



NINTH REGULAR SESSION
 Manila, Philippines
 2-6 December 2012

KEY RECOMMENDATIONS FROM THE SCIENTIFIC COMMITTEE

WCPFC9-2012-28

Secretariat

The Summary Report of the Eighth Regular Session of the Scientific Committee has been posted since 21 August 2012 and the Executive Summary, prepared for the commissioners at WCPFC9, has been posted on the SC8 website since 8 October 2012. This document is prepared to highlight key advice and recommendations from SC8 to the Commission. Numbers in the parenthesis represents the paragraph number in the Summary Report.

OPENING OF THE MEETING

1. (Para 1) The Eighth Regular Session of the Scientific Committee (SC8) was held in Busan, Republic of Korea from 7–15 August 2012. N. Miyabe chaired the meeting.

REVIEW OF FISHERIES

2. (paras 13-14) Provisional total tuna catch for 2011 is 2,244,776 mt (breakdown below), which is 79% of the total Pacific Ocean catch and 55% of the global tuna catch.

Species	Catch (mt)	%	Gear	Catch (mt)	%
Skipjack	1,540,189	69	purse seine	1,688,336	75
Yellowfin	430,506	19	pole-and-line	164,416	7
Bigeye	151,533	7	longline	251,298	11
Albacore	122,548	5	SP troll albacore	3,119	0
	(NP: 47,290; SP: 75,258)		remainder	137,607	6

DATA AND STATISTICS THEME

Data gaps of the Commission

3. (Paras 68-71a) The status of CCM's data provision is available at <http://www.wcpfc.int/statprov>. The following points were highlighted:

- the importance of the provision of operational-level catch and effort data;
- provision of Data Improvement Plans; and

- provision of annual catch estimates by gear and species for waters of national jurisdiction and high seas areas separately.

4. (Para 71d-e) SC8 recommended the following.

- WCPFC9 adopt and include the recommended length size class intervals in Section 5 of “Scientific Data to be provided to the Commission”, as follows:
 - *Skipjack tuna – 1cm*
 - *Albacore tuna – 1cm*
 - *Yellowfin tuna – ideally 1cm, but not more than 2 cm*
 - *Bigeye tuna – ideally 1cm, but not more than 2 cm*
 - *Billfish – ideally 1cm, but not more than 5 cm*
- WCPFC9 adopt and include the following text into Sections 1 and 5 of “Scientific data to be provided to the Commission”:

“The statistical and sampling methods that are used to derive the size composition data shall be reported to the Commission, including reference to whether sampling was at the level of fishing operation or during unloading, details of the protocol used, and the methods and reasons for any adjustments to the size data. Where feasible, this shall also be applied to all historical data.”
- WCPFC9 adopt and include the following text into Sections 3, 4 and 5 of “Scientific Data to be provided to the Commission”:

“Information on operational changes in the fishery that are not an attribute in the data provided is to be listed and reported with the data provision.”

Species composition of purse-seine catches

- (Para 89) SC8 recommended the following.
 - Future papers should indicate the level of improvement in the accuracy of logsheet reporting of purse-seine species composition by fleet;
 - CCMs should collaborate with SPC and the WCPFC Secretariat to further increase the number of paired sampling trips; and
 - Project 60 be continued through 2013 with a 2013 budget request of USD 75,000 based on USD 5,000 per trip for the remaining 15 trips.

STOCK ASSESSMENT THEME

WCPO bigeye tuna

Peer review of 2011 bigeye tuna stock assessment

6. (Paras 117-118) There were 26 general recommendations and 12 recommendations specific to MULTIFAN-CL. Budget implications were estimated at USD 160,000 annually to the science services provider to address the general recommendations and USD 40,000 to complete the MFCL recommendations.

Indicator analysis

7. (Para 125) SC8 noted that fishery indicators provide information on trends in the fishery for years when a stock assessment is not conducted, and SC8 recommended that future indicator papers should present explanatory detail for the figures and a brief interpretation of the trends.

