign countries using LAPP-like and other management strategies for albacore and other HMS fisheries is given in the *Appendix (Table A-1)*. Most of the fisheries listed in *Table A-1* are longline fisheries that target southern bluefin tuna or swordfish (e.g., Australia SBT, WTBF, and ETBF; and New Zealand southern bluefin, bigeye tuna, and swordfish) and make incidental catches of albacore and other large pelagic species

The New Zealand albacore troll fishery has been considered in two consultations for introduction into the Quota Management System (an ITQ-based system used in New Zealand fishery management) and failed both times when stakeholders expressed strong opinions both for and against the proposal. In considering the information presented on albacore and the submissions received during both consultations, the Minister of Fisheries was not satisfied that the requirements to introduce albacore into the QMS were met, namely that the fishery has sustainability or utilization issues. However, since QMS is the preferred long term management regime for albacore it will be reconsidered for introduction when and if there is new information (New Zealand Minister of Fisheries. Albacore Tuna (ALB)- Initial Position paper – October 1, 2007). It is likely that the inclusion of albacore, as well as skipjack tuna, in the QMS will be incorporated in the development of fisheries plans for these species in 2009 (Personal communication cited in *Table A.1*).

The South Atlantic albacore stock, which is considered *not overfished* and *no overfishing* is occurring, and the North Atlantic albacore stock, which is considered *overfished* with *overfishing* going on, are subject to ICCAT international management. ICAAT has adopted TACs for the albacore stocks in both regions and assigned specific country quotas. In the Indian Ocean the status of the albacore resource is unknown due to a lack of data to conduct a stock assessment. However because of concerns about the status of the albacore stock, the Indian Ocean Tuna Commission (IOTC), which has international management authority, has adopted a conservation measure to limit fishing effort of the stock. In response to this, the European Union has established limitations of fishing capacity for Community vessels fishing for albacore on the Indian Ocean high seas where the IOTC has international management authority (Official Journal of the European Union, 2008. Council Regulation No. 1222/2008 regarding management measures adopted by the Indian Ocean Tuna Commission).

#### **4.2.2.2 Applying a LAPP Program to the U.S. West Coast Albacore Fishery**

A LAPP program could be carefully planned and implemented for the U.S. West Coast albacore fishery. There are advantages to taking this action including:

- Fishing effort by the U.S. fleet could be maintained or limited,
- It may allow fishers and others in the industry to make better long-range business decisions thereby enhancing the viability of the industry.
- Very significantly, it could further promote the conservation of the North Pacific albacore resource.
- Some albacore fishers favor a IFQ form of management for the fishery.

Anderson and Holliday (2007) are careful to point out that a LAPP for managing fisheries is not ideal, appropriate, or desired for every fishery or region. At this point in time, there are several reasons why this seems to be true for the U.S. West Coast albacore tuna fishery.

- It is questionable whether the fishery meets a primary criterion for LAPPs management, namely that the stock is overexploited. Stock assessment of the North Pacific albacore (addressed in Section 7 of this document) clearly indicates that the resource is *not overfished*. But, when considering all of the fisheries that are harvesting North Pacific albacore, *overfishing* maybe going on and there is real concern that the resource may become *overfished* by about 2015 if present fishing effort by all Nations is not capped. Regarding the U.S. West Coast Fishery it is important to note that in 2007 a segment of the fishery, the American Albacore Fishing Association, was the first tuna fishery in the world to receive Marine Stewardship (MSC) eco-certification. A similar application to the MSC in 2009 by the Western Fishboat Owners Association (another segment of the fishery) is nearing completion of the eco-certification process.
- It appears that currently there are compelling needs for adopting a LAPP for managing the fishery.
  - ✓ The fishery is executed in a sustainable manner. (albacore are caught one at a time on hooks attached to individual lines or poles, it has virtually no bycatch issues, and virtually no interactions with protected species).
  - ✓ It has negligible environmental impacts (gear is minimal and loss almost never occurs, fishing takes place on or very near the sea surface and there is no contact with the ocean bottom).
  - ✓ There are no product utilization issues (the whole fish is retained and is almost entirely used for human and pet food and other products, e.g., fish oil and meal).
- A large number of albacore fishers strongly reject the idea of IFQs.
- There are high costs to design, implement, and operate a LAPP (GAO, 2005); there is a mandated cap of 3 percent of the ex-vessel value of the fish harvested for recovery costs to fund program management (data collection and analysis) and enforcement associated with LAPPs.
- Adopting a LAPP at this time appears to be excessive to the present need for the Council to have a mechanism in place to maintain or limit fishing effort in the U.S. West Coast albacore fishery

### **4.3 'No Action' Scenario**

The 'no action scenario' would make no changes in the present status of the U.S. West Coast albacore fishery as an open access fishery. Advantages to retaining this option include:

- No costs required to retain present open access.
- Option favored some segments of the U.S. albacore fishing industry.
- Would avoid possible complications regarding the U.S./Canada Albacore Tuna Treaty.
- Would avoid complications related to vessels from other West Coast fisheries that to 'come and go' to and from the albacore fishery when there are unfavorable conditions in their respective fisheries.

Disadvantages to retaining the open access of the fishery include:

- Council would continue to lack a mechanism or adequate controls to address maintaining or reducing fishing effort in the U.S. West Coast albacore fishery.
- If West Coast albacore fishery increases and the Council has no mechanism to regulate it, the U.S. may possibly be in violation of its responsibilities related to Article 64 of the United Nations Law of the Sea Convention that mandates States cooperate directly or through appropriate international organizations to ensure the conservation of tunas.
- The opportunity would be lost to use 'good sense' to initiate actions for the adoption of a framework process for the authority to maintain or limit fishing effort of the West Coast albacore fishery before there is a crisis and emergency action may be required.
- The opportunity would be lost to heed the argument put forth by Allen et al (in press) who stated that "... *Allowing the resources to be treated as common property, open access, or controlled open access fisheries, has led to excess fishing capacity, which has led to overexploitation*" ... "*It has been shown that such excess capacity exists in all oceans and so long as the concept of open access and common property management prevails, this problem of overcapacity will not be corrected.*"

### **4.4 Summary of Management Options**

To reiterate, access decisions are made to define who gets to fish, whereas input/output controls determine how much fishing or how much catch. If spawning stock declines below reference points the fishery will be classified as overfished and actions will be required to ameliorate this situation by implementing input and/or output controls. Similarly, if the rate of fishing is too high (which will lead to SSB declining to an overfished state) then the fishery is classified as undergoing overfishing and again this is ameliorated by I/O controls. If I/O controls are needed to limit mortality then there will be impact on fishers. If they did not, then the controls would not be effective in addressing the stock's status. However, choosing the proper access process can help in addressing those impacts and to assure those impacts are not protracted.

In the case of a fishery under the auspices of international management regimes such as the albacore fishery the process is the same with the addition of country allocations. For example, an overall TAC is chosen based upon stock status. This TAC is then partitioned into country allocations. Then it is the country's responsibility to implement measures to assure that their fishers stay within that allocation. This process occurs regularly in ICCAT, IATTC, SBT and other RFMOs (international commissions). In some cases individual countries choose to

implement these through input controls, in some cases output controls; and all use various access programs (several mentioned above). In some cases enforcement is a country responsibility, but in others joint enforcement arrangements are made through the RFMO. Additionally, most of the RFMO have formal compliance committees to deal with monitoring. The country decisions are geared to the particular needs of the country's fisheries. However, if a country allocation of a TAC is needed it is important for the nation to have processes in place to implement the needed actions.

## **5. Description of the North Pacific Albacore Resource**

This segment of the 'White Paper' includes a description of the North Pacific albacore resource including its life history, biology, stock structure, and habitat and ecosystem. A review of information on the stock structure of albacore entering West Coast waters is provided in *Appendix A-2*.

### **5.1 Distribution, Life History, Biology, and Ecology**

Albacore is a highly migratory tuna found in all of the global oceans and Mediterranean Sea; about 40% of its total biomass is in the North Pacific, 27% in the South Pacific, 25% in the Atlantic, 8% in the Indian and <1% in the Mediterranean. Albacore mature at a relatively early age of approximately 5 or 6 years (Ueyanagi 1957, Otsu and Uchida 1963) and have a moderate lifespan to about 10 to 12 years. The species is highly fecund with 0.8 to 2.6 million eggs per spawning (Ueyanagi 1957; Otsu and Uchida 1959). Spawning occurs generally throughout much of the year, with a peak usually in summer months in the central and western North Pacific (Otsu and Uchida 1959) and in the winter months in eastern Pacific off Mexico (Wetherall et al 1987). Spawning in the North Pacific takes place in subtropical waters between about 10°N to 25°N latitudes in the western Pacific (Ueyanagi 1957), in the vicinity of the Hawaiian Islands (Brock 1943, Otsu and Uchida 1959; Yoshida 1968;), and to a lesser degree in the eastern Pacific off Guadalupe Island, Mexico (Scofield 1914, Anon. 1953, and Clemens 1961). Growth rates are moderate (Otsu 1960, Nose et al, 1957, Clemens 1961, Yabuta and Yukinawa 1963, and Laurs and Wetherall 1981). Estimates of the fork lengths at first birthday have been estimated to range from about 38 cm (Laurs et al 1985) to 45 cm (Clemens 1961), and the fork length at sexual maturity at approximately 90 cm or somewhat less (Otsu and Uchida 1959).

Albacore, like other tunas, have a number of physiological and morphological specializations that adapt them to a fast, continuous swimming lifestyle in the pelagic open ocean environment. They must swim constantly to overcome their negative buoyancy and to continuously force water over their gills to maintain respiration (Brill and Bushnell 2001). They are endothermic as the result of a countercurrent *rete mirabile* heat exchanger system (Carey and Teal 1966 Graham and Dickson 1981, and Graham and Dickson 2001), which enables them to maintain internal core body temperatures up to 10° C warmer than ambient ocean water temperatures (Graham and Dickson 2001). Temperatures lower than 10°C disrupt albacore physiological processes and may lead to fatality (Graham and Laurs 1982).

Albacore metabolic rates are 2 to 10 times higher than most other bony fishes (Graham and Laurs 1982). As a likely consequence, albacore are restricted to waters with dissolved oxygen saturations greater than 60 percent (Cech et al 1985). Albacore are also different from most other teleosts in having a high blood volume (Laurs et al 1981), high cardiac performance (Breisch et al 1983), specialized hemoglobin-oxygen dissociation characteristics (Cech et al

1984), and other cardiac and vascular system distinctions that adapt them (Lai et al 1987, White et al 1988; and Graham et al 1989) for fast swimming (Dotson 1976, Magnuson 1978). In addition, albacore have very large eyes for detecting prey and specialized fins and body form to reduce drag.

## **5.2 Habitat and Ecosystem**

The habitat of albacore generally is open ocean pelagic waters, mostly in the vicinity of oceanic fronts. The horizontal dimension of albacore habitat in the North Pacific is linked to oceanic frontal structure associated with the Kuroshio Current, the Kuroshio Current Extension Waters, the North Pacific Transition Zone and the Subtropical Convergence Zone (NPTZ), and the California Current System. Oceanic frontal structure greatly influences the distribution, relative abundance, and availability of albacore, as well as the location of migration routes and rates, and their vulnerability to capture. Sub-adult albacore make trans-Pacific migrations associated with the NPTZ (Laurs and Lynn 1977) and have been linked with various regional or mesoscale features of the North Pacific Ocean (Laurs and Lynn 1977, Polovina et al 2001, Broder et al in prep). They move along oceanic thermal fronts as they migrate and form transient aggregations or patches in areas of local enrichment favorable for foraging (Laurs 1983; Laurs et al 1984, Laurs and Lynn 1977, 1991, Laurs et al 1977, Polovina et al 2001, Zainuddin et al 2006). The vertical distribution and albacore habitat is related to the configuration and depth of ocean vertical thermal structure and is mostly in waters located in or near the thermocline (Laurs 1982 and Koin in prep). The vertical distribution of pre-adult albacore is shallower than that of adult sexually mature albacore. As a consequence, pre-adult albacore are targeted by surface troll and pole-and-line fisheries in temperate zone waters of the North Pacific by the Japanese fishery in the western Pacific and the U.S. and Canadian fisheries in the eastern Pacific. Most albacore caught by trolling and pole-and-line fishing are from waters that have sea surface temperatures between 15° - 19.5°C (Clemens, 1961, Flittner 1963, and many others).

Adult albacore are targeted by the Asian longline fisheries and are caught incidentally by the Hawaii-based longline fishery in the subtropical and tropical zones of the North Pacific. In coastal waters off the coast of North America, sea surface temperature, coastal upwelling, the Columbia River plume, and other oceanic frontal features, which play roles in the aggregations and behavior of prey species, all influence distribution, availability and catchability of albacore (Percy and Mueller 1970; Percy 1973, Laurs and Fiedler, 1984, and others). Albacore are opportunistic carnivores that occupy relatively high trophic levels. Their diet is made up of a variety of pelagic and mesopelagic species including small fishes, cephalopods, and crustaceans (Iverson 1962, Iverson 1971, Bernard et al 1985, Watanabe et al 2004, Glaser 2008; and others). Little is known about what animals prey on pre-adult and adult albacore, but predators on them are believed to be large marine mammals, sharks, and billfish. Young albacore have been found in stomachs of large tunas and other large fishes (Yabe et al 1958 and Yoshida 1965).

Albacore distribution and availability is known to fluctuate extensively over a range of spatial and temporal scales, which appear to be related to ocean-atmosphere interactions, oceanic teleconnections, and large-scale climatic variability. Clark et al 1975 found that the distribution of albacore tuna along the west coast of North America and the growth of conifers in western North America are linked by large scale atmospheric flow patterns, which are influenced by air-sea

interaction processes over the eastern North Pacific. Although the albacore and conifer ecosystems respond to their respective environments during different times of the year, there is strong evidence that they are reacting to the same climatic fluctuations that are responsible for major north-south shifts in North Pacific albacore availability along the coast of North America (Laurs 1974, Clark et al 1975). Modeling climate-related variability of tuna populations from a coupled ocean-biogeochemical-populations dynamics model, Lehodey et al (2003) demonstrated that El Nino conditions have negative effects on albacore recruitment in the western South Pacific. Similar El Nino effects are being examined and expected regarding recruitment of North Pacific albacore. Albacore provide a good example of Hallett et al, 2004 conclusion that large-scale indices are often better predictors of ecological processes and population fluctuations than local climate.

### **5.3 Stock Structure**

In the Pacific Ocean there are believed to be separate and distinct stocks of albacore in the northern and southern hemispheres (Ueyanagi 1960; Nakamura 1969; Lewis 1990; IATTC 2006; and others). There appear to be two subgroups of albacore in the North Pacific Ocean. (Laurs and Lynn 1991). The fish of the northern subgroup occur mostly north of 40°N when they are in the eastern Pacific Ocean. There is considerable exchange of fish of this subgroup between the troll fishery of the eastern Pacific Ocean and the pole-and-line and longline fisheries of the western Pacific Ocean. The fish of the southern subgroup occur mostly south of 40°N in the eastern Pacific, and relatively few of them are caught in the western Pacific. Fish that were tagged in eastern Pacific offshore waters and recaptured in the West Coast exhibited different movements, depending on the latitude of release. Most of the recaptures of those released north of 35°N were made north of 40°N, whereas, most of the recaptures of those released south of 35°N were made south of 40°N. The stock structure of North Pacific albacore is not fully understood and is a priority need for further research, perhaps, using modern genetic approaches, e.g., microsatellite DNA genetic methods which was recently successful in differentiating separate albacore stocks in the western and eastern South Pacific (Takagi et al, 2007). A review of information regarding the stock structures of albacore entering the U.S. West Coast albacore fishery is provided in A-2.

### **6. Fisheries Operating on North Pacific Albacore**

As noted earlier, North Pacific albacore are targeted or caught incidentally by numerous fleets from a number of Nations. These include the Japanese and Taiwanese pelagic longline fisheries that target albacore and the Korean longline fishery that catch albacore incidentally in the western and central North Pacific; the U.S. Hawaiian longline and hand-line fisheries that catch albacore incidentally in the central North Pacific; the Japanese pole-and-line fishery carried out in the western North Pacific; the U.S. troll and limited pole-and-line fishery executed in the eastern North Pacific mostly along the U.S. West Coast; the Canadian troll fishery conducted by and large in the U.S. EEZ ; and the U.S. recreational hook and line fishery that traditionally takes place mostly off southern California and to a lesser degree along the entire U.S. west coast. Several other countries also have minor fisheries with various fishing gears that incidentally catch North Pacific albacore. Asian drift-gillnet fisheries targeted and caught substantial amounts of albacore across much of the North Pacific mostly during the mid-1970s and 1980s. However, drift gillnet fishing was halted by U.N. action in 1992. Although the magnitude is difficult to

estimate, some IUU drift gillnet fishing apparently continues to take place in the North Pacific, which likely catches some albacore, but accurate amounts are unknown.

For the most part, only basic fishery data are available for most of the fisheries catching albacore in the early years. However, in recent years the data provided by countries have been improved and expanded to include: catches and number of vessels, summarized catch and effort, and size composition of the catch. Information on the annual amounts of catch taken by country for 1952 – 2007 is given in Table 5 and Figure 3, respectively.

The record high total catch of North Pacific albacore for all nations combined was 125,433 mt in 1999 and the record low catch was 37,325 mt in 1991 (ISC 2008). During the 5 year period 2003 - 2007, the total catch ranged from 62,722 mt to 92,647 mt and averaged 78,730 mt. Fisheries based in Japan accounted for 66.6 percent of the total harvest, followed by fisheries in the U.S. 15.9 percent, Chinese-Taipei 8.4 percent, Canada 6.3 percent and all other countries 2.8 percent.

Annual North Pacific albacore catch by gear type is shown in Figure 4. The average percentages of the catch by gear type were: pelagic longline 37.5 percent, pole-and-line 36.8 percent, troll 20.2 percent, and all other gears including the U.S. recreational hook and line 5.5 percent.

### **6.1 History of the U.S. West Coast Albacore Fishery**

For a number of years before about 1900, albacore were considered a ‘nuisance fish’ that took fishing lures being trolled for blue fin tuna (Clemens 1961). The U.S. west coast fishery began in the early 1900’s when fishers commenced targeting on seasonally migrating albacore in near-shore ocean waters off southern California to meet the needs of a tuna cannery established there. In 1903, an experimental pack of 700 cases of albacore led to the development of the U.S. tuna canning industry. The troll fishery for albacore gradually spread northwards, but was restricted to waters off California until the late 1930’s, when it extended to coastal waters off the states of Oregon and Washington, and eventually to off British Columbia, Canada. From its beginning until the late 1970’s, the troll fishery usually began operating in early July, when migrating albacore approach the west coast of North America, and was primarily conducted within a couple hundred miles of the coast. From 1961 through 1979, approximately 99 percent of the reported U.S. catches of North Pacific albacore were made within 200 miles of the North American coast, with 84 percent off the U.S. coast and 9 percent and 7 percent in the jurisdictional waters of Mexico and Canada, respectively. From the late 1970’s until about 2000, U.S. albacore fishers with larger vessels began troll fishing in the early spring months on the high seas. Some of these vessels operated as far west as the International Dateline and beyond, to extend the fishing season by intercepting albacore migrating towards the coast of North America locating high catch rate areas. However, during the recent about five or so years, the fishery has operated mostly within a few hundred miles of the coast, apparently because of high fuel and insurance costs and uncertain market conditions.

The history of the U.S. pole-and-line fishery for albacore differs somewhat from that of the troll fishery, and is linked to the U.S. tropical tuna fishery for yellowfin, bigeye, and skipjack tunas. The pole-and-line method of catching albacore, which is also referred to as bait-boat or live-bait

fishing, also began in the early 1900's with vessels operating within a one-day run from port to provide product for the tuna cannery located in southern California. A poor catch of albacore in 1918 forced pole-and-line boats to shift to fishing for tropical yellowfin and skipjack to fill the cannery's demand for tuna. In subsequent years, even though the availability of albacore may have been high, the amount of pole-and-line effort expended for albacore was thereafter greatly influenced by events in the tropical tuna fishery. Nevertheless, in some years up to 40 percent of the annual catch of albacore on the west coast was caught by pole-and-line vessels. In the late 1980s, U.S. pole-and-line vessels were prevented from catching bait, which is used to fish for tropical tunas, in the Mexican EEZ. Consequently, most of the pole-and-line vessels were soon sold to other countries or converted to albacore troll fishing. From the late 1980s through about 2000 there were only very small amounts of albacore caught by U.S. pole-and-line fishing. However, resurgence in U.S. pole-and-line fishing began in about 2003, and up to about 15 – 20 or so vessels presently use this fishing method in the U.S. fleet. The frequency of records for troll and pole-and-line gear types in the NMFS SWFSC west coast albacore logbook database for the years 1961 – 2006, provides a timeline showing a rough approximation of the relative amounts of U.S. albacore troll and pole-and-line fishing, Figure 5 (from Barr 2009).

Traditionally, over 90 percent of the albacore catch taken by the U.S. West Coast fishery has been purchased by major U.S. processors for canning and marketed as premium 'white meat' tuna. However, in recent years the large U.S. processors have purchased only about 10 percent of the catch. As a consequence, fishers have developed alternative markets. An increasing amount of the catch is being marketed in the fresh and fresh-frozen trade, canned by small 'boutique' processors, and exported to Europe (WFOA Website).

A review of fishing methods and equipment used in the U.S. albacore fleet is given in Doston 1980. Although the basic gear and methods of fishing have changed little, many albacore fishing vessels today are outfitted with an array of sophisticated electronic equipment e.g., satellite navigation, advanced communications equipment, various types of acoustic sounders and fish-finders, computers, ocean sensors, etc. Many fishers use information derived from satellite ocean remote sensing to guide fishing operations.

## **6.2 Trends in U.S. Albacore Fishing Effort**

In the 1940's there were about 500 vessels in the U.S. west coast albacore fleet. A high of about 3,000 vessels was reached in 1950; the number dropped to about 1,000 by 1960, climbed to approximately 2,100 during the 1970's and dropped to fewer than 500 boats in the late 1980's (Lauris and Dotson 1992). Characterization of recent U.S. North Pacific albacore commercial fishing effort was recently examined in response to a Council request to the HMS MT. The report and analyses were prepared by NOAA NMFS Southwest Fisheries Science Center and the PFMC HMSMT (PMFC 2007); this work was carried out under the leadership of Suzy Kohin at the SWFSC. Table 6 shows the number of troll and pole-and-line vessels, number of vessel days of fishing effort, and landings for the years 1996 – 2005. During this 10 year period:

- Number of vessels ranged from 549 in 2005 to 1,121 in 1997, and averaged 750.
- Number of vessel-days ranged from 21,445 in 1998 to 45,572 in 1997, and averaged 29,630..
- Landings ranged from 9,122 mt in 2005 to 16,938 mt in 1996, and averaged 12,347 mt.

A histogram plot of the number of U.S. West Coast albacore troll and pole-and-line vessels by year (Figure 6a) shows that except for a peak of 1,121 in 1997, in the number of vessels in the fleet has been more-or-less constant, but with steady slight declines during the 1998 through 2000 and 2003 through 2005. Histograms of the number of vessel-days of fishing effort and landings are shown in Figure 6b. Except for a peak in 1997 (when there was a peak in the number of vessels), the amount of effort (number of vessels-days) was somewhat variable, but a little bit higher in the first five years of data than the last five. It's interesting to note that during the last three years of data used in the analysis (2003 – 2005), while the number of vessels decreased somewhat, the number of vessel-days of effort increased very slightly. There appears to be little relationship between the number of vessel-days and landings (Figure 7).

The mean number of effort-days and amount of catch by gear type for all U.S. commercial fisheries landing North Pacific albacore, including incidental catches of albacore by the Hawaii longline fleet, during the period 1996 – 2005 are shown in Table 7, which shows that:

- Number of effort days and amount of catch for troll and pole-and-line fleet were 29,630 days and 12,347 mt, respectively,
- For the Hawaii-based longline were 2,486 days and 1,048 mt, respectively, and
- For all other gears were 920 days and 106 mt, respectively.

The bulk of the catch, 90.4 percent, was harvested by the troll/pole-and-line fleet, 6.8 percent by the Hawaii-based longline fishery in the central Pacific, and 2.8 percent by other commercial gears, e.g., California gillnet fishery, purse seiners, Hawaii handline fishing, etc. (Table 8).

## **7 North Pacific Albacore Stock Assessment**

North Pacific Albacore stock assessments have been conducted by the International Scientific Committee for Tuna and Tuna-like Species in the North Pacific Ocean (ISC) and its predecessor, the North Pacific Albacore Workshop for the last several decades. The most recent assessment was conducted in December of 2006 (Stocker 2006). The ISC charge is to provide scientific advice for management of North Pacific albacore through assessments and the associated activities of collating and maintaining international data bases, coordinating biological research (including the setting of research priorities) and facilitating the development of assessment methods. Because of the ISC and its predecessor's long history of scientific activity in regards to North Pacific albacore, it remains the principal scientific body providing input to both the WCPFC and the IATTC.

### **7.1 Assessment Methods**

The current assessment is based upon Virtual Population Analysis (VPA) methods in which catch, catch-at-age, and indices of abundance (standardized catch-per-effort data, CPUE) are statistically fit by a backward projection model. The methodology is well-known and used in many assessment arenas. Assumptions of the method are also well-known, as are the ramifications of deviations from those assumptions. The major assumptions of VPA are that catch-at-age are estimated without error and are complete, i.e. that catches-at-age are available from all fishing sectors, and that the standardized catch-per-effort indices are proportional to the abundance of the age-groups that are selected by the gear from which the CPUE is derived.

During the most recent assessment, alternative modeling approaches were explored, most notably Stock Synthesis Version 2 (SS2). In addition to utilizing CPUE data, the SS2 approach uses statistical forward projection methods in which catch-at-age can be measured with error and data need not be complete for all sectors. Conversely, this method requires explicit modeling of the stock-recruitment relationship and of the age or size selectivity by the fisheries. The ISC is likely to move toward using SS2 more prominently in its next assessment in 2010 (ISC 2008). Presumably, this method would allow utilization of tagging data more directly in the analysis, as well. This would allow spatial dynamics and spatial management to be explored. However, model development issues preclude this from being implemented within the next assessment cycle.

### **7.1.2 Indices of Abundance**

The CPUE indices of abundance evaluated in the assessment included longline indices, troll indices and pole and line indices from Japanese, US and Taiwanese fisheries. General linear modeling methods were used for standardization in which spatial, seasonal and other effects were examined to determine if their impact on the index was likely related to abundance or to other extraneous factors.

### **7.2 Assessment Results**

Trends in spawning stock biomass (SSB) and fishing mortality rate are shown in Figures 8a and 8b, respectively. Pertinent conclusions from Stocker (2006) were: “... *although current SSB reached a historically high level in 2006 (roughly 153,000 mt), projected levels of SSB are forecasted to decline to the long-term average (approximately 100,000 mt) observed over the modeled time period (1966-05), i.e., the stock is predicted to decline to the equilibrium level of roughly 92,000 mt by 2015. Further, the ISC-ALBWG strongly recommended that all countries support precautionary-based fishing practices (e.g., limits on current levels of fishing effort) at this time, given the following:*

- (1) *the current level of fishing mortality (i.e., spawning potential ratio of F17) is high relative to commonly used reference points and often associated with overfishing thresholds in various fisheries world-wide;*
- (2) *a retrospective analysis indicated a noticeable trend of over-estimation of stock biomass over the last two assessment cycles;*
- (3) *the considerable decline in total (North Pacific Ocean) catch over the course of the last two years, particularly in 2005, when the total harvest (roughly, 62,000 mt) was the lowest recorded since the early 1990s.”*

### **7.3 Biological Reference Points**

Biological reference points are the standards by which status of a stock is measured. Typically there are two such standards in fisheries assessment and fisheries management: 1) a measure of fishing mortality rate ( $F$ ) which should not be exceeded and 2) a minimum level of SSB. The former defines the metric of overfishing and the latter defines the level at which the stock is considered overfished. Formal criteria for these measures have yet to be adopted by the WCPFC and the IATTC. However, proposals for doing this have been introduced at the WCPFC. In the

interim the ISC has begun to explore options for doing this (Stocker 2006, ISC 2008). In particular, the the 2006 assessment report (Stocker 2006) noted that “ a fishing mortality-based reference point ( $F_{SSB-Min}$ ) designed to ensure that SSB in future years remains within the range of the historical ‘observed’ SSB was introduced at an earlier ISC Plenary Meeting conducted in 2005. Even though the ISC forum has not yet determined which reference points are appropriate for North Pacific albacore (or other highly migratory stocks), preliminary discussions within the ISC Plenary forum in 2005 regarding candidate SSB-based ‘thresholds’ to consider, including: minimum ‘observed’, lower 10<sup>th</sup> percentile, lower 25<sup>th</sup> percentile, and median. In this context, at the 95% probability of success, all of the thresholds (lower 10<sup>th</sup> percentile, lower 25<sup>th</sup> percentile, and median) would require reductions in future  $F$  from the current estimated level ( $F=0.75$ ); noting that the future  $F=0.64$  associated with the minimum ‘observed’ SSB target is roughly equal to the current rate. However, this minimum SSB value occurred at the beginning of the overall, estimated time series and necessarily reflects additional uncertainty. Thus, the ISC-ALBWG felt that the thresholds based on the lower 10<sup>th</sup> percentile, lower 25<sup>th</sup> percentile, and median represented more robust and ultimately, precautionary thresholds that should be considered.”

Subsequently, biological reference points based upon proxies of the fishing mortality rate at maximum sustainable yield (MSY) were explored (ISC 2008). The proxies ranged from  $F_{20\%SPR}$  to  $F_{40\%SPR}$ . Note that an  $F_{SPR}$  proxy for MSY is not necessarily the most appropriate choice for a management limit. However, the results are consistent with previous assessment results that the North Pacific albacore stock is experiencing fishing mortality rates that are near full exploitation.

#### **7.4 Implications of Assessment Results for Management**

In response to North Pacific albacore assessments, limits on any further increases in fishing effort have been established by the WCPFC and the IATTC. Should more rigorous measures be needed to control albacore fishing effort, then this implies that mechanisms for international and thus, spatial control might be needed.

#### **8. Economic Research and Bio-Economic Modeling**

Economic research has centered on measuring the annual rate of increase in technical change for the US and Canadian surface hook and line fleet over the period 1981-2006 (Squires and Vestergaard 2009). The empirical analysis employs the catch and days fished data used in the international stock assessments by the population biologists of the fishery’s representative countries (McDaniel, Crone, and Dorval 2006). These catch and days fished data are for all landings by all vessels. Vessel numbers for the U.S. over 1981-2006 were obtained from the PacFIN Research Data Base and for Canada over 1995-2006 were obtained from the Department of Fisheries and Oceans. Econometric estimation of a Schaefer type production function allowed for technical change and technical inefficiency, specified fishing effort as a composite of days fished and vessel numbers, and employed stock estimates from the international stock assessments (Section 7). (The details can be found in Squires and Vestergaard 2009.) The estimated annual rate of technical change was about 3.5 percent. Ultimately, this rate is a residual value, but a confident estimate of annual technical change of at least 2 percent and up to 3.5

percent is warranted.

The annual rate of technical progress is due not to changes in the gear per se, but is due to increased understanding of ocean conditions allowing forecasting of fish locations through temperature sensing devices reinforced by satellites, improvements in interpretation, and GPS, all of which give information about the overall distribution of albacore, dramatically reduces searching, and eases finding schools below the surface. Improved communications and computer technology onboard albacore fishing vessels, as well as shore-based, allow sharing of information among members of code groups, reducing search time, and increasing catch rates. Acoustic devices, such as sounders, are also increasingly sophisticated. The fishing gear itself has remained relatively static. Improved weather forecasts extend the end of the fishing season.

The effect of relatively high rates of fishing power or increase in technology are to undermine the effectiveness of input controls and shift the management focus to an output or catch orientation. A major advantage of a rights-based LAPP management program is that the fishery manager does not have to explicitly account for the growth in technology (although it needs to be incorporated into population assessments). Instead, the market for catch shares accounts for the lowering of fishing costs and increasing catch rates.

Preliminary bio-economic modeling accounting for technical progress and in a surplus production framework demonstrated the importance of accounting for technical change on the optimum resource stock (Squjres and Vestergaard 2009). The empirical results are too preliminary to provide reliable estimates for management purposes, but do illustrate the long-term effects of the steady march of technology on estimates of resource stocks and their optimum use. Not accounting for technical change clearly leads to inappropriate management measures.

## TABLES

**Table 1. Distribution of vessel months used by U.S. and Canadian fleets for 2008.**

Source NMFS/SWRO

### Monthly Vessel Month Utilization

2008							
	June	July	August	September	October	November	Total
US	0	0	24	34	11	4	73
Canada	6	79	110	107	53	4	359

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**Table 2. Pros and cons of input and/or output controls applied to U.S. West Coast albacore fleet.**

CONTROL	PROS	CONS
Establish catch or trip limits; establish TAC	Reduce amount of effective fishing effort and catches of albacore	Likely result in severe economic efficiencies for albacore fleet
Establish size/age limits restricted to larger/older albacore	Increase yield per recruit; greatly reduce catches	Eliminate most of the U.S. albacore fishery which is based on pre-adult 2, 3, and 4 year old fish
Retain only male albacore	Greatly increase abundance of spawning females	Gender is disguisable only by dissection
Establish closed areas	Reduce amount of effective fishing effort if selected correctly	Very difficult to determine because albacore availability, distribution, and vulnerability to capture are markedly affected by changing ocean conditions; difficult to enforce
Limit number of lines or poles fished	Reduce amount of fishing effort	Probably not possible to enforce; during very active catching usually only jigs with short lines are pulled
General use of input and/or output controls	<b>Reduce amount of fishing effort and catches of albacore</b>	Fishers likely would develop technological changes to overcome controls which could have the effect of increasing effort even though nominal effort may remain constant
General use of input and/or output controls	<b>Reduce amount of fishing effort and catches of albacore</b>	Highly migratory behavior and variable seasonal distribution and availability of albacore in West Coast waters would greatly reduce effectiveness of input and/or output controls

**Table 3. Pros and cons of actions for adopting a Limited Entry program for the U.S. West Coast albacore fishery.**

<i><b>ACTION</b></i>	<i><b>PRO</b></i>	<i><b>CON</b></i>
Remove from control date database vessels that have made less than some minimum albacore landing since establishment of control date.	Improve accuracy of control date database.	Vessels with albacore landings below some minimum amount not eligible for LA permit.
Add to control date database vessels that landed more than some minimum amount of albacore since establishment of control date.	Improve accuracy of control date database; makes vessels that made landings after control date established eligible for LA permit,	No obvious con.
Establish moratorium on the issuance of new HMS permits for albacore for 5 years.	Improve accuracy of HMS albacore permit database; no new fishing effort increases.	Eliminate new entries into albacore fishery.
Impose performance criteria for renewal of HMS albacore permit e.g., minimum amount albacore landed.	Improve accuracy of HMS albacore permit database.	No obvious con.
Remove vessels from HMS albacore permit database that have made less than some minimum landing of albacore.	Improve accuracy of HMS albacore permit database.	Vessels with albacore landings below some minimum amount not eligible for LA permit
Adopt Limited Entry program for U.S. West Coast albacore fishery.	Maintain industry viability and preserve health of North Pacific albacore resource.	Eliminate last open access West Coast fishery; possibly eliminate opportunities for some crab, salmon and other vessels to fish for albacore when those seasons are poor; put U.S. at possible disadvantage if other Nations keep open access; cause controversy with Canada over their albacore catches made under Treaty in U.S. EEZ.

**Table 4. Pros and cons of ITQ programs for managing fisheries (taken from Buck 1995 report, National Council for Science and the Environment).**

<b>PROS</b>	<b>CONS</b>
Reduce overcapitalization.	Can increase incentive for fishermen to file false catch reports and 'high-grade'.
Promote conservation of stocks.	Possible for processors or wholesalers to obtain effective monopoly control over landings.
Improve market conditions.	Discourage new entrants into a fishery because of capital investment required to purchase or lease shares.
Promote safety in the fishing fleet	High costs to set and enforce
Slow or eliminate 'race to fish'.	Equity of current approaches to initial allocation of ITQ shares questioned for their creation of wealth and windfall profits and their exclusion of processors and crew
	Can cause substantial unemployment and socio-economic dislocation in coastal communities.
	Administrative processes for implementing ITQ plan can be as long as 5 years or more, this leads to creates the impression that inadequate consideration has been given to "current" fishery participants and can contribute to public opposition.

**Table 5. North Pacific albacore catches (mt) by country and fisheries, 1952 – 2007.**

	Canada	Japan	Korea	Mexico	Taiwan	US	Others	Total
1952	71	68,865	0	0	0	25,262	0	94,198
1953	5	60,868	0	0	0	15,934	0	76,807
1954	0	49,088	0	0	0	12,406	0	61,494
1955	0	40,657	0	0	0	13,850	0	54,507
1956	17	57,208	0	0	0	19,239	0	76,464
1957	8	70,787	0	0	0	21,473	0	92,268
1958	74	40,739	0	0	0	14,910	0	55,723
1959	212	30,121	0	0	0	20,995	0	51,328
1960	5	42,737	0	0	0	20,661	0	63,403
1961	4	36,351	0	41	0	16,253	41	52,690
1962	1	24,737	0	0	0	22,526	0	47,264
1963	5	40,161	0	31	0	28,740	31	68,968
1964	3	39,763	0	0	0	22,627	0	62,393
1965	15	55,324	0	0	0	17,693	0	73,032
1966	44	48,576	0	0	0	17,530	0	66,150
1967	161	59,959	0	0	330	22,646	0	83,096
1968	1,028	41,934	0	0	216	26,302	0	69,480
1969	1,365	51,374	0	0	65	22,195	0	74,999
1970	390	41,319	0	0	34	26,279	0	68,022
1971	1,746	65,691	0	0	20	23,783	0	91,240
1972	3,921	74,513	0	100	187	27,995	100	106,816
1973	1,400	87,449	0	0	0	17,987	0	106,836
1974	1,331	88,237	0	1	486	25,058	1	115,114
1975	111	63,023	2,463	1	1,240	22,858	1	89,697
1976	278	103,612	859	41	686	19,345	41	124,862
1977	53	49,342	792	3	572	12,040	3	62,805
1978	23	80,122	228	1	6	18,442	1	98,823
1979	521	62,984	259	1	81	7,158	1	71,005

**Table 5 (cont.). North Pacific albacore catches (mt) by country and fisheries, 1952 – 2007.**

	Canada	Japan	Korea	Mexico	Taiwan	US	Others	Total
1980	212	65,925	603	31	249	8,106	31	75,157
1981	200	56,611	475	8	143	13,605	8	71,050
1982	104	59,893	500	0	38	7,417	0	67,952
1983	225	43,515	687	0	8	10,059	0	54,494
1984	50	53,952	652	107	0	15,491	107	70,359
1985	56	48,107	867	14	0	9,124	14	58,182
1986	30	39,005	967	3	0	5,391	3	45,399
1987	104	41,842	1,366	7	2,514	3,160	7	49,000
1988	155	31,363	1,425	15	7,389	5,232	15	45,594
1989	140	32,084	1,173	2	8,390	2,386	2	44,177
1990	302	32,629	1,022	2	16,705	3,038	2	53,700
1991	139	30,594	855	2	3,410	2,323	2	37,325
1992	363	41,289	286	10	7,866	5,034	10	54,858
1993	494	46,806	32	11	5	6,788	11	54,147
1994	1,998	59,077	45	6	83	11,969	164	73,342
1995	1,763	52,452	440	5	4,280	9,339	142	68,421
1996	3,316	54,394	333	21	7,596	18,517	2,261	86,438
1997	2,168	74,324	319	53	9,119	17,192	3,281	106,456
1998	4,177	61,776	288	8	8,617	17,020	6,165	98,051
1999	2,734	91,912	107	57	8,186	15,812	6,625	125,433
2000	4,531	54,887	414	103	8,842	12,634	4,247	85,658
2001	5,248	59,851	82	22	8,684	14,618	1,620	90,125
2002	5,379	76,655	113	28	7,965	13,918	855	104,913
2003	6,861	58,849	144	28	7,166	17,044	2,555	92,647
2004	7,856	57,713	68	104	4,985	15,512	2,631	88,869
2005	4,829	38,682	520	0	4,472	10,692	2,527	61,722
2006	5,819	38,948	520	109	4,317	13,266	2,636	65,615
2007	6,112	65,273	520	40	4,317	5,969	2,567	84,798

**Table 6. U.S. albacore troll and bait-boat fleet: No. vessels, vessel-days, and landings, 1996 – 2005.**

<b>U.S. Albacore Troll/Baitboat Fleet: No. Vessels, Vessel-Days, and Landings 1996 - 2005</b>			
<b>Year</b>	<b>No. Vessels</b>	<b>Vessel-Days</b>	<b>Landings (MT)</b>
1996	640	32,717	16,938
1997	1,121	45,572	14,252
1998	755	21,445	14,410
1999	705	34,643	10,060
2000	649	37,331	9,645
2001	870	26,566	11,210
2002	641	25,350	10,387
2003	836	23,442	14,102
2004	734	23,979	13,346
2005	549	25,252	9,122
<b>Average</b>	<b>750</b>	<b>29,630</b>	<b>12,347</b>

**Table 7. Mean number effort-days and landings (mt) of North Pacific albacore made by U.S. commercial fishing vessels by gear type.**

<b>1996 – 2005 Mean Effort-Days and Amount Catch by Gear Type for U.S. Commercial Fisheries Landing Albacore</b>		
<b><u>Gear Type</u></b>	<b><u>Effort Days</u></b>	<b><u>Amount Catch (MT)</u></b>
<b>Troll/Bait-boat</b>	<b>29,630</b>	<b>12,347</b>
<b>Hawaii Longline</b>	<b>2,486</b>	<b>1,048</b>
<b>Other Gears (Gillnet, HI Handline, Purse Seine, etc.)</b>	<b>920</b>	<b>106</b>

**Table 8. Average relative proportional of total U.S. commercial landings by fishery.**

**Average Relative Proportion Total U.S. Commercial  
Albacore Landings by Fishery 1996 - 2005**

<u>Fishery</u>	<u>Percent</u>
Troll/Baitboat	90.4
HI Longline	6.8
Other Gears	2.8

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## FIGURES

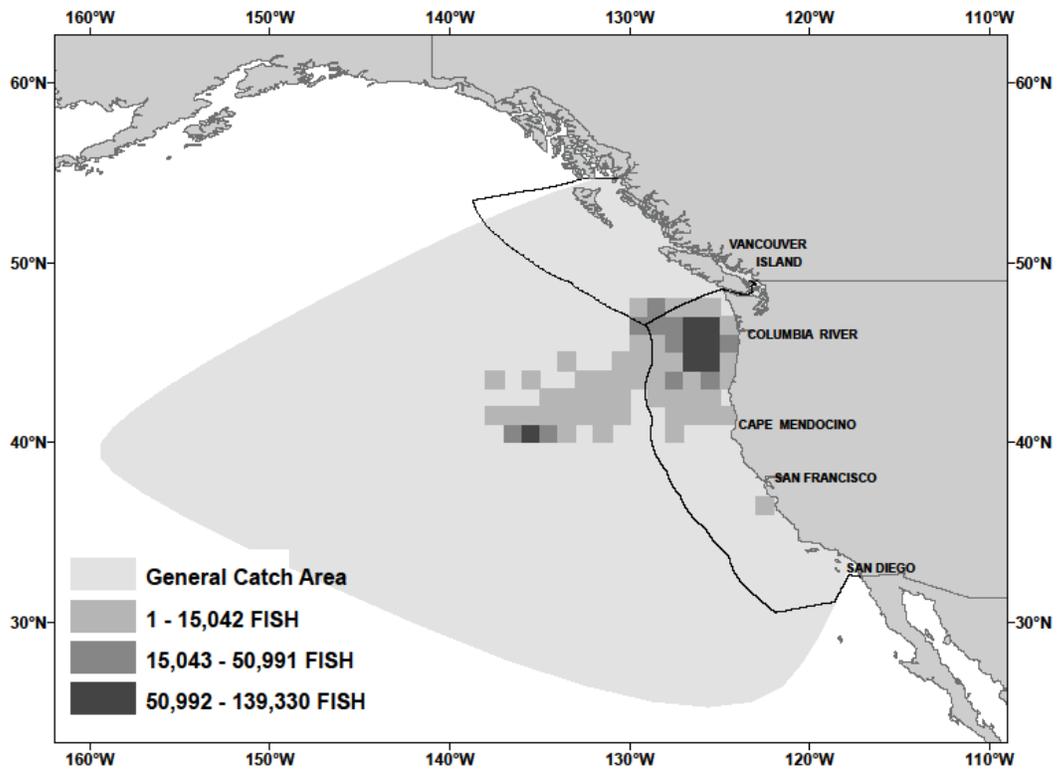
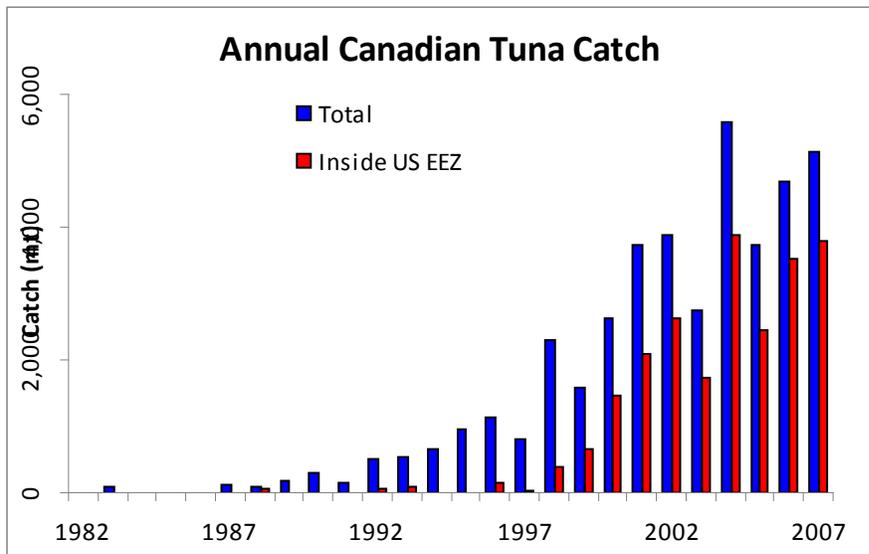
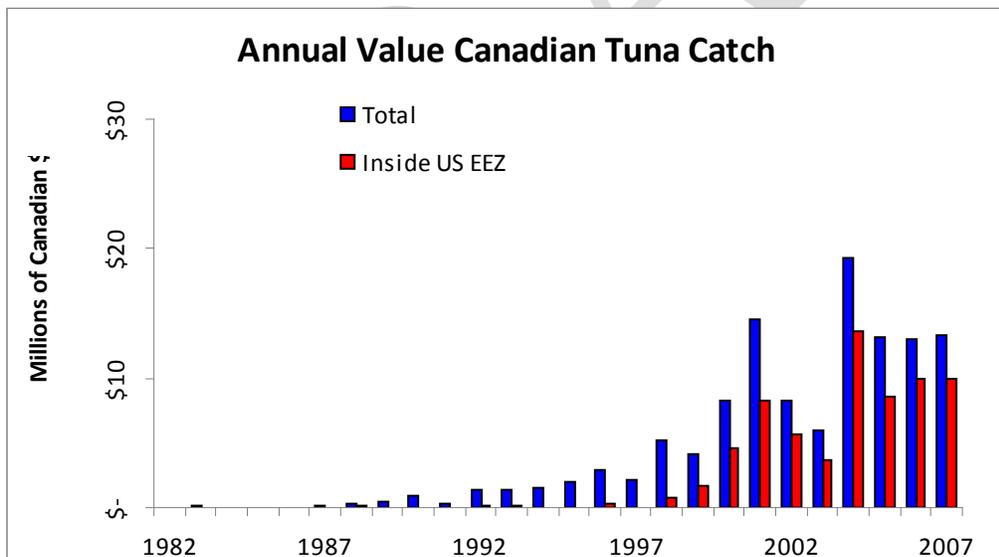


Figure 1. Distribution of albacore catch and effort by U.S. West Coast Fishery, 2008.

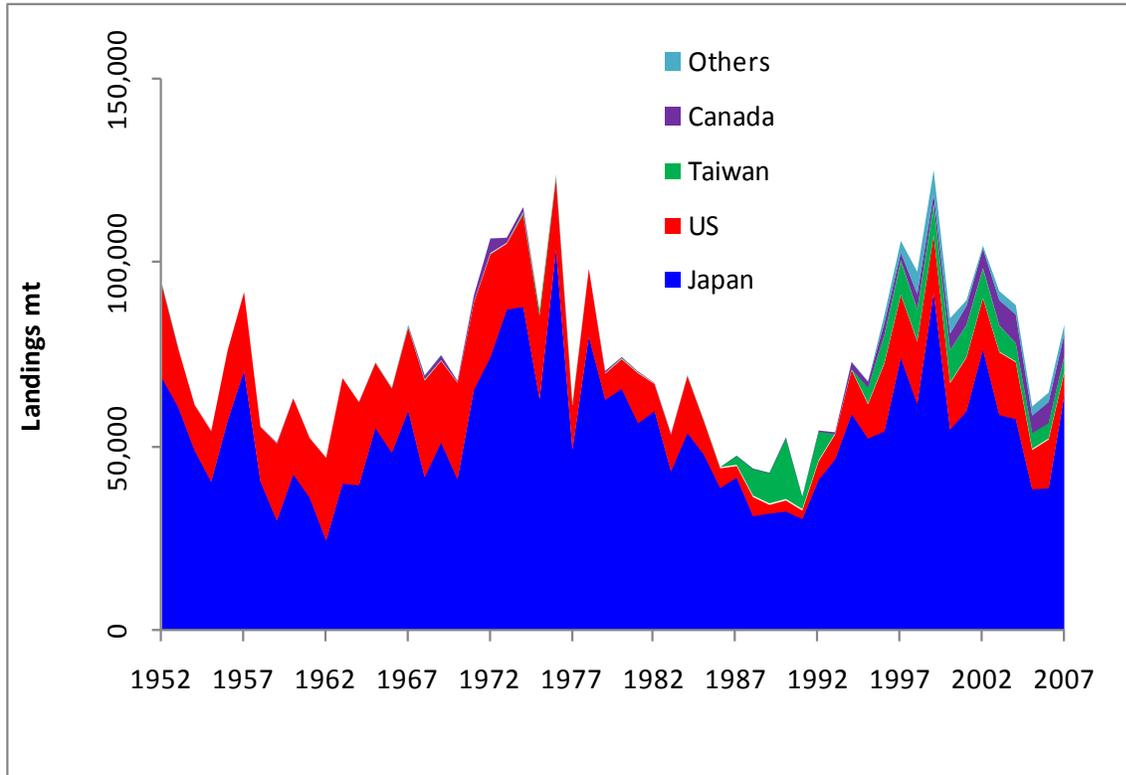
**Figure 2a. Annual Canadian total albacore catch and catch made in US EEZ.**



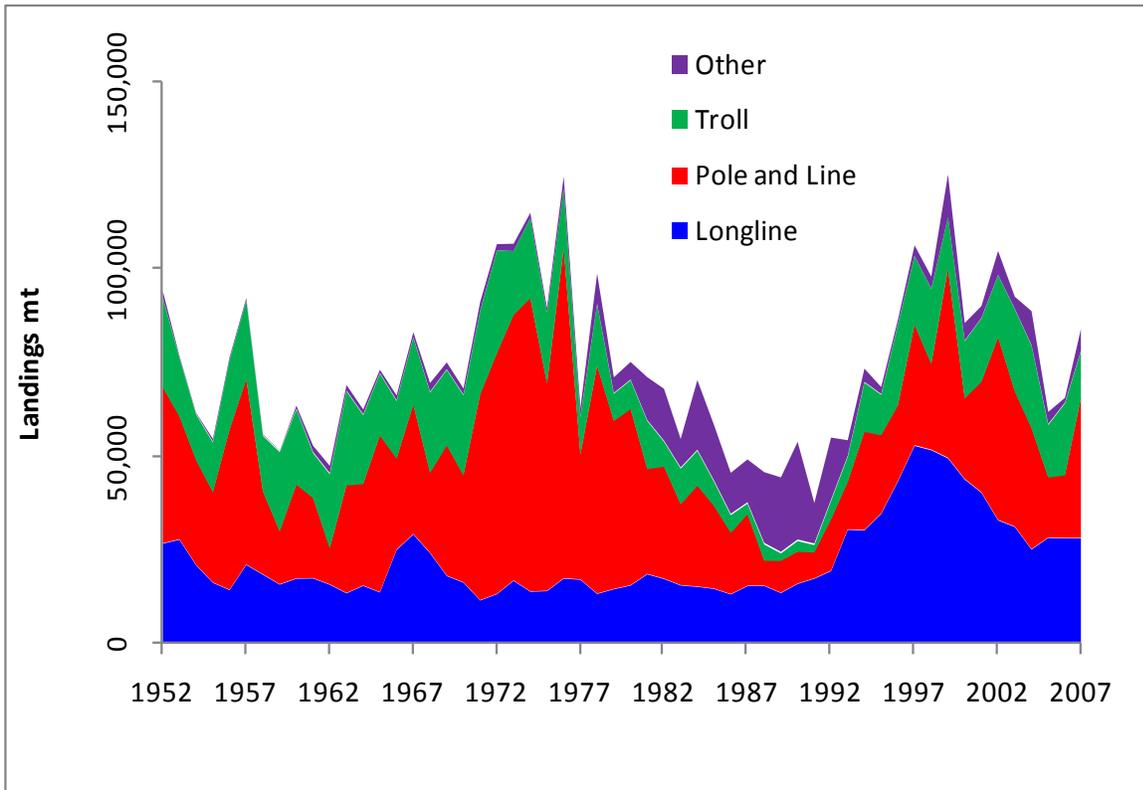
**Figure 2b. Values of annual Canadian total albacore catch and catch made in U.S. EEZ.**



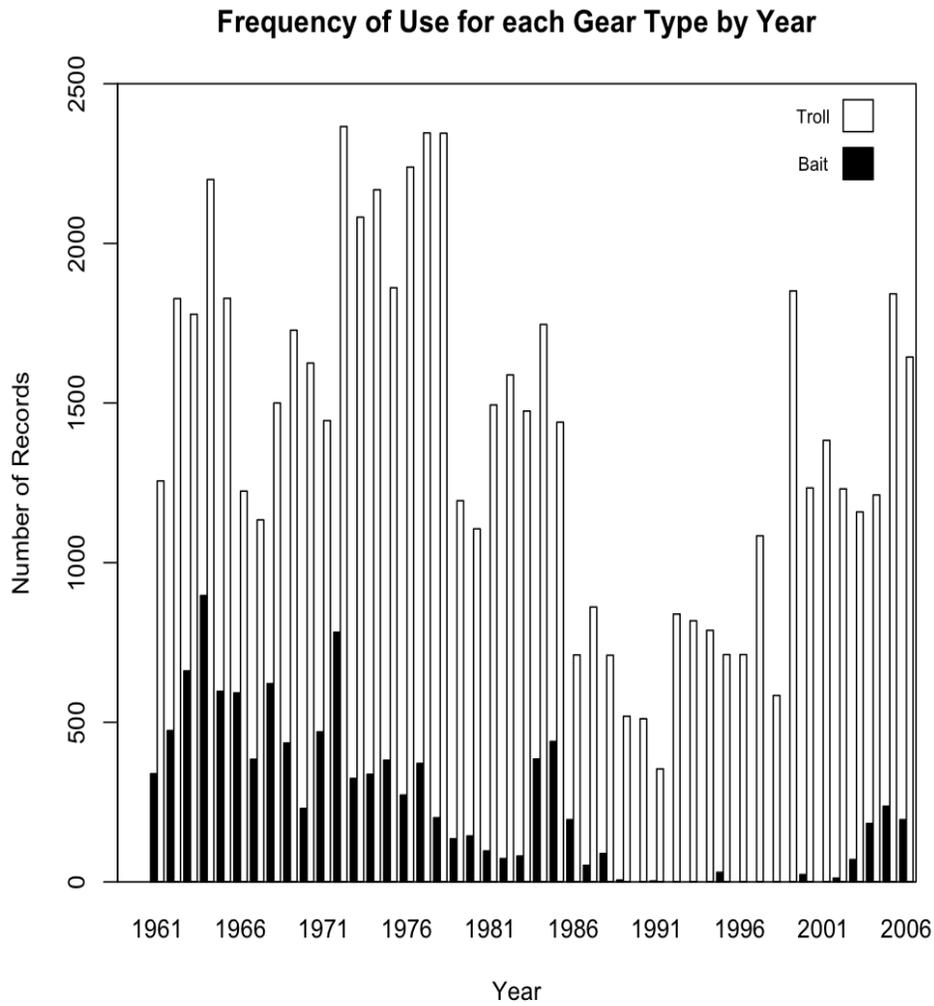
**Figure 3. Total annual North Pacific albacore catch by country.**



**Figure 4. North Pacific albacore catch by gear type.**



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**Figure 5. Relative proportion of troll and baitboat vessels in U.S. West Coast Fishery.** Estimated from frequency of logbook records, 1961 – 2006. From Barr (2009).

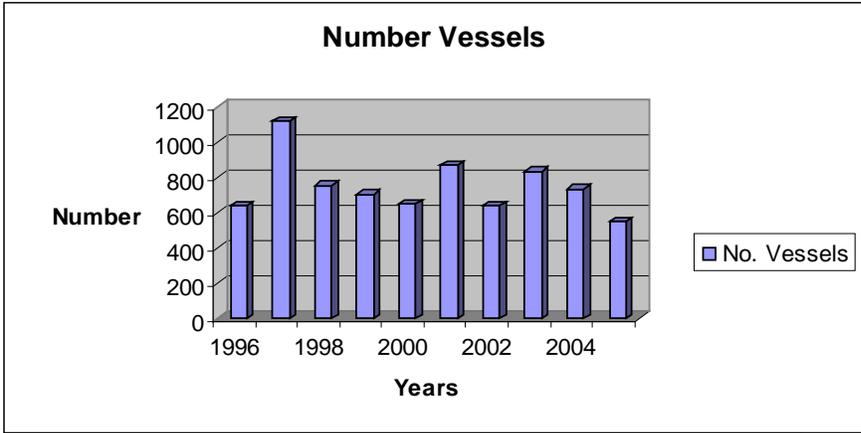


Figure 6a. Number of albacore troll and pole-and-line vessels, 1996 – 2005.

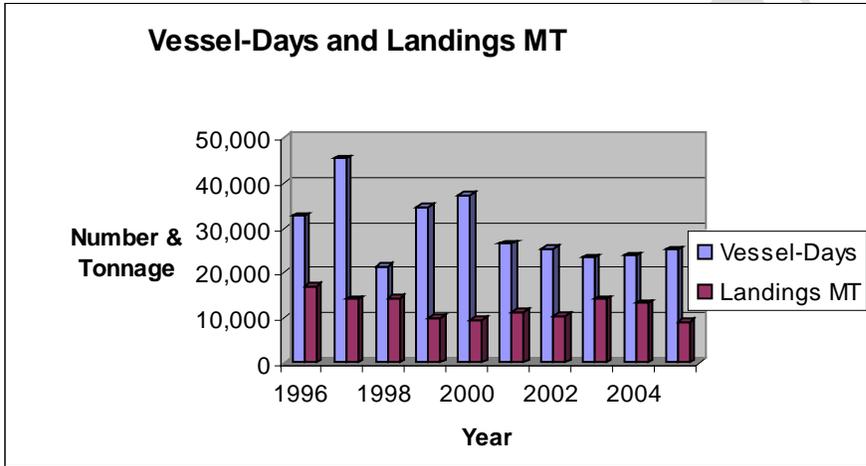


Figure 6b. Number of albacore vessel-days and tonnage, 1996-2005.

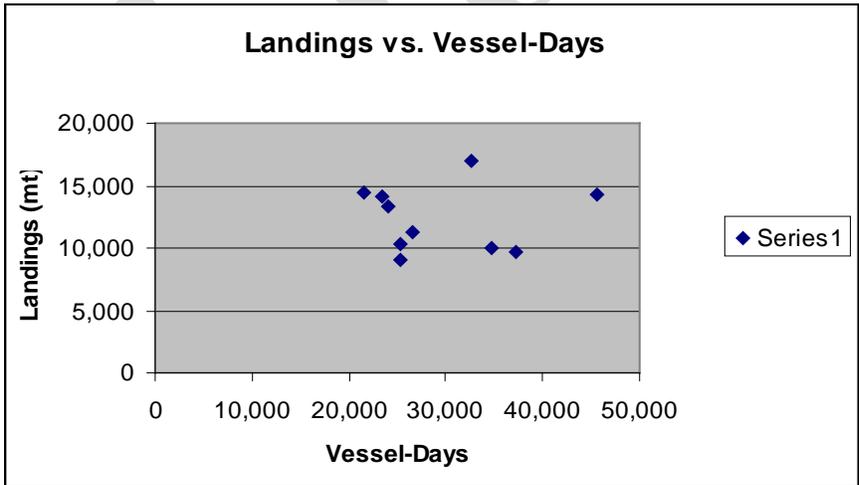


Figure 7. Annual albacore landings vs. vessel-days, 1996 – 2005.

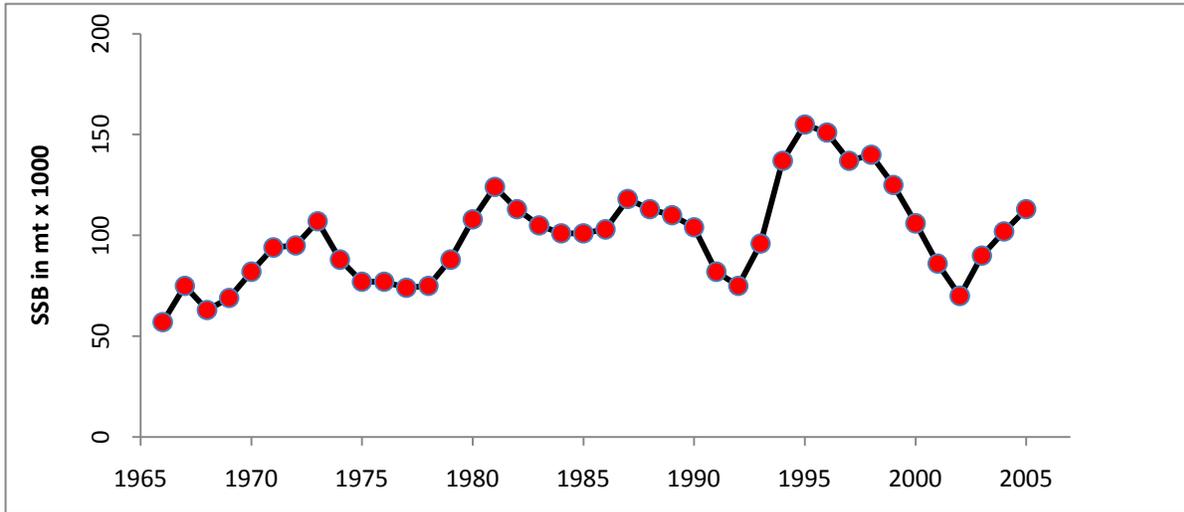


Figure 8a. North Pacific albacore spawning stock biomass.

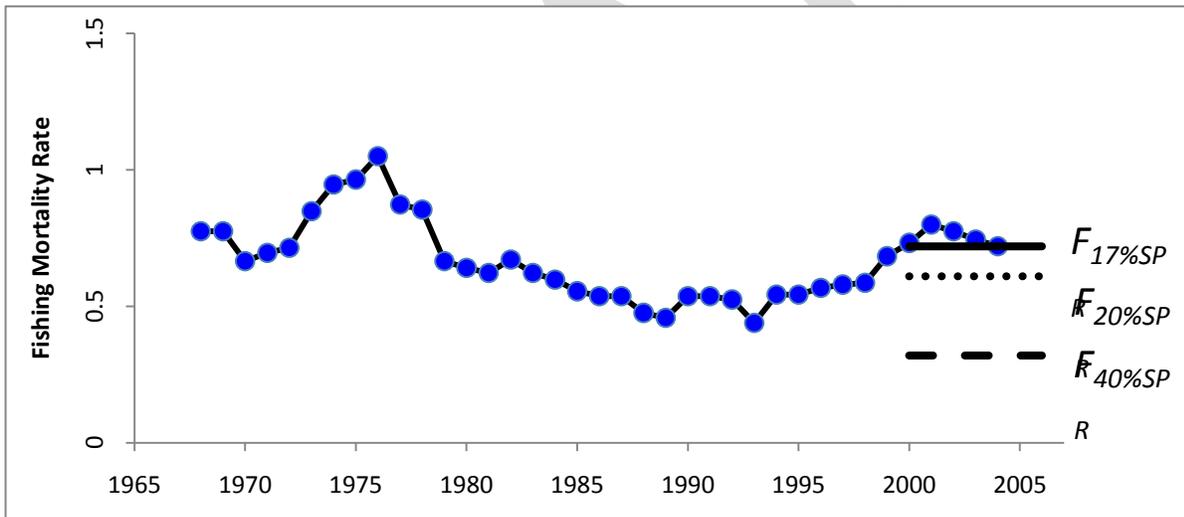


Figure 8b. North Pacific albacore fishing mortality rate.

*APPENDIX*

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## A.1 Management Programs Being Used in Foreign Albacore and Other HMS Fisheries

Country	Species	Management Plan	Determination	Website
Australia (SBT)	<ul style="list-style-type: none"> <li>Southern bluefin tuna</li> </ul>	<p>Output controls comprising Individual Transferable Quotas (ITQs), National catch allocations for member countries were determined and set by the CCSBT at its October 2004 meeting. Australia received a national allocation of 5,265 tonnes and AFMA subsequently set the Australian TAC at this level for the 2004-2005 season.</p> <p>Input control management regime, based on limited entry – ITQs for key species to be implemented under the management plan – expected to occur in early 2007.</p> <p><i>Note: I don't see anything more recent than 2005.</i></p>	<p>Under the <u>Southern Bluefin Tuna Management Plan 1995</u> (the Plan) AFMA must calculate the interim live weight value and the actual live weight value of each Statutory Fishing Right. These values are worked out on the basis of Australia's national catch allocation or provisional national catch allocation, which are determined in accordance with the Plan.</p>	<p><a href="http://www.afma.gov.au/fisheries/tuna/sbt/default.htm">http://www.afma.gov.au/fisheries/tuna/sbt/default.htm</a></p>
Australia (WTBF)	<ul style="list-style-type: none"> <li>Broadbill swordfish</li> <li>Yellowfin tuna</li> <li>Bigeye tuna</li> <li>Albacore tuna</li> </ul>	<p>Under the new Management Plan, input controls, in the form of restrictions on the number of hooks that can be used, are the primary management tool. These controls can be complemented by a range of other tools, including (but not limited to) spatial management and trip limits on certain species.</p>	<p>Note: e-mailed contact on 1/5/08 to find out more information.</p>	<p><a href="http://www.afma.gov.au/fisheries/tuna/wtbf/default.htm">http://www.afma.gov.au/fisheries/tuna/wtbf/default.htm</a></p>
Australia (ETBF)	<ul style="list-style-type: none"> <li>Yellowfin tuna</li> <li>Bigeye tuna</li> <li>albacore tuna</li> <li>broadbill swordfish</li> <li>Striped Marlin</li> </ul>	<p>Under the new Management Plan, input controls, in the form of restrictions on the number of hooks that can be used, are the primary management tool. These controls can be complemented by a range of other tools, including (but not limited to) spatial management and trip limits on certain species.</p>	<ul style="list-style-type: none"> <li>Yellowfin tuna: Not overfished, but subject to overfishing.</li> <li>bigeye tuna: Not overfished, but subject to overfishing.</li> <li>albacore tuna: not overfished or subject to overfishing"</li> <li>broadbill swordfish: stock status is uncertain</li> <li>Striped Marlin: stock status is uncertain</li> </ul> <p>Swordfish and albacore fishes are controlled by TACs. The introduction of transferable effort units or catch quotas for the fishery are currently under review by AFMA.</p>	<p><a href="http://www.afma.gov.au/fisheries/tuna/etbf/default.htm">http://www.afma.gov.au/fisheries/tuna/etbf/default.htm</a></p> <p><a href="http://www.abare.gov.au/publications_html/fisheries/fisheries_08.html">http://www.abare.gov.au/publications_html/fisheries/fisheries_08.html</a></p>
New Zealand	<ul style="list-style-type: none"> <li>Bigeye tuna</li> <li>Pacific Bluefin tuna</li> <li>Southern Bluefin tuna</li> <li>Swordfish</li> </ul>	<p>The Quota Management System (QMS) was introduced because it was seen as the best way to:</p> <ul style="list-style-type: none"> <li>prevent overfishing, which had reached critical levels in some inshore fisheries;</li> <li>improve the economic</li> </ul>	<ul style="list-style-type: none"> <li>the right is not created for a fixed term – it is</li> </ul>	<p><a href="http://www.fish.govt.nz/en-zz/Publications/Historical-Documents/HMS/Proposed+Maanagement+Framework+for+Tunas+and+Other+Highly+Migra">http://www.fish.govt.nz/en-zz/Publications/Historical-Documents/HMS/Proposed+Maanagement+Framework+for+Tunas+and+Other+Highly+Migra</a></p>

## A.1 Management Programs Being Used in Foreign Albacore and Other HMS Fisheries (Cont.)

New Zealand	<ul style="list-style-type: none"> <li>Yellowfin tuna</li> <li>Albacore</li> <li>Skipjack</li> </ul>	<p>efficiency of the fishing industry; and</p> <ul style="list-style-type: none"> <li>continue the development of our deepwater fisheries. (see events leading to the QMS)</li> </ul> <p>QMS -- Proposed Management Framework for Highly Migratory Species</p>	<p>perpetual;</p> <ul style="list-style-type: none"> <li>it secures a fixed percentage of the available resource;</li> <li>it is fully transferable and divisible; and</li> <li>it is a valuable asset that enables owners to borrow against the quota.</li> </ul> <p>"These proposals were declined and albacore and skipjack remain non-quota species. Future consideration of their inclusion in the QMS will be incorporated in the development of fisheries plans for these species during 2009<sup>6m</sup></p> <p>It was concluded that there was <b>no sustainability risk to albacore</b> within New Zealand's exclusive economic zone<sup>7</sup></p>	<p>ton+Species.htm?WBCMODE=PreservationUnpublished++&amp;MShic=65001&amp;L=10&amp;W=albacore++&amp;quot;%20&amp;Pre=%3Cspan%20class%3d'SearchHighlight'%3E&amp;Post=%3C/SPan%3E</p>
France	<ul style="list-style-type: none"> <li>South Atlantic Albacore</li> </ul>	<p>The South Atlantic albacore is the subject of an ICCAT regulation imposing a TAC and France was assigned a specific quota from the Community quota. The Indian Ocean albacore is not so far the subject of specific regulations, but a restriction of the fishing capacity in terms of number of vessels targeting albacore and swordfish should be adopted this year.</p>		<p><a href="http://ec.europa.eu/fisheries/fleet/ind ex.cfm?method=FM_Reporting.Annual_Report">http://ec.europa.eu/fisheries/fleet/ind ex.cfm?method=FM_Reporting.Annual_Report</a></p>
France	<ul style="list-style-type: none"> <li>Temperate Tuna</li> </ul>	<p>Temperate tuna (albacore): These vessels are declared on the ICCAT list of vessels authorized to fish for tuna restrictions are imposed on the activities of these vessels by a quota from a larger Community quota, out of a TAC fixed by the ICCAT and on the fishing effort (restriction to 151 vessels) in accordance with ICCAT.</p>		<p><a href="http://ec.europa.eu/fisheries/fleet/ind ex.cfm?method=FM_Reporting.Annual_Report">http://ec.europa.eu/fisheries/fleet/ind ex.cfm?method=FM_Reporting.Annual_Report</a></p>

<sup>6</sup> Personal communication with Arthur Hore from the New Zealand Ministry of Fisheries, January 13, 2009.

<sup>7</sup> The New Zealand Ministry of Fisheries. "Albacore Tuna (ALB) – Initial Position paper." October 1, 2007, para. 4.

## **A-2. Stock Structure of Albacore Entering West Coast Fisheries**

The stock structure of North Pacific albacore that enter the fisheries off the coast of North America has been based historically on locations of spawning, tagging results, or fishery-related biological information. Scofield (1914 and 1914a) reported the discovery of albacore spawning in the area near Guadalupe Island, Baja Mexico and for about five decades it was surmised that albacore spawned in subtropical waters off Mexico and seasonally migrated along the coast to enter the surface fishery along the west coast of California. Tagging studies conducted in the 1950's showed that North Pacific albacore, particularly sub-adults, undertake trans-Pacific migrations (Clemens 1961, Clemens and Craig 1965, Otsu and Uchida 1959, and others). This led to the belief that there is one stock of albacore in the North Pacific (Otsu and Uchida 1959; Clemens 1961; Otsu and Uchida 1963; Clemens and Craig 1965). However there is a large body of evidence summarized in the section that follows, which indicate that albacore entering the U.S. west coast fishery are not a homogeneous stock, but rather are heterogeneous.

### **A-2.1 Morphometrics**

An early preliminary morphometric investigation of albacore caught off Japan, Hawaii, and southern California concluded that albacore caught off California and off Japan are probably distinct and non-intermingling (Godsil 1948). Japanese albacore were characterized by a relatively shorter head and caudal region and longer abdominal or central trunk than specimens from off California. Hawaiian albacore appeared to resemble the Japanese more than California specimens, but there were insufficient Hawaiian samples to justify conclusions. Schaefer (1952) pointed out that there are shortcomings to defining albacore stock structure using morphometric data. However, the validity of findings using this approach is strengthened when considering the scientific evidence provided by other diverse studies.

### **A-2.2 Size Composition**

Brock (1943) suggested that the North American coastal albacore fishery was comprised of two separate and independent groups of fish. He based this premise on the finding that size compositions of albacore landed in Los Angeles, which were caught off southern California, had larger modal peaks than albacore landed in Astoria, Oregon, which were caught off the Pacific Northwest (Brock, 1943). Similar findings where the size compositions of fish caught in coastal waters from the 'southern' and 'northern' areas have different modal peaks have been reported by other investigators, e.g., Laurs and Lynn 1977, Laurs and Wetherall 1981, Wetherall, et al 1987, and recently by Barr who is investigating the variability in the seasonal migration and size composition of albacore in the U.S. coastal fishery. Barr is using logbook records and size composition data provided courtesy of the NMFS/SWFSC from the albacore fishery database for the years 1961 – 2006 found similar findings.

### **A-2.3 Navy Vessel Offshore Albacore Surveys**

Based on data from a Navy picket vessel survey data of albacore in waters extending several hundreds of miles off the North American coast, Flittner (1963) postulated that albacore congregate offshore and then split into two migratory components: early arrivals

proceed to southern fishery areas off southern and central California and late arrivals turn northward to the coast off Oregon and Washington.

#### **A-2.4 Artificial Radionuclide Concentration in Albacore Livers**

Pearcy and Osterberg (1968) found that off Oregon and Washington that levels, as well as specific activities, of the artificial radionuclide Zn-65 in albacore livers sampled increased markedly during summer months. Association of albacore with the effluent of the Columbia River accounted for this enhancement. Zn-65 concentrations of albacore from southern and Baja California were about 10% of those off Oregon and Washington with no seasonal trends evident. Pearcy and Osterberg stated ... *"We have no evidence either for immigration of Zn-65 tagged albacore into the southern California fishery or for immigration of southern albacore, with low Zn-65 content, into the northern fishery during one season."*

#### **A.2.5 NMFS/American Fishermen Research Foundation Tagging Studies**

Results from tagging studies reported by Laurs and Nishimoto 1979 and summarized in Table 4 in Laurs and Lynn 1991, suggest that at least two subgroups of albacore enter the fishery along the west coast of North America: a 'southern' subgroup south of about 40°N and a 'northern' subgroup north of that latitude. The two subgroups have different migratory patterns, with 'northern' fish making migrations between the eastern and western North Pacific and the 'southern' fish making migrations between the eastern and central North Pacific. There was very little exchange of tagged fish between north and south of 40°N, with less than 1% of fish tagged north of 40°N being recovered south, and vice-versa. About 5% of fish tagged north or south 40°N and recovered after being at liberty one year to three years, were recovered in the opposite area. In previous albacore tagging studies conducted by California Fish and Game during the 1950s, no albacore tagged off Baja or southern California were recovered off Oregon or Washington (Clemens 1961).

