



**SCIENTIFIC COMMITTEE  
THIRD REGULAR SESSION**

13-24 August 2007  
Hawaii, United States of America

---

**Agenda Item 9.2 REVIEW OF 2007 WORK PROGRAMME**

---

**WCPFC-SC3/GN IP-6**

**SECRETARIAT**

# ANNEX I Agreement for the Provision of Scientific Services to the Commission and Assistance to Members by the Secretariat of the Pacific Community

## 1. Period Covered by this Agreement

The period covered by this Agreement is 1 January 2007 to 31 December 2007.

## 2. Scientific Services to be Provided

The scientific services to be provided to the Commission by the SPC OFP during the period of this Agreement are as follows:

Description of Service	Specific Outputs	Comments
<i>Data management, statistical analyses and related services</i>		
i. Incorporate data provided by Members, Cooperating Non-Members and Participating Territories (CCMs) under the Commission's data provision policy into existing databases and facilitate access of Commission secretariat staff to those data as appropriate.	Databases updated with all data provided by CCMs	<b>On-going</b>
	Written report to the <b>Secretariat</b> on the status of data submissions by CCMs	<b>On-going</b>
	Catch and Effort Query System (CES) software installed at WCPFC headquarters and staff trained in its use	<b>Done</b>
ii. Compile estimates of annual catches by species and gear type <sup>1</sup> , including estimates of discard rates for major tuna species.	SC 3 Working Paper	<b>ST IP-2</b>
iii. Provide conservation and management measure (CMM)-related catch and/or effort statistics, as detailed by the Secretariat, on key tuna species and other species as appropriate.	Information Paper for the SC 3 To assist with discussion of WCPFC4, summary data will be presented in both table and figure as undertaken during WCPFC3	<b>ST IP-4</b>
iv. Produce and publish on the Commission's website two issues of the Regional Tuna Bulletin, containing estimates of monthly catch rates for WCPO fleets, based on the most recent data available.	Posting on WCPFC <b>website</b>	<b>On-going</b>
v. Produce and publish on the Commission's	Posting on WCPFC <b>website</b>	<b>On-going</b>

<sup>1</sup> This includes: 1) Swordfish catch and effort data for 2000-2005 and any other compiled data and information that would support the SC's review as in paragraph 6 of the CMM-2006-03; .2) Striped marlin catch and effort data for 2000-2004 and any other compiled data and information for the review of stock status of striped marlin at SC 3, and 3) Shark catches and any information or suggestions for the review of specification of the ratio of fin weight to shark weight at SC 3.

	website the Tuna Fishery Yearbook 2006, containing annual catch estimates by gear type, flag and species.		
vi.	Provide estimates of annual catches for 2004–2006 broken down by vessel flag, EEZ, and archipelagic waters (for use in determining the catch component of the Commission's assessed contributions).	Report to the <b>Secretariat</b>	<b>On-going</b>
vii.	Disseminate public domain catch, effort and size data on the Commission's website at agreed level of resolution.	Posting on WCPFC <b>website</b> as data become available	<b>On-going</b>
viii.	Participate in the Indonesia and Philippines Data Collection Project and the compilation of information on the tuna fisheries of Vietnam.	Technical support provided and documented in reports of relevant duty travels, meetings of the Steering Committee and IPDCP workshops.	<b>Done</b>
		Advice provided to the Secretariat on request.	<b>On-going</b>
		All reports provided to the Secretariat.	<b>On-going</b>
ix.	Develop objectives and priorities for data to be collected by observers for fisheries other than purse-seine and longline	SC 3 Working Paper	<b>ST WP-2</b>
x.	Develop data standards for port sampling and observer programmes in association with WCPFC Secretariat	SC 3 Working Paper	<b>Will be provided with the development of the ROP</b>
xi.	Advise the Executive Director regarding the development of (a) Rules and Procedures for the Access to and Dissemination of Data and (b) the Information Security Policy	Advice provided to the Executive Director on request <b>Done</b>	
<b><i>Stock assessment and related analytical services</i></b>			
xii.	1) Undertake full stock assessment for yellowfin tuna; 2) supporting work on bigeye tuna catch estimates and longline CPUE indices; and 3) MFCL/SS2 comparison for South Pacific albacore	SC 3 Working Papers	<b>1) SA WP-1 2) ME IP-1 3) SA WP-6</b>
xiii.	Undertake other full stock assessments for those target and non-target species as requested by the Commission and specified in detail by the Secretariat.		
xiv.	Undertake analyses of longline catch and effort data, including where appropriate operational-level data, to improve the standardisation of effort and the construction of indices of stock abundance for bigeye, yellowfin and South Pacific albacore tuna.	SC 3 Working Papers	<b>ME IP-1 SA WP-6</b>
xv.	1) Further refinement of the stock assessment	Updated stock assessment modeling software and	<b>ME WP-2</b>

