



**NORTHERN COMMITTEE  
SEVENTH REGULAR SESSION**  
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**SUMMARY REPORT OF THE SEVENTH REGULAR SESSION OF THE  
SCIENTIFIC COMMITTEE**

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**WCPFC-NC7/IP-04**

**Prepared by the Secretariat**

## **INTRODUCTION**

1. The Seventh Regular Session of the Scientific Committee (SC7) took place in Pohnpei, Federated States of Micronesia from 9–17 August 2011. N. Miyabe chaired the meeting.
2. Key matters considered by the SC7 and its thematic groups — Ecosystem and Bycatch Mitigation (EB), Management Issues (MI), Data and Statistics (ST), and Stock Assessment (SA) — included:
  - i. a review of the fisheries in the western and central Pacific Ocean (WCPO) and the eastern Pacific Ocean (EPO);
  - ii. a review of the status of stocks of bigeye tuna, yellowfin tuna, skipjack tuna and South Pacific albacore tuna in the WCPO;
  - iii. a review of the most recent information and assessments for tuna and billfish stocks in the North Pacific;
  - iv. a review of research into the status and assessment of pelagic key shark stocks in the WCPO
  - v. bycatch mitigation issues associated with seabirds, sea turtles, sharks, other animals, and Report of Kobe Joint Technical Working Group on Bycatch;
  - vi. issues associated with the data available to the Commission and initiatives to address data gaps;
  - vii. the status of the West Pacific East Asia Oceanic Fisheries Management (WPEAOFM) Project, the Japan Trust Fund (JTF) and the Pacific Tuna Tagging Project (PTTP);
  - viii. developing Strategic Research Plan 2012-2016;
  - ix. recommendations for the 2012 SC Work Programme and Budget; and
  - x. functioning and structure of SC meetings.

## **REVIEW OF FISHERIES**

3. The provisional total WCP-CA tuna catch for 2010 was estimated at 2,414,994 mt, the second highest annual catch recorded and 80,000 mt lower the previous record in 2009 (2,494,112 mt). During 2010, the purse seine fishery accounted for an estimated 1,820,844 mt (75% of the total catch), with pole-and-line taking an estimated 171,604 mt (7%), the longline fishery an estimated 239,853 mt (10%), and the remainder (7%) taken by troll gear and a variety of artisanal gears, mostly in eastern Indonesia

and the Philippines. The WCP–CA tuna catch (2,414,994 mt) for 2010 represented 84% of the total Pacific Ocean catch of 2,875,909 mt, and 60% of the global tuna catch (the provisional estimate for 2010 is 4,017,660 mt, which is the lowest for 8 years).

4. The 2010 WCP–CA catch of skipjack (1,706,166 mt – 71% of the total catch) was the second highest recorded and 115,000 mt less than the previous record catch of 2009 (1,821,770 mt). The WCP–CA yellowfin catch for 2010 (470,161 mt – 19%) was more than 50,000 mt higher than the 2009 catch level, but still 70,000 mt lower than the record catch taken in 2008 (541,262 mt). The WCP–CA bigeye catch for 2010 (108,997 mt – 5%) was the lowest since 1996, mainly due to a drop in 2010 provisional estimates for the longline fishery. The 2010 WCP–CA albacore catch (129,670 mt - 5%) was the second highest on record, with very good catches from the longline fishery.

5. The provisional 2010 purse-seine catch of 1,820,844 mt was the third highest on record for this fishery, at more than 80,000 mt lower than the record attained in 2009. The 2010 purse-seine skipjack catch (1,476,819 mt) was the second highest on record, but significantly lower (130,000 mt) than the record catch in 2009; the proportion of skipjack tuna in the logsheet-reported total catch (81%)<sup>1</sup> was in line with the average for recent years. The 2010 purse-seine catch of yellowfin tuna (300,339 mt – 16%) rebounded (by 54,000 mt) from the relatively low catch of 2009, but was still significantly lower than the record catch taken in 2008 (391,152 mt). The provisional catch estimate for bigeye tuna for 2010 (43,389 mt) was the third highest on record but may be revised once all observer data for 2010 have been received and processed.