#### **A.2.6 Growth Rates**

Laurs and Wetherall 1981 found that albacore tagged and released south of 40°N had significantly higher growth rates than albacore tagged north of 40°N. They proposed that the differences in growth rates between the two subgroups likely explain the dissimilarity in the modal peaks of their respective size compositions. They postulated that the slower growth rates of the 'northern' subgroup result from their high energy requirements for the very long migrations across the North Pacific and that less energy may be available for somatic growth, than for the 'southern' subgroup, which undergo much shorter migrations.

#### **A-2.7 Birth-date Distributions**

Wetherall et al 1987 estimated birth-date distributions for the 'north' and 'south' albacore by using tag release and return statistics, and growth models computed from the tag data. Each of 521 albacore provided two estimates of its birth date, one based on release length and date and another on corresponding recapture statistics. The findings suggest that the 'north' fish are born primarily during the April-October period, with a peak in July; whereas, the 'south' albacore appear to be born mostly during the November-June period, with a peak in February.

### **A-2.8 Migration Patterns by Age at Release**

Wetherall et al 1987 noted that the general variation in tag return patterns between albacore tagged inshore of 145°W in the 'north' and 'south' zones provide interesting results when analyzed by age group. Most of the albacore in the 60 – 70 cm range at time of tagging were made in subsequent years in the area of release. Recaptures from fish in the 70 – 80 cm range and the 80 – 90 cm range when tagged were made in increasingly higher proportion away from their area of release, with a greater percentage coming from the central and western Pacific fisheries. However, albacore in the largest size class and tagged in the 'north' area of the eastern Pacific had a much greater rate of recapture in the western Pacific than their 'south' counterparts. The latter were still recaptured mainly in the region where they were released, or offshore east of the Dateline. This apparent difference in migration behavior of the larger albacore is particularly interesting because these are mature fish. This difference suggests the possibility of separate spawning areas.

### **A-2.9 Fisheries and Stock Structure**

The tagging data demonstrate that the two proposed subgroups are for the most part harvested by different fisheries. Fish north 40°N, which make trans-Pacific migrations between eastern and western North Pacific, are harvested by the U.S. troll/pole-and-line fishery north of 40°N and the Japanese baitboat and Asian longline fisheries west of the Dateline. Whereas, fish south 40°N, which make migrations between the eastern and central North Pacific, are fished on by the U.S. troll/pole-and-line fishery south of 40°N and the Asian and Hawaii longline fisheries east of the Dateline.

### **A-2.10 Length of Fishing Season and Catch Rates**

Preliminary findings made by Barr (in prep.) show that the 1) distribution and spatial range of the fishery oscillates between the north and south areas over periods lasting about a decade or more; 2) average season length in northern area is 96 days and in the southern area is 146 days; 3) average annual catch per day (CPUE) is 77.6 and 48.2 fish/day north and south of 40°N, respectively; and 4) the average CPUE during peak months of the fishing season is higher in the northern area than in the southern area (Figure 2). The results are compatible with the proposed stock heterogeneity of albacore entering the coastal waters of North America.

### **A-2.11 Research Needed**

Information gathered from a broad range of sources indicates that a better understanding of the possibility of stock heterogeneity of North Pacific albacore may be needed to effectively manage the resource. Appropriate genetic studies are required to further investigate the likelihood that two subgroups of albacore enter the U.S. albacore fishery. In addition, stock assessments of North Pacific albacore, which have assumed a single stock, need to be evaluated regarding the likelihood of albacore stock heterogeneity. It may be found that it is necessary to structure management actions for specific fisheries and/or segments of fisheries.

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# **Briefing on U.S. West Coast North Pacific Albacore Tuna Fishery**

**R. Michael Laurs, PhD & Joseph Powers, PhD**

**Pacific Fisheries Management Council Meeting  
October 31 – November 1, 2009  
Costa Mesa, CA**

# Topics For Briefing

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- **Introduction and background information.**
- **Description of the North Pacific albacore resource, e.g., biology, ecology, habitat, and stock structure.**
- **Fisheries operating on North Pacific albacore stock(s).**
- **Stock status of the North Pacific resource.**
- **Present domestic management measures in place on the U.S. West Coast albacore fishery.**
- **Possible management options for U.S. West Coast albacore fishery.**
- **Summary.**

# Purpose of Presentation

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- **The purpose is to provide PFMC with information for use in deliberations to consider initiating a framework process to maintain or limit fishing effort by the U.S. West Coast albacore fishery to:**
  - ✓ **Maintain the health of the North Pacific albacore resource.**
  - ✓ **Ensure the viability of the U.S. West Coast albacore fishery.**

# Background Information

- **North Pacific albacore is a Highly Migratory Species (HMS) harvested by many countries.**
- **International management of the North Pacific albacore resource and the fisheries operating on it are shared by the Inter-American Tropical Tuna Commission (IATTC) and the Western and Central Pacific Fish Commission (WCPFC).**
  - ✓ **Commissions formulate overarching regulations.**
  - ✓ **Member states negotiate mechanisms and once agreed upon, actual implementation is left to individual member and cooperating countries.**
  - ✓ **PFMC has the lead for formulating management measures for U.S. West Coast albacore fishery.**

# Background Information

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- **North Pacific albacore resource is not overexploited.**
- **However, excess fishing capacity may be a problem because fishing effort appears to be above levels that are sustainable in the long-term.**
- **Resolutions adopted by IATTC and WCPFC call upon member and cooperating parties to take necessary measures to ensure that the level of fishing effort by their vessels fishing for albacore is not increased beyond current levels and to report all catches to the Commissions at 6-month intervals.**
- **Article 64 UN Law of the Sea Convention mandates States to cooperate through international organizations to ensure conservation of tuna.**

# Albacore Life History, Biology and Ecology

- **Highly migratory tuna found in all global oceans and Mediterranean Sea.**
- **Matures at 5 or 6 years, lifespan 10-12 years.**
- **Highly fecund 0.8-2.6 million eggs, spawning throughout year with peak in summer in western and central Pacific and in winter in eastern Pacific.**
- **Growth rates moderate.**
- **Many physiological and morphological specializations for continuous swimming to overcome negative buoyancy and ram-jet ventilation of gills.**
- **Endothermic with body core temperatures up to 10°C above ambient.**

# Habitat and Ecosystem

- **Habitat is in open ocean pelagic waters.**
- **Oceanic frontal structure greatly influences distribution (including migration routes and rates), relative abundance, availability, and vulnerability.**
- **Albacore distribution and availability may fluctuate extensively over a range of spatial and temporal scales that are related to ocean-atmosphere interactions, ocean tele-connections, and climate variability, e.g., El Nino has negative effects on abundance of South Pacific albacore, likely same on North Pacific.**
- **Vertical habitat related to vertical thermal structure, i.e., mixed layer depth and thermocline. Vertical distribution of pre-adults is shallower than adults.**

# Stock Structure

- **There are separate and distinct stocks of albacore in the northern and southern hemispheres of the Pacific Ocean. There is increasing evidence that there may be stock heterogeneity in both hemispheres.**
- **A large body of evidence from diverse sources indicates albacore entering North American west coast north and south of about 40°N are likely two separate subgroups of fish, but with some mixing among the two subgroups.**
- **Stock structure of North Pacific albacore is not fully understood and is a priority need for further research.**

# Fisheries Operating on North Pacific Albacore

- **North Pacific albacore are targeted or caught incidentally by fleets from several Nations using pelagic longline, pole-and-line, and troll fishing methods. Small amounts of albacore are also caught by other gears types.**
  - ✓ **Pelagic longline fisheries conducted by Japan and Chinese-Taipei target albacore in the western and central North Pacific; Hawaii-based and Korean longline fisheries targeting swordfish or other tunas catch albacore incidentally in the central North Pacific.**
  - ✓ **Pole-and-line fishery conducted by Japan targets albacore in the western Pacific.**
  - ✓ **Troll/pole-and-line fishery by the U.S. and troll fishery by Canada target albacore in the eastern Pacific.**
  - ✓ **U.S. recreational fishery and small incidental or directed catches of albacore taken by various fisheries in North Pacific.**

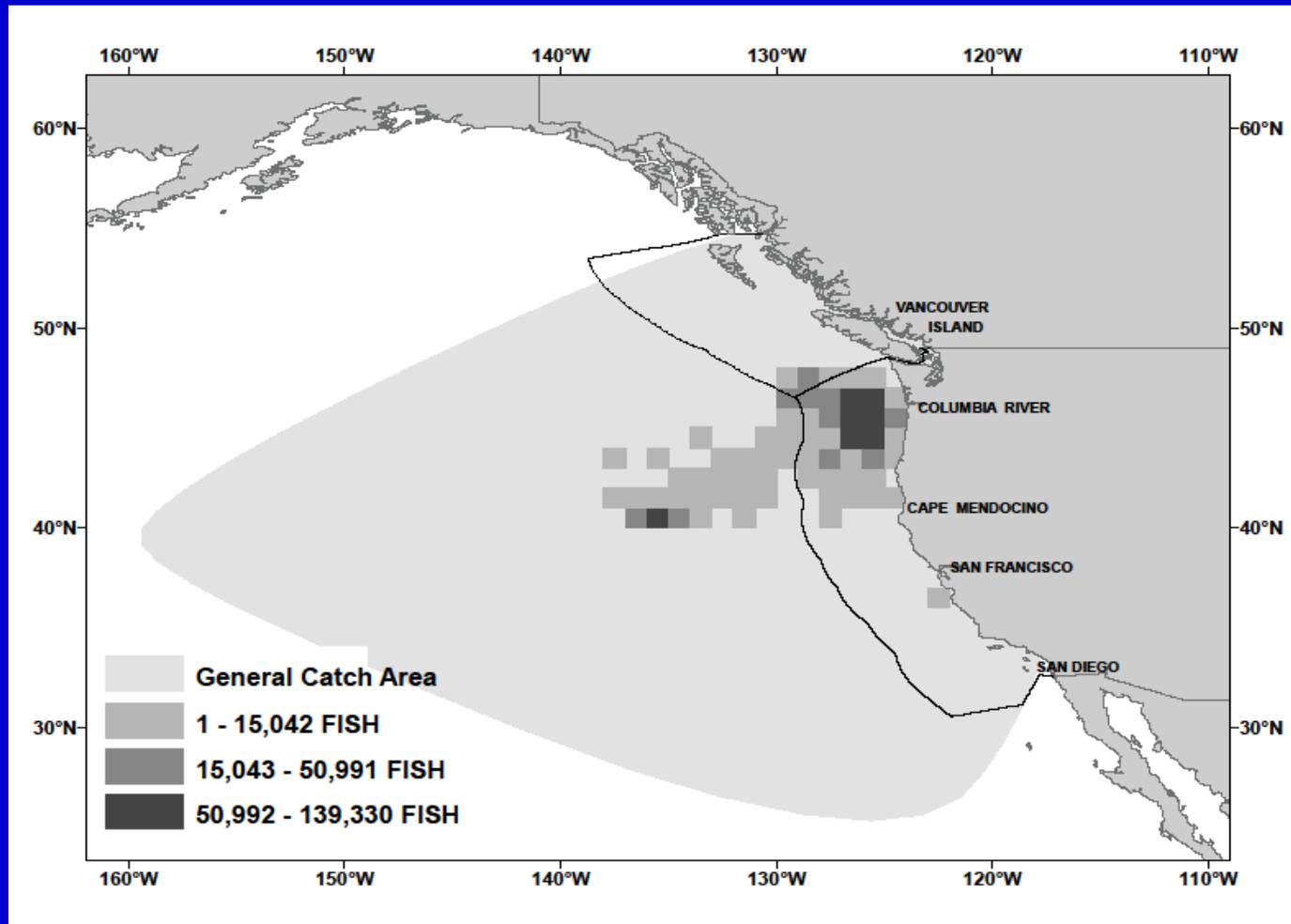
# History of U.S. North Pacific Albacore Troll Fishery

- **Began off southern California in 1903 with experimental pack of 700 cases canned which led to development of U.S. tuna canning industry.**
- **Seasonal fishery mostly early July – late October.**
- **From southern California gradually spread northwards in coastal waters and extended to Northwest in late 1930's.**
- **Early 1900's until late 1970's operated mostly within 200 miles of the coast. Late 1970's until about 2000, fishers with larger boats began troll fishing in early spring months as far west as 180° and beyond to intercept albacore migrating to the coast. Since 2000 the fishery has operated mostly within a few hundred miles of coast.**

# History of U.S. North Pacific Albacore Pole-and-Line Fishery

- **Started same time as troll fishery, but linked to U.S. tropical tuna fishery after 1918, when a poor albacore catch forced pole-and-line boats to shift to tropical tunas to fill cannery demand for tuna. In subsequent years, even when albacore availability was high, the amount of effort expended for albacore depended on events in the tropical tuna fishery.**
- **In late 1980's U.S. vessels were prevented from catching bait in Mexico EEZ and most pole-and-line vessels were sold to other countries or converted to troll fishing.**
- **Resurgence in pole-and-line fishing for albacore began about 2003; up to about 50 vessels are presently using this method in U.S. fleet.**

# Distribution U.S. West Coast Albacore Fishery Catches 2008

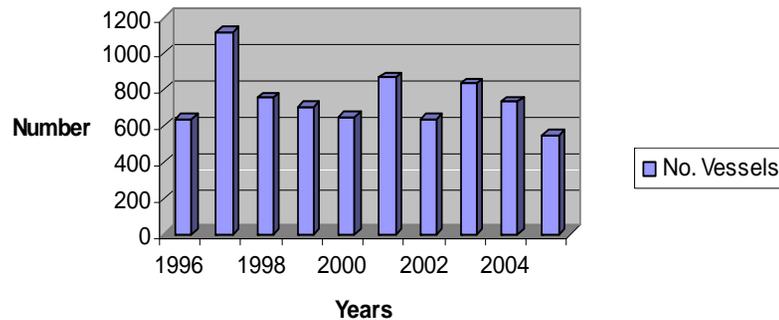


# Trends In U.S. Albacore Commercial Fishing Effort

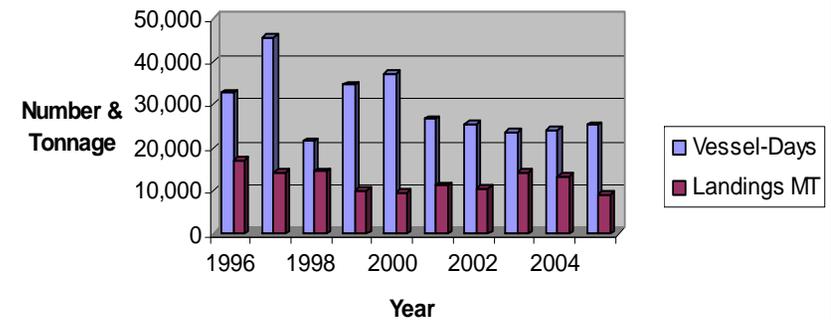
- About 500 vessels in 1940's.
- High of about 3,000 vessels reached in 1950's.
- Dropped to about 1,000 by 1960.
- Climbed to 2,100 in 1970's.
- Dropped to about 500 in late 1980's.
- Average 750 during mid-1990's to 2006.
- Analysis of number U.S. commercial vessels, amount of fishing effort (vessel-days), and albacore landings for years 1996-2006 completed in response to PFMC request to HMSMT. Work led by Suzy Kohin NMFS/SWFSC.

# U.S. West Coast Troll/Pole-and-line Fleet, 1996 -2005

Number Vessels



Vessel-Days and Landings MT



- Except for peak in 1997, number more-or-less constant, but with steady slight declines during 1998 – 2000 and 2003 – 2005.

- Except for a peak in 1997, effort somewhat variable, but a little bit higher in first five years of data than last five.
- During 2003 – 2005 effort increased very slightly while the number of vessels and the amount of landings decreased slightly.

# 1996 – 2005 Annual Mean Effort-Days and Amount Landings of North Pacific Albacore by Gear Type for U.S. Commercial Fisheries

<u><i>Gear Type</i></u>	<u><i>Effort -Days</i></u>	<u><i>Amount Catch (MT)</i></u>
<b>Troll/Pole-and -line</b>	<b>29,630</b>	<b>12,347</b>
<b>Hawaii Longline</b>	<b>2,486</b>	<b>1,048</b>
<b>Other Gears (Gillnet, HI hand line, Purse seine, etc.)</b>	<b>920</b>	<b>106</b>

# Average Proportion U.S. North Pacific Albacore Catch by Gear Type, 1996-2005

<u>Gear Type</u>	<u>Percent Catch</u>
Troll/pole-and-line <sup>1</sup>	90.4
Hawaii-based longline	6.8
All other gears <sup>2</sup>	2.8

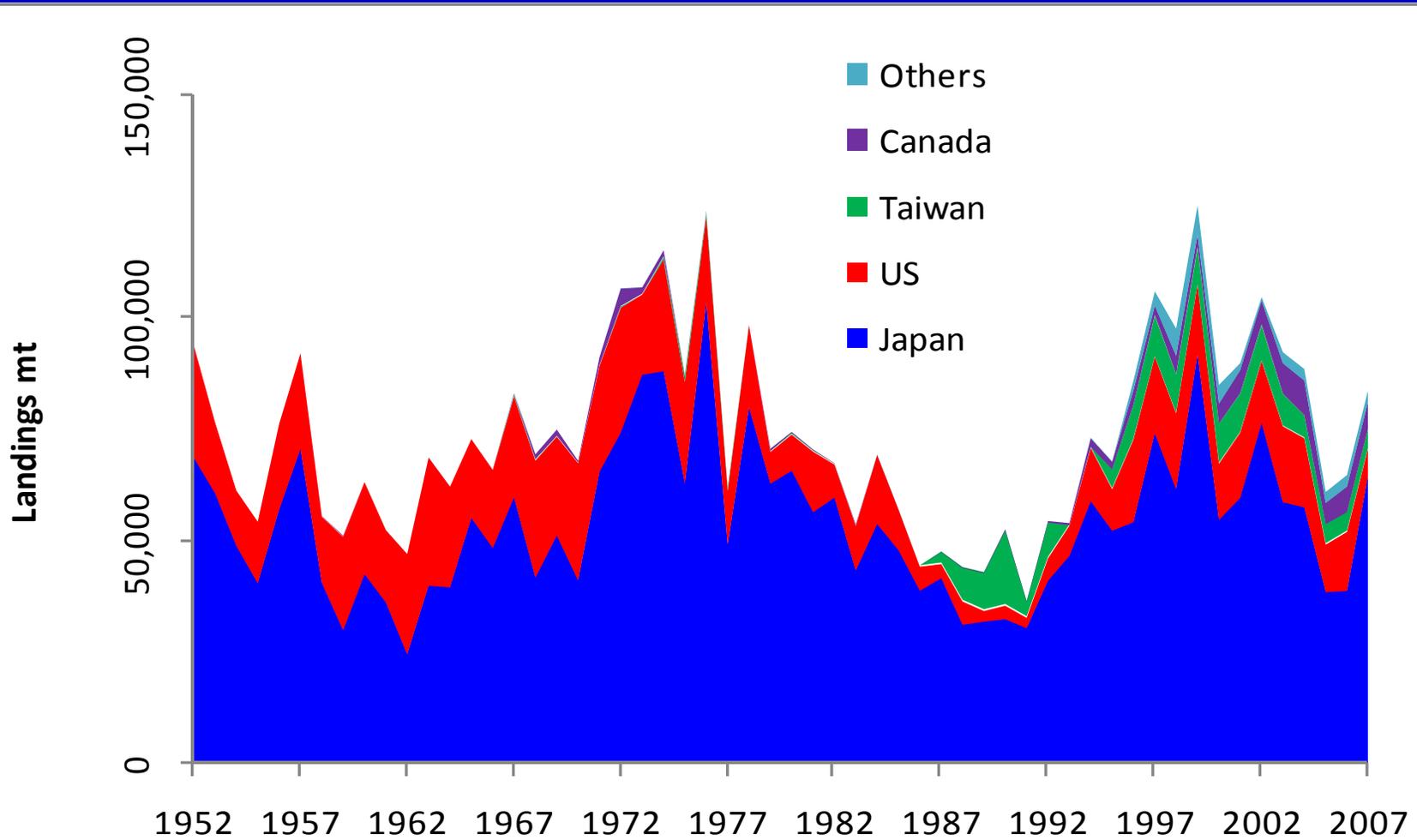
<sup>1</sup> WA does not separate pole-and-line from troll

<sup>2</sup> CA swordfish/shark gillnet, purse seine, HI-based hand line, etc.

# North Pacific Albacore Fishery Statistics and Total Catch

- **Fishery statistics available by country for 1952 to present.**
  - ✓ Early years data often limited to catch by gear type.
  - ✓ Recent years data from countries improved and expanded to include: catches and number of vessels, summarized catch and effort, and size composition.
- **Total landings by all countries during period 1952 – 2007:**
  - ✓ Highest annual total landings 125,433 tm in 1999
  - ✓ Lowest annual total landings 37,325 tm in 1991
- **During 5 year period 2003 – 2007**
  - ✓ Total annual landings ranged from 62,722 tm to 92,647 tm.
  - ✓ Average total annual landings 78,730 tm.

# North Pacific Albacore Catch by Country

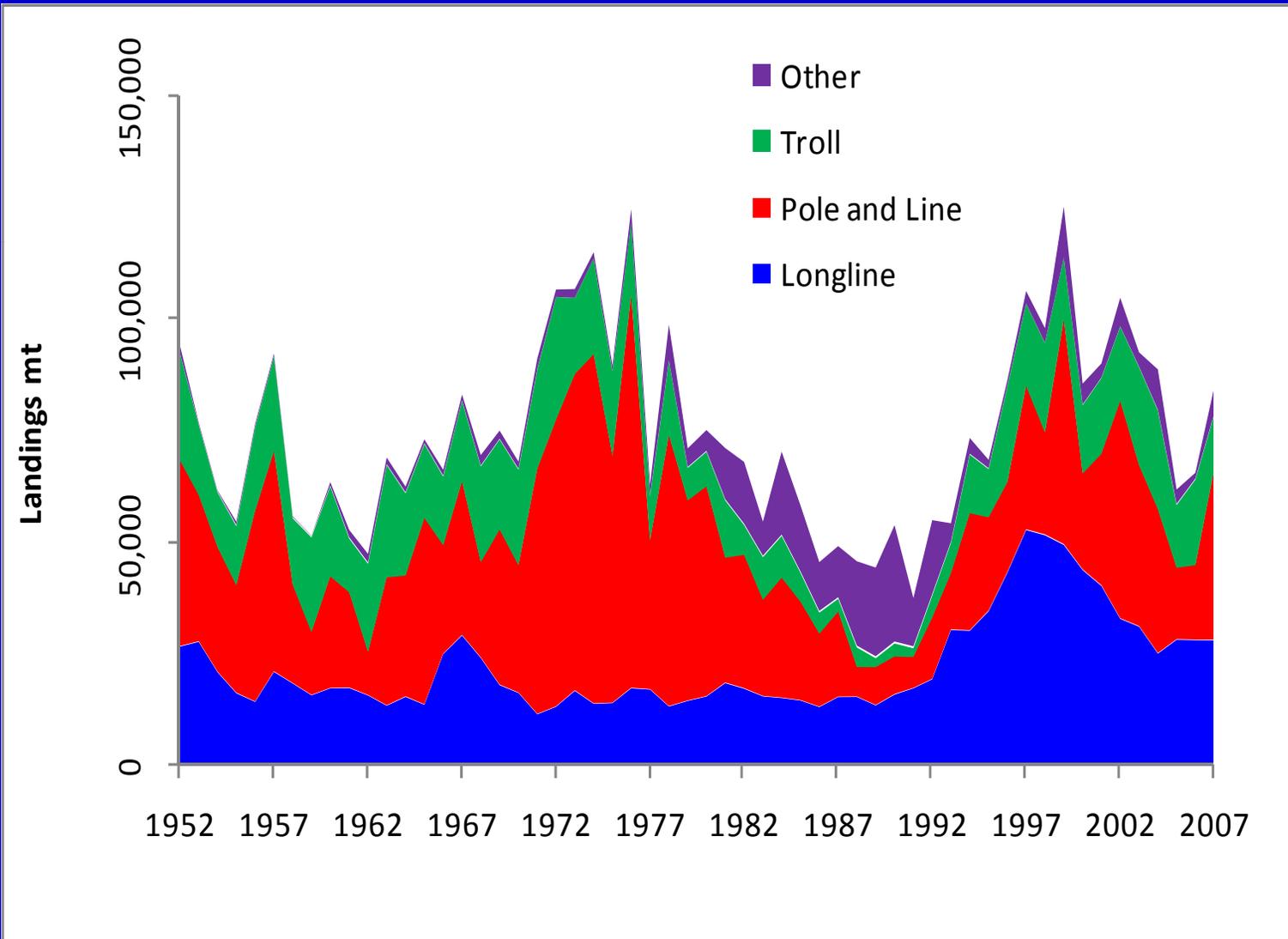


# Proportion of North Pacific Albacore Catch by Country During Recent 5 Years

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<u>Country</u>	<u>Percent</u>
Japan	67
U.S.	16
Chinese Taipei	8
Canada	6
All others	3

# North Pacific Albacore Catch by Gear Type



# North Pacific Albacore Catch by Gear Type During Recent 5 Years

<u>Gear Type</u>	<u>Percent</u>
Pelagic longline	38
Pole-and-line	37
Troll	20
All other <sup>1</sup>	5

<sup>1</sup> Includes U.S. recreational hook & line

# Asian Gillnet and Illegal Unreported and Unregulated (IUU) Fishing

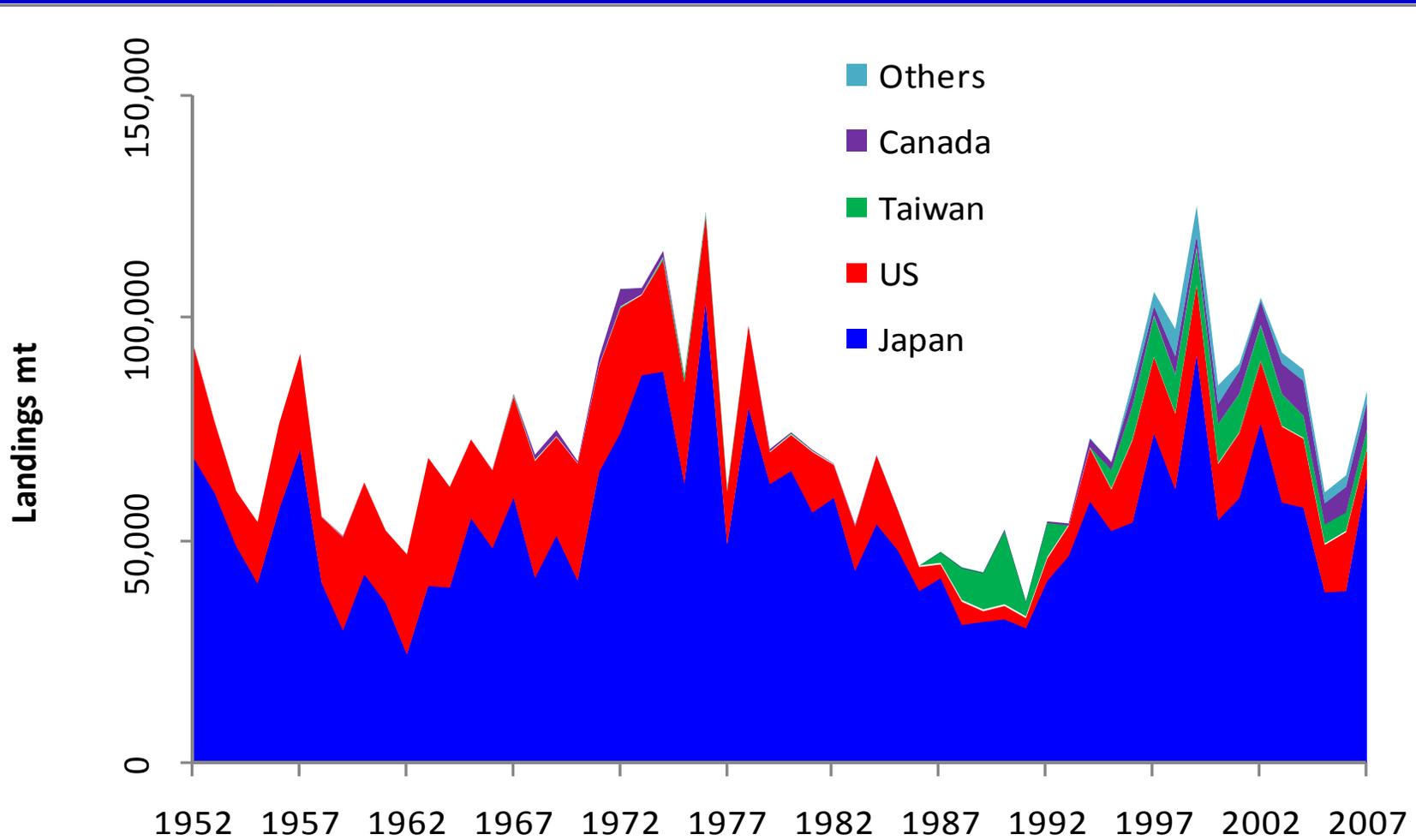
- **Asian gillnet fishery operated across nearly the entire North Pacific during 1970's and early 90's.**
  - ✓ Made very large catches of juvenile albacore.
  - ✓ Halted by UN in 1992.
- **Some IUU drift gillnet fishing apparently continues to take place in the North Pacific, which likely catches some albacore.**
  - ✓ Magnitude of IUU fishing is difficult to estimate.
  - ✓ Accurate amount of albacore caught is largely unknown.

# North Pacific Stock Assessment

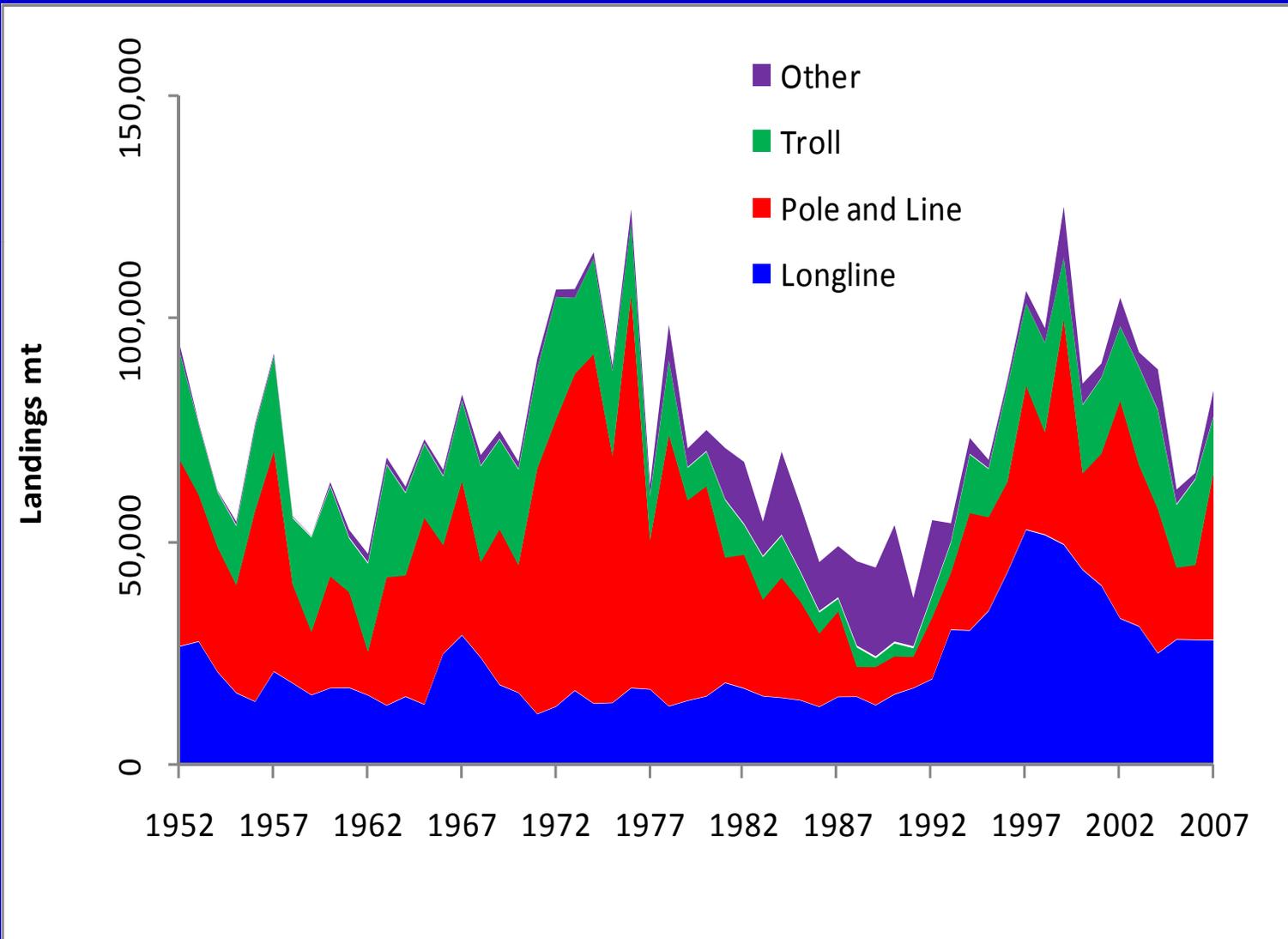
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- **Scientific monitoring by International Scientific Committee for Tuna and Tuna-like Species in the North Pacific Ocean (ISC) and its predecessor, the North Pacific Albacore Workshop for the last several decades.**
- **Last assessment December, 2006**
- **Next assessment in 2011**

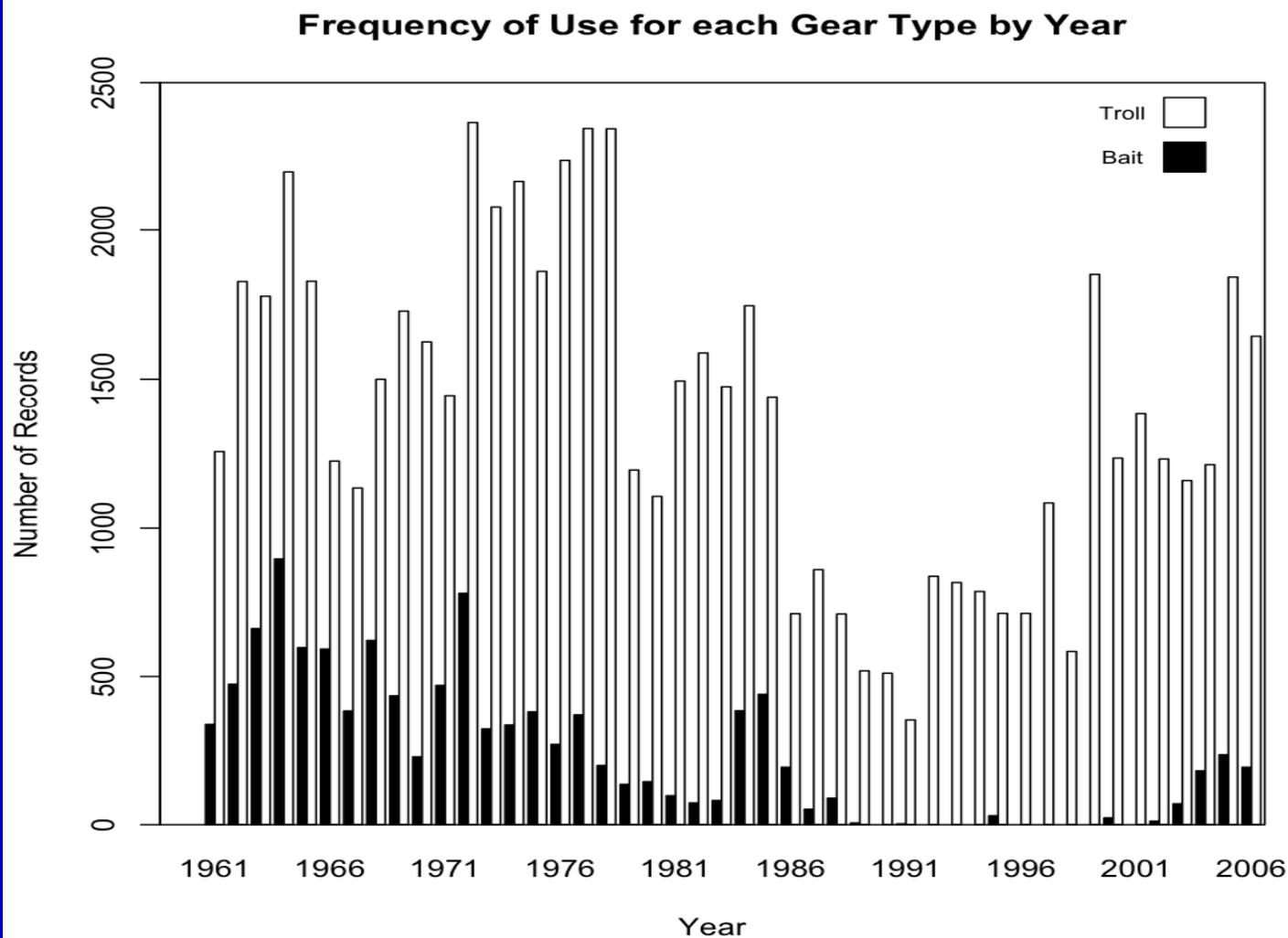
# North Pacific Albacore Catch by Country



# North Pacific Albacore Catch by Gear Type



# Frequency of Records by Gear Type in NMFS Albacore Logbook Database (from Barr)



# Assessment Data

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- **Assessment based upon biological characteristics (growth, mortality, reproduction, spatial distribution)**
- **Catches and catches at size and catches at age (CAA)**
- **Indices of abundance [standardized catch per unit effort (CPUE)]**
- **Limited tagging data**

# Assessment Methods

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- **Modeling: estimate the set of parameters which best explain the changes in the data (CPUE, CAA, etc)**
- **Current modeling by virtual population analysis (VPA)**
- **Future modeling to include Stock Synthesis 2 (SS2)**

# Indices of Abundance

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- **Longline indices, troll indices and pole and line indices from Japanese, US and Taiwanese fisheries**
- **Statistically standardized to remove spatial, seasonal and other factors that are unrelated to albacore abundance.**

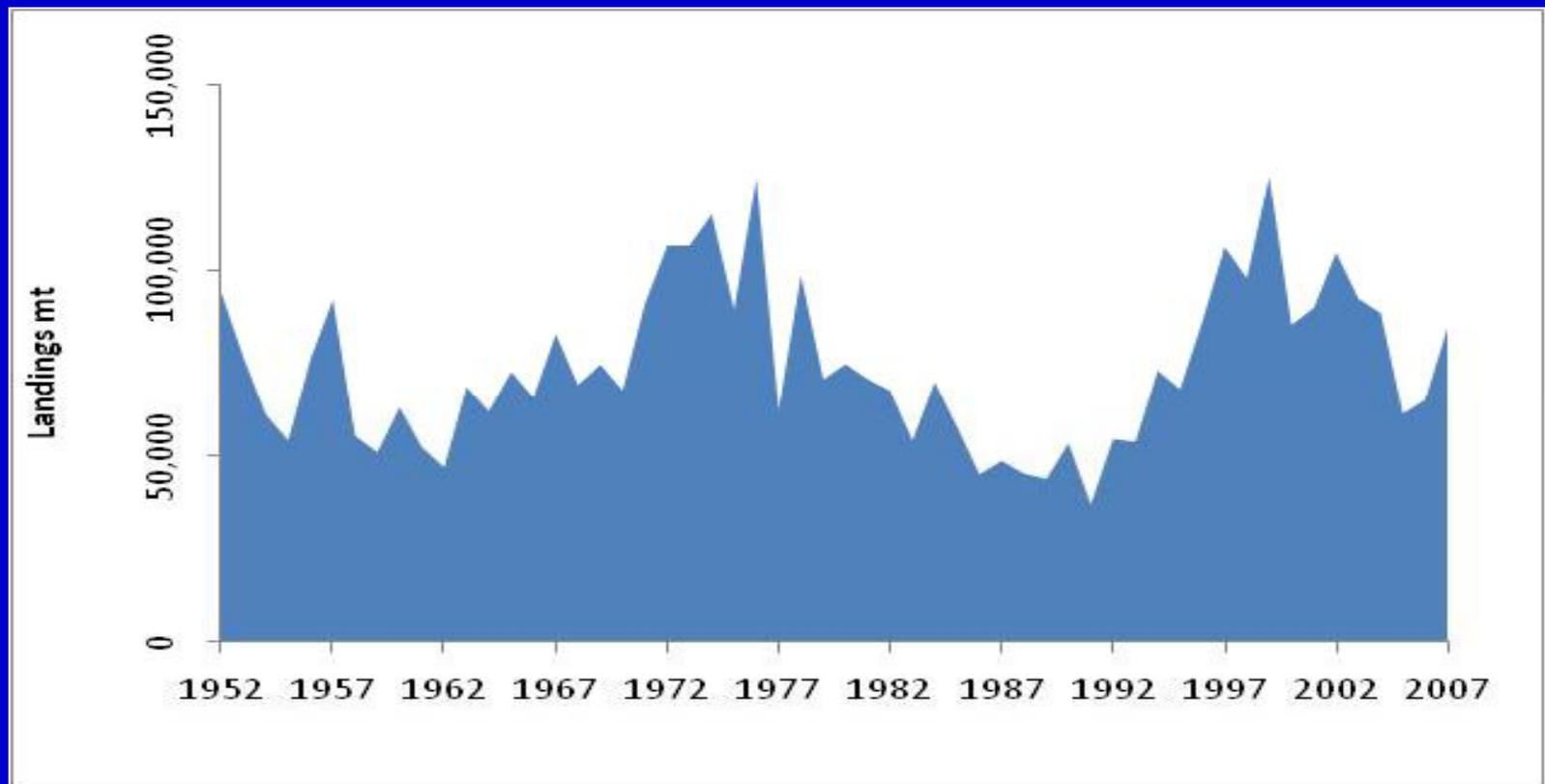
# Assessment Results

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- **Current status**
  - ✓ **Catch**
  - ✓ **Spawning Stock Biomass (SSB)**
  - ✓ **Fishing mortality rate**
  - ✓ **Recent recruitment**

# Assessment Results

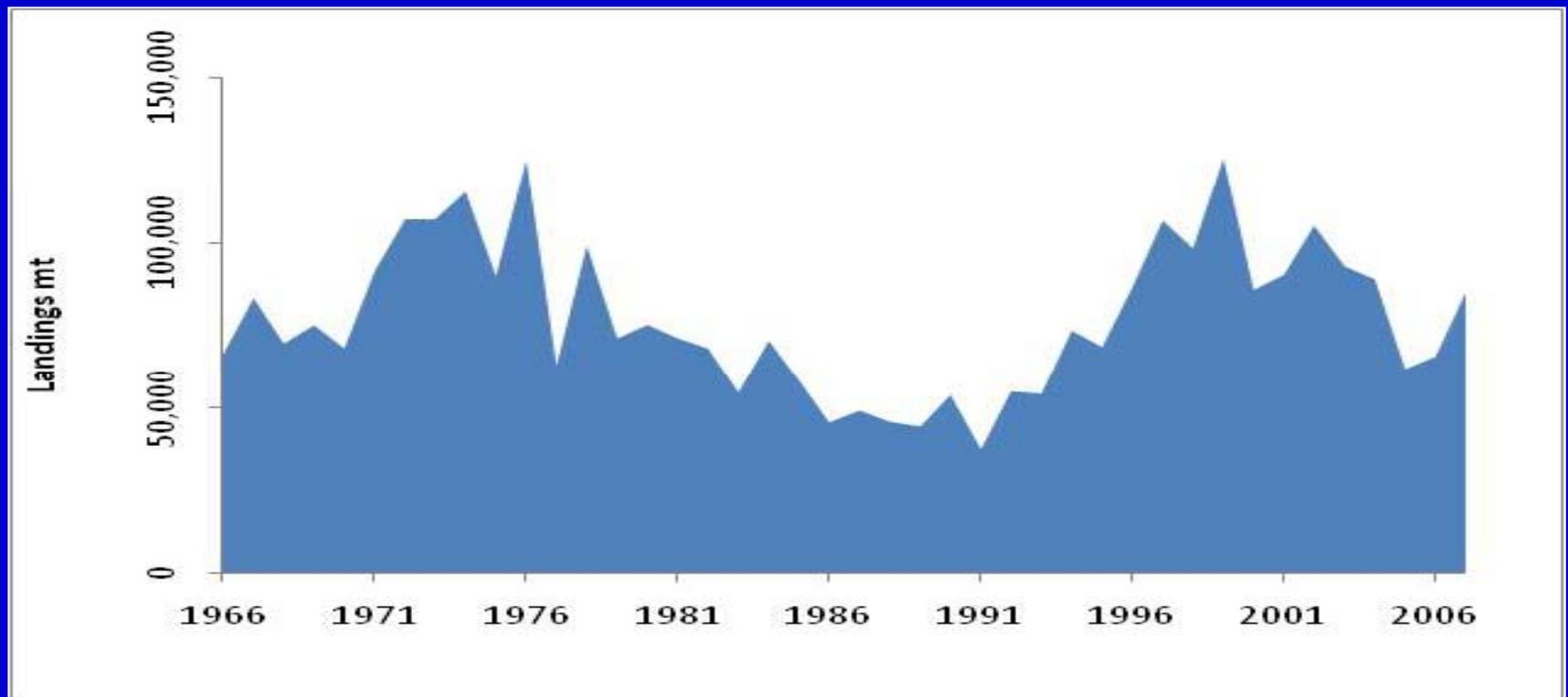
- **Current status**
  - ✓ **Catch (1952-2007)**



# Assessment Results

- **Current status**

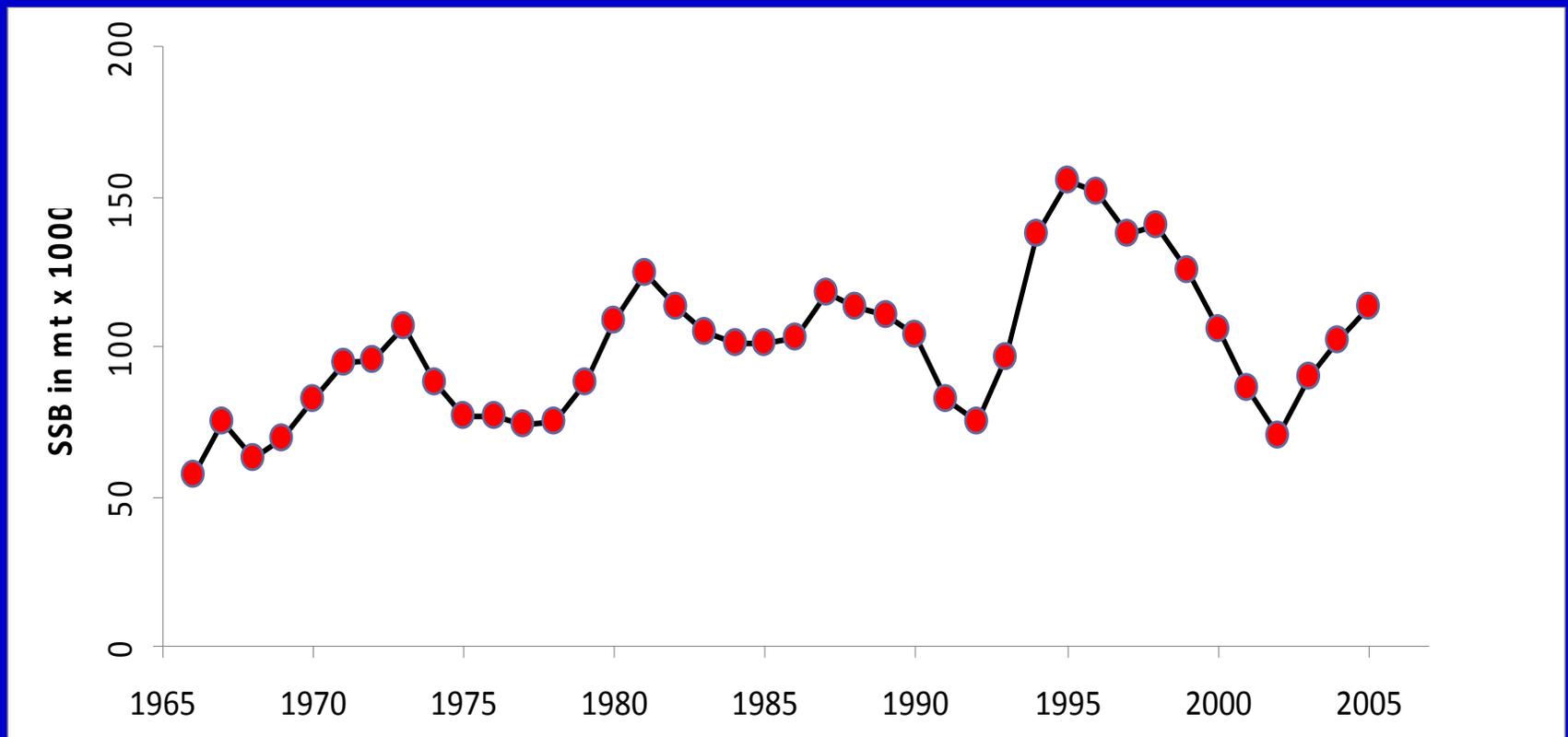
- ✓ **Catch (1966-present, assessment years)**



# Assessment Results

- **Current status**

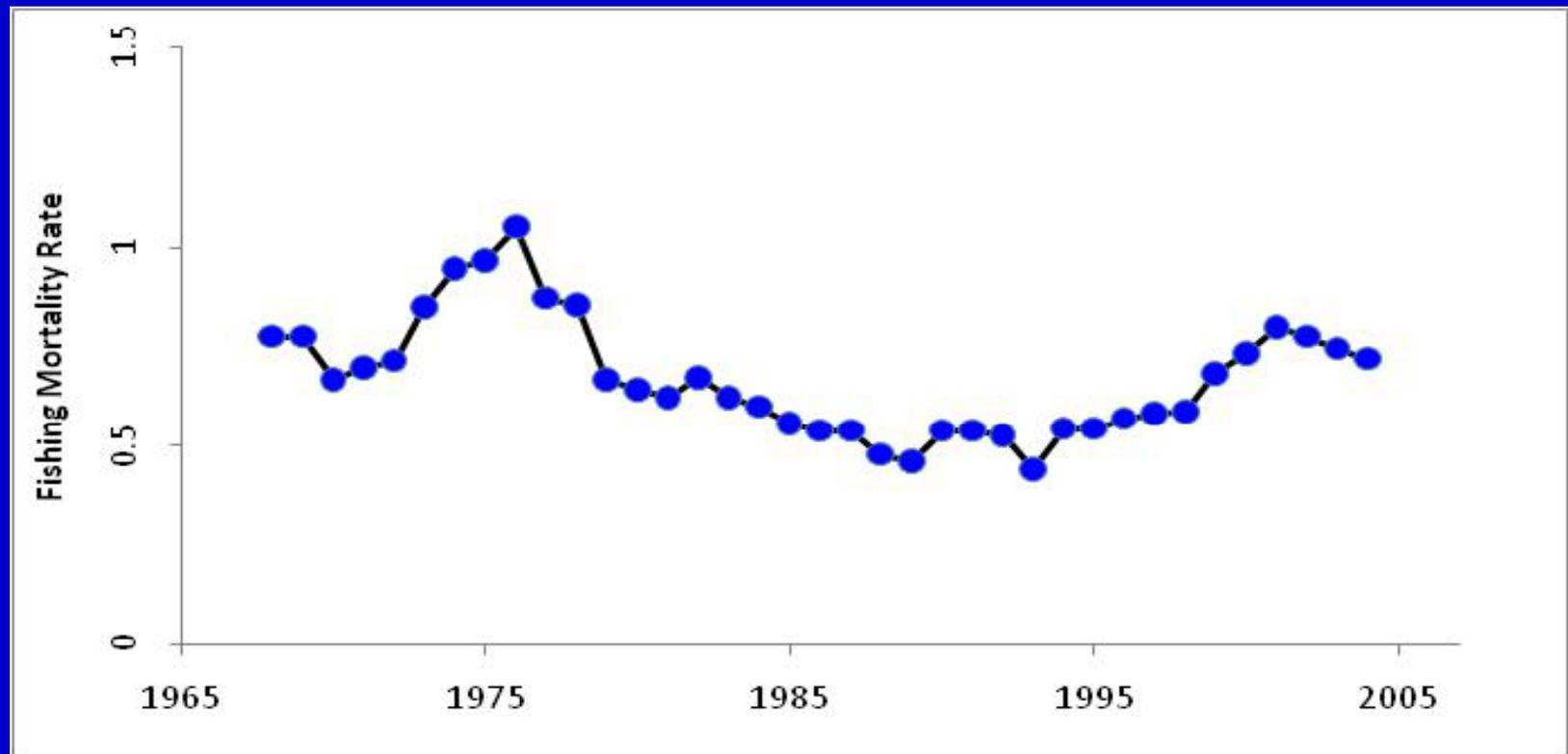
- ✓ **Spawning Stock Biomass (SSB)**



# Assessment Results

- **Current status**

- ✓ **Fishing Mortality Rate**



# Assessment Results

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- **Current status**

- ✓ **Recruitment**

- ✓ **recruitment variable, but generally high in recent decade**

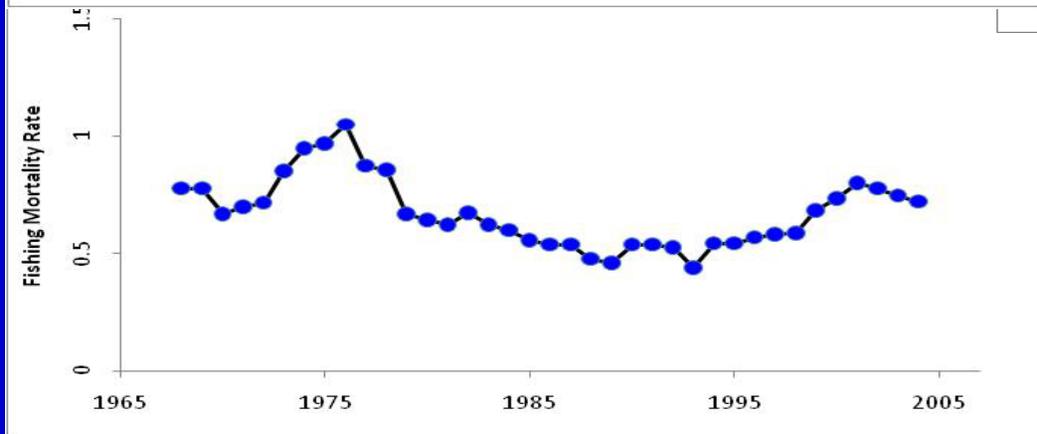
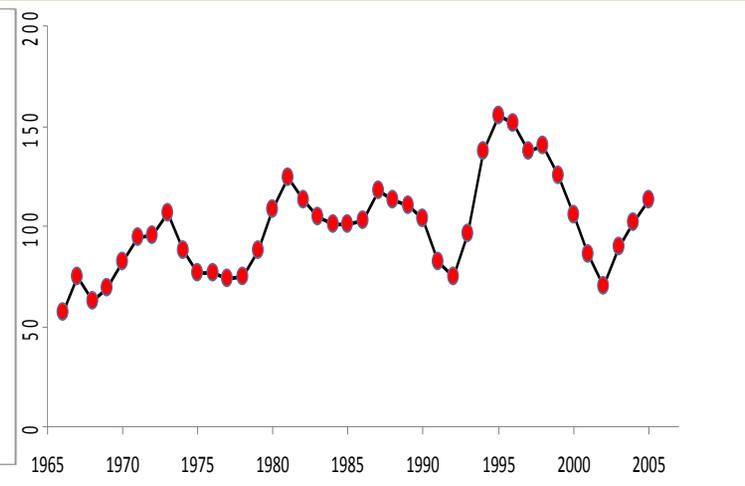
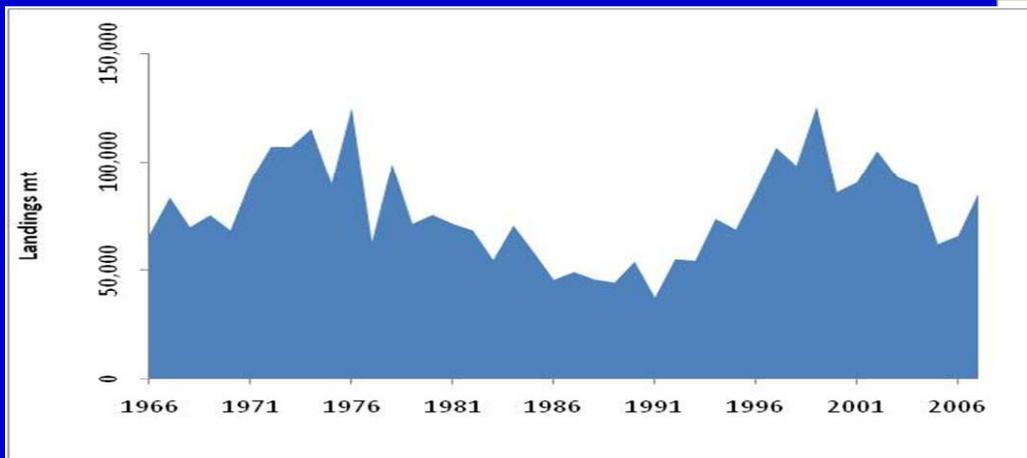
# Implications of Assessment Results

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- **Reductions in fishing mortality rate may be needed; perhaps within next 3-5 years**
- **Longer term: Spatial management (different management options for different areas) might be useful**
- **Mechanisms to achieve above need to be explored**

# Assessment Results

## ● Current status



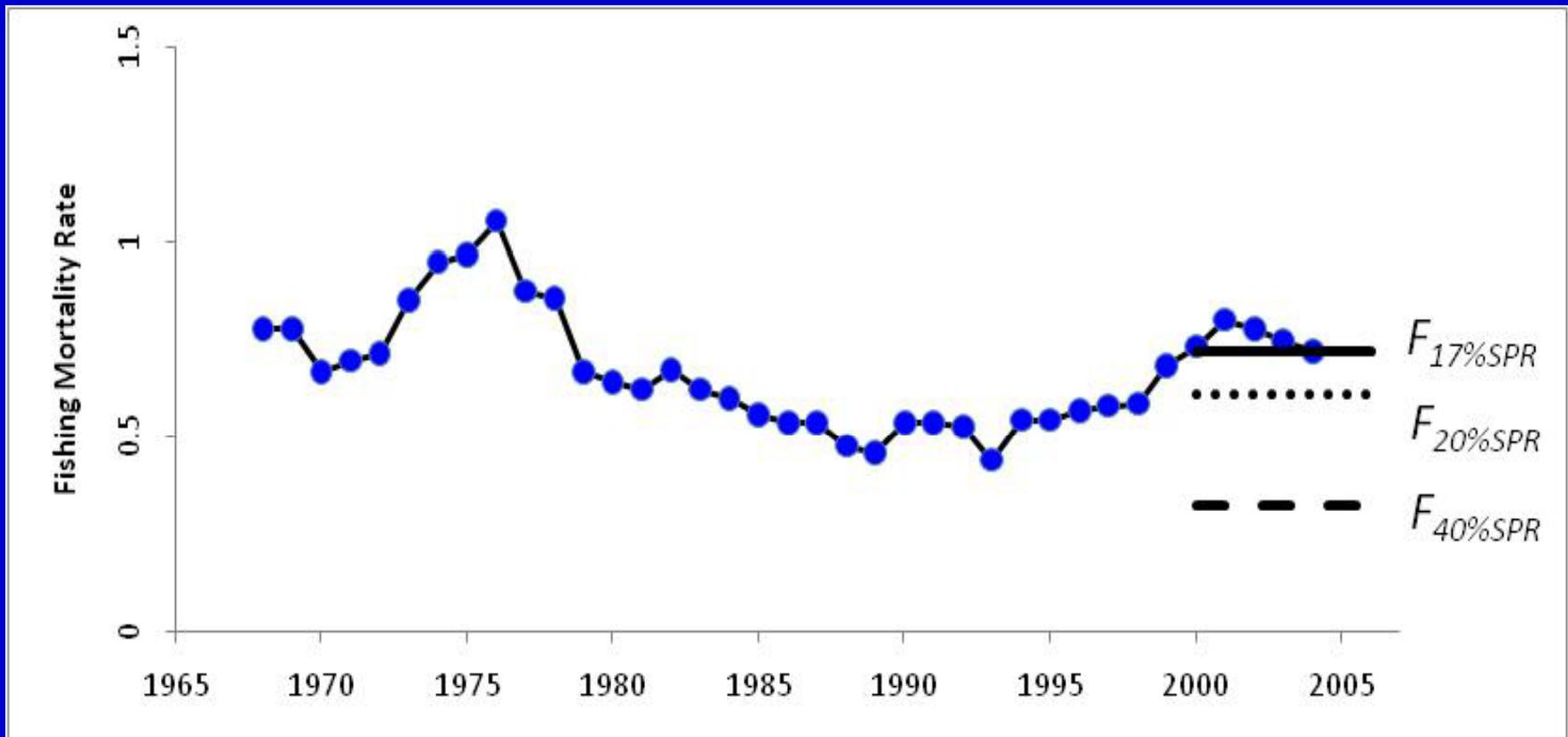
# Biological Reference Points (BRFs)

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- **Standard by which status is judged**
- **Biological component and management component**
- **Target (what we want), limit (what we want to avoid)**
- **ISC has started to explore options**
- **Formal reference points need to be adopted in Pacific RFMOs**

# Biological Reference Points (BRFs)

- ISC has started to explore options
  - ✓ SPR?

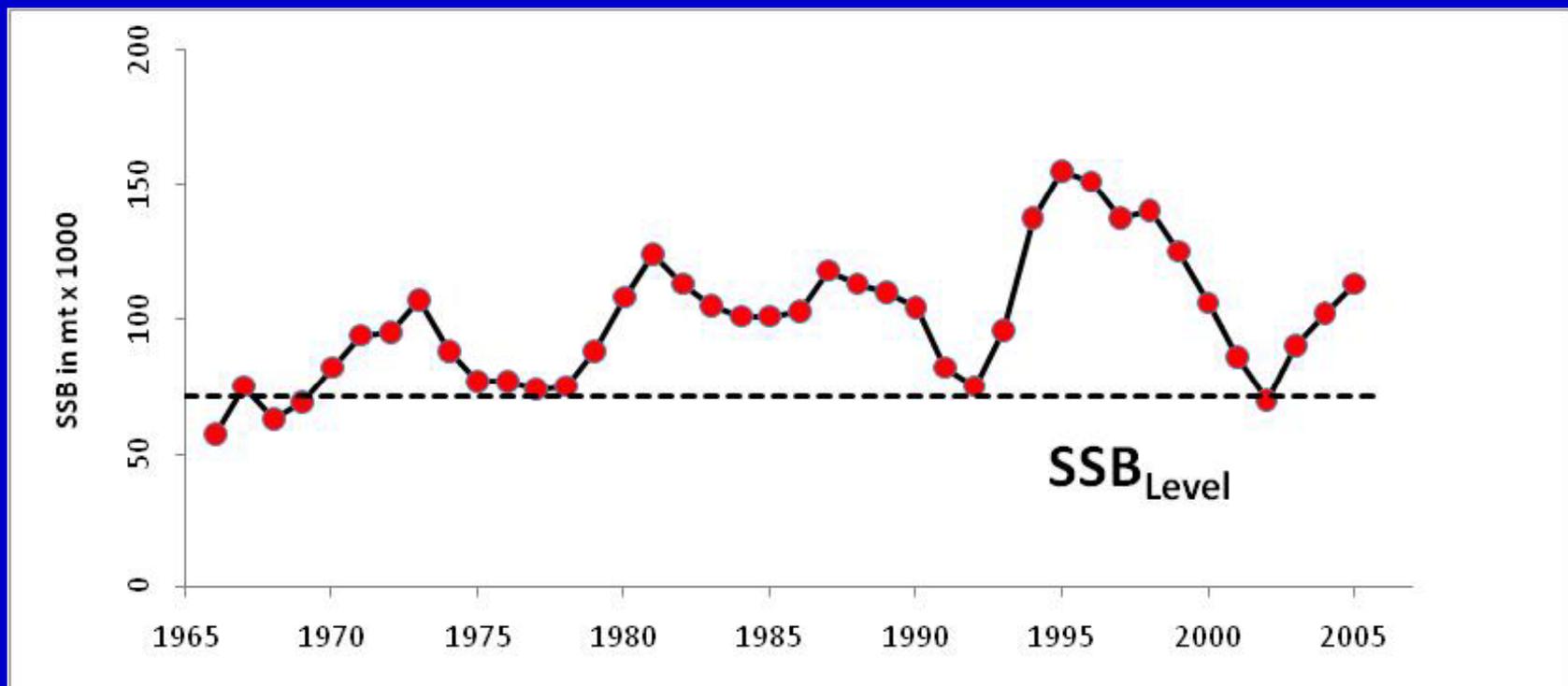


# July 2008 Interim Biological Reference Points (BRFs)

- **Maintain spawning SSB above the average level (“Level”) of its 10 historically lowest points**
- **If  $F_{\text{current}}$  would cause  $SSB < SSB_{\text{Level}}$ , then reductions in F should be developed to achieve the  $SSB_{\text{Level}}$**
- **Interim only**

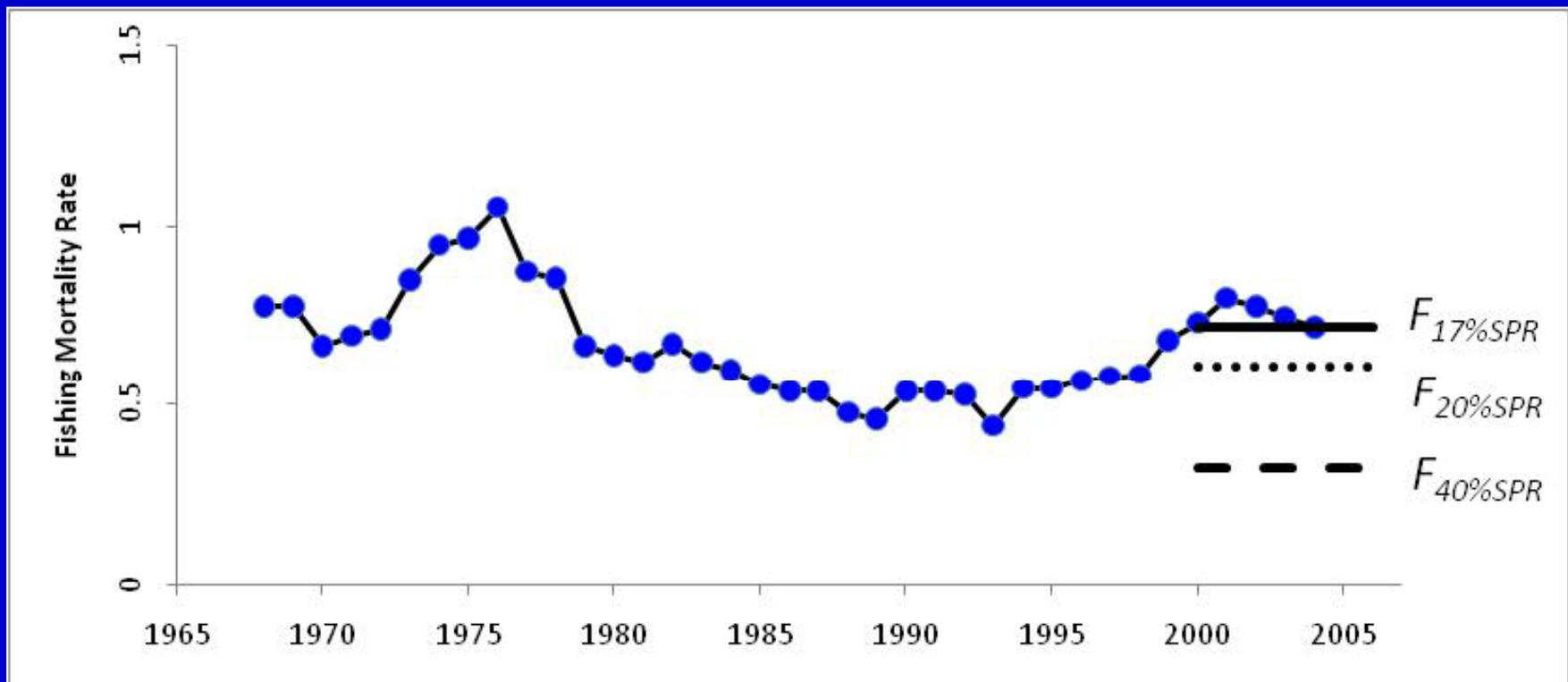
# Interim Reference Point

## ✓ Spawning Stock Biomass ( $SSB_{Level}$ )



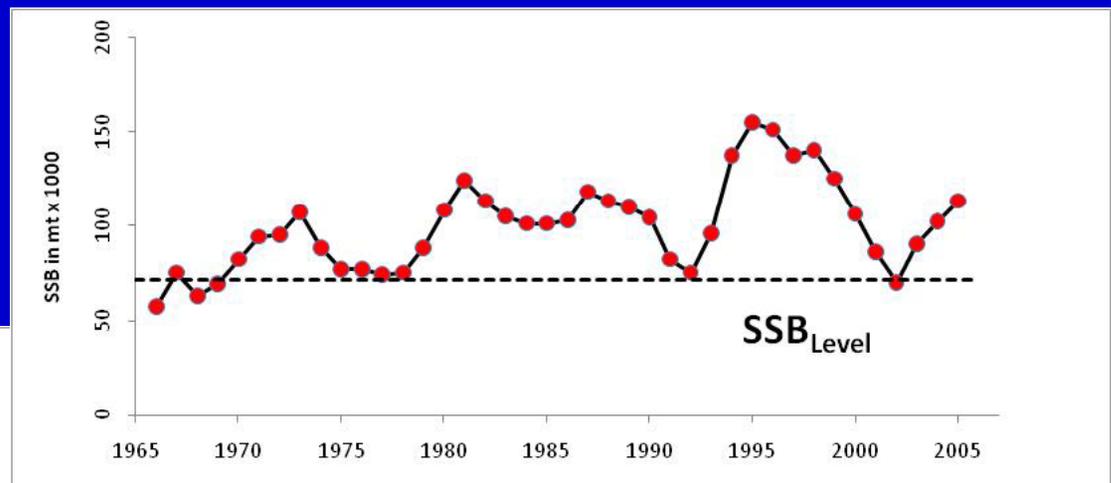
# Biological Reference Points (BRFs)

- ISC has started to explore options
  - ✓ SPR?



# Interim Reference Point

- ✓ Interim “Overfished”  $SSB_{Level}$  and Interim “Overfishing”  $F_{\%SPR}$



# Implications of Assessment Results

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- **Current status indicates fishing mortality rates are high relative to likely BRFs that might be chosen by RFMOs**
- **Estimates of current status **MAY** change when moving from VPA estimates to SS2 estimates, but large changes are not likely**
- **Spatial implications are not well estimated in VPA, but may come out of SS2 results**

# Implications of Assessment Results

---

- **Reductions in fishing mortality rate may be needed; perhaps within next 3-5 years**
- **Longer term: Spatial management (different management options for different areas) might be useful**
- **Mechanisms to achieve above need to be explored**

# Domestic Management

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- **Albacore fishery is one of few remaining open access fisheries on U.S. west coast.**
- **The fishery is managed under PFMC HMS FMP.**
- **Management measures apply to vessels fishing for albacore in EEZ off the west coast and when fishing on the high seas and land their catch in west coast states.**

# Present Management Measures

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- **Pacific HMS permit issued to owner of a specific vessel for 2-year renewable term; includes recreational fishing charter vessels.**
- **Must maintain and submit to NMFS daily logbook of catch and effort and catch disposition.**
- **May be required to carry a NMFS certified observer.**
- **Control date March 9, 2000, which may or may not be considered final.**
- **US/Canada Albacore Tuna Treaty.**
- **Daily bag limits are used to manage albacore sports fishery; 10 fish south and 25 north of Point Conception.**

# US/Canada Albacore Tuna Treaty

- **Initially put in effect in 1981, amended in 2002, and codified by law in 2004; re-negotiated future and specific aspects of the Treaty in 2008.**
- **Provisions of Treaty:**
  - ✓ **Fishing for albacore in each other's EEZ > 12 miles.**
  - ✓ **Land catches and obtain supplies and services in named ports.**
  - ✓ **Canadian vessels limited to 110 (no pole-and-line vessels), number of U.S. vessels within historical levels.**
  - ✓ **Exchange of fishery data between countries.**
  - ✓ **Either country may terminate new regime if international or domestic management measures are adopted.**
  - ✓ **Various compliance requirements.**

# Objectives of Potential Management Options

- **Provide U.S. fishery managers with rational, effective management mechanisms for maintaining or limiting fishing effort and/or catch of the U.S. West Coast albacore fishery to:**
  - ✓ **Maintain the health of the North Pacific albacore resource.**
  - ✓ **Ensure the viability of the U.S. west coast albacore fishery.**

# Classification of Fishery Management Options

- **Output controls which control catch, e.g., TACs.**
- **Input controls which regulate the extent and kind of effort that is expended, e.g., gear restrictions, minimum sizes and area restrictions, etc.**
- **Access programs where particular entities are allowed to fish.**
- **If fishing mortality needs to be limited, some form of input and/or output controls will be needed in conjunction with access decisions on who can fish.**

# Potential Management Options for U.S. West Coast Albacore Fishery

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- **Possible management options for consideration for the U.S. West Coast albacore fishery may center around decisions about access programs:**
  - ✓ **Open access.**
  - ✓ **Input/output controls in the context of access.**
  - ✓ **Limited entry.**
  - ✓ **Limited Access Privilege Programs (LAPP).**

# Open Access - No Changes in Present Status

- **Advantages:**
  - ✓ **No costs for planning or implementing.**
  - ✓ **Option favored by segments of the albacore industry.**
  - ✓ **Would avoid possible complications regarding US/Canada Albacore Tuna Treaty.**
  - ✓ **Would avoid difficulties related to vessels from other west coast fisheries, e.g., crab, salmon, shrimp, etc., that enter and leave the albacore fishery when there are unfavorable conditions in their respective fisheries.**

# Open Access – No Changes to Present Status

- **Disadvantages:**

- ✓ **Council would continue to lack mechanism or adequate controls to address fishing effort.**
- ✓ **Lost opportunity to initiate actions to address fishing effort before there is a crisis and emergency action may be required.**
- ✓ **If fishery increases and Council lacks ability to regulate it, U.S. may in violation of UN Article 64 that mandates States cooperate with international organizations to ensure conservation of tunas.**
- ✓ **International commissions could adopt stringent measures.**

# Input/Output Controls Applied To An Open Access Albacore Fishery

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- Possible controls applied to 'open access' to regulate the extent and kind of effort the West Coast Albacore fishery may use.

# Possible Input and/or Output Controls Applied to Open Access

CONTROL MEASURE	PROS	CONS
Establish catch or trip limits.	Reduce effective fishing effort and catches.	Cause severe economic efficiencies for fleet.
Establish size/age limits that restrict landings to larger/older albacore.	Increase yield per recruit; greatly reduce catches.	Eliminate most of U.S. albacore fishery which is based on pre-adult fish.
Retain only male albacore.	Increase abundance of spawning females.	Gender distinguishable only by dissection.
Limit number lines or poles fished.	Reduce amount fishing effort	May be ineffective since only short lines 'pulled' in very active catching; may require 100% observer coverage to enforce.
Establish closed areas	Reduce amount fishing effort if selected correctly	Closed areas difficult & risky to determine due to impacts of changing ocean conditions on albacore.

# Possible Input and/or Output Controls Applied to Open Access

CONTROL	PROS	CONS
Establish TAC.	Reduce landings of albacore	Strongly opposed by majority of fishers as well as processors.
General use of input and/or output controls.	Reduce fishing effort and catches.	Technological changes developed to overcome controls may in effect increase effort, although nominal effort remains constant .
		General effectiveness may be limited by highly migratory behavior of albacore.
		Difficult to apply because variability in ocean conditions greatly affect albacore distribution, availability, and vulnerability to capture.