Progress report on Project 35 (Refinement of Bigeye Parameters Pacific-wide)

8. (Para 129) SC8 noted the progress of Project 35 and recommended its continuation in 2013.

South Pacific albacore

9. (Para 158) Overfishing is not occurring and the stock is not in an overfished state. Spawning potential depletion levels ($SB_{curr}/SB_{curr_{F=0}}$) of albacore were moderate at ~37%.

10. (Para 160) SC8 recommended that longline fishing mortality be reduced if the Commission wishes to maintain economically viable catch rates.

South Pacific swordfish

11. (Para 180) SC8 recommended that SPC conduct the South Pacific swordfish stock research under the proposed work plan as follows:

- a. finalize the development of the method of sex-specific stock assessment;
- b. stock assessment conducted through collaboration from EU and the results presented at SC9; and
- c. the science services provider will present an update on its analysis of South Pacific swordfish as a component of their stock status report to WCPFC9.

Southwest Pacific striped marlin

12. (Para 206) The reference case and five of the six other key sensitivity runs estimated $F_{current}/F_{MSY}$ to be less than one indicating that overfishing is unlikely to be occurring. However, when considering $SB_{current}/SB_{MSY}$, the reference case and four of the six other key sensitivity runs are estimated to be less than one, indicating evidence that the stock may be overfished.

13. (Para 208) SC8 recommended measures to reduce the overall catch of this stock, through the expansion of the geographical scope of CMM 2006-04, in order to cover the distribution range of the stock.

14. (Para 210) Recognizing that striped marlin is often caught as a non-target species, SC8 recommended that data analysis be conducted to identify areas of high catch concentration that could be subject to targeted management.

North Pacific striped marlin

15. (Para 221) The western and central North Pacific striped marlin stock is overfished and experiencing overfishing. The current (2010) spawning biomass is 65% below $SB_{MSY}=2,713$ mt and the current fishing mortality (2007–2009) exceeds $F_{MSY}=0.61$ by 24%.

16. (Para 222) SC8 noted ISC's conservation advice for the Commission's consideration as follows.

- Fishing at a constant catch of 2,500 mt was estimated to increase spawning biomass by 133–223% by 2017.
- Fishing at a constant catch of 3,600 mt was estimated to increase spawning biomass by 48–120% by 2017.
- In comparison, fishing at the current (2007–2009) fishing mortality rate was estimated to increase spawning biomass by 14–29% by 2017, and fishing at the average 2001–2003 fishing mortality rate would lead to a spawning biomass decrease of 2% under recent recruitment to an increase of 6% under the stock-recruitment curve assumption by 2017.

17. (Para 223) SC8 recommended that ISC conduct an additional set of projections of western and central North Pacific striped marlin based on the 2012 stock assessment results, and probabilities of stock recovery as well as trajectories of spawning biomass and catch should be documented and presented to WCPFC9.

18. (Para 224) Given the current pessimistic status of the stock, SC8 recommended that the Commission strengthen the existing CMM to ensure the recovery of North Pacific striped marlin, based on information provided by ISC.

Oceanic whitetip shark

19. (Paras 256-258) Spawning biomass, total biomass and recruitment have all exhibited a declining trend since 1995 (the first year of the assessment), and the current spawning biomass is estimated to be at 15% of SB_{MSY} , and current fishing mortality is estimated to be more than six times greater than F_{MSY} . The key conclusions are that overfishing is occurring and the stock is in an overfished state relative to MSY-based reference points.

20. (Paras 259-261) Management measures to reduce fishing mortality and to rebuild spawning biomass have been agreed to under CMM 2011-04, but mitigation to avoid capture is recommended. Given the bycatch nature of most fishery impacts, mitigation measures provide the best opportunity to improve the status of the WCPO oceanic whitetip shark stock. Reference points for non-target species, including oceanic whitetip sharks, should be developed as envisaged under Articles 5 and 10 of the WCPF Convention.