6. The 2010 pole-and-line catch (171,604 mt) was a slight improvement (6,000 mt) on the catch level in 2009, which was the lowest annual catch since the mid-1960s. The Japanese distant-water and offshore (110,612 mt in 2010) fleets, and the Indonesian fleets (60,415 mt in 2007), account for most of the WCP–CA pole-and-line catch. The catches by the Japanese distant-water and offshore fleets in recent years have been the lowest for several decades and this is no doubt related to the continued reduction in vessel numbers (in 2009/2010 reduced to only 96 vessels, the lowest on record). The Solomon Islands fleet recovered from low catch levels experienced in the early 2000s (only 2,773 mt in 2000 due to civil unrest) to reach a level of 10,448 mt in 2003. This fleet ceased operating in 2009, but there are expectations of it resuming activities in 2011.

7. The provisional WCP–CA longline catch (239,853 mt) for 2010 was the fourth highest on record, at around 17,000 mt lower than the highest on record attained in 2002 (256,582 mt). The WCP–CA albacore longline catch (104,482 mt – 44%) for 2010 was the highest on record, 12,000 mt higher than the previous record (92,539 mt in 2009). In contrast, the provisional bigeye catch (58,324 mt – 24%) for 2010 was the lowest since 1996, but may be revised upwards when final estimates are provided. The yellowfin catch for 2010 (76,067 mt – 32%) was slightly higher than the average catch level for this species over the period 2000–2010.

8. The 2010 troll albacore catch (2,141 mt) was slightly higher than the catch in 2009 which was the lowest since 1986, and was apparently due to poor catches experienced in the New Zealand domestic fishery. The New Zealand troll fleet (136 vessels catching 1,834 mt in 2010) and the United States troll fleet (6 vessels catching 307 mt in 2010) typically account for most of the albacore troll catch, with minor contributions coming from the Canadian, the Cook Islands and French Polynesian fleets when their fleets are active (which was not the case in 2010).

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<sup>1</sup> However, recent studies using observer data (e.g. Lawson, 2007, Lawson, 2010, Hampton and Williams, 2011a) show that the logsheet-reported catch, mainly for associated sets, should contain higher quantities of yellowfin and bigeye tuna that have been misreported as skipjack tuna.

9. The economic overview for these fisheries can be found in the SC7 Summary Report posted on the WCPFC website.

## STOCK ASSESSMENT AND MANAGEMENT IMPLICATIONS

### *WCPO Bigeye tuna*

10.  $F_{current}/F_{MSY}$  is estimated at 1.46 (base case; range 1.16 – 2.10) indicating that overfishing is occurring for the WCPO bigeye tuna stock. The base case indicates that the current total and spawning biomass are higher than the associated MSY levels ( $B_{current}/\tilde{B}_{MSY} = 1.25$  and  $SB_{current}/\tilde{SB}_{MSY} = 1.19$ ). However, two of the alternate models found that  $SB_{current}/\tilde{SB}_{MSY} < 1.0$  with a range across the six models considered of 0.86 – 1.49. Therefore, there is a possibility that bigeye tuna is currently in an overfished state.

11. The SC recommends a minimum of 32% reduction in fishing mortality from the average levels for 2006–2009 to return the fishing mortality rate to  $F_{MSY}$ . This recommended level of reduction is equivalent to a minimum 39% reduction of the 2004 level in fishing mortality, and a 28% reduction of the average 2001–2004 levels

### *WCPO Yellowfin tuna*

12. For the base case,  $F_{current}/F_{MSY}$  is estimated at 0.77 indicating that overfishing is not occurring for the WCPO yellowfin tuna (Figure YFT5). However, one of the alternate models found that  $\frac{F_{current}}{F_{MSY}} > 1.0$ , with a range across the six models considered of 0.54 -1.15. Therefore, there is a possibility that overfishing is occurring for yellowfin tuna. The base case indicates that the current total and spawning biomass are higher than the associated MSY levels ( $\frac{B_{current}}{B_{MSY}} = 1.33$  and  $\frac{SB_{current}}{SB_{MSY}} = 1.47$ ). None of the alternate models found that  $\frac{SB_{current}}{SB_{MSY}} < 1.0$  with a range across the six models considered of 1.14 – 1.92. Therefore, yellowfin tuna is not considered to be in an overfished state. However, while the exploitation rates differ between regions, they continue to be highest in the western equatorial region.