# Limited Access

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- **Commonly used to regulate entry into a fishery to:**
  - ✓ **Promote conservation and sustained management of a stock.**
  - ✓ **Maintain or enhance health and stability of fishing industry.**
- **Simple rights-based input controls.**

# Applying Limited Access to U.S. West Coast Albacore Fishery

## PROS

Initiate framework process before there is crisis is precautionary; avoids risks of need for emergency actions if fishery becomes overfished as suggested by assessment results if effort is not capped now.

Contributes towards preserving health of North Pacific albacore resource.

Provide long-term benefits to fishery in maintaining it viability.

May be possible to structure process to accommodate vessels from other west coast fisheries that have a history of entering albacore fishery when limited opportunities in respective fisheries.

## CONS

Last open access fishery on west coast would be needlessly closed if scientific warnings are wrong that fishery will be overfished if effort is not capped.

Complications regarding US/Canada Albacore Tuna Treaty

Concerns that U.S. albacore fishery would be at disadvantage if U.S. caps effort and other Nations do not.

May eliminate opportunities for vessels from other west coast fisheries that move in and out of albacore fishery in years when conditions are unfavorable in their respective fisheries, e.g., crab, salmon, shrimp, etc.

# Applying Limited Access to U.S. West Coast Albacore Fishery (cont.)

PROS	CONS
No need to eliminate any U.S. vessels since number active vessels relatively stable last 5+ years.	None
Program can be set up to allow transfers.	None
Setting up LA program relatively straight forward since single species fishery.	None
Costs to plan and implement relatively low.	None
Would establish an assemblage of participants for future rights –based management actions if needed.	None
U.S. meets its responsibilities regarding UN article 64.	None

# Possible Actions Related to Limited Access For U.S. Albacore Fishery

ACTION	PROS	CONS
Omit vessels with landings less than some minimum from Control Date database.	Improve accuracy of Control Date database.	Vessels with landings below some minimum not eligible for LA permit.
Add vessels with landings greater than some minimum since establishment of Control Date to database.	Improve accuracy of CD database; makes vessels that made landings after CD eligible for LA permit.	Could increase fishing effort, but may be offset by removal of other vessels from Control Date database.
Require some minimum landings amount to renew HMS permit.	Improve accuracy of CD database.	Vessels with landings below minimum ineligible for LA permit.
Establish 5-year moratorium on new HMS permits.	Limits increase in fishing effort for 5-years.	Eliminates new entrants into albacore fishery.
Initiate framework process for LA for U.S. West Coast albacore fishery	Maintain industry viability and preserve resource health.	Eliminates last open access fishery on the west coast.

# Limited Access Privilege Programs (LAPPs)

- **Market-based or rights-based fishery management programs whereby individual fishers, community, or other entity is granted privilege to catch a specific portion of a TAC, which is transferable.**
- **Originally referred to as IFQs or ITQs, which have been expanded over time and referred to as LAPP in the amended Magnuson-Stevens Act (PL 109-479).**
- **LAPPs generally designed by Fishery Management Councils and NMFS implements and monitors them.**

# Limited Access Privilege Programs (LAPPs) or ITQs

- **New Zealand introduced first major ITQ program in 1986.**
- **Widely used in foreign countries.**
- **About 10 fisheries in U.S. with LAPP management.**
- **Main criteria for deciding if LAPP is appropriate measure for managing a fishery in U.S. is that there is concern of overexploitation and the fishery is overfished.**
- **Believed by Joseph (2003) and Allen et al (in press) to be the most viable solution available of international management of global tuna stocks to address problems of excess capacity and over-exploitation.**

# Pros and Cons of LAPPs Related to U.S. West Coast Albacore Fishery

PROS	CONS
Effective for maintaining or limiting fishing effort by U.S. West Coast albacore fleet.	Questionable to apply LAPP since the North Pacific albacore is not overexploited; needs further investigation.
Allow fishers and other industry segments to make better business decisions.	None
Enhance viability of industry.	None
Some fishers approve of ITQs.	Major portion of fishers oppose ITQs.
Conceptually straight-forward to design for single species fishery.	High costs to plan and implement LAPP; recovery costs to fund data collection and enforcement limited to 3% catch ex-vessel value.

# Management of Other Albacore and Tuna Fisheries

<b>Fishery</b>	<b>Gear</b>	<b>Albacore</b>	<b>Mgt. Measure</b>
Australia – SBT	LL	Incidental	ITQ
Australia – WTBF	LL	Incidental	ITQ
Australia – ETBF	LL	Incidental/Target	ITQ
New Zeal. – Albacore	Troll	Target	Open access, under review
New Zeal. - SBT	LL	Incidental	ITQ
Indian Ocean - TBF	LL	Incidental/Target	Limited entry
S. Atlantic - Albacore	Troll	Target	TAC with country quotas
N. Atlantic -Albacore	Troll	Target	TAC with country quotas
Canada – NP Albacore	Troll	Target	Limited entry/open access
Japan – NP Albacore	LL & Bait	Target	General capacity controls
Taiwan – NP Albacore	LL	Target/Incidental	Holding effort to 2004 level

# Summary

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- **The purpose of this presentation was to provide PFMC with information for use in deliberations to consider initiating a framework process to maintain or limit fishing effort by the U.S. West Coast albacore fishery.**
- **North Pacific albacore resource is not overexploited, but excess fishing capacity appears a problem because fishing effort may be above sustainable levels and 'caps' have been put on international fishing effort.**
- **There is an opportunity for the Council to initiate actions to address fishing effort by the U.S. fleet before there is a crisis and emergency actions may be required.**

HIGHLY MIGRATORY SPECIES ADVISORY SUBPANEL REPORT ON  
NATIONAL MARINE FISHERIES SERVICE REPORT

The Highly Migratory Species Advisory Subpanel (HMSAS) appreciates the work done by Dr. Laurs and Dr. Powers on the albacore white paper. It gives a good historical perspective of the U.S. west coast albacore fishery as well as background on other nations' participation in the North Pacific albacore troll, and pole and line fisheries. Also it presents a wide range of management options and their pros and cons.

The original intent of the Inter-American Tropical Tuna Commission (IATTC) and Western and Central Pacific Fisheries Commission (WCPFC) resolutions that industry supported, were to cap effort of all member nations, and address overfishing in the Western Pacific. In 2005 overfishing was recognized as a legitimate issue in the western Pacific and part of the intent of the resolutions was to keep effort from shifting to the Eastern Pacific.

Consideration of unilateral management of U.S. fishermen was not the basis of these resolutions. Such present consideration may in fact create confusion, instead of addressing the real issues of potential overfishing of albacore. Unilateral management of the U.S. fleet, which lands about 16 percent of the total North Pacific catch, may result in less emphasis on addressing the actual problem.

The HMSAS feels that the white paper, although comprehensive in some aspects, does not address issues such as fleet structure, fleet operations, markets, socio-economics, climate and ocean conditions, and other factors that may have changed over the past five years. These issues will also weigh heavily in the future.

Given that "effort" has yet to be adequately defined and standardized by the Regional Fishery Management Organizations (RFMO's), and that a new stock assessment will not be completed until 2011:

**The HMSAS recommends that the Council direct the Highly Migratory Species Management Team (HMSMT) to further evaluate and make projections out to 6 years on issues such as fleet size, fleet structure, market changes and trends, vessels and operators potential to be in the fishery in 6 years, and other factors that may change the dynamics of the future fishery.**

Also, the white paper needs a thorough review by the Scientific and Statistical Committee (SSC) and in the future, the enforcement committee, and other appropriate bodies.

**The HMSAS also recommends that the Council direct the HMSMT to access the future impact by all other gear types and fisheries that land albacore both legal and illegal, on the fishery and/or stocks that may fall under any restrictive management schemes.**

The HMSAS will work with the authors in addressing errors that could affect the interpretations of the recommendations throughout the white paper.

**The HMSAS has concerns over the potential use of the white paper and recommends that the document be used only for information to assist in initiating deliberations for a framework process to maintain or limit fishing effort by the West Coast albacore fishery. The white paper should not be used or cited outside the Council.**

**The HMSAS moved to endorse the recommendations cited above and requests input and guidance from the Council on future actions with respect to the white paper.**

PFMC  
11/01/09

SCIENTIFIC AND STATISTICAL COMMITTEE REPORT ON  
NATIONAL MARINE FISHERIES SERVICE REPORT

Dr. R. Michael Laurs and Dr. Joseph Powers discussed their draft report “North Pacific Albacore ‘White Paper’” (Agenda Item F.1.a, Attachment 1) with the Scientific and Statistical Committee (SSC). Albacore are a Highly Migratory Species under joint international management by the Inter American Tropical Tuna Commission (IATTC) and the Western and Central Pacific Fisheries Commission (WCPFC). The last assessment for this stock was conducted in 2006. A new stock assessment is planned for 2011. For the next assessment, the modeling platform will change from a Virtual Population Analysis model to Stock Synthesis 3 (SS3).

The SSC offers the following comments on the albacore “White Paper”:

- There are several instances in the paper which reference a concern expressed in the 2006 stock assessment that if current fishing effort levels were not capped, the stock may become overfished by about 2015. The SSC notes the reference to “overfished” used in this case is not the same definition of overfished established by the WCPFC Northern Committee (NC), i.e. when biomass falls below an established biomass threshold (average of lowest 10 years of SSB). Using the NC definition, the 2006 assessment did not indicate that the stock would be overfished in 2015.
- Section 6.2 of the report “Trends in U.S. Albacore Fishing Effort” and Table 6 should be interpreted with caution. At the April 2007 PFMC meeting, the SSC previously reviewed similar effort data and identified problems with this type of analysis (Agenda Item J.3.c, Supplemental SSC Report, April 2007 PFMC meeting). At that time, the SSC suggested a more appropriate analysis that partitioned the fishery mortality for U.S. fisheries (U.S. partial F) out of the overall international fishery mortality. This would allow a better assessment of whether U.S. fishing effort has been stable or increasing. This analysis has been conducted by the Albacore Working Group of the International Scientific Committee for Tuna and Tuna-like Species in the North Pacific Ocean (ISC) and should be provided or referenced in the draft report.

Finally, the SSC notes that the new assessment planned for 2011 using SS3 may bring better definition to the issues discussed above.

RECOMMENDATIONS TO THE WESTERN AND CENTRAL PACIFIC FISHERIES  
COMMISSION (WCPFC)

The Western and Central Pacific Fisheries Commission (WCPFC) will hold its Sixth Regular Session of the WCPFC (WCPFC6) December 7-17, 2009, in Papeete, Tahiti. Attachment 1 is the provisional annotated agenda for this meeting. Several meetings have occurred that develop advice and recommendations feeding into this plenary meeting:

- The International Scientific Committee for Tuna and Tuna-like Species in the North Pacific Ocean Ninth Plenary Meeting (ISC9) met July 15-20 2009, in Kaohsiung, Taiwan. Attachment 2 (CD-Rom and web only) is the Plenary Report. Attachment 3 excepts the conservation advice from the Plenary Report. The ISC provides scientific advice to the WCPFC on certain northern stocks.
- The WCPFC Scientific Committee Fifth Regular Meeting (SC5) occurred August 10-21, 2009, in Port Vila, Vanuatu. Attachment 4 is the SC Chair's summary report.
- The WCPFC Northern Committee Fifth Regular Meeting (NC5) occurred September 7-10, 2009, in Nagasaki, Japan. The NC is responsible for developing conservation and management recommendations for stocks occurring north of 20° N latitude in the Pacific Ocean and comprises members situated in the area or fishing on such stocks. Attachment 5 is the summary report for this meeting.
- The WCPFC Technical and Compliance Committee Fifth Regular Meeting (TCC5) occurred October 1-6, 2009, in Pohnpei, Federated States of Micronesia. Attachment 6 is the Summary Report by the United States. (The WCPFC Secretariat's Summary Report is pending.)

Annexes to the ISC Plenary Report (working group reports) are available at their website, <http://isc.ac.affrc.go.jp/isc9/ISC9rep.html>. Materials for all WCPFC meetings are available at their website, <http://www.wcpfc.int/>.

Of note in the report of the SC Chair (Attachment 4) is that the bigeye stock status "became more pessimistic" and "the objective of a 30% reduction in fishing mortality on bigeye by 2011 [the objective in CMM-2008-01] will not be achieved." On the other hand, the Chair's report notes that yellowfin is not experiencing overfishing or in an overfished state.

Mr. Mark Helvey reported on the results of NC5 at the last Council meeting (Agenda Item D.1.a, Supplemental NMFS Report, September 2009). The NC adopted two draft conservation measures for consideration at WCPFC6, a revision to CMM-2005-03, North Pacific Albacore, proposed by the U.S. and a new measure for Pacific Bluefin Tuna proposed by Japan.

The proposed revision to CMM-2005-03 would make the definition of "current effort" more specific by rewording paragraphs 1 and 2 so that they specify that fishing effort shall not be increased beyond 2002-2004 levels, which is the time period used to define  $F_{CUR}$  in the last stock assessment. Revisions to paragraph 4 and new paragraphs 11 and 12 strengthen reporting requirements. The proposal adopted by the NC is substantially in line with the U.S. position at the meeting.

The proposed conservation measure for bluefin tuna is weaker than some members, including the U.S., desired. It may be noted that ISC conservation advice for bluefin tuna reflects differing opinions (see Attachment 3), with one view stating simply that fishing mortality (F) should not be increased and the other view stating that F should be reduced, especially F on juveniles (ages 0-3). The proposed conservation measure identifies the management objective as not increasing the current level of fishing mortality, although paragraph 2 does call on members to “take into account the need to reduce the effort on juveniles (age 0-3) to the 2000-2004 level.” A lot of discussion revolved around small-scale fisheries of Japan and Korea, which are responsible for much of the juvenile fishing mortality. Japan originally proposed a 3-year measure that included an exemption for “artisanal” fisheries (the definition covering most of the Japanese fisheries affecting juvenile mortality) and for fisheries in the Korean EEZ in 2010, with NC6 considering application of measures to the Korean Exclusive Economic Zone (EEZ) (i.e., 2011-2012). However, Korea could not agree to even future consideration of its applicability to fisheries within their zone. In order to reach agreement, the Chairman changed the proposal to a 1-year period and retained the exemptions. Korea made the argument that it had little information and ability to regulate its fisheries taking juvenile bluefin. In response, paragraph 6 states “Korea shall provide ISC 10 and NC 6 with a report on its fisheries involving bluefin tuna catches” without any mention of potential future applicability of the measure. The U.S. voiced concern that the concept of “compatibility” (that conservation measures should apply equally in-zone and on the high seas) was being flouted in this case.

TCC5 covered a wide range of issues as reflected in Attachment 6. The following proposals, discussed at TCC5, will be taken up at WCPFC6:

- Republic of the Marshall Islands (RMI) proposal on monitoring and regulating transshipment in the Convention Area (see paragraph 13 in Attachment 6). A version of this CMM was considered at WCPFC5 and WCPFC4 but so far has not been adopted.
- Draft U.S. and RMI proposals for non-member carriers and bunkers (paragraphs 14 and 15).
- Fiji-led working group proposal on chartering arrangements (paragraph 21).
- Terms of References for the Compliance with Conservation and Management Measures Working Group (paragraph 22).
- Rules and Procedures for the Protection of, Access to, and Dissemination of Non-Public Domain Data for MCS Purposes (RAPs) (paragraph 27).
- U.S. proposal on Damage to Data Buoys by Fishing Vessels (paragraph 29).
- WCPFC Draft IUU Vessel List (paragraphs 30-37).
- Tongan proposal to amend paragraph 15 of CMM-2007-03 relating to reasons why a vessel would not be included on the WCPFC Provisional IUU Vessel List (paragraph 40).
- New Zealand proposal on the Control of Nationals (paragraph 41).
- U.S. proposal on vessels without nationality (paragraph 42).

Some of these proposals, in the form of Delegation Papers submitted prior to TCC5, are available from the WCPFC website at <http://www.wcpfc.int/meetings/2009/5th-regular-session-technical-and-compliance-committee>. Revised versions of these proposals reflecting discussion at TCC5, as Delegation Papers for WCPFC6, are unlikely to be available prior to the Council meeting.

The Council may make recommendations for action at WCPFC6. These recommendations will be transmitted to the U.S. delegation for consideration when formulating U.S. positions taken at the meeting.

**Council Task:**

**Adopt Recommendations for U.S. positions at the Western and Central Pacific Fisheries Commission Sixth Regular Session.**

**Reference Materials:**

1. Agenda Item F.2.a, Attachment 1: Provisional Annotated Agenda, WCPFC6.
2. Agenda Item F.2.a, Attachment 2 (CD-ROM and Web Only): Report of the Ninth Meeting of the International Scientific Committee for Tuna and Tuna-Like Species in the North Pacific Ocean Plenary Session.
3. Agenda Item F.2.a, Attachment 3: Excerpt of Conservation Recommendations from the ISC9 Plenary Report.
4. Agenda Item F.2.a, Attachment 4: Summary Report of the Fifth Regular Session of the Scientific Committee by the SC Chair.
5. Agenda Item F.2.a, Attachment 5: Summary Report of the Northern Committee Fifth Regular Meeting
6. Agenda Item F.2.a, Attachment 6: Summary Report by the United States of the WCPFC Technical and Compliance Committee Fifth Regular Meeting.

**Agenda Order:**

- a. Agenda Item Overview **Christopher (Kit) Dahl**
- b. Reports and Comments of Management Entities and Advisory Bodies
- c. Public Comment
- d. **Council Action:** Adopt Recommendations for the WCPFC Annual Meeting

PFMC  
10/14/09



**NORTHERN COMMITTEE  
FIFTH REGULAR SESSION**  
7-10 September 2009  
Nagasaki, Japan

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**PROVISIONAL ANNOTATED AGENDA**

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**WCPFC/NC5/04  
5<sup>th</sup> June 2009**

**AGENDA ITEM 1. OPENING OF MEETING**

**1.1 Welcome**

The Chair (Mr Masanori Miyahara, Japan) will open the Fifth Regular Session of the Northern Committee (NC5) of the Western and Central Pacific Fisheries Commission (WCPFC), 7-10 September 2009. He will welcome delegations of WCPFC members, cooperating non-members and participating territories (CCMs), the WCPFC Secretariat and observers.

**1.2 Adoption of agenda**

The Chair will introduce the Provisional Agenda, WCPFC-NC5/03. The Rules of Procedure of the Commission will apply *mutatus mutandis* until such time as the Northern Committee adopts its own Rules of Procedure (Rule 31).

According to the Rules of Procedure, the Committee will be asked how it wishes to deal with any supplementary items that were circulated by any member of the Commission, the Chairman, or the Executive Director at least thirty days before the opening of the meeting.

**1.3 Meeting arrangements**

The Chair will invite NC5 to review the Indicative Schedule (WCPFC-NC5/05) noting logistical arrangements in place to support the meeting, proposed meeting times and any social engagements.

**AGENDA ITEM 2. CONSERVATION AND MANAGEMENT MEASURES**

**2.1 Report from the 9th ISC**

The NC5 will review the meeting report of the 9<sup>th</sup> Meeting of the International Scientific Committee (ISC), especially the status of stocks of highly migratory species in the North Pacific Ocean. The NC5 will consider relevant issues arising from the ISC9 and make recommendations as appropriate to the Commission on conservation and management measures with respect to the following:

- Northern Pacific bluefin

- North Pacific albacore
- North Pacific swordfish

## **2.2 Report of the Fourth Regular Session of the Scientific Committee (SC5)**

The NC5 will review the meeting report and issues arising from the Fifth Regular Session of the Scientific Committee (SC5), Port Vila, Vanuatu, 10-21 August 2009 as they relate to the Northern Committee.

## **2.3 Conservation and management measures for the northern stocks**

### **2.3.1 Northern Pacific bluefin**

The NC4 and WCPFC5 could not reach agreement with draft CMM for Pacific bluefin tuna (Attachment H of the Report of the NC4) with one CCM registering a reservation in respect of the draft measure drafted during NC4. The Committee will review stock assessment and other information relating to the conservation and management action of members with respect to effort controls and data collection. WCPFC5 agreed that CCMs are requested not to increase the level of fishing mortality on Pacific bluefin in 2009 on a voluntary basis and tasked the NC to work toward developing a draft CMM for Pacific bluefin for consideration at WCPFC6.

### **2.3.2 North Pacific albacore (CCM-2005-03)**

The Committee will review the actions and/or considerations made by members in relation to effort control and biological reference points including maintaining spawning stock biomass (SSB) within the range of its historical fluctuation (Attachments K and J of the Report of the NC4). NC4 had proposed an interim management objective for North Pacific albacore which states that spawning stock biomass should be maintained above the level represented by the average of the lowest 10 years in the stock's 40-year data history. The NC5 will consider the need for management action in 2009 recalling that, during NC4, the Committee was advised that the ISC plans a new assessment in 2010.

### **2.3.3 North Pacific swordfish (CMM-2008-05)**

At WCPFC5, the Commission adopted a revised measure for swordfish (CMM 2008-05) which retains provisions of CMM 2006-03 relating to no transfer of fishing effort for swordfish from the South Pacific to the areas north of 20°N in the Convention Area). The ISC has scheduled an assessment of the North Pacific swordfish stock that will be available to support NC5 discussion of the status of the fishery and conservation and management considerations.

## **2.4 Conservation and management measures for other species**

### **2.4.1 Bigeye and yellowfin tuna (CMM-2008-01)**

WCPFC5 adopted Conservation and Management Measure (CMM-2008-01) for bigeye and yellowfin tuna. 'Other commercial fisheries' referred to in the Measure are identified as fisheries other than longline and tropical (20°N-20°S) purse seine and which include: hand-line, pole and line, purse seine fisheries north of 20°N or south of 20°S, ring net, troll and unclassified fisheries, but excluding artisanal fisheries and those fisheries taking

less than 2,000 tons of bigeye and yellowfin. NC5 is invited to review the implementation of the provisions of paragraph 39 of CMM-2008-01 in the area north of 20°N and make further recommendations to the Commission, if necessary, on conservation and management matters for yellowfin and bigeye stocks in the Pacific Ocean north of 20°N.

#### **2.4.2 Sharks (CMM-2008-06)**

WCPFC5 revised CMM-2006-05 to extend the measure to all vessels and encourages CCMs to implement the IPOA-Sharks, report annual catch and fishing effort for key shark species identified by the Scientific Committee and fully utilize retained catches including a requirement to have on board fins that total no more than 5% of the weight of sharks on board. . NC5 will receive reports from CCMs on the implementation of CMM-2008-06 in the Convention Area north of 20°N and consider issues associated with its full implementation from 10<sup>th</sup> February 2009.

#### **2.4.3 Seabirds (CMM- 2007-04)**

NC5 will receive reports from NC CCMs on the implementation of CMM 2007-04, as well as the status of introducing the mitigation measures to their fleets as required at paragraph 10 of the Measure for the area north of 23°N.

### **2.5 Working Group on Striped Marlin**

On the basis of a recommendation from NC3, WCPFC4 at Guam in December 2007, tasked the NC with convening a Working Group to examine a range of issues relating to, *inter alia*, fisheries for striped marlin and means to reduce its incidental by-catch. This was established with a view to developing a draft Conservation and Management Measure for striped marlin for consideration at SC4. Pending resolution of on-going discussion concerning the status of striped marlin as a northern stock SC4 advised that the fishing mortality rate should be reduced from the current level (to 2003 or before) (SC4 Summary Report, para 188). In reviewing the progress of the working group, NC4 acknowledged that little progress had been made. This issue will be further considered by informal working groups and ISC9 and the outcomes reported to NC5 to support discussion on future work priorities in relation to striped marlin.

### **AGENDA ITEM 3. REGIONAL OBSERVER PROGRAMME (CMM-2007-01)**

WCPFC4 adopted a revised Conservation and Management Measure for the Regional Observer Programme (CMM-2007--01). Annex C of CMM 2007-01 provides that fishing vessels used exclusively to fish for fresh fish in the area north of 20 degrees North shall be accorded the following considerations, *inter alia*:

- i) At its 2008 annual session, the Northern Committee shall consider the implementation of the ROP adopted by the Commission by vessels fishing for fresh fish in the area north of 20 degrees North.

The Fourth Regular Session of the Northern Committee agreed to establish an intercessional email working group, under the convener (Japan) of the group to seek an applicable measure in implementing the ROP in the area. NC5 will receive a report from the informal working group and discuss the implementation of the ROP for fishing vessels fishing fresh fish in the area north of 20°N.

## **AGENDA ITEM 4. DATA**

### **4.1 Review of the status of data and data gaps for northern stocks**

The NC4 discussed issues relating to the coverage and quality of data for fisheries in the North Pacific Ocean. Information gaps in biology and vital statistics such as abundance index were noted during the NC4. Those gaps will be discussed in the ISC9 and NC5 will review developments in relation to data coverage for individual fisheries and stocks as well as biological gaps and discuss means to address data gaps that have been identified.

## **AGENDA ITEM 5. FUTURE WORK PROGRAMME**

### **5.1 Work Programme for 2010-2013**

The Committee will review its proposed Work Programme adopted at NC4. The Work Programme will be revised to describe activities and funding requirements for the period 2010-2013 so that it aligns with the Work Programme of the Commission.

## **AGENDA ITEM 6. COOPERATION WITH OTHER ORGANIZATIONS**

### **6.1 ISC**

NC4 noted a number of issues raised by the SC4 related to data and coordination between the ISC and the SC. The NC4 requested that the ISC develop, in consultation with the WCPFC Secretariat, a process to address the issues as follows:

- 1) explore the potential benefits of improving both northern and southern albacore stock assessments through exchange of stock assessment experiences for Pacific albacore and through collaboration between scientists currently working on the assessments;
- 2) explore procedures for coordinating efforts to close data gaps and for data access to reduce uncertainties in assessments; and
- 3) consider ways to align its data standards and processes with those adopted for the Commission.

### **6.2 IATTC**

Noting that WCPFC and the IATTC have had a Memorandum of Understanding in place since December 2006, the Committee will consider means to further strengthen cooperation with the IATTC in respect of northern stocks. The outcomes of the 80<sup>th</sup> Session of IATTC, San Diego, USA, 8-12 June, as they relate to Northern Committee matters, including the proposed Agreement on the Exchange of Data and any relevant conservation and management measures in effect in the Eastern Pacific Ocean, will be the focus of NC4 discussion.

### **6.3 Review of interim arrangements for scientific structure and function**

The Commission selected the Marine Resources Assessment Group Ltd (MRAG) in April 2008 to conduct an independent review of the Commission's interim arrangements for science structure and function. MRAG attended the NC4, presented a progress report and consulted with the NC participants on arrangements to support science in the WCPFC. The NC5 will review the final report from the MRAG as it relates to the structure and function of the Northern Committee and the relationship between the Northern Committee and other subsidiary bodies of the Commission.

## **AGENDA ITEM 7. OTHER MATTERS**

### **7.1 Administrative arrangements for the Committee**

#### **7.1.1 Secretariat functions and costs**

NC1 agreed to use the catch of the northern stocks for the calculation of Northern Committee members' contributions to the work of the Northern Committee. NC2, while generally welcoming continued efforts for effective functioning of NC, could not reach consensus on a revised proposal by Japan's on Secretariat functions for the Northern Committee. The proposal by Japan to establish secretariat services for the NC was deferred to the NC5. NC5 is invited to review the outcome and discuss two specific funding requests for northern species research to WCPFC5 and voluntary contribution from NC members.

#### **7.1.2 Rules of Procedure**

Rule 31 of the Rules of Procedure provide that, subject to the provisions of the Convention, each subsidiary body of the Commission may formulate and submit to the Commission for approval such rules as may be necessary for the efficient conduct of its functions. NC2 considered two papers relating to this item (WCPFC/NC2/14 and WCPFC/NC2/15). It was agreed that Appendix A of the WCPFC/NC2/15 would serve as a basis for further discussion. Each Committee member was requested to submit its comments on this item to the Secretariat by 31 October 2006. It was not possible to complete work in respect of this item at WCPFC3. As NC4 deferred discussion to a future session, NC5 is invited to further consider this matter.

### **7.2 Next meeting**

The date and place for the Sixth Regular Session of the NC will be agreed.

### **7.2 Other business**

The NC will discuss any other business.

## **AGENDA ITEM 8. REPORT TO THE COMMISSION**

### **8.1 Adoption of the Summary Report of the Fifth Regular Session of the Northern Committee and recommendations to the Commission**

The Northern Committee will adopt a Summary Report of its Fifth Regular Session. It will make every effort to adopt its Summary Report by consensus. If every effort to achieve consensus has failed, the Summary Report will indicate the majority and minority views and may include the differing views of the representatives of the members on all or any part of the Summary Report.

## **AGENDA ITEM 9. CLOSE OF MEETING**

### **9.1 Closing of the meeting**

The meeting is scheduled to close in 10 September 2009.



**REPORT OF THE NINTH MEETING OF THE  
INTERNATIONAL SCIENTIFIC COMMITTEE FOR  
TUNA AND TUNA-LIKE SPECIES IN  
THE NORTH PACIFIC OCEAN**

PLENARY SESSION

15-20 July 2009  
Kaohsiung, Taiwan

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***Highlights of the ISC9 Plenary Meeting***

*The ISC9 Plenary, held in Kaohsiung, Taiwan from 15-20 July 2009, was attended by members from Canada, Chinese Taipei, Japan, Korea, the United States and the Secretariat for the Pacific Community. Regarding tuna stocks, the Plenary reviewed recommendations from the albacore and Pacific bluefin tuna working groups regarding stock status based on data updates and sensitivity analyses. Regarding billfish stocks, the Plenary maintained the conservation advice from ISC7 for striped marlin and endorsed a new stock assessment for swordfish which found the stocks to be healthy and well above the level required to sustain recent catches. A special seminar on reference points for fisheries management was held, and a proposal for multi-national, multi-species biological research was completed and endorsed. Several requests from the Western and Central Pacific Fisheries Commission were considered, and a Memorandum of Understanding with the Inter-American Tropical Tuna Commission was progressed. It was agreed to pursue organizing a World Blue Marlin Symposium to convene experts on this species and gather information for the upcoming stock assessment. For the coming year, work priorities will focus on achieving better functionality for the ISC website and database through engaging a Database Administrator and webpage designer. The ISC workplan for 2009- 2010 includes revisiting the 2009 swordfish assessment and preparing for albacore tuna, Pacific bluefin tuna, and blue marlin stock assessments. The next Plenary will be held in July 2010 in Canada.*

# 1 INTRODUCTION AND OPENING OF THE MEETING

## 1.1 Introduction

The ISC was established in 1995 through an intergovernmental agreement between Japan and the United States (US). Since its establishment and first meeting in 1996, the ISC has undergone a number of changes to its charter and name (from the Interim Scientific Committee to the International Scientific Committee) and has adopted a number of guidelines for its operations. The two main goals of the ISC are (1) to enhance scientific research and cooperation for conservation and rational utilization of the species of tuna and tuna-like fishes which inhabit the North Pacific Ocean during a part or all of their life cycle; and (2) to establish the scientific groundwork for the conservation and rational utilization of these species in this region. The Committee is made up of voting Members from coastal states and fishing entities of the region and coastal states and fishing entities with vessels fishing for highly migratory species in the region, and non-voting members from relevant intergovernmental fishery and marine science organizations, recognized by all voting Members.

The ISC provides scientific advice on the stocks and fisheries of tuna and tuna-like species in the North Pacific to the Member governments and regional fisheries management organizations. Data tabulated by ISC members and peer-reviewed by the species Working Groups are generally available through 2008, although some data for the most recent years are provisional. The total landed amount reported thus far for 2007 was 91,600 metric tons (t) of albacore – *Thunnus alalunga*, 20,234\* t (\* indicates preliminary data) of Pacific bluefin tuna – *T. orientalis*, 9,300\* t of swordfish – *Xiphias gladius* and 600\* t of striped marlin – *Tetrapterus audax*. The total catch of these four species in 2007, 121,800\* t, represents an increase of about 13% relative to 2006 catches (107,300 t). Catches in 2007 relative to 2006 by species showed a large increase for albacore (28,000 t), and a slight decrease (1,000\*-4,000\* t) for Pacific bluefin tuna, swordfish and striped marlin (Tables 1-4).

## 1.2 Opening of the Meeting

The Ninth Plenary meeting of the ISC (ISC9) was convened at Kaohsiung, Taiwan at 0900 on 15 July 2009 by the ISC Chairman, G. Sakagawa. A role call confirmed the presence of delegates from Canada, Chinese Taipei, Japan, Korea, the USA, and the Secretariat for the Pacific Community (SPC) (*Annex 1*). A representative of the Western and Central Pacific Fisheries Commission (WCPFC) attended as an Observer. ISC members China and Mexico, and organizations with significant interest including the Inter-American Tropical Tuna Commission (IATTC), the Food and Agriculture Organization (FAO), and the North Pacific Marine Science Organization (PICES) did not attend the Plenary.

The Honorable Wu Hsiung Chen, Minister of the Council of Agriculture, Taiwan delivered the opening address. Noting that this meeting marks the first time an ISC Plenary meeting is being held in Taiwan, he re-confirmed his commitment to supporting research and management of sustainable fish stocks. He welcomed the meeting as further means of strengthening Taiwan's ongoing efforts to improve fisheries data quality and to promote international scientific exchange and collaboration. Mr. Chen closed by wishing the meeting success and delegates a pleasant and memorable stay.

## **2 ADOPTION OF AGENDA**

The agenda for the meeting was considered (*Annex 2*) and the ISC Chairman added two new items. The first was a discussion of habitat issues to be raised under Agenda Item 7 (Stock Status and Conservation Advice) and the second was the matter of ISC working paper which will be covered under Agenda Item 11 (Administrative Matters). The agenda was then adopted. S. Clarke was assigned lead rapporteur duties. A list of meeting documents is contained in *Annex 3*.

## **3 DELEGATION REPORTS ON FISHERY MONITORING, DATA COLLECTION AND RESEARCH**

The ISC Chairman noted that national reports were submitted by Canada, Chinese Taipei, Japan, Korea, Mexico and the United States, but China had not submitted a national report for ISC9.

### **3.1 Canada**

J. Holmes presented a summary of 2008 catch, nominal effort, and nominal catch-per-unit-effort (CPUE) data for the Canadian North Pacific albacore troll fishery (*ISC/09/PLENARY/07*). The data presented in this report are based on 95% logbook coverage and are raised to 100%. The Canadian fleet of 134 vessels in 2008 is the smallest fleet on record since 1995 and operated primarily within the coastal waters of the United States and Canada and in adjacent high seas areas. All catch and effort occurred east of 150°W, i.e., Canadian vessels did not operate anywhere within the WCPFC Convention Area in 2008. Preliminary estimates of North Pacific albacore catch and effort are 5,478 tonnes (t) and 5,881 vessel days (v-d), respectively, in 2008. These figures represent a 10% and 17% reduction in catch and effort relative to 2007. Nominal CPUE was 0.931 t/v-d in 2008, the highest on record. Approximately 87% of the 2008 catch occurred within the USA EEZ, 9% of the catch occurred in high seas waters and only 4% in the Canadian EEZ, reflecting the reduced availability in temperate areas due to cold ocean conditions in 2008. By-catch of other tuna or billfish species, sharks, sea turtles and sea birds was negligible.

Fishers voluntarily provided 736 fork length measurements, which showed that albacore in the Canadian catch ranged from 54 cm (3.31 kg) to 89 cm (14.75 kg)

in size. Three modes are present in the length frequency data at 57 cm (3.89 kg), 64 cm (5.50 kg) and 74-75 cm (8.67 kg), and correspond to 2-, 3- and 4-yr old fish, respectively. Size composition data sampled from Canadian catches landed in U.S. ports by the U.S. port sampling program were not available for this report.

Canada is undertaking research to (1) develop CPUE standardization procedures that will account for the increasing experience of captains remaining in the fishery and the adoption of satellite technology for targeting fishing locations, and (2) to forecast albacore availability in temperate waters based on sea surface temperature and ocean productivity. An electronic log-book pilot program involving 10-15 vessels is continuing during the 2009 fishing season.

### **Discussion**

In response to several questions, J. Holmes explained that fishery distribution information is presented based on catch, rather than CPUE, because of potential biases in the nominal CPUE statistics which have not yet been corrected through standardization. These biases include increasingly effective targeting due to satellite technology developments since approximately 2002 and the ongoing attrition of less experienced fishermen from the fishery. The unit of vessel days used in the presentation refers to fishing days and excludes transit time. An onboard size sampling program is being implemented to address questions regarding potential migration patterns in the fishing grounds. The sampling program calls for the first ten fish landed daily to be measured. This, in effect, randomizes the sample and should not lead to biases when compared to other forms of sampling, such as port sampling, since there is not expected to be any high-grading at sea.

J. Holmes also described the acquisition of logbook data in more detail. The Canadian government requires logbooks to be filled in and submitted. However, the logbooks are purchased by fishermen from the Canadian Highly Migratory Species Foundation, an industry body, which uses the proceeds to maintain the logbook database.

### **3.2 Chinese Taipei**

The national report for Chinese Taipei was presented by S.L. Lin (*ISC/09/PLENARY/09*). There are two kinds of Taiwanese tuna fleets operating in the North Pacific Ocean: large-scale tuna longline (LTLL) vessels which are  $\geq 100$  GT, and small-scale tuna longline (STLL) vessels which are  $< 100$  GT. This report compiles the catch statistics of the above mentioned fleets for the North Pacific. The number of active LTLL vessels operating in the North Pacific Ocean in 2006 was 104, but reduced in 2007 and 2008 to 90 and 84, respectively. In 2008, LTLL in the North Pacific were estimated to have caught 2,490 tons of albacore and 338 tons of swordfish. There was no substantial change in these levels in 2008 as compared to 2007. The report provides catch estimates for North Pacific albacore,

Pacific bluefin tuna, bigeye tuna, yellowfin tuna, swordfish and marlins by Taiwanese longline fisheries from 1997 to 2008. It also shows the fishing effort distribution of Taiwanese LTL vessels operating in the North Pacific region during 2006-2008. Due to high fuel price, some vessels ceased to operate in 2008. This in turn created difficulties for dispatching observers and as a result, observer trips decreased from 8 in 2007 to 2 in 2008.

### **Discussion**

The ISC Chairman noted that all ISC members should be reporting on all fleets which catch tuna and tuna-like fishes in the North Pacific Ocean and reminded members to consider expanding the coverage of their annual report in future submissions.

### **3.3 Japan**

H. Nakano presented the national report for Japan (*ISC/09/PLENARY/12*). The total landing of tunas (excluding skipjack) caught by Japanese fisheries in the north Pacific Ocean in 2007 was 127,000 t and the total landing of swordfish and billfishes (striped marlin, blue marlin and black marlin) was 11,200 t. Landings of skipjack tuna totalled 225,000 t. Japanese tunas, billfishes and skipjack catches in 2007 did not differ substantially from 2006 levels.

Japanese tuna fisheries consist of the three major fisheries: longline, purse seine, pole-and-line; as well as other miscellaneous fisheries like troll, drift-net, and set-net fisheries. These fisheries comprise around 90% of the total tuna catch of Japanese fisheries in recent years. Japanese research activities on tuna and tuna-like species in the Pacific Ocean in 2008 and first half of 2009 were described including tagging studies, sampling of tuna larvae/early juveniles using plankton nets, and joint research with Chinese Taipei on age and growth curves for Pacific bluefin tuna.

### **Discussion**

In response to a question regarding which species are included in Japan's data as "other marlins", it was clarified that such species would include sailfish and short-bill spearfish. With regard to whether billfishes are caught by Japanese gill net fisheries, K. Yokawa explained that large scale drift net fisheries in Japan target marlin, but the catches of black marlin and sailfish in these fisheries is rather low. There is a type of gear used off southern Kyushu which could be considered a kind of gill net and sometimes catch sailfish. While the Japan government's tagging research program does not include billfishes, K. Yokawa mentioned that annually about 40-50 marlins, mostly blue and striped, are tagged by Japanese sport fishermen.

### 3.4 Korea

J. T. Yoo presented the national report for Korea (*ISC/09/PLENARY/08*) which included information on longline and purse seine fisheries in the North Pacific and catches of Pacific bluefin tuna by domestic fisheries in Korean waters. The two main sources of data are fishery production surveys by the Ministry for Food, Agriculture, Forestry & Fisheries (MIFAFF) and logbook data held by the National Fisheries Research & Development Institute (NFRDI).

Total annual catch of tunas and tuna-like species by Korean distant-water longline fishery in the North Pacific ranged between 60 and 34,080 t, and averaged 15,103 t, during 1972-2008. Major species caught by the longliners in the North Pacific were bigeye tuna (47.1%) and yellowfin tuna (27.8%). The annual catch of bigeye tuna by longliners generally tended to increase during 1972-2008, while the annual catch of yellowfin tuna steadily decreased after the mid 1990s. In 2008, the catches of bigeye and yellowfin tunas by longliners were 12,285 and 2,302 t, respectively.

The majority of the catch of distant-water purse seiners during 1980-2008 was skipjack and yellowfin tuna. Total annual catch of Korea distant-water purse seine fishery tended to decrease after a peak of 100,687 t in 2003. The annual catch of skipjack tuna by the purse seiners peaked at 88,654 t in 2003, and then decreased. In recent years, the annual catch of yellowfin tuna by purse seiners fluctuated around 10,000 tons.

Pacific bluefin tuna in Korean waters has mainly been caught by Korean domestic offshore purse seiners as bycatch. The main fishing ground for Pacific bluefin tuna was around Jeju Island. The number of offshore purse seiner vessels has gradually decreased since 1994. The catch of Pacific bluefin tuna peaked at 2,141 t in 2003, and then rapidly decreased. Annual mean fork length of Pacific bluefin tuna during 2000-2008 tended to increase, and in 2008 two modes of larger fish (120 and 150 cm) appeared in the length frequency distribution.

#### **Discussion**

A number of issues were raised with regard to data quality and reporting including:

- Questions regarding the potential for species mis-identification, in particular for bigeye tuna. It was acknowledged that mis-identification could lead to underestimation of the number of bigeye tuna as well as to uncertainty in the data for other species, and that additional sampling and/or estimation techniques may be necessary to improve data quality.
- Apparently sharp declines in catches since 2006 may be due to incomplete receipt of data at the time these data were tabulated.

- Historical and current catches of tuna and tuna-like species by gear types other than longline and purse seine, e.g. the former distant water gillnet fishery, should be investigated and reported, if possible.
- If available, distribution data for the distant water fisheries should be presented.
- If billfish data are available by species, then species-specific data should be provided. However, if the species identifications are dubious, the data should be annotated to explain this.
- If the logbook data coverage is less than 100%, the data should be raised to represent the total catches, i.e. including those catches which are not reported in logbooks.

The delegate from Korea agreed to investigate these issues with regard to available Korean data in order to improve data quality for future ISC submissions.

### 3.5 Mexico

Although the delegate from Mexico was, on short notice, unable to attend ISC9, a national report was submitted (*ISC/09/PLENARY/10*). (The following summary was prepared based on this submission.) The Mexican fishery for tuna and tuna-like species is mainly a purse seine fishery focused on yellowfin tuna, and to a lesser extent skipjack tuna. Preliminary data for 2008 indicate that total landings increased to 123,000 t from 108,000 t in 2007. The species composition was approximately 70% yellowfin tuna, 18% skipjack and 12% other species. Pacific bluefin tuna is included in the other species category; preliminary catch data for 2008 indicate 4400 t of Pacific bluefin were caught by Mexican purse seiners, a slight increase from 2007 levels. In addition to the purse seine fishery, Mexico has a swordfish fishery, which is composed of longliners and some gill netters. Swordfish comprise 12-25% of the catch of this fleet and sharks, in particular blue shark, comprise as much as 63% of the catches in recent years. Striped marlin is the predominant billfish caught in Mexican waters, and all billfishes except swordfish are reserved for the sport fishery. The number of striped marlin caught at three main locations on the Mexican Pacific coast from 1990-2006 ranged from 9,500 to 29,000 but increased to 58,000 in 2007 and a preliminary estimate of 59,000 in 2008.

#### **Discussion**

It was noted that since some of Mexico's data are reported in numbers of fish, these data will need to be converted to weight before they can be used by the ISC and its working groups for annual reporting and data analysis. The ISC Chairmen suggested that Mexico work toward identifying appropriate conversion factors in order to report their data in weight in future submissions.

### 3.6 United States

J. Childers presented the report on U.S. fisheries and research (*ISC/09/PLENARY/11*). U.S. fisheries for highly migratory species in the North Pacific Ocean range from coastal, artisanal fisheries to distant water, large scale fisheries. One of the largest U.S. fisheries in the North Pacific is the western Pacific purse seine fishery operating within the WCPFC area under the South Pacific Regional Tuna Treaty. This fishery operates mainly in the tropical areas of the South Pacific and catches skipjack, yellowfin and bigeye tunas. The other large scale U.S. fishery in the North Pacific is the longline fishery based out of Hawaii and California. This fishery targets swordfish and tunas. Other fisheries include a distant water troll fishery operating from the West Coast to the mid-Pacific; a West Coast based pole-and-line fishery and smaller scale tropical troll fisheries in Hawaii, Guam, and the Commonwealth of the Northern Mariana Islands; tropical handline fisheries in Hawaii; a coastal gillnet fishery off California; and a small-scale harpoon fishery off California. Catches in 2008 increased in the purse seine fishery operating in the central and western Pacific and in the longline fishery based out of Hawaii and California. Various monitoring and economic research projects are being conducted to enhance available information on U.S. Pacific fisheries, and to assess economic impacts and trends in these fisheries. These studies include tuna and billfish tagging and studies of age and growth, size composition and foraging; shark tagging, age and growth, abundance and juvenile surveys, and post-release mortality studies; and gear modification research to reduce bycatch of turtles and sharks.

#### **Discussion**

Several specific technical points were clarified by J. Childers in response to questions arising during the discussion, including:

- Catches of swordfish by pole-and-line gear in 2008 were mainly by small scale coastal fisheries based in southern California.
- The apparent decline in reported catches of yellowfin, skipjack and Pacific bluefin tunas after the mid-1990s may be due to shift in targeting by the pole-and-line albacore fleet which used to target yellowfin in tropical waters but now focus on albacore in temperate waters.
- The large increase in pole-and-line vessels in 2007-2008 is an artifact and will be corrected with review of classification of distant water troll and pole-and-line vessels. It was noted that 2007 and 2008 data are annotated as being preliminary.
- The increase in purse seine vessels in 2007-2008 is due to changing economic conditions. They are not all newly built vessels.
- The observed contraction in the fishery ground of the US albacore troll fishery (*ISC/09/PLENARY/11*, Figure 2) is probably due to a combination of increasing fuel prices and increased schooling of albacore in coastal

waters. The caption for this figure should read “Distribution of catch in number of fish in the US albacore troll fishery, 2008).

- More information on the fishing grounds, size composition and seasonality of catches of Pacific bluefin tuna will be provided to the PBFWG. These matters will be further addressed in the PBFWG by correspondence.

#### **4 REPORT OF THE ISC CHAIRMAN**

The ISC Chairman reported that the ISC completed nine intercessional workshops this year. Each workshop was organized for members and invited experts to participate in advancing collaborative research and to complete tasks associated with stock assessment research on tuna and tuna-like species in the North Pacific Ocean. Key accomplishments during the year include:

1. Completion of a full stock assessment for swordfish;
2. Research on sources of mis-specification, particularly in M for older ages, in the Pacific bluefin tuna stock assessment of 2008;
3. Preparations for the next full stock assessment of albacore;
4. Development of plans for addressing pending technical issues for striped marlin and swordfish stock assessments;
5. Development of a proposal to improve biological information and reduce uncertainties in the stock assessments; and
6. Development of a proposal for advancing a blue marlin stock assessment.

In addition to these accomplishments, the ISC experienced several challenges, including the loss of the services of C. Boggs, R. Conser and N. Miyabe, who stepped down as leaders of ISC working groups. These colleagues served ISC with distinction and contributed to the success of the ISC since the beginning of the working groups and will be missed. Succeeding R. Conser as Chairman of the Albacore Working Group (ALBWG) will be J. Holmes. Succeeding N. Miyabe as Chairman of the Statistics Working Group (STATWG) will be S.K. Chang.

The ISC also experienced difficulties in securing commitments and support for effective operations of the ISC. Support not provided from key ISC members included:

1. Funding for hiring of a professional Database Administrator (DA) and support staff to handle mounting database-associated matters;
2. Funding and authority to execute reconstruction and maintenance of a user-friendly ISC website to serve as an up-to-date information source;
3. Commitment by some Working Group Chairmen to complete workshop reports by due dates and according to standards;
4. Funding of two projects (albacore sampling and database management support) submitted for funding to the WCPFC Northern Committee (NC) in 2008 to address immediate needs; and

5. Commitment by some members to support their scientists in stock assessment meetings and activities.

The ISC Chairman believes that such failures of members to carry out their commitments have prevented the ISC from achieving all planned objectives in an efficient manner within the existing organizational framework, i.e., in-kind contributions by members and without an established Secretariat. If this trend continues, he is concerned that the work of the ISC and the effectiveness of the organization will suffer. The Chairman recommended that ISC members take this threat seriously and either take action to raise the level of support and commitment required for the ISC to accomplish its mission or consider an alternative framework.

## **5 INTERACTION WITH REGIONAL ORGANIZATIONS**

### **5.1 IATTC-ISC Memorandum of Understanding (MOU)**

In introducing this item, the ISC Chairman explained that the draft MOU between ISC and IATTC was discussed at ISC8 and that further development of this MOU was an action item for this year. The current draft of the MOU is contained in *ISC/09/PLENARY/06*. The draft MOU provides a framework for mutual cooperation including reciprocal consultations; exchange of reports; cooperative stock assessments; routine exchange of fishery data in accordance with the rules and procedures for data confidentiality; and standardization of data codes and standards. The effective date, modification and termination clauses, and a review provision are also included. The ISC Chairman stated that the main driver of the MOU was the need to identify a mechanism to allow IATTC to participate in all of the ISC meetings without having to apply for observer status on a case-by-case basis. He noted the involvement of IATTC in ISC stock assessment will strengthen the process given their important role in managing stocks in the North Pacific.

Several members requested clarification of the role of IATTC and the nomenclature to be used when describing their participation. The ISC Chairman explained that the IATTC would be an observer to the ISC Plenary and a full participant in the ISC Working Groups. Given this intent, it was suggested to modify the penultimate paragraph of Part I to read "*The Director of the IATTC and his designated staff will be invited to participate as observers to the plenary meetings of the ISC and to participate as full members in the work of its Working Groups*". Clarification was also requested as to whether ISC members, in addition to the ISC Chairman, would be invited to observe the annual meeting of the IATTC. It was noted that currently all of the ISC parties are being invited to IATTC meetings either as members or cooperating non-members.

The ISC Chairman stressed that nothing in the draft MOU would supercede the ISC's own rules and provisions for data sharing and exchange. Nevertheless, it

was agreed to more precisely specify the data to be exchanged between ISC and IATTC. The provision for data exchange was agreed to be rephrased as: “*Routinely exchange fishery data from the north eastern Pacific Ocean in accordance with the rules and procedures for data confidentiality adopted by each organization ...*”.

The ISC Chairman agreed to incorporate these two amendments to the MOU text and distribute the revised draft to ISC members and IATTC. If no further substantive changes are requested, and IATTC agrees to the changes, the ISC Chairman will sign the MOU on behalf of ISC. If additional changes are requested either by ISC members or IATTC, the MOU text will be tabled for further discussion at ISC10.

## **5.2 Interactions between ISC and the Western and Central Pacific Fisheries Commission (WCPFC)**

The ISC Chairman asked S.K. Soh, WCPFC Observer, to comment on general issues of interaction between ISC and WCPFC.

S.K. Soh reviewed the current terms of the ISC-WCPFC MOU. Under the existing agreement, the WCPFC will pay, as mutually agreed, costs for special scientific advice requested by the Commission, but only the Northern Committee may make such requests to the ISC. The results produced in response to such a request will be presented at meetings of the Northern Committee and Scientific Committee, and may be presented to the WCPFC Commission, if requested. Other interactions between ISC and WCPFC described in the existing MOU include reciprocal consultation; exchange of relevant meeting reports and other information; and exchange of fishery data in accordance with applicable rules and procedures for data confidentiality. S.K. Soh also highlighted that the report of the Independent Review of the Commission’s Science Structure and Functions was posted on the WCPFC website in early June, and noted that WCPFC had requested ISC’s responses in relation to five items contained in the WCPFC proposals related to this review (*ISC/09/PLENARY/INFO/05*).

Specific issues relating to review of the ISC-WCPFC MOU, ISC’s response to the Independent Review of WCPFC Science Structure and Function, and the five items requested by the WCPFC Secretariat (*ISC/09/PLENARY/INFO/05*) will be dealt with under Agenda Item 11-Administrative Matters.

## **5.3 Interactions between ISC and PICES**

The ISC Chairman noted receipt of an invitation for ISC to participate in the annual meeting of PICES to be held in Korea in October. In response to a request for nominations, G. DiNardo offered to represent ISC at this meeting. This nomination was accepted by the Plenary. G. DiNardo will attend and report any noteworthy issues back to the Plenary subsequent to the meeting.

## 6 REPORTS OF WORKING GROUPS AND REVIEW OF ASSIGNMENTS

### 6.1 Albacore

J. Holmes reported on the activities of the ALBWG over the past year. The group met twice during the past year: a regular meeting held 14-22 April 2009 in Shimizu, Japan (*Annex 6*), and an update meeting held 8-9 July 2009 in Kaohsiung, Chinese Taipei (*Annex 9*). The primary focus of the April 2009 meeting was on the stock assessment modeling, particularly the transition from the VPA to the Stock Synthesis (SS) model, consideration of alternative modeling approaches, and updating minimum spawning stock biomass (SSB) estimates with respect to the interim management objectives adopted by the Northern Committee (NC). The meeting held in conjunction with ISC9 focused on updating fishery statistics, providing a qualitative update on stock status since the last assessment, and planning for the next North Pacific albacore stock assessment. Some ALBWG objectives continue from meeting to meeting, e.g. preparations for the next stock assessment and annual updates of national fishery statistics. Other objectives focus on requests from the ISC Plenary and the WCPFC NC and are usually handled at a single meeting.

Accomplishments of the ALBWG over the past year include:

1. An update of national fishery statistics through 2008;
2. Satisfactory progress in developing a length-based stock synthesis (SS) integrated model, which will use catch-at-length as input data for the next assessment;
3. The decision to use the length-based SS3 model as the primary platform for the next stock assessment;
4. Development of data protocols and specifications for SS3 and VPA in the next stock assessment;
5. Completion of a biological research plan to improve albacore stock assessments by collecting new life history data;
6. Development of work plans for 2009-2011 in preparation for the next stock assessment;
7. Election of a new Working Group Chairman (J. Holmes);
8. Provision of a qualitative update on stock status since the last (2006) assessment;
9. Work plan to develop indices of SSB for stock status updates between stock assessments; and
10. Estimation of an F-based reference point ( $F_{SSB-ATHL}$ ) for the North Pacific albacore interim management objective adopted by the NC.

Based on discussions at the meeting in July 2009, the ALBWG concluded that the schedule proposed at ISC8 for the next stock assessment (a data preparation

meeting in October 2009 and a stock assessment workshop in March 2010) would have to be delayed by one year. The new schedule for the next North Pacific albacore stock assessment consists of a regular meeting to complete fishery definitions and identify indices of SSB 16-23 March 2010 in Shimizu, Japan; a short meeting to update fisheries statistics and stock status information scheduled for July 2010 (in conjunction with ISC10); another regular meeting for data preparation scheduled for 16-26 October 2010 in La Jolla, US (exact dates depending on the IATTC Science Workshop schedule); and a stock assessment workshop 22-29 March 2011 at a location to be determined. All of these meetings are required in order to complete assignments and review results for the next assessment by March 2011.

Good progress has been made in transitioning from the age-structured VPA to length-based SS model for the next stock assessment because of the commitment of ALBWG members. However, the ALBWG would like to point out several issues to the ISC Plenary that may affect future work:

1. Staffing and other resource issues are posing challenges to member participation. Continuity of participation by the same scientists will be critical in the upcoming cycle of meetings leading to the next stock assessment;
2. The one-year delay in scheduling of ALBWG meetings for the next stock assessment may affect other ISC WG work plans as many of the same scientists are involved;
3. NC and IATTC management requests may significantly increase the ALBWG workload and impede progress on the next assessment;
4. There is a need to include outside experts in a peer review function either as an ongoing process throughout the series of meetings required for a stock assessment or through some other mechanism; and
5. Collaboration with WCPFC SC on North Pacific albacore and South Pacific albacore assessments has been proposed. The ALBWG notes practical challenges at this time given the tight timeline for the next assessment and resource challenges faced by member scientists. Exploration of data gap issues could be mutually beneficial.

## **Discussion**

In response to a question concerning the nature of requests for ISC services from the IATTC, J. Holmes clarified that there has not yet been such a request but that should a request be received it could have implications for the workload of the ALBWG.

National points of contact for the ALBWG were confirmed to be J. Holmes for Canada, S.Y. Yeh and C.Y. Chen for Chinese Taipei, K. Uosaki for Japan, J.T. Yoo for Korea, L. Fleischer for Mexico, H.H. Lee for the US, J. Hampton for SPC, and A. Aires-da-Silva for IATTC.

## 6.2 Pacific bluefin tuna

Y. Takeuchi, Chairman of the Pacific Bluefin Tuna Working Group (PBFWG), presented the summary of the activities of the group since ISC8 (*Annexes 4 and 10*). The PBFWG met on 10-13 December 2008 in Ishigaki, Japan and on 10-11 July 2009 in Kaohsiung, Taiwan. At the December 2008 workshop, 28 working papers were presented with participation of 31 scientists from Chinese Taipei, Japan, Mexico, USA and the IATTC, as well as two invited scientists. At this meeting, the PBFWG reviewed biological studies on Pacific bluefin tuna. The WG also reviewed the model specification of the 2008 stock assessment and concluded that adult M is likely higher than the value used in the 2008 stock assessment. At the December 2008 workshop, the WG identified one alternative M schedule that appeared most appropriate. At the July 2009 workshop, a new sensitivity analysis was conducted with the alternative M scenario, and its implications for stock status findings and conservation advice at ISC9 were reviewed.

In addition to the work to refine the 2008 stock assessments required by the ISC8 Action Item Plan (*ISC/09/PLENARY/01*), recent scientific contributions of the PBFWG were highlighted. The first of these is that an age and growth study from otolith readings by T. Shimose et al. was accepted for publication in *Fisheries Research* in June 2009. The second is the identification of an improved estimate of adult Pacific bluefin tuna natural mortality (M) as described above and additionally in section 7.2.

Y. Takeuchi also reviewed the PBFWG workplan for 2010 and 2011 including the schedule of the next full stock assessment. The WG plans to hold one workshop in November 2009 in La Jolla, USA. The objective of this workshop is to focus on conducting a full range of sensitivity analyses using the new M schedule and the Stock Synthesis 3 model. As for the schedule of the next full stock assessment, the WG concluded that it could be undertaken in 2011 at the earliest. A two intercessional meeting process is planned with an initial data preparatory meeting to be held in March 2011 in Shimizu, Japan followed by the stock assessment meeting to be held 24-31 May 2011. Potential conflicts of the proposed schedule with planned meetings of other ISC working groups were however noted. In closing, the PBFWG Chairman expressed concern about the possible decline in future involvement and contributions to the PBFWG from members and observers.

### **Discussion**

National points of contact for the PBFWG were confirmed to be L. Song for China, C.C. Hsu for Chinese Taipei, M. Ichinokawa for Japan, J.T. Yoo for Korea, M. Dreyfus for Mexico, K. Piner and H.H. Lee for the US, J. Hampton for SPC, and A. Aires-da-Silva for IATTC.

### 6.3 Billfish

G. DiNardo, Chairman of the Billfish WG (BILLWG), summarized the working group's efforts since the last Plenary, including a synopsis of the two BILLWG workshops held during this period (*Annexes 5 and 7*). Workshop goals included the review and update of fishery statistics, completing a North Pacific swordfish stock assessment and billfish biological research plan, developing a plan to assess Pacific blue marlin and developing responses to a suite of external requests by RFMOs and RFOs. In addition, the BILLWG assisted with the establishment of a special session on billfish stock structure and habitat requirements at the 5<sup>th</sup> World Fisheries Congress in October 2008. While significant progress was made to facilitate the goals, including the updating of Category I, II, and III data and standardization of CPUE time series, as well as completion of a North Pacific swordfish stock assessment, further improvements are still needed.

Administrative matters were presented including increasing work for the BILLWG Chairman outside of the ISC membership, the increasing workload of the BILLWG members, and the lack of WG commitment by ISC membership. A proposed assessment schedule was presented which included the completion of a North Pacific striped marlin stock assessment in July 2011 and a Pacific-wide blue marlin stock assessment in July 2012. It was pointed out that a collaborative approach will be required to complete the blue marlin assessment and efforts are currently underway to establish the necessary collaborations. Proposed dates and venues for upcoming intercessional workshops were presented including 2-9 December 2009, in Honolulu, Hawaii, US and 21-28 April 2010 at a location yet to be determined. The exact dates of the April meeting may change to allow participation in the 26-29 April 2010 International Symposium on Climate Change Effects on Fish and Fisheries in Sendai, Japan.

Problems impinging on the ability of the BILLWG to complete its goals were presented, including the lack of (1) sufficient data in the ISC database and (2) continued participation at BILLWG workshops by member countries. In addition, the lack of understanding on the part of RFMOs and RFOs regarding the role of ISC also hampers progress. Possible solutions to the problems were presented and guidance from the Plenary sought. Finally, it was pointed out that many of the WG's goals for 2008-2009 were achieved and that their successful completion is linked directly to the commitment and dedication of scientists from the member countries and organizations.

#### **Discussion**

The ISC Chairman raised the issue of data acquisition for this working group stating that a strategy for obtaining data from China and various RFMOs was being implemented. G. DiNardo clarified that Spain has agreed to provide data but that data transfer is yet to occur.

The feasibility of using an integrated model (i.e. incorporating size structure information) for swordfish given the limited data was questioned: G. DiNardo explained that initial comparisons between the integrated model and other models, such as the Bayesian surplus production model, show consistent results and that it is highly likely that the conservation advice for swordfish will not change.

Another question was raised regarding the responsibility for the ISC BILLWG for a striped marlin stock defined to be within the IATTC Convention Area. G. DiNardo noted that initially the IATTC indicated it would be conducting its own stock assessment for striped marlin but had yet to do so. It appears that coordination and collaboration with IATTC on such issues will be both necessary and useful.

National points of contact for the BILLWG were confirmed to be X.J. Dai for China, C.L. Sun and S.P. Wang for Chinese Taipei, K. Yokawa for Japan, J.T. Yoo for Korea, L. Fleischer and F. Farias for Mexico, K. Piner and J. Brodziak for the US, J. Hampton for SPC, and M. Hinton for IATTC.

#### **6.4 Bycatch**

G. DiNardo presented a report on the intercessional meeting of the ISC Bycatch Working Group (BCWG) on behalf of outgoing BCWG Chairman C. Boggs. An ISC BCWG meeting was held 14-15 January in Honolulu, Hawaii that included participants from Japan, Chinese-Taipei and the US. The group discussed ongoing research on bycatch monitoring and mitigation by member nations. A number of papers were presented demonstrating progress since the last meeting regarding estimation and mitigation of bycatch in HMS fisheries on the high seas. The group developed recommendations on bycatch data collection, and discussed specifications for tori lines to help reduce seabird bycatch in longline fisheries. A work plan was updated and the group plans to move forward on a number of collaborative projects on sea turtle, seabird and shark bycatch monitoring, mitigation, and population status assessments. A new Chairman is needed for the working group.

#### **Discussion**

It was agreed that the ISC Chairman should call for nominations for a new Chairman of the BCWG. The ISC Chairman agreed to do so noting that even though the purpose and objectives of this working group have recently been subject to some deliberation, the high and sustained interest in bycatch issues within the international community warrants the continued existence of this working group.

## 6.5 Biological Research Task Force

S.K. Chang, Co-Chairman (with J. Holmes) of the Biological Research Task Force (BRTF) presented a report on its meeting held in May in Busan, Korea. The full report of this meeting is provided in *Annex 8*.

The need for biological research has been raised many times by ISC WGs because much of the biological data required by the WGs either are 40+ years old or insufficient. This has resulted in uncertainties in stock assessments. The BRTF, which was established by ISC8, was designed to develop an integrated multi-year, multi-species, multi-national biological research program to address this issue. Ongoing biological research programs are encouraged, but a more comprehensive program is necessary and thus the proposed biological research program should be supported.

The BRTF meeting focused on two priorities for albacore, swordfish, striped marlin and blue marlin: (1) sex-specific age and growth data; and (2) maturity data. Pacific bluefin tuna assessments have benefited from some recent important biological research, but acquiring sex-specific length and maturity data from very small and very large individuals still remains a priority. A program was developed for size-stratified sampling for each species and with consideration of sampling from as many fleets as possible and covering as wide a range of fish sizes as possible.

Target and projected sample sizes were defined by species and size range for each fishery. A budget according to each species was developed and through cost sharing the total costs were reduced to \$434,000 over a three-year period. A coordinator was appointed to handle each species, but an overall coordinator for the entire program is required to, among other things, look for lessons from sampling programs of other RFMOs. The research proposal of the BRTF meetings (*Annex 12*) is discussed in Section 11.7.

### **Discussion**

The ISC Chairman supplemented the presentation by adding that the WCPFC NC has recognized the need for biological studies to reduce the level of uncertainty in ISC's stock assessments. Despite this recognition, it is not yet clear what sources of funding can be made available for such studies.

## 6.6 Seminar on Reference Points for HMS Fisheries Management

J. Brodziak presented the results of a seminar convened just prior to ISC9 at the request of the ISC Chairman to discuss reference points for HMS fisheries management. A full report of the seminar is provided in *Annex 13*. The seminar included seven presentations on the theory and application of biological reference points and socioeconomic indicators for fisheries management with special

consideration of highly migratory species. The presentations focused on objective measures of sustainability; resource management in tuna RFMOs, and associated yield-based reference points; modern spawning potential reference points; and reference points for ecosystem-based fishery management.

## **Discussion**

In discussion, J. Brodziak noted that although the seminar did not lead to any specific recommendations for the formulation of reference points for use in ISC stock assessments, the eventual necessity of making progress toward such formulation is strongly supported by the scientific literature. The ISC Chairman expressed his appreciation to J. Brodziak and K. Piner for convening the seminar, and thanked all presenters for their participation.

## **7 STOCK STATUS AND CONSERVATION ADVICE**

### **7.1 Albacore**

J. Holmes summarized the recent work of the ALBWG on North Pacific albacore stock status (*Annex 9*). The last albacore stock assessment was completed in December 2006 using fishery data through 2005. Stock status and conservation advice were provided to the ISC7 Plenary (July 2007) and to NC3 (September 2007). No formal update of stock status has been conducted since the 2006 assessment. However, at its 8-9 July 2009 meeting, the ALBWG undertook a qualitative update using available fisheries data from 2006 to 2008 and concluded that:

1. A new stock assessment will be necessary to fully understand the implications of the new data available since the last stock assessment. The following conclusions are based on data after 2005 that were presented at this meeting;
2. The 2006 stock assessment (ISC7 Plenary Report, Annex 5) estimated that albacore spawning biomass reached an historical high in 2005. The working group's qualitative interpretation of new data neither supported nor refuted this estimate;
3. The working group's qualitative interpretation of new data neither supported nor refuted a decline in spawning biomass after 2005 that was projected in the 2006 stock assessment;
4. The working group's qualitative interpretation of new data neither supported nor refuted the relatively strong recruitment from the 2001 and 2003 year-classes estimated in the 2006 stock assessment; and

5. Nominal albacore effort in most fisheries appears to have declined since 2005 and catches since 2004 (with the exception of 2007) have been substantially lower than in the previous decade. This could mean that  $F_{2008}$  is now less than the  $F (0.75 \text{ yr}^{-1})$  used in the 2006 stock assessment projections. Alternatively,  $F$  may be as high as the value used in the stock assessment projections since the level of recruitment after 2005 is not known.

## **Discussion**

In discussion there was general agreement that uncertainty about the current stock status of North Pacific albacore is increasing as time elapses since the last stock assessment. Adding to the uncertainty is the fact that in the ALBWG's most recent qualitative assessment of updated data (July 2009), the available catch per unit effort (CPUE) data had not yet been standardized and therefore were not completely reliable as indices of stock abundance.

Some members stated that this situation calls for the application of a precautionary approach; however, other members suggested that the actual stock situation may have in fact improved since the last assessment. In particular, there are some signs that fishing effort may be decreasing or stable which would indicate that fishing mortality may be decreasing. On the other hand, as there is no informative data on the status of recruitment to this stock since 2005, it is possible that recruitment has decreased causing a reduction in SSB despite declines in effort. Acknowledging this, it was agreed that the final sentence in Point #5 of the conclusions of the ALBWG should be rephrased as follows:

5. Nominal albacore effort in most fisheries appears to have declined since 2005 and catches since 2004 (with the exception of 2007) have been substantially lower than in the previous decade. This could mean that  $F_{2008}$  is now less than the  $F (0.75 \text{ yr}^{-1})$  used in the 2006 stock assessment projections. However, the level of recruitment after 2005 is not known.

Members agreed that a new stock assessment should be conducted as soon as is practicable, however, due to workload constraints this is not scheduled to occur until 2011. In the absence of updated stock assessment results, there was also consensus that it is not possible to update the conservation advice for this species or to provide a specific evaluation of stock status against the interim management objective defined by the Northern Committee in September 2008. Therefore, it was agreed to retain the existing conservation advice and highlight several key points from the recent ALBWG qualitative assessment for ongoing consideration. One of these key points was to seek further clarification from the Northern Committee regarding whether the interim management objective was intended to be used as a limit or a target.

## Conservation Advice

After discussion of the ALBWG conclusions (*Annex 9*) and consideration of comments raised by Plenary members, the ISC offers no new conservation advice for North Pacific albacore above and beyond that which was provided to ISC7 in July 2007, pending the results of a new stock assessment, planned for 2011. To reiterate, the advice provided at ISC7 was:

*“Previous scientific advice, based on the 2004 stock assessment, recommended that current fishing mortality rate ( $F$ ) should not be increased. It was noted that management objectives for the IATTC and WCPFC are based on maintaining population levels which produce maximum sustainable yield. Due to updating, and improvements and refinements in data and models used in the 2006 stock assessment, it is now recognized that  $F_{cur}$  (0.75) is high relative to most of the  $F$  reference points [commonly used in fisheries management] (see Table 5a in Annex 5 [of the ISC7 Plenary Report] ).*

*On the other hand, the same analysis indicates that the current estimate of the SSB is the second highest in history but that keeping the current  $F$  would gradually reduce the SSB to the long-term average by the mid 2010s. Therefore, the recommendation of not increasing  $F$  from current level ( $F_{cur(2002-2004)}=0.75$ ) is still valid. However, with the projection based on the continued current high  $F$ , the fishing mortality rate will have to be reduced.”*

The NC adopted an interim management objective at NC4 (September 2008) to maintain the spawning stock biomass (SSB) above the average level of its 10 historically lowest points (ATHL) with a probability of 50% until reference points are established. The associated  $F$ -based threshold ( $F_{SSB-ATHL}$ ) was not estimated during the last stock assessment, but the ISC-ALBWG was requested to conduct its assessments, and to express the results of its assessments, such that they include the information necessary to achieve this interim management objective.

Based on analyses conducted by the ALBWG since ISC8, the following points are highlighted:

- 1. The ISC9 Plenary notes that there is increasing uncertainty concerning the status of North Pacific albacore in the absence of a new stock assessment.**
- 2. The estimated value of  $F_{SSB-ATHL}$  is  $0.75 \text{ yr}^{-1}$  for a 25-year projection period using fishery data through 2008. This value is similar to the most recent estimate of  $F$  ( $F_{2002-2004} = 0.75 \text{ yr}^{-1}$ ) from the last stock assessment.**
- 3. The ALBWG did not determine the proximity of  $F_{2008}$  to this reference point.**

- 4. The ALBWG has generally interpreted  $F_{SSB-ATHL}$  as a limit reference point, however, further guidance is required from the Northern Committee to clarify whether  $F_{SSB-ATHL}$  is considered a target or limit reference point. If  $F_{SSB-ATHL}$  is intended to be a limit reference point, then further consideration about the probability of falling below the threshold may be needed.**

## 7.2 Pacific Bluefin Tuna

Y. Takeuchi, Chairman of the PBFWG, presented results of a new sensitivity analysis using a revised schedule of natural mortality (M) values (Table 5), focusing on the pros and cons of the results. This new schedule was developed at the 10-17 December 2008 PBFWG workshop (*Annex 4*) and applied to the 2008 stock assessment of Pacific bluefin tuna analyzed during a working group meeting held 10-11 July 2009 (*Annex 10*).

The comparison of the results from the 2008 stock assessment base case and the new sensitivity run showed limited differences in the estimated recruitment time series, but considerably higher levels of SSB using the new M values as compared to the 2008 stock assessment base case. However, even when using the new M values no apparent stock recruitment relationship was found. In retrospective analyses focused on recruitment, SSB, and overall and age-specific fishing mortality rates, underestimation of the most recent year's recruitment, together with overestimation of Fs in most years, was observed in both the 2008 base case and the new analysis. In addition, recent years' SSB estimates using the new M values were more variable than the 2008 base case, but did not show bias.

Changes in biomass-based management quantities were also reviewed and were found to be approaching a more plausible range (see the last paragraph of this section). In addition, the magnitude of the statistical uncertainties estimated from bootstrapping was similar to tuna stock assessments results by other tuna RFMOs including IATTC and WCPFC. In general SSB estimates using the new M values are larger than those in 2008 base case, and differences between estimates using the previous and new M values were larger in recent years.

Using the new M values, preliminary results of the future stock projection suggest that in the short term (2009-2010), SSB will decline, but in the longer term SSB will attain its historical median level. Comparisons of current F relative to the potential biological reference points ( $F_{max}$ ,  $F_{0.1}$ ,  $F_{20\%}$ ,  $F_{30\%}$ ,  $F_{40\%}$ ,  $F_{MED}$ ) showed that it is higher than potential target BRPs, but lower than or close to potential limit BRPs. The change in the yield per recruit curve in the new M sensitivity run relative to the 2008 base case showed that the Y/R curve becomes much flatter and the current F exceeds  $F_{max}$  by 31%. The expected increase in Y/R if F is reduced to  $F_{max}$  is about 4% relative to current Y/R.

Based on these observations of the effects of the new M schedule on the 2008 stock assessment, the PBFWG made the following conclusions with regard to stock status and conservation advice (see Appendix 4 in *Annex 10* for details):

“The controversial quantities of “low plausibility” have been eliminated with the alternative PBF M schedule: low SBR levels (<5%) for the base case model [were] replaced with around 10-24%, which seem[s] more plausible in the tuna world. Also, an improvement of the model fit to the PBF data has been noted. On the other hand, most of [the] conclusions about stock status and conservation advice presented [at the] ISC plenary last year seem to be robust to [the] natural mortality schedule, except for the results related to unfished biomass and minor differences [i]n short term future projections and [the] shape of the YPR curve.”