Silky shark

21. (Paras 276-277) The 2012 silky shark assessment indicated very different management implications. The longline bycatch series suggests significant declines in abundance (and overfishing), while models incorporating the purse-seine CPUE series resulted in unrealistically high biomass estimates, with no sustainability concerns. Therefore, SC8 concluded that it was not possible to determine estimates of stock status and yields.

22. (Paras 280-282) Noting that some basic fishery indicators (e.g. mean lengths and some CPUE series) are showing declines in recent years, SC8 recommended no increase in fishing mortality on silky sharks. Further, recognizing that the major fishery impacts relate to non-target fisheries, SC8 recommended that the Commission consider mitigation measures to reduce the impact of these non-target fisheries as a precautionary measure. SC8 also recommended that the silky shark assessment be updated to incorporate all potentially important data series. Reference points for non-target species, including silky sharks, should be developed as envisaged under Articles 5 and 10 of the WCPF Convention.

MANAGEMENT ISSUES THEME

Limit reference points

23. (Para 298) SC8 recommended that LRPs for bigeye, yellowfin and South Pacific albacore be set at Level 2 with regard to the biomass-based LRP of $20\%SB_{recent,F=0}$, with deferral of a recommendation on the value of X% in the Level 2 fishing mortality-based LRP of $F_{x\%SPR}$ to SC9. The LRP for skipjack was recommended to be set at Level 3, $20\%SB_{recent,F=0}$.

24. (Paras 300-301) SC8 recommended that the probability of breaching an LRP should be very low, and the allowable risk of breaching an LRP may be applied on a species-specific basis, for example higher risk for yellowfin and bigeye tunas, but a more precautionary lower risk to skipjack and South Pacific albacore tunas.

25. (Paras 304-305) SC8 recommended that further work be undertaken by SPC on the identification of:

- the appropriate period for estimating the average recruitment for each species in the LRP $20\%SB_{recent, F=0}$, and
- the appropriate values of X for each species in the LRP $F_x\%SPR_0$,

and that this work be presented to SC9 for review and for final specification of these LRPs. SC8 also recommended that work should continue to move all key WCPFC stocks to Level 1 reference points.

26. (Para 306) SC8 recommended that SPC further develop a common approach to characterization of uncertainty and estimation of risk in relation to LRPs, in order to ensure consistency in the provision of management advice to the Commission, and that this approach be reviewed at SC9.

Review of CMM 2008-01

27. (Para 350) SC8 recommended that the Commission note the following conclusions.

- a. Total 2011 PS effort was estimated to be 31% higher compared with effort in 2004 and 46% higher than 2001–2004 levels;
- b. The number of days related with FAD activity was 16.1% in 2009, 6.8% in 2010 and 8.2% in 2011 during the FAD closure periods.
- c. Despite the FAD closure, the total 2011 FAD sets was a record high, largely due to a high FAD set ratio outside of the FAD closure period and increased purse-seine effort overall.
- d. The catch of bigeye, small yellowfin and small skipjack tunas can be significantly reduced by purse-seine vessels switching from FAD sets to unassociated sets.
- e. The total bigeye purse-seine catch during 2011 was the highest on record (77,095 mt) and the second time that the purse-seine catch had exceeded the longline catch.
- f. HSP closure since 1 January 2010 has largely been respected.
- g. Total closure of areas/time will not be effective for bigeye conservation.
- h. The provisional 2011 bigeye LL catch was 24% lower than the 2001-2004 level, with no apparent reduction in fishing effort, and the provisional 2011 yellowfin LL catch was close to the 2001-2004 average level.
- i. Stock projections undertaken using the reference case models for the 2011 assessments for bigeye tuna indicate that:

Bigeye catch and effort level	Projected F/F_{MSY} in 2021
2009 level	1.40
2010 level with i) lower FAD use, ii) lower LL catches, and iii) reduced catch reports from IND/PHL	0.96
2011 level with higher FAD-based PS effort	1.29

- j. For scenarios that mimic a total purse-seine closure, there is a small incremental reduction in F/F_{MSY} compared with that achieved by a FAD closure. However, this comes at a cost of substantial reductions in total catch, particularly of skipjack in the PS fishery.
- k. Without exemptions, approximately an additional half of the overfishing that is estimated to occur under the CMM as written could be removed.
- l. The reduction in purse-seine FAD effort in 2010 has the greatest effect in terms of removing overfishing, followed by the reduction in longline catch in 2010.