13. The SC determined that the WCPO yellowfin appears to be capable of producing MSY. The stock is not experiencing overfishing and is not in an overfished state. Projections to 2021 indicate that fishing mortality is projected to remain below  $F_{MSY}$  and the spawning biomass will remain above  $SB_{MSY}$ . The SC recommended that there be no increase in fishing mortality in the western equatorial region.

### *WCPO Skipjack tuna*

14. Fishing mortality rates tended to be higher during the last decade than for the preceding period, and fishing mortality and biomass indicators relative to MSY started to move towards 1.0, although they remained substantially below the  $F_{MSY}$  level ( $F_{current}/F_{MSY} = 0.37$ ). The stock is not in an overfished state as biomass is above the  $B_{MSY}$  ( $B_{current}/B_{MSY} = 2.68$ ).

15. Catches in 2010 were roughly 1.556 million mt, the second highest recorded and below the record high catch of 1.608 million mt in 2009. Equilibrium yield at the current  $F$  is about 1.14 million mt. This is about 76% of the MSY level. The assessment continues to show that the stock is currently only moderately exploited ( $F_{CUR}/F_{MSY} = 0.37$ ) and fishing mortality levels are sustainable. However, there is concern that high catches in the equatorial region could result in range contractions of the stock, thus reducing skipjack availability to higher latitude (e.g. Japan, Australia, New Zealand, and Hawaii)

fisheries.

16. If recent fishing patterns continue, catch rate levels are likely to decline and catch should decrease as stock levels are fished down to MSY levels. Due to the rapid change of the fishing mortality and biomass indicators relative to MSY in recent years, increases of fishing effort should be monitored. The Commission should consider developing limits on fishing for skipjack to limit the declines in catch rate associated with further declines in biomass.

***South Pacific albacore***

17. The key conclusion of the reference case is that overfishing is not occurring and the stock is not in an overfished state (Fig. ALB5). Reference point levels estimated in the 2011 assessment were similar to those estimated in the 2009 assessment and depletion levels ( $SB_{2009}/SB_{2009,F=0}$ ) of albacore was moderate at ~37%. However SC7 noted that the depletion levels of albacore available to the longline fisheries north of 25S was above 50%.

18. The South Pacific albacore stock is currently not overfished nor is overfishing occurring, and current biomass levels are sufficient to support current levels of catch. Any increases in catch or effort are likely to result in catch rate declines, especially relating to longline catches of adult albacore, with associated impacts upon vessel profitability.

**MANAGEMENT ISSUES**

***Limit reference points for the WCPFC***

19. SC7 provided several recommendations, including:

a) SC7 recommends that the Commission adopt the hierarchical approach to identifying the key limit reference points for the key target species in the WCPFC as follows:

Level	Condition	LRPs
Level 1	A reliable estimate of steepness is available	$F_{MSY}$ and $B_{MSY}$
Level 2	Steepness is not known well, if at all, but the key biological (natural mortality, maturity) and fishery (selectivity) variables are reasonably well estimated.	$F_{X\%SPR_0}$ and either $20\%SB_0$ or $20\%SB_{current,F=0}$
Level 3	The key biological and fishery variables are not well estimated or understood.	$20\%SB_0$ or $20\%SB_{current,F=0}$

b) SC7 recommends that SPC-OFP, using the most recent stock assessment models for south Pacific albacore, bigeye tuna, skipjack tuna, and yellowfin tuna undertake further analyses to evaluate the consequences of:

- i) different levels of spawning-potential-per-recruit,  $x\%SPR_0$  (where x is in the range 20-50% in 10% increments) to be associated with the adopted fishing mortality-based LRP,
- ii) using either a  $x\%SB_0$  or a  $x\%SB_{current,F=0}$  biomass-based LRP (range of x of 10-40%),
- iii) also adopting a spawning-potential-per-recruit-based LRP for the key target species other than yellowfin and bigeye tuna, and

c) Noting the progress made by ISC in developing reference points the SC recommends to the Commission that the Northern Committee consider similar analyses for the three stocks that they assess including for north Pacific albacore a comparison of these to the  $F_{SSB-ATHL}$  reference point identified by the Northern Committee.