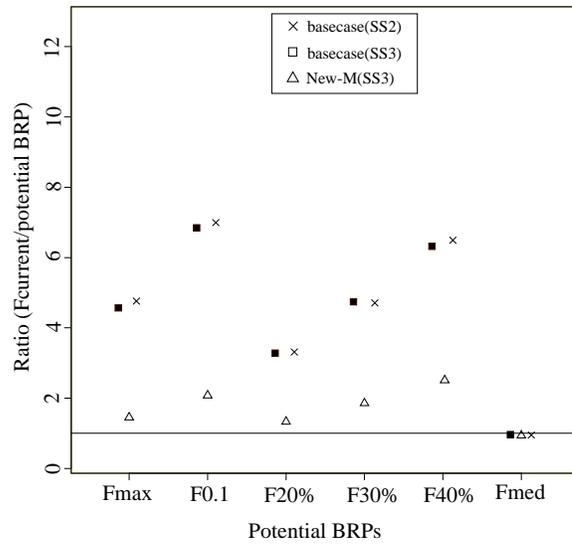
Based on these more plausible results, the PBFWG Chairman highlighted the possible changes in the ISC8 conclusions regarding stock status and conservation advice provided by the PBFWG (see section 3.2 in *Annex 10* for details). However, some of the results arising from the additional sensitivity analyses made interpretation of stock status quite difficult. When an additional set of adult M values slightly different from those determined at the December 2008 workshop was applied, estimated SSBs were substantially different. The magnitude of the change in SSB was more significant in recent years. This relatively high sensitivity of SSB to changes in adult M also substantially affects the biomass- and F-based management quantities (e.g. current catch, current SSB, total biomass and current F to equilibrium yield at  $F_{max}$ , equilibrium SSB at  $F_{max}$ , equilibrium total biomass at  $F_{max}$  and  $F_{max}$ ). Therefore slight changes in adult M were shown to lead to large changes in management quantities. The PBFWG Chairman explained that one potential cause of this problem could be that there is an apparent conflict between CPUE series as illustrated by the likelihood profile with regard to  $R_0$

### **Discussion**

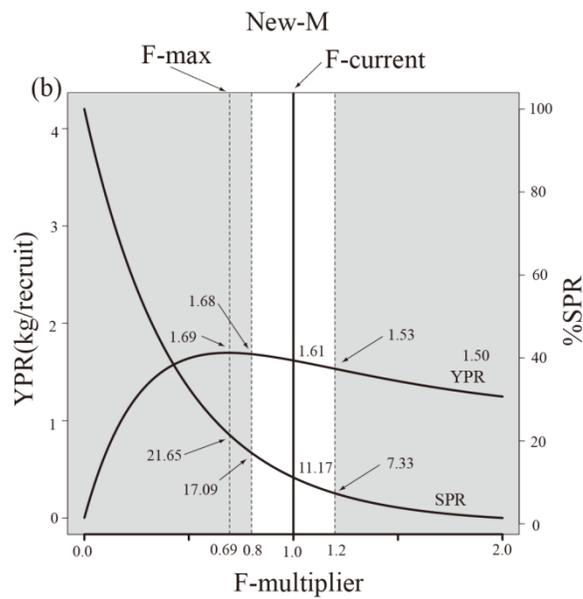
The plenary reviewed the previous conclusions about the PBF stock status given in the ISC8 Plenary report (Section 7.2). With the more plausible results of preliminary sensitivity runs using a new M schedule contained in *Annex 10*, and described above, members considered the following text to be more appropriate:

1. Recruitment has fluctuated without trend over the assessment period (1952-2006), and does not appear to have been adversely affected by the relatively high rate of exploitation. Recent recruitment (2005-present) is highly uncertain – making short-term forecasting difficult. In particular, the 2005 year class strength may have been underestimated in this assessment.

2. Spawning stock biomass (SSB) in 2005, estimated with the value for natural mortality (M) used in the 2008 stock assessment was 20,000 t based on the SS2 model and 23,000 t based on the SS3 model. Applying the revised estimate of M from the 2009 workshops and the SS3 model, the SSB was estimated at 73,000 t. These SSB estimates for 2005 are above the median level over the assessment period (1952-2006). If the future fishing mortality rate (F) continues at the current F level, the short-term projections (2009-2010) indicate SSB will decline. In the longer term, SSB is expected to attain levels comparable to median SSB levels over the assessment period.
3. No relationship between SSB and recruitment is apparent over the range of “observed” SSB from the assessment. The assessment structure tacitly assumes that at least over the SSB levels “observed,” recruitment is more environmentally driven than SSB-driven.
4. Current F (2002-2004) is greater than commonly used biological reference points (BRP) that may serve, in principle, as potential target reference points. This includes  $F_{MAX}$  – a BRP that given the assessment structure and assumptions is theoretically equivalent to  $F_{MSY}$ . But the magnitude by which the  $F_{current}$  exceeds the target BRPs is variable (Figure 1). If current F is reduced to  $F_{MAX}$  spawning potential (%SPR) is expected to increase in absolute terms by 10%, and yield per recruit is expected to increase by 4% relative to current levels (Figure 2).
5. Conversely, current F is less than commonly used BRPs that may serve, in principle, as potential recruitment overfishing threshold BRPs (e.g.  $F_{MED}$ ), i.e.  $F_s$  above which the likelihood of recruitment failure is high (Figure 1).
6.  $F_s$  on recruits (age 0) and on juveniles (ages 1-3) have been generally increasing for more than a decade (1990-2005). The catch (in weight) is dominated by recruits and juveniles (ages 0-3).
7. Total catch has fluctuated widely in the range of 9,000-40,000 t during the assessment period (1952-2006). Recent catch is near the average for the assessment period (~22,000 t).



**Figure 1.** Box-plot of potential reference points ( $F_{max}$ ,  $F_{0.1}$ ,  $F_{20\%}$ ,  $F_{30\%}$ ,  $F_{40\%}$ ,  $F_{med}$ ) deriving from a base-case by SS2, SS3 and New-M for Pacific bluefin tuna. The horizontal line at  $y=1$  indicates where the ratio of the current  $F$  to the  $F$  based BRPs.



**Figure 2.** Yield per recruit curve and associated % spawners per recruit for Pacific bluefin tuna resulting from application of the new natural mortality ( $M$ ) schedule as produced by the PBFWG at the 10-11 July 2009 working group meeting.

## **Conservation Advice**

After discussion of the PBFWG's assessment reports (*Annexes 4 and 10*) and consideration of comments raised by Plenary members, the ISC offers the following conservation advice:

- 1. If F remains at the current level and environmental conditions remain favourable, the recruitment should be sufficient to maintain current yield well into the future.**
- 2. A reduction in F in combination with favourable environmental conditions, should lead to greater SPR.**
- 3. Increases in F above the current level, and/or unfavourable changes in environmental conditions, may result in recruitment levels which are insufficient to sustain the current productivity of the stock.**

With regard to advice on the current level of F, differing viewpoints were expressed. Some members concurred with the findings of the PBFWG which stated:

- 4. Given the conclusions of the May-June 2008 stock assessment with regard to the current level of F relative to potential target and limit reference points, and residual uncertainties associated with key model parameters, it is important that the current level of F is not increased.**

In contrast, other members suggested that the following statement better reflects the current understanding of the stock status relative to the range of reference points considered (Figure 1):

- 4. Given the conclusions of the July 2009 PBFWG, the current level of F relative to potential biological reference points, and increasing trend of juvenile F, it is important that the current [sic] level of F is decreased below the 2002-2004 levels on juvenile age classes.**

### **7.3 Striped Marlin**

G. DiNardo, Chairman of the BILLWG, presented an update on the stock status of striped marlin. He noted that no new assessment has been conducted. The last assessment was conducted in 2007 and presented at ISC7. A new assessment is scheduled to be completed in 2011. The new assessment will consider a multi-stock hypothesis, probably a two stock scenario. A qualitative review of stock status was not conducted; therefore the BILLWG proposes that the ISC Plenary maintain the existing conservation advice for this species.

## **Discussion**

Members discussed potential ways of progressing toward effort reduction for striped marlin in accordance with the existing conservation advice. G. DiNardo indicated that the Northern Committee's striped marlin working group will be addressing this issue and that members of the ISC BILLWG have agreed to assist with this task.

Members also noted the importance of collaborative work in ensuring the success of the next stock assessment. One important element of this will be close coordination with IATTC which would be facilitated through an MOU between ISC and IATTC (*Section 5.1*). Another important element is the provision of improved estimates of biological parameters which would be facilitated through implementation of the ISC BRTF's proposal (*Section 11.7*). Chinese Taipei has already initiated collaborative sampling and research to estimate biological parameters for striped marlin.

## **Conservation Advice**

In the absence of further information and analysis regarding the stock status of North Pacific striped marlin, the ISC Plenary agreed to maintain the conservation advice from ISC7, i.e.:

***“While further guidance from the management authority is necessary, including guidance on reference points and the desirable degree of reduction, the fishing mortality rate of striped marlin (which can be converted into effort or catch in management) should be reduced from the current level (2003 or before), taking into consideration various factors associated with this species and its fishery. Until appropriate measures in this regard are taken, the fishing mortality rate should not be increased.”***

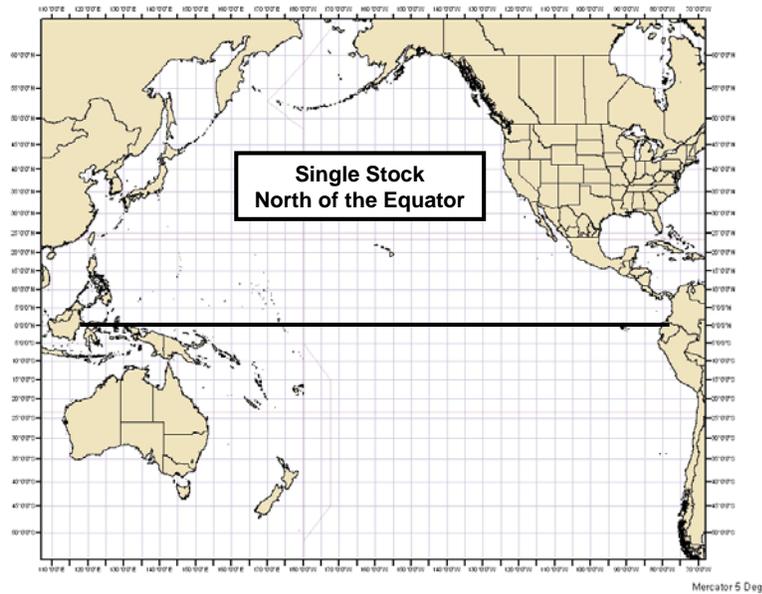
### **7.4 Swordfish**

G. DiNardo, Chairman of the BILLWG, presented background information on the swordfish stock assessment process and J. Brodziak presented the results of the 2009 swordfish stock assessment.

The assessment of swordfish stocks in the North Pacific Ocean was conducted using a Bayesian Surplus Production (BSP) model assuming two hypotheses for stock structure: a single stock in the North Pacific Ocean, above the equator (Stock Scenario-1; Figure 3) and two stocks separated by an irregular boundary extending from Mexico to the southwest and including sections of the eastern South Pacific extending to 20°S latitude (Stock Scenario-2; Figure 4). Available evidence (i.e., genetic analyses) supports the two-stock hypothesis and consequently stock status and conservation advice should be based on the two-

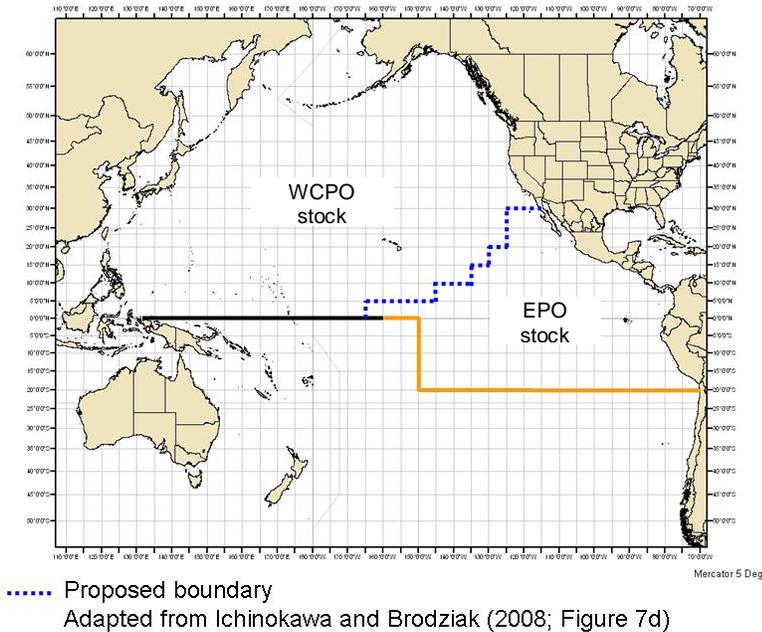
stock scenario. Within the two stock scenario, Sub-Area 1 is defined as the Western-Central Pacific Ocean (WCPO) stock and Sub-Area 2 is defined as the Eastern Pacific Ocean (EPO) stock. Stock status and conservation advice follows for each of the sub-areas.

### Stock Scenario - 1



**Figure 3.** Stock Scenario-1, a single North Pacific swordfish stock north of the equator.

### Stock Scenario - 2

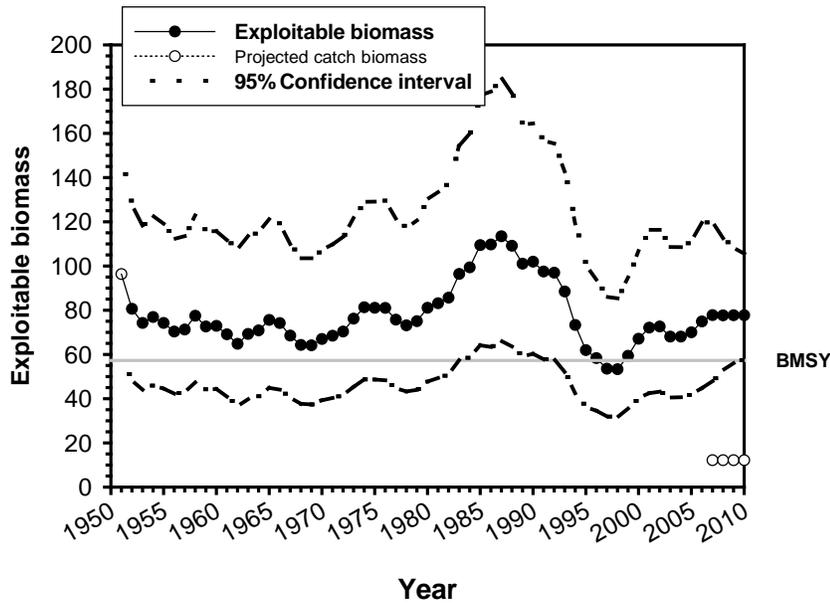


**Figure 4.** Stock Scenario-2, two North Pacific swordfish stocks with boundaries according to ISC/08/BILLWG-SS/04.

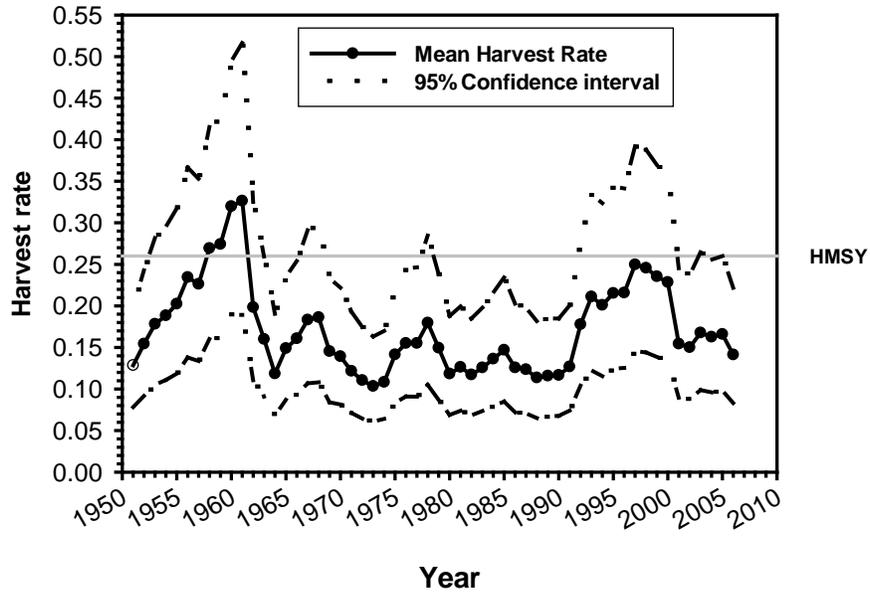
Stock Status: Sub-Area 1—Western-Central Pacific Ocean (WCPO) Stock.

Results from BSP model analysis indicate that the exploitable biomass of swordfish for the WCPO stock has fluctuated above the  $B_{MSY}$  level ( $B_{MSY} = 57,300 \text{ t} \pm 11,800 \text{ t}$  and  $MSY = t \pm 2,000 \text{ t}$ ) in most years used in the analysis (1951-2006) (Figure 5). It fell below  $B_{MSY}$  for some years in the 1990s but has been above  $B_{MSY}$  in the most recent 5 years (2002-2006).

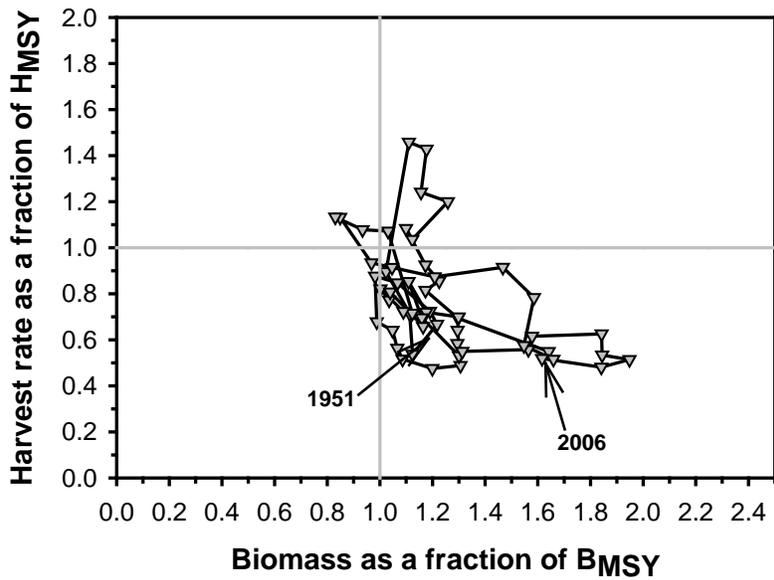
The exploitation rate for the WCPO stock has fluctuated during the period 1951-2006, but has remained below the level required for MSY ( $H_{MSY} = 26.2\% \pm 6.2\%$ ) (Figure 6). The probability that the exploitation rate in 2006 exceeded the exploitation rate at MSY is low at 1%. Projecting exploitable biomass through 2010 by assuming (1) a constant 3-year (2004-2006) average exploitation rate for the fishery and (2) fishing operations largely remaining unchanged, results in exploitable biomass levels above  $B_{MSY}$  and sufficient to sustain recent levels of catch (Figure 5). The phase plot or Kobe diagram is shown in Figure 7.



**Figure 5.** Exploitable biomass of swordfish in Sub-Area 1 (WCPO) relative to exploitable biomass at maximum sustainable yield ( $B_{MSY}$ ) from 1951 – 2006, and projected from 2007 – 2011 assuming the average harvest rate from 2004 – 2006.



**Figure 6.** Estimated harvest rate of swordfish in Sub-Area 1 (WCPO) relative to harvest rate at maximum sustainable yield ( $H_{MSY}$ ) from 1951 – 2006.



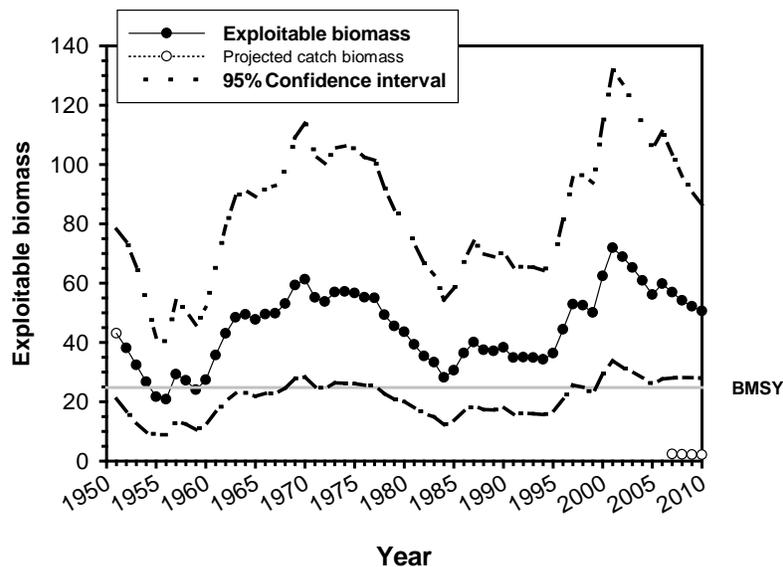
**Figure 7.** Sub-Area 1 (WCPO) biomass of swordfish as a fraction of  $B_{MSY}$  and harvest rate as a fraction of  $H_{MSY}$  (1951 – 2006).

## Stock Status: Sub-Area 2-- Eastern Pacific Ocean (EPO) Stock

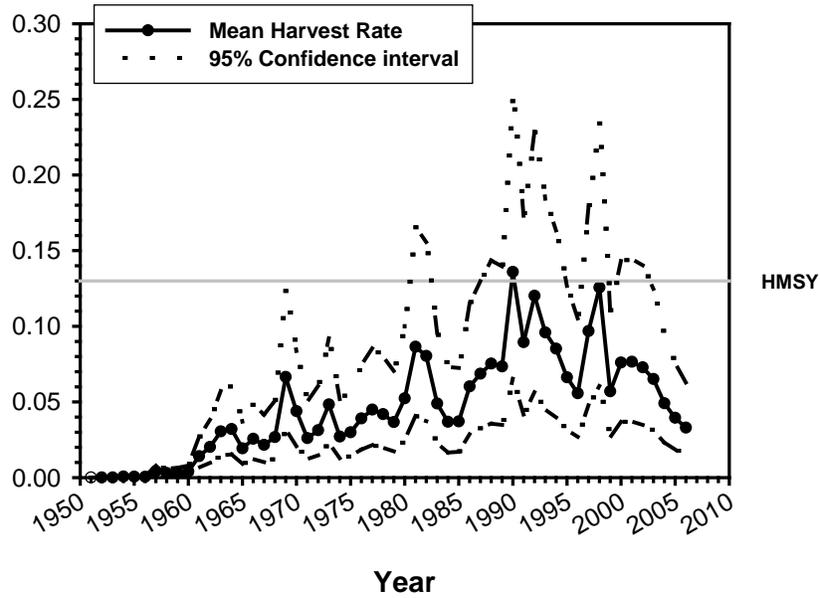
Similarly, results from BSP model analysis indicate that the exploitable biomass of swordfish for the EPO stock has fluctuated above the  $B_{MSY}$  level ( $B_{MSY} = 24,800 \text{ t} \pm 6,900 \text{ t}$  and  $MSY = 3,100 \text{ t} \pm 1,400 \text{ t}$ ) for most years (Figure 8). The exception was for some years in the 1950s when it was below the  $B_{MSY}$ . For the most recent 5 years (2002-2006), the exploitable biomass was well above the  $B_{MSY}$ .

The exploitation rate during the period from 1951 to 2006 has remained well below the level required for MSY ( $H_{MSY} = 12.7\% \pm 4.9\%$ ) (Figure 9). The probability that this rate in 2006 exceeded the exploitation rate at MSY is low at 1%. Projecting exploitable biomass forward until 2010 by assuming (1) a constant 3-year (2004-2006) average exploitation rate and (2) fishing operations to those observed in 2006, results in exploitable biomass levels above  $B_{MSY}$  which is sufficient to sustain recent levels of catch (Figure 8).

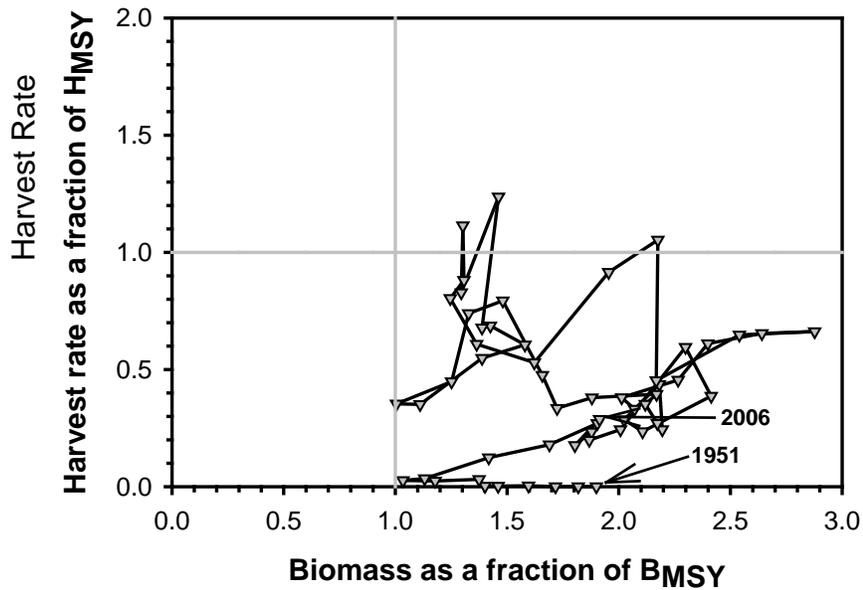
The phase plot or Kobe diagram (Figure 10) summarizes the information for the EPO stock of swordfish and shows that the stock is in good condition.



**Figure 8.** Exploitable biomass of swordfish in Sub-Area 2 (EPO) relative to exploitable biomass at maximum sustainable yield ( $B_{MSY}$ ) from 1951 – 2006, and projected from 2007 – 2011 assuming the average harvest rate from 2004 – 2006.



**Figure 9.** Estimated harvest rate of swordfish in Sub-Area 2 (EPO) relative to harvest rate at maximum sustainable yield ( $H_{MSY}$ ) from 1951 – 2006.



**Figure 10.** Sub-Area 2 (EPO) biomass of swordfish as a fraction of  $B_{MSY}$  and harvest rate as a fraction of  $H_{MSY}$  (1951 – 2006).

## **Discussion**

Members raised questions with regard to the two-stock structure used in the assessment. In particular it was queried how the stock assessment results for the EPO would be reported to and coordinated with IATTC. There was consensus that close consultation with IATTC is required, especially with regard to any differences in the results obtained by ISC and those obtained if IATTC conducts its own assessment. G. DiNardo noted that a representative of IATTC had participated in the ISC swordfish assessment and had agreed with the specification of the stock boundaries. There was also discussion of whether the stock boundaries used in the assessment had truncated fisheries, particularly those focused on areas south of the assessment area, along arbitrary boundaries based on existing RFMO management boundaries. G. DiNardo explained that fishery data were examined and there did not appear to be high fishing effort near the southern boundary of the eastern Pacific stock. The existence of a large fishery off Chile was noted, but this was considered to be outside the scope of the ISC's consideration.

The BILLWG will proceed with attempts to acquire data from Spain, but it was acknowledged that these data will not produce CPUE indices and are not expected to change the results of the assessment. These data will be included in the upcoming assessment, as well as a review of the southern boundary established in the EPO (20°S), which will be reported at ISC10.

## **Conservation Advice**

After discussion of the BILLWG's assessment report (*Annex 7*) and consideration of comments raised by Plenary members, the ISC offers the following conservation advice:

**The WCPO and EPO stocks of swordfish are healthy and well above the level required to sustain recent catches.**

### **7.5 Blue Marlin**

G. DiNardo, Chairman of the BILLWG, informed the Plenary that the most recent stock assessment for blue marlin was conducted approximately ten years ago and found that this species may be fully exploited. No recent assessment has been conducted. Due to the Pacific-wide distribution of blue marlin, producing a credible stock assessment will require cooperation and contributions from scientists from many countries. In order to facilitate this process, the BILLWG requested the endorsement of the Plenary in initiating planning for a World Blue Marlin Symposium in March 2011 which will bring together scientists conducting research on blue marlin, as well as provide a mechanism for obtaining input data for the ISC stock assessment currently scheduled for 2012. The first step would be to form a Steering Committee and to identify and approach potential sponsors for funding.

## **Discussion**

Members expressed concern that it may be difficult to secure the necessary funding for the symposium. However, it was agreed to allow the BILLWG to proceed with symposium planning on the condition that if support/funding is lacking, the idea may have to be abandoned. The Chairman of the BILLWG will report on progress at ISC10.

### **Conservation Advice**

There is no current conservation advice for blue marlin.

#### **7.6 Sharks: Blue, Shortfin Mako, others.**

The ISC Chairman introduced this topic in order to explore whether the ISC should begin to develop a work plan to address issues associated with the conservation of sharks rather than only those associated with bycatch. He noted that the current terms of reference of the BCWG are focused on the development of mitigation measures with a focus on seabirds and sea turtles and monitoring of shark, bycatch. It is therefore difficult for the BCWG to consider issues of directed fisheries for sharks. Another reason that the ISC has not explicitly addressed shark issues thus far is related to competing priorities and limited resources. Nevertheless, conservation and management of sharks is important to the sustainability of directed shark fisheries in the North Pacific Ocean as well as a topic of interest among NGOs. The ISC Chairman suggested that ISC members consider ways to gather information on shark stock status for potential future assessments.

### **Discussion**

Members discussed the issue of whether there are sufficient data to support shark stock assessments and if not, whether more active acquisition of shark data should be pursued under the STATWG. Members also considered whether the ISC's goal was to focus on bycatch mitigation and if so whether the assessment of fishery impacts to shark populations would be better left to other organizations such as IATTC and WCPFC. It was noted that shark catch data are already reported by members to these two RFMOs and that it would be counterproductive to duplicate this reporting to ISC.

S.K. Chang, Chairman of the STATWG, explained that in order to fulfill the current responsibilities of the STATWG, aggregated tuna and billfish catch for the North Pacific was necessary for monitoring ISC-area highly migratory species production. Compilation of data relating to sharks as bycatch also falls within the current remit of the BCWG, and S.K. Chang explained that an ISC data-reporting format for the number of encounters with sharks, seabirds, and sea turtles in commercial fisheries for tuna and tuna-like species has been developed.

There was consensus that the question of what shark data should be compiled by ISC should be the subject of further discussion after the BCWG discusses the shark bycatch data requirements. The ISC Chairman agreed to identify a new Chairman for the BCWG and to ask that Chairman to convene a BCWG meeting to discuss these issues, among others. The results of the discussion will be reported to ISC10.

## **Conservation Advice**

There is no current conservation advice for shark species.

### **7.7 Habitat**

The ISC Chairman introduced this new topic to the ISC Plenary agenda on the basis that data on oceanographic conditions and trends are important for informed assessment of tuna and tuna-like species. The ISC Plenary was therefore asked to consider whether it would be advisable for the ISC to form a stronger relationship with PICES, which is already a non-voting member of ISC. In this way the ISC would be able to benefit from PICES' ongoing tracking of long- and short-term oceanographic conditions of the North Pacific Ocean.

Members suggested that PICES could be invited to make a presentation to the ISC regarding their forthcoming PICES report on the state of North Pacific ecosystems. It was noted that although ISC is not a member of PICES, other than through the ISC member countries, PICES invites ISC to attend its annual meetings each year. As it has been agreed that G. DiNardo will attend PICES on behalf of ISC this year, he was given the additional task of identifying which current activities of PICES might hold some benefit for the work of the ISC. G. DiNardo will report back to the Plenary on this issue as part of his feedback from the 2009 PICES annual meeting.

In addition, it was suggested that the various ISC Working Groups (WGs) share their own experiences with using oceanographic data to account for habitat factors, e.g. in CPUE standardization. It was suggested that next year's ISC10 seminar could focus on habitat issues, including presentations from the ISC WGs, as well as from outside experts perhaps based in the host country for ISC10, on habitat issues and methods. An alternative topic for the seminar was also discussed that focused on advances in stock assessment modeling. It may be possible to combine these topics into a single program and this will be considered by the ISC Chairman in consultation with the local organizers of ISC10.

## **8 REVIEW OF STOCK STATUS OF SECONDARY STOCKS**

### **8.1 Eastern Pacific – Yellowfin and Bigeye Tunas**

H. H. Lee presented a review of the status yellowfin and bigeye tunas in the eastern Pacific based on stock assessment work by the IATTC for yellowfin tuna (*ISC/08/PLENARY/INFO/01*) and bigeye tuna (*ISC/08/PLENARY/INFO/02*).

IATTC assessed bigeye tuna using Stock Synthesis version 3, assuming a single EPO stock which does not mix with the WPO stock, as in the 2008 assessment. The base assessment model and assumptions about model parameters were generally the same as those used for the 2008 assessment. Sensitivity analyses were conducted for three

alternative assumptions: (1) a stock-recruit relationship, (2) Richards growth function, and (3) extending the western limit of the biological distribution from 150°W to 170°W. The base case was the most optimistic of the four scenarios. The Richards growth function produced better fits and may become the base case in future assessments.

The status of the bigeye tuna stock was assessed considering calculations based on spawning biomass and MSY. As of January 2009, the biomass of 3+ quarter-age fish was at historical low levels and spawning biomass was below  $S_{MSY}$ . The 2009 spawning biomass ratio (SBR) is 0.17 which is 11% less than the level corresponding to MSY ( $SBR_{MSY}$ ). The F multiplier (the fishing mortality at MSY as a ratio of the current fishing mortality) from the 2009 assessment (0.81) is slightly lower than the F multiplier in the 2008 assessment (0.82). This indicates that overfishing is occurring. Recent catches are 19% higher than catches corresponding to MSY and greatly influenced by the more recent (1993) development of the floating object fisheries. Prior to 1993 F was below  $F_{MSY}$ . Recent biomass is only slightly lower than that at  $B_{MSY}$  (0.99) in the 2009 assessment base case, but the results are more pessimistic if a stock recruitment relationship is assumed ( $B_{MSY} = 0.62$ ). This indicates that the stock is overfished.

IATTC assessed the yellowfin tuna stock using Stock Synthesis version 3 (which differs from previous assessments that used A-SCALA) based on a single stock of yellowfin tuna in the EPO, as in the 2008 assessment. Other major improvements in the 2009 assessment include explicitly modeling of sex-structure and use of functional forms in the estimation of selectivity patterns. The estimated SBR trajectories for the 2009 assessment are similar to those from the 2008 assessment, but biomass estimates are lower indicating scaling sensitivity to the assessment model. In addition, the IATTC staff discovered a retrospective bias of overestimating recent recruitments owing to size composition data from floating-object sets. However, the conclusion of stock status appears to be robust to this issue based on sensitivity work removing the floating object fishery from the model.

The status of the yellowfin tuna stock was evaluated considering calculations based on spawning stock biomass and MSY. At the beginning of 2009 the SBR was 0.35 compared to 0.34 for 2008.  $SBR_{MSY}$  for the 2009 assessment decreased from 0.34 (in the 2008 assessment) to 0.27 due to a change in selectivity estimated by the new assessment model. For most of the quarters 1985-2003 spawning biomass was above  $S_{MSY}$ . For most of the periods 1975-1984 and 2005-2007, the spawning biomass was estimated to be less than  $S_{MSY}$ . At the start of 2009, the SBR is estimated to be above the level corresponding to  $SBR_{MSY}$ . The F multiplier from the 2009 assessment (1.09) is less than the F multiplier (1.13) from the 2008 assessment. Recent fishing mortality is below that corresponding to MSY. Results are more pessimistic if a stock-recruitment relationship is assumed and fishing mortality is above that corresponding to MSY. IATTC staff noted that yield could likely remain near the maximum even if fishing effort is reduced below  $F_{MSY}$ .

## **Discussion**

ISC members expressed their appreciation for the presentation and asked to be kept informed of future updates on stock status. ISC members requested more information

about the use of sex-specific input data to the assessments. H.H. Lee noted that some of the biological input parameters were sex-specific and referred members to the information documents for more details. .

## 8.2 Western Pacific Ocean – Yellowfin and Bigeye Tunas

S. Nicol of SPC presented the results of the 2008 bigeye tuna and the 2007 yellowfin tuna stock assessments that were presented at the WCPFC SC meeting in August 2008. (The bigeye assessment is provided in *ISC/08/PLENARY/INFO/04*). The bigeye tuna assessment results from the base-case model in 2007 closely approximate the results from the 2006 assessment, with inclusion of additional fisheries and changes in fishery configurations. These changes represent refinements to the model rather than substantive changes to model structure, and result in only minor changes to biomass trajectories. The key conclusions of the models presented are similar to the comparative model runs from the 2006 base-case assessment: depletion levels estimated in the base-case (0.26) were slightly lower than the 2006 (LOWSAMP) assessment (0.29),  $F_{CURRENT}/F_{MSY}$  was more pessimistic (1.44 compared with 1.32 for 2006) and  $B_{CURRENT}/B_{MSY}$  was higher (1.37 compared with 1.27) while  $SB_{CURRENT}/SB_{MSY}$  was comparable (1.19 compared with 1.20). These metrics indicate that recent fishing mortality has continued to increase unless fishing patterns and the maximum sustainable yield (MSY) have changed, although biomass levels have continued to be sustained by higher recruitment. However, the MSY-based reference points are not directly comparable as there has been a shift in the age-specific fishing mortality in recent years due to the recent decline in the longline catch. The estimate of  $F_{CURRENT}/F_{MSY}$  indicates that overfishing of bigeye tuna is occurring in the WCPO with a very high probability. While the stock is not yet in an overfished state with respect to total biomass ( $B_{CURRENT}/B_{MSY} > 1$ ), the situation is less optimistic with respect to adult biomass. A number of plausible model options indicate that adult biomass has been below the  $SB_{MSY}$  level for a considerable period ( $SB_{CURRENT}/SB_{MSY} < 1$ ). For the base-case model, there is also a 42.8% probability that  $SB_{MSY}/SB_{2006}$  is less than 1.0. Further, both the adult and total biomass are predicted to become overfished at 2003-2006 average fishing mortality levels and long-term average recruitment levels. This is consistent with a recent decline in biomass under increasing fishing mortality levels, resulting in an increase in the probability of the stock becoming overfished over time. Recent catches of bigeye tuna are high relative to the estimated MSY, both because of high recent fishing mortality and because the stock has benefited from above-average recruitment over the past 15 years.

With regard to yellowfin tuna, the 2007 stock assessment conclusions differ slightly from the 2006 assessment, particularly in relation to the ratio of the current estimate of fishing mortality compared with the fishing mortality at maximum sustainable yield ( $F/F_{MSY}$ ), with the threshold in the 2007 assessment being slightly more optimistic than that in the 2006 assessment. While the point estimate of  $F/F_{MSY}$  remains slightly less than 1.0 (0.95), the probability distribution associated with the fishing mortality-based reference point indicates that there is almost an equal probability that the value of  $F/F_{MSY}$  is less than or greater than the reference point. Therefore, the possibility of overfishing is still relatively high (47%). The reference points that predict the status of the stock under equilibrium conditions are  $B/B_{MSY}$  (1.10) and  $SB/SB_{MSY}$  (1.12), which indicate that the long-term

average biomass would remain slightly above the level capable of producing MSY at 2002–2005 average fishing mortality. Overall, current biomass exceeds the estimated biomass at MSY ( $B/B_{MSY} > 1.0$ ) indicating that the yellowfin stock in the WCPO is not in an overfished state, although there is a small probability (6.2%) that it is in an overfished state. The change in the estimated MSY in 2007 from that in 2006 may reflect changes in the data structure, fishery designations and levels of uncertainty in the assessment, especially in estimating absolute values, and the change in the scenarios modeled between years. The attribution of depletion to various fisheries or groups of fisheries indicates that the Indonesian and Philippines domestic fisheries have the greatest impact, particularly in their home Region (3) and are contributing significantly to the impact in adjacent assessment Regions 1, 4 and 5 through fish movement. The purse-seine fishery also has a high impact in Regions 3 and 4 and accounts for a significant component (~40%) of the recent (2002–2005) impacts in all other Regions, except Region 6. It is notable that the composite longline fishery is responsible for biomass depletion of about 10% in the WCPO during recent years and generally catches larger, older size classes, while purse-seine fisheries are responsible for a larger percentage of the impacts and generally the catch is smaller and younger fish. The point estimate of the  $F_{current}/F_{MSY}$  ratio (0.95) in the 2007 assessment was lower than the point estimate (1.11) in the 2006 assessment, where the “current” period is 2002–2005 for yellowfin stock assessment. This change is largely due to the new configuration of the fisheries, their updated size data, and the modeling improvements. However, the possibility of overfishing is still relatively high (47%). The WCPO yellowfin tuna fishery can be considered to be fully exploited. Both the 2006 and 2007 assessments indicate that there is a high probability that overfishing is occurring (73% for the base case 2006 assessment and 47% for the base case 2007 assessment).

## **Discussion**

ISC members thanked SPC for the presentation and stated that they look forward to receiving future updates on stock status. S. Nicol confirmed that while some of the data sets used in the assessment cover the entire Pacific, the assessment specifically focused on the WCPFC Convention Area including an area of overlap with IATTC. Nevertheless, SPC has in the past undertaken Pacific-wide assessments and such an assessment is currently underway for bigeye tuna.

## **9 REVIEW OF STATISTICS AND DATA BASE ISSUES**

### **9.1 Report of the STATWG**

S.K. Chang, Chairman of the STATWG, presented a report on its meeting held 12-14 July in Kaohsiung, Taiwan. A full report of the meeting is provided in *Annex 11*.

An inventory of data that have been collected by members and may be available for stock assessment was discussed and updated by members at the meeting. It was stressed that this inventory does not fully represent ISC data holdings and will be updated further. A

new data field labelled 'Discard' was added to the inventory format to indicate whether members have collected information on discards.

The previously adopted data submission procedure was revised to ensure the ISC Database Administrator (DA) is kept informed of members' submission of data. That is, members will notify the DA via email when they submit Category II and III data to WG Data Managers. A format for a data submission report card was proposed to track member performance on data submission. In 2009, most members submitted catch data on schedule. Inconsistencies in data submissions and values were noted between the ISC catch tables and relevant WGs' catch tables. Several measures were suggested to resolve these issues.

The Chairman of each WG discussed data requirements for stock assessments. Most of the outstanding issues related to securing data from non-ISC members and other Pacific RFMOs. Until sufficient resources can be devoted to the DA position these issues will be addressed by continuous efforts of the WG Chairmen.

Four aspects of database expansion including data rescue, metadata, bycatch and total HMS catch for the entire North Pacific Ocean were discussed. It was noted that progress has been made with PBF historical data and there might be additional historical information that could be rescued from logbooks for fisheries in Hawaii. Despite the fact that metadata for member-submitted data is recognized as being critical, the availability of these metadata is limited<sup>1</sup>. A one-day session was planned as part of the 2010 STATWG meeting to collect metadata which members are requested to prepare in advance. A template for members to report annual encounters with bycatch species was developed for further evaluation by the BCWG. Finally, members were requested to provide total catches for all stocks they fished by 27 November 2009 to the STATWG Chairman so that these data can be compiled into a total catch table.

In response to a request at ISC8, a position description for the DA was finalized. Because much of the ISC data standardization and access functions are intended to be undertaken by the DA, the group reiterated that it was critical that the DA position be allocated sufficient resources to allow the DA to fulfill all of the responsibilities outlined in the position description. The continued existence of the STATWG was confirmed as necessary at least until the DA role is fully functional. At that point, the need for the continued existence of the STATWG should be reviewed.

A proposal by the WCPFC Secretariat to incorporate ISC data into WCPFC holdings was presented and discussed. The STATWG considered that there is no need for ISC data to be incorporated into WCPFC data holdings. This opinion was based on 1) WCPFC already holds most of the data held by ISC and 2) any remaining data may not be able to be provided due to ISC members' confidentiality rules and/or due to the data being from outside the WCPFC Convention Area (i.e. the EPO).

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<sup>1</sup> Examples of metadata include a) whether data were converted from number to weight, and if so for which years and using which conversion factors; and b) factors and/or methods for raising sampled catches to total catch figures.



## **Discussion**

In discussion it was clarified that the data inventory and data submission report card were only partially complete at this time and therefore are not meant for wide circulation. The STATWG will endeavor to complete both after receiving further data from members by 27 November 2009.

Some members explained that they had encountered difficulties in obtaining WCPFC data for use in WG stock assessments. S.K. Soh, WCPFC Observer, clarified that access to the WCPFC data held by SPC required adherence to specific data request procedures and that unspecified, bulk mail-type requests cannot be accommodated. In response to a further question, S.K. Soh explained that while SPC holds all of the WCPFC data, the SPC also holds data collected prior to the establishment of the WCPFC and/or beyond the jurisdiction of WCPFC. The ISC Chairman noted that it would be useful to receive a catalog of WCPFC data holdings.

### **9.2 Data Submission Report Card**

As discussed above in *Section 9.1*, a format for the data submission report card was developed. Data submissions by members will be reported to the Plenary using the new Data Submission Report Card beginning with ISC10.

### **9.3 North Pacific-wide catch and bycatch**

The ISC Chairman explained that since one of the functions of ISC is to track North Pacific HMS fisheries production, the STATWG agreed to an expansion of the ISC database to be able to provide aggregate (i.e. North Pacific-wide) catch data. These data will be tabulated for all members individually and for all non-members. In addition, the STATWG proposed a new format for the reporting of bycatch, now referred to as “encounter” data (see *Annex 11*), for further consideration by the BCWG. These two new data sets, along with historical data rescue and metadata, are four aspects of ISC database expansion agreed by the STATWG.

## **Discussion**

It was agreed that members should not be requested to submit bycatch/”encounter” information until after the format of the new table has been reviewed and approved by the BCWG.

S.K. Chang, Chairman of the STATWG, noted that definitions for zero catch (with effort); zero catch (no effort); catch rounded to zero if below a certain threshold; and no data/submission should be standardized and agreed upon. He also indicated that the reporting formats for ISC data require updating. The ISC Chairman suggested that these tasks should be assigned to the Chairman of the STATWG (who in future may delegate this task to the DA) who will work in conjunction with the WGs to develop the appropriate formats.

## **9.4 Rescue of Historical Data**

As discussed above in *Section 9.1*, there are ongoing efforts toward rescue of historical data. These data should be captured in the ISC databases for use in WG assessments. Providing for the incorporation of newly-available historical data into the ISC databases will be the responsibility of the ISC DA.

## **9.5 Data Inventory**

As discussed above in *Section 9.1*, development of an ISC data inventory, including metadata is underway. While this work is currently being led by the Chairman of the STATWG, some of the responsibilities may, in the future, be transferred to the ISC DA.

# **10 REVIEW OF MEETING SCHEDULE**

## **10.1 Time and Place of ISC10**

Provisional dates for ISC10 are 20-26 July 2010. Canada offered to host the meeting either in Vancouver or Victoria, British Columbia and committed to providing further details as they become available.

Related WG workshops in conjunction with ISC10 are preliminarily scheduled to begin on 12 July with concurrent 2-day WG workshops for albacore and billfishes. These will likely be followed by a 2-day meeting of the PBFWG on 14-15 July, and a 3-day meeting of the STATWG, including a one-day metadata workshop to be held during the period 16-19 July. A heads of delegation meeting is planned for the evening of 20 July and a seminar on 20 July. Constraints to further adjustment of these dates, including an ICCAT bluefin tuna stock assessment running through 9 July 2010, and the commencement of the WCPFC SC6 on 9 August 2010, were noted.

## **10.2 Working Group Intercessional Meetings**

The ISC9 Plenary discussed schedules for WG intercessional meetings (ISC/09/PLENARY/03). Although standard practice would be to assess each species annually, the ISC Chairman noted that such frequent assessment is not possible given the lack of resources and new information available to the ISC soon after a stock assessment. At the same time, the ISC Chairman urged members to make their best efforts to undertake assessment of the priority stocks regularly and without undue delay. Members noted that given the potential for excessive demands on staff participating in both Pacific bluefin and albacore stock assessments, it was important to carefully coordinate these assessments.

Considerable efforts were made to accommodate members' workload and scheduling constraints, and to provide reasonable timeframes for data and model preparation given the issues which need to be tackled in each species assessment. An updated schedule of stock assessments was established and a tentative schedule of ISC workshops was

compiled for 2009-2012 (*Table 6*). Each WG Chairman will circulate the schedule to absent members and non-members likely to participate in the WG intercessional meetings to determine if there are any major conflicts. Coordination with IATTC and Mexico was noted to be particularly important for some of the assessments.

## **11 ADMINISTRATIVE MATTERS**

### **11.1 Organization Chart and Contact Persons**

The ISC Organization Chart (*ISC/08/PLENARY/02*) was considered and updated through discussion with members (*Figure 11*).

### **11.2 Glossary of Terms**

The ISC Chairman announced that he had completed a draft glossary (*ISC/09/PLENARY/05*) in response to an action item from ISC7 and the ISC8 (*ISC/09/PLENARY/01*). The glossary is a living document which will be updated in an ongoing manner as comments arise.

### **11.3 Webpage**

H. Nakano noted ongoing efforts by the the National Research Institute for Far Seas Fisheries of Japan including an updated design for the website that has been abandoned (*ISC/09/PLENARY/INFO/06*). He acknowledged that some members have commented that the updated design is still not satisfactory. For this reason, he proposed to contract a professional website designer and produce a prototype of a fully re-designed ISC website by 1 September 2009.

Members welcomed the proposal by H. Nakano but voiced concerns about the continuing shortcomings of the ISC website, noting that these concerns have been expressed at previous Plenary meetings. There was some discussion of whether website development responsibilities should be passed to another ISC member but it was agreed that further consideration of this issue should be postponed for the time being to allow H. Nakano to make progress with his new proposal. The importance of a fully-functional, visually attractive and professional website to serve as a positive public interface for the ISC was emphasized. It was suggested that “under construction” or similar notices be posted on the existing website as soon as possible to alert users that a new and improved version is under development.

In order to clarify ISC’s expectations for the website, the ISC Chairman agreed to compile previous correspondence on this issue, including detailed specifications and a framework layout, and re-transmit these for H. Nakano’s reference. In addition to re-design of the website, the ISC Chairman identified the need for H. Nakano to propose website maintenance protocols including procedures for updating information displayed on the website. These maintenance protocols should be provided to ISC members for comment.

Given the need to ensure ISC members will be satisfied with the outcome of the ISC website re-design, H. Nakano proposed to proceed with development in a step-wise manner. A prototype design will be provided to ISC members by 1 September 2009.

Comments will be requested and considered before the next block of design work is undertaken.

#### **11.4 Database Administrator (DA)**

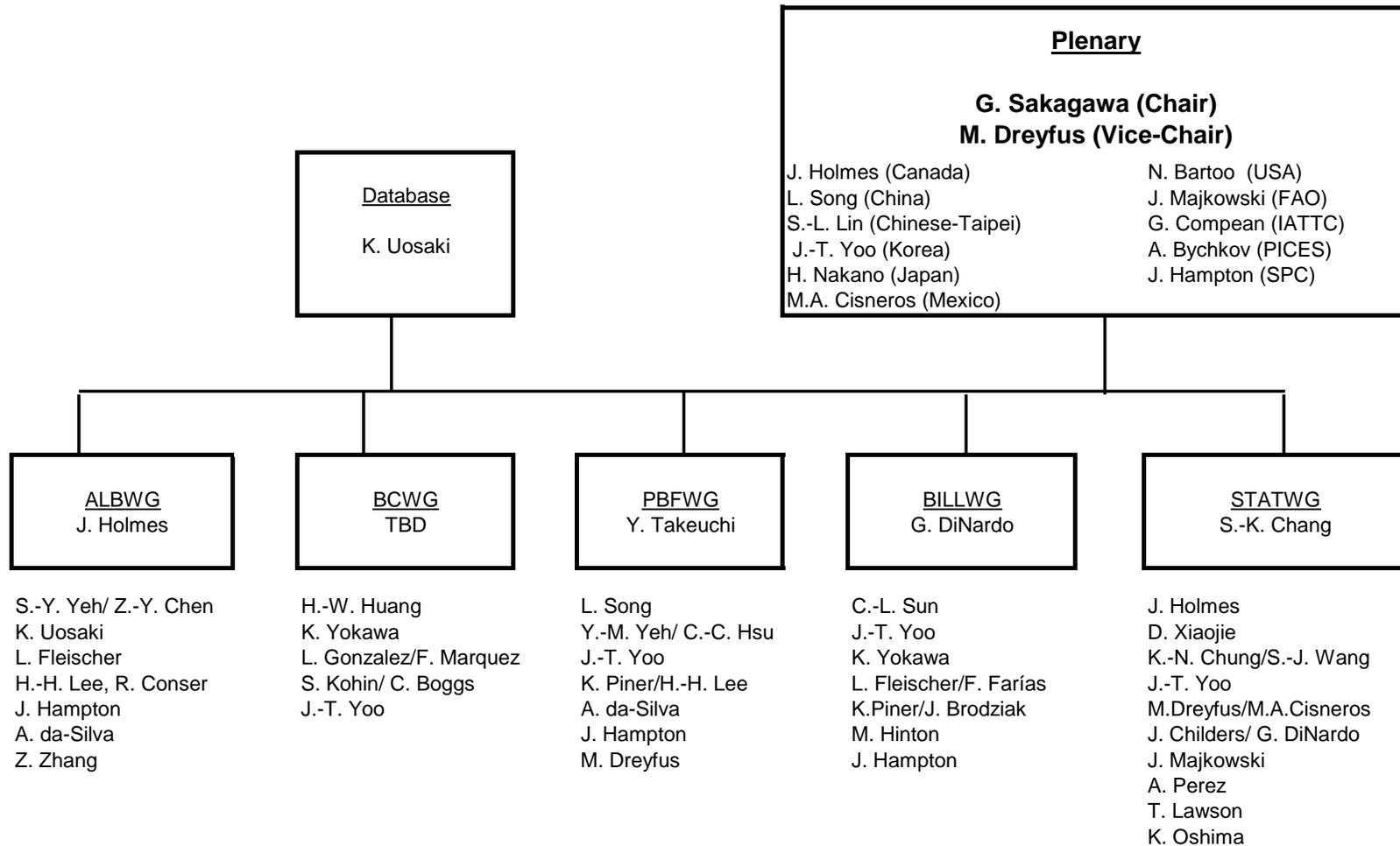
The ISC Chairman highlighted one of the items in this year's ISC Action Plan (*ISC/09/PLENARY/01*) was to complete a position description for the DA and that this had been accomplished (*ISC/09/PLENARY/04*).

H. Nakano provided an update on the DA position currently based at the National Research Institute of Far Seas Fisheries, Japan. K. Uosaki has been appointed as the DA but due to heavy workload his availability to devote time to the ISC database is limited. Japan is therefore seeking a suitable candidate for this role and hopes to have the new DA in place within the next few months. H. Nakano noted that finding a person with the right combination of database management, fisheries and language skills may be challenging.

While supporting Japan's proposal to promptly appoint a new DA, ISC members voiced continuing concerns about shortfalls in performance of the DA role again this year. Some ISC members expressed appreciation for the DA position funding contributed by Japan but urged Japan to ensure that this funding is sufficient to attract and support a qualified person.

It was agreed that Japan should proceed as proposed to recruit a suitable DA in the next few months to carry out the responsibilities in the position description and to begin assisting with the work of the STATWG. It was also agreed that the performance of the DA should be reviewed at ISC10 and if this performance is again considered deficient, options such as transferring DA responsibilities to another ISC member, or securing private funding for the position, should be pursued.

**Figure 11.** ISC Organizational Chart (as of July 2009)



## 11.5 Review of MRAG Report

The ISC Chairman noted the release of the Independent Review of the WCPFC's Science Structure and Functions prepared by MRAG (ISC/09/PLENARY/info/03). Since this review refers to ISC activities and interactions with WCPFC, it is appropriate for ISC to review the report and provide comments. In order to facilitate this, comments were solicited from ISC members and compiled into a draft document which was circulated to ISC members during the Plenary. Comments on this draft document were requested by 18 September 2009. Once comments are received and incorporated the intent is to submit the document to the WCPFC.

## 11.6 Response to proposals from WCPFC

The ISC Chairman noted the receipt of a package of three proposals from WCPFC relating to revision of the WCPFC-ISC MOU, peer review of stock assessments, and WCPFC-ISC data harmonization.

### WCPFC-ISC MOU

Concerning the issue of the MOU, the ISC Chairman explained that the existing MOU requires a review after 12 months of execution and that this review is currently underway. As part of this review, the WCPFC Secretariat, on behalf of the Commission, is requesting several changes to the MOU.

The most significant issue associated with these changes involves creating an additional line of reporting between the ISC and the WCPFC Scientific Committee (SC). Under the current MOU the ISC reports to the WCPFC only through the NC. The ISC Chairman noted that the ISC is structured to be an independent provider of information to the NC for use in NC decision-making. The proposed change in the MOU would alter the relationship between the ISC and the WCPFC as the ISC would then report not only to the NC but also to the SC, which has a much broader membership than the NC; this could result in conflicting requests and demands. The proposed addition would also create an administrative issue since the current scheduling of ISC meetings does not allow sufficient time to prepare documents before the SC document submission deadline. Other issues related to the proposed MOU revision, i.e. potential increases in workload and costs for ISC members and a clear mechanism for cost recovery, were also noted.

Since there is no formal mechanism for the ISC to submit comments on the package of proposals to the SC or NC, the ISC Chairman questioned how the ISC can make its opinions on the proposals known so that they can be discussed in these forums. S.K. Soh, WCPFC Observer, clarified that the proposals are being put forward to ISC9 and SC5. Comments received from the ISC and the SC will be considered and reflected in submissions to NC5 and to WCPFC6.

ISC9 agreed to provide formal comments on the proposal to revise the WCPFC-ISC MOU after considering the views of the NC during discussions of this topic at NC5.

### Peer Review of Stock Assessments

In response to a question, S.K. Soh explained that the proposal from the WCPFC covers peer review of stock assessments for both the ISC and SC, providing several options and estimates for each. A revised proposal will be considered at SC5.

While expressing support for the concept of peer review, ISC members recommended that the WCPFC proposal be revised to clearly specify the objectives for the peer reviews, particularly given the existing review functions provided by the ISC organizational structure. However, for the peer review itself, a focus on the stock assessment results, rather than the process, was recommended. It was acknowledged that for the peer review to be effective the key supporting working papers must be made available. Members considered that the WCPFC proposal appears to underestimate costs, particularly with regard to costs associated with a coordinator to select peer reviewers and define terms of reference. The proposal was also found to be unclear in terms of when the peer review would take place, i.e. whether it would need to be completed prior to the use of the stock assessment results for management purposes. The need to address potential conflicts of interest of peer reviewers was also raised, and it was suggested that familiarization with existing peer review providers such as CIE, and the peer review processes SEDAR, STAR, and those used at ICCAT would be useful as a starting point.

### WCPFC-ISC Data Harmonization

In response to the WCPFC's request that ISC assist the Secretariat to develop a strategy for the incorporation of ISC data to WCPFC data holdings, ISC9 noted the findings of the STATWG summarized above under *Section 9.1*. It was considered that at the time of the request the WCPFC Secretariat may not have had a full understanding of the ISC operational practices with regard to data, but that this understanding had been improved through discussion between ISC and the WCPFC observer at ISC9.

ISC9 concluded that it would be inappropriate to proceed with development of the type of strategy requested by the WCPFC's proposal for several reasons. First, as stated by the STATWG, since most of the ISC members are also WCPFC members, it is expected that they already submit the relevant data to both organizations. Second, the release of data must comply with the ISC Operations Manual which states that Category I, II and III data shall only be made available to contributors and members of ISC Working Groups for use in the work of the Working Groups. Release of these data to other parties could be considered if presented in the form of a specific data request, but approval and conditions for release would have to be obtained from the contributors of the specific data to be released.

Rather than proceeding with a strategy for incorporation, ISC9 considers it would be more appropriate for ISC and WCPFC to exchange data catalogues and identify data gaps

as a first step. An inventory of data that have been collected by members and which may be available for stock assessment will be finalized over the coming months.

A catalog of data held by ISC will be produced in the coming months with assistance from the DA. This can be shared with WCPFC as part of a process of periodic consultation to review overall consistency between data sets.

### **11.7 Biological Research Proposal**

The work of the Biological Research Task Force resulting in a biological research proposal is described in *Section 6.5* and the proposal is provided as *Annex 12*. The Plenary was asked to adopt the biological research proposal for submission to the WCPFC's NC in September. All members expressed their full support for the proposal.

With regard to funding, the ISC Chairman clarified that the intention was to submit the proposal directly to the NC, not to the SC. The ISC Chairman agreed to investigate whether the proposal would best be submitted as part of ISC's standing submission to the NC or whether a separate working paper would provide a better vehicle. In response to a question regarding identifying priority components of the proposal in case only partial funding is available, the ISC Chairman indicated that compartmentalized proposals had failed in the past. Given the start-up costs, in setting up the laboratories to conduct the analyses, for example, a large-scale, multi-national research program is considered the only cost effective way to proceed. It was agreed that an overall coordinator for the research program could be appointed once funding was secured.

### **11.8 ISC Working Paper Policy**

The ISC Chairman opened discussion on the topic of the ISC's working paper policy. The current working paper policy states that ISC Working Group documents are not available to the public, but that titles and email addresses of authors are provided so that interested parties may contact authors directly to request copies. This policy was formulated in response to some scientific journals rejecting manuscripts which have been posted on the internet on the grounds of previous publication.

However, in order to improve transparency and dissemination of ISC scientific results, an option to revise the current working paper policy has been discussed by some of the WGs. Under the revised policy option, the Chairman of each Working Group will decide which working papers are fundamental to the stock assessment and these papers will be made publicly available. For all other papers, it will be left to the author to decide whether to make the paper publicly available or to list the title and author's email address only.

Members discussed this option and considered that rather than having the Working Group Chairmen decide which papers should be made publicly available, it should be the prerogative of all authors to decide whether to make the paper publicly available or to list their titles and authors' email address only. An alternative option involving automatic

public release of documents after a certain period of time (e.g. 3-5 years) was also discussed but was considered to be administratively burdensome and rejected.

It was agreed that as of the close of ISC9 the ISC working paper policy is revised as follows:

**Working papers presented at WG workshops, excluding information papers and other non-working paper documents, shall be released publicly through the ISC website or other means only with the authors' permission. If an author chooses not to release the working paper publicly, the title and author's email address only will be released so that interested parties may contact authors directly to request copies.**

## **12 ADOPTION OF REPORT**

A draft Report of the Ninth Meeting of the International Scientific Committee for Tuna and Tuna-like Species in the North Pacific Ocean was prepared based on input and comment from all participants, and circulated to all participants for review. The report was reviewed in its entirety, section by section and was endorsed by the ISC9 Plenary.

## **13 CLOSE OF MEETING**

The ISC Chairman extended his sincere appreciation to officials from the Fisheries Agency of Taiwan and the Overseas Fisheries Development Council for organizing and hosting of the meeting, in particular Mr James Sha, Director General, Council of Agriculture, for hosting the Plenary banquet. The contributions of staff from these agencies including Alton Liao, Wei Yang Liu, Stella Wang, and Tracy Hsia, as well as William Liu for technical support, were essential to the smooth running of the meeting and were graciously acknowledged. The Chairman also thanked the participants for their contributions.

The ISC Chairman noted that he will be stepping down after the close of ISC10 and members should be considering nominations for a new Chairman. While he will continue to devote his full efforts to supporting the work of ISC, he pointed out that the main work of the organization is done by the members and thus the ISC requires the proactive contributions of each and every participant.

As the local organizer for ISC10, J. Holmes expressed his admiration for the smooth, efficient, and enjoyable execution of ISC9 by Chinese Taipei, and noted that it will serve as his inspiration for organizing ISC10.

**Table 1.** Albacore (*Thunnus alalunga*) catches (in metric tons) in the North Pacific Ocean by fishery, 1952-2008. Blank indicates no effort. - indicates data not available. 0 indicates less than 1 metric ton. Provisional estimates in ( ).

Year	Japan							Korea		Chinese-Taipei		
	Purse Seine	Gill Net	Set Net	Pole and Line	Troll	Longline	Other	Gill Net	Longline	Gill Net	Longline <sup>1</sup>	
											Distant Water	Offshore
1952	154		55	41,787	--	26,687	182					
1953	38		88	32,921	--	27,777	44					
1954	23		6	28,069	--	20,958	32					
1955	8		28	24,236	--	16,277	108					
1956	--		23	42,810	--	14,341	34					
1957	83		13	49,500	--	21,053	138					
1958	8		38	22,175	--	18,432	86					
1959	--		48	14,252	--	15,802	19					
1960	--		23	25,156	--	17,369	53					
1961	7		111	18,639	--	17,437	157					
1962	53		20	8,729	--	15,764	171					
1963	59		4	26,420	--	13,464	214					
1964	128		50	23,858	--	15,458	269					
1965	11		70	41,491	--	13,701	51					
1966	111		64	22,830	--	25,050	521					
1967	89		43	30,481	--	28,869	477					330
1968	267		58	16,597	--	23,961	1,051					216
1969	521		34	31,912	--	18,006	925					65
1970	317		19	24,263	--	16,222	498					34
1971	902		5	52,957	--	11,473	354					20
1972	277	1	6	60,569	--	13,022	638			0		187
1973	1,353	39	44	68,767	--	16,760	486			3		--
1974	161	224	13	73,564	--	13,384	891			114		486
1975	159	166	13	52,152	--	10,303	230			9,575		1,240
1976	1,109	1,070	15	85,336	--	15,812	270			2,576		686
1977	669	688	5	31,934	--	15,681	365			459		572
1978	1,115	4,029	21	59,877	--	13,007	2,073			1,006		6
1979	125	2,856	16	44,662	--	14,186	1,139			0		81
1980	329	2,986	10	46,742	--	14,681	1,177			6		249
1981	252	10,348	8	27,426	--	17,878	699			16		143
1982	561	12,511	11	29,614	--	16,714	482			113		38
1983	350	6,852	22	21,098	--	15,094	99			233		8
1984	3,380	8,988	24	26,013	--	15,053	494			516		--
1985	1,533	11,204	68	20,714	--	14,249	339			576		--
1986	1,542	7,813	15	16,096	--	12,899	640			726		--
1987	1,205	6,698	16	19,082	--	14,668	173			817		--
1988	1,208	9,074	7	6,216	--	14,688	170			1,016		--
1989	2,521	7,437	33	8,629	--	13,031	433			1,023		40
1990	1,995	6,064	5	8,532	--	15,785	248			1,016		4
1991	2,652	3,401	4	7,103	--	17,039	395			852		12
1992	4,104	2,721	12	13,888	--	19,042	1,522			271		--
1993	2,889	287	3	12,797	--	29,933	897					5
1994	2,026	263	11	26,389	--	29,565	823					83
1995	1,177	282	28	20,981	856	29,050	78					4,280
1996	581	116	43	20,272	815	32,440	127					7,596
1997	1,068	359	40	32,238	1,585	38,899	135					9,119
1998	1,554	206	41	22,926	1,190	35,755	104					8,617
1999	6,872	289	90	50,369	891	33,339	62					8,186
2000	2,408	67	136	21,550	645	29,995	86					7,898
2001	974	117	78	29,430	416	28,801	35					7,852
2002	3,303	332	109	48,454	787	23,585	85					7,055
2003	627	126	69	36,114	922	20,907	85					6,454
2004	7,200	61	30	32,255	772	17,341	54					4,061
2005	850	154	97	16,133	665	20,420	234					3,990
2006	364	221	55	15,400	460	21,027	42					3,848
2007	5,682	226	30	37,768	519	22,386	42					2,465
2008	(1,033)	(226)	(30)	(19,577)	(519)	(22,386)	(42)					(2,490)
										(365)		(579)

<sup>1</sup> Catches for 2000-2004 contain estimates of offshore longline catches from vessels landing at domestic ports.

Table 1 (continued)

Year	United States								Mexico		Canada	Other		Grand Total
	Purse Seine	Gill Net	Pole and Line	Troll <sup>2</sup>	Handline	Sport <sup>3</sup>	Longline	Other	Purse Seine	Pole and Line <sup>4</sup>	Troll <sup>5</sup>	Troll <sup>6</sup>	Longline <sup>7</sup>	
1952				23,843		1,373	46				71			96,150
1953				15,740		171	23				5			78,760
1954				12,246		147	13							63,448
1955				13,264		577	9							56,462
1956				18,751		482	6				17			78,420
1957				21,165		304	4				8			94,225
1958				14,855		48	7				74			57,681
1959				20,990		0	5				212			53,287
1960				20,100		557	4				141			65,363
1961			2,837	12,055		1,355	5	1	2	39	4			54,610
1962			1,085	19,752		1,681	7	1	0	0	1			49,226
1963			2,432	25,140		1,161	7		31	0	5			70,900
1964			3,411	18,388		824	4		0		3			64,357
1965			417	16,542		731	3		0		15			74,997
1966			1,600	15,333		588	8	1	0		44			68,116
1967			4,113	17,814		707	12				161			85,063
1968			4,906	20,434		951	11				1,028			71,448
1969			2,996	18,827		358	14		0		1,365			76,992
1970			4,416	21,032		822	9		0		390			69,992
1971			2,071	20,526		1,175	11		0		1,746			93,211
1972			3,750	23,600		637	8		100	0	3,921			108,688
1973			2,236	15,653		84	14		0		1,400			108,812
1974			4,777	20,178		94	9		1	0	1,331			117,201
1975			3,243	18,932		640	33	10	1	0	111			98,783
1976			2,700	15,905		713	23	4	36	5	278			128,514
1977			1,497	9,969		537	37		3	0	53			64,446
1978			950	16,613		810	54	15	1	0	23			101,578
1979			303	6,781		74	--		1	0	521			72,724
1980			382	7,556		168	--		31	0	212			76,911
1981			748	12,637		195	25		8	0	200			72,564
1982			425	6,609		257	105	21	0	0	104			75,009
1983			607	9,359		87	6		0	0	225			56,934
1984	3,728		1,030	9,304		1,427	2		107	6	50			74,596
1985	26	2	1,498	6,415	7	1,176	0		14	35	56			61,085
1986	47	3	432	4,708	5	196			3	0	30			48,064
1987	1	5	158	2,766	6	74	150		7	0	104			51,038
1988	17	15	598	4,212	9	64	307	10	15	0	155			47,333
1989	1	4	54	1,860	36	160	248	23	2	0	140			46,041
1990	71	29	115	2,603	15	24	177	4	2	0	302			55,683
1991	0	17	0	1,845	72	6	312	71	2	0	139			39,311
1992	0	0	0	4,572	54	2	334	72	10	0	363			56,825
1993	0	0	0	6,254	71	25	438		11	0	494			56,118
1994	0	38	0	10,978	90	106	544	213	6	0	1,998	158		75,339
1995	0	52	80	8,045	177	102	882	1	5	0	1,763	94		69,942
1996	11	83	24	16,938	188	88	1,185		21	0	3,316	469	1,735	88,203
1997	2	60	73	14,252	133	1,018	1,653	1	53	0	2,168	336	2,824	108,753
1998	33	80	79	14,410	88	1,208	1,120	2	8	0	4,177	341	5,871	100,226
1999	48	149	60	10,060	331	3,621	1,542	1	0	57	2,734	228	6,307	127,541
2000	4	55	69	9,645	120	1,798	940	3	70	33	4,531	386	3,654	87,052
2001	51	94	139	11,210	194	1,635	1,295		5	18	5,248	230	1,471	92,190
2002	4	30	381	10,387	235	2,357	525		28	0	5,379	466	700	107,226
2003	44	16	59	14,102	85	2,214	524		28	0	6,861	378	(2,400)	94,807
2004	1	12	126	13,346	157	1,506	361		104	0	7,856	--	(2,400)	90,623
2005		20	66	8,413	175	1,719	296		0	0	4,845	--	(2,400)	61,284
2006		3	23	12,524	86	385	270		109	0	5,832	--	(2,400)	65,607
2007		4	21	11,887	98	1,244	250		40	0	6,075	--	(2,400)	93,651
2008		(1)	(6)	(10,254)	(1)	(381)	(359)	(1)	(10)		(5,478)		(2,400)	(68,146)

2 Albacore troll catches contain an unknown proportion of pole and line catch.

3 Sport and Other catches combined for 2007 due to confidentiality policies

4 Mexico Pole and line catches for 1999 and 2000 include 34 and 4 metric tons, respectively from longline.

5 1960 Canada troll catches include 136 metric tons caught by purse seine.

6 Other troll catches are from vessels registered in Belize, Cook Islands, Tonga, and Ecuador.

7 Updates for Other Longline not available.

**Table 2.** Pacific bluefin tuna (*Thunnus orientalis*) catches (in metric tons) in the North Pacific Ocean by fishery, 1952-2008. Blank indicates no effort. - indicates data not available. 0 indicates less than 1

Year	Japan <sup>1</sup>								Korea <sup>3</sup>		
	Purse Seine		Set Net	Pole and Line	Troll <sup>2</sup>	Longline			Others	Purse Seine	Trawl
	Tuna PS	Small PS				Distant Water NP	Distant Water SP	Coastal			
1952	7,680		2,145	2,198	667	2,694	9		1,700		
1953	5,570		2,335	3,052	1,472	3,040	8		160		
1954	5,366		5,579	3,044	1,656	3,088	28		266		
1955	14,016		3,256	2,841	1,507	2,951	17		1,151		
1956	20,979		4,170	4,060	1,763	2,672	238		385		
1957	18,147		2,822	1,795	2,392	1,685	48		414		
1958	8,586		1,187	2,337	1,497	818	25		215		
1959	9,996		1,575	586	736	3,136	565		167		
1960	10,541		2,032	600	1,885	5,910	193		369		
1961	9,124		2,710	662	3,193	6,364	427		599		
1962	10,657		2,545	747	1,683	5,769	413		293		
1963	9,786		2,797	1,256	2,542	6,077	449		294		
1964	8,973		1,475	1,037	2,784	3,140	114		1,884		
1965	11,496		2,121	831	1,963	2,569	194		1,106		
1966	10,082		1,261	613	1,614	1,370	174		129		
1967	6,462		2,603	1,210	3,273	878	44		302		
1968	9,268		3,058	983	1,568	500	7		217		
1969	3,236		2,187	721	2,219	313	20	565	195		
1970	2,907		1,779	723	1,198	181	11	426	224		
1971	3,721		1,554	938	1,492	280	51	417	317		
1972	4,212		1,107	944	842	107	27	405	197		
1973	2,266		2,351	526	2,108	110	63	728	636		
1974	4,106		6,019	1,192	1,656	108	43	1,069	754		
1975	4,491		2,433	1,401	1,031	215	41	846	808		
1976	2,148		2,996	1,082	830	87	83	233	1,237		
1977	5,110		2,257	2,256	2,166	155	23	183	1,052		
1978	10,427		2,546	1,154	4,517	444	7	204	2,276		
1979	13,881		4,558	1,250	2,655	220	35	509	2,429		
1980	11,327		2,521	1,392	1,531	140	40	671	1,953		
1981	25,422		2,129	754	1,777	313	29	277	2,653		
1982	19,234		1,667	1,777	864	206	20	512	1,709	31	
1983	14,774		972	356	2,028	87	8	130	1,117	13	
1984	4,433		2,234	587	1,874	58	22	85	868	4	
1985	4,154		2,562	1,817	1,850	38	9	67	1,175	1	
1986	7,412		2,914	1,086	1,467	30	14	72	719	344	
1987	8,653		2,198	1,565	880	30	33	181	445	89	
1988	3,583	22	843	907	1,124	51	30	106	498	32	
1989	6,077	113	748	754	903	37	32	172	283	71	
1990	2,834	155	716	536	1,250	42	27	267	455	132	
1991	4,336	5,472	1,485	286	2,069	48	20	170	650	265	
1992	4,255	2,907	1,208	166	915	85	16	428	1,081	288	
1993	5,156	1,444	848	129	546	145	10	667	365	40	
1994	7,345	786	1,158	162	4,111	238	20	968	398	50	
1995	5,334	13,575	1,859	270	4,778	107	10	571	586	821	
1996	5,540	2,104	1,149	94	3,640	123	9	778	570	102	
1997	6,137	7,015	803	34	2,740	142	12	1,158	811	1,054	
1998	2,715	2,676	874	85	2,865	169	10	1,086	700	188	
1999	11,619	4,554	1,097	35	3,387	127	17	1,030	709	256	
2000	8,193	8,293	1,125	102	5,121	121	7	832	689	1,976	
2001	3,139	4,481	1,366	180	3,329	63	6	728	782	968	
2002	4,171	5,102	1,100	99	2,427	47	5	794	631	767	
2003	1,033	5,399	839	44	1,839	85	12	1,152	446	2,141	
2004	4,844	2,577	896	132	2,182	231	9	1,616	514	636	
2005	4,061	7,390	2,182	549	3,406	107	14	1,818	548	1,085	
2006	3,962	3,272	1,421	108	1,544	63	11	1,058	777	833	
2007	(3,058)	(2,841)	(1,503)	(236)	(2,385)	(84)	(8)	(2,225)	(1,209)	(1,054)	
2008	(2,954)	(6,299)	(3,265)	(64)	(3,229)	7	7	(883)	(1,193)	(1,536)	

<sup>1</sup> Part of Japanese catch is estimated by the WG from best available source for the stock assessment use.