28. (Para 351) In the development of a revised CMM for bigeye, yellowfin and skipjack tuna stocks, SC8 recommended that the Commission consider:

- strengthening the control of FAD activities;
- building on the apparent success of some fleets in reducing their dependence on FADs to achieve greater control of FAD activity outside the closures, including control of the number of FADs set throughout a year instead of FAD time-closures;
- reducing the total number of FAD sets to levels no greater than those in the fishery in 2010;
- clarifying the definition of limits on purse-seine effort that are applicable in different areas;
- reducing fishing mortality on bigeye tuna from the longline fishery; and
- adopting management measures that apply to all sectors of the fishery.

29. (Para 349, 353) SC8 recommended that the Commission take account of the information in working paper SC8-MI-WP-05, “Mapping the distribution of the conservation burden”, in its consideration of new management measures for WCPFC.

ECOSYSTEM AND BYCATCH MITIGATION THEME

Ecosystem effects of fishing

30. (Para 363) Reiterating the need to improve knowledge on the influence of environmental effects on tuna fisheries in order to reduce the uncertainty in short, medium and longer term projections of tuna abundance, SC8 endorsed the development and implementation of a project (EB-WP-01: Progressing adaptation to climate variability and change in Western and Central Pacific Ocean tuna fisheries). This project will not require direct contributions in funds or manpower from the Commission.

31. (Para 364) SC8 noted the progress of the Kobe Technical Working Group for bycatch, and provided the following advice: a) the participation of the WCPFC Secretariat (or its delegate) in the harmonization of longline observer data is desirable; b) encourages development of the Bycatch Mitigation Information System into a tuna RFMO-wide resource; and c) submission of the ACAP harmonized seabird identification guide to the WCPFC Secretariat to coordinate its review.

6.2 Sharks

32. (Para 389) SC8 considered, discussed and adopted guidelines for the safe release of encircled animals specific to whale shark.

33. (Para 392) SC8 recommended that the Commission assist in providing or identifying funds to distribute existing shark identification guides, and promote the development of species identification guides harmonized, where appropriate, with other RFMOs in order to improve data reporting.

34. (Para 393) SC8, through the Commission, encouraged CCMs to adopt and promote the recording of data by their longline fleets on harmonized and sufficiently detailed longline logsheets that include key shark species.

35. (Para 394) SC8 recommended that the science services provider conduct a study on the spatial and temporal distribution of whale sharks in the WCPO based on observer data and other data sources as appropriate.

36. (Para 395) SC8 recommended that the whale shark (*Rhincodon typus*) be defined as a key shark species of WCPFC.

6.3 Seabirds

37. (Para 420) SC8 recommended that a combination of techniques should be used, especially weighted branchlines, bird scaring lines, and night setting, which have proven most effective for reducing seabird bycatch of the seabird fauna prevalent in a particular region of concern.

38. (Para 422) SC8 reiterated advice that a spatial management approach be employed for seabird mitigation and recommended that the Commission consider the following advice when it revises the seabird CMM 2007-04:

- a. Southern Hemisphere (south of 30°S) – use at least two of these three measures: weighted branch lines, night setting and bird scaring lines
- b. Northern Hemisphere – remove weighted branch lines and underwater setting chute in column B, from Table in CMM 2007-04
- c. Branchline weighting – at least one weight of 40g within 50cm of the hook, or of 45-60g within 1 m of the hook, is more effective to quickly sink baited hooks
- d. Vessel length – Part 1 report should include vessel numbers <24 m and ≥24 m for LL fishing in the north of 23°N to address the potential impacts of vessel size exemption
- e. Spatial management – a spatial management approach should be employed for seabird mitigation, and SC should determine appropriate (minimal) levels of interaction rates when representative observer data are available

FAD bycatch and mitigation

39. (Para 443) SC8 supported the research objectives of the ISSF bycatch research cruises, and encouraged further work by ISSF and all CCMs to develop and test purse-seine mitigation efforts that prioritize avoidance or selective release of bycatch from the net; that maximize the condition factor of released animals; and that scientifically verify their post-release condition using PSATs and other technology.