- d) SC7 recommends that the Commission hold open the consideration of other reference points (both target and limit) to reflect management objectives as they are identified and defined for other management related issues such as the impact of fishing on by-catch species and the ecosystem, as well as economic and social objectives. These could include empirical as well as model based reference points.

#### ***Review of CMM 2008-01\****

- 20. SC7 recommends that the TCC and the Commission note the following conclusions based on the analyses presented in working papers SC7-MI-WP-01 and SC7-MI-WP-05 and an updated version of WCPFC-2010/15 when reviewing the implementation of CMM-2008-01:
  - a) that the number of days reported with any activity related to a drifting FAD was 13.5% in 2009 and 5.1 % in 2010 during the FAD closure periods. Trends in FAD usage and associated catch information indicate that the FAD closure has been effective in reducing FAD use in the purse seine fishery,
  - b) the limits placed on purse-seine operations have not adequately constrained total purse-seine effort, with total effort in 2009 and 2010 estimated to be 25% and 32%, respectively higher than the 2001-2004 level and the total purse-seine catch of bigeye during 2010 the third highest on record,
  - c) Purse seine catches of bigeye tuna (in 20°N-20°S) declined in 2010 by 21% from 2009 and by 7.3% from the 2001-2004 average,
  - d) closing areas to purse seine fishing without consideration of the fate of displaced fishing effort will not be effective for bigeye conservation,
  - e) the provisional longline catch in 2010 is 30% lower than the 2001-2004 level. However, this estimate is based on incomplete data and is despite an increase in fleet size. Furthermore reductions in catch may not necessarily correspond to reductions in fishing mortality.

#### **ECOSYSTEM AND BYCATCH MITIGATION ISSUES**

21. SC7 recommended that WCPFC adopt the process for designating WCPFC key shark species for data provision and assessment, as proposed in document SC7-EB-WP-05. SC7 recommended that the WCPFC8 consider mitigation measures for oceanic whitetip sharks in the Convention Area and blue sharks in the north Pacific on the basis of existing information both presented to SC7 and available from other studies. Current shark research plan is scheduled to conduct a stock assessment on oceanic whitetip sharks and silky sharks for SC8 and on blue sharks for SC9.

22. For the development of best practice guidelines for release of encircled whale sharks and cetaceans without injury while considering the safety of the crew, SC7 recommends that the guidelines be developed by an electronic discussion group led by the convener of the Ecosystem and Bycatch Theme. The results from this group should be forwarded from SC to the TCC7 for further consideration by WCPFC8.

#### **SC WORK PROGRAMME, BUDGET, AND ADMINISTRATIVE MATTERS**

23. SC7 adopted strategic research plan for 2012 – 2016. Total SC budget for 2012 proposed is \$998,000 (including \$792,000 for SPC's science services), which is \$31,000 less than the indicative budget. SC7 agreed the process of peer review for 2011 bigeye stock assessment.

24. SC8 to retain the process adopted for SC7 that important papers within the Biology, Methods, and Fishing Technology Themes are to be presented either at the SPC Pre-Assessment Workshop or at the

Scientific Committee meeting within the most appropriate Theme. SC8 is to decide on the future need of retaining the Biology, Methods, and Fishing Technology Themes.

25. SC8 is provisionally scheduled for 7-15 August 2012, with the venue to be determined intersessionally and agreed at WCPFC8. P. Maru will end her first term as Vice-Chair of the Scientific Committee in December 2011. SC7 deferred the selection of a new Vice-Chair to WCPFC8.