<sup>2</sup> The troll catch for farming estimating 10 - 20 mt since 2000, is excluded.

<sup>3</sup> Catch statistics of Korea derived from Japanese Import statistics for 1982-1999.

Table 2 (continued)

Year	Chinese-Taipei				United States <sup>4</sup>			Mexico		non-ISC members		Grand Total	
	Purse Seine	Gill Net	Longline <sup>4</sup>	Others	Purse Seine	Sport	Others	Purse Seine	Others	New Zealand <sup>5</sup>	Others <sup>6</sup>		
1952					2,076	2						21,123	
1953					4,433	48						22,071	
1954					9,537	11						30,529	
1955					6,173	93						33,960	
1956					5,727	388						42,338	
1957					9,215	73						38,548	
1958					13,934	10						30,568	
1959					3,506	13	56	171	32			22,498	
1960					4,547	1	0	0				28,038	
1961					7,989	23	16	130				33,197	
1962					10,769	25	0	294				35,157	
1963					11,832	7	28	412				37,444	
1964					9,047	7	39	131				30,595	
1965			54		6,523	1	77	289				29,189	
1966					15,450	20	12	435				33,127	
1967			53		5,517	32	0	371				22,712	
1968			33		5,773	12	8	195				23,590	
1969			23		6,657	15	9	260				18,389	
1970					3,873	19	0	92				13,402	
1971			1		7,804	8	0	555				19,109	
1972			14		11,656	15	45	1,646				23,188	
1973			33		9,639	54	21	1,084				21,593	
1974			47	15	5,243	58	30	344				22,660	
1975			61	5	7,353	34	84	2,145				22,924	
1976			17	2	8,652	21	25	1,968				21,358	
1977			131	2	3,259	19	13	2,186				20,788	
1978			66	2	4,663	5	6	545				28,841	
1979			58		5,889	11	6	213				33,694	
1980			114	5	2,327	7	24	582				24,615	
1981			179		867	9	14	218				36,622	
1982		2	207		2,639	11	2	506				31,369	
1983	9	2	175		629	33	11	214				22,541	
1984	5		477	8	673	49	29	166				13,557	
1985	80	11	210		3,320	89	28	676				18,073	
1986	16	13	70		4,851	12	57	189				21,252	
1987	21	14	365		861	34	20	119				17,494	
1988	197	37	108	25	923	6	50	447	1			10,977	
1989	259	51	205	3	1,046	112	21	57				12,934	
1990	149	299	189	16	1,380	65	92	50				10,644	
1991		107	342	12	410	92	6	9			2	17,771	
1992	73	3	464	5	1,928	110	61	0	0		0	15,986	
1993	1		471	3	580	298	103				6	12,804	
1994			559		906	89	59	63	2		2	18,910	
1995			335	2	657	258	49	10			2	31,219	
1996			956		4,639	40	70	3,700			4	25,514	
1997			1,814		2,240	156	133	367			14	26,629	
1998			1,910		1,771	413	281	1	0		20	17,762	
1999			3,089		184	441	184	2,369	35		21	31,153	
2000			2,780	2	693	342	61	3,019	99		21	35,474	
2001			1,839	4	292	356	48	863			50	20,505	
2002			1,523	4	50	654	12	1,708	2		55	21,165	
2003			1,863	21	22	394	18	3,211	43		41	20,625	
2004			1,714	3	0	49	11	8,880	14		67	26,389	
2005			1,368		201	79	7	4,542			20	29,388	
2006			1,149			96	2	9,816			21	26,142	
2007			(1,401)		(42)	(14)	(2)	(4,147)			21 <sup>8</sup>	3 <sup>8</sup>	(20,234)
2008			(979)			(93)	(1)	(4,407)			21 <sup>8</sup>	3 <sup>8</sup>	(24,927)

<sup>4</sup> US in 1952-1958 contains catch from other countries - primarily Mexico. Other includes catches from gillnet, troll, pole-and-line, and longline

<sup>5</sup> Catches by NZ are derived from the Ministry of Fisheries, Science Group (Compilers) 2006: Report from the Fishery Assessment Plenary, May 2006: stock assessments and yield estimates. 875 p. (Unpublished report held in NIWA library. Other countries include AUS, Cooks, Palau and so on. Catches derived from Japanese Imort Statistics as minimum estimates.

<sup>6</sup> Other countries include AUS, Cooks, Palau and so on. Catches derived from Japanese Imort Statistics as minimum estimates.

<sup>7</sup> The catch for Japanese coastal longline in 2008 includes that of the distant water and offshore longliners.

<sup>8</sup> Catches in New Zealand and Other countries since 2007 are carry-over of that in 2005

**Table 3.** Swordfish (*Xiphias gladius*) catches (in metric tons) in the North Pacific Ocean by fishery, 1952-2008. Blank indicates no effort. - indicates data not available. 0 indicates less than 1 metric ton. Provisional estimates in ().

Year	Japan							Chinese Taipei							
	Gill Net	Set Net <sup>1</sup>	Harpoon <sup>2</sup>	Longline		Other <sup>4</sup>		Gill Net			Harpoon	Longline			Other
				Distant Water <sup>3</sup>	Coastal			Small Mesh	Large Mesh	Set Net		Distant Water	Offshore <sup>5</sup>	Coastal	
1952	0	68	2,569	8,890	152	12									0
1953	0	21	1,407	10,796	77	107									0
1954	0	18	813	12,563	96	121									0
1955	0	37	821	13,064	29	160									0
1956	0	31	775	14,596	10	73									0
1957	0	18	858	14,268	37	70									0
1958	1	31	1,069	18,525	42	68									0
1959	2	31	891	17,236	66	44							427		91
1960	0	67	1,191	20,058	51	30								520	127
1961	0	15	1,335	19,715	51	29								318	73
1962	4	15	1,371	10,607	78	44								494	62
1963	0	17	747	10,322	98	59								343	18
1964	0	16	1,006	7,669	91	66								358	10
1965	0	14	1,908	8,742	119	208								331	27
1966	0	11	1,728	9,866	113	45								489	31
1967	0	12	891	10,883	184	38								646	35
1968	0	14	1,539	9,810	236	50								763	12
1969	0	11	1,557	9,416	296	56							0	843	7
1970	0	9	1,748	7,324	427	39								904	5
1971	1	37	473	7,037	350	48								992	3
1972	55	1	282	6,796	531	22								862	11
1973	720	23	121	7,123	414	29								860	119
1974	1,304	16	190	5,983	654	29							1	880	136
1975	2,672	18	205	7,031	620	60							29	899	153
1976	3,488	14	313	8,054	750	182							23	613	194
1977	2,344	7	201	8,383	880	73							36	542	141
1978	2,475	22	130	8,001	1,031	111								546	12
1979	983	15	161	8,602	1,038	49							7	661	33
1980	1,746	15	398	6,005	849	30							10	603	76
1981	1,848	9	129	7,039	727	61							2	656	25
1982	1,257	7	195	6,064	874	59							1	855	49
1983	1,033	9	166	7,692	999	32							0	783	166
1984	1,053	13	117	7,177	1,177	98								733	264
1985	1,133	10	191	9,335	999	69								566	259
1986	1,264	9	123	8,721	1,037	47								456	211
1987	1,051	11	87	9,495	860	45							3	1,328	190
1988	1,234	8	173	8,574	678	19								777	263
1989	1,596	10	362	6,690	752	21							50	1,491	38
1990	1,074	4	128	5,833	690	13							143	1,309	154
1991	498	5	153	4,809	807	20							40	1,390	180
1992	887	6	381	7,234	1,181	16							21	1,473	243
1993	292	4	309	8,298	1,394	44							54	1,174	310
1994	421	4	308	7,366	1,357	37								1,155	219
1995	561	7	423	6,422	1,387	34							50	1,135	225
1996	428	4	597	6,916	1,067	45		2	10	19			9	701	0
1997	365	5	346	7,002	1,214	62		1	8	27			15	1,358	24
1998	471	2	476	6,233	1,190	68		1	8	15			17	1,178	0
1999	724	5	416	5,557	1,049	47		1	4	5			51	70	0
2000	808	5	497	6,180	1,121	49		1	5	5			74	325	1
2001	732	15	230	6,932	908	30		1	17	8			64	1,039	1
2002	1,164	11	201	6,230	965	29		1	7	16			1	1,633	1
2003	1,198	4	149	5,376	1,063	28		-	3	8			-	1,084	2,196
2004	1,062	4	229	5,395	1,509	30		1	5	7			-	884	1,828
2005	956	3	187	5,359	1,294	337		2	1	5			-	437	1,813
2006	796	5	244	6,261	1,505	343									
2007				(6,499)											
2008															

1 Trap net

2 Contains trolling and harpoon but majority of catch obtained by harpoon.

3 Distant water and Offshore longline gears combined

4 "Other" refers to catches by other baitfishing methods, trap nets, and various unspecified gears.

5 Offshore longline category includes some catches from harpoon and other fisheries but does not include catches unloaded in foreign ports.

Table 3 (continued)

Year	Korea	Mexico	United States				Grand Total
	Longline	Other <sup>6</sup>	Gill Net	Harpoon	Longline <sup>7</sup>	Other <sup>8</sup>	
1952	-	-	-	-	-	-	13,643
1953	-	-	-	-	-	-	14,361
1954	-	-	-	-	-	-	15,564
1955	-	-	-	-	-	-	16,066
1956	-	-	-	-	-	-	17,442
1957	-	-	-	-	-	-	17,208
1958	-	-	-	-	-	-	21,694
1959	-	-	-	-	-	-	20,746
1960	-	-	-	-	-	-	24,005
1961	-	-	-	-	-	-	23,498
1962	-	-	-	-	-	-	14,637
1963	-	-	-	-	-	-	13,568
1964	-	-	-	-	-	-	11,180
1965	-	-	-	-	-	-	13,314
1966	-	-	-	-	-	-	14,249
1967	-	-	-	-	-	-	14,656
1968	-	-	-	-	-	-	14,392
1969	-	-	-	-	-	-	14,155
1970	-	-	-	612	5	10	13,053
1971	0	-	-	99	1	3	11,015
1972	0	2	-	171	0	4	10,709
1973	0	4	-	399	0	4	11,789
1974	0	6	-	406	0	22	11,601
1975	0	-	-	557	0	13	14,232
1976	0	-	-	42	0	13	15,662
1977	219	-	-	318	17	19	15,157
1978	68	-	-	1,699	9	13	16,095
1979	-	7	-	329	7	57	13,928
1980	64	380	160	566	5	62	12,949
1981	-	1,575	473	271	3	2	14,801
1982	48	1,365	945	156	5	10	13,872
1983	11	120	1,693	58	5	7	14,757
1984	48	47	2,647	104	15	75	15,552
1985	24	18	2,990	305	2	104	17,990
1986	9	422	2,069	291	2	109	16,756
1987	44	550	1,529	235	24	31	17,470
1988	27	613	1,376	198	24	64	16,016
1989	40	690	1,243	62	281	56	15,371
1990	61	2,650	1,131	64	2,437	43	17,724
1991	5	861	944	20	4,535	44	16,302
1992	8	1,160	1,356	75	5,762	47	21,842
1993	15	812	1,412	168	5,936	161	22,376
1994	66	581	792	157	3,807	24	18,288
1995	10	437	771	97	2,981	29	16,564
1996	15	439	761	81	2,848	15	15,953
1997	100	2,365	708	84	3,393	11	19,086
1998	153	3,603	931	48	3,681	19	20,112
1999	132	1,136	606	81	4,329	27	17,624
2000	202	2,216	649	90	4,834	9	20,602
2001	438	780	375	52	1,969	5	17,288
2002	439	465	302	90	1,524	3	16,642
2003	381	671	216	107	1,959	0	16,446
2004	410	270	169	62	1,111	37	15,020
2005	434	235	220	76	1,475	0	14,857
2006	477	347	444	71	1,175	2	13,676
2007	(452)	(383)	(484)	(58)	(1,444)	(0)	(11,327)
2008		(84)					(2,092)

<sup>6</sup> All gears combined

<sup>7</sup> Hawaii and California longline fisheries combined

<sup>8</sup> Other includes pole and line, purse seine, troll and troll/handline, half ring, and unspecified gears.

**Table 4.** Striped marlin (*Tetrapterus audax*) catches (in metric tons) in the North Pacific Ocean by fishery, 1952-2008. Blank indicates no effort. - indicates data not available. 0 indicates less than 1 metric ton. Provisional estimates in ().

Year	Japan						Chinese Taipei							
	Gill Net		Longline			Other <sup>1</sup>	Gill Net		Set Net	Harpoon	Longline			Other <sup>3</sup>
	Small Mesh	Large Mesh	Distant Water	Coastal	Other		Small Mesh <sup>2</sup>	Large Mesh			Distant Water	Offshore	Coastal	
1952	0	0	2,901		722	1,564								
1953	0	0	2,138		47	954								
1954	0	0	3,068		52	1,088								
1955	0	0	3,082		28	1,038								
1956	0	0	3,729		59	1,996								
1957	0	0	3,189		119	2,459								
1958	0	3	4,106		277	2,914						543		387
1959	0	2	4,152		156	3,191						391		354
1960	0	4	3,862		101	1,937						398		350
1961	0	2	4,420		169	1,797						306		342
1962	0	8	5,739		110	1,912						332		211
1963	0	17	6,135		62	1,910						560		199
1964	0	2	14,304		42	2,344						392		175
1965	0	1	11,602		19	2,796						355		157
1966	0	2	8,419		112	1,573						370		180
1967	0	3	11,698		127	1,551					2	385		204
1968	0	3	15,913		230	1,040					1	332		208
1969	0	3	8,544	600	3	2,630					2	571		192
1970	0	3	12,996	690	181	1,029					0	495		189
1971	0	10	10,965	667	259	2,016					0	449		135
1972	0	243	7,006	837	145	990					9	380		126
1973	0	3,265	6,357	632	118	630					1	568		139
1974	0	3,112	6,700	327	49	775					24	650		118
1975	0	6,534	5,281	286	38	685					64	732		96
1976	0	3,561	5,136	244	34	571					32	347		140
1977	0	4,424	3,019	256	15	547					17	524		219
1978	0	5,593	3,957	243	27	418					0	618		78
1979	0	2,532	5,561	366	21	526					26	432		122
1980	0	3,467	6,378	607	5	537					61	223		132
1981	0	3,866	4,106	259	12	538					17	491		95
1982	0	2,351	5,383	270	13	655					7	397		138
1983	22	1,845	3,722	320	10	792					0	555		214
1984	76	2,257	3,506	386	9	719					0	965		330
1985	40	2,323	3,897	711	24	732					0	513		181
1986	48	3,536	6,402	901	33	571					0	179		148
1987	32	1,856	7,538	1,187	6	513					31	383		151
1988	54	2,157	6,271	752	7	668					7	457		169
1989	102	1,562	4,740	1,081	13	537					8	184		157
1990	19	1,926	2,368	1,125	3	545					2	137		256
1991	27	1,302	2,845	1,197	3	506					36	254		286
1992	35	1,169	2,955	1,247	10	302					1	219		197
1993	-	828	3,476	1,723	1	443					5	221		142
1994	-	1,443	2,911	1,284	1	383					1	137		196
1995	-	970	3,494	1,840	3	278					27	83		82
1996	-	703	1,951	1,836	4	152	-	8	3	30	26	162	-	6
1997	-	813	2,120	1,400	3	163	-	9	3	33	59	290	2	-
1998	-	1,092	1,784	1,975	2	304	1	15	6	19	90	205	9	-
1999	-	1,126	1,608	1,551	4	183	1	7	5	26	66	128	3	-
2000	-	1,062	1,152	1,109	8	297	1	17	6	29	153	161	1	1
2001	-	1,077	985	1,326	11	237	-	16	5	30	121	129	-	-
2002	-	1,264	764	796	5	291	1	14	8	6	251	226	-	-
2003	-	1,064	1,013	842	3	203	1	26	5	11	241	91	-	-
2004	-	1,339	699	1,000	2	92	2	8	5	7	261	95	-	2
2005	-	1,214	562	668	1	98	9	1	9	5	176	76	-	8
2006	-	1,190	642	538	1	95								
2007			(313)											
2008														

<sup>1</sup> Contains bait fishing, net fishing, trapnet, trolling, harpoon, etc.

<sup>2</sup> Coastal Gillnet and other net'

<sup>3</sup> Includes 'Coastal Other' and 'Offshore Other'

Table 4 (continued)

Year	Korea	Mexico		United States				Costa Rica	Grand Total
	Longline	Longline	Sport <sup>4</sup>	Troll	Handline	Sport <sup>4</sup>	Longline	Sport <sup>4</sup>	
1952	-					23			7,162
1953	-					5			5,097
1954	-					16			6,178
1955	-					5			6,108
1956	-					34			7,774
1957	-					42			7,766
1958	-					59			10,247
1959	-					65			10,270
1960	-					30			8,642
1961	-					24			9,021
1962	-					5			10,279
1963	-					68			10,914
1964	-					58			19,281
1965	-					23			16,918
1966	-					36			12,658
1967	-					49			15,986
1968	-					51			19,746
1969	-					30			14,544
1970	-					18			17,571
1971	0					17			16,489
1972	0					21			11,729
1973	0					9			13,692
1974	0					55			13,784
1975	0					27			15,718
1976	0					31			12,072
1977	43					41			11,082
1978	28					37			12,977
1979	-					36			11,601
1980	37					33			13,460
1981	-					60			11,425
1982	39					41			11,276
1983	19					39			9,521
1984	23					36			10,291
1985	16			18		42			10,482
1986	61	-		19		19			13,903
1987	1	-		30	1	28	272		14,016
1988	11	-		54		30	504		13,129
1989	26	-		24	0	52	612		11,087
1990	315	-	181	27	0	23	538		9,455
1991	141	-	75	41	0	12	663	106	9,485
1992	318	-	142	38	1	25	459	281	9,391
1993	388	-	159	68	1	11	471	438	10,368
1994	1,045	-	179	35	0	17	326	521	10,473
1995	307	-	190	52	0	14	543	153	10,031
1996	429	-	237	54	1	20	418	122	8,158
1997	1,017	-	193	38	1	21	352	138	8,652
1998	635	-	345	26	0	23	378	144	9,051
1999	433	-	266	28	1	12	364	166	7,977
2000	537	-	312	15	1	10	200	97	7,169
2001	254	-	237	44	2		351	151	6,977
2002	188	-	305	30	0		226	76	6,453
2003	206	-	322	29	0		552	79	6,690
2004	75	-	-	34	1		376	19	6,021
2005	141	-	-	20	0		493	-	5,486
2006	56	-	-	21	0		609	-	5,158
2007	(28)	-	-	(13)	(0)		(265)	-	(2,626)
2008		-	-						(2,008)

<sup>4</sup> Estimated from catch in number of fish.

**Table 5.** Natural mortality rate (M) schedule for Pacific bluefin tuna used in the 2008 stock assessment and new schedule of M adopted at the December 2008 PBFWG workshop.

<b>Age</b>	<b>0</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4=&lt;</b>
Original M	1.6	0.46	0.27	0.2	0.12
New M	1.6	0.386	0.25	0.25	0.25

**Table 6.** Tentative schedule of ISC meetings for 2009-2012.

<b>Date</b>	<b>Meeting</b>	<b>Contact</b>
<b>Note:</b> BILLWG= Billfish Working Group; PBFWG= Pacific Bluefin Tuna WG; BCWG = Bycatch WG; ALBWG = Albacore WG, STATWG = Statistics WG		
TBD	BCWG	G. Sakagawa Gary.Sakagawa@noaa.gov
<b>2009</b>		
Nov 9-16	PBFWG Workshop – La Jolla, CA, USA (Sensitivity analysis)	Y. Takeuchi Yukiote@fra.affrc.go.jp
Dec 2-9	BILLWG Workshop – Hawaii, HI, USA (SWO stock assessment/MLS stock structure)	G. DiNardo Gerard.DiNardo@noaa.gov
<b>2010</b>		
Mar 16-23	ALBWG Workshop – Shimizu, Japan (Data update and model review)	J. Holmes John.Holmes@dfo-mpo.gc.ca
Apr 21-28	BILLWG Workshop – TBD (SWO data and model review)	G. DiNardo
Jul 12-13	ALBWG Workshop – TBD (Review)	J. Holmes
Jul 12-13	BILLWG Workshop – TBD (Review)	G. DiNardo
Jul 14-15	PBFWG Workshop – TBD (Update)	Y. Takeuchi
Jul 16-19	STATWG Workshop – TBD (Workshop)	S.-K. Chang SKChang@faculty.nsyu.edu.tw
Jul 20-26	ISC10 – Canada (Plenary)	G. Sakagawa
Oct 19-26	ALBWG – La Jolla, CA, USA (Data preparation)	J. Holmes
Dec	BILLWG – TBD (Data analysis)	G. DiNardo
Dec	PBFWG – TBD (Data Prep)	Y. Takeuchi

<b>2011</b>		
Mar	ALBWG – TBD (Full Assessment)	J. Holmes
Mar	World Blue Marlin Symposium – TBD	G. DiNardo
Mar	BILLWG – TBD (Striped marlin Assessment)	G. DiNardo
Jul	ISC11 – TBD (Plenary)	TBD
<b>2012</b>		
May	PBFWG – TBD (Full Assessment)	Y. Takeuchi
Jul	ISC12 – TBD (Plenary)	TBD

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CONSERVATION ADVICE EXCERPTED FROM THE REPORT OF THE NINTH MEETING  
OF THE INTERNATIONAL SCIENTIFIC COMMITTEE FOR TUNA AND TUNA-LIKE  
SPECIES IN THE NORTH PACIFIC OCEAN PLENARY SESSION

**Albacore Conservation Advice**

After discussion of the ALBWG conclusions (*Annex 9*) and consideration of comments raised by Plenary members, the ISC offers no new conservation advice for North Pacific albacore above and beyond that which was provided to ISC7 in July 2007, pending the results of a new stock assessment, planned for 2011. To reiterate, the advice provided at ISC7 was:

*“Previous scientific advice, based on the 2004 stock assessment, recommended that current fishing mortality rate ( $F$ ) should not be increased. It was noted that management objectives for the IATTC and WCPFC are based on maintaining population levels which produce maximum sustainable yield. Due to updating, and improvements and refinements in data and models used in the 2006 stock assessment, it is now recognized that  $F_{cur}$  (0.75) is high relative to most of the  $F$  reference points [commonly used in fisheries management] (see Table 5a in Annex 5 [of the ISC7 Plenary Report]).*

*On the other hand, the same analysis indicates that the current estimate of the SSB is the second highest in history but that keeping the current  $F$  would gradually reduce the SSB to the long-term average by the mid 2010s. Therefore, the recommendation of not increasing  $F$  from current level ( $F_{cur(2002-2004)}=0.75$ ) is still valid. However, with the projection based on the continued current high  $F$ , the fishing mortality rate will have to be reduced.”*

The NC adopted an interim management objective at NC4 (September 2008) to maintain the spawning stock biomass (SSB) above the average level of its 10 historically lowest points (ATHL) with a probability of 50% until reference points are established. The associated  $F$ -based threshold ( $F_{SSB-ATHL}$ ) was not estimated during the last stock assessment, but the ISC-ALBWG was requested to conduct its assessments, and to express the results of its assessments, such that they include the information necessary to achieve this interim management objective.

Based on analyses conducted by the ALBWG since ISC8, the following points are highlighted:

- 1. The ISC9 Plenary notes that there is increasing uncertainty concerning the status of North Pacific albacore in the absence of a new stock assessment.**
- 2. The estimated value of  $F_{SSB-ATHL}$  is 0.75 yr<sup>-1</sup> for a 25-year projection period using fishery data through 2008. This value is similar to the most recent estimate of  $F$  ( $F_{2002-2004} = 0.75$  yr<sup>-1</sup>) from the last stock assessment.**
- 3. The ALBWG did not determine the proximity of  $F_{2008}$  to this reference point.**
- 4. The ALBWG has generally interpreted  $F_{SSB-ATHL}$  as a limit reference point, however, further guidance is required from the Northern Committee to clarify whether  $F_{SSB-ATHL}$  is considered a target or limit reference point. If  $F_{SSB-ATHL}$  is intended to be a limit reference point, then further consideration about the probability of falling below the threshold may be needed.**

## **Bluefin Tuna Conservation Advice**

After discussion of the PBFWG's assessment reports (*Annexes 4 and 10*) and consideration of comments raised by Plenary members, the ISC offers the following conservation advice:

- 1. If F remains at the current level and environmental conditions remain favourable, the recruitment should be sufficient to maintain current yield well into the future.**
- 2. A reduction in F in combination with favourable environmental conditions, should lead to greater SPR.**
- 3. Increases in F above the current level, and/or unfavourable changes in environmental conditions, may result in recruitment levels which are insufficient to sustain the current productivity of the stock.**

With regard to advice on the current level of F, differing viewpoints were expressed. Some members concurred with the findings of the PBFWG which stated:

- 4. Given the conclusions of the May-June 2008 stock assessment with regard to the current level of F relative to potential target and limit reference points, and residual uncertainties associated with key model parameters, it is important that the current level of F is not increased.**

In contrast, other members suggested that the following statement better reflects the current understanding of the stock status relative to the range of reference points considered (Figure 1):

- 4. Given the conclusions of the July 2009 PBFWG, the current level of F relative to potential biological reference points, and increasing trend of juvenile F, it is important that the current [sic] level of F is decreased below the 2002-2004 levels on juvenile age classes.**

## **Striped Marlin Conservation Advice**

In the absence of further information and analysis regarding the stock status of North Pacific striped marlin, the ISC Plenary agreed to maintain the conservation advice from ISC7, i.e.:

*“While further guidance from the management authority is necessary, including guidance on reference points and the desirable degree of reduction, the fishing mortality rate of striped marlin (which can be converted into effort or catch in management) should be reduced from the current level (2003 or before), taking into consideration various factors associated with this species and its fishery. Until appropriate measures in this regard are taken, the fishing mortality rate should not be increased.”*

## **Swordfish Conservation Advice**

After discussion of the BILLWG's assessment report (*Annex 7*) and consideration of comments raised by Plenary members, the ISC offers the following conservation advice:

**The WCPO and EPO stocks of swordfish are healthy and well above the level required to sustain recent catches.**



**NORTHERN COMMITTEE  
Fifth Regular Session  
Nagasaki, Japan  
7-10 September 2009**

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**SUMMARY REPORT OF THE FIFTH REGULAR SESSION OF  
THE SCIENTIFIC COMMITTEE BY THE SC CHAIR**

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**WCPFC-NC5-2009-IP-06  
31<sup>st</sup> August 2009**

1. The Chairman, Naozumi Miyabe (Japan), opened the Fifth Regular Session of the Scientific Committee (SC5), which took place at Port Vila, Vanuatu from 10-21 August 2009. More than 110 participants attended the SC5 from member countries, participating territories, and inter-governmental and non-governmental organizations.
2. The Hon. Ham Lini, Vanua Roroa, Deputy Prime Minister, Minister for Justice and Acting Minister for Fisheries, Republic of Vanuatu, welcomed delegates to the meeting in Vanuatu.
3. The following summarizes key elements that were considered at SC5 and its six Specialist Working Groups.
  - 1) The provisional total WCPO tuna catch for 2008 was estimated at 2,426,000 mt, the highest annual catch recorded, but only 6,000 mt more than in 2007. Catch by gear was 1,780,000 mt (74%), 170,000 mt (7%) and 230,000 mt (10%) for purse seine, pole and line and longline fisheries, respectively. Total catch by species was 1,630,000 mt (67%), 540,000 mt (22%) and 160,000 (6%) for skipjack, yellowfin and bigeye tunas, respectively. Yellowfin catch was higher than previous record in 1998 (460,000 mt). Albacore catch was down to 95,000 mt (4%).
  - 2) This year, a new stock assessment was provided for bigeye tuna, yellowfin tuna and South Pacific albacore tuna stocks. For bigeye tuna, six assessment runs were selected to illustrate the stock status.  $F_{CURRENT}/F_{MSY}$  (where current is the average for 2004-07) is considerably greater than 1.0 (range 1.51-2.01), which means overfishing is occurring for the WCPO bigeye tuna stock. The current spawning stock biomass is greater than 1.0 if the spawning biomass reference period was 2004-2007, whereas the stock is in an overfished state if the reference period is 2008. In summary, the bigeye stock is to be in a slightly overfished state, or will be in the near future.

The bigeye stock status became more pessimistic year by year. The appraisal of CMM-2008-01 indicated that the objective of a 30% reduction in fishing mortality on bigeye by 2011 will not be achieved, as reduction in longline catch do not result in the required F, increases in both purse seine effort and its efficiency, and exclusion of

archipelagic waters that encompasses most of the fishing by Indonesian and Philippines domestic fishing and significant fisheries in Papua New Guinea and Solomon Islands. The SC recommended that reduction in F by 30% from 2001-2004 level (or 34-50% reduction in F from the 2004-2007 level) is required to return the stock to the  $F_{MSY}$  level, based on an analyses conducted by the Commission's Science Services Provider for WCPFC6 on the predicted annual catches and resulting F and spawning biomass for a range of scenarios including with and without the various exemptions, special considerations and areas not covered by the CMM. The analysis provided potential management options to strengthen the CMM, such as various percentage reductions by fishery.

For yellowfin and south Pacific albacore stock, they are not experiencing overfishing and are not in an overfished state although yellowfin in the western equatorial region, where 95% of the yellowfin catch is taken, is experiencing a significantly higher fishery impact than other regions. Stock assessment for bigeye, yellowfin and skipjack is scheduled for next year.

ISC's activities were also provided to the SC including the new stock assessment results of north Pacific swordfish.

- 3) This year the whole session of the ME-SWG was dedicated to a special workshop on reference points.

In relation to reference points, the Scientific Committee provided one recommendation to the NC (paragraph 239):

“The SC recommends to the NC that they consider advising the ISC that the scientific advice provided by the ISC to the SC contain information on the performance of a range of fishery indicators against appropriate reference points. Until the Commission identifies and formally adopts appropriate reference points the SC suggests that this information should detail, at a minimum, the performance of the fishery against MSY-based reference points.”

- 4) By-catch mitigation issues associated with seabirds (spatial risk indicators), sea turtles (establishment of a minimum sea turtle bycatch rate for shallow set fishery), and continued funding for ERA for 2010-2012 in addition to commencement of preliminary shark stock assessment project in 2010.
- 5) Statistics SWG discussed the issues associated with the data provision to the Commission, initiatives to address data gaps and initiatives to better characterise the proportion and size of bigeye in the purse seine catch.
- 6) The committee considered the advice and recommendations to the independent review of interim arrangements for science structure and function which led, in part, to a plan to streamline next year's SC meeting and strengthen the role of the pre-stock assessment workshop.
- 7) The status of the Indonesia and Philippines Data Collection Project (IPDCP)/West Pacific East Asia Oceanic Fisheries Management Project (WPEA), the Japan Trust Fund (JTF) and the Pacific Tuna Tagging Project (PTTP) was reported and discussed.

- 8) In order to facilitate data exchange and cooperation, MOUs with other organizations (IATTC, ISC, IOTC and others) were reviewed.
- 9) The process of implementing the work programme of the SC was updated with a revised standard for the appraisal and a new template for research proposals were adopted. The 2009-2011 work programme and budget were adopted for forwarding to WCPFC6.



**Northern Committee  
Fifth Regular Session  
Nagasaki, Japan  
7-10 September 2009**

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**SUMMARY REPORT**

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**AGENDA ITEM 1. OPENING OF THE MEETING**

1. The Fifth Regular Session of the Northern Committee took place at Nagasaki, Japan, on 7-10 September 2009. The Meeting was attended by members from Canada, Cook Islands, Japan, Republic of Korea, Chinese Taipei, United States of America and Vanuatu. The list of meeting participants including observers is included in **Attachment A**.

**1.1 Welcome**

2. Masanori Miyahara, Chair of the Northern Committee (NC), opened the meeting and welcomed the participants to Nagasaki Prefecture which had extended an invitation to hold the 2009 Session of the NC in Nagasaki City. The Governor of Nagasaki Prefecture, Mr Genjiro Kaneko, presented a welcome address.

**1.2 Adoption of agenda**

3. The provisional agenda, as amended, was adopted (**Attachment B**). The documents that supported the meeting were available on the WCPFC website.

**1.3 Meeting arrangements**

4. Japan, as a host, briefed the meeting of social arrangements and the meeting schedule.

**AGENDA ITEM 2. CONSERVATION AND MANAGEMENT MEASURES**

**2.1 Report from the 9<sup>th</sup> International Scientific Committee for Tuna and Tuna-like Species in the North Pacific Ocean**

5. Gary Sakagawa, Chairman of the ISC, introduced the ISC9 report to the NC5. He summarized the ISC accomplishments during the 2008-2009 year and provided an update on stock status and conservation advice for Pacific bluefin, albacore, swordfish and ISC-related work on striped marlin, blue marlin and sharks. He reviewed data and information gaps, including a biological research proposal to be presented under Agenda Item 4. He advised that the ISC Plenary also considered

administrative matters relating to the WCPFC/ISC MoU, the requirement for consideration of a peer review procedure as recommended by the Independent Review of Interim Arrangements for Science Structure and Function and also logistical and administrative requirements support for ISC's work which are further considered below under Agenda Item 6.

6. A summary of stock status, conservation advice and issues arising from working group and ISC9 discussions during the year was then provided to the Committee.

### **Pacific bluefin tuna**

7. Yukio Takeuchi (Japan) reported the stock status and conservation advice of Pacific bluefin tuna from ISC 9 plenary in July 2009. After NC4, ISC PBF WG concluded that adult M is likely to be higher than that used in 2008 stock assessment and picked up a new vector for a sensitivity run. The results of the new run were introduced to describe the instability of the management benchmark including biological reference points with respect to small perturbation of adult M. Nevertheless, most of the conclusion on the stock status of the stock made in ISC8 remains compatible with the new run with new M with few exceptions. With regard to the conservation advice there are two different opinions on future fishing mortality, which ISC could not reach single consensus. One requires not increasing fishing mortality and the other focuses on juvenile fishing mortality and requires decreasing it.

8. The Committee discussed the implication of changing the natural mortality (M) estimates for mature fish noting that the change resulted in a more favorable outcome concerning the status of the stock. The change had been considered as a result of improved understanding of the age and growth of Pacific bluefin, reproductive biology and maximum age. However, the M used in the analysis represented preliminary estimates and further research is required.

9. Korea requested future stock assessment advice from ISC to the NC be presented in the form of a Kobe chart. In response, Yukio Takeuchi advised that can be done but first the Northern Committee needs to determine the limit and target reference points. The selection of the reference point will determine the trend in fishing mortality and stock biomass trajectories as well as the status of the stock relative to overfishing and over-fished reference points. In response to a question from Korea Yukio Tekeuchi further explained that recruitment is related to localized environmental conditions. Also it appears that recruitment has been stronger with less variability since mid-1990s relative to the situation that persisted in the 1980s. He suggested that the relationship between environmental conditions and recruitment could be the subject for future research to identify.

### **North Pacific albacore**

10. Gary Sakagawa summarized ISC results on status of the albacore stock that was carried out by the ISC's ALBWG under the leadership of new Chairman, John Holmes. The latest stock assessment was completed in 2006 with data up to 2005. No new stock assessment has been conducted since then and a full stock assessment is planned for 2011. A qualitative analyses with limited fishery data for 2008 and 2009 was undertaken in 2008 and 2009 to determine levels of recent recruitment and to assess the continued existence of historical high levels of recent adult biomass that were identified in the 2006 assessment. The analyses proved to be inconclusive; hence, the ISC has no new information on stock status and conservation advice to offer beyond that provided in 2007, i.e., current F is high relative to most of the F reference points commonly used in fisheries management and hence, the recommendation

of not increasing  $F$  from current level ( $F= 0.75$ ) is still valid. The ISC, however, recognizes that not having available a more recent stock assessment than the 2006 assessment increases the uncertainty about recent stock status and this advice.

11. The ISC completed work in 2009 on determining  $F_{SSB-ATHL}$  associated with the average level of the 10 historically lowest years for spawning stock biomass for the albacore stock over the last 40 years. The  $F_{SSB-ATHL}$  is 0.75/yr, which is the same level as estimated by the 2006 assessment as the current  $F$  level. Work was requested by the Northern Committee which has adopted this  $F$ -based parameter as an interim biological reference point. The ISC, however, requested clarification from the NC as to whether this interim reference point is a limit or a target reference point. If it is the former, then the NC needs further consideration with regard to the 50% probability limit it has chosen for this parameter. If it is the latter, further consideration of the decision, regarding appropriateness, is required.

12. The USA expressed concern about the length of time between stock assessments given the importance of albacore and bluefin to the Committee and their apparent status. In response to a suggestion that the Committee consider a regular assessment schedule, the Chairman noted that ICCAT schedules a stock assessment every 4 years with a mid-term review. The Chairman of the ISC noted that he had encouraged ISC to establish a regular 3-year assessment schedule but this has not been accepted. He noted that it would not be possible for ISC to produce an assessment for north Pacific albacore in 2010.

### **By-catch species**

13. The Chairman of ISC reported that the ISC plans to convene a session of the By-catch WG to give consideration to sharks although there is still some uncertainty within the ISC whether sharks should be considered by-catch or target species. He also noted ISC currently has insufficient resources to address many by-catch issues although sea turtles and sea birds will receive attention in future years (see Agenda Item 2.4.2).

### **North Pacific swordfish**

14. Gary Sakagawa reported on the results of ISC's 2009 stock assessment of swordfish in the North Pacific Ocean on behalf of Gerard DiNardo, Chairman of the ISC BILLWG. He noted that the assessment was based on two different stock structure hypotheses. One hypothesis, a single homogeneous stock in the North Pacific Ocean, was used as a reference because previous stock assessments were based on this hypothesis. The second hypothesis, two stocks, WCPO and EPO, in the North Pacific Ocean with little or no mixing between them, is the preferred hypothesis because most of the stock structure evidence so far supports this hypothesis.

15. Available data for 1951-2006 were suitable for conducting the stock assessment with a Bayesian Surplus Production Model (BSPM). Results using the single stock hypothesis indicate that the MSY is 19,100 t and the exploitable biomass has been well above this MSY level. The estimated harvest rate has been well below the average harvest rate of 34% at MSY. The harvest rate for 2006 was 13%.

16. Gary Sakagawa summarized the results as follows: Available stock structure evidence supports the two-stock hypothesis and not the single stock hypothesis. Available data are most suitable for conducting a stock assessment with a BSPM. Results of the assessment with the BSPM

indicate that for both stocks the exploitable biomass' have been above the biomass' at MSY and the harvest rate has been below that required to produce the MSY. The current (2006) estimated harvest rates for the stocks are below the harvest rates at MSY and projections of these harvest rates to 2010 produced exploitable biomass' above the biomass' at MSY. The ISC concluded that both stocks of swordfish in the North Pacific Ocean are healthy and well above levels required to sustain recent catches.

17. The Chairman of ISC advised that genetic studies had concluded that there are two stocks of swordfish in the North Pacific. He also noted that data from the Spanish longline fleet operating in the EPO was not available to the assessment but that the amount of catch by that fleet was relatively small and was not expected to impact the assessment in a significant way.

### **North Pacific striped marlin**

18. Gary Sakagawa reported, on behalf of Gerard DiNardo, Chairman of the ISC BILLWG, on the work of the ISC with regard to stock status and conservation advice for striped marlin of the North Pacific Ocean. He reported that the ISC is planning to conduct a full stock assessment in 2011 after completing a recent assessment in 2007. He informed the participants that updated catches of striped marlin, 1952-2006, continues to show a downward trend since the late 1960s. Based on catch statistics, most of the biomass (2/3 or more) in the North Pacific Ocean is located north of 20 N, and the trend in fishing mortality rate on spawners (ages 5+) has been increasing, reaching a high level in 2003, the last year estimated by the 2007 assessment. The estimated spawning biomass has declined sharply since the early 1970s and was at a historical low in 2005.

19. The ISC continues to believe that the 2007 assessment provides the best available information on stock status of striped marlin in the North Pacific Ocean and that the conservation advice provided in 2007 is still valid. That is, overall F for striped marlin should be reduced. The degree of reduction should be guided by the biological reference point selected by management authorities, which should consider the population biology of this species and the characteristics of the fisheries. Until such an action is adopted, fishing mortality rate should not be increased.

### **2.2 Report of the Fifth Regular Session of the Scientific Committee (SC5), 10-21 August 2009, Port Vila, Vanuatu**

20. The Chair of the WCPFC Scientific Committee, Naozumi Miyabe, presented a summary report on the outcomes of the fifth meeting of the SC in relation to the work of the NC (WCPFC-NC5-NC5-2009/IP06).

21. In response to a query from the USA, the Chair of the Scientific Committee advised the Committee that the Scientific Committee has not established a schedule of assessments for target stocks. He noted that yellowfin and albacore had been assessed in 2009 and that bigeye was subject to a streamlined assessment. He advised the Committee that, in 2010, skipjack and bigeye would be subject to full assessments.

22. Japan noted the combined impact of fisheries in tropical areas for skipjack and oceanographic variability may be resulting in changes to the distribution of the stocks in the northwest Pacific Ocean and their availability to fishing fleets. It was noted that, at SC5, Japanese researchers and SPC-OFI had agreed to cooperate on the 2010 skipjack assessment so that such changes may be accommodated in

the assessment.

23. In response to the request from the SC for the ISC to frame its management advice using common MSY-based reference points until decided otherwise, the ISC Chairman responded that, in ISC's view, it is up to the management body, in this case the NC, to determine the default reference points to be used. He noted that, for north Pacific albacore the interim reference point adopted is SSB – but it was unclear if this was intended to be a limit or target reference point.

24. In regard to the availability of ISC documents, the Chairman of ISC advised that timely provision of documents for ISC meetings faced similar challenges as is experienced by the SC and that documents were rarely available well in advance of the meeting. It was noted that while there had been an improvement with the posting of the reports of the ISC WG's and the Plenary on the ISC website the availability of documents that supported discussion in the WGs and the Plenary remained an issue.

### **2.3 Conservation and management measures for the northern stocks**

#### **2.3.1 Pacific Bluefin tuna**

25. The Committee noted that:

*WCPFC5 agreed that CCMs are requested not to increase the level of fishing mortality on Pacific bluefin in 2009 on a voluntary basis and tasked NC5 to work toward developing a draft CMM for Pacific bluefin for consideration at WCPFC6*

26. At the invitation of the Chair, CCMs reported on voluntary action taken during the last 12 months not to increase the level of fishing effort on Pacific bluefin.

27. Japan reported that it had initiated wide consultation with a range of stakeholders to raise awareness about international perceptions concerning responsible fisheries management and requested industry to constrain effort. A powerpoint presentation was used to profile fisheries in Japan taking Pacific bluefin. Japan reported that purse seine fishing associations had implemented a voluntary measure not to catch Pacific bluefin less than 2kg. Japan acknowledged that this is hard to regulate in mixed schools but vessels were encouraged to re-locate away from fishing grounds where small tuna were encountered. Informal information was that the measure was implemented well resulting in a substantial reduction in the catch of juvenile fish.

28. In response to a question from Korea regarding whether or not any domestic regulations have been implemented and whether or not any juvenile catch is taken in set nets Japan replied that the measure by purse seine associations is voluntary and that set net fisheries had been regulated under an existing licensing system and that existing data demonstrates that juvenile bluefin are not taken in set nets – those nets take larger fish. Korea also noted that the catch of bluefin by small Japanese longliners had increased by 4 times from 2007 to 2008. Japan responded that the catch of these vessels is declining. In any case these vessel target adult bluefin. A challenge in introducing a catch limit for bluefin is the variable migration path of bluefin – so there is significant variability in catch from one year to another probably as a result of environmental changes. Japan reported the catch of bluefin reduced substantially in 2009. Japan is uncertain what level of catch is gauged to be a “normal” year and that it is not possible, at this point, to forecast the 2009 total catch.

29. Korea explained that the bluefin market is small in Korea, that Korea does not currently regulate fisheries on a species by species basis and there is no concept of by-catch. The government does regulate the number of licenses by gear type and is conducting a programme to reduce the number of licenses. In addition, TACs is also set for mackerel purse seine fisheries which also take Pacific bluefin.. Korea explained that there are several types of fisheries taking bluefin – mainly by purse seine, coastal set net and troll fisheries for which the statistics for bluefin are poor. The Busan-based Research Institute currently estimates catches on the basis of market surveys although enhanced monitoring of port landings is under development. It will report on the results of these efforts to the next ISC. In 2008 the total estimated catch for purse seiners was 1,536 mt increasing from 1,054 mt in 2007. No data is available for the catch from other fisheries which mainly consist of set nets with the possibility of some catch taken by other fishing gears, as reported to ISC.

30. Japan recalled that discussion on a CMM for Pacific bluefin had started in the NC in 2006 and appealed to Korea to demonstrate to the international community its commitment to participate in NC efforts to establish sustainable measures for Pacific bluefin. Korea reiterated that, in Korean law, there is no concept of by-catch or target species. The current level of bluefin catch is small accounting for less than 1% of the total catch of Korean purse seiners, and is thus considered by-catch. Korea did note that the level of catch around the Korean peninsula is increasing and Korean fishermen want to pursue opportunities to catch bluefin. Japan noted that, in 2003, Korea reported a catch of 2,000 mt which was 10% of the total bluefin catch. As a result, in Japan's view Korea does have a significant role in the conservation and management of the stock. Japan recalled the advice of the ISC that F should not be increased so, in its view, the Korean government's policy of supporting the development of coastal fisheries for bluefin is not consistent with this advice. Korea recognized a right to develop and manage fisheries within waters under national jurisdiction and expressed its desire to control bluefin fisheries in the Korean EEZ by itself. Japan stated that when observing the operational basis of purse seiners these vessels do target bluefin tuna. Korea advised that it had no information available to confirm the observation that Korean purse seiners target bluefin tuna but would submit information to NC6 in relation to this matter.

31. The Committee noted the principle of compatibility, the need to implement Measures that secure conservation and management of the stock throughout its range within the Convention Area and the provisions of the Convention requiring that measures within EEZs do not undermine the conservation and management measures put in place by the Commission.

32. Chinese Taipei reported that many small longline fisheries were fishing for Pacific bluefin from March to July. There is a limited entry control for this fishery. Last year the number of small longliners fishing for Pacific bluefin was lower than the 2002-2004 level. Size data for over 90% of the landings in domestic ports were measured and collected. Catches of Pacific bluefin for larger longliners (>100GRT) were less than one (1) metric tonne last year. Bluefin is only taken in insignificant amounts by other gear types. Chinese Taipei has an on-going programme of limiting fishing capacity and all longliners that are operating in the high seas in the fishery are installed with VMS for better monitoring purposes.

33. The USA reported it does not have a target fishery for Pacific bluefin. Following a query from Korea concerning a reduction in the recreational Pacific bluefin catch since 2004, the USA responded that the catch reduction could be a result of the fish being intercepted in Mexican waters before they reach the fishing grounds of the US recreational fleet.

34. The Committee noted Mexico's preliminary 2008 catch estimate reported to ISC was 4,400 mt. The Chair noted an invitation had been extended to Mexico to participate in ISC and NC discussions but they had been unable to attend. It was also reported that recent exports of Mexican farmed bluefin had received low prices on the Japanese markets and that this might constrain further expansion of bluefin farming enterprises in Mexico.

35. Vanuatu reported no bluefin catch.

36. In considering conservation and management options the Committee noted that the conservation advice from ISC for Pacific bluefin remained unchanged:

1. If  $F$  remains at the current level and environmental conditions remain favourable, the recruitment should be sufficient to maintain current yield well into the future.
2. A reduction in  $F$  in combination with favourable environmental conditions, should lead to greater SPR.
3. Increases in  $F$  above the current level, and/or unfavourable changes in environmental conditions, may result in recruitment levels which are insufficient to sustain the current productivity of the stock.

37. It was noted that with regard to advice on the current level of  $F$ , differing viewpoints were expressed by ISC members. Some members concurred with the findings of the PBFWG which stated:

4. Given the conclusions of the May-June 2008 stock assessment with regard to the current level of  $F$  relative to potential target and limit reference points, and residual uncertainties associated with key model parameters, it is important that the current level of  $F$  is not increased.

38. In contrast, other members suggested that the following statement better reflects the current understanding of the stock status relative to the range of reference points considered (Figure 1):

*4bis.* Given the conclusions of the July 2009 PBFWG, the current level of  $F$  relative to potential biological reference points, and increasing trend of juvenile  $F$ , it is important that the current [sic] level of  $F$  is decreased below the 2002-2004 levels on juvenile age classes.

39. The Committee noted that the conservation and management advice points 4 and 4bis are not inconsistent with each other. Both points describe limiting  $F$  with the second option advising on the need to decrease current  $F$  on juvenile fish. The USA noted that even with a decrease of  $F$  on juveniles the overall  $F$  is still greater than any commonly used reference point including  $F_{\max}$ . As a result, it is the view of the USA that  $F$  should not be increased and probably needs to be reduced.

40. The NC discussed a draft conservation and management measure (CMM) for northern Pacific bluefin tuna proposed by Japan (WCPFC-NC5-2009/DP01). Discussion was supported by a supplementary submission by Japan which summarized NC discussions since 2006 in respect of Pacific bluefin in the NC (WCPFC-NC5-2009/IP07). It was noted that four elements need to be factored into the measure i) high seas effort, ii) effort in coastal fisheries, iii) target fisheries and iv) fisheries that

take bluefin as by-catch. Other factors considered for inclusion included i) acceptance of a reference level of fishing effort (2002-2004 was considered as an appropriate reference level on the basis of previous discussions in the Committee) ii) a commitment for the measure to apply throughout the range of the stock, iii) to provide complete catch and effort data, iv) identification of stock specific reference points, v) large range of yearly fluctuations of catches, and vi) the special needs of artisanal fisheries.

41. Korea advised that it is not in a position to endorse the Japanese proposal in regard to a commitment not to increase effort. However, Korea undertook to control fishing effort in its own EEZ and not increase effort in the high seas. Little or no Pacific bluefin catch is reported from the high seas fishery. In the meantime Korean scientists will continue work to assess the status of the stock and monitor environmental changes that may be resulting in increased catch.

42. Cook Islands, Vanuatu and Chinese Taipei advocated the need to maintain F at the current (2002-2004) level. The USA expressed concern about the relative lack of substantive measures endorsed by the NC during its four years of operation. While appreciating Japan's proposal the USA considered there is a need to address i) the issue of increasing F on juveniles, and ii) freeze F current (2002-2004) as the reference period to measure F for the purpose of monitoring compliance with management measures. The USA also recommended that a process to establish stock specific reference points consistent with the provisions of the Convention be established for bluefin. The Chair agreed that it is a requirement for RFMO to establish stock specific reference points and that the NC should consider making a commitment to this.

43. The NC adopted a measure for 2010 that will not apply to the Korean EEZ or artisanal fisheries to recommend to the Commission (WCPFC-NC5-2009/DP01 Rev.2 - **Attachment C**).

### **2.3.2 North Pacific Albacore**

44. In providing the Committee with a brief overview of fisheries for albacore, the USA reported that its main albacore fleet is on west coast and that the size of fleet has been decreasing. A licensing and logbook system is in place for this fleet. Chinese Taipei reported vessels targeting north Pacific albacore are limited to 25. In 2007 and 2008, the number of vessels targeting this species was declining. Korea reported that the current number of vessels operating in the fishery cannot be increased while Japan reported that the number of vessels in its albacore fleet is declining. The Cook Islands reported that the number of vessels in its fleet fishing north Pacific albacore is limited to the number of vessels that operated in the period 2002-2004. Canada noted that the Canadian albacore fishery is a limited entry fishery and effort has been decreasing and Canada had not had a recent presence in the fishery in the WCPF Convention Area. The Secretariat reminded the Committee of the 6-monthly and annual reporting obligations in CMM 2005-03 and noted that there was significant room for improvement in reporting as required by the CMM. CCMs made a commitment to comply with the required data submission schedule.

45. The Committee discussed the establishment of a regular assessment schedule for stocks under the mandate of the NC. The USA and Canada proposed that regular assessments occur on no more than a 3-year cycle noting that the lack of timely stock status advice to the Committee could lead to unnecessarily harsh measures being imposed on the fishery. Japan, recalling the schedule in place in ICCAT, noted that there is currently no budget to support ISC stock assessment work and that ISC working groups already have a demanding work load. While agreeing that the ISC needs to be adequately resourced the USA considered that it is the ISC's role is to provide scientific information to

support the work of the NC and that the ISC needs to tailor its schedule to meet the requirements of the NC not vice versa. It was also noted that resourcing ISC needs to be addressed at two levels – one at the national level to support the contribution of scientists to the work of ISC and the other at the ISC level to support its coordination and advisory function.

46. The Committee recalled that NC4 had discussed possible revisions to CMM 2005-03 and received a proposal for additional amendments from the USA for the consideration of NC5.

47. Tom Graham (USA) introduced a proposal for further revision to CMM 2005-03 including amendments to the proposal that was tabled at NC4. The revisions include stipulation that the reporting would be for the Convention Area and establishes a reporting schedule. The proposal calls on collaboration with IATTC, possibly through participation in the proposed IATTC working group tasked with developing an operational definition of “current levels” and provides for albacore measures of either organization to be implemented uniformly across the north Pacific assuming the CMM of each organization are the same. It calls for the identification of explicit reference benchmark levels of effort, reporting for each fleet or fisheries, controls and monitoring mechanisms implemented.

48. While acknowledging that there are differences between fisheries the USA stressed the need for a standardized definition of current fishing effort noting that the ISC assessments are based on  $F_{\text{current}}$  referring to the 2002-2004 period. The USA reported that the IATTC has established a working group to define  $F_{\text{current}}$  and recommended participation by ISC and NC representatives in the work of the Group. As albacore is a pan-Pacific stock there is a real need for collaboration between the IATTC and WCPFC on management and conservation efforts for this stock. The USA also reminded the Committee of the appeal from the ISC to determine if the interim management objective proposed at NC4 is a limit or target reference point. In the USA and Canada’s view it is a limit reference point.

49. Japan considered that, apart from poor reporting, CMM 2005-03 worked well. Japan advised that it can support a large part of some aspects of the proposal but are cautious about too many changes to existing CMMs. Japan considered that the baseline for CMM 2005-03 was 2002-2004 and that if that is accepted then no change to the baseline is required. Japan also noted that the next assessment is due in 2011 and suggested that the NC should wait for that assessment before reviewing CMM 2005-03. In addition, establishing the same measures between IATTC and WCPFC may be difficult because of different characteristics of each organization and the region under its management.

50. The Chair of the ISC requested clarification on the probability that the reference point will not be exceeded. Canada referred to WCPFC-NC5-2009/IP09 which relates to the precautionary approach and reiterated that 50% probability of the reference point being exceeded is not consistent with the precautionary approach. A more appropriate level is 95% so as to avoid the possibility that the reference point will be exceeded. Japan was of the view that NC4 had agreed to an interim reference point with an associated probability of 50% and that should be maintained – probably as a target reference point as a limit reference point based on  $F_{2002-2004}$  may be too cautious.

51. The USA disagreed stating that would not be sufficiently precautionary. The USA reiterated the reference point proposed is a limit reference point. It was noted that the current stock assessment is several years old with some indication that the current  $F$  is below the reference point. The USA appealed to the Committee to give some consideration to the image of the Committee in both the Commission and in the international community where it needs to demonstrate responsible management.

52. The Cook Island noted that the revised proposal put forward by the USA attempts to develop standardised measurements of effort that it would support, primarily as the standardisation of effort enables more direct relationships to be drawn between effort and fishing mortality. Through the development of these relationships management arrangements can potentially be modified to meet reference points or change recruitment into the fishery based on the most recent scientific advice.

53. Vanuatu noted that all members need to accurately advise the Commission on effort levels so that they can be monitored and potential analytical work can be undertaken to assess the effectiveness of the measure.

54. The NC discussed the shortcomings of using ambiguous terms like “current levels” (of fishing effort) in CMMs such as the north Pacific albacore CMM and agreed that in any future CMMs that it recommends to the Commission, it would avoid the use of such ambiguous terms and instead use clear and explicit baselines or benchmarks.

55. The NC members concurred in their understanding that as long as the substantive requirements of IATTC’s resolution on north Pacific albacore and the Commission’s CMM on north Pacific albacore are the same, CCMs may chose to implement the requirements of paragraph 2 and their obligations under the IATTC Resolution on north Pacific albacore without regard to the boundary between the respective areas of competence of the Commission and the IATTC.

56. The Committee adopted a draft CMM to replace CMM 2005-03 for north Pacific albacore to recommend to the Commission for adoption (WCPFC-NC5-2009/xx and **Attachment D**).

### **2.3.3 North Pacific swordfish**

57. The NC considered no action for NP swordfish at this session although some CCMs suggested that the current status of the stock presents the Committee with an opportunity to establish reference points in a situation where there is apparently not a need to reduce fishing mortality.

## **2.4 Conservation and management measures for other species**

### **2.4.1 Bigeye and yellowfin tuna**

58. In introducing this item, Japan referred to paragraphs 9 and 39 of CMM 2008-01 which relates to NC areas of interest. In particular, Japan sought the support of NC members to encourage the Commission to ensure that effort n bigeye and yellowfin tuna is not transferred from other regions of the Convention Area to the north Pacific Ocean, and asked NC members not to increase the capacity of “other commercial” fisheries for highly migratory species.

59. In relation to paragraph 39 it was noted that the SC5 had not received any proposals from CCMs for reporting effort levels for other commercial fisheries to the Commission. The NC encouraged NC CCMs to address this shortfall in future reporting to the Commission for these fisheries.

### **2.4.2 Sharks**

60. Japan noted that the NC currently has no competence to formulate recommendations for sharks

even though there are fisheries for shark in the north Pacific Ocean. Despite this, if there are concerns about the status of shark stocks there is no reason why the NC cannot bring this to the attention of the Commission.

61. The views of CCMs differed in relation to tasking ISC with additional assessments. The USA noted that the recent session of the Scientific Committee had received an assessment for blue shark but that this assessment was 4 years old. The USA considered that the ISC was already under-resourced and that its focus should be on albacore and Pacific bluefin. On the other hand, Japan supported a request that ISC undertake shark assessment work.

62. The Committee agreed that, on the condition that the schedule for assessments of albacore and Pacific bluefin would not be delayed that the ISC be tasked with considering assessments for mako and blue shark but with no timetable associated with these assessments. Any such work would be undertaken in collaboration with the SC to avoid duplication.

63. The Committee also noted the recommendation from SC5 that silky shark be re-instated as a key shark species to be included in CMM 2008-06.

#### **2.4.3 Seabirds**

64. The NC noted that discussion on seabirds would be taken up elsewhere in the Commission.

#### **2.5 Working Group on Striped Marlin**

65. USA (Tom Graham on behalf of Gerard DiNardo) briefed the Committee on the work of the Northern Committee's informal working group on striped marlin. He noted that the Group had met twice in 2009 which resulted in a draft work plan to be implemented over a 2-3 year period. The WG sought clarification on i) membership of the WG, ii) who it reports to, iii) who is responsible for reviewing the work of the WG, and iv) who will provide funding to support the work of the Group. The NC5 noted that the Scientific Committee also has a work programme element for striped marlin, that there is need to coordinate NC and SC efforts in respect of striped marlin and agreed to submit names of WG members to the Chair of the WG.

#### **2.6 Skipjack in the North Pacific Ocean**

66. Japan introduced discussion on apparent changes in the distribution of skipjack in Japanese coastal waters in recent years. It was noted that there are four migration patterns along the Japanese east coast at the northern extent of skipjack distribution in the vicinity of Japan and that these support fishing activities by troll and pole and line vessels. Since 2000 the catch of troll vessels has declined significantly from approximately 4,500 mt/yr to 1,000mt/yr. Japan noted several possible reasons for this including oceanographic changes or impacts from more tropical fisheries. Japan proposed voluntary research at SC5 and for the results of that research to be included in future assessments.

### **AGENDA ITEM 3. REGIONAL OBSERVER PROGRAM**

67. Japan introduced discussion on the Regional Observer Programme (ROP) recalling a requirement for the 2010 annual session of the NC to make a recommendation to the Commission on the implementation of the ROP by fishing vessels fishing for fresh tuna in the area north of 20N

(WCPFC-NC5-2009/WP01). Japan noted that there was little inter-sessional activity by the working group established at NC4 but Japan would like to see some sustained effort in 2010 to help support the preparation of a proposal for submission to the 2010 session of the Commission. Japan noted that small vessels with less than 6 crew account for 30% of the effort of Japanese vessels in the region under consideration, that high seas operations of these vessels cannot be forecast in advance and that most of these vessels are controlled at a family, not company, level. It is Japan's view that these small scale operations could not sustain the cost of ROP deployments. In addition, Japan noted that the catch of these fleets is unloaded at local ports and so can be monitored at ports of unloading. Japan reiterated that it is not proposing to substitute 5% observer coverage with 5% port sampling and that it intends to make best efforts to achieve 5% observer coverage.

68. Chinese Taipei advised that it still has some concerns on the elements and implementation of the ROP but that Chinese Taipei agreed to work with this working group.

69. The Committee agreed to reinvigorate the work of the inter-sessional group in the remainder of 2009 and 2010 noting that, while the majority of the work would be undertaken by email, opportunities to meet in the margins of meetings should also be taken advantage of.

#### **AGENDA ITEM 4. DATA**

##### **4.1 Review of the status of data and data gaps for northern stocks**

70. The Chair of the ISC STATWG, Eric Chang, provided a review of ISC discussion on data gaps and a multilateral research proposal to address data gaps and reduce uncertainties in stock assessments (WCPFC-NC5-2009/IP03). Data gaps identified by ISC9 include i) biological data for key species, ii) fisheries data from non-ISC members and iii) fisheries data from ISC members. The ISC adopted a work plan in 2010 that includes a reporting procedure that provides an indication of the status of data submission by members to ISC. In relation to fisheries data from non-ISC members it is noted that data for north Pacific albacore, Pacific bluefin, swordfish and marlin in the south Pacific and eastern Pacific Oceans are not currently available for ISC assessments. The ISC Chair has been charged with securing cooperation of the relevant RFMOs to access this data. In relation to biological data (age, growth and maturity data) it was noted that current biological parameters are based on research from up to 40 years ago. As a result ISC proposes to establish a multilateral research effort to address issues associated with the lack of current biological data in an effort to reduce uncertainties in current stock assessments. The plan was costed at US\$434K for an integrated programme over 3 years.

71. The Chairman of the NC re-stated the need to establish some financial support to ISC. He also considered the proposal to audit compliance with annual data submission obligations is a useful development that should be supported.

#### **AGENDA ITEM 5. FUTURE WORK PROGRAMME**

##### **5.1 Work Programme for the Northern Committee 2010-2013**

72. The NC revised the work programme for the NC 2010-2013 as attached in **Attachment E**. Additions and changes included:

- To request a report from the Secretariat for NC6 on compliance with the data submission obligations for each CCM;

- Requested the USA, on behalf of the Chair of the striped marlin working group to convene a discussion in the margins of TCC5 and WCPFC6 with the view to preparing a draft interim CMM for striped marlin for WCPFC6's consideration;
  - Requested the Executive Director to write to IATTC in relation to efforts to develop a CMM for Pacific bluefin and north Pacific albacore promoting harmonization of measures, to the extent possible; and
  - Agreed to convene a 2-day workshop prior to NC6 on reference points for NC stocks. This would be followed by a 4-day NC.
73. In addition the NC noted:
- ISC's intention to schedule an assessment for striped marlin in 2011;
  - the comprehensive biological research proposal prepared by the ISC which was costed at US\$434,000; and
  - the request from the striped marlin working group for US\$150,000 funding to support the 2-3 year work programme developed by the Group..

## **AGENDA ITEM 6. COOPERATION WITH OTHER ORGANIZATIONS**

### **6.1 International Scientific Committee for Tuna and Tuna-like Species in the North Pacific Ocean (ISC)**

#### **Proposed revision to ISC/WCPFC MoU**

74. The Secretariat advised the NC that the revised MoU had been prepared at the request of WCPFC5 at Busan.

75. The Committee agreed that the scientific structure involving ISC should be unchanged although transparency of ISC work should be enhanced through data exchange, inviting SC representatives to its meetings and strengthening the website and data administration. The Committee decided to recommend to the Commission that the existing MoU between ISC and WCPFC remain unchanged at this stage.

#### **Assistance to ISC**

76. The Committee agreed that CCMs could elect to provide voluntary support to the ISC in 2009/2010. Well in advance of ISC10 the Secretariat will prepare and circulate a draft administrative arrangement to support financial contributions from NC CCMs, based on the Commission's existing contributions formula that could be applied to the scientific work that ISC undertakes on behalf of the NC. Priority activities identified by the ISC include i) data administration, ii) website administration, iii) albacore sampling and the comprehensive multilateral biological research proposal.

#### **Data harmonisation**

77. The Secretariat reported that SC5 had adopted a programme of work that involved the preparation of existing data inventories, identification of data gaps and consideration of procedures to harmonise data inventories in the broader Commission and ISC to be undertaken in advance of ISC10. The results of these efforts would also be reported to NC6.

78. Japan, Chinese Taipei, Korea and the USA considered it time to examine the feasibility of establishing all of the Commission's data management functions in the Commission Secretariat in Pohnpei. The USA added that if this was to be considered it could only occur if the Secretariat received adequate resources from CCMs to effectively support that function. The Executive Director responded that this had been given consideration during the PrepCon when the principles of avoiding duplication by utilizing the services provided by existing institutional arrangements were agreed. In addition, an assessment of the effectiveness and efficiency of the existing arrangements for data administration were included in the terms of reference of the Independent Review of Interim Arrangements for Science Structure and Function. The conclusion of the review was that the existing arrangements are efficient and cost effective. The Committee decided that further consideration of this issue should occur at the Commission level.

### **Peer review**

79. Chair of the SC5, Naozumi Miyabe, noted the recommendations of the Independent Review of Transitional Arrangements for Science Structure and Function relating to peer review of ISC and SC stock assessments. It was noted that several options had been proposed by SC5 for both ISC and SC assessments. Japan considered that the ISC process is quite different to the assessment process that applies in the SC and that a form of peer review was already accommodated within the ISC process. The Secretariat noted that the concept presented in the Independent Review was for an independent review – not one to be undertaken by those directly involved in the assessments. The Committee requested ISC10 to further consider this matter.

### **Proposed revision of the MoU with SPC**

80. The Committee noted that the proposed changes to the MoU with SPC, to provide for a 3-year arrangement, had been adopted by SC5. Japan proposed an amendment to the proposed MoU (**Attachment F**) to avoid duplication of work between ISC and SPC. Korea and Chinese Taipei supported the proposal. The USA does not agree with this proposal. However the Committee agreed to send the proposal to the Commission for its consideration in December.

### **81. Proposed MoU with the NPAFC**

82. The NC endorsed the proposed MoU with the NPAFC.

## **6.2 Inter-American Tropical Tuna Commission (IATTC)**

83. The Northern Committee approved the proposed Data Exchange Protocol with IATTC for consideration by the Commission.

## **AGENDA ITEM 7. OTHER MATTERS**

### **7.1 Administrative arrangements for the Committee**

#### **7.1.1 Secretariat functions and costs**

84. The NC deferred further consideration of this agenda item to a future session of the Committee.

### **7.1.2 Rules of Procedure**

85. The NC deferred further consideration of this agenda item to a future session of the Committee.

### **7.2 Next meeting**

86. The provisional dates for the Sixth Regular Session of the NC will be 8-11 September 2010 in Japan at a venue to be determined. The meeting will be preceded by a 2-day workshop on reference points for northern stocks.

### **7.3 Other business**

87. The Chair noted that two key NC members were not in attendance at NC5. A request will be sent to all NC CCMs to encourage their active engagement in the work of the NC.

## **AGENDA ITEM 8. REPORT TO THE COMMISSION**

### **8.1 Adoption of the report of the Fifth Regular Session of the Northern Committee and recommendations to the Commission**

88. The NC adopted the Summary Report of its Fifth Regular Session of the NC.

## **AGENDA ITEM 9. CLOSE OF MEETING**

### **9.1 Closing of the meeting**

89. The NC chair appreciated participants for the successful conclusion of this meeting. The meeting closed on Thursday 10 September 2009.



**Northern Committee  
Fifth Regular Session  
Nagasaki, Japan  
7-10 September 2009**

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**Northern Committee  
Fifth Regular Session  
Nagasaki, Japan  
7-10 September 2009**

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**AGENDA**

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**AGENDA ITEM 1. OPENING OF MEETING**

- 1.1 Welcome
- 1.2 Adoption of agenda
- 1.3 Meeting arrangements

**AGENDA ITEM 2. CONSERVATION AND MANAGEMENT MEASURES**

- 2.1 Report from the 9th ISC
- 2.2 Report of the Fifth Regular Session of the Scientific Committee (SC5)
- 2.3 Conservation and management measures for the northern stocks
  - 2.3.1 Northern Pacific Bluefin
  - 2.3.2 North Pacific Albacore
  - 2.3.3 North Pacific Swordfish
- 2.4 Conservation and management measures for other species
  - 2.4.1 Bigeye and yellowfin tuna
  - 2.4.2 Sharks
  - 2.4.3 Seabirds
- 2.5 WG on striped marlin
- 2.6 Skipjack tuna

**AGENDA ITEM 3. REGIONAL OBSERVER PROGRAMME**

**AGENDA ITEM 4. DATA**

- 4.1 Review of the status of data and data gaps for northern stocks

**AGENDA ITEM 5. FUTURE WORK PROGRAMME**

- 5.1 Work Programme for 2010-2013

**AGENDA ITEM 6. COOPERATION WITH OTHER ORGANIZATIONS**

- 6.1 ISC
- 6.2 IATTC
- 6.3 Review of interim arrangements for scientific structure and function

**AGENDA ITEM 7. OTHER MATTERS**

- 7.1 Administrative arrangements for the Committee

- 71.1 Secretariat functions and costs
- 7.1.2 Rules of Procedure
- 7.2 Next meeting
- 7.3 Other business

**AGENDA ITEM 8. REPORT TO THE COMMISSION**

- 8.1 Adoption of the Summary Report of the Fifth Regular Session of the Northern Committee and recommendations to the Commission

**AGENDA ITEM 9. CLOSE OF MEETING**

- 9.1 Closing of the meeting



**Northern Committee  
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**DRAFT CONSERVATION AND MANAGEMENT MEASURE FOR  
PACIFIC BLUEFIN TUNA**

**Draft CMM 2009-xx**

The Western and Central Pacific Fisheries Commission (WCPFC),

*Recognizing* that members of the Northern Committee have made an effort, on a voluntary basis, not to increase the fishing mortality rate of northern Pacific bluefin tuna,

Recalling that the WCPFC5 tasked the Northern Committee to work toward developing a draft CMM for the stock for consideration at the WCPFC6;

*Taking account of* the conservation advice from the International Scientific Committee for Tuna and Tuna-like Species in the North Pacific Ocean (ISC) on this stock which highlighted that the favorable environment conditions and relatively high recruitment in the recent years sustained the current productivity of the stock and that it is important not to increase the current level of  $F$ , while reducing juvenile  $F$ ,

*Also recognizing* that the trend of spawning stock biomass has been influenced substantially by the annual level of recruitment and that collecting of fisheries data in an accurate and timely manner is critically important for the proper management of this stock, and

*Further recalling* that paragraph (4), Article 22 of the WCPFC Convention which requires cooperation between the Commission and the IATTC to reach agreement on an adjustment of CMMs for fish stocks such as northern Pacific bluefin tuna that occur in the Convention Areas of both organizations,

Adopts, in accordance with Article 10 of the WCPFC Convention that:

1. The interim management objective for Pacific bluefin tuna is to ensure that the current level of fishing mortality rate is not increased in the Convention Area. Initially, control over fishing effort will be used to achieve this objective as follows:
2. The Commission Members, Cooperating Non-Members and participating Territories (hereinafter referred to as CCMs) shall take measures necessary to ensure that total fishing effort by their vessels fishing for northern Pacific bluefin tuna in the area north of the 20 degrees north shall not be increased from the 2002-2004 level for 2010, except for artisanal fisheries. In taking such measures, CCMs

shall take account of the need to reduce the effort on juvenile (age 0-3) to the 2000-2004 level. The measures in this paragraph shall not be applied to the Korean EEZ.

3. CCMs shall also take measures necessary to strengthen data collecting system for the northern Pacific bluefin tuna fisheries in order to improve the data quality and timeliness of data reporting;

4. CCMs shall report to Executive Director by 31 July 2010 measures they implement paragraphs 2 and 3 above. Korea shall provide ISC 10 and NC 6 with a report on its fisheries involving bluefin tuna catches;

5. The Northern Committee shall annually review reports CCMs submit pursuant to paragraph 4 above as well as the ISC advice on fishing mortality and status of the stock and consider, if necessary, further measures with particular attention to the recent trend of increasing fishing mortality rate on ages 0–3 fish;

6. The WCPFC Executive Director shall communicate this Conservation Management Measure to the IATTC Secretariat and its contracting parties whose fishing vessels engage in fishing for northern Pacific bluefin tuna and request them to take similar measures in conformity with paragraphs 2 and 3 above; and

7. To enhance effectiveness of this measure, CCMs are encouraged to communicate with and, if appropriate, work with the concerned IATTC contracting parties bilaterally.

8. The provisions of paragraph 2 shall not prejudice the legitimate rights and obligations under international law of those small island developing State Members and participating territories in the Convention Area whose current fishing activity for northern Pacific bluefin tuna is limited, but that have a real interest in fishing for the species, that may wish to develop their own fisheries for northern Pacific bluefin tuna in the future.

9. The provisions of paragraph 8 shall not provide a basis for an increase in fishing effort by fishing vessels owned or operated by interests outside such developing coastal State, particularly Small Island developing State Members or participating territories, unless such fishing is conducted in support of efforts by such Members and territories to develop their own domestic fisheries.



**Northern Committee  
Fifth Regular Session  
Nagasaki, Japan  
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**DRAFT CONSERVATION AND MANAGEMENT MEASURE FOR  
NORTH PACIFIC ALBACORE**

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**Conservation and Management Measure-2005-03 (as revised at NC5, 7-10 September 2009)**

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The Western and Central Pacific Fisheries Commission (WCPFC),

*Observing* that the best scientific evidence on North Pacific albacore from the International Scientific Committee for Tuna and Tuna-like Species in the North Pacific Ocean indicates that the species is either fully exploited, or may be experiencing fishing mortality above levels that are sustainable in the long term, and

*Recalling further* Article 22(4) of the WCPFC Convention that provides for cooperation with the IATTC regarding fish stocks that occur in the Convention Areas of both organizations and

*Recognizing* that the Inter-American Tropical Tuna Commission (IATTC) adopted, at its 73<sup>rd</sup> meeting, conservation and management measures on North Pacific albacore;

Adopts, in accordance with the Article 10 of the WCPFC Convention that:

1. The total level of fishing effort for North Pacific albacore in the Convention Area north of the equator shall not be increased beyond the 2002-2004 average level.
2. The Members, Cooperating Non-Members and participating Territories (hereinafter referred to as CCMs) shall take necessary measures to ensure that the level of fishing effort by their vessels fishing for North Pacific albacore in the WCPF Convention Area is not increased beyond 2002-2004 average levels.
3. All CCMs shall report all catches of albacore north of the equator to the WCPFC every six months, except for small coastal fisheries, which shall be reported on an annual basis. Such data shall be reported to the Commission as soon as possible and no later than one year after the end of the period covered.
4. All CCMs shall report annually to the WCPF Commission all catches of albacore north of the equator and all fishing effort in fisheries directed at albacore. The reports for both catch and fishing effort shall be made by gear type. Catches shall be reported in terms of weight. Fishing effort shall be reported in terms of the most relevant measures for a given type, including at a

minimum for all gear types, the number of vessel-days fished. The report for a given calendar year shall be due on April 30 of the subsequent year. Reports for each of the years 2004 through 2009 shall be due on 30 April 2010.