Food security issues with bycatch

40. (Para 450) SC8 requested that the Commission's science services provider continue to produce and update the type of analysis presented in "Estimation of catches and fate of edible bycatch species taken in the equatorial purse-seine fishery" (SC8-EB-WP-18) for presentation to the SC.

FUTURE WORK PROGRAMME AND BUDGET

Development of 2013 work programme and budget, and projection of 2014–2015 provisional work programme and indicative budget

41. (Para 469) The 2013–2015 SC Provisional Work Programme and Budget includes additional costs for the following functions:

- USD 75,000 for Project 60 (purse-seine species composition);
- USD 40,000 for bigeye MFCL improvements (recommended by the bigeye peer review); and
- USD 160,000 for additional resourcing for SPC for stock assessment tasks and improvements as recommended by the bigeye peer review.

42. (Para 471) SPC can conduct two tuna stock assessments and one shark stock assessment under the current Service Agreement. Any additional work would require additional funding.

43. (Para 472) SC8 tasked the science services provider with undertaking a review of data holdings for sailfish in order to inform discussions at SC9 regarding the necessary budget for undertaking further analyses.

44. (Para 474) SC8 recommended that the Commission consider extending the Shark Research Programme conducted by the science services provider beyond December 2013 when current funding from the Commission expires.

45. (Para 475) SC8 recommended that the Management Objectives Workshop consider continued research and associated budgets (using funds available in the unobligated budget) for Project 58 (Evaluation of Reference Points and Decision Rules) and Project 66 (Identification and Evaluation of Target Reference Points) and recommended that the Commission consider the inclusion of this research within the SC work programme and budget.

(Attachment I) List of Scientific Committee work programme titles and budget for 2013, and indicative budget for 2014–2015, which require funding from the Commission’s core budget (in USD).

Research Activity / Project with priority	2013	2014	2015
Project 14. WPEAOFM	25,000	25,000	25,000
Project 35. Refinement of bigeye parameters	70,000	75,000	75,000
Project 42. Pacific-wide tagging project	10,000	10,000	10,000
Project 57. Limit reference points	30,000		
Project 66. Target reference points			
Project 63. Harvest control rules			
Project 60. Purse-seine species composition	75,000		
Sail Fish (Data analysis)			
Peer review of Pacific bluefin tuna			
Bigeye MFCL	40,000		
Additional resourcing SPC	160,000	160,000	160,000
SUBTOTAL	410,000	270,000	270,000
UNOBLIGATED BUDGET	83,000	83,000	83,000
SPC-OFP BUDGET	871,200	871,200	871,200
GRAND TOTAL	1,364,200	1,224,200	1,224,200

ADMINISTRATIVE MATTERS

Peer review of stock assessments

46. (Para 484) SC8 recommended that:
- the TOR (Attachment J, SC7 Summary Report) be adopted for future stock assessment reviews, noting that minor revision may be required to address assessment-specific issues;
 - the selection procedure of a review panel developed at SC7 (paras. 580 and 581, SC7 Summary Report) be used for future peer review of stock assessments; and
 - the Commission requests the Northern Committee to conduct a scientific peer review of the Pacific bluefin tuna stock assessment once it is completed.

Future operation of SC

47. (Para 488) SC8 agreed that future SC meeting agendas would include Data and Statistics, Stock Assessment, Management Issues and Ecosystem and Bycatch themes only.
48. (Para 494) SC8 adopted the guidelines for the SC Chair and theme convenors (Attachment J).
49. (Para 502) SC9 is provisionally scheduled for 6–14 August 2013, with a venue to be determined intersessionally and agreed on at WCPFC9.