5. The Northern Committee shall, in coordination with International Scientific Committee for Tuna and Tuna-like Species in the North Pacific Ocean and other scientific bodies conducting scientific reviews of this stock, including the WCPFC Scientific Committee, monitor the status of North Pacific albacore and report to the Commission on the status of the stock at each annual meeting, and make such recommendations to the Commission as may be necessary for their effective conservation.
6. The Commission shall consider future actions with respect to North Pacific albacore based on recommendations of the Northern Committee.
7. The CCMs shall work to maintain, and as necessary reduce, the level of fishing effort on North Pacific albacore within the Convention Area commensurate with the long-term sustainability of the stock.
8. The WCPFC Executive Director shall communicate this CMM to the IATTC and request that the two Commissions engage in consultations with a view to reaching agreement on a consistent set of conservation and management measures for North Pacific albacore, and specifically, to propose that both Commissions adopt as soon as practicable uniform conservation and management measures and any reporting or other measures needed to ensure compliance with agreed measures.
9. The provisions of paragraph 2 shall not prejudice the legitimate rights and obligations under international law of those small island developing State Members and participating territories in the Convention Area whose current fishing activity for North Pacific albacore is limited, but that have a real interest in, and history of, fishing for the species, that may wish to develop their own fisheries for North Pacific albacore in the future.
10. The provisions of paragraph 9 shall not provide a basis for an increase in fishing effort by fishing vessels owned or operated by interests outside such small island developing State Members or participating territories, unless such fishing is conducted in support of efforts by such Members and territories to develop their own domestic fisheries.
11. For the purpose of evaluating implementation of paragraph 2, CCMs shall report to the Executive Director no later than 30 April 2010 the following information:
  - a. a list of their specific fisheries or fleets they have determined to be “fishing for” North Pacific albacore in the Convention Area; and
  - b. a description of the particular measures, as well as monitoring mechanisms, they have established to ensure that fishing effort in each of the fisheries or fleets does not increase above 2002-2004 average levels.
12. For the purpose of evaluating implementation of paragraphs 2-4, the Secretariat shall compile all the reports submitted under paragraphs 3 and 4 and present the compilation to the sixth regular session of the Northern Committee.



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**Work Programme for the Northern Committee  
(as revised by the Fifth Regular Session)**

Work areas	5-year objectives	1-year tasks				
	2009-2013	2009	2010	2011	2012	2013
<p><b>. Northern stocks</b></p> <p>a. Monitor status; consider management action</p>	<p>Review status and take action as needed for:<sup>1</sup></p> <p>North Pacific albacore</p> <p>Pacific bluefin tuna</p>	<p>Obtain and review ISC advice in light of interim management objective and consider the need for management action.</p> <p>Review reports from CCMs on their domestic management measures, consider advice of ISC and consider management</p>	<p>Obtain scientific advice and make recommendations for both limit and target reference points.</p> <p>Review reports from CCMs as well as report from Korea on their domestic management measures,</p>	<p>Obtain and review a full assessment</p>	<p>Obtain and review a full assessment</p>	

<sup>1</sup> In the event that the Commission, in accordance with paragraph 5 of Annex I of the Commission Rules of Procedure, adds additional stocks, such as the northern stock of striped marlin, to the list of stocks understood to be “northern stocks”, this work programme will be revised to include periodic status reviews and consideration of management action for such stocks.

Work areas	5-year objectives	1-year tasks				
	2009-2013	2009	2010	2011	2012	2013
b. Data		action		consider advice of ISC on F and consider management action for 2011 and after		
	Swordfish	Obtain and review complete assessment (ISC) and consider management action.		Obtain scientific advice and make recommendations for both limit and target reference points. Obtain scientific advice and make recommendations for both limit and target reference points.		
	Striped marlin (if agreed by the Scientific Committee and Commission).	Review outcomes of the WG to consider alternative management options. CCMs report on voluntary constraints in relation to fishing mortality rate (i.e. catch or effort)		Review outcomes of the WG to consider alternative management options. CCMs report on voluntary constraints in relation to fishing mortality rate (i.e. catch or effort)	Obtain and review a full assessment	
	Achieve timely submission of complete data needed for assessments, formulation of measures, and review of Commission decisions	CCMs participating in the NC submit complete data on fisheries for northern stocks to the Commission		CCMs participating in the NC submit complete data on fisheries for northern stocks to the Commission		
	Consider systems to validate catch data	Encourage submission to Commission of PBF data from all CCMs and make available to ISC		Encourage submission to Commission of PBF and NPALB data from all CCMs and make available to ISC		

Work areas	5-year objectives	1-year tasks				
	2009-2013	2009	2010	2011	2012	2013
<b>2. Non-target, associated, dependent species</b>						
a. Seabirds	Consider appropriate implementation of methods to minimize catch and mortality.	Review implementation of CMM-2007-04 in the northern area	Review implementation of CMM-2007-04 in the northern area			
b. Sea turtles	Consider appropriate implementation of methods to minimize catch and mortality.	Review mitigation research results and consider management action	Review mitigation research results and consider management action			
c. Sharks	Consider appropriate implementation for CMM-2006-05 in the northern area.	Review implementation for CMM-2006-05 in the northern area.	Review implementation for CMM-2006-05 in the northern area.  Review scientific advice from ISC, if any, and consider management options on five shark species (blue shark, oceanic whitetip shark, mako sharks, thresher sharks and silky shark).	Review scientific advice from ISC, if any, and consider management options on five shark species (blue shark, oceanic whitetip shark, mako sharks, thresher sharks and silky shark).		
<b>3. Review effectiveness of decisions</b>	Annually review effectiveness of conservation and	Review effectiveness of NP albacore measure (CMM 2005-03), including members'	Review effectiveness of NP albacore measure (CMM 2005-03), including			

Work areas	5-year objectives	1-year tasks				
	2009-2013	2009	2010	2011	2012	2013
<b>4. Cooperation with other organisations</b> a. ISC	management measures and resolutions applicable to fisheries for northern stocks	reports on their interpretation and implementation of fishing effort controls  Review effectiveness of Pacific bluefin tuna measure.	members' reports on their interpretation and implementation of fishing effort controls  Review effectiveness of Pacific bluefin tuna measure.  Consider and establish a mechanism to support ISC.			
b. IATTC	Following Article 22.4, consult to facilitate consistent management measures throughout the respective ranges of the northern stocks	Have consultation to maintain consistent measures for NP albacore and northern Pacific bluefin tuna	Have consultation to maintain consistent measures for NP albacore and northern Pacific bluefin tuna			

**TECHNICAL AND COMPLIANCE COMMITTEE**  
**Fifth Regular Session**  
1-6 October 2009  
Pohnpei, Federated States of Micronesia

**Summary Report by the United States**

Observers and ROP-IWG3

1. TCC5 accepted the recommendations of the ROP-IWG3 (see WCPFC-TCC5-2009/IP-03). The recommendations include 5 new interim minimum standards: vessel safety checklist; observer trainer qualifications; liability and insurance; standardized procedures for deployment of ROP observers; and authorization of de-briefers.
2. TCC5 also accepted agreements reached by ROP-IWG3 on observer placement costs, fisheries to be monitored, coverage levels, cadre of observers, ROP workbooks, and data fields for purse seine FAD monitoring. Agreement also was reached on adding a section to the Annual Report part 2 to provide an update on actions taken to reach 5% coverage by June 2012.
3. TCC5 agreed in principle to create a Technical Operational and Advisory Group (TOAG) to assist the ROP coordinator in implementing the ROP. TCC5 could not reach agreement on the Terms of Reference for the TOAG and no final action was taken. The ROP Coordinator was asked to see if progress on this matter could be made before the Commission meeting in Tahiti.
4. Definitions for the *Hybrid Approach*, *principally*, *occasionally*, *impartial*, *independent*, and *longline trip*, and the minimum size of vessels for observer placement were not discussed. TCC5 recommended that ROP implementation continue without resolving these issues.
5. TCC5 agreed on two of the several options for managing data gathered through the observer program. The Secretariat was directed to prepare budget proposals for both and to draft a transition plan for consideration of financial and other aspects by the Finance and Administration Committee.
6. TCC5 encouraged the Secretariat to continue to work with IATTC to develop an agreement for cross endorsement of observers between the two RFMOs. There is a concern about the differences between the two organizations with regard to the use of observer data for MCS purposes. TCC5 indicated that the WCPFC rules should prevail in this aspect of any agreement.
7. The ROP Coordinator provided the first annual report of program activities. The report included a number of incidents related to the FAD closure.

Vessel Monitoring Systems

8. The VMS Manager presented the first annual report on the Commission VMS program. There have been a very large number of vessel reports made to the Commission's VMS. Relatively few vessels were not reporting (<1%), which suggests that the program is working well in this early stage. The Secretariat indicated that it may be necessary to consider cost recovery. This led into a discussion of using the Commission's Record of Vessels for the purpose of cost recovery. A number of CCMs pointed out that many of the vessels that they submitted for inclusion on the Record have not been active in the Convention Area and should not be used in any cost recovery efforts. Others noted that CCMs are required to indicate which of their vessels on the Record

have been active in the Convention Area and that such information should be provided to the Secretariat.

9. TCC5 clarified that the Commission's VMS requirements apply only when vessels are in the high seas waters of the Convention Area and not within CCM's waters.
10. There was no resolution to the matter of what should be required when a vessel's ALC is not operating. The U.S. and RMI have indicated that they would work to develop some promising concepts that the two CCMs discussed in a side bar meeting. Other CCMs indicated that they would like to be included in any such discussions.
11. TCC5 indicated its preference not to make changes to the VMS until the system has been in operation for a period of time. The issues of Electronic Vessel Registration and establishing a redundancy capacity, however, were agreed upon by TCC5.
12. The Secretariat requested that VMS units report prior to entering the high seas of the Convention Area, indicating that in some cases there would not be any report on a vessel for as many as four hours. CCMs did not agree to this change and requested the Secretariat to report on the issue at WCPFC6.

#### Transshipment

13. Using the Marshall Islands' latest proposal, the TCC made quite a bit of progress on the issue of monitoring and regulating transshipment in the Convention Area. It produced a draft measure with only a couple issues unresolved. One was the scope of the measure, with Korea opposing the idea of applying it to transshipments in the Convention Area of HMS caught outside the Convention Area. The second regarded observer coverage – the original proposal would call for 100% observer coverage on all vessels that receive fish at sea. The US has been resistant, arguing that that level of coverage would be overkill, specifically for transshipments from troll, pole-and-line, and fresh-fish longline vessels, which we believe pose little IUU risk. The TCC members agreed to work together to produce a proposal for the Commission meeting in December. Towards that end, comments to the Marshall Islands and Nauru are due by October 26, 2009.

#### Non-member carriers and bunkers

14. The issue of how to deal with the operation of non-member carriers and bunkers in the Convention Area has been moving more or less in parallel with transshipment over the last couple years. The Marshall Islands and the US each offered a proposal. Both proposals would allow – through different mechanisms – non-member carriers and bunkers to operate in the Convention Area, but under the Marshall Islands proposal they would be phased out, and eventually allowed to operate in the Convention Area only if chartered to a CCM.
15. The TCC produced a draft measure that uses the US-proposed mechanism from 2010 until 2013, at which point the RMI-proposed solution would go into effect, with the important qualifier that non-member carriers and bunkers could operate under charter only in national zones – in other words, starting in 2013, non-member carriers and bunkers would no longer be authorized to be used on the high seas in the Convention Area. There remain only a few – apparently relatively minor – outstanding issues, which TCC members are to comment on by October 26, 2009 (to the RMI and Nauru).

## Seabirds

16. New Zealand proposed that the Commission's existing technical specifications for seabird mitigation measures be replaced with those recently adopted by the IOTC. Predictably, Japan resisted this idea (its "light tori line" specifications, which it fought hard – against the US, among others - to be accepted two years ago, would have disappeared). The US was sympathetic with Japan's view, in part because research results may soon be available that shed light on the effectiveness of light tori lines relative to more commonly accepted designs, like those in the IOTC specifications.

## Record of Fishing Vessels

17. The TCC continued to express tepid support for the idea of establishing a unique vessel identifier for vessels on the WCPFC Record, which is linked to the concept of developing a global record of fishing vessels and which is being pushed through the joint t-RFMO process. Establishing UVIs would require that CCMs provide a number of additional pieces of information about each of their vessels, including about the entities that own, charter, manage, and operate them, which may be difficult for some CCMs, possibly including the US.
18. An issue that came up in several agenda items, including IUU vessel listing, was the relationship between the WCPFC Record and authorization to fish in the Convention Area. CMM 2004-01 says that a vessel not on the Record shall be deemed not to be authorized to fish in the Convention Area. That goes beyond the Convention, which establishes the Record merely to reflect the fishing authorizations granted by flag States. In other words, CMM 2004-01 effectively turns the record into a registry. The IUU listing measure goes even further, saying that failure to be on the Record is grounds for being placed on the IUU vessel list. The US and a few other CCMs have a problem with these provisions, in part because placement on the Record is dependent on merely administrative actions, both by the flag State (providing information about the vessel to the Secretariat) and the Secretariat (placing the vessel and that information on the Record). Even more troubling is that the Secretariat has exercised what appears to be questionable authority in declining to place some vessels on the Record in cases where incomplete vessel information was provided by the flag State. See the IUU listing agenda item for the meeting outcomes in that context. The US may want to consider proposing changes to CMM 2004-01 and the IUU vessel listing procedures to either turn the Record back into a record or to ensure that if it is to be treated as a Register, that the system is designed such that vessel owners are not unduly penalized for merely administrative errors made by their flag States or the Secretariat.

## Port State Measures

19. TCC5 considered the recently finalized FAO Port State Measures Agreement which is expected to be approved by the FAO Conference and opened for signature in November, and discussed the future development of port State measures for the WCPFC. FFA Members expressed support for the PSM Agreement and noted the vital role effective port State measures play in combating IUU fishing. Regarding a future WCPFC port State measures scheme, the FFA identified four principles: (1) the scheme must not affect CCM's sovereignty over their ports; (2) that the PSM Agreement provides for minimum standards, and so States and the WCPFC can adopt more stringent measures; (3) existing measures in the region and that port States have the discretion to apply terms to vessels in their national waters must be recognized; and (4) any scheme cannot place a disproportionate burden on small island States and capacity building must be provided for such States. TCC5 recommended that the development of a WCPFC port State measures scheme

be identified as a priority issue for TCC6. As with the CDS/SDS discussion, the U.S. noted that if the Commission was going to progress these issues as a priority, then it must provide an opportunity for the detailed discussion that will be needed to advance them, such as through an intersessional process.

#### Work Program and Budget 2010-2014

20. TCC5 considered a draft Work Program and Budget prepared by the Secretariat that included priorities for the next 5 years, a time line for achieving these priorities, and estimated budget for the work program elements. The U.S. provided a series of comments on both the Work Program and the estimated budget, as did other CCMs. The Secretariat will provide a revised draft to the Finance and Administration Committee at WCPFC6 for its consideration.

#### Charter Arrangements

21. TCC5 reviewed a Secretariat paper on options for developing a Charter Arrangement Scheme. Participants supported "Option C" that was contained in the paper, which outlined the need for a notification mechanism whereby CCMs who engage in chartering arrangements would be required to provide certain data to the Commission. The developed CCMs raised the issue of flag State responsibility and consent, a contentious issue that has caused the adoption of a chartering scheme to be deferred for the last three years. After further discussion in the margins, including in a small working group led by Fiji, a draft measure was tabled that calls for those CCMs who charter vessels to provide information on those charters to the Commission. The measure is a Charter Notification Scheme and does not address the still contentious issues of flag State vs chartering host State responsibilities, including the need for flag State consent, nor does it address any issues related to attribution of catch by chartered vessels. The US supported the draft measure and provided drafting suggestions, which were largely accepted and incorporated into the final draft proposal. TCC5 recommended that the draft measure on a Charter Notification Scheme be adopted by WCPFC6.

#### Compliance with Conservation and Management Measures

22. TCC5 reviewed a paper developed by the Secretariat that summarized CCM's compliance with conservation and management measures. Some CCMs commented on the need for the Secretariat to clarify in future summaries which measures are applicable for reporting through Annual Report Part 2. In addition, SIDS expressed the need to clarify which measures they are not subject to, such as catch limits for certain species and certain reporting requirements. There was also some discussion on the Part 2 template and the need for greater specification of information to be reported, as well as incorporation of the new CMM for bigeye and yellowfin tuna for the 2009 reporting year. The final issue under this agenda item related to the Compliance with Conservation and Management Measures Working Group, initiated in 2008 by Australia. A Draft Terms of Reference for this working group was developed by Australia and CCMs were invited to provide comments. The US will provide its comments in the coming weeks prior to the annual meeting of the Commission in December.

#### Cooperating Non-Member Application Process

23. Seven countries applied for WCPFC Cooperating non-Member (CNM) status for 2010: Belize, Ecuador, El Salvador, Indonesia, Mexico, Senegal and Vietnam. TCC5 convened a working group to evaluate the applications and develop recommendations for the Executive Director and Commission to consider. Of the seven applications, only Vietnam's was considered complete.

The remaining applicants will be advised, through the Executive Director, to provide additional data on their current and historical fishing effort in the Convention Area. El Salvador, Mexico and Senegal did not provide an explicit commitment to accept WCPFC high seas boarding and inspections on their vessels and will be required to do so in advance of the next Commission meeting.

24. TCC5 forwarded the applications to the Commission and recommended their consideration, subject to the outstanding information being submitted and accepted. TCC5 also recommended that the Executive Director provide, in advance of the next Commission meeting, an analysis of Ecuador's and the current CNMs' compliance with the commitments and any specific limits on fishing activities undertaken as a condition of their 2009 status.

#### Ad Hoc Task Group – Data

25. The Ad Hoc Task Group [Data] met in a working session for two full days prior to the commencement of TCC5. During this time, the group reviewed the fourth draft of the Rules and Procedures for the Protection of, Access to, and Dissemination of Non-Public Domain Data for MCS Purposes (RAPs). Through the work of the group, a fifth and sixth drafts of the RAPs were produced. By the end of the two day working group, all items were agreed to with the exception of one paragraph inserted by the U.S. to ensure that flag states had unfettered access to data from vessels flying its flag. The Pacific Islands Countries (PICs) believed that this language conferred a benefit to flag States, particularly the United States, which needed to be counterbalanced by a similar benefit to coastal States. As a result they proposed that coastal States should have unfettered access to data from vessels licensed to fish in their waters, transshipping in their waters or landing in their ports. The Asian-DWFNs objected to such a broad grant of access to data.
26. After several days of negotiating these points, language was proposed that was accepted by all members. This language allows coastal States to receive data for vessels that fish in waters under their jurisdiction and vessels applying to fish in their national waters, unload in their ports or transship within waters their jurisdiction. The new language also, in addition to not restricting a flag State's access to data from vessels flying its flag, does not restrict a coastal State from receiving data from a vessel that is alleged to have or has engaged in fishing activities in areas under that Member's national jurisdiction in violation of that Member's domestic laws and regulations, for the purpose of an investigation, judicial or administrative proceeding related to that violation.
27. Despite negotiating positions, the end result is particularly satisfying to the United States as it has multiple roles and interests in the region including flag State, coastal State and port State. The final draft of the RAPs was recommended by TCC5 for adoption by WCPFC6. However, two FFA member countries have indicated that because they missed an opportunity to clarify some last minute amendments from Chinese-Taipei, they may wish to revisit those last amendments at WCPFC6. It is likely, even if minor tinkering is necessary, that the RAPs will be adopted at WCPFC6 and will go into effect 60 days later.
28. The provisions for VMS data for scientific purposes that have essentially been the same in the last 4 drafts of the document were adopted as recommended. The only modification was that Japan indicated that to get the data in the Northwest quadrant requires the permission of the flag State.

## Data Buoys

29. The US put forward a proposal on Damage to Data Buoys by Fishing Vessels for consideration by TCC5. This proposal was designed to try and protect critical data buoys in the western and central Pacific Ocean from destruction and damage through fishing activities. This proposal underwent significant revisions due to comments received from other CCMs that were supportive of a more stringent measure. The current revision now requires CCMs to prohibit fishing vessels from fishing within one NM of or interacting with a data buoy in the high seas of the Convention Area. It also requires CCMs to prohibit vessels from taking buoys on board and keep watch for moored buoys to avoid entanglement. There was general support for the intent of this measure and several supportive comments across the floor. One CCM requested that we add a scientific research exemption. Other CCMs identified other changes that they would like to see. Comments will be provided to the US intersessionally and the draft measure will move forward for further consideration at WCPFC6.

## IUU List and Procedures (Para 3j, Stateless Vessels and Control of Nationals)

### *WCPFC Provisional IUU Vessel List*

30. There were 15 vessels included on the WCPFC Draft IUU Vessel List at the beginning of TCC5 – four of them proposed by the United States. At the conclusion of TCC5, 13 of those vessels were included on the Provisional IUU Vessel List. There were two vessels on the 2008 WCPFC IUU Vessel List – the *Jinn Feng Tsair No. 1* and *Daniela F* – and TCC5 recommended that both remain on the WCPFC IUU Vessel List.
31. The US proposed four vessels for inclusion in the WCPFC Provisional IUU Vessel List – *Chia Shun Hsing No. 6*, *Jin Ha Fu No. 10*, *Maan Feng Yu No. 36*, and *Lina*. The *Lina* was also proposed for listing by France. The *Lina* was recommended for listing on the WCPFC Provisional IUU Vessel List by consensus of TCC5.
32. At the beginning of TCC5, the US had a settlement in principle with the three remaining vessels, all flagged to Chinese-Taipei. With the consent of the chair, the US presented the case for each vessel, but asked that the decision on all three vessels be postponed to the end of the meeting in order to provide time for the settlements to be finalized. At the conclusion of the meeting, the US was able to report that the settlement had been finalized for the *Jin Ha Fu No. 10* and therefore the US withdrew its recommendation that the vessel be included on the WCPFC Provisional IUU Vessel List. Unfortunately, the settlements with the two other vessels could not be finalized in time to remove them from consideration, so the TCC5 recommended that they be included on the WCPFC Provisional IUU Vessel List until such time as the matter was settled to the satisfaction of the US. The US will likely request that both vessels be removed from the Provisional List prior to WCPFC6.
33. New Zealand proposed seven vessels for inclusion on the WCPFC Provisional IUU Vessel List – *Rong Yuan Yu 86*, *Rong Yuan Yu 87*, *Rong Da Yang No. 6*, *Rong Da Yang No. 7*, *Rong Da Yang No. 8*, *Rong Da Yang No. 9*, and *Yuh Chang No. 3*. Their proposals garnered a fair amount of discussion and controversy because each vessel was proposed for listing as a result of fishing on the high seas of the Convention Area will not on the WCPFC Record of Fishing Vessels (RFV). The first six boats were flagged to China and China asserted that it attempted to include the vessels on the RFV, but due to a variety of technical problems was unable to do so. New Zealand, and much of FFA, supported the listing of these vessels, even though responsibility may lie with the flag state and not the vessel. Their position was that the flag state should not

authorize vessels to fish on the high seas of the Convention unless and until the vessel is included in the WCPFC RFV. New Zealand also stressed that IUU Listing was the only available course of action to send a message to the flag State.

34. The US, EC and Asian-DWFNs expressed their discomfort with punishing individual vessels for failures on the part of the flag State. In addition, the US and others stressed that the RFV is not what authorizes a vessel to fish on the high seas of the Convention Area, but rather it is the flag State that makes that authorization. Therefore, so long as the flag State authorizes the activity, technical problems with the WCPFC Secretariat are not a sufficient basis for IUU listing of a vessel. A majority of TCC5, however, supported inclusion of this vessel on the WCPFC Provisional IUU Vessel List. A minority did not support inclusion. While the US expressed its concerns with the general principle, it did not actively support or oppose the listing.
35. The seventh vessel proposed for listing was flagged to Chinese-Taipei. This vessel also fished on the high seas of the Convention Area while not included in the RFV. However, it quickly became clear that Chinese-Taipei had attempted to include this vessel in the RFV, but the WCPFC Secretariat refused to include it due to what it considered insufficient information. However, the Commission has not established any minimum standards for required information before a vessel is included in the RFV. The US, and several others, believes that the Secretariat erred by not including the vessel in the RFV. Therefore, the US, EC and Asian-DWFNs opposed the inclusion of this vessel on the WCPFC Provisional IUU Vessel List. However, a majority, composed primarily of FFA members, supported inclusion and the vessel was included.
36. France recommended four vessels for inclusion on the WCPFC Provisional IUU Vessel List – *Taiho Maru*, *Lina*, *Senta*, and *Minako*. These listings involved two sets of carrier vessels receiving fish from fishing vessels not registered on the WCPFC RFV. As discussed above, the *Lina* was included on the list. After further negotiations with Japan, France withdrew its proposal to list the *Taiho Maru*. These listings also generated some discussion as there was confusion as to whether such activities were ripe for IUU listing. By the end of the discussion, it was generally understood that paragraph 3(i) of CMM 2007-03 (IUU Listing CMM) operates essentially as a catchall provision for violations of CMMs not specifically identified in the remainder of paragraph 3. Despite that, support for these listings remained fairly tepid however, eventually a majority of CMMs supported inclusion of these vessels on the WCPFC Provisional IUU Vessel List. The US did not actively support or oppose these listings.
37. The final vessel under consideration was the Chinese-Taipei flagged vessel *Yu Fong 168* proposed for inclusion by RMI. The vessel was documented fishing illegally inside the RMI EEZ. Despite efforts by both RMI and FSM to apprehend the vessel, it was able to get away, after ramming a patrol vessel. There was overwhelming support by almost every member of TCC5, including Chinese-Taipei, to include the vessel on the WCPFC Provisional IUU Vessel List. While RMI appreciated the support, it made the key point that IUU listings are a reflection of failure, not success, and that IUU listing does nothing to make the RMI whole for the violation occurring in its waters.

#### *CMM 2007-03*

##### **a) paragraph 3(j)**

38. At its last meeting, based on a recommendation from TCC4, the Commission agreed to suspend the application of paragraph 3(j) of the WCPFC's IUU Vessel List measure given concerns that were raised by Korea over issues of due process and the potential serious economic implications

of its use. Paragraph 3(j) permits a vessel to be ripe for listing on the WCPFC IUU Vessel List by virtue of being under the control of the owner of any vessel that is on the WCPFC List, even if it itself has not engaged in IUU activities. The application of 3(j) was suspended until TCC5 pending the development of procedures to guide its use. No progress was made on this issue intersessionally other than the production of a legal consultant's paper on the subject. TCC5 briefly considered the consultant's paper on this issue, but did not discuss the issue in any detail.

39. Given the complexity of the issue, and the various issues raised, most CCMs wished for more time to study the paper and its proposals for addressing it (such as through amending CMM 2007-03 to create a separate procedure for so-called "3(j)" vessels). TCC5 recommended that issue be discussed in detail at TCC6 and that in the interim the application of 3(j) be suspended again. A majority of CCMs wished for it to be clear that this be the final time 3(j) would be suspended but a minority held a different view, and so there was no consensus recommendation of the TCC on this point. The U.S. expressed that the Commission needed to identify how this complex issue would be progressed intersessionally in 2010 so that TCC6 would be prepared to make specific recommendations to address the various concerns in a practical and fair manner, and which did not undermine the utility of the WCPFC IUU Vessel List.

**b) paragraph 15**

40. Tonga introduced a proposed to amend paragraph 15 of CMM 2007-03. Paragraph 15 identifies the three reasons why a vessel would *not* be included on the WCPFC Provisional IUU Vessel List. The third reason, in paragraph 15(c), currently states that the vessel will not be included on the provisional list if it has been resolved to the satisfaction of the listing State and the flag State. Many coastal States agreed that the satisfaction of the flag State is not an appropriate consideration, but that the focus should be on the satisfaction of the coastal State. Therefore, Tonga proposed to revise paragraph (c) so that when the violation at issue occurred inside the EEZ of CCM, flag State satisfaction was eliminated as a consideration. The majority of CCMs at TCC5 supported Tonga's proposal, however a minority needed additional time to review the document. Therefore, it will be moved forward for final consideration and adoption, if possible, at WCPFC6. The US supported Tonga's proposal.

*Control of Nationals*

41. New Zealand proposed a new CMM on Control of Nationals in order to ensure that flag states are taking appropriate action against their nationals who own, control, command or operate fishing vessels alleged to have engaged in IUU activities or serious violations under the Convention in the high seas of the Convention Area. The US had several proposed changes to the draft CMM which were accepted by New Zealand. Despite some support for the measure, there were some CCMs that needed more time to review and consult with legal counsel before they could agree to the measure. Therefore, comments will be received intersessionally and the draft measure will move forward for further consideration at WCPFC6. The US is generally supportive of the measure, and said so at TCC5, but will be interested to see how the measure evolves at WCPFC6 before giving finally acceptance.

*Vessels without Nationality*

42. The US put forward a proposal for a new CMM on vessels without nationality. This CMM states that vessels without nationality that fishing in the high seas of the Convention Area are presumed to be undermining the WCPF Convention and its conservation and management measures. It encourages CCMs to take all necessary measures, including enacting domestic legislation, to

prevent vessels without nationality from undermining the CMMs adopted by the Commission. It also encourages CCMs to board, inspect and when the evidence warrants, take such action as may be appropriate. Should the Commission adopt this measure, it will give the US additional tools to take effective enforcement action against stateless vessels using existing legislation. It will also allow other member countries that have enacted laws similar to our Lacey Act to take enforcement action. There was no opposition to our proposed measure and some support from other CCMs, however FFA members requested additional time to review the measure. Comments will be provided to the US intersessionally and the draft measure will move forward for further consideration at WCPFC6.

#### Catch Documentation Scheme

43. Despite the development and implementation of a catch documentation scheme being identified as a priority item for TCC5 – the matter actually received relatively little attention during the meeting. This issue, which the Commission has grappled with in various fits and starts since 2004, has some priority for members given the implementation of an EC regulation that is to be implemented on January 1, 2010. The TCC recommended to the Commission that the matter be taken up as a priority matter in 2010 (again!) and despite the US attempting to get the chair to provide some procedural rigor to the TCC's recommendation – absent a push in Tahiti – the matter may languish for yet another year.

#### Sea Turtles

44. The TCC accepted and endorsed the suggestions of the SC5 with regard to the sea turtles CMM adopted in 2008. Australia provided both a revised management plan for its Eastern Longline fishery (which takes turtles in the Convention area), as well as a table that breaks down the by-catch of the various species of turtles between the deep and shallow set components of that fishery. These data seem to suggest that they may have to implement the circle hooks or fish bait provisions for the shallow set component of their fishery in the next two or three years.



**Technical and Compliance Committee**

**Fifth Regular Session**

**1-6 October 2009**

**Pohnpei, Federated States of Micronesia**

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**SUMMARY REPORT: PRE-EDITED VERSION**

*This Summary Report contains agreed decision points, **in bold**, which are the decisions of TCC5. The narrative text is the responsibility of the Chair.*

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**AGENDA ITEM 1 — OPENING OF MEETING**

**1.1 Welcome**

1. The Chair of the Technical and Compliance Committee (TCC) Ambassador Wendell Sanford (Canada) opened the Fifth Regular Session of the Committee at 8:30am on 1 October 2009. He expressed his appreciation to the Federated States of Micronesia (FSM) Government and to the College of Micronesia for their support of the meeting. A prayer of condolence was offered for the victims of the recent tsunamis and earthquakes in Samoa, American Samoa, Tonga, Indonesia and elsewhere.

2. Ambassador Satya Nandan (Fiji), the Chair of the WCPFC delivered an opening address noting the impressive progress of the Commission in the short time since its establishment. He stressed that the ultimate effectiveness of the management measures adopted would depend on the commitment with which they are implemented by Commission Members, Cooperating Non-members and Participating Territories (CCMs).

3. The following CCMs attended TCC5: Australia, Canada, China, Cook Islands, European Community (EC), Federated States of Micronesia (FSM), Fiji, France, Japan, Kiribati, the Republic of Korea, Republic of the Marshall Islands (RMI), Nauru, New Caledonia, New Zealand, Republic of Palau, Papua New Guinea (PNG), Philippines, Samoa, Solomon Islands, Chinese Taipei, Tokelau, Tonga, Tuvalu, United States of America (U.S.) and Vanuatu. El Salvador attended TCC5 as a Cooperating Non-member.

4. Observers representing Ecuador, the Pacific Islands Forum Fisheries Agency (FFA), Greenpeace and Pacific International Maritime Law Association (PIMLA) also participated. A list of participants is provided as Attachment A.

**1.2 Adoption of Agenda**

5. The provisional agenda (WCPFC-TCC5-2009/03(Rev.3)) was adopted, as amended, by TCC5 (Attachment B).

### **1.3 Meeting Arrangements**

6. Meeting support was provided by the WCPFC Executive Director Andrew Wright; Ken Smithson, Financial and Administrative Manager; Andrew Richards, Compliance Manager; Dr SungKwon Soh, Science Manager; Sam Taufao, ICT Manager; Karl Staisch, Observer Programme Coordinator; Albert Carlot, VMS Manager; Milo Abello and Julio Mendez, VMS Operations Officers; Glen Jano, Administrative Assistant Data Entry; Herolyn Movick, Office Manager; and Lucille Martinez, Executive Assistant. In addition to Secretariat staff, two meeting participants provided support services: Dr Martin Tsamenyi, legal advisor; and Dr Shelley Clarke, rapporteur.

### **1.4 Opening Statements**

7. Korea made a statement expressing their concern regarding activities by Greenpeace on the high seas involving interference with fishing activities (Attachment C).

8. Some CCMs voiced their support for Korea's statement.

## **AGENDA ITEM 2 — PRIORITY MONITORING, CONTROL AND SURVEILLANCE (MCS) ISSUES BEFORE THE COMMISSION**

### **2.1 Regional Observer Programme**

#### **(a) Report of the Third Meeting of the Inter-sessional Working Group**

9. The Chair of the Regional Observer Programme (ROP) Interim Working Group (IWG), Dr. Charles Karnella (United States) presented the report of the Third ROP IWG (WCPFC-TCC5-2009/IP-03).

10. Dr Karnella described the recent accomplishments of the ROP-IWG3 as focused on agreements on additional five interim minimum standards (including a vessel safety checklist, observer training qualifications, liability and insurance, standardised procedures for deployment of ROP observers, and authorisation of debriefers and requirements of debriefing), other agreements (including ROP observer placement costs, fisheries to be monitored, coverage levels, cadre of observers, and ROP workbooks); recommendations for CCM Annual Report Part 2 ROP reporting requirements, and implementing the ROP to monitor the August-September 2009 FAD closure.

11. The ROP IWG-3 was, however unable to reach consensus on the definitions of some key terms (“occasional”, “principally”, “adjacent”, “independent”, “impartial”, “observer trip for longliners”) and whether some vessels could be exempted from requirements to carry observers due to their vessel size limitations. Dr. Karnella reminded TCC5 that Article 28, para.(1) of the Convention requires that the ROP be used to collect “verified catch data”, therefore if there are vessels which cannot accommodate an observer, these vessels must consider how they can meet the requirements of the Convention.

12. Some CCMs again voiced concerns about their ability to accommodate observers on small vessels but a portion of these accepted that an alternative means of providing verified data should be sought. The possibility of using video technology was raised by Canada. Another option involving increased coverage on some fleet sectors if other fleet sectors could not take observers was suggested.

13. Other CCMs emphasised the importance of collecting verified data across a representative sample of the fishing fleet, i.e. including small vessels. The majority among this

group supported ongoing and expanding implementation of the ROP despite the fact that not all elements of the ROP have yet been agreed.

**14. TCC5 agreed to accept the recommendations of the ROP –IWG3 Summary Report and attachments (WCPFC-TCC5-2009/IP-03).**

**15. TCC5 agreed to recommend to the Commission that CCMs implement the ROP (CMM 2007-01) and report on their progress in Part 2 of their 2010 Annual Reports, including how they will achieve 5% coverage by June 2012 (CMM 2007-01, Annex C, para. 6).**

**(b) Consideration of outstanding issues**

16. Dr. Karnella explained that consensus had not been reached on the definition of the “hybrid model/approach”, particularly in regard to when observers should not be nationals of the flag State of the vessel.

17. In response to the IWG-ROP Chair’s report on the IWG-ROP meetings not being able to reach consensus on definitions, some CCMs held that the original agreement on the hybrid model/approach was quite clear in its intended definitions and stressed the importance of implementing it. Some CCMs indicated that they are implementing it.

18. CCMs stated that the hybrid model/approach allowed for the use of national observers on their own longline vessels, including on the high seas. These CCMs stated that this is a practical option given that demand for observers will increase rapidly in the near future. These CCMs did not accept that there is necessarily any conflict of interest in using observers from the vessel flag State, and some stated that language and living conditions on longliners favoured the use of compatriot observers.

19. After summarizing a number of items of ongoing work, Dr. Karnella presented a recommendation that the ROP-IWG disband and that a Technical and Operational Advisory Group (TOAG) be formed to undertake additional technical and operational work in support of the ROP and the Secretariat’s Observer Programme Coordinator. He highlighted the amount of technical work likely to be involved in harmonising interim minimum standards from many different national and sub-regional programmes.

20. In response to this proposal, CCMs spoke in favour of formation of a TOAG, but several noted the importance of establishing Terms of Reference for the group and to ensure the group included the appropriate expertise and was of a manageable size.

21. In order to move forward on this issue a working paper was prepared during TCC5. After taking comments on a first draft, WCPFC-TCC5-2009/38 (Rev. 1) presented a simplified draft terms of reference for the proposed TOAG.

22. Several further amendments were offered and accepted by CCMs, but FFA members declined to support the proposal citing concerns about required credentials, a lack of clarity about the scope of the proposed TOAG, and its relationship to development and implementation standards for the ROP within coastal States’ national waters, and how the membership would be chosen.

23. There was general consensus that the intention was not to establish a new subsidiary body such as an IWG, rather the group should be informal and its main goal would be to provide support to the Secretariat’s Observer Programme Coordinator.

**24. TCC5 reviewed the paper “ROP Technical and Operational Advisory Group-Draft Terms of Reference” (WCPFC-TCC5-2009/38 (Rev. 1)). TCC5 recommends that the**

**Observer Programme Coordinator work on the recommendation from the IWG and make that available to WCPFC6 for its consideration.**

25. Dr. Karnella explained that it was necessary to develop a definition of a FAD set in order to implement the ROP for the recent FAD closure period during which 100% observer coverage was required. ROP-IWG3 discussed two definitions, one based on the IATTC and the other on a definition being proposed for use by the Parties to the Nauru Agreement (PNA) (WCPFC-TCC5-2009/DP-01). For the purposes of the ROP, during the FAD closure for 2009 the definition to be used is patterned after the PNA definition so that a FAD set is one in which the purse seine vessel is less than or equal to 1nm from the FAD when the skiff enters the water.

26. TCC5 discussed “Implementing robust and compatible rules for WCPFC FAD closures and catch retention” (WCPFC-TCC5-2009/DP-01) and a proposal for TCC5 to adopt these rules for the high seas (WCPFC-TCC5-2009/DP-23).

27. There was consensus that standardised definitions and rules for FAD fishing operations are needed for effective implementation of CMM 2008-01 and that CCMs should work toward agreeing such definitions and rules.

28. Some CCMs, noting that the significant majority of purse seine fishing occurs within national waters, advocated adopting the PNA rules for the high seas, if necessary on an interim basis, in order to promote computability between the high seas and EEZs. These CCMs stressed the importance of having agreement on definitions and rules in place prior to the 2010 closure.

29. Other CCMs stated that it might not be wise to adopt the EEZ FAD definitions and rules for the high seas without further consideration. Some of these CCMs suggested that more time is required to assess the outcomes of the August-September 2009 FAD closure both in terms of observer debriefing and national measures developed to implement it.

**30. TCC5 discussed the paper “Implementing Robust and Compatible Rules for WCPFC FAD Closures and Catch Retention” (WCPFC-TCC5-2009/DP-01). CCMs agreed, with the Secretariat to coordinate, to discuss this paper electronically on an inter-sessional basis (comments to the Secretariat no later than 31 October) and develop a recommendation for a definition of FAD and FAD sets for consideration by WCPFC6. TCC noted that the definitions should be agreed before the next FAD closure.**

31. Some CCMs commented that some of their vessels reported FAD sets during the closure period conducted by other flag States. These CCMs believe this situation is of great concern and points to the need for stricter specification of FAD sets and their monitoring, as well as debriefing observers and following up on known incidents.

32. Some CCMs requested more detail about alleged incidents, stating that data on flag State and the number of incidents would be necessary to look for patterns.

33. Other CCMs felt it would be premature to provide further details at TCC5, especially as the incidents have not yet been confirmed through observer debriefing.

34. Some CCMs suggested that the Secretariat prepare a report on compliance with the FAD closure provisions of CMM 2008-01 for discussion at WCPFC6.

35. One CCM suggested that in parallel with reporting on incidents involving vessel non-compliances, that incidents involving observer non-compliances should also be reported.

**36. TCC5 recommended development of a report by the Secretariat on FAD closures as soon as possible and in advance of WCPFC6, if possible.**

37. Dr Karnella also noted that the ROP-IWG had developed minimum standard data fields for FAD monitoring (WCPFC-TCC5-2009/IP-03, Attachment D) and that these fields had been augmented through discussion at SC5 to include an additional four data fields. TCC5 was asked to endorse the form for eventual consideration for approval by the Commission.

**38. TCC recommends to the Commission adoption of ‘Minimum Standard Data Fields for Purse Seine FAD monitoring’ as contained in WCPFC-TCC5-2009/28, Attachment 1.**

**(c) Annual Report by the Secretariat**

39. Karl Staisch, Observer Programme Coordinator presented the first annual report prepared by the Secretariat on the ROP as required under CMM 2007-01, para. 3 (WCPFC-TCC5-2009/07). The format of the report was based on CMM 2007-01, para. 13 which outlines the role of the Secretariat and the activities to be carried out. The presentation highlighted the following key points:

- i. Observer manual updates have been received from the Philippines, Nauru, Japan, Australia and New Zealand.
- ii. There has, as yet, been no longline coverage under the ROP though there is some coverage under national programmes. Purse seine coverage by sub regional multilateral programmes has been about 20% plus additional national coverage. During the 2-month FAD closure, purse seine coverage was 100%.
- iii. There is currently no shortage of observers but more observers will be required for the 100% observer coverage commencing January 2010.
- iv. The efforts of FFA and SPC to prepare the observers for the FAD closure period were gratefully acknowledged. Thanks were also given to the U.S. for supplemental funding which has supported aspects of ROP work.
- v. A number of incidents and misunderstandings were reported during the FAD closure period. Once these have been verified through observer debriefing, the issues involved can be clarified.
- vi. Most of the deployed observers were from the FFA Pacific Island observer programmes.
- vii. Efforts to agree cross-endorsement of observers with IATTC and guidance for when compatriot observers can be used are ongoing between the Secretariats of WCPFC and IATTC.
- viii. The Observer Programme Coordinator assisted and attended observer training courses held in the Philippines, PNG and FSM.
- ix. Data handling procedures are under development and will require greater attention as the ROP expands its implementation. This is likely to include the need to fund employment of a data quality officer. The position has been approved previously by the Commission and was budgeted to commence in 2010.
- x. In order to achieve full accreditation of national and sub-regional programmes by June 2012, a large number of programme audits will need to be commenced in 2010. These accreditation activities will require adequate funding.

40. FFA members thanked the Secretariat for its efforts to implement and advance the ROP noting that data were sparse in this first year but will improve as the ROP develops.

41. The EC highlighted the importance of referring to vessels registered to EC member countries as EC vessels.
42. Some CCMs expressed frustration with logistical problems encountered when trying to embark observers during the 2009 FAD closure period.
43. One CCM also pointed out that the list of fisheries to be monitored (WCPFC-TCC5-2009/IP-03, Attachment F) should be examined carefully as some fisheries appear to be missing. This CCM also suggested that the monitoring should not focus only on coverage rate but should be expanded to include what data are being collected, e.g. on bycatch.
44. This same CCM noted that a large number of accreditation audits will need to be carefully scheduled to ensure the June 2012 deadline can be met. Concern was expressed that if too much reliance is placed on audit information collected by the cadre of observers, who are also tasked with assisting with spill sampling trials, this might skew the auditing information toward purse seines when a balance between purse seines and other gear types is needed.
45. Another CCM emphasized the importance of using observers from the State where the fishing was being conducted unless no such observers are available. It was also requested that all incident reports be sent to the coastal States immediately upon receipt and that the ROP take account of ongoing improvements in sub-regional and national observer programmes.
46. In response to the request for ROP data to be immediately provided to the coastal state where the trip occurred, the Observer Programme Coordinator noted that this could certainly be done but would require a procedure to be drafted since the Commission's current data handling procedures do not cover this situation.
47. In addition to providing ROP data to the coastal state where the trip occurred, one CCM suggested that the flag State may also wish to obtain a copy of the data.
- 48. TCC accepted the first annual report of the ROP (WCPFC-TCC5-2009/07); and looks forward to the development of the ROP and clarification of the incidents which appear in this report.**

**(d) Estimated costs of observer data management options**

49. The Observer Programme Coordinator presented an update on ROP data administration and management options (WCPFC-TCC5-2009/08). Initially, three data hosting options were examined: SPC at Noumea, SPC at Fiji, and the Secretariat at Pohnpei. These options were then augmented by a request from SC5 to include other options. It was estimated that the amount of data flowing into a single data provider would require 16 full-time data entry personnel. Other costs include equipment, digital reproduction, data communication, freight and travel costs. Estimated costs per observer trip for each of the ten options are presented in the paper.
50. It was noted that PNG is currently testing the use of electronic forms filled out by the observer while onboard the vessel and transmitted using VMS capabilities. This system reduces the amount of labour input but is still being evaluated in terms of overall effectiveness.
51. In discussion, some CCMs noted that many national observer programmes, particularly those in national waters, will already be entering data and could provide that data in a digital format. It was noted, however, that this situation would be different on the high seas where less assistance is likely to be provided by national programmes. It was further noted that provision of electronic data may not be sufficient if the electronic formats required by the national programmes and the ROP are different or incompatible.
52. The WCPFC Executive Director clarified that the Secretariat's current capability to process raw data is limited. Depending on how much longline observer coverage is provided by

the existing national and sub-regional observer service providers, the Secretariat may be able to process a small amount of data in Pohnpei.

53. Some CCMs, including FFA members expressed support for Option 5.1 which involves data management centre hosting by FFA, observer providers, and SPC noting that FFA members are gradually expanding their data management capabilities. Some of these CCMs pointed to the fact that a number of CCMs already channel their data through SPC and thus if SPC is relieved of its responsibility additional costs will be incurred.

54. Other CCMs supported Option 5.3 based on their position that the Commission should have a role in observer data management even if the cost was slightly higher. These CCMs stated that the Commission should start to develop a WCPFC observer database as soon as possible.

55. Several CCMs noted that costs may differ depending on whether near-term versus long-term scenarios are considered. It was suggested that these scenarios be considered alongside cost figures by formulating and discussing a draft transition plan including both near-term and long-term arrangements.

**56. TCC5 reviewed estimated costs of managing observer data “Regional Observer Programme Data Administration and Management” (WCPFC-TCC5-2009/08, Table 6.1). Having narrowed the options to 5.1 and 5.3, the Secretariat is directed to draft budget proposals for both options to be provided to CCMs at WCPFC6. A draft transitional plan for consideration of financial aspects will be prepared for the WCPFC7 Finance and Administration Committee.**

**(e) Cross-endorsement of IATTC Observers**

57. The Observer Programme Coordinator presented WCPFC-TCC5-2009/09 on a proposed agreement between IATTC and WCPFC on cross-endorsement of observers. This initiative derives from a requirement in CMM 2008-01, para. 29 for the Secretariat to work with IATTC to develop procedures to allow each RFMOs’ observers to work in the other’s Convention Area. This would allow vessels crossing the boundary between the two Convention areas to continue with the same observers and avoid having to return to port to swap the observer. Existing arrangements involving FFA and the U.S. Treaty are being examined as a potential model. The Secretariat hopes to continue discussions with IATTC in a few weeks time.

58. FFA members noted their support for the cross-endorsement proposal and indicated they would be conducting training to facilitate crossover assignments.

59. Some PNA members noted that any cross-endorsement arrangement would not override the requirements of domestic laws of PNA members which require 100% coverage by PNA observers on purse seiners in PNA waters.

60. The United States noted that existing arrangements must be accommodated in any agreed upon cross endorsement.

61. Several other CCMs spoke in favour of the proposed cross-endorsement arrangements, however, concerns expressed included the questions of whether data collected by an IATTC observer inside the WCPFC area could be used for compliance purposes and whether cross-endorsement might have the effect of lowering WCPFC observer standards.

62. One CCM noted that in their experience, IATTC would not release any data without the permission of the flag State, and that this could be a problem for the full access to and utilisation of cross-endorsement data.

63. The Observer Programme Coordinator responded that these issues would be clarified through discussion with IATTC and that legal advice on aspects of the agreement would be sought from the WCPFC Legal Advisor.

64. New Zealand stated that its position is that if the cross-endorsement arrangements would not provide for the data to be used in legal proceedings, then the arrangements should not be entered into and this was supported by other CCMs.

**65. TCC noted the Secretariat paper WCPFC-TCC5-2009/09 on “Cross endorsement of observers between WCPFC and IATTC” and encourages the Secretariat to continue work to develop this proposal noting concerns regarding protection of the quality of the WCPFC programme and the investigative, judicial, and administrative use of data obtained. This work will take into account national requirements in PNA waters and existing arrangements.**

## **2.2 Transshipment Verification Procedures**

66. RMI presented its draft of a CMM on regulation of transshipment (WCPFC-TCC5-2009/DP-08). RMI explained that this version was based heavily on discussions at WCPFC5 and on a discussion paper circulated subsequent to WCPFC5.

67. In the opening discussion of the proposed text several CCMs stated their opposition to allowing transshipment on the high seas either due to a lack of control potentially leading to opportunities for IUU fishing, and/or the presumption under Article 29 of the Convention that transshipment is conducted in port. Some of these CCMs pointed out that the WCPFC differs from other RFMOs in that it has a high proportion of fish in the EEZs of SIDS.

68. Other CCMs noted that transshipment is widely practiced and is allowed under other RFMOs. These CCMs felt that consistency among RFMOs is desirable and that transshipment on the high seas would not necessarily facilitate IUU fishing activities if it is appropriately controlled.

69. As much of the text had been agreed through previous rounds of discussion, discussions at TCC5 were able to focus on the remaining key issues. As discussion of these issues progressed, proposed amendments to the draft CMM text were incorporated, eventually resulting in WCPFC-TCC5-2009/DP-08 (Rev. 3) (Attachment D). The key issues arising during these discussions can be categorized as either cross-cutting issues or issues specific to transshipment.

70. The cross-cutting issues involved crafting text which reflected agreements on issues discussed under other topics at TCC5, many of which were ongoing simultaneously with transshipment discussions. These topics included:

- i. Observer cross-endorsement (para. 15 of DP-08 (Rev. 3) and Item 2.1e of this report);
- ii. the Register of non-CMM fish carriers and bunkers (para. 18 of DP-08 (Rev. 3) and Item 2.3 of this report);
- iii. charter State responsibilities (para. 20 of DP-08 (Rev. 3) and Item 2.4 of this report); and
- iv. data handling for transshipment declaration and prior notice information (para. 34 of DP-08 (Rev. 3) and Item 2.5 of this report).

71. Four key issues specific to transshipment were discussed including the area of applicability, additional exemptions for certain fleets, a practicality test, and precision of the location specification for the prior notification of transshipment. These issues are discussed below.

72. The first issue concerned the area of applicability of the draft measure as specified in para. 1. Some CCMs questioned whether the measure could be used to control transshipment outside the Convention Area.

73. The Legal Advisor explained that if the fish is caught in the Convention Area, the Commission has the power to regulate it regardless of the location of transshipment. One of the mechanisms for this may be calling on CCMs with jurisdiction outside of the Convention Area to apply the Commission's rules on transshipment to extra-Convention Areas. Cooperation with other RFMOs is also a possibility. The Commission is clearly able to regulate any transshipment of fish inside the Convention Area.

74. The question of applicability of the measure to transshipment in high seas pockets, archipelagic waters and EEZs was also discussed with some CCMs in favour of such application and some opposed.

75. The Cook Islands, on behalf of FFA members, explained that the high seas pocket closure in CMM 2008-01 applies only to purse seiners however it does imply longliners should be affected as well. This is because there is little longlining effort in the high seas pockets, these areas are known as havens for IUU transshipment activities, and there is little reason why vessels could not practically move from the pockets to port for transshipment.

76. The second issue centred on observer coverage requirements, including discussion of the needs arrangements for vessels less than or equal to 33 metres other than purse seine or frozen longline vessels, and for troll and pole and line vessels (para. 12alt.). The U.S. stated 100% observer coverage is not necessary for these types of vessels, which pose little threat of IUU fishing. In the case of the U.S. fresh fish longline fishery at-sea transshipment of bigeye tuna is done occasionally from vessels targeting swordfish, which make relatively long trips, and since the bigeye tuna is bound for sushi markets it needs to be moved quickly to avoid spoilage, so it is sometimes transhipped, but only to other catcher vessels in the fleet, not to carrier vessels. The U.S. added that since the U.S. swordfish-directed longline fleet is already subject to 100% observer coverage, the U.S. would be supportive of the 100% coverage requirement for that fleet, as long as the observer is allowed to be either on the offloading or receiving vessel, since the current 100% coverage rate applies to the former. Under the U.S. proposal, troll, and pole and line vessels would be subject to 100% coverage as of 1 July 2013.

77. One CCM questioned the practicality of identifying which small longliners might be exempt from high seas transshipment.

78. The U.S. responded that all vessels engaged in transshipments, regardless of whether they have observer coverage or not, would be required to submit a prior notification of transshipment to the Executive Director, so all CCMs would have advance knowledge of all authorized at-sea transshipments, including details about the vessels involved.

79. An alternative proposal (para. 12) is that all transshipment activities would immediately be subject to observer monitoring on the receiving vessel.

80. The third issue concerned a practicality test whereby vessels which can demonstrate either a financial hardship or a historical reliance on high seas transshipment would be allowed to tranship on the high seas (para. 36). While efforts to make the definitions specific were welcomed, the economic test specified in para. 36 (a) was not supported by one CCM who suggested that the term "significant economic hardship" be left undefined for the moment.

81. The fourth issue related to the addition of a margin of error when specifying transshipment locations to allow for vessel drift and/or positioning errors (footnotes to Annexes I and III). Text

was proposed which would provide for transshipment location notices in decimal latitude and longitude to the nearest 0.1 degrees with a margin of error of 15 nautical miles.

82. Despite extensive debate, only some of the cross-cutting issues and none of these four transshipment-specific issues were resolved during TCC5 and thus they remain as bracketed text in the draft measure.

**83. TCC5 reviewed “RMI draft Conservation and Management Measure on Regulation of Transshipment” (WCPFC-TCC5-2009/DP-08 (Rev. 2)). After extensive discussion it was decided by TCC5 to carry on discussions electronically of bracketed text (in Attachment D) in this important matter in advance of WCPFC6 with a view to bringing a draft before WCPFC6 for its consideration. RMI and Nauru will coordinate with comments to be received by 26 October 2009.**

### **2.3 Non-CCM Flag Carriers and Bunkers**

84. The TCC Chair noted that both the U.S. and RMI had brought proposals to revise CMM 2004-01 (Record of Fishing Vessels and Authorization to Fish) to TCC5 with the objective of addressing the recurring issue of non-CCM flag carriers and bunkers. Both CCMs expressed appreciation for the other’s efforts and agreed to work together to produce a consolidated proposal.

85. The U.S. introduced its proposal (WCPFC-TCC5-2009/DP-02) which would require the owner/operator of the carrier or bunker to provide a written statement agreeing to comply with all of the WCPFC CMMs.

86. In contrast, the RMI proposal (WCPFC-TCC5-2009/DP-09) requires, in an initial phase, for a CCM to enter into an agreement with the vessel and/or its flag State and vouch for its compliance with WCPFC CMMs. Under a second phase, beginning in January 2012, the RMI proposal expects that the majority of carrier and bunker vessels will be flagged to States participating in the WCPFC, perhaps under a special category of CNM which would allow them to provide only carriers and bunkers.

87. Some small island developing states (SIDS) expressed concern that the U.S. proposal would allow non-CCM flagged carriers and bunkers into the WCPFC Convention Area even though certain SIDS have, in the past, been limited from inviting non-CCM fishing vessels, e.g. longline and purse seine vessels, into their waters.

88. Some CCMs noted that the most long-standing and straightforward means of controlling vessels is by the flag State. Therefore, these CCMs suggested the best solution would be for the flag States of the carrier and bunker vessels to become CNMs, perhaps through a streamlined process.

89. Several CCMs saw merit in elements of both proposals and emphasized the importance of closing out opportunities for IUU fishing in the Convention Area presented by unregulated transshipment activities.

90. One CCM suggested that for ease of administration, any register of vessels, such as a register of carriers and bunkers, should not need to be renewed every year, rather it should only be adjusted for changes as necessary.

91. The Executive Director offered the Secretariat’s assistance in preparing a combined draft of a revision to CMM 2004-01. Due to the many connections between this issue and others, CCMs were referred to several related documents including a list of non-CCM fish carriers and bunkers in WCPFC-TCC5-2009/11 and other materials associated with the WCPFC Record of Fishing Vessels.

92. The RMI subsequently tabled a combined proposal for discussion (WCPFC-TCC5-2009/DP-09 (Rev. 2)).

93. Key remaining issues included:

- i. The time period for the interim register, including whether that period should be specified and if so how long it should extend (paras. 25, 35bis and 35ter). Some CCMs supported a firm expiry date for the interim register on the basis that continued extensions could act as a disincentive for States to become CNMs. Other CCMs expressed concern that requiring all carrier and bunker flag States to become CNMs is too onerous and may unduly limit the number of vessels able to provide these services in the Convention Area. This issue was resolved.
- ii. The respective roles of the owner/operator and the nominating CCM in committing to fully comply with all applicable decisions of the Commission (paras. 29, 29bis and 30). Some CCMs suggested an amendment to the U.S.'s original wording on the written undertaking to be provided by the owner/operator which would require the nominating CCM to require the owner/operator to provide this statement.
- iii. Procedures for de-authorizing the vessel if it should be placed on the WCPFC IUU Vessel List (para. 22). Some CCMs debated the need to acknowledge national procedures for de-listing versus the role of the Secretariat in removing IUU vessels from authorized vessel lists. Other CCMs asked for the paragraph to be deleted.
- iv. Whether and how to specify the history of operation of the vessel in the WCPFC Convention Area (para. 11). Some CCMs questioned the need for this provision.
- v. How details of the vessels should be provided for the register (para. 5). Some CCMs stated that terminology in the Convention text should take precedence whereas other CCMs suggested that other terms and units which may be more common or more appropriate can also be used (para. 5).

94. A revision reflecting these discussions (WCPFC-TCC5-2009/DP-09 (Rev. 3)) is contained in Attachment E.

**95. TCC5 reviewed RMI's Proposal to Revise CMM 2004-01 [Consolidated U.S.-RMI, 2 October Version 1](WCPFC-TCC5-2009/DP-09 (Rev. 2)). After extensive discussions it was decided by TCC5 to carry on discussions electronically of bracketed text (in Attachment E) on this important matter in advance of WCPFC6 with a view to bringing a draft measure before WCPFC6 for its consideration. RMI and Nauru will take this forward with comments to be received by 26 October 2009.**

**96. The TCC recognized that because CNM status confers certain rights and responsibilities, the existing CNM application process may not be well-suited for States that operate or wish to operate only carrier and/or bunker vessels in the Convention Area. The TCC recommended that the Commission charge the TCC with assessing the suitability of the CNM application process and CNM status for States with only carriers and/or bunkers and providing recommendations to the Commission as to whether a modified or separate process and/or status should be developed for such States and what the process and status should be, and to complete this work by 2011.**

#### **2.4 Charter Arrangements**

97. The Executive Director presented a paper on charter arrangement options (WCPFC-TCC5-2009/10) containing a comparison of charter arrangement proposals presented at previous meetings of the TCC, a table of the relevant provisions of existing CMMs, and a summary of existing charter arrangements. Three options were presented: 1) no action; 2) development of

guidelines for charter arrangements; and 3) adoption of a notification process under which CCMs acknowledge responsibility for charter vessels in all matters concerning the Commission.

98. Several CCMs voiced their support for the third option and suggested it might be possible to bring forward a proposal to WCPFC6 on the basis of this option.

99. Other CCMs, while not necessarily opposed to moving forward on the basis of the third option, raised the following individual concerns:

- i. The proposed notification procedures should be binding;
- ii. The notification procedures do not substitute for a long-term strategy for clarifying the provisions for and use of chartering;
- iii. If the vessel is chartered but does not change its flag there needs to be a joint system of responsibility between the flag State and the chartering State.

100. Several developing coastal States stressed the importance of chartering to their fisheries. Some of these rejected any need to obtain the cooperation or permission of the flag State for commercial partnerships in national waters. A minority acknowledged the importance of flag State control of vessel activities but still rejected the need for flag State permission.

101. The EC noted that under their new regulation to prevent IUU fishing by regulating imports of fish into the EC, catches must be certified by the flag State and delegation to the chartering State is not sufficient. For this reason, the EC sees the situation as one of joint responsibility between the flag State and the chartering State.

102. Fiji introduced a new draft measure based on WCPFC-TCC5-2009/10 and the preceding discussions as WCPFC-TCC5-2009/34.

103. Although the revised text represented a consensus view of some issues, other issues in the revised draft could not be agreed. These issues mainly centred on the need for flag state notification, or permission, when entering into charter arrangements. Various points were raised in connection with this issue including:

- i. assignment of responsibilities to the flag State and/or to the chartering State including which party is responsible for VMS, observers and reporting catch;
- ii. whether flag States should have the ability to permit or prohibit chartering arrangements given the fundamental role of the flag State in regulating the behaviour of the vessels but also acknowledging that flag States should not stray into regulating business partnerships;
- iii. whether in addition to the Secretariat, the flag State should be sent a copy of the notification;
- iv. concerns that flag State notification could lead to restrictions which hinder the ability of SIDS to develop their fisheries.

104. Through discussion it was decided to pursue a limited measure on chartering arrangements based on the existing points of agreement for approval at WCPFC6, and to work toward agreement on other issues thereafter. Fiji produced the text for the proposed measure as WCPFC-TCC5-2009/34 (Rev. 1) (Attachment F).

**105. TCC5 reviewed draft Charter Notification Scheme CCM (WCPFC-TCC5-2009/34 (Rev. 1)). TCC5 recommends to WCPFC6 adoption of this proposed CMM.**

## **2.5 AHTG [Data]**

### **(a) Report of the Second Meeting of the AHTG [Data]**

106. Chair of the Ad Hoc Task Group [Data], Holly Koehler (U.S.) presented a summary of the work of the Task Group over the past 20 months since its re-inception. This work has focused

on developing a separate set of procedures for the protection, access to, and dissemination data compiled by the Commission.

107. These procedures have been developed from an initial AHTG[Data] meeting held in Nadi, Fiji, then progressed electronically, culminating in a sixth draft produced at TCC5. This sixth draft represented agreed text with the exception of one bracketed paragraph. An FFA proposal for amendments to the sixth draft to resolve remaining issues was circulated as WCPFC-TCC5-2009/DP-15.

108. FFA members stated that the amendments addressed their key concerns that the basic principles for dissemination of data as encompassed in paras. 5 and 19 of the 2007 Rules of Procedure are reflected in a balanced manner. FFA members believe this balance should continue to be reflected in the proposed MCS data rules because these rules relate to access to high seas data for the purposes of MCS activities both in areas under national jurisdiction and high seas.

109. CCMs proposed two additional minor amendments to the FFA proposed text which was then adopted as a final text.

110. The Chair of the AHTG[Data] also explained that in response to a request arising from SC5, the AHTG[Data] considered whether operational data provided to the Commission under the three vessel rule are aggregated to the point that their information value believed by some analysts to be compromised. Proposed text by the AHTG[Data] was formulated based on the advice of data managers as conveyed at SC5 (WCPFC-TCC5-2009/37). The Chair of the AHTG[Data] clarified that this proposed text, if adopted by WCPFC6, would comprise an amendment to the Scientific Data to be Provided to the Commission and would not alter the three vessel rule itself.

111. One CCM suggested amendment of the text to read “CCMs are to provide, to the extent possible, the number...”. This was supported by several CCMs.

112. Some CCMs expressed concerns that such an amendment weakened the data provision requirements, but acknowledged that the proposed text represents progress in the interim while CCMs continue to address their data confidentiality issues, and so agreed to the amendment.

#### **(b) Advice and Recommendations to the Commission**

**113. TCC5 recommends to WCPFC6 for its consideration “Rules and Procedures for the Protection, Access to, and Dissemination of High Seas Non-Public Domain Data and Information Compiled by the Commission for the Purpose of Monitoring, Control and Surveillance (MCS) Activities and Access to and Dissemination of High Seas VMS Data for Scientific Purposes” as agreed by the AHTG[Data].**

**114. TCC5 reviewed “Draft Recommendation of TCC5 regarding the AHTG[Data]’s Consideration of Issues raised by SC5 associated with the Implementation of the 2007 Commission Data Rules and Procedures” (WCPFC-TCC5-2009/37). It was agreed by TCC5 to recommend this proposal as amended to WCPFC6 for its consideration.**

## **2.6 Vessel Monitoring Systems**

### **(a) Annual Report on the Commission VMS**

115. The VMS Manager (Albert Carlot) presented an annual report on the Commission VMS to TCC5 (WCPFC-TCC5-2009/12 (Rev.1)) as stipulated in paragraph 7.3.9 of the Commission VMS Standards, Specifications and Procedures (SSPs). This report covered several issues associated with the operations of the Commission VMS including: i) status of the Commission VMS database; ii) outer maritime limits data; iii) Service Level Agreement (SLA) with the FFA

Secretariat; iv) implementation of client access; v) status of contract negotiations with Mobile Communications Service Providers (MCSPs); and vi) draft Standard Operating Procedures (SOPs) for the Commission VMS.

116. The TCC Chair noted the tremendous achievements of the programme over the past year due to the outstanding efforts of the Secretariat and the service provider (FFA).

117. CCMs discussed Table 1 which provides a summary of the number of authorized vessels on the WCPFC Record of Fishing Vessels compared to the number of Vessel Tracking Agreement Forms (VTAFs) received and the number of vessels in the VMS database for each CCM. It was noted by several CCMs that the number of vessels on the WCPFC Record of Fishing Vessels was almost certainly inflated since not all of those vessels would be expected to be actively fishing. As an example, Canada noted that while the table showed over 2,000 vessels on the WCPFC Record of Fishing Vessels, only about 200 vessels are licensed to fish for tuna in the Convention Area and none of them are actively fishing this year. Canada undertook to resolve this issue in advance of WCPFC6. As another example, France noted that all 20 of its vessels fish exclusively inside the French Polynesia EEZ.

118. The Executive Director noted that CCMs are required to provide, by 1 July each year, a list of those vessels that fished beyond areas of national jurisdiction of the flag State in the Convention Area, reported as “fished” or “did not fish”, but that only fourteen CCMs have done so this year<sup>1</sup>.

119. One CCM noted the apparent poor performance of non-CCM vessels, and suggested that the Executive Director write to them to remind them of their obligations with regard to the Commission’s VMS.

120. Some CCMs questioned the need to provide all of their VMS data including that from national waters and outside the Convention Area. These CCMs queried why it is not sufficient to subset the data for the Convention Area themselves.

121. The Executive Director explained that if the full dataset is provided it can be automatically subset by the service providers’ software and this reduces the possibility of human error.

122. Japan stated that since ALC service providers’ software can automatically select VMS data, ALC service providers should send the Commission only those VMS data for the high seas within the Convention Area. The Executive Director responded that the Secretariat will consider the suggestion.

123. Other CCMs noted issues with the VMS’s recent client access registration but noted that these have been addressed. These CCMs stated that Section 7.3.6 of the VMS SSPs made it clear that the Commission VMS is for the high seas only, unless a coastal State specifically requests its waters be covered by the Commission VMS.

**124. TCC5 notes the VMS Annual Report (WCPFC-TCC5-2009/12) for the Commission. CCMs are invited to provide written comments regarding VMS standard operating procedures (SOPs) to the Secretariat by 31 October 2009 with a view to the Secretariat providing draft revised SOPs at WCPFC6.**

**(b) Operating Costs of the Commission VMS**

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<sup>1</sup> Australia, Belize, Cook Islands, EC, Federated States of Micronesia, Fiji, Japan, Korea, New Caledonia, New Zealand, Philippines, Chinese Taipei, USA, Vanuatu.

125. The VMS Manager presented a report to TCC5 on the operating costs of the Commission VMS for the period April-August 2009 (WCPFC-TCC5-2009/13 (Rev.1) covering cost-related issues including: i) implementation costs; ii) Service Level Agreement (SLA) monthly recurring costs; iii) direct reporting costs; and iv) cost recovery options. It was noted that direct reporting costs for ARGOS will be four times higher than for INMARSAT starting October 2009. This was one of the reasons for proposing options for cost recovery. Another factor was a desire to convert the WCPFC Record of Fishing Vessels and VMS costs to separate, stand-alone budget items, rather than integrating them into a general budget.

126. In response to a question, the Executive Director explained that the costs shown in the paper are those associated with direct reporting to the Commission's VMS only.

127. While some CCMs supported the idea of cost recovery, they cautioned against using the WCPFC Record of Fishing Vessels as a basis for cost recovery since it is not a reflection of active fishing presence.

128. It was clarified that only those vessels not already registered with FFA are charged an activation fee of \$200. There is a deactivation fee of \$50. In order to clarify this, the phrase "reporting directly to the Commission VMS" should be added to para. 4 of the paper. Use of the term "ALC" was suggested over "MTU" for consistency with terminology used when developing the Commission VMS.

**129. TCC5 notes the Secretariat paper "Operating Costs of the VMS during 2009" (WCPFC-TCC5-2009/13). TCC will take possible cost recovery actions into account in drafting the budget for the year 2011.**

**(c) Enhancement Options and Future Work**

130. The VMS Manager presented a report (WCPFC-TCC5-2009/14) to TCC5 outlining enhancement options and proposals for future work on the Commission VMS, as stipulated in paragraph 7.3.9 of the SSPs, including: i) high seas vessel day scheme; ii) electronic forms activation and evaluation; iii) electronic vessel registration (EVR); and iv) in-built redundancy (in Pohnpei) to ensure uninterrupted provision of services. He also presented information on the SSPs in relation to the resolution of issues relating to bracketed text and proposals for modification.

131. Most CMMs expressed a preference to evaluate the current (coastal State) Vessel Day Scheme before considering whether to develop one for the high seas.

132. Some caution was also expressed regarding electronic forms, particularly by CCMs who stated that new equipment would be needed on fishing vessels to accommodate these procedures. In contrast, some CCMs felt that the potential cost savings that could be achieved with the introduction of e-forms meant that it deserves serious consideration immediately.

133. CCMs also discussed replacing the current paper-based VTAF system with an electronic system located at Pohnpei. There would be no additional cost for such a system; the primary savings would be mainly in terms of Secretariat labour. Some views were expressed that the burden of responsibility for making sure the e-forms are filled out accurately and completely lies with the submitter (i.e. the vessel) in an electronic system.

134. CCMs debated the proposed modification to the VMS SSPs which would require that vessels subject to the Commission VMS report their position "prior to entry" rather than "upon entry" to high seas areas. The potential gap in time between subsequent reporting events, and the distance which could be covered in the interval, was also discussed. The proposed change in the text could be satisfied by automatic transmission when the vessel crosses into the high seas.

135. Some CCMs, which want to maintain a clear separation between the high seas and coastal VMSs, stated there was no need to change the existing SSPs.

136. Other CCMs suggested that more information regarding why the existing SSPs need amendment should be provided.

137. Regarding the issue of bracketed text that remains in the SSPs, some CCMs felt that a flexible and case-by-case approach is desirable, that a strict reporting interval was not necessary, nor would it be necessary to force a vessel back to port immediately just because the ALC was malfunctioning.

138. Manual reporting during malfunctioning was briefly discussed but considered to be undesirable by some (due to time) and burdensome (to fishermen) by others.

139. Redundancy of systems on board and strictly enforced reporting rules were also mentioned as keys to a robust system.

140. With regard to the request for the Secretariat to have administrative rights/privileges to Commission VMS hardware, software and data, the Executive Director announced that this had been resolved with FFA during a meeting immediately prior to TCC5 that had been convened to review the implementation and operation of the WCPFC/FFA Service Level Agreement. During that meeting the FFA had undertaken to provide the Secretariat with the information needed to resolve the Secretariat's concerns relating to high costs associated with anomalous reporting by MTUs over which the Secretariat has no immediate control.

141. In response to a question from the Chair regarding the requirement under CMM 2007-02 for the Commission to determine the activation date for the Commission VMS in the area north of 20°N and east of 175°E, Japan stated that they do not yet have a clear mandate to designate the exact date.

**142. TCC5 notes Secretariat paper “Enhancement Options and Proposals for Future Work on the Commission VMS” (WCPFC-TCC5-2009/14). However, CCMs wish to see the current VMS system in operation for a period of time before considering implementation of a high seas VDS and e-forms. CCMs recommend implementation of electronic vessel registration (EVR) and establishment of a redundancy capacity in Pohnpei for the Commission VMS. TCC5 discussed the question of notification by vessels in advance of entry into the high seas of the Convention Area. CCMs directed the Secretariat to report on this issue at TCC6.**

**143. TCC5 discussed VMS SSPs paras. 5.4 and 5.5 but was unable to resolve this matter. CCMs were encouraged to discuss this matter electronically prior to WCPFC6, coordinated by the U.S. and RMI, with a view to seeking agreement during WCPFC6.**

## **2.7 IUU Vessel List and IUU Listing Procedures**

### **a) Draft Provisional IUU Vessel List for 2010**

144. Information on the vessels proposed for the Draft Provisional IUU Vessel List for 2010 is presented in WCPFC-TCC5-2009/15 and in other materials distributed directly to delegations.

#### **(i) Lina**

145. The Lina, an Indonesian flagged vessel, was sighted fishing in the U.S. EEZ of Jarvis Atoll on 3 February 2008. The Lina is not listed on the WCPFC Record of Fishing Vessels.

146. The U.S. contacted the Indonesian authorities on 26 February 2008 and again on 5 March 2008 regarding this incident. The U.S. reported that Indonesia informed them that the vessel was not authorized to fish on the high seas and was doing so in violation of the WCPFC CMMs.

Indonesia subsequently issued a “reminder” to the Lina in accordance with Indonesian administrative procedures. The U.S. notified Indonesia by letter in early June 2009 of its intention to nominate the Lina for the Provisional IUU Vessel List. Indonesia acknowledged receipt of the letter on 16 June 2009.

147. Indonesia did not attend TCC5 and did not make a response to TCC5 on this issue.

148. France also reported an incident involving the Lina. France’s inspection of the carrier vessel Taiho Maru in Papeete, French Polynesia on 20 October 2008 indicated that the Taiho Maru was engaged in transshipment with the Lina within the WCPFC Convention Area. France notified the Indonesian government of this issue but did not receive a response.

149. Dr. Tsamenyi (WCPFC Legal Advisor) noted that the Lina had violated paragraphs 3(a) and (b) of CMM 2007-03 and that the decision not to list the Lina on the Provisional IUU Vessel List would depend on the flag State’s ability to demonstrate that the requirements for not listing the vessel under paragraph 15 of CMM 2007-03 have been met.

150. All CCMs which expressed views on the case of the Lina supported its listing on the WCPFC Provisional IUU Vessel List.

**151. TCC5 agreed to include Lina on the Provisional IUU Vessel List.**

**(ii) Chia Shun Hsing No. 6**

151. The Chia Shun Hsing No. 6, a Chinese Taipei flagged vessel, was found fishing inside the U.S. EEZ around the Northern Mariana Islands, a U.S. Commonwealth Territory, without a permit in August 2008 by U.S. vessel and aircraft patrols.

152. Chinese Taipei has acknowledged that the vessel fished illegally in U.S. waters and suspended the vessel’s license for 3 months and the captain’s license for 6 months in accordance with national administrative procedures.

153. The U.S. issued a fine in the amount of \$130,000 U.S. on 27 February 2009.

154. Chinese Taipei instructed the vessel to settle with the U.S. Government in September 2009. Settlement discussions are ongoing.

**155. TCC5 agreed to include the Chia Shun Hsing No. 6 on the Provisional IUU Vessel List and noted that the vessel shall be removed from the List once the U.S. confirms satisfactory settlement of the matter.**

**(iii) Maan Feng Yu No. 36**

156. The Mann Feng Yu No. 36, a Chinese Taipei flagged vessel, was found fishing inside the U.S. EEZ around the Northern Mariana Islands, a U.S. Commonwealth Territory, without a permit, in August 2008 by U.S. vessel and aircraft patrols.

157. Chinese Taipei has confirmed through VMS data that the vessel was indeed fishing illegally within the U.S. EEZ but has not imposed a sanction on this vessel, its captain or its owner.

158. The U.S. issued a fine in the amount of \$130,000 U.S. on 27 February 2009.

159. Chinese Taipei instructed the vessel to settle with the U.S. Government. Settlement discussions were ongoing during TCC5.

**160. TCC5 agreed to include the Maan Feng Yu No. 36 on the Provisional IUU Vessel List and noted that the vessel shall be removed from the List once the U.S. confirms satisfactory settlement of the matter.**

**(iv) Jin Hai Fu No. 10**

161. The Jin Hai Fu No. 10, a Chinese Taipei flagged vessel, was found fishing inside the U.S. EEZ around the Northern Mariana Islands, a U.S. Commonwealth Territory, without a permit, in August 2008 by U.S. vessel and aircraft patrols.

162. Both the owner of the vessel and Chinese Taipei have acknowledged the violation.

163. The U.S. issued a fine in the amount of \$130,000 U.S. on 27 February 2009.

164. Settlement discussions were ongoing during TCC5. The U.S. informed TCC5 on 6 October 2009 that the case had been settled to their satisfaction.

**165. TCC5 reviewed the matter of the vessel Jin Hai Fu No. 10 (Chinese Taipei). As the matter was settled to the satisfaction of the nominating State (United States) during TCC5 it is decided not to place this vessel on the Provisional IUU Vessel List.**

**(v) Rong Yuan Yu 86, Rong Yuan Yu 87, Rong Da Yang No. 6, Rong Da Yang No. 7, Rong Da Yang No. 8 and Rong Da Yang No. 9**

166. These six vessels are flagged to China and were sighted by New Zealand harvesting species covered by the WCPFC Convention on the High Seas within the Convention Area on 21 August 2008. The listing of these six vessels on the WCPFC Record of Fishing Vessels (RFV) was not finalised until 8 September 2008, therefore none of the six vessels were listed on the RFV at the time of the incident. New Zealand notified China of their intention to propose the vessels for listing on the Provisional IUU Vessel List in June 2009. There has been subsequent correspondence between China and New Zealand, and between China and the Secretariat.

167. China stated that it authorized these vessels to fish in March-April 2008 and then sent the information to the Secretariat. However, due to apparent technical problems the information was never received by the Secretariat and therefore the vessels were not entered on the WCPFC Record of Fishing Vessels (RFV) at the time of the incident.

168. China stated that it has now informed the fishing vessels that they cannot fish in the WCPFC Convention Area unless and until their names appear on the WCPFC RFV. China further stated that it has taken measures after the incident to ensure preventing such occurrences in the future including but not limited to confirming the receipt of emails sent to the Secretariat. For these reasons, China asked that the six vessels not be placed on the Provisional IUU Vessel List.

169. Dr. Tsamenyi noted that as the vessels were not listed on the RFV at the time of the incident, they had clearly contravened Para 3(a) of CMM 2007-03. TCC5 was invited to consider whether the explanation provided by China was sufficient not to place the vessels on the Provisional IUU Vessel List.

170. New Zealand stated that the WCPFC management framework must be respected and therefore vessels which are not on the RFV but which fish in the Convention Area must be considered to be in violation of the CMMs. New Zealand also noted that China had not provided a clear response to how it would prevent such administrative issues arising in the future.

171. China informed TCC5 that due to domestic law and procedures, it is not able to propose a vessel for listing on the RFV until after China authorizes that vessel to fish. However, China stated that it has now informed the fishing vessels that they cannot fish in the WCPFC Convention Area unless and until their names appear on the WCPFC RFV. China further stated that it has taken measures after the incident to ensure preventing such occurrences in the future including but not limited to confirming the receipt of emails sent to the Secretariat. For these reasons, China asked that the six vessels not be placed on the Provisional IUU Vessel List.

172. New Zealand and other CCMs maintained that it is the responsibility of each CCM to verify that their nominated vessels have been placed on the RFV after they submit the data to the Secretariat and before they are authorised to fish in the WCPFC Convention Area.

173. China stated that it shares the concern by some CCMs on full compliance of flag States, and informed TCC5 that due to domestic law and procedures, it is not able to propose a vessel for listing on the RFV until after China authorizes that vessel to fish.

174. Several CCMs, including FFA members, spoke in favour of listing these vessels. These CCMs noted the importance of curtailing fishing by unauthorised fishing vessels in the Convention Area and did not consider that the administrative issues encountered by China when submitting the vessels for listing on the RFV were a sufficient reason for not listing these vessels.

175. Some CCMs expressed concern that the effect of the listing would be to punish the vessels for an action which is the responsibility of the flag State.

176. Some CCMs questioned whether TCC5 could place these vessels on the Provisional IUU Vessel List without a consensus decision.

177. Dr. Tsamenyi reminded TCC5 that it was not taking a decision regarding the WCPFC IUU Vessel List, rather TCC5 is making a recommendation to the Commission regarding the Commission's decision about the WCPFC IUU Vessel List. He also advised that under Article 11, para. 4 of the Convention, if subsidiary bodies of the Commission cannot reach a consensus recommendation, majority and minority views shall be indicated in the committee report.

**178. The majority of TCC members supported the inclusion of the following vessels: Rong Yuan Yu 86, Rong Yuan Yu 87, Rong Da Yang No. 6, Rong Da Yang No. 7, Rong Da Yang No. 8 and Rong Da Yang No. 9, whilst a minority of TCC members were against the inclusion of the above named vessels on the Provisional IUU Vessel List. TCC5 agreed to place these vessels on the Provisional IUU Vessel List with a note to WCPFC6 that consensus was not reached regarding these vessels.**

179. In further discussion China, supported by several other CCMs, reiterated its concerns about the potential for listing of these vessels to in effect punish fishermen for administrative issues between the flag State and the Secretariat.

180. Some CCMs noted that in such cases the response of the flag State in terms of remedial measures taken to prevent future occurrences will be an important factor for consideration.

#### **(vi) Yuh Chang No. 3**

181. The Yuh Chang No. 3, a fishing vessel flagged to Chinese Taipei, was sighted by New Zealand harvesting species covered by the WCPFC Convention within the Convention Area on 21 August 2008. This vessel was not listed on the WCPFC Record of Fishing Vessels at the time of the incident. New Zealand notified Chinese Taipei of the incident.

182. Chinese Taipei confirmed that the Yuh Chang No. 3 is authorised by Chinese Taipei to fish in the Convention Area. Chinese Taipei submitted information to list the vessel on the WCPFC RFV to the Secretariat on 29 January 2008.

183. The Secretariat confirmed that a request to list the Yuh Chang No. 3 on the WCPFC RFV was received in late January 2008 but was incomplete. The Secretariat requested the missing information from Chinese Taipei but Chinese Taipei stated that it did not receive this communication. After noticing Yuh Chang No.3 was not listed on the WCPFC Record of Fishing Vessels, Chinese Taipei provided it to the Secretariat on 16 September 2009. At that time, the Secretariat listed the vessel on the RFV.

184. Dr. Tsamenyi noted that it is clear that the vessel was not listed on the RFV at the time of the incident, thus a contravention of para. 3(a) of CMM 2007-03. However, TCC5 was invited to consider whether the circumstances resulting in the Yuh Chang No.3 not being placed on the RFV warrant a lenient consideration by TCC. Dr. Tsamenyi also advised that CMM 2004-01 (Record of Fishing Vessels and Authorization to Fish) would appear not to empower the Secretariat to decline to place vessels on the WCPFC RFV on the basis of missing information.

185. Several CCMs supported placing Yuh Chang No. 3 on the Provisional IUU Vessel List because it clearly was fishing in the Convention Area without being listed on the RFV. Some of these CCMs noted that it is the responsibility of CCMs to ensure that vessels submitted for the WCPFC RFV are actually listed and to follow up with the Secretariat and resolve any administrative issues if this is not the case.

186. Some CCMs noted that a key difference in this case was the fact that the Secretariat received a request to list the vessel on the WCPFC RFV but declined to do so. Some of these CCMs also noted that the result of listing would be to punish the fishermen for a procedural error involving the flag State and Secretariat. For this reason these CCMs either were opposed to, or were inclined not to support, placing the vessel on the Provisional IUU Vessel List.

**187. The majority of TCC members supported the inclusion of the Yuh Chang No. 3, whilst a minority of TCC members were against the inclusion of this vessel on the Provisional IUU Vessel List. TCC5 agreed to place this vessel on the Provisional IUU Vessel List with a note to WCPFC6 that consensus was not reached regarding this vessel.**

**(vii) Taiho Maru**

188. The Taiho Maru, a fish carrier vessel flagged to Japan was inspected by French Authorities in Papeete, French Polynesia on 12 October 2008. Vessel records indicated that the Taiho Maru transhipped fish from the Lina, an Indonesian flagged fishing vessel which was not listed on the WCPFC RFV. France notified Japan of the incident and the two parties discussed whether a carrier vessel which receives fish from an unauthorized fishing vessel can be placed on the WCPFC Provisional IUU Vessel List.

189. Japan acknowledged that the Taiho Maru transhipped fish from the Lina. However, Japan pointed out that while CMM 2007-03 para. 3(g) states that a vessel which tranships with a vessel included on the IUU list can be presumed to have carried out IUU activities, the Lina was not on the WCPFC IUU Vessel List at the time of transhipment.

190. Dr Tsamenyi noted that the proposal to list the Taiho Maru should not be considered against CMM 2007-03 para. 3(g) because the Lina was not on the WCPFC IUU Vessel List at the time of the transhipment. However, TCC5 was invited to consider whether the Taiho Maru engaged in unauthorized fishing activities, as defined by Article 1 (d) of the Convention, by supporting an unauthorized fishing vessel, i.e. the Lina. Dr Tsamenyi suggested that CMM 2007-03 para. 3(i), which refers to activities which undermine WCPFC CMMs would provide a more justified basis for placing the Taiho Maru on the Provisional IUU Vessel List.

191. Japan stated that if they had understood that transhipment with vessels not listed on the WCPFC RFV was considered an IUU fishing activity, they would have clearly communicated this requirement to its vessels.

192. Some CCMs did not support listing the Taiho Maru on the grounds that the Lina's activities had not been clearly specified as IUU fishing activities at the time of the incident.

193. Several CCMs supported listing the Taiho Maru on the Provisional IUU Vessel List stating that transhipping from an unauthorized fishing vessel is clearly an IUU fishing activity.

194. After further discussions with Japan, France informed TCC5 that it wished to withdraw its nomination of the Taiho Maru.

195. Japan committed to undertaking a review of all CMM requirements and to re-issuing instructions to all carrier vessels in order to avoid any further misunderstandings.

**196. TCC5 reviewed the matter of the vessel Taiho Maru. As the matter was settled to the satisfaction of the nominating State (France) during TCC5 it is decided not to place this vessel on the Provisional IUU Vessel List.**

**(viii) Senta**

197. The Senta, a fish carrier vessel flagged to Panama, was inspected by French Authorities in Papeete, French Polynesia on 12 October 2008. During inspection, one of the fish holds was found to contain fish harvested from the WCPFC Convention Area by the fishing vessel Minako which is not listed on the WCPFC RFV. France notified Panama.

198. Panama, which is not a WCPFC CCM, did not provide a response.

199. Dr Tsamenyi noted that the case of the Senta was similar to that of the Taiho Maru with the exception that the Senta was not listed on the WCPFC Temporary Register of Fish Carriers and Bunkers, and was thus not authorized to engage in transshipment in the WCPFC Convention Area. Dr Tsamenyi further noted however, that subsequent to the incident the Senta was placed on the WCPFC Temporary Register of Fish Carriers and Bunkers.

200. Some CCMs were of the opinion that the sufficiency of CMM 2007-03 para. (i) as a basis listing fish carriers on the WCPFC IUU Vessel List was questionable and should be given careful consideration.

201. After further consideration France reaffirmed its nomination of the Senta, citing the facts that i) both the Senta and the fishing vessel it transhipped from were not on WCPFC authorized vessel lists; ii) the flag State did not respond to France's notification of intent to propose listing of the Senta on the WCPFC IUU Vessel List; and iii) the captain of the Senta was responsible for knowing the applicable requirements for transshipping in the area.

**202. TCC5 reviewed the matter of the vessel Senta, and agreed to place this vessel on the Provisional IUU Vessel List.**

**(ix) Minako**

203. The Minako, a fishing vessel flagged to Indonesia, was found by means of an inspection of the carrier vessel Senta in Papeete, French Polynesia by France to have transhipped fish to the Senta, a fish carrier not listed on the WCPFC Temporary Register of Fish Carriers and Bunkers. The Minako is not listed on the WCPFC RFV. When France notified Indonesia of their intention to propose the Minako for the WCPFC Provisional IUU Vessel List, Indonesia responded that the Minako had not fished in the WCPFC Convention Area.

204. Dr. Tsamenyi noted that since the Minako is not on the WCPFC RFV, if it fished in the WCPFC Convention Area, then the activity is clearly IUU fishing. However, Dr. Tsamenyi invited TCC5 to ascertain whether the Minako's activities took place in the WCPFC Convention Area.

205. All CCMs which expressed views on the case of the Minako considered that the vessel had fished in the WCPFC Convention Area and thus supported listing of the Minako on the WCPFC Provisional IUU Vessel List.

**206. TCC5 agreed to include Minako on the Provisional IUU Vessel List.**

**(x) Yu Fong 168**

207. The Yu Fong 168, a Chinese Taipei flagged fishing vessel listed on the WCPFC RFV, was detected by the Republic of the Marshall Islands (RMI) inside the RMI EEZ on 29 January 2009. This vessel was not licensed by RMI to fish in RMI waters. When the Yu Fong 168 was approached by an FSM patrol boat acting on behalf of RMI, it refused to submit to inspection and as a result of pursuit some damage was inflicted upon the FSM patrol boat. RMI contacted Chinese Taipei regarding this incident and requested their assistance in resolving the matter.

208. Chinese Taipei stated that it began investigating this incident immediately upon notification and confirmed that the Yu Fong 168 had entered the RMI EEZ without permission. Chinese Taipei ordered the vessel to stop fishing and return to port but subsequently the vessel ceased VMS transmissions and continued to evade Chinese Taipei's efforts to locate it. As a result Chinese Taipei stated that it has taken the strongest possible actions under its national law including revoking both the captain's and vessel's licenses, and removing it from the WCPFC RFV. Chinese Taipei supports the listing of the Yu Fong 168 on the WCPFC IUU Vessel List and requests the cooperation of CCMs in locating this vessel.

209. All of the other CCMs which expressed views on the case of the Yu Fong 168 supported its listing on the WCPFC Provisional IUU Vessel List.

**210. TCC5 agreed to include Yu Fong 168 on the Provisional IUU Vessel List.**

211. RMI stated their concern that listing the Yu Fong 168 does not satisfy their fundamental concern regarding the damages incurred to both RMI and FSM resource as a result of this incident.

**b) WCPFC IUU Vessel List**

212. TCC5 discussed whether to recommend to the Commission that the two vessels currently on the WCPFC IUU Vessel List be removed from the list.

**(i) Daniela F**

213. Based on notification from France, the Venezuelan flagged Daniela F was placed on the WCPFC IUU Vessel List in 2007. Since the listing, there has been no communication from the flag State with regard to the requirements of CMM 2007-03, para. 25.

214. All CCMs which expressed views on the case of the Daniela F supported its continued listing on the WCPFC Provisional IUU Vessel List.

**215. TCC5 agreed to recommend to WCPFC6 that the vessel Daniela F not be removed from the IUU Vessel List.**

**(ii) Jinn Feng Tsair No. 1**

216. Based on notification from FSM, the Chinese Taipei flagged Jinn Feng Tsair No. 1 was placed on the IUU Vessel List in 2007.

217. FSM explained that since the violation occurred in FSM waters, their position is that the Jinn Feng Tsair No. 1 must submit to legal proceedings under FSM law. As no progress has been made in this regard, FSM stated that the Jinn Feng Tsair No. 1 should remain on the WCPFC IUU Vessel List.

218. Chinese Taipei summarised the actions taken against the Jinn Feng Tsair No. 1 which include detaining the vessel from the time it returned to home port until now, an elapsed time of approximately two years. The taking of other legal actions has been constrained by the transfer of the vessel's ownership prior to the time that Chinese Taipei was informed of the incident by

FSM. The new owner is contesting the vessel detention via legal proceedings in Chinese Taipei. Chinese Taipei stated that the criteria for determining whether the flag State's action in response to the IUU fishing activities is of sufficient severity (CMM 2007-03, para. 25) must be determined by the laws of the flag State. Chinese Taipei submitted that a detention of two years, or even longer, is sufficient ground for removal from the WCPFC IUU Vessel List.

219. All of the other CCMs which expressed views on the case of the Jinn Feng Tsair No.1 supported its listing on the WCPFC Provisional IUU Vessel List.

**220. The majority of TCC5 members supported a recommendation to WCPFC6 that the vessel Jinn Feng Tsair No. 1 not be removed from the Commission IUU Vessel List, whilst the minority favoured removal. Consensus was not reached on this decision.**

**c) Recent incidents brought to the attention of TCC5**

221. **New Zealand** introduced this item by explaining that for the sake of transparency and awareness raising, several recent incidents of potential IUU fishing activities in the Convention Area are being brought to the attention of TCC5. The CCMs in whose waters these potential violations have been reported will further investigate the issues and decide whether to nominate the vessels for the WCPFC Provisional IUU Vessel List in 2010.

222. New Zealand presented information on the sighting of the Ta Chun No. 101, a Chinese Taipei flagged longliner, 83 nm within the New Zealand EEZ engaged in activities which appeared to indicate that fishing had just been conducted. This incident has been communicated to Chinese Taipei authorities and the WCPFC Executive Director and investigation is ongoing.

223. Chinese Taipei confirmed that they were informed of this incident on 25 September 2009 and immediately began investigating it. However, initial inquiries have indicated that VMS records do not show the Ta Chun No. 101 fishing in the New Zealand EEZ at that time.

224. **Tokelau** stated that the Zhou Yuan Yu 202 was found fishing without a license in the Tokelau EEZ in late June. The flag State and the WCPFC Executive Director have been notified. Tokelau noted its grave concern about this incident, particularly as it occurred in a small island State which is highly dependent on fisheries resources and which has a very limited ability to conduct MCS activities. Tokelau requested permission to present progress on investigating this incident to the Commission in December.

225. **Palau** informed TCC5 that two vessels flagged to a WCPFC CCM were sighted in early August fishing inside the Palau EEZ without a license and finning sharks. One of the vessels was apprehended and investigations are continuing. Palau does not tolerate IUU fishing and views this as an extremely serious violation.

226. **FSM** presented an incident which occurred during the 2009 August-September FAD closure in which an observer was bribed to not report that the vessel was setting on FADs. FSM noted that the flag State has been informed that FSM intends to take legal action and has indicated it will respond to the case presented.

227. Tuvalu, on behalf of FFA members, stated their serious concern about the number of violations that have been detected and those that potentially go undetected due to the limited ability of SIDS to conduct MCS activities. Coastal states' commitment to conserve and manage critical fisheries resources, and to deal strictly with any violations, was reaffirmed.

228. The EC highlighted the responsibility of developed states to assist coastal states with monitoring and control of fishing activities in their EEZs and suggested that more proactive initiatives are required in this regard.

**229. TCC recommends to the Commission that New Zealand, Tokelau, Palau, and FSM report back to WCPFC6 on the recent alleged IUU activities raised at TCC5, and in accordance with Articles 23 para. 5 and Article 25 of the Convention that the member against whom the activity is alleged, report to WCPFC6 on the progress of the investigation, including details of any action taken or proposed to be taken in relation to the alleged activity.**

**(b) CMM 2007-03: Review of Outstanding Issues from WCPFC5**

**(i) Review of Paragraph 3(j) of CMM 2007-03**

230. Dr. Tsamenyi presented a summary of WCPFC-TCC5-2009/16 concerning a review of CMM 2007-03 para. 3(j). This paragraph provides for listing of a vessel on the WCPFC IUU Vessel List on the basis that the vessel is under the control of an owner of any vessel on the IUU Vessel list. Therefore, a vessel may be listed by association with an owner implicated in IUU fishing activities, rather than having engaged in such activities itself. In this way, para. 3(j) differs from all of the other grounds for listing a vessel in para. 3, and as a result has been strongly debated at previous meetings of the TCC and the Commission. As a result of discussion at WCPFC5 it was agreed to suspend use of para. 3(j) as a basis for IUU vessel listing for one year to allow for the development of procedures to implement para. 3(j). The working paper presents the results of a study to develop such procedures.

231. Dr. Tsamenyi summarised the key issues and recommendations presented in the paper.

232. Some CCMs stated their opinion that listing of vessel on the WCPFC IUU Vessel List on the basis of para. 3(j) is contrary to justice and common sense. These CCMs also stated that as only a handful of RFMOs have included a similar provision in their IUU vessel listing procedures, and none of these RFMOs have yet applied this provision, there is no practical operational guidance available for its application. These CCMs preferred action would be to delete para. 3(j) from CMM 2007-03 but pending such action they urged TCC to recommend to the Commission a further suspension of para. 3(j) until further consideration can be given to its application procedures by their national legal counsels.

233. Several CCMs supported postponing a decision on revising CMM 2007-03 with regard to para. 3(j) to TCC6 pending further consideration. However, most of these CCMs expressed a reluctance to suspend the use of para. 3(j) in the interim, or in any case for more than one further year, referring to the potential deterrent effect this provision may have on IUU fishing activities.

234. The EC stressed the importance of gaining experience with para. 3(j) and related issue through its application, or potential application, noting that extending the current one-year suspension of the provision will not achieve this. Instead, the EC recommended that para. 3(j) could be applied with caution and/or only in clear cut cases.

235. One CCM emphasized the importance of outlining a process through which the issue can be advanced over the next year in order to facilitate resolution at TCC6.

236. Some CCMs expressed concerns that para. 3(j), while intended to discourage IUU fishing activities, might provide a disincentive for legitimate investment in fisheries development of small island developing states (SIDS).

237. In response to a question, Dr. Tsamenyi explained that, as described in the working paper, the requirements for demonstrating that vessels are under the control of the owner of any vessel on the IUU Vessel List have not been made clear. In addition, whether “associated vessels”, i.e. those proposed for the IUU Vessel List on the basis of para. 3(j), need to be proposed separately or in conjunction with the originally offending vessel which implicates the

owner is also unclear. Finally, procedures for removing vessels which have been listed on the basis of para. 3(j) from the IUU Vessel List have yet to be specified.

**238. TCC5 reviewed the Secretariat paper regarding paragraph 3(j) of CMM 2007-03 (WCPFC-TCC5-2009/16). TCC5 determined that this issue required further reflection and discussion at TCC6. Given the importance of this matter, a further and final deferment of the application of 3 (j) is recommended to WCPFC6 for the year 2010. The majority were in favour of 2010 being the final deferment, while the minority were not. This recommendation was not made by consensus. TCC5 also recommended that the Commission establish a clear process for CCMs to advance this issue during 2010 to support TCC6 in its consideration of the issue.**

239. One CCM expressed concerns about references to majority and minority opinions in TCC recommendations other than those pertaining to IUU vessel listings, and stressed the importance of making every effort to conduct the work of the TCC by consensus.

**(ii) Control of Nationals**

240. New Zealand presented WCPFC-TCC5-2009/DP-10 on a draft WCPFC CMM for the controls of nationals based on a measure adopted by CCAMLR. New Zealand highlighted that such control is an essential component of a robust MCS framework to combat IUU fishing activities.

241. One CCM requested that the concept of controlling nationals “to the greatest extent possible”, as specified in Article 23, para.5 of the Convention be included in the chapeau part of paragraph 1 of the draft CMM.

242. FFA members stated the control of nationals is important to prevent parties from one State hiding behind the flag of another State. These CCMs supported greater transparency in declaring owners and other controlling interests in fishing vessels, in particular for vessels on IUU vessel lists. However, these CCMs stressed that any CMM on control of nationals should not act to deter legitimate investment in fisheries in SIDS.

243. One CCM noted that the requirement to report to the Commission on the progress of the investigation within two months was perhaps too short a timeframe.

244. One CCM suggested that para. 2 of the draft CMM be revised to also refer to nationals who command vessels.

245. Some CCMs supported the draft measure as proposed noting that it was based on a measure adopted by CCAMLR, an organization of which many CCMs are members, and that the draft measure is fully in line with CCMs existing obligations under the Convention, specifically Article 23, para. 5.

246. Some CCMs indicated that the effective control of nationals may lie beyond the current remit of the agencies represented on their delegation. At a minimum these CCMs would need to consult national legal advisors before presenting a position on the draft CMM, and in some cases inter-agency coordination procedures may not yet be developed. Some of these CCMs noted that stakeholders in the CCAMLR fisheries are very different to stakeholders in the WCPFC fisheries and thus a different approach may be warranted.

247. New Zealand took these and other comments received during TCC5 into account in preparing revisions of the paper resulting in WCPFC-TCC5-2009/DP-10 (Rev. 2) contained in Attachment G.

**248. TCC5 reviewed “Control of Nationals” (WCPFC-TCC5-2009/DP-10 (Rev. 2)). New Zealand will receive comments until 4 November 2009 with a view to providing a revised document for consideration by WCPFC6.**

**(iii) IUU Listing Procedures**

249. Tonga presented a paper on a proposed amendment to CMM 2007-03, para. 15 concerning reasons why a vessel should not be included on the WCPFC IUU Vessel List (WCPFC-TCC5-2009/DP-12). It was noted that this issue was one of the priority issues identified for TCC5’s attention. The amendments proposed by Tonga are designed to remedy the fact that under the current wording of para. 15, a flag State is allowed to determine whether effective action has been taken against one of its fishing vessels even if the violation occurred in the national waters of another coastal State. Specifically, the amendments provide for the flag State to so determine if the violation occurred on the high seas, but when the violation occurred outside of the high seas, that the CCM in whose jurisdiction the violation occurred be satisfied with the settlement of the case.

250. Several CCMs, including FFA members spoke in favour of the proposal, emphasizing the need to take account of the interest of coastal States whose national laws have been infringed through IUU fishing activities. This was deemed to be particularly important in cases where, due to limited MCS capabilities, it is not possible to prevent the vessel from physically escaping from the jurisdiction of the coastal State.

251. Two CCMs voiced their concern regarding the amendments. These concerns are based on the possibility of unfair or unequal penalties being imposed by coastal States and a preference to tighten the CMMs but avoid increasing the number of punitive measures.

252. Based on these and other comments received during TCC5, Tonga prepared WCPFC-TCC5-2009/DP-12 (Rev. 1) contained in Attachment H.

253. Two CCMs requested more time to review the proposal citing the need to consult with their national legal counsels and stakeholders. One of these CCMs proposed an additional amendment to the text but this was opposed by a number of other CCMs. The Chair noted the short lead time for CCMs to consult with capitals and thanked CCMs for their efforts to do so.

**254. TCC5 reviewed “Tonga’s proposed amendment to para. 15 of CMM 2007-03” (WCPFC-TCC5-2009/DP-12 (Rev. 1)). Tonga will take views electronically on an inter-sessional basis with comments to be received by 31 October. Tonga will endeavour to bring this paper forward for consideration by WCPFC6.**

**(c) Stateless Vessels**

255. The U.S. introduced a proposal for a CMM on vessels without nationality (WCPFC-TCC5-2009/DP-04 (Rev. 1)). The draft CMM explicitly states that vessels without nationality fishing in the Convention Area will be presumed to be fishing in contravention of WCPFC CMMs. This measure will allow port States, such as the U.S., to prosecute stateless vessels when they enter port. Other provisions allow for boarding and inspection, and reporting of sightings to the Secretariat.

256. One CCM noted that while some port States do not require this CMM because under their existing legal systems they are able to prosecute stateless vessels, they understood the value of this CMM for other port States which do not currently have such mechanisms.

257. Several CCMs expressed their support for the proposed CMM.

258. FFA members asked that the proposal be deferred to WCPFC6 for further consideration.

**259. TCC5 reviewed the U.S. paper “Proposal for a CMM on Vessels without Nationality” (WCPFC-TCC5-DP/04 (Rev.1)). As all CCMs did not have an opportunity to review this paper during TCC5, this paper along with comments provided by CCMs to the U.S. before 7 November 2009 will be forwarded to WCPFC6 for its consideration.**

## **2.8 WCPFC Record of Fishing Vessels**

### **(a) Current Status and Developments, including a web-based system for vessel record information**

260. The Secretariat presented a paper on the status of, and developments related to, the WCPFC Record of Fishing Vessels (WCPFC-TCC5-2009/17). This paper describes the current status of the WCPFC Record of Fishing Vessels relating to: i) the number of vessels according to flag and vessel type; ii) issues associated with anomalies in the type and quality of information provided by CCMs for their respective authorized vessels; and iii) an analysis of vessel information gaps by flag. The Secretariat also provided information on enhancements to the WCPFC Record of Fishing Vessels, in particular a web-based system for entry of vessel information, and development of the WCPFC Information Management System that will cater for information flows relating to CMM 2004-01. The latter includes a RSS feed which can be subscribed to and provides automatic updates of the WCPFC RFV. The Secretariat also noted that all electronic submissions of information to the RFV should receive an automatic electronic message confirming the submission.

261. CCMs discussed the Secretariat’s proposals (WCPFC-TCC5-2009/17, Attachment 2) to further specify the type and quality of information provided by CCMs for authorized vessels as provided for in CMM 2004-01. Several CCMs noted that some of the proposals suggested terms or units which deviate from those specified either in CMM 2004-01 or from terms used in Annex IV of the Convention. A specific example ‘gross tonnage’ versus ‘gross register tonnage’ was raised. As some CCMs indicated they had many other points to raise, it was suggested that comments be provided to the Secretariat in writing.

262. With respect to the web-based data entry system under development, some CCMs emphasized the need for more flexible data input options, particularly the need for CCMs to be able to submit batch data without having to enter it by hand, which will lead to errors. One CCM also noted that many of the existing problems pointed out in the Secretariat’s paper could be solved simply by requiring that CCMs distinguish between “none” and “unknown” and perhaps between “not available” as well.

263. The TCC5 Chair noted that changes to the information requirements would need to be effected through amendment of CMM 2004-01.

264. A related point of discussion involved conversion to an electronic data submission system for authorized vessel information. All CCMs which voiced an opinion on this subject spoke in favour of such a system on the basis that it would improve both the quality of submitted data and the compliance record of CCMs.

265. One CCM suggested that capturing existing electronic data would be strongly preferred over having either the CCM or the Secretariat re-key the data.

266. One CCM suggested that all existing data on authorized vessels be re-submitted through the electronic system which could perform an automatic check on whether all required information was available.

267. Another CCM noted that Attachment 3 of WCPFC-TCC5-2009/17 indicates that many of the vessels on the WCPFC RFV have incomplete data and if incomplete data is grounds for not listing the vessels on the RFV then potentially a very large number of vessels could be considered

eligible for IUU vessel listing. Therefore, this CCM suggested decoupling the issue of data sufficiency from the decision to list CCMs' authorized vessels on the RFV.

268. Further regarding Attachment 3, some CCMs considered that the percent compliance shown did not reflect their efforts to provide complete information for their authorized vessels.

269. France noted a potential issue of double-counting its authorized vessels under both France and the EU.

**270. TCC5 reviewed Secretariat paper “Status of, and developments related to, the WCPFC Record of Fishing Vessels (WCPFC-TCC5-2009/17)”. TCC5 recommended that CCMs work with the Secretariat to resolve gaps in information and move to a flexible web-based data system on an accelerated basis.**

#### **(b) Unique Vessel Identifier**

271. The Secretariat presented a paper on a unique identifier for the WCPFC RFV and harmonization of Tuna RFMO Vessel Records (WCPFC-TCC5-2009/18 (Rev. 1)). This paper describes efforts undertaken to compare the fields required under the WCPFC RFV to those required by Lloyds Register-Fairplay to generate a unique vessel identifier (UVI). In order to generate a UVI, WCPFC CCMs would need to provide information for six additional data fields: address of the operator (Master); fishing number (national registration number); ship builder; nationality of ship builder; gross tonnage; and ship status. TCC5 was invited to consider whether to recommend to the Commission that CCMs be requested to provide these additional six data fields so that UVIs can begin to be generated for vessels on the WCPFC RFV. This will both contribute toward efforts underway by FAO to establish a global register of fishing vessels to combat IUU fishing, and by the Joint Tuna RFMOs to facilitate the exchange of vessel information.

272. Some CCMs, citing the value of UVIs to support global efforts to combat IUU fishing, recommended to the Commission the initiation of a pilot project to generate UVIs for vessels on the WCPFC RFV.

273. Other CCMs suggested that while UVIs have merit, the WCPFC should remain focused on its own needs for generating a comprehensive and complete RFV.

274. One CCM suggested that in some cases national legislation regarding privacy/confidentiality may prevent release of the information required by Lloyd Register-Fairplay.

275. One CCM recommended that national vessel register numbers be used to the maximum extent practical and that any system developed maintain compatibility with national systems.

**276. TCC5 reviewed the Secretariat’s paper on “A Unique Identifier for the WCPFC Record of Fishing Vessels and Harmonization of Tuna RFMO Vessel Records” (WCPFC-TCC5-2009/18 (Rev 1)). TCC5 recommends that highest priority be given to completing the WCPFC Record of Fishing Vessels. TCC5 recommends that the Secretariat continue to participate in the tuna RFMO process. TCC5 encourages CCMs to cooperate with the Secretariat on a pilot programme basis as they are able to do so.**

## **2.9 High Seas Boarding and Inspection (HSBI)**

### **(a) Annual Reports by CCMs**

277. In accordance with CMM 2006-08, para. 40, CCMs are required to report annually to the Commission on the boarding and inspections carried out by authorised inspection vessels. In presenting a summary of this information, the Secretariat noted the continued development of the

HSBI website. CCMs are also required to provide contact details for the authorities responsible for fishing vessels for posting on the website. To date only 9 CCMs (Belize, the EC, Canada, Chinese Taipei, Cook Islands, New Zealand, US, France and Japan) have provided this information, and 17 CCMs have not provided it.

278. Whilst noting that some CCMs may choose to report on HSBI activities within their Part 2, Annual Reports, CCMs were provided with the opportunity to make brief presentations on these activities at TCC5.

279. In addition to reporting in their Part 2, Annual Report, the U.S. noted that six HSBI were conducted in 2008. On 20 August a Japanese pole and line vessel was inspected on the high seas off Japan and no violations were observed. From September-November 2008 five Korean longliners were inspected near Palmyra and Kingman Reef and no violations were observed. All HSBI were conducted in accordance with CMM 2006-08 and proceeded smoothly and without incident.

280. Chinese Taipei deployed an inspection vessel for 89 days beginning in 6 October 2008 and has deployed two inspection vessels in 2009. These vessels have focused on HSBI of Chinese Taipei and other vessels in the high seas pockets, and on instructing the vessels to comply with the WCPFC CMMs. Chinese Taipei will continue these efforts.

281. During 2008, the Cook Island deployed two patrol boats to the high seas pocket area between French Polynesia, the Cook Islands and Kiribati. However, when the patrol vessels reached the area, the fishing vessels had already departed.

282. Two FFA members spoke in support of the WCPFC HSBI, noting that WCPFC is the only RFMO with such a scheme. It was also noted that the subregional programme will expand from the current focus on EEZs over the next year to include high seas areas, and will thus complement the WCPFC HSBI procedures.

**283. Some CCMs reported on their HSBI activities while others commented on their intention to do so. TCC5 noted the progress of the WCPFC Boarding and Inspection Programme. TCC5 encouraged CCMs to report their HSBI activities in their Part 2, Annual Reports.**

**(b) Data Buoys**

284. The U.S. presented a proposed CMM on data buoys (WCPFC-TCC5-2009/DP-03 (Rev. 1), explaining that comments received from Australia, New Zealand, the EC and the WCPFC Legal Advisor have been reflected in the latest draft. The proposed measure defines minimum standards for responsible conduct of fishing operations with regard to buoys. Its aim is to prevent damage to data buoys which provide valuable oceanographic and meteorological data including tsunami early warning. It also specifies that fishing activities which are inconsistent with these minimum standards will be considered to be undermining the WCPFC CMMs.

285. In discussion, CCMs raised several issues concerning the proposed CMM including:

- i. The need to provide a definition of data buoys so that the types and numbers of buoys that might be affected by the measure can be assessed;
- ii. There is a need for an exemption for scientific research activities;
- iii. Compatibility with national buoy classification and regulatory schemes in order to facilitate domestic implementation;

286. One CCM expressed concern about the provision to consider damage to data buoys as equivalent to undermining the WCPFC CMMs, but stated that a vessel should not be placed on the IUU Vessel List for damaging data buoys.

**287. TCC5 discussed the U.S. proposed CMM on data buoys (WCPFC-TCC5-2009/DP-03 (Rev. 1). TCC5 agreed to continue to develop this proposal with a view to submitting a revised proposal at WCPFC6. Additional comments should be forwarded to the U.S. by 7 November 2009.**

## **2.10 Compliance with Reporting Obligations**

### **(a) Part 2 Reports**

#### **(i) Submissions by CCMs**

288. The Secretariat presented “Review of CCMs’ Implementation of and Compliance with Conservation and Management Measures” (WCPFC-TCC5-2009/31 (Rev. 1)). To date, there are eight Part 2 Annual Reports outstanding including those from El Salvador, the EC, Kiribati, Marshall Islands, Niue, Philippines, Tokelau, and Wallis and Futuna. Of the 26 Part 2 Annual Reports received, 17 (Australia, Belize, Canada, Cook Islands, FSM, Fiji, France (including New Caledonia and French Polynesia which also submitted individual reports), Japan, Korea, Nauru, New Zealand, PNG, Solomon Islands, Chinese Taipei, Tonga, Tuvalu, and the U.S.) used the agreed Part 2 Annual Report template. Over the past year, CCMs and the Secretariat have worked toward retrospectively filling gaps in past Annual Report submissions and as a result the Commission’s data holdings are progressively approaching completion. CCMs were thanked for their efforts in this regard.

289. CCMs that wish to make corrections to current or past Part 2 Annual Reports were asked to work with Secretariat on these issues outside the meeting.

#### **(ii) Part 2 Report Template**

290. Referring to WCPFC-TCC5-2009/19, the Secretariat noted the requirement in paragraph 40 of CMM 2008-01 for TCC to prepare a template for reporting on the implementation of CMM 2008-01 for their fishing vessels operating on the high seas and/or in waters under national jurisdiction. This template was circulated to CCMs as WCPFC Circular 2009/06 in March 2009. Comments received from Australia and Japan and are attached to the paper.

291. In addition to the comments received from Australia and Japan, points raised by other CCMs in discussion included:

- i. There is a need to be aware of the burden that existing reporting requirements place on small coastal States and to seek ways to streamline reporting requirements as much as possible;
- ii. The Secretariat should review recommendations from CCMs made under other topics, e.g. the ROP, and incorporate reporting requirements for those programmes into the Part 2 Annual Reports;
- iii. Data fields including “management methods used for highly migratory fish species”, and those under the heading “Investigations and Prosecution Activity” require further clarification and/or justification.

**292. TCC5 reviewed Secretariat paper “Revised Template for Annual Report, Part 2” (WCPFC-TCC5-2009/19). A number of specific proposals were made from the floor by CCMs. The Secretariat is directed to incorporate these suggestions in a revised Part 2 template for consideration at WCPFC6.**

### **(b) Report by the Secretariat**

293. The Secretariat presented WCPFC-TCC5-2009/31 (Rev.1) summarising information received from CCMs, including information received under Article 24, para. 5 of the Convention, relating to implementation of the Convention and the decisions of the Commission. The

Secretariat's report included information from CCMs relating to several CMMs including: i) CMM 2005-02; ii) CMM 2005-03; iii) CMM 2006-04; iv) CMM 2007-04; v) CMM 2008-01; vi) CMM 2008-03; and vii) CMM 2008-05. In relation to CMM 2008-01, the Secretariat noted that although this Measure is not due to be reported on until 2010, it contains some issues for the attention of the Secretariat.

294. New Zealand suggested that for the sake of transparency and for better self-tracking of compliance, the CCMs who have complied with these measures, or alternatively who have not complied, be listed.

295. The EC agreed that identifying which members had complied would be useful and suggested a report card format.

296. The Secretariat noted that there is now a data reconciliation facility on the Commission website whereby each CCM can review their own data submission status.

**(i) CMM 2005-02: Conservation and Management Measure for South Pacific Albacore**

297. This CMM calls for no increase in the number of fishing vessels actively fishing for South Pacific albacore south of 20°S above current (2005) levels or recent historical (2000-2004) levels. Information specifically about such activity, which is not required to be reported under the CMM, has been reported by Australia, Belize and New Zealand.

298. New Zealand called for CCMs fishing for this species to provide operational data, noting that it is impossible to confirm compliance unless such data are submitted.

299. Vanuatu, on behalf of FFA members, proposed to insert a footnote to Table 3 stating "the numbers in this table do not take into account para. 2 of CMM 2005-02" (WCPFC-TCC5-2009/DP-16).

**(ii) CMM 2005-03: Conservation and Management Measure for North Pacific Albacore**

300. This CMM requires that catch of albacore north of the equator, by gear type, be reported to the Commission every six months and that catch and effort data be reported annually. The Secretariat thanked the WCPFC Science Service Provider for preparing the estimated catches based on the 14 fleets' data listed in the paper.

301. There were no comments on this item.

**(iii) CMM 2006-04: Conservation and Management Measure for Striped Marlin in the South West Pacific**

302. This measure calls for CCMs to report the number of vessels that have fished for striped marlin in waters south of 15°S during the period 2000–2004, and thus nominate the maximum number of vessels that shall continue to be permitted to fish for striped marlin in the area south of 15°S. This CMM also requires annual reporting of the number of vessels that fished for striped marlin in that area. The Executive Director noted that six CCMs submitted the required data by the submission deadline.

303. Vanuatu, on behalf of FFA members, proposed to insert a footnote to the table in Attachment 1 stating "the numbers included in years 2000-2004 do not take into account para. 2 of CMM 2006-04" (WCPFC-TCC5-2009/DP-16).

**(iv) CMM 2007-04: Conservation and Management Measure to Mitigate the Impact of Fishing for Highly Migratory Fish Stocks on Seabirds**

304. The measure requires CCMs to report on seabird mitigation measures applied in the Convention Area south of 30°S or north of 23°N, including any changes it has made to its required mitigation measures or technical specifications about these measures. No CCM reported on any such changes.

305. There were no comments on this item.

**(v) CMM 2008-01: Conservation and Management Measures of Bigeye and Yellowfin Tuna in the Western and Central Pacific Ocean**

306. The Secretariat explained that while this measure will not be reported on until next year, several issues which will require reporting at that time are highlighted in the paper.

307. Vanuatu, on behalf of FFA members, requested that a footnote be added to Table 2 to state that “As stated in para. 30 of CMM 2008-01, the requirement to submit development plans for developing skipjack fisheries does not apply to the domestic purse seine fisheries of small island developing States”. Also, an amendment to para. 16 was suggested to accurately reflect paragraph 30 of CMM 2008-01 that the requirement in CMM 2008-01 does not apply to SIDS (WCPFC-TCC5-2009/DP-16).

308. Nauru, on behalf of FFA members, noted that during 2008 the applicable CMMs for bigeye and yellowfin were 2005-01 and 2006-01. Therefore the paper should be amended to avoid references to evaluating whether CMM 2008-01 was achieving its objectives (WCPFC-TCC5-2009/DP-17).

309. FSM, on behalf of FFA members, requested that Secretariat clarify the tables in future papers to clearly distinguish between limits applicable under CMM 2005-01, 2006-01, and 2008-01 (WCPFC-TCC5-2009/DP-18).

310. Fiji, on behalf of FFA members, commented that the indication in Table 3 that a limit of 2000 mt applies to Pacific Islands is not correct based on CMM 2005-01 and 2008-01 (WCPFC-TCC5-2009/DP-19). Therefore, the Secretariat was requested to note in future tables, that in accordance with paragraph 6 and 34 of CMM 2008-01 the 2000mt bigeye longline catch limit and reductions in paragraph 33 of CMM 2008-01 do not apply to Pacific Island fleets.

311. Tuvalu, on behalf of FFA members, expressed their deep concern that the deferment for provision of operational data to the Commission provided in the 2007 decision in “Scientific Data to be Provided to the Commission”, is being used by some CCMs to justify an almost complete failure to provide operational catch and effort data. Vanuatu, on behalf of FFA members, stated that CCMs should report in future Part 2 reports, specifically on their progress to meet the obligations of the 2007 decision “Scientific Data to be Provided to the Commission”, and the Secretariat should include a specific section on this matter in its report on compliance with data reporting obligations.

312. RMI requested a catch and effort level data review by the Secretariat with a view toward compliance.

313. Japan stated that it did not provide data under para. 39 of CMM 2008-01 because of difficulties in understanding the requirements of the last sentence, and called for guidance to be provided on this issue.

**(vi) CMM 2008-03: Conservation and Management of Sea Turtles**

314. This measure requires that fishing vessels fishing for swordfish in shallow sets reduce their sea turtle interaction rate.

315. Australia tabled a report on its sea turtle mitigation plan as WCPFC-TCC5-2009/DP-14.

**(vii) CMM 2008-05: Conservation and Management of Swordfish**

316. This measure requires each CCM to nominate the maximum total catch of swordfish that it shall continue to be permitted to fish in the area of south of 20°S in 2009. The Secretariat received this information from five CCMs.

317. Korea stated that it had submitted a catch report indicating a swordfish catch of about 50 mt but that it appeared that this catch report had not been received by the Secretariat.

318. New Zealand noted the following points for consideration with regard to CMM 2008-05:

- i. Chartered vessels may create anomalies in catch reporting and limit setting;
- ii. Penalty clauses will need to be amended;
- iii. The one year lag in data provision renders it impossible to respond immediately to any exceedance of catch limits; and
- iv. Catch limits should be re-confirmed in future years.

319. Australia supported SC5's recommendation that swordfish catch limits should be continued.

320. Fiji noted a minor error in para. 9 of CMM 2008-05 and will propose an amendment to rectify this at WCPFC6.

321. The Cook Islands stated that it will also seek amendment of para. 10 of CMM 2008-05 to account for the legitimate lag in data provision.

322. The EC stated that they did not provide information under CMM 2008-05 because the measure already specifies a catch figure for EC fleets. The catch limit set in CMM 2008-05 has been implemented under EC law and is monitored by France and by the EC. With regard to the issue of the review of the EC's swordfish catch data mandated by CMM 2008-05, EC stated that a report had been prepared and forwarded to the Secretariat. This report found that there was no divergence between the estimate of the catch by the WCPFC Science Service Provider (SPC) and the EC's current understanding of its fleet's swordfish catch.

323. Several CCMs questioned whether the EC's response complied with the requirements of CMM 2008-05. Specific issues with regard to the need for the review of the EC data to have been independently conducted, the need for the EC to provide data on bycatch, the lack of documentation provided regarding the review and its result, and a potential increase in EC vessels fishing for swordfish were raised. One CCM raised the issue of the provision of by-catch data as articulated in paragraph 241 of the report of the annual meeting.

324. The Secretariat indicated that neither Secretariat nor the WCPFC Science Service Provider had received copies of the EC's report on the swordfish data review.

**325. TCC5 reviewed the implementation and compliance with CMMs and decisions of the Commission, including in respect of the submission of data (WCPFC-TCC5-2009/31 (Rev. 1)). TCC5 noted some elements of the paper related to measures to be implemented in 2009 and reported upon at TCC6 in 2010. Nevertheless, the paper identified a large number of reporting gaps for the majority of measures. TCC5 recommended future reports by the Secretariat attribute reporting gaps to the CCMs concerned. TCC5 noted recommendations by several CCMs to amend data tables. TCC5 forwarded these proposals to the Secretariat for its review and inclusion in a revised paper to be submitted to WCPFC6.**

**(c) Further development of the process for monitoring compliance**

326. The Secretariat introduced progress on developing a process for monitoring compliance led by Australia. Draft terms of reference for a Compliance with Conservation and Management Measures Working Group, based on initial discussions at TCC4, were circulated by Australia in June 2009 and are contained in WCPFC-TCC5-2009/IP-06. Australia indicated that it did not receive comments on the terms of reference, but would take comments from TCC5 and table a revised draft at WCPFC6.

327. Some CCMs indicated their support for Australia's efforts and a willingness to provide further input. Specific issues raised include the possibility of learning from a similar process underway at ICCAT, and the need to develop remedial measures for non-compliances which are fair and proportional, and the importance of developing a transparent and equitable process.

**328. TCC5 noted "Draft Terms of Reference for Compliance with Conservation and Management Measures (CCMM) Working Group" (WCPFC-TCC5-2009/IP-06). CCMs are asked to provide comments to Australia by 2 November 2009.**

## **2.11 Advice and Recommendations in Relation to the Implementation of the CMMs**

### **(a) CMM 2004-03, para. 4.1**

329. Para. 4.1 of CMM 2004-03 provides scope for review, and amendment as appropriate, of the "Specifications for the Marking and Identification of Fishing Vessels". The Secretariat noted that during the 2009 FAD closure period many comments were received regarding the difficulties of identifying fishing vessels.

### **(b) CMM 2006-04, para. 6**

330. This measure requires the Executive Director to compile information provided by CCMs on number of vessels and catch levels of striped marlin in the southwest Pacific and for TCC to monitor and review compliance with this measure and make recommendations to the Commission as necessary.

### **(c) CMM 2007-04, para. 6**

331. This measure requires review of any new information on new or existing mitigation measures or on seabird interactions from observer or other monitoring programmes. TCC5 was invited to consider whether it was necessary to recommend to WCPFC6 an updated suite of mitigation measures, specifications for mitigation measures or recommendations for areas of application. WCPFC-TCC5-2009/33 provides an analysis of differences between a recent IOTC resolution and CMM 2007-04.

332. One CCM stated that since SC5 did not discuss these issues it was premature for TCC5 to make any recommendation and thus the matter should be tabled at TCC6.

333. One CCM noted that the IOTC technical specifications appeared to be more detailed than those currently put in place by WCPFC and suggested that the IOTC technical specifications be forwarded to WCPFC6. This CCM stressed that it was the role of TCC to make recommendations on technical issues.

334. Several CCMs referred to ongoing work by the ISC and an upcoming workshop on bycatch to be held by the Joint Tuna RFMOs (Kobe process) as useful to inform further discussion within the WCPFC.

335. The Executive Director explained that tint specifications for obtaining the appropriate colour of blue-dyed bait are now available and will be distributed to CCMs electronically and loaded on the Commission website.

**336. TCC5 reviewed Secretariat Paper “Seabird Bycatch Mitigation” (WCPFC-TCC5-2009/33). While noting the SC’s role in this issue, CCMs stressed the importance for TCC to act on technical aspects. TCC5 noted the work on this subject being done within the Kobe process and encouraged the participation of WCPFC and CCMs. TCC5 recommends that WCPFC6 consider the Secretariat paper in the further development of technical specifications.**

**(d) CMM 2008-01, para. 21, 24, 26, 29, 43, 44 and 45**

337. The Secretariat noted three papers relevant to this topic: Options for a High Seas Vessel Day Scheme (WCPFC-TCC5-2009/21), FAD Management and Monitoring (WCPFC-TCC5-2009/22) and Monitoring and Measuring Fishing Capacity in the WCPO (WCPFC-TCC5-2009/23).

338. All CCMs voicing an opinion on the potential high seas Vessel Day Scheme advocated postponing discussion on this issue until a later date.

339. With regard to FAD management and monitoring, the Solomon Islands, on behalf of FFA members, stated that more progress is needed on FAD management including study of market, identification and tracking of FADs and other electronic equipment related to fishing. A proposal for this study was tabled as WCPFC-TCC5-2009/DP-21.

340. The U.S. noted that while there is not currently a definition of a FAD set, a definition will be required in the future. In addition, the U.S. stated that given difficulties in implementing domestic regulations quickly, there may need to be a lag or phasing in of major CMMs, rather than immediate implementation.

341. Concerning monitoring and measuring fishing capacity, the EC stated that this is an important issue and must be addressed.

342. Some CCMs expressed an alternative view, suggesting that capacity is not one of the most important issues, and that other means of fisheries management would be a more useful focus.

343. Japan presented two papers, pursuant to CMM 2008-01 para. 43, on monitoring at purse seine catch landing sites in Japan (WCPFC-TCC5-2009/IP-06) and Thailand (WCPFC-TCC5-2009/IP-07). The first paper found that the amount of juvenile bigeye found in the port sampling was ~170% of the amount recorded in the logbooks regardless of whether or not there were observers onboard the purse seiners. The second paper found that Bangkok canneries compile species and size data along with the names of fishing vessel, carrier vessels, dates of landing and transshipment and thus are a useful source of information. However, there is still a high potential to underestimate the amount of juvenile bigeye, particularly given the volume of trade handled by these operations.

344. New Zealand explained that it had attempted similar verification monitoring in its ports but had been unable to reconcile logbook data with port sampling results. Given the difficulties encountered, New Zealand had decided that such arrangements were not worth pursuing. However, they suggested that it would be useful to try to link catch, offloading and cannery records in Thailand or other locations.

345. The U.S. stated the importance of continuing high observer coverage for purse seine fleets and expressed an interest in discussing further linkages to port and processing data sources. They also noted that the exemption available under CMM 2008-01, para. 43 only applies to 2009.

**346. Japan presented two papers regarding port sampling and the canneries in Thailand (WCPFC-TCC5-2009/IP-06 and WCPFC-TCC5-2009/IP-07). TCC5 recommended that a**

**full range of monitoring measures including consideration of Thai and other canneries needed to be taken into account in the future.**

**(e) CMM 2008-03, para. 7, 9 and 12**

347. CCMs are required to report on mitigation measures for minimising sea turtle interaction rates in swordfish fishery shallow sets.

348. Australia tabled a report on its sea turtle mitigation plan as WCPFC-TCC5-2009/DP-14. The plan contains three elements: trigger interaction rates, a management plan to be followed if trigger interaction rates are exceeded, and reporting provisions.

349. Some CCMs, including FFA members, spoke in support of Australia's plan and recommended it be forwarded to WCPFC6.

350. China informed TCC5 that it has supplied a set of cutters and de-hookers to all of its distant water longline vessels.

**351. TCC5 reviewed "Australia Revised Draft Eastern Tuna and Billfish Fishery Sea Turtle Mitigation Plan (TMP)" (WCPFC-TCC5-2009/DP-14). TCC5 recommends to WCPFC6 approval of this paper.**

**(f) CMM 2008-05, para. 5 and 11**

352. As described under item 2.10 (b) (vii), CCMs discussed the need for reporting on swordfish catches and bycatch under CMM 2008-05.

353. Having discussed the issue in the margins, the EC agreed to submit their report on the data verification process to the Secretariat for transmittal to the WCPFC Science Service Provider (SPC), and would investigate and confirm that all data required under CMM 2008-05 and WCPFC data provision rules have been provided.

354. The Secretariat clarified that no travel funding was available to support participation in the review by the WCPFC Science Service Provider.

**(g) CMM 2008-06, para. 13**

355. This measure requires consideration of the effectiveness of management measures for shark stocks. The Secretariat noted that this issue will be on the agenda at TCC6 and as such was highlighted for CCMs attention.

**356. TCC5 reviewed a series of CMMs. It was agreed that a high seas vessel day scheme measure will be considered at a later date. It was noted that the role of capacity in overfishing is an issue which may require attention by the Commission.**

**AGENDA ITEM 3 —APPLICATIONS FOR COOPERATING NON-MEMBER STATUS**

357. TCC5 assessed the applications for CNM status against the requirements of CMM 2008-02. The results are provided in WPCFC-TCC5-2009/35 (Rev. 1).

**358. TCC5 recommended Belize for consideration by the Commission for CNM status subject to the information requested in WPCFC-TCC5-2009/35 (Rev. 1) being provided to, and accepted by, the Commission. TCC5 also recommends that the Executive Director provide, in advance of WCPFC6, an analysis of the applicant's compliance with the commitments and any specific limits on fishing activities undertaken by the applicant at WCPFC5.**

359. TCC5 recommended Ecuador for consideration by the Commission for CNM status subject to the information requested in WPCFC-TCC5-2009/35 (Rev. 1) being provided to, and accepted by, the Commission. TCC5 also recommends that the Executive Director provide, in advance of WCPFC6, based on available information, an analysis of compliance with commitments and any specific limits on fishing activities undertaken by the applicant at WCPFC5.

360. TCC5 recommended El Salvador for consideration by the Commission for CNM status subject to the information requested in WPCFC-TCC5-2009/35 (Rev. 1) being provided to, and accepted by, the Commission. TCC5 recommends that the Executive Director provide, in advance of WCPFC6, based on available information, an analysis of compliance with commitments and any specific limits on fishing activities undertaken by the applicant at WCPFC5.

361. TCC5 recommended Indonesia for consideration by the Commission for CNM status subject to the information requested in WPCFC-TCC5-2009/35 (Rev. 1) being provided to, and accepted by, the Commission. TCC5 also recommends that the Executive Director provide, in advance of WCPFC6, based on available information, an analysis of compliance with commitments and any specific limits on fishing activities undertaken by the applicant at WCPFC5.

362. TCC5 recommended Mexico for consideration by the Commission for CNM status subject to the information requested in WPCFC-TCC5-2009/35 (Rev. 1) being provided to, and accepted by, the Commission. TCC5 also recommends that the Executive Director provide, in advance of WCPFC6, based on available information, an analysis of compliance with commitments and any specific limits on fishing activities undertaken by the applicant at WCPFC5.

363. TCC5 recommended Senegal for consideration by the Commission for CNM status subject to the information requested in WPCFC-TCC5-2009/35 (Rev. 1) being provided to, and accepted by, the Commission. TCC5 also recommends that the Executive Director provide, in advance of WCPFC6, based on available information, an analysis of compliance with commitments and any specific limits on fishing activities undertaken by the applicant at WCPFC5.

364. TCC5 recommended Vietnam for consideration by the Commission for CNM status subject to the information requested in WPCFC-TCC5-2009/35 (Rev. 1) being provided to, and accepted by, the Commission.

365. The Executive Director stated that he will frame a letter to each applicant requesting a response by 7 November 2009. As responses are received from the applicants they will be posted on the Commission website for CCMs' review.

366. New Zealand requested that the summary of scientific data provided by applicants for CNM status prepared by SPC-OFP be provided to each applicant as an attachment to the letter prepared by the Secretariat.

#### **AGENDA ITEM 4 — ADDITIONAL MONITORING, CONTROL AND SURVEILLANCE (MCS) ISSUES BEFORE THE COMMISSION**

##### **4.1 Port State Measures**

367. The WCPFC Legal Advisor, Dr. Tsamenyi, presented a paper updating TCC5 on the status of the FAO's Port State Measures consultation (WCPFC-TCC5-2009/32 (Rev. 2)). Dr. Tsamenyi noted that while TCC had postponed further discussion of port State measures pending

completion of the consultation at FAO. However, with the recent agreement of the text, and the likely opening for signature of the agreement in November 2009, TCC was invited to consider a recommendation to the Commission on the way forward.

368. Australia, on behalf of FFA members made the following points regarding port State measures:

- i. They are an important tool in combating IUU fishing activities but should be considered to represent only minimum standards;
- ii. Port States will maintain discretion over their own affairs, including applying stricter port states measures, such as those in place in FFA member states, if they so desire;
- iii. There should not be a transfer of the burden of combating IUU fishing activities to SIDS.
- iv. Further discussion at TCC6 was suggested.

369. The EC agreed that discussion of port State measures should be a priority for TCC6, noting that it is one of the most effective weapons against IUU fishing.

**370. TCC5 discussed the port state measures paper WCPFC-TCC5-2009/32 (Rev.2). It was agreed this was a priority matter for discussion at TCC6, noting its impact on small island developing States.**

#### **4.2 Catch Documentation Scheme**

371. The Secretariat presented a paper describing the background to RMFO catch and trade documentation schemes, introducing the EC IUU catch certification system to be implemented in January 2010, and discussing and comparing best practice elements in existing schemes. TCC5 was invited to consider the benefits of developing a catch documentation schemes (CDS) for the WCPFC which can be recognized by the EC as equivalent to their catch certification scheme.

372. Some CCMs, including FFA members, considered that the best approach to developing a WCPFC CDS was to build on existing national catch or trade documentation programmes, while using the Secretariat to perform an audit function. These CCMs supported formulation of a working group to progress development of a scheme.

373. Other CCMs urged a practical approach to defining the scope of the species and product forms to be included under the scheme. In particular, issues of species identification in purse seine fisheries, and handling fresh fish through customs given the CDS procedures without spoilage, were highlighted.

374. The EC voiced its continuing support for the development of a CDS for the WCPFC. The EC noted that the only schemes that are likely to be acknowledged as being equivalent to the EC catch certification are the ICCAT bluefin CDS, the CCAMLR CDS and possibly the CCSBT CDS.

375. The U.S. stressed the importance of having a clear process within the WCPFC to progress the development of a scheme if it was a priority of CCMs and the Commission, given the complexity of the topic.

**376. TCC5 reviewed the catch document paper “Catch/Trade Documentation, EC Council Regulation (EC) 1005/2008 and the WCPFC” (WCPFC-TCC5-2009/24 (Rev. 2))”. TCC5 recommended to WCPFC6 creation of an inter-sessional working group on catch documentation with terms of reference to be developed electronically in advance of WCPFC6. TCC5 recommends to the Commission that it decide on a mechanism to advance this issue during 2010.**

#### **4.3 Procedures for Granting CNM Status**

377. The U.S. presented a flowchart illustrating the process of considering applications for CNM status (WCPFC-TCC5-2009/DP-20 (Rev. 1)).

378. New Zealand suggested some minor amendments to the wording of the flowchart and agreed to provide these changes to the U.S. for incorporation.

379. The Executive Director confirmed that an electronic template for CNM application submissions is under consideration. This will serve the dual purpose of facilitating the applicant's information submission and formatting the information into a table for CCMs' subsequent appraisal and consideration.

380. CCMs discussed whether the flowchart, once finalized and agreed, will be incorporated into CMM 2008-02. There was consensus that the flowchart would become part of CMM 2008-02 but that the text of the measure would take precedence for any issues of interpretation.

**381. TCC5 reviewed the issue of cooperating non-member party procedures "U.S. Revised CNM Flowchart" (WCPFC-TCC5-2009/DP-20 (Rev. 1)) was discussed. TCC5 agreed that comments are to be provided to the U.S. in anticipation of the development of a revised flowchart.**

#### **AGENDA ITEM 5 — SPECIAL REQUIREMENTS OF SMALL ISLAND DEVELOPING STATES**

382. Cook Islands, on behalf of FFA, presented a statement highlighting the importance of combating IUU fishing in small island developing States and Territories. Two sources of funding for building capacity of SIDS to undertake monitoring, control and surveillance (MCS) activities were identified: the Special Requirements Fund, with a current balance of just over 152,000 USD, and the Japan Trust Fund, whose funding for 2010 will be decided shortly. The U.S. and FSM were thanked for their contributions to the former, and appreciation was expressed to Japan for the latter, but it was noted that this funding is inadequate to be able to assist all SIDS with national MCS activities. CCMs were reminded that Article 30, para. 4, provides guidance on how the Commission can cooperate with SIDS to address IUU fishing including financial assistance, assistance related to human resource development, technical assistance, transfer of technology, including through joint venture arrangements, and advisory and consultative services. CCMs were invited to provide updates to TCC on ways that they are contributing or intend to contribute to assisting SIDS with eliminating IUU fishing.

383. Tuvalu, on behalf of FFA members, referred to the need to avoid constraints on the development and investment in SIDS as embodied in Resolution 2008-01. FFA members expressed their desire for Resolution 2008-01 to serve as a basis for building principles and strategies, such as "islandization" into future CMMs. CCMs were reminded of the commitment at the recent meeting of the Joint Tuna RMFOs (Kobe 2) to enhance the ability of SIDS to participate in fisheries management and to develop their own fisheries for such stocks, including on the high seas.

384. Palau suggested that CCMs provide reports on their implementation of Article 30 of the Convention to each meeting of the TCC.

385. Japan encouraged SIDS to make their own applications to the Japan Trust Fund rather than applying through other organizations.

386. Several CCMs, including the EC, supported the EC's earlier point regarding the responsibility of developed states to assist coastal states with monitoring and control of fishing activities in their EEZs. The EC noted that it provides considerable funding to SPC in this regard, and New Zealand and the U.S. listed several MCS initiatives involving SIDS.

387. The Executive Director noted that the Commission has received funding from the Global Environmental Facility to assist with developing the legal and institutional capacity for implementing the Commission's CMMs in Indonesia, the Philippines and Vietnam. He also highlighted the availability of internship positions with the Secretariat, especially in the first half of each year.

**388. TCC5 discussed the special requirements of small island developing states noting particularly Resolution 2008-01. Small island developing States were encouraged to take advantage of current development programmes and joint MCS activities. Developed States were encouraged to contribute to the growth of capacity of SIDS in accordance with Article 30 of the Convention and to report annually on this issue.**

## **AGENDA ITEM 6 — FUTURE WORK PROGRAMME**

### **6.1 Report by the Secretariat on Implementation of the 2009 Approved Programme of Work**

389. A report on the implementation status of the 2009 TCC work programme is contained in WCPFC-TCC5-2009/26.

### **6.2 Draft Work Program for 2010-2014**

390. The Executive Director presented the Draft Work Programme and Budget for 2010-2014 (WCPFC-TCC5-2009/27). He noted that the work programme is based on the ten priority issues identified at WCPFC5 but that, due to higher than forecast uptake of the Commission VMS and estimates associated with the processing of ROP-generated data, the provisional budget was significantly more than presented in previous forecasts. Budget priorities were highlighted as being electronic/web-based data submission processes and funding for the compliance officer and ROP data quality officer position. Based on an earlier suggestion for a study of FADs, the Secretariat will develop terms of reference for such a study and include it in the budget for consideration at WCPFC6.

391. In response to questions, the Executive Director explained that the item described as VMS training is designed to build capacity and promote understanding of the VMS and HSBI procedures through a workshop for interested CCMs.

392. Most CCMs were of the opinion that rather than extend the TCC meeting, it would be preferable to prioritize the issues for discussion and optimize the existing time available. The TCC Chair noted that as major issues such as data, VMS, boarding and inspection and the ROP are now well in hand, the TCC workload may ease.

393. Several CCMs noted the importance of adequate resourcing of the Secretariat.

394. The Secretariat agreed to provide Japan with further details on projected VMS operational costs for 2010-2013.

395. Japan reserved its right to provide further comments on VMS operational costs after reviewing these further details.

396. A variety of other specific issues were discussed by TCC5 and were reflected in an agreed decision point (below).

**397. TCC5 reviewed in detail the draft Work Programme and Budget 2010-2014 (WCPFC-TCC5-2009/27). TCC5 noted the progress made on major MCS elements. CCMs stressed the need to prioritize items for the TCC6 agenda. CCMs encouraged the utilisation of web-based systems by WCPFC and ensuring these systems are well-funded in the short term to make budget savings in the longer term. Focused work is to be undertaken inter-**

sessionally on port state measures and catch documentation schemes during 2010 as a matter of priority. TCC noted the importance of ensuring the ROP and VMS are funded adequately to implement effective programmes. TCC5 recommends to WCPFC6 that the draft Work Programme and Budget with amendments proposed during TCC5 be considered by the Finance and Administrative Committee of WCPFC6.

## **AGENDA ITEM 7 — SUPPLEMENTARY ITEMS**

### **7.1 Issues arising from SC5**

398. The Executive Secretary presented a document highlighting two issues arising from SC5, i.e. definition of a FAD set and cooperation with IATTC (WCPFC-TCC5-2009/28).

**399. TCC noted “SC5 Outcomes Relating to the TCC” (WCPFC-TCC5-2009/28).**

### **7.2 Independent Performance Review of the Commission**

400. The Executive Director noted that WCPFC5 had tasked TCC5 with developing a structure and budget for an independent performance review to be conducted in 2010. A delegation paper originally submitted by Australia in 2007 is appended to WCPFC-TCC5-2009/IP-04.

401. Australia, supported by several other CCMs, noted that WCPFC is one of only two RFMOs that have yet to undertake an independent performance review. In the view of these CCMs, although the WCPFC is recently established there would be considerable benefit to having early feedback on its effectiveness relative to the principles laid out in the Convention.

402. One CCM questioned the need for an independent performance review.

403. FSM, on behalf of FFA members, noted that if WCPFC CCMs were to be included in the review panel as proposed by Australia, FFA members should constitute more than 50% of the allotted seats and participation of FFA members must be financially supported.

404. The Executive Director noted that the review would be supported by the Secretariat as much as possible but that there are opportunity costs because support for the review would mean that staff may not be available to undertake other priority work.

**405. TCC5 reviewed “Independent Performance Review for the Commission” (WCPFC-TCC5-2009/IP-04). TCC5 recommended to WCPFC6 that it agree to implement an independent performance review beginning in early 2010 with adequate funding being provided.**

### **7.3 Cooperation with Other Organizations**

406. The Executive Director presented “Relations with other organizations” (WCPFC-TCC5-2009/29). He noted that the approved formal and informal arrangements for cooperation with other organizations have been uploaded to the key documents section of the Commission website. The draft agreement with the North Pacific Anadromous Fisheries Commission was endorsed by SC5, and TCC5 was invited to consider recommending this document to WCPFC6.

**407. TCC5 reviewed “Relations with other organizations” (WCPFC-TCC5-2009/29). TCC5 recommends to WCPFC6 acceptance of the draft MOU with NPAFC.**

408. TCC5 then discussed the draft data exchange agreement with IATTC.

409. Several CCMs commented that para. 1(c) in this draft agreement was unacceptable because it prohibits the use of any exchanged data as the basis for legal action. These CCMs

noted the linkages between this data exchange agreement and the ongoing process of agreeing cross-endorsement of observers.

**410. TCC5 recommends to WCPFC6 that it not accept para. 1(c) of the “Draft Memorandum of Cooperation on the Exchange and Release of Data between WCPFC and IATTC” and that the Commission advise IATTC to this effect.**

*Second Meeting of the Five Tuna RFMOs (WP 2009/30 (Rev. 1))*

411. The Secretariat presented a paper summarising outcomes of the second meeting of Joint Tuna RFMOs in San Sebastian, Spain held 28 June to 3 July 2009 (WCPFC-TCC5-2009/30 (Rev. 1)). Four workshops arising from the San Sebastian discussions will be convened in 2010, one of which is on management of tuna fisheries and will be hosted by FFA members.

**412. TCC5 noted the report “Second Meeting of the Five Tuna RFMOs” (WCPFC-TCC5-2009/30 (Rev. 1)). TCC5 noted that the FFA members have offered to host the workshop on RFMO management of tuna fisheries, and to provide a chair for this workshop.**

#### **7.4 Election of Officers**

**413. TCC5 recommends to WCPFC6 the nomination of Noan Pakop (PNG) as Chair of the TCC and Dr. Charles Karnella (U.S.) as Vice-Chair for the period 2010-2011.**

#### **7.5 Next Meeting**

414. Provisional dates for TCC6 of 30 September to 5 October 2010 were discussed.

**415. TCC5 recommends to WCPFC6 that TCC6 take place in Pohnpei, FSM, 30 September to 5 October 2010.**

### **AGENDA ITEM 8 — REPORT TO THE COMMISSION**

#### **8.1 Adoption of the Summary Report of the Fifth Regular Session of the Technical and Compliance Committee, and any Recommendations to the Commission**

416. The advice and recommendations of the Summary Report **were adopted** by TCC5. The Chair agreed to circulate the complete Summary Report by 13 October 2009 for CCMs’ comments. Once comments are considered and incorporated as appropriate, the Summary Report will be forwarded to WCPFC6 for its consideration.

### **AGENDA ITEM 9 — CLOSE OF MEETING**

#### **9.1 Close of Meeting**

417. The Chair thanked all delegations, observers and the Secretariat for their efforts during TCC5. The meeting was closed at 18:40 on 6 October 2009.



**Technical and Compliance Committee  
Fifth Regular Session  
1-6 October 2009  
Pohnpei, Federated States of Micronesia**

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**ATTACHMENTS**

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Attachment A:	List of Participants
Attachment B:	Agenda
Attachment C:	Statement by Korea about Greenpeace
Attachment D:	WCPFC-TCC5-2009/DP-08 (Rev.3)
Attachment E:	WCPFC-TCC5-2009/DP-09 (Rev.3)
Attachment F:	WCPFC-TCC5-2009/34 (Rev.1)
Attachment G:	WCPFC-TCC5-2009/DP-10 (Rev.2)
Attachment H:	WCPFC-TCC5-2009/DP-12 (Rev.1)

**Statement by the Korean Delegation on Greenpeace Action**

Thank you, Mr. Chairman for allowing me to make some remarks.

I would like to express my deep concern about the illegal activity of Greenpeace against a Korean longliner, which was normally operating in the high seas near the Kiribati waters in accordance with the Convention and its conservation and management measure. On September 14, 2009, the Esperanza, the vessel from Greenpeace, approached to the Korean longliner, Oryong 717, and Greenpeace activists cut the fishing gear. Greenpeace also publicized its activity on its website under the title “Greenpeace confiscates Korean tuna fishing gear”. The word “confiscates” is far from being appropriate in this case since Greenpeace has no authority to deter fishing activities. A fishing vessel should be controlled by the flag state in accordance with the Convention and its conservation and management measures, not by a NGO.

The Republic of Korea regards this Greenpeace action as definitely illegal, just like that of a pirate in the sea. This should not be justified under any circumstances.

Mr. Chairman,

Korea never opposes Greenpeace campaign toward resource conservation. However, the campaign should be fulfilled peacefully according to the international law. Korea, as a state, has responsibility to protect its people and their property. And I’m afraid that Greenpeace repeated illegal action against Korean fishing vessel could drive the Korean government to take certain reaction in the national level. And we believe, also in the level of Commission, we should not support any unlawful activities of Greenpeace within the Convention area and send a strong message not to repeat an illegal activity in the sea.

Having said so, Korea wants these statements to be recorded in the meeting report.

Thank you, Mr. Chairman.

# COMISION INTERAMERICANA DEL ATUN TROPICAL INTER-AMERICAN TROPICAL TUNA COMMISSION

8604 La Jolla Shores Drive, La Jolla CA 92037-1508, USA – www.iattc.org  
Tel: (858) 546-7100 – Fax: (858) 546-7133 – Director: Dr. Guillermo A. Compeán

26 October 2009  
Ref.: 0514-410

To: Commissioners

cc: Belize, Canada, China, Chinese Taipei, Cook Islands, European Union Kiribati



From: Guillermo Compeán, Director

Re: Pacific bluefin tuna

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In response to an increasing number of requests to the Secretariat for scientific information on Pacific bluefin tuna, attached is a statement of the views of the Commission's scientific staff on the current status of Pacific bluefin.

## **Statement of the IATTC scientific staff views about the status of the Pacific bluefin tuna stock**

The following summarizes the views of the scientific staff of the Inter-American Tropical Tuna Commission (IATTC) with respect to the current stock status of Pacific bluefin tuna, *Thunnus orientalis*.

Pacific bluefin tuna occur in temperate and tropical waters of the North Pacific Ocean, but mostly north of about 15°N. Extensive tagging data have shown frequent trans-oceanic migrations of bluefin in both directions. Spawning appears to be restricted to the western Pacific, and a fraction of the juvenile stock migrates to the eastern Pacific. As a result of this highly-migratory behavior, the hypothesis of a single stock of Pacific bluefin is accepted for management and conservation purposes.

The two regional fisheries management organizations in charge of making management recommendations for Pacific bluefin for the western and central Pacific and for the eastern Pacific are, respectively, the Western and Central Pacific Fisheries Commission (WCPFC) and the IATTC. As of this date, conservation and management recommendations adopted by the two commissions have been largely based upon the scientific work of the Pacific Bluefin Working Group (PBF-WG) of the International Scientific Committee for Tuna and Tuna-Like Species in the North Pacific Ocean (ISC).

The IATTC scientific staff's interpretation of the status of the Pacific bluefin stock, based on the most recent stock assessment by PBF-WG (see links to official ISC documents below), is as follows.

The total annual catch of Pacific bluefin has fluctuated widely within the range of 9,000-40,000 tons since the early 1950s. Since 2000, catches have averaged about 24,000 tons, close to the average historical level of 23,000 tons. The catch from the eastern Pacific represents, on average, about 30% of the recent catches of Pacific bluefin.

If commonly-used management reference points are considered in the evaluation of Pacific bluefin, the status of the stock is highly uncertain. The rate of natural mortality ( $M$ ) of adult fish has been identified as the major source of uncertainty in the Pacific bluefin assessment, and this uncertainty has been evaluated using analyses of the sensitivity of the assessment to alternative hypotheses of  $M$ .

Regardless of these uncertainties, the following trends were not affected by different assumptions regarding natural mortality:

- 1) Recruitment has fluctuated, without trend, over the assessment period (1952-2006), and does not appear to have been adversely affected by exploitation by the fishery;
- 2) Recent (2000-2006) levels of spawning biomass (mature females) are above the median historic level;
- 3) The bluefin catch, in weight and numbers, is dominated by recruits (0 years old) and juveniles (1-3 years old). The fishing mortality of recruits has gradually increased, and been above the median historic levels since the early 1990s. Fishing mortality of fish 1-3 years old has also increased during this period, but these levels have fluctuated around median historic levels.

Considering the most recent stock assessment work conducted by the PBF-WG, its remaining uncertainties, and the trends summarized above, the IATTC scientific staff considers that further increases in fishing mortality, particularly of 0-year-old recruits, are of concern, and could potentially result in overfishing. It is important that future levels of fishing mortality are not increased until the remaining uncertainties of the stock assessment are minimized.

For detailed information about the PBF-WG stock assessment work, the 8<sup>th</sup> ISC Plenary report, and the summary report of the Northern Committee of the WCPFC, see:

<http://isc.ac.affrc.go.jp/isc9/pdf/ISC9%20Plenary%20Final.pdf>

[http://isc.ac.affrc.go.jp/isc9/pdf/Annex\\_10\\_ISC9\\_PBFWG\\_July09.pdf](http://isc.ac.affrc.go.jp/isc9/pdf/Annex_10_ISC9_PBFWG_July09.pdf)

<http://www.wcpfc.int/system/files/documents/meetings/northern-committee/5th-regular-session/summary-report/NC5%20Summary%20Report%20-%20Final.pdf>

HIGHLY MIGRATORY SPECIES ADVISORY SUBPANEL REPORT ON  
RECOMMENDATIONS TO THE WESTERN AND CENTRAL PACIFIC FISHERIES  
COMMISSION (WCPFC)

The Highly Migratory Species Advisory Subpanel (HMSAS) has several recommendations for the Council to forward to the U.S. delegation to the Western and Central Pacific Fishery Commission (WCPFC) on Pacific bluefin tuna, transshipment, albacore management, and North Pacific albacore tuna.

Pacific Bluefin Tuna

The HMSAS recommends that the Pacific Fishery Management Council (Pacific Council) advise the U.S. delegation to the WCPFC that they support the statement of the Inter-American Tropical Tuna Commission (IATTC) Scientific Staff views on the Pacific bluefin that was distributed on the 26th of October 2009 (Agenda Item F.2.a Supplemental Attachment 8).

Transshipment

The HMSAS recommends that the Council should advise the U.S. delegation to the WCPFC to maintain the long-standing U.S. position that the ability for the albacore troll fleet to utilize high seas transshipping should be preserved. The current draft of the transshipping resolution presented by the Marshall Islands could be read as requiring for high seas transshipment and observer on both the fishing vessel and the carrier vessel. This is neither necessary nor feasible for the U.S. troll fleet. The U.S. could agree to placing an observer on the carrier vessel and has indicated this position to the Commission in the past. Requiring an observer on the fishing vessel is not possible due to the nature of the fishery.

Support of the Scientific Program to Support Identification of Biological Reference Points for Albacore Tuna

North Pacific albacore stock assessments are based in large part upon biological data and studies conducted in the 1950s and 1960s. The strength of these stock assessments, including associated Biological Reference Points (BRPs), is dependent upon the quality of these early studies.

The HMSAS shares the concerns of ISC fishery scientists that albacore “*vital rates*” (natural mortality, growth, and maturity) may have changed over time due to changing environmental conditions and other factors. Since those early studies, significant technological advances have improved laboratory methodologies that provide greater understanding of the importance of this basic but essential data.

The International Scientific Committee (ISC) Albacore Working Group (ISC-ALBWG) has generated a proposal for a Biological Sampling Plan for North Pacific albacore. It describes a North Pacific Ocean-wide biological sampling program for albacore that would provide the biological sampling, laboratory work and statistical analysis needed to update key albacore biological data.

The HMSAS appreciates that effective albacore management depends in part upon the quality of the science underlying the stock assessments.

**The HMSAS recommends that the Pacific Council call upon the U.S. Delegation to WCPFC to seek WCPFC support for the ISC Albacore Working Group (ISC-ALBWG) proposal for a Biological Sampling Plan for North Pacific albacore to refine the vital rates for North Pacific albacore, improve the quality of stock assessments and proceed to secure necessary funding. The HMSAS also recommends if international funding cannot be secured the U.S. should take the lead.**

#### Standardization of Fishing Effort for Management of North Pacific Albacore

The HMSAS would like to reiterate its support for documenting and establishing a standard definition for effort by Regional Fishery Management Organizations (RFMOs) for the purpose of discouraging significant growth and potential over capitalization of albacore fleets.

However, the HMSAS at this point in time sees this effort as separate from issues related to establishing annual catch limits (ACLs) or catch limits for albacore.

The HMSAS believes that ACLs may not prove to be the best approach to international management of albacore despite the fact that ACLs are the tool of choice for managing our domestic fisheries.

The reasons for this belief is that HMS fisheries are very dynamic and as has been found in other tuna fisheries, the process of establishing catch limits between nations may result in overly precautionary management and result in not achieving optimum yields.

HMS species are wide ranging and follow ocean currents subject to extreme natural variability. The ability to predict where in the ocean HMS species are likely to be available is simply not practical. National quotas as result may be an inefficient tool for realizing the optimum yield of albacore stocks. Further movements of HMS are seasonal and an undivided quota that closed fishing once overall catch levels are reached would have extreme uneven affects on individual fleets that may have access to these fish in different seasons.

The HMSAS notes that albacore stocks are highly productive and that current spawning biomasses are at very high levels, thus current effort does not appear to pose a risk to the fishery. The relative short lifespan albacore combined with its high level of productivity and abundance provides for a highly resilient stock.

The HMSAS has the following recommendations for the Pacific Council to make to the U.S. delegation related to the definition of fishing effort:

- **That the 2002-2004 catch histories provide a good benchmark for a target reference point that coincides with HMSAS prior recommendations for establishing processes that maintain effort at or near current levels with opportunities to harvest those fish.**
- **Support for continued research and funding for that research on albacore stocks and supports a three-year stock assessment cycle noting that albacore is the most important HMS species to west coast fisheries.**

- **Since current levels of effort have yet to be standardized between the RFMOs, that they be standardized no later than the 2011 albacore stock assessment.**

PFMC  
11/01/09

HIGHLY MIGRATORY SPECIES MANAGEMENT TEAM REPORT ON  
RECOMMENDATIONS TO THE WESTERN AND CENTRAL PACIFIC FISHERIES  
COMMISSION (WCPFC)

The Highly Migratory Species Management Team (HMSMT) had a discussion regarding possible Council recommendations to the U.S. delegation to the Western and Central Pacific Fisheries Commission (WCPFC).

Regarding North Pacific albacore, the HMSMT notes that the Northern Committee's draft conservation and management measure proposes to ensure that fishing effort in each of the fisheries or fleets does not increase above 2002-2004 average levels. At the April 2007 Pacific Fishery Management Council (Pacific Council) meeting, the HMSMT presented a characterization of North Pacific albacore effort by U.S. Pacific fisheries which used the period of 1996-2005 to characterize recent effort due to relatively stable landings over that period. Given significant seasonal variability in North Pacific albacore effort levels over seasons, the HMSMT is concerned that an average of effort based on a much narrower time window from 2002-2004 and choice of the effort measure may result in an inaccurate characterization of current effort levels for fisheries on North Pacific albacore.

Although commercial and recreational landings of northern bluefin tuna on the west coast are highly variable from year to year, this species continues to be economically important to west coast fishers. With this in mind, the HMSMT reiterates concerns about increased fishing mortality in recruits and juveniles. International Scientific Committee (ISC) and Inter-American Tropical Tuna Commission (IATTC) scientific staffs have expressed the opinion that further increases in fishing mortality, particularly of zero-year-old recruits, could potentially result in overfishing. Although the draft conservation measure proposed to the WCPFC by the Northern Committee to the ISC is a good first step, the U.S. should continue to work for a stronger conservation measure that specifically limits fishing mortality on age 0-3 fish with compatible measures applied in both the high seas and Regional Fishery Management Organization members nations' Exclusive Economic Zones. In addition, the Pacific Council might consider recommending to the WCPFC to encourage the IATTC to adopt complementary conservation measures for the Eastern Pacific.

PFMC  
11/01/09

## FISHERY MANAGEMENT PLAN AMENDMENT 2: ANNUAL CATCH LIMITS AND ACCOUNTABILITY MEASURES

At the April 2009 Council meeting, initial scoping occurred on developing a fishery management plan (FMP) amendment to address revised National Standard 1 guidelines as described in the Final Rule published on January 16, 2009 (74 FR 3178, see Agenda Item D.3.a, Attachment 1, April 2009). Initial scoping focused on the need to classify stocks or species identified in the Highly Migratory Species (HMS) FMP, because (1) the National Standard 1 guidelines contain an “international exception” for “stocks or stock complexes subject to management under an international agreement” and (2) the HMS FMP includes a list of “monitored species,” which, under the guidelines could be reclassified as ecosystem component (EC) species. Only maximum sustainable yield (MSY) and status determination criteria (SDCs) need to be identified for management unit species subject to the international exception. EC species are not considered “in the fishery” and no reference points need to be established.

The Highly Migratory Species Management Team (HMSMT) met June 12 and September 14 2009; the second occasion was a joint meeting with the Scientific and Statistical Committee’s (SSC’s) HMS Subcommittee. During these meetings the HMSMT developed alternatives to address these classification issues (see Agenda Item F.3.b, HMSMT Report). In doing so, they recommend a broader evaluation of management unit and monitored species in the FMP to consider re-classifying from one category to other (with monitored species becoming EC species) or dropping selected species from the FMP altogether. Another issue that was identified was assigning “primary FMP” status for selected species. The guidelines state that “Councils should choose which FMP should be the primary FMP in which management objectives, SDC, the stock’s overall ACL and other reference points for the stock are established” (§600.310(d)(7)). Since all the HMS FMP management unit species and many of the monitored species are managed species in the Western Pacific Fishery Management Council’s Pelagics FMP coordination to identify the primary FMP may be needed. In cases where the Pelagics FMP is chosen as the primary FMP the Pacific Council would not identify reference points for those stocks.

Because of these classification issues, the HMSMT has not yet developed specific recommendations or alternatives for the development of acceptable biological catches (ABCs)/annual catch limits (ACLs) and seeks further guidance from the Council. If the Council confirms the range of alternatives proposed in the HMSMT Report, then methods for identifying ABCs/ACLs will be developed for those stocks for which they may be required (i.e., not classified as an EC species, not deferred to the Pelagics FMP, and not subject to the international exception under one or more of the alternatives). Based on this guidance, a fully developed and analyzed set of alternatives would be brought to the Council in April 2010. Adopted alternatives would then be available for public review before Council final action in June 2010.

At their September 2009 meeting, the Council requested staff prepare a report on the application of new National Standard 1 guidelines across the Council’s four FMPs in order to determine how consistently they are being applied. Agenda Item F.3.a, Supplemental Attachment 1 is this

report. Although it is presented under this agenda item, it relates to Agenda Item I.2 (coastal pelagic species) and G.5 (groundfish).

**Council Action:**

**Provide guidance on alternatives for the application of revised National Standard 1 Guidelines to the HMS FMP.**

Reference Materials:

1. Agenda Item F.3.a, Supplemental Attachment 1: Consistency Analysis for ACL FMP Amendments.
2. Agenda Item F.3.b, HMSMT Report: HMS FMP Amendment 2, Application of National Standard 1 Guidelines.

Agenda Order:

- a. Agenda Item Overview Christopher (Kit) Dahl
- b. Reports and Comments of Management Entities and Advisory Bodies
- c. Public Comment
- d. **Council Action:** Provide Guidance on Alternatives for Public Review Draft

PFMC  
10/15/09

CONSISTENCY ANALYSIS FOR ANNUAL CATCH LIMIT  
FISHERY MANAGEMENT PLAN AMENDMENTS

The reauthorized Magnuson-Stevens Act (MSA) called for all Fishery Management Plans (FMP) to establish mechanisms for Annual Catch Limits (ACL), Accountability Measures (AM), and Acceptable Biological Catch (ABC) levels.

The National Marine Fisheries Service (NMFS) considered these new requirements in the context of the broad differences in the biology of marine fish species, the state of regional scientific knowledge of marine fish stocks, and other provisions of the MSA such as compliance with international treaties and agreements; and issued revised NS1 guidelines that provide for the definitional necessities to accomplish the new legislative requirements.

Notably, the NS1 guidelines provide specific flexibility for stocks that have statutory exceptions or which fall under limited circumstances which require different approaches to meet the ACL requirements. Exceptions are described in Section h(2) of NS1, and include short-lived species and those stocks under an international fishery agreement. Further, section h(3), entitled “*Flexibility in application of NS1 guidelines*” provides examples of “*circumstances that may not fit the standard approaches to specification of reference points and management measures set forth in these guidelines.*” Examples include species listed under the Endangered Species Act, aquacultured species, and stocks with unusual life histories such as Pacific salmon. Councils may propose alternative approaches, but must document their rationale for such alternative approaches.

At the September, 2009 Council meeting in Foster City, a question of consistent approach in addressing the new requirements across the four Fishery Management Plans (FMP) was brought up during agenda item E.5, Groundfish FMP Amendment 23. Council staff examined the approach being taken in each FMP, with regard to the key elements required by the new NS1 guidelines that would need treatment in an FMP Amendment. The attached consistency analysis matrix summarizes our findings and provides explanatory footnotes as necessary.

## General Consistency Analysis of Key Fishery Management Plan Amendment Elements to be Considered in Implementing New Magnuson Act Requirements and National Standard 1 Guidelines

Key FMP Amendment Elements	HMS FMP	CPS FMP	GF FMP	Salmon FMP
Changes in terminology				
OFL (Overfishing Limit)	Yes	Yes	Yes	Yes
ABC (Acceptable Biological Catch)	Yes <sup>1</sup>	Yes <sup>2</sup>	Yes	Yes
ACL (Annual Catch Limit)	Yes <sup>1</sup>	Yes <sup>3</sup>	Yes	Yes
ACT (Annual Catch Target)	Yes <sup>1,4</sup>	Yes <sup>4</sup>	Yes <sup>4</sup>	Yes <sup>4</sup>
SDC (Status Determination Criteria)	Yes <sup>5</sup>	Yes <sup>6</sup>	Yes	Yes <sup>7</sup>
International Exception	Yes <sup>8</sup>	No <sup>9</sup>	Yes <sup>10</sup>	Yes <sup>11</sup>
Ecosystem Component Species	Yes	Yes <sup>12</sup>	Yes	Yes
Accountability Measure Descriptions	Yes	Yes <sup>13</sup>	Yes	Yes
Miscellaneous FMP Changes	Yes <sup>14</sup>	N/A	N/A	Yes <sup>15</sup>

Note: The gap between OFL and ABC is a buffer to account for scientific uncertainty. The gap between ACL and ACT is a buffer to account for management uncertainty.

<sup>1</sup> Only applies to stocks that do not have an international exception.

<sup>2</sup> The SSC CPS Subcommittee is working on assessing scientific uncertainty and new harvest control rules for setting the ABC below the OFL. Additional analyses are required to determine the adequacy of the existing harvest control rule in this regard.

<sup>3</sup> Sector-specific ACLs might be considered for the directed versus live bait sectors.

<sup>4</sup> May be in place for some species and not others. For CPS and salmon, it is likely that alternatives utilizing ACT will be considered to account for management uncertainty. For salmon, ACTs may be used to account for a combination of scientific and management uncertainty.

<sup>5</sup> Current default reference points unlikely to change. If Regional Fishery Management Organizations adopt reference points for HMS, these may be incorporated into the FMP.

<sup>6</sup> SDCs exist for actively managed species and will be reviewed. SDCs for monitored stocks will need to be revisited to ensure consistency with NS1 guidelines. Existing but dated assessments of monitored species will provide information but a precautionary approach might be warranted. Recent work on market squid management will be considered as well.

<sup>7</sup> In addition to the criteria, it is likely that alternatives will consider changes to the actions required when criteria are met (i.e., de minimis fishery provisions).

<sup>8</sup> IATTC (Inter-American Tropical Tuna Commission; UNIA (United Nations Agreement on the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks); WCPFC (Western and Central Pacific Fisheries Commission).

<sup>9</sup> Although CPS are landed internationally, no international agreements currently exist.

<sup>10</sup> United States-Canada Pacific Whiting Treaty.

<sup>11</sup> PST (Pacific Salmon Treaty).

<sup>12</sup> Krill species are a candidate, but as “prohibited harvest” species in the FMP they may remain “in the fishery.” During the scoping process the Council was asked to consider and designate other forage fish that are not part of the directed fishery as EC species (e.g., Pacific saury, myctophids, Pacific sand lance, white bait smelt, and other smelts).

<sup>13</sup> Existing inseason actions may be updated to prove more streamlined inseason fishery tracking and management. Preseason AMs (restricting days open, trip limits, seasonal closures, etc.) were suggested during the scoping period.

<sup>14</sup> HMS stocks also appear in a WPRFMC FMP. Primary FMP to be determined.

<sup>15</sup> It is possible that management of some current FMP stocks would be deferred to the NPFMC (e.g., PST Chinook stocks), but none are deferred at this time.

AMENDMENT 2 TO THE FISHERY MANAGEMENT PLAN FOR U.S. WEST COAST  
FISHERIES FOR HIGHLY MIGRATORY SPECIES:  
NATIONAL STANDARD 1 GUIDELINES (ANNUAL CATCH LIMITS)  
HIGHLY MIGRATORY SPECIES MANAGEMENT TEAM REPORT

This report describes alternatives for consideration by the Council in order to address new Magnuson-Stevens Act (MSA) requirements, as amended through 2007, and the 2009 revisions of the National Standard 1 Guidelines (50 CFR 660.310). The Highly Migratory Species Management Team (HMSMT) met on June 12, and September 14, 2009; the second occasion was a joint meeting with the SSC's HMS Subcommittee. This document presents an overview of the topics recommended by the HMSMT for the Council to address:

- 1) Classification of stocks in the FMP
- 2) Application of the MSA international exception to annual catch limits (ACLs) and accountability measures (AMs) for Management Unit Species (MUS)
- 3) Determining the Primary fishery management plan (FMP) for MUS also addressed by the Western Pacific Fishery Management Council's (WPFMC) Pelagics FMP
- 4) Establishing Reference Points
- 5) Accountability Measures

The HMSMT also presents recommended approaches and criteria to use for developing alternatives under these topics.

Three factors make the exercise of classifying species an important first step before decisions are taken on establishing ACLs as required in the National Standard 1 Guidelines. First, the HMS FMP identifies both **managed species** and **monitored species**. The Guidelines introduce the concept of species "in the fishery," for which catch limits must be considered, and **ecosystem component (EC) species**, an optional stock classification category in an FMP; EC species do not require active management. The current FMP monitored species category seems to be very similar in concept to the EC category. The HMSMT decided that this FMP amendment provides an opportunity to take a comprehensive look at the current list of management unit species and monitored species to determine which should be considered "in the fishery" and subject to management and which are more appropriately classified as EC species. As part of this exercise it may become apparent that some of the species currently listed in the FMP should be dropped altogether, because they are rarely if ever caught in current west coast HMS fisheries.

Once species have been classified as managed ("in the fishery") or ecosystem components a second evaluation exercise must be conducted for the managed species, relating to the MSA "international exception" from specification of ACLs and accountability measures (AMs), as described at section 660.310(h)(2)(ii) of the Guidelines.

Third, because HMS FMP management unit species are also part of the WPFMC's Pelagics FMP, coordination between the two councils is necessary. Section 600.310(d)(7) states that Councils should choose which FMP will be the primary FMP in which management objectives and other requirements of the Guidelines will be established in cases where a stock or species is identified in more than one FMP. Thus, it will likely be necessary to decide which FMP will address the requirements of the Guidelines, with the other FMP incorporating those measures in parallel. Once these three classification decisions are made a list of species may remain for which the Pacific Council would establish ACLs.

Three preliminary sets of alternatives are outlined below that relate to the reclassification of species in the HMS FMP as discussed above. This followed by a discussion about establishing reference points in line with the Guidelines. It should be noted that NEPA requires the no action alternative; although not listed in the alternatives below it would be included in the NEPA document supporting the Council's decision-making process.

## 1 **Classifying HMS FMP Management Unit Species and Monitored Species as “in the Fishery” or Ecosystem Component Species**

The Council considered various criteria for determining the list of management unit species in the HMS FMP (HMS FMP EIS pages 3-2 – 3-4). Their preferred alternative used the following criteria:

- Occur in the Pacific Council's management area, and
- Occur in west coast HMS fisheries, and
- Are defined as HMS in the Magnuson-Stevens Fishery Conservation and Management Act or the Law of the Sea Annex I, and
- Have importance (moderate to high value) in the landings or to a fishery, and
- **Are managed by the Western Pacific Fishery Management Council** (emphasis in the original)

Since the FMP was implemented in 2004, HMS fisheries and the pattern of landings have changed somewhat on the west coast. For example, at that time there was an active pelagic longline fishery, principally composed of vessels based in Hawaii but delivering to the west coast seasonally. The west coast based fishery subsequently closed on the west coast (although Hawaii longline vessels continue to make occasional landings on the west coast). Furthermore, participation in the California drift gillnet (DGN) fishery has shown steady decline. For these reasons, it may be advisable to assess the list of managed species to determine if any may be more appropriately classified as EC species. For example, the FMP notes that bigeye and pelagic thresher sharks are included as managed species because, although they are landed in small amounts by the DGN fishery, they have poor resilience to fishing. It may be with the decline in participation in the DGN fishery that the susceptibility of these species to the current fishery is so low that their status should be reconsidered.

As described above, the HMS FMP also includes both management unit species and monitored species. The list of monitored species was compiled based on the following criteria:

- Species recorded as caught in an HMS fishery;
- Not covered by another FMP or state management regime; and/or,
- Of special concern (e.g., elasmobranchs, which have relatively low productivity)

These monitored species are distinguished from the list of management unit species in the FMP but “should be monitored on a consistent and routine basis to the extent practicable” (HMS FMP FEIS, page 3-6).

According to National Standard 1 Guidelines (600.310(d)(1)) all stocks in an FMP are considered to be “in the fishery” by default unless they are identified as ecosystem component (EC) species. However, there are several criteria that should be met for a species to be included in the EC category (§660.310(d)(5)). These are:

- Be a non-target stock/species;
- Not be subject to overfishing, approaching overfished, or overfished and not likely to become subject to overfishing or overfished in the absence of conservation and management measures; and,

- Not generally retained for sale or personal use, although “occasional” retention is not by itself a reason for excluding a species from the EC category

One of the reasons given for including EC species in an FMP is for data collection purposes, which is consistent with the intent presented in the HMS FMP. EC species are not considered “in the fishery” but Council’s should consider measures to minimize bycatch of these species consistent with National Standard 9. OY and reference points (MSY, OFL, SDC, ABC, ACL, ACT) do not need to be specified for EC species.<sup>1</sup> One of the essential purposes behind monitored species in the FMP and the EC species in the Guidelines is similar: to track species over time, periodically evaluate their status, and assess whether any management is needed under the FMP, in which case a monitored/EC species could be reclassified as management unit species that is “in the fishery.” Other purposes for identifying EC species are to allow Councils to consider measures “to minimize bycatch and bycatch mortality of EC species consistent with National Standard 9, and to protect their associated role in the ecosystem.”

The Guidelines also reference the concept of **vulnerability**. NMFS recently published a Technical Memo describing a semi-quantitative methodology for assessing the vulnerability of stocks.<sup>2</sup> Vulnerability, which “is a combination of [a stock’s] productivity, which depends upon its life history characteristics, and its susceptibility to the fishery” (600.310(d)(10)), could be used to evaluate both managed and monitored species for reclassification. For many species the decision may be clear-cut because, for example, they are highly susceptible to west coast HMS fisheries. The formal methodology could then be applied to those species where classification is less clear-cut.

Many of the monitored species are also currently Pelagics FMP management unit species. Inclusion in another FMP could also be used as a criterion for determining whether a stock should be classified as an EC or in the fishery, if both Pelagics FMP fisheries and HMS FMP fisheries are catching the same stock. It would seem that if a species is actively managed in that FMP, this would lend additional support to classifying it as an EC species if there is low susceptibility to HMS FMP fisheries. Potential management concerns would be addressed through the Pelagics FMP, which would be the primary FMP per §600.310(d)(7) in the Guidelines.

If a monitored/EC species is reclassified as a management unit species in the fishery, then it should be determined:

- If the international exception should be applied, and
- If it is also an MUS in the Pelagics FMP, which FMP should be designated the primary FMP.

The current tuna and billfish MUS should not be considered for reclassification as EC species. Even though west coast landings are small for some of these species, they are commercially important internationally and there are management concerns (overfishing or potential overfishing or overfished condition). Of the remaining species, the HMS FMP established harvest guidelines for common thresher and shortfin mako sharks, reflecting their importance in west coast commercial and recreational fisheries. This indicates that these species also should not be considered for reclassification. Table 1 shows commercial landings and recreational catches of selected MUS and monitored species that could be used in such an assessment.

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<sup>1</sup> See Table 5 for definitions of reference point acronyms. Note that the ACT is an optional reference point.

<sup>2</sup> Patrick, W. S., P. Spencer, O. Ormseth, and others. [2009]. Use of productivity and susceptibility indices to determine the vulnerability of a stock: with example applications to six U.S. fisheries. Vulnerability Evaluation Working Group Report.

**Table 1. Selected MUS and monitored species commercial landings. Species in bold italics proposed for consideration of reclassification.**

Species	Other FMP Coverage	Average Annual Commercial Landings (mt) 2000-2008	Average Annual Recreational Dead Catch (mt) 2004-2008
<b>Selected MUS</b>			
Common thresher shark, <i>A. vulpinus</i>	WP Pelagics	230.93	14.3
Shortfin mako shark, <i>Isurus oxyrinchus</i>	WP Pelagics	54.73	9.2
<b><i>Dorado (dolphin), Coryphaena hippurus</i></b>	WP Pelagics	8.18	17.2
Blue shark, <i>Prionace glauca</i>	WP Pelagics	6.34	0.3
<b><i>Bigeye thresher shark, Alopias superciliosus</i></b>	WP Pelagics	4.80	**
<b><i>Pelagic thresher shark, A. pelagicus</i></b>	WP Pelagics	1.76	**
<b>Monitored Species, commercial landings reported</b>			
<b><i>Opah, Lampris guttatus</i></b>	WP Pelagics	41.39	0.1
<b><i>Louvar, Luvarus imperialis</i></b>		2.18	0.0
<b><i>Escolar, Lepidocybium flavobrunneum</i></b>	WP Pelagics	1.72	0.0
Bat ray, <i>Myliobatis californica</i>		1.38	1.0
Leopard shark, <i>Triakis semifasciata</i>	P Groundfish	0.63	4.4
Pelagic sting ray, <i>Dasyatis violacea</i>		0.33	0.0
Wahoo, <i>Acanthocybium solandri</i>	WP Pelagics	0.28	0.0
Hammerhead sharks, Sphyrnidae	WP Pelagics	0.18	0.0
Oilfish, <i>Ruvettus pretiosus</i>	WP Pelagics	0.29	0.0
Pacific pomfret, <i>Brama japonica</i>	WP Pelagics	0.02	0.0
Black skipack,* <i>Euthynnus lineatus</i>	WP Pelagics	0.02	0.5
<b>Monitored Species, commercial landings not reported</b>			
Black marlin, <i>Makaira indica</i>	WP Pelagics	†	0.0
Blacktip shark, <i>C. limbatus</i>		–	0.0
Blue marlin, <i>Makaira nigricans</i>	WP Pelagics	–	0.0
Bullet mackerel (tuna), <i>Auxis rochei</i>	WP Pelagics	–	0.0
<b><i>Common mola, Mola mola</i></b>		–	0.0
Dusky shark, <i>C. obscurus</i>		–	0.0
Lancetfishes, Alepisauridae		–	0.0
Manta/Mobula rays, Mobulidae		†	0.0
Oarfish, <i>Regalecus glesne</i>		†	0.0
Oceanic whitetip shark, <i>C. longimanus</i>	WP Pelagics	†	0.0
Pacific bonito, <i>Sarda chiliensis</i>		–	4.2
Pacific moonfish, <i>Selene peruviana</i>		†	0.0
Pacific sailfish, <i>Istiphorus platypterus</i>	WP Pelagics	–	0.0
Pacific saury, <i>Cololabis saira</i>		–	0.0
Prickly shark, <i>Echinorhinus cookei</i>		†	0.0
Rainbow runner, <i>Elageteris bipinnulata</i>		†	0.0
Salmon shark, <i>Lamna ditropis</i>	AK Groundfish	‡	0.0
Shortbill spearfish, <i>T. angustirostris</i>	WP Pelagics	†	0.0
Silky shark, <i>Carcharhinus falciformis</i>	WP Pelagics	‡	0.0
Six gill shark, <i>Hexanchus riseus</i>	AK Groundfish	–	0.0

Species	Other FMP Coverage	Average Annual Commercial Landings (mt) 2000-2008	Average Annual Recreational Dead Catch (mt) 2004-2008
Soupsfin shark, <i>Galeorhinus galeus</i>	AK & P Groundfish	–	0.0
Spiny dogfish, <i>Squalus acanthias</i>	AK & P Groundfish	–	0.1
Whale shark, <i>Rincodon typus</i>		†	0.0

Sources:

PacFIN ft and fl tables; only landings by HMS gear types.

Average annual RecFIN HMS A+B1 catch (dead catch) weight estimates in metric tons for private and rental.

\*RecFIN does not separately report "black skipjack"; average for all skipjack catch is shown.

\*\*RecFIN does not appear to separately report the different thresher shark species; total thresher

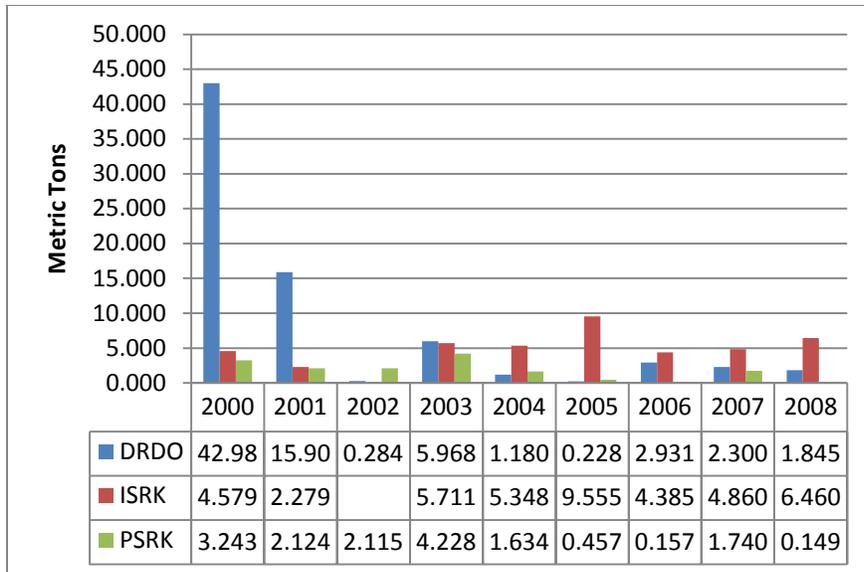
‡ Excluded because less than 3 vessels made landings during the time period.

† This species not separately identified in PacFIN.

–No landing record for this time period.

As can be seen in Table 1 landings for most of the HMS FMP monitored species are negligible. Only four species show average annual commercial landings for this recent time period over 1 mt: bat ray, escolar, louvar, and opah. However, further investigation shows that bat rays were landed by purse seine (an HMS gear) vessels targeting non-HMS species, so these landings should be discounted in terms of susceptibility to HMS fisheries. Opah landings are substantial; given the amount it is likely inappropriate to classify opah as an EC species. In addition, observer records from the drift gillnet (DGN) fishery show a high bycatch of common mola (ocean sunfish), generally exceeding target species catch. This species is almost universally discarded and observer information shows a very high proportion discarded alive, which could mean that bycatch mortality is relatively low.

Figure 1 shows commercial landings trends for dorado, bigeye thresher, and pelagic thresher for consideration of whether these MUS should be reclassified as EC species. It can be seen that commercial landings of dorado declined substantially after 2001, but this species is still an important recreational target (which likely precludes it from EC classification). Bigeye thresher shark was landed in small but relatively stable amounts over the 2000-2008 time period. Pelagic thresher shark shows a possible declining trend in terms of commercial landings.



**Figure 1. Commercial landings trends for selected HMS MUS (DRDO: dorado, ISRK: bigeye thresher, PSRK: pelagic thresher).**

In summary, addressing National Standard 1 Guidelines offers an opportunity to make an assessment of both selected management unit and monitored species to consider classification in either of these two categories, or deletion from the FMP altogether. This assessment would include some of the current management unit species where overall vulnerability is low and monitored species where landings (or bycatch as indicated by observer data) are high and/or have increased from a lower baseline in recent years. In either case the species could be reclassified to the other category. The following options are proposed:

1. Reclassify selected MUS as EC species; potential candidates are dorado, bigeye thresher, and pelagic thresher.
2. Reclassify selected monitored species as MUS; potential candidates are opah, louver, and escolar.
3. Eliminate selected monitored species from the FMP entirely. Those monitored species for which no HMS commercial landings are recorded, and recreational catch is rare, could be considered for elimination from the FMP, especially if they are an MUS in another Federal FMP.
4. The remaining monitored species would then be designated EC species.

A vulnerability analysis would be conducted to support any formal reclassification of a species. Thus, if the Council identifies which species to consider for reclassification the vulnerability analyses could focus on these species.

## 2 Application of the International Exception to Management Unit Species

Once any changes to the list of HMS FMP MUS are determined, the Council would need to decide which of these would be subject to the MSA “international exception.” Section 660.310(h)(2)(ii) of the National Standard 1 Guidelines, relating to international fishing agreements, applies to stocks or stock complexes subject to management under an international agreement, which is defined as “any bilateral or multilateral treaty, convention, or agreement which relates to fishing and to which the United States is a party.” For stocks that meet this exception, only MSY, OY, and SDCs have to be defined. ABC, ACLs, and AMs are not required. The HMSMT indentified the following alternatives for Council consideration for determining to which management unit species this exception could apply.

- 1 Apply the international exception to all of the HMS MUS

The rationale for this alternative is that both the IATTC and WCPFC (the two RFMOs that manage HMS stocks in the Pacific at the international level) include general statements in their charter documents asserting broad management authority over all HMS species. The 1949 Convention establishing the IATTC states “The United States of America and the Republic of Costa Rica considering their mutual interest in maintaining the populations of yellowfin and skipjack tuna and of *other kinds of fish taken by tuna fishing vessels* in the eastern Pacific Ocean...” (emphasis added). Article 1 of the Antigua Convention, which succeeds the 1949 Convention and will enter into force August 24, 2010, defines fish stocks covered by this Convention as “stocks of tunas and tuna-like species and other species.” Article 2 of the WCPFC Convention states “The objective of this Convention is to ensure, through effective management, the long-term conservation and sustainable use of highly migratory fish stocks in the western and central Pacific ...” Article 1 defines highly migratory fish stocks as “all fish stocks of the species listed in Annex 1 of the 1982 Convention occurring in the Convention Area, and such other species of fish as the Commission may determine.” All of the HMS MUS are found on the referenced Annex 1 list.

Furthermore, the WPFMC has indicated that it will apply the international exception to all MUS in their Pelagics FMP (personal communication from Paul Dalzell, Senior Staff Scientist, WPFMC) and all HMS FMP MUS are also Pelagics FMP MUS. As discussed above, §660.310(d)(7) of the Guidelines addresses situations where a species appears in two or more FMPs. Applying the international exception to all HMS FMP MUS would be consistent with the WPFMC’s approach. The two Councils should ensure consistency in their treatment of these stocks with respect to the international exception and, as necessary, agree upon which will become the primary FMP (see Section 3 below).

2. Apply the international exception to all MUS except for common thresher shark and shortfin mako shark

Under this alternative the international exception would be applied to all MUS except for common thresher shark and shortfin mako shark, because of their significance in west coast EEZ fisheries. In addition to tuna and billfish MUS the international exception would cover bigeye thresher shark, blue shark, pelagic thresher shark, and dorado. The excluded shark species are landed in small quantities by west coast commercial HMS fisheries, as are dorado. It should be noted that both the IATTC and WCPFC have adopted conservation measures related to sharks (C-05-03, CMM-2008-06). The WCPFC identifies “key shark species” as blue shark, oceanic whitetip shark, mako sharks and thresher sharks.<sup>3</sup> The HMS FMP established harvest guidelines for common thresher and shortfin mako sharks, to which the international exception would not apply. This reflects the fact that west coast fisheries catch these species in more than negligible quantities. Thus, even though there is evidence that RFMOs are managing shark species included in the HMS FMP, it may be appropriate to consider adopting ACLs (and perhaps reevaluating the current harvest guidelines) for these two species.

3. Apply the international exception to tunas and billfish but not to sharks and other species (after any reclassification)

This alternative would define the term “internationally managed” more rigorously based on whether an RFMO regularly assesses the stock. Regular assessment indicates that the RFMO may have an interest in actively managing harvest. In addition, the HMS FMP explicitly states that these species are not managed internationally (see Chapter 3 of the 2003 HMS FMP FEIS). On the other hand, the lack of active management (i.e., conservation measures) for a particular species (such as dorado) may indicate that the

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<sup>3</sup> Silky shark was also intended to be included but was omitted from the conservation measure due to an editorial error.

RFMO has concluded that the stock is not currently overexploited and specific measures are unnecessary rather than that they have no intention of managing the stock. As noted in Table 2 below, blue shark has been assessed, but not under the auspices of an RFMO. However, the Northern Committee of the WCPFC has included in their work plan a request for assessment by the ISC of selected shark species. Under this alternative, the international exception would be applied to the tuna and billfish MUS but not to shark MUS or dorado. Table 2 shows HMS FMP MUS and the organizations conducting stock assessments.

**Table 2. Summary of RFMO stock assessments of HMS FMP MUS.**

Species	Assessed by (date of most recent)
<b>Tunas</b>	
Albacore tuna, <i>Thunnus alalunga</i> (NPO)	ISC (2007)
Bigeye tuna, <i>T. obesus</i> (EPO, WCPO)	WCPFC, IATTC (2009, 2008)*
Skipjack tuna, <i>Katsuwonus pelamis</i> (EPO, WCPO)	WCPFC, IATTC (2009, 2008)*
Bluefin tuna, <i>T. orientalis</i> (NPO)	ISC (2008)
Yellowfin tuna, <i>T. albacores</i> (EPO, WCPO)	WCPFC, IATTC (2009, 2007)*
<b>Billfish</b>	
Striped marlin, <i>Tetrapterus audax</i> (NPO, EPO)	ISC, IATTC (2007, 2003)
Swordfish, <i>Xiphias gladius</i> (NPO, SEPO)	ISC, IATTC (2009, 2006)
<b>Sharks</b>	
Bigeye thresher shark, <i>Alopias superciliosus</i>	
Blue shark, <i>Prionace glauca</i>	NMFS (2009)
Common thresher shark, <i>A. vulpinus</i>	NMFS (2002)
Pelagic thresher shark, <i>A. pelagicus</i>	
Shortfin mako shark, <i>Isurus oxyrinchus</i>	
<b>Other</b>	
Dorado (dolphin), <i>Coryphaena hippurus</i>	

\*These stocks are generally assessed annually. Stock assessments by the IATTC are typically reviewed in May of each year at their Stock Assessment Workshop. The WCPFC Scientific Committee reviews stock assessments typically in August. Assessments for tropical tunas are conducted by the SPC Oceanic Fisheries Program on behalf of the WCPFC.

**Table 3. Summary of alternatives for applying the international exception.**

Species	Alternative 1	Alternative 2	Alternative 3
<b>Tunas</b>			
Albacore tuna, <i>Thunnus alalunga</i>	X	X	X
Bigeye tuna, <i>T. obesus</i>	X	X	X
Skipjack tuna, <i>Katsuwonus pelamis</i>	X	X	X
Bluefin tuna, <i>T. orientalis</i>	X	X	X
Yellowfin tuna, <i>T. albacares</i>	X	X	X
<b>Billfish</b>			
Striped marlin, <i>Tetrapterus audax</i>	X	X	X
Swordfish, <i>Xiphias gladius</i>	X	X	X
<b>Sharks</b>			
Bigeye thresher shark, <i>Alopias superciliosus</i> *	X	X	
Blue shark, <i>Prionace glauca</i>	X	X	
Common thresher shark, <i>A. vulpinus</i>	X		
Pelagic thresher shark, <i>A. pelagicus</i> *	X	X	
Shortfin mako shark, <i>Isurus oxyrinchus</i>	X		
<b>Other</b>			
Dorado (dolphin), <i>Coryphaena hippurus</i> *	X	X	
<b>MUS Candidate Species</b>			
Opah	X	X	
Common Mola	X	X	
Louvar	X	X	
Escolar	X	X	

\*Considered for reclassification as EC species, in which case reference points, including ACLs, are not required.

### 3 Determining the Primary FMP for Management Unit Species

As noted above, §600.310(d)(7) in the Guidelines state that “Councils should choose which FMP should be the primary FMP in which management objectives, SDC, the stock’s overall ACL and other reference points for the stock are established.” Since all the HMS FMP management unit species and many of the monitored species are managed species in the WPFMC’s Pelagics FMP coordination to identify the primary FMP may be needed. One approach would be to base this decision on assessed stocks rather than species. For the tropical tunas (bigeye, skipjack, and yellowfin) the WCPFC produces stock assessments based on the stock for the Western Pacific while the IATTC does the same for the Eastern Pacific.<sup>4</sup> The Pelagics FMP Annual Report (SAFE document) reports SDCs for Pelagics FMP MUS; generally WCPO stocks (or NPO/SPO stocks) are reported, but not EPO stocks. In addition, at the NMFS regional level there has been an informal division of responsibility at the stock level, so that SWR/SWFSC assumes responsibility for EPO stocks (and some NPO stocks like albacore) while PIRO/PIFSC covers the WCPO stocks, SPO stocks, and some NPO stocks (lead responsibility for interfacing with the RFMOs is similarly divided). If management unit species are identified at the stock level then the determination of which should be designated the lead FMP could be made to parallel the current informal division of assessment responsibility between the two NMFS regions and be based on the separate stock assessments conducted by the RFMOs. Table 4 suggests possible primary FMP assignments based on these considerations. In any case, for those species subject to the international exception there seems little risk of conflict even if a primary FMP is not identified at the stock level, because both Councils are likely to rely on the same

<sup>4</sup> Although these stocks may not be separate from a biological or population genetics standpoint, there may be relevance to the division from a management standpoint.

RFMO sponsored stock assessments to identify MSY and SDCs, and determination of the ABC and ACL would be unnecessary. Perhaps the only requirement where coordination would be necessary would be the identification of OY since this is a policy rather than strictly science question.

**Table 4. Possible division of lead FMP responsibility.**

Species	Possible Primary FMP based on Science Center Responsibility
<b>Tunas</b>	
Albacore tuna, <i>Thunnus alalunga</i> (NPO)	HMS FMP
Bigeye tuna, <i>T. obesus</i> (EPO, WCPO)	EPO: HMS FMP / WCPO: Pelagics FMP
Skipjack tuna, <i>Katsuwonus pelamis</i> (EPO, WCPO)	EPO: HMS FMP / WCPO: Pelagics FMP
Bluefin tuna, <i>T. orientalis</i> (NPO)	Pelagics FMP
Yellowfin tuna, <i>T. albacores</i> (EPO, WCPO)	EPO: HMS FMP / WCPO: Pelagics FMP
<b>Billfish</b>	
Striped marlin, <i>Tetrapterus audax</i> (NPO, EPO)	Pelagics FMP / HMS FMP (EPO)
Swordfish, <i>Xiphias gladius</i> (NPO, SEPO)	Pelagics FMP
<b>Sharks</b>	
Bigeye thresher shark, <i>Alopias superciliosus</i>	H Pelagics FMP
Blue shark, <i>Prionace glauca</i>	Pelagics FMP
Common thresher shark, <i>A. vulpinus</i>	HMS FMP
Pelagic thresher shark, <i>A. pelagicus</i>	Pelagics FMP
Shortfin mako shark, <i>Isurus oxyrinchus</i>	HMS FMP
<b>Other</b>	
Dorado (dolphin), <i>Coryphaena hippurus</i>	HMS FMP* or Pelagics FMP

\*Potential candidate for reclassification as EC species under HMS FMP.

## 4 Establishing Reference Points and Accountability Measures

The National Standard 1 Guidelines identify the various reference points (see Table 5 below) that must be specified for stocks “in the fishery,” which will include the HMS FMP’s MUS. As noted above, although the MSA international exception to ACLs and AMs may be applied to some HMS FMP MUS, MSY, OY, and SDCs must nevertheless be specified for these stocks. The stocks “in the fishery” (i.e., HMS MUS) for which this exception does not apply are required to have all of the reference points described in Table 5 specified. However, as mentioned above, because HMS FMP MUS are also in the WPFMC Pelagics FMP, identification of a primary FMP at the stock level could be made. In cases where the Pelagics FMP is the primary FMP the WPFMC would identify reference points and the application of the international exception for those stocks (see Table 4).

### 4.1 Current Reference Points in the HMS FMP

The HMS FMP identifies values for MSY and OY for the MUS. These are listed in Table 6. These values should be reviewed to determine if they remain consistent with more recent stock assessments. Also, if the approach of assigning FMP responsibility by stock is used, then the MSY, OY and OFL values should be stock-specific rather than Pacific-wide. It may be advisable to regularly report these values (along with the OFL) in the HMS SAFE document.

The HMS FMP also defines default formulas for the maximum fishing mortality threshold (MFMT) and the minimum stock size threshold (MSST), which are status determine criteria (SDC). MFMT is equal to  $F_{MSY}$ . MSST is defined as:

- $0.5B_{MSY}$  when natural mortality ( $M$ )  $> 0.5$
- $(1-M)B_{MSY}$  when  $M \leq 0.5$

The revised Guidelines introduce a new reference point, the overfishing limit (OFL) that may be used as an alternative reference point in determining the overfishing status of a stock. The Guidelines explain that overfishing may be determined as either  $F > MFMT$  or annual catch  $> OFL$ . Recognizing that Pacific RFMOs have begun to consider establishing formal reference points for stocks that they actively manage,<sup>5</sup> these default SDCs could be retained in the FMP until such time as RFMOs formally adopt reference points for a stock. The RFMO reference points could then be either evaluated for inclusion into the HMS FMP or a mechanism could be established under this FMP amendment whereby they would be automatically incorporated into the FMP when adopted. The FMP also describes a default control rule for setting fishing mortality according to stock biomass (or that of the spawning stock) in order to retain it at or above  $B_{MSY}$  or return it to this level if below. The FMP also describes an alternative approach for setting a proxy OY value for vulnerable species, which would be 75 percent of MSY. According to the FMP, all the managed shark species are considered vulnerable.

**Table 5. Items to include in FMPs consistent with the NS1 Guidelines. Definitions and descriptions summarize text in the Guidelines.**

Maximum Sustainable Yield (MSY) <i>600.310(e)(1)</i>	The largest long-term average catch or yield that can be taken from a stock or stock complex under prevailing ecological, environmental conditions and fishery technology characteristics (e.g., gear selectivity)
Optimum Yield (OY) <i>600.310(e)(3) and (e)(3)(iv)</i>	A decisional mechanism to address MSA and FMP objectives. OY definition(s) must account for the need to prevent overfishing. A long-term average amount of desired yield that accounts for economic, social, and ecological factors... an FMP must contain ACLs and AMs to achieve OY. See (e)(3)(iii) and (iv) for factors to be considered in determining OY.
Status Determination Criteria (SDC): <i>600.310(e)(2)</i>	The FMP must describe which one of two methods will be used to determine overfishing status: (1) $F > MFMT$ or reasonable proxy or (2) $Catch > OFL$ ; in both cases exceeds the threshold for 1 year or more
Maximum Fishing Mortality Threshold (MFMT)	The level of fishing mortality ( $F$ ), on an annual basis, above which overfishing is occurring
Overfishing Limit (OFL)	Annual amount of catch that corresponds to the estimate of MFMT applied to a stock or stock complex's abundance expressed in terms of numbers or weight of fish
Minimum Stock Size Threshold (MSST)	The level of biomass below which the stock or stock complex is considered overfished

<sup>5</sup> For example, the WCPFC Northern Committee is planning a 2-day workshop in 2010 to discuss reference points for stocks under their purview (albacore, bluefin, and swordfish in the North Pacific).

Acceptable Biological Catch (ABC) / ABC Control Rule <i>600.310(f)</i>	ABC is a level of a stock or stock complex's annual catch that accounts for the scientific uncertainty in the estimate of OFL and any other scientific uncertainty and should be based on the ABC control rule. ABC control rule means a specified approach to setting ABC for a stock or stock complex as a function of the scientific uncertainty in the estimate of OFL and any other scientific uncertainty. Councils should develop a process for receiving scientific information and advice used to establish ABC including the body that will apply the ABC control rule (calculate the ABC) and the review process. The SSC must recommend the ABC to the Council.
Annual Catch Limit (ACL); mechanisms for specifying ACLs <i>600.310(f)</i>	The level of annual catch of a stock or stock complex that serves as the basis for invoking AMs. ACL cannot exceed ABC but may be divided into sector-specific ACLs
Accountability Measures (AMs) <i>600.310(g)</i>	Management controls to prevent ACLs from being exceeded and to correct or mitigate overages of the ACL if they occur. There are two categories: inseason AMs and AMs for when the ACL is exceeded.
Annual Catch Target (ACT) (optional) <i>600.310(f)(6) &amp; (g)(2)</i>	An optional AM. An amount of annual catch that is the management target of the fishery, and accounts for management uncertainty in controlling catch at or below the ACL.

**Table 6. MSY estimates and OYs from the HMS FMP EIS (2003), Table 3-5 (estimates in mt x 1,000).**

Species	MSY (or proxy)	OY (or proxy)	Source of MSY estimate
<b>Tunas</b>			
Albacore tuna, <i>Thunnus alalunga</i> (NPO)	120	(120)	Average MSY over low and high productivity periods (Bartoo and Shiohama 1985, NPALW 2000).
Bluefin tuna, <i>T. orientalis</i> (NPO)	(20)	(15)	Mean of 1995-99 stock-wide catches.
Bigeye tuna, <i>T. obesus</i> (EPO, WCPO)	79	(79)	MSY between 66 and 92 K mt from production models (IATTC 2000).
Yellowfin tuna, <i>T. albacores</i> EPO, WCPO)	270	(270)	From production model (Tomlinson 2001, IATTC 2000).
Skipjack tuna, <i>Katsuwonus pelamis</i> (EPO, WCPO)	(190)	(190)	Mean of 1995-99 stock-wide catches.
<b>Billfish</b>			
Striped marlin, <i>Tetrapterus audax</i> (NPO, EPO)	4.5	(3.4)	MSY and catches from Hinton and Bayliff (2002).
Swordfish, <i>Xiphias gladius</i> (NPO, SEPO)	(12.5)	(12.5)	Average of 1995-99 catches; an analytically derived MSY is pending.
<b>Sharks</b>			
Common thresher shark, <i>A. vulpinus</i>	(0.45)	(0.34)	LMSY proxy by Population Growth Rate (PGR) method; is a minimal estimate of MSY
Pelagic thresher shark, <i>A. pelagicus</i>	(0.020)	(0.015)	LMSY proxy as average catch during strong El Niño years (here 1983, 1984, and 1997) when species presence became significant.
Bigeye thresher shark, <i>Alopias superciliosus</i>	(0.04)	(0.03)	Average catch 1982-99.
Shortfin mako shark, <i>Isurus oxyrinchus</i>	(0.20)	(0.15)	LMSY proxy as average 1981-1999 regional catch; is a minimal estimate of MSY

Blue shark, <i>Prionace glauca</i>	~120	(90)	After Kleiber et al.
<b>Other</b>			
Dorado (dolphin), <i>Coryphaena hippurus</i>	(0.45)	(0.45)	Mean of 1995-99 stock-wide catches.

Note: The HMS FMP FEIS did not provide references for the citations listed above.

## 4.2 Information on Stock Status for Selected MUS

Chapter 3 in the 2004 HMS FMP FEIS provides information on the status and biology of HMS MUS. This offers a starting point for determining how ACLs might be identified for those MUS for which the international exception may not be applied. Summaries are provided below, generally in descending order of commercial fishery importance and overall knowledge about the status of the stock.

### 4.2.1 Common Thresher Shark

The HMS FMP established a harvest guideline of 340 mt. That value represents a precautionary reduction from local MSY (LMSY). The FMP FEIS states:

A harvest guideline is proposed here based on estimates of local maximum sustainable yield (LMSY), i.e., as obtained from the stock portion presently accessed by the West Coast drift gillnet fishery (LMSYs necessarily underestimate stock-wide MSY). The LMSY, as estimated here (Au and Show, SWFSC, La Jolla, work in progress), is actually a proxy for true LMSY, as the method does not use exploitation rate based on mortality rates (yet undetermined) to estimate size of the locally exploited population from the catch. Rather, it uses the population growth rate (PGR) as determined from the thresher's rebound potential  $r$  (Smith et al. *In press*). PGR is less than true local exploitation rate  $(= (F/Z)(1-e^{-Z}))$  (A.E. Punt, Univ. Washington, pers. comm. 11/9/01), as it refers to the total population rather than the exploited ages only, and it is specifically the *sustainable* rate. It is thus a conservative estimate of exploitation rate. The PGR method estimates sustainable production in terms of potential surplus population growth.

The harvest guideline is the proxy OY equal to 75 percent of the mid-point LMSY, 450 mt. It is less than the 578 mt coast-wide guideline adopted by the Pacific States Marine Fisheries Commission in 1990.

### 4.2.2 Shortfin Mako Shark

The shortfin mako is widely distributed in pelagic waters, and the population fished off the west coast is likely part of a stock that extends considerably to the south and west. West coast HMS fisheries take mainly juveniles, of unknown proportion to the overall stock. Clear effects of exploitation have not been shown, and the local stock is tentatively taken to be not overfished ( $B/B_{MSY} > 1.0$ ;  $F/F_{MSY} < 1.0$ ). But it is important to protect critical life stages of sharks, and so a harvest guideline of 150 mt, 75 percent of the 1981-99 average catch in the EEZ, was adopted as part of the HMS FMP pending better information, especially from the fisheries off Mexico.

### 4.2.3 Blue Shark

The blue shark is probably the most commonly caught shark in the west coast EEZ and Pacific-wide; however, it is usually not landed because of low market value. Observer records show that it is the third most commonly caught species in the drift gillnet fishery, after common mola and the target species, swordfish. A stock assessment was published in February 2009 by the Pacific Islands Fisheries Science

Center.<sup>6</sup> This stock assessment presumes separate north and south Pacific stocks. The study area for this stock assessment extends to 130° W longitude to encompass Japanese and Hawaiian longline fisheries, but it generally does not encompass fisheries occurring in the west coast EEZ. However, catches in the EEZ likely represent a small portion of stock-wide catch, so the results of the stock assessment could be considered if it were decided to set an ACL for west coast HMS fisheries. Two stock assessment models were used, a Bayesian surplus production model and one using MULTIFAN-CL which integrated data sources from multiple fisheries. The results were then compared. The study concluded:

The trends in abundance in the production model, and all alternate runs of the integrated model, show the same pattern of decline in the 1980s followed by recovery to above the level at the start of the time series. It must be acknowledged that the base-case results by the integrated model analyses indicates some probability (around 30%) that biomass is less than *BMSY* (overfished) and that there is a lesser probability that fishing mortality is greater than *FMSY* (overfishing is occurring). There was a slight increasing trend in the recent total effort expended by longline, and this trend may have continued thereafter. It would be prudent to assume that the population is at least close to *MSY* level and fishing mortality may be approaching the *MSY* level in the future.

As discussed above, it may be more appropriate to assign lead responsibility for blue shark to the WPFMC and NMFS Pacific Islands Region, in which case the HMS FMP would reflect any reference points incorporated in the WPFMC's Pelagics FMP.

#### 4.2.4 Dorado

The HMS FMP FEIS provided the following status summary for dorado:

The dorado is a fast-growing, widespread species of tropical seas that occurs seasonally in the SCB. Regional populations are not regularly reviewed by the IATTC or SPC and presently there is no management and no quotas. The population is presumed to be healthy. The recent average catch level, 450 mt, is taken here as a proxy *MSY* and *OY* for the EPO. Considering that West Coast fishers are accessing only the northern fringe of an extensive regional population, a population that should be able to rebound quickly from exploitation even if significantly reduced, and that its West Coast fishing is primarily recreational, no harvest guideline is recommended at this time.

Figure 2 shows dorado catches in the EPO according to the United Nations Food and Agriculture Organization's Fishstat Plus program. According to this data set overall landings by the U.S. averaged 372 mt for the 1998-2005 time period, or about 3 percent of region-wide catches; region-wide catch according to these data averaged 11,892 mt. Note that this is considerably larger than the estimated contained in the HMS FMP and noted above of 450 mt for stock-wide catch.<sup>7</sup> Information from NMFS's Office of Science & Technology commercial landings database shows that most U.S. landings in the Pacific are in Hawaii: California landings for the 2000-2008 time period averaged 8 mt while Hawaii's averaged 520 mt. For this reason, it may be appropriate to consider giving primary FMP status to the WPFMC's Pelagics FMP for this species as well.

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<sup>6</sup> Kleiber, P., Clarke, S., Bigelow, K., Nakano, H., McAllister, M., and Takeuchi, Y. 2009. North Pacific Blue Shark Stock Assessment. Feb. 2009. NOAA Tech. Memo. NMFS-PIFSC-17.

<sup>7</sup> The current HMS SAFE document contains an updated estimate for stock-wide catch of 4,000-11,000 mt per year. The SAFE used catches from FAO Area 77 while all eastern Pacific areas in Fishstat Plus were used to arrive at the data presented here. This likely encompasses a larger region than Area 77.

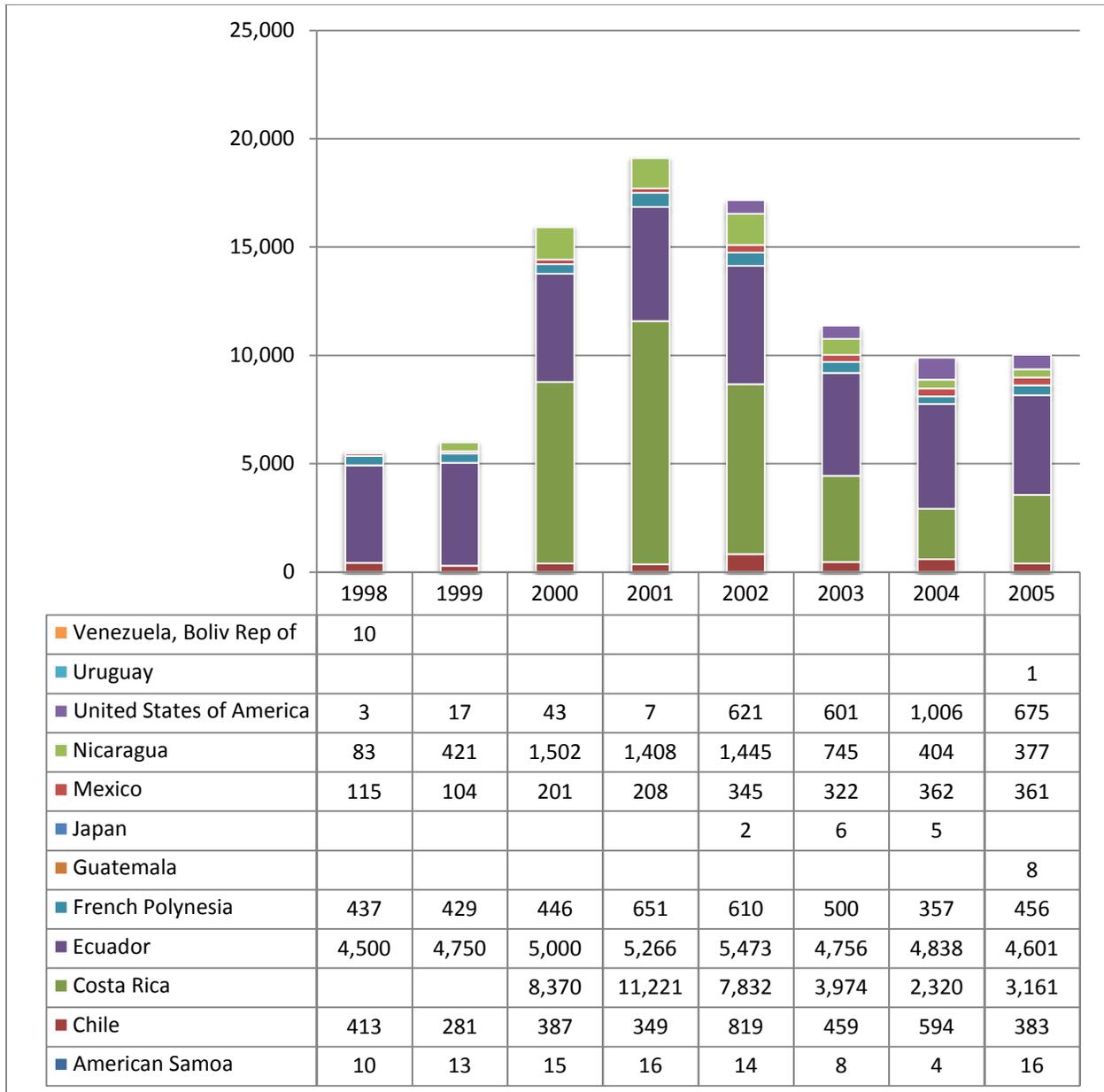


Figure 2. Dorado catches in the Eastern Pacific by nation (source: UN FAO Fishstat Plus).

#### 4.2.5 Bigeye and Pelagic Thresher Sharks

The HMS FMP FEIS provides the following information for these two stocks:

Little is known of the biology and status of these sharks, and especially of their reproductive requirements. Individuals taken within the management area are thought to be on the edges of their habitat ranges, including depth-wise for the bigeye thresher which ranges into mesopelagic waters. They are minor components of West Coast fisheries, taken incidentally and presumably not overexploited, at least locally. The bigeye thresher occurs regularly but in low numbers (~9% of common thresher catch) in drift gillnet catches, whereas the pelagic thresher is taken mainly in warm-water years. Both species are caught off Mexico, and the pelagic thresher is reported to be

an important component of Mexican shark catches. These species appear to have thin or semi-isolated populations Pacific-wide. Present West Coast catches total under 50 mt/yr.

Pelagic and bigeye thresher populations occur throughout the tropical and temperate Pacific but are not managed internationally, and there are no quotas. They are thought to be more vulnerable to overfishing than the common thresher shark. Little is known of their abundance and stock structure. Considering their minor importance in West Coast catches and their proxy LMSYs (average catch levels are 20 and 40 mt respectively) that are likely substantial underestimates of stock-wide MSYs, no harvest guidelines are recommended at this time.

As discussed above, it is recommended that these two species be considered for re-designated as EC species. If additional information (such as a vulnerability analysis) indicates such as designation would be appropriate, then setting an ACL would be unnecessary (as would be the case if the international exception were applied).

### **4.3 Considerations for Developing ACLs**

There is little or no stock assessment information for most of the stocks for which ACLs might be considered, because of their wide distribution, lack of importance for major commercial HMS fisheries, and, as a result, limited data on catches. In these instances, the general approach for setting an ACL could be similar to how the OYs were identified in the HMS FMP. For these stocks (all except common thresher) either historical stock-wide or regional average catch is used as a proxy for MSY and OY in the HMS FMP. Setting ACLs requires a more explicit accounting for scientific uncertainty: the reduction from the OFL (which corresponds to MSY) to the ABC depends on how scientific uncertainty is accounted for in the ABC control rule. The ACL would normally be set equal to the ABC, but may be set lower for various reasons similar to those considered when OY is reduced from MSY (biological, socioeconomic, ecological, etc.). The ACT, which is optional, is explicitly a tool to take into account management uncertainty (e.g., poor catch accounting, limited catch control tools). For these un-assessed stocks the OFL could be set equal to historical average catch, but a relatively large reduction from ABC would be implicated because of the high level of uncertainty about the actual MSY value. This could put an unnecessary constraint on harvests if, for example, historical catches are in fact well below MSY.

### **4.4 Current Accountability Measures in the HMS FMP**

Accountability measures are management controls to prevent ACLs from being exceeded and to respond to a situation where an ACL has been exceeded. Inseason AMs include monitoring and management measures to prevent catch from exceeding ACLs, and may include annual catch targets (ACTs). If an ACL is exceeded more than once every four years then the system of ACLs and AMs should be re-evaluated and modified as necessary.

Chapter 5 in the HMS FMP describes a framework for the periodic specification of quotas, harvest guidelines, and an array of management measures. In section 6.1.7, describing quotas and harvest guidelines, the FMP authorizes the following procedure:

The HMS Management Team, at its annual meeting in May or June, will review the catches from the previous statistical year (April 1-March 31) and compare those catches with the established harvest guidelines; evaluate the status of the stocks; and develop recommendations for management measures, as appropriate. These management measures will be presented to the Council as part of the SAFE document at its June and/or September meetings to be reviewed and

approved for public review. Final action on management measures would be scheduled for the Council's November meeting.<sup>8</sup>

The specification process operates on a 2-year, or biennial, schedule. The fishing year is defined as April 1-March 31 and the current biennial period ends on March 31, 2011. The Council has considered implementation or adjustment of management measures for two biennial periods since implementation of the HMS FMP (2007-2009 and 2009-2011). For the first cycle the Council adopted new recreational bag limits for albacore tuna and modified vessel marking requirements for CPFV vessels. For the second cycle the Council considered measures to constrain the recreational catch of common thresher shark (time/area closures, bag limits) but ultimately did not recommend new regulatory measures.

This framework provides flexibility to respond to changing conditions in fisheries. It is very similar to the specifications framework authorized by the Groundfish FMP. As part of the biennial process, routine management measures can be identified. These can be implemented or modified inseason through a single Council meeting and one Federal Register notice ("notice actions") or two Council meetings and one Federal Register notice ("abbreviated rulemaking"). To date the Council has not done any inseason management under the HMS FMP, because no pressing resource conservation issues have arisen that can be dealt with unilaterally (without international action).

This framework is readily adaptable to the requirements of the Guidelines. The FMP would still need to be amended to explain how the AMs would be related to the ACLs in terms of their function in preventing an ACL from being exceeded or addressing situations where post-season accounting shows an ACL has been exceeded.

If ACLs were established for any MUS, perhaps the more pressing issue would be whether current catch monitoring systems are sufficient to ensure that an ACL would not be exceeded. One example would be if common mola was reclassified as an MUS and an ACL applied to the stock. This species occurs as bycatch in the DGN fishery, so landings information cannot be used to monitor catches. The DGN fishery is subject to partial observer coverage so it would be necessary to determine whether a statistically robust estimate of total catch can be derived given the level and pattern of observer coverage. Similarly, recreational catch is an important component of total catch for almost all HMS MUS. Some components of the recreational fishery may be poorly monitored. For some species many fishermen practice catch-and-release, and post-release mortality rates are not well estimated.<sup>9</sup> Finally, the timeliness of data availability could be an issue, for example, if there were a need to constrain catch inseason to prevent an ACL from being exceeded.

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<sup>8</sup> Although this paragraph uses the term "management measures," given the context it may be assumed that the specific reference would be to quotas or harvest guidelines.

<sup>9</sup> NMFS SWFSC has been conducting ongoing research to improve estimates of post-release mortality for recreational caught sharks.

HIGHLY MIGRATORY SPECIES ADVISORY SUBPANEL  
FISHERY MANAGEMENT PLAN AMENDMENT 2: ANNUAL CATCH LIMITS AND  
ACCOUNTABILITY MEASURES

The Highly Migratory Species Advisory Subpanel (HMSAS) reviewed the Highly Migratory Species Management Team's (HMSMT's) Report in the briefing book and their Supplemental Report on this Agenda Item and have the following comments.

The HMSAS supports applying the international exception to all HMS Management Unit Species and recommends the deletion of Alternative 3 in section 2 of the HMSMT Report. The HMSAS further requests more analysis and clarification from the HMSMT of the two remaining alternatives, 1 and 2.

With regard to the discussion in section 3 of the HMSMT Report, the HMSAS recommends that the HMS Fishery Management Plan (FMP) be the primary FMP for swordfish and requests more information on the stock structure and assessment information on striped marlin before determining which FMP should be designated the primary FMP.

HMSAS has no comment on the discussion in Section 4 of the HMSMT Report (discussing reference points and accountability measures) at this time due to a lack of information. Additional information is requested from the HMSMT.

PFMC  
11/01/09

HIGHLY MIGRATORY SPECIES MANAGEMENT TEAM REPORT ON  
FISHERY MANAGEMENT PLAN AMENDMENT 2: ANNUAL CATCH LIMITS AND  
ACCOUNTABILITY MEASURES

The Highly Migratory Species Management Team (HMSMT) discussed preliminary alternatives for consideration by the Council to address new Magnuson-Stevens Act (MSA) requirements under National Standard 1 (NS1) guidelines (Agenda Item F.3.b HMSMT Report). The HMSMT Report summarizes the following topics recommended for the Council to address:

- 1) Classification of stocks in the HMS FMP as **management unit species (MUS)** or **ecosystem components (EC)**
- 2) Potential application to MUS of the MSA international exception for annual catch limits (ACL) requirements
- 3) Determining the primary fishery management plan (FMP) for management unit species (MUS) covered by both the HMS FMP and the Western Pacific Fishery Management Council's (WPFMC) Pelagics FMP
- 4) Establishing biological reference points and accountability measures

1. Classification of stocks in the HMS FMP

Section 1 of the HMSMT Report addresses the need to classify species covered in the HMS FMP according to NS1 guidelines. The HMSMT recommends the following two options:

1. All current MUS are considered "in the fishery" and all monitored species are classified as ecosystem component species.
2. Conduct a vulnerability analysis on selected MUS, monitored species, and any new species found taken with HMS gear to determine reclassification.

Table 1 provides average commercial landings and average annual recreational dead catch for a list of MUS and monitored species in the original plan. Information in Table 1 will need to be supplemented with observer data on the amount and disposition of catch, recreational catch and release data, and indicators of annual variability in the catch levels such as the ranges or standard deviations before the impact of HMS FMP fisheries can be appropriately assessed.

2. Application of the international exception

Section 2 of the HMSMT Report considers applicability of the international exception. A summary of possible alternatives for applying the international exception are shown in Table 3, where X's in the column for each alternative denote species to which the international exception would apply. Alternative 1 is consistent with the WPFMC's decision to apply the international exception to all species in the Pelagics FMP.

Alternative 2 would apply the international exception to all species except certain sharks. Alternative 3 would only apply the exception to tunas and billfish assessed by the international Regional Fishery Management Organizations (RFMOs).

The HMSMT recommends conducting vulnerability analyses to determine whether setting an ACL may be appropriate even for stocks subject to the international exception. Candidate species include common thresher, shortfin mako and blue shark.

The HMSMT further noted during their discussion that applying the international exception from ACL requirements does not preclude using catch limits or other management measures that are necessary and appropriate for conservation and management of the fishery (MSA Section 303a).

### 3. Determining the Primary FMP

Section 3 of the HMSMT Report discusses considerations in determining which FMP is primary for MUS which are included in both the HMS and Pelagics FMPs. The HMSMT noted some corrections to Table 4 during their discussion. Bluefin tuna and blue shark are managed by both Councils. This fact should be taken into consideration in determining primary designation.

A conference call was held with the WPFMC Pelagics FMP liaison to begin a dialogue on coordinating NS1 actions across FMPs. The HMSMT notes that primary designation is required for all MUS which occur in more than one FMP, regardless of whether the international exception applies, due to the need to establish maximum sustainable yield (MSY), SDCs and optimum yield (OY).

### 4. Establishing Biological Reference Points and Accountability Measures

Section 4 of the HMSMT Report addresses requirements for establishing biological reference points and accountability measures. MUS which do not qualify for the international exception and for which the HMS FMP is considered primary would require establishment of ACLs and accountability measures (AMs).

The HMSMT discussed possible considerations in setting ACLs for data poor species which are not regularly assessed. These included the following:

- 1) Consider catch history, including evidence on whether catch per unit of effort or size of the fish caught have declined over time.
- 2) Utilize measures of uncertainty such as the range and variability of catch over time.
- 3) Look at the life history of the species, including its range, life span and productivity.
- 4) Review whether there were any changes to the status of the species and relevant HMS fisheries since the HMS FMP was implemented.
- 5) Utilize available data on HMS fisheries mortality from commercial fisheries landings, recreational catch and observer data sets.

The HMSMT discussed additional resources which may be needed to manage ACLs. If they are recommended for some MUS, the HMSMT will need access to stock assessment resources, coordination with other Councils and additional support from the SSC to carry out the requisite analytical tasks.

**Requested Tasks for Council:**

- 1) Provide the HMSMT with guidance for preparing a further refinement of the preliminary alternatives to be presented at the April 2010 Council meeting.
- 2) Consider requesting the HMSMT to perform a vulnerability analysis on FMP MUS and monitored species for potential reclassification decisions under NS1.
- 3) Consider writing a letter to the WPFMC requesting coordination with the PFMC in addressing the need for a consistent approach to addressing NS1 requirements.

PFMC  
11/01/09

SCIENTIFIC AND STATISTICAL COMMITTEE REPORT ON FISHERY MANAGEMENT  
PLAN AMENDMENT 2: ANNUAL CATCH LIMITS AND ACCOUNTABILITY MEASURES

Mr. Kit Dahl and Dr. Steve Stohs presented the Highly Migratory Species Management Team (HMSMT) Report on Amendment 2 to the HMS Fishery Management Plan (FMP). This document presents an overview of the topics recommended by the HMSMT for the Council to address. Namely, 1) classification of stocks in the FMP; 2) the Magnuson-Stevens Act (MSA) international exception to annual catch limit (ACLs) requirement for Management Unit Species (MUS); 3) determining the primary FMP for MUS also addressed by the Western Pacific Fishery Management Council's (WPFMC) Pelagics FMP; 4) establishing reference points; and 5) accountability measures. The Scientific and Statistical Committee (SSC) discussion focused primarily on Items 1-3.

The HMSMT Report is difficult to follow given the number of species in the FMP and the various ways of classifying species. It would be useful to add a table to the report that delineates all species in the FMP, how they are classified, and the rationale for the respective classification.

The Amendment 2 process provides the Council with an opportunity to reduce the number of species in the HMS FMP – particularly species with little or no recorded catch off the U.S. west coast and for which the WPFMC Pelagics FMP would likely be the primary FMP (e.g. black marlin and sailfish). This would greatly simplify the HMS FMP and allow the HMSMT to focus its limited resources on the species of greater interest to the Council.

The HMSMT recommends designating a primary FMP (PFMC HMS FMP or WPFMC Pelagics FMP) for each of the species in the FMP. This would not only establish clear lines of responsibility between the Councils but would also clarify the scope of the work needed to complete Amendment 2 to the HMS FMP. For example, ACLs would only be needed for the PFMC-primary MUS that do not fall under the international exemption.

The HMSMT has yet to take up the issue of how best to establish acceptable biological catches (ABCs) that reflect uncertainty in the HMS stock assessments. Experience in dealing with this issue for the Groundfish and CPS FMPs indicates that this issue may require considerable time and effort. However, this work would not be necessary should the Council apply the international exception to all species (as apparently the WPFMC will do for its MUS). A Council decision on the international exemption issue at this meeting would be most helpful in determining what needs to be done and in planning the workload. The SSC HMS Subcommittee is willing to work with the HMSMT on this matter.