<p>model, MULTIFAN-CL, including simulation testing of new developments as appropriate.</p> <p>2) Evaluate alternative assessment approaches.</p>	<p>documentation posted on the MULTIFAN-CL website (also linked from WCPFC)</p> <p>SC 3 Working Paper comparing MULTIFAN-CL and SS2 methodologies for assessing South Pacific albacore</p>	<p><b>ME WP-6</b></p>
<p>xvi. Further refinement of data and data structure used for stock assessment</p>	<p>SC 3 Working or Information Papers, as appropriate</p>	<p><b>SA WP-2</b> <b>ME WP-1</b> <b>SA IP-1</b></p>
<p>xvii. Undertake a preliminary analysis of the vertical distribution of skipjack, yellowfin and bigeye tuna associated with fish aggregation devices, as indicated by acoustic tagging data</p>	<p>SC 3 Working Paper</p>	<p><b>BI WP-4</b></p>
<p>xix.</p> <p>1) Further review of spatio-temporal aspects of catches of juvenile bigeye and yellowfin tuna caught in association with fish aggregating devices (FADs) by updating the analysis presented in WCPFC 3-2006-16.</p> <p>2) Refine the assessment of management options presented in the paper on the basis of the latest available fishery information.</p>	<p>SC 3 Working Paper</p>	<p><b>1) SA WP-4</b></p> <p><b>2) SA WP-3</b></p>
<b>Research services</b>		
<p>xx. In association with other qualified organizations or CCM research agencies,</p> <p>1) design and commence implementation of a multi-year ERA, including PSA, for WCPO tuna fisheries.</p> <p>2) Provide detailed analyses of high risk spp. from PSA analysis. Level 1 in 2007 and level 2 in 2008, Level 3 dedicated assessments in 2009. [2007 SC work programme – USD 100K]<sup>2</sup></p>	<p>Research report submitted to the WCPFC Secretariat with 3-5 year work plan</p>	<p><b>1) EB WP-3</b></p> <p><b>2) EB WP-1</b></p>
<p>xxi. Conduct further research on tuna habitat structure and fishing behavior [2007 SC work programme (Supply of TDRs and hook timers to regional observer programmes) – USD 50K]</p>	<p>Research or progress report submitted to the WCPFC Secretariat</p>	<p><b>This will be conducted later this year.</b></p>
<p>xxii. Identify areas of spatial and temporal overlap of seabird and sea turtle interactions with tuna fisheries in the WCPO [2007 SC work programme – USD 30K]. Project will include the provision of relevant</p>	<p>Research report submitted to the WCPFC Secretariat</p>	<p><b>EB WP-3</b></p>

<sup>2</sup> USD 100,000 to support the first year of work in relation to this will be made available on the submission to the WCPFC Secretariat of a project concept that summarizes the anticipated work, partners and outcomes for this task.

analyses to support reviews that are scheduled in paragraph 8 and 10 of the CMM-2006-02 and paragraph 95 of the “draft” WCPFC3 Summary Report.		
<i>Other advisory services</i>		
xxiii. Provide advice, as requested, on scientific aspects of the design and implementation of the Commission’s vessel monitoring system and regional observer programme.		<b>On-going</b>
xxiv. If it proceeds in 2007, provide advice to the Secretariat during the planning and implementation of the independent review of the Commission’s scientific services scheduled for completion in the second quarter of 2008.		<b>On-going</b>
xxv. Provide advice or any relevant information, as requested, to the expert(s) who conduct 2007 SC work programme, “Investigation of alternative stock status reference points”		<b>On-going</b>

### Additional papers contributed by the SPC-OFP to SC 3

Title	Authors	Designation
<b>Agenda Item 3: Specialist Working Groups</b>		
<i>Statistics SWG</i>		
<b>Paper 4.</b> Scientific data available to the Western and Central Pacific Fisheries Commission (including estimates of coverage rates of logsheet, observer, unloadings and port sampling data)	Williams, Lawson	<b>ST IP-3</b>
<b>Paper 6.</b> Analysis of the proportion of bigeye in 'yellowfin plus bigeye' caught by purse seiners in the WCPFC Statistical Area	Lawson	<b>ST IP-5</b>
<i>Methods SWG</i>		
<b>Paper 9.</b> Re-analysis of regional weighting factors for yellowfin and bigeye tuna stock assessments	Hoyle	<b>ME WP-1</b>
<i>Stock Assessment SWG</i>		
<b>Paper 16.</b> Environmental predictors of yellowfin and bigeye tuna recruitment in the Pacific	Langley et al.	<b>SA WP-5</b>
<i>Ecosystem and By-catch SWG</i>		
<b>Paper 19.</b> Regime shifts in the western and central Pacific Ocean	Kirby, Briand	<b>EB WP-2</b>
<b>Paper 21.</b> ECOPATH with ECOSIM model of the WCPO pelagic ecosystem	Allain et al.	<b>EB IP-8</b>
<b>Paper 22.</b> Seamount distribution and oceanography in the WCPO	Allain et al.	<b>EB IP-9</b>

**Table 2 from SC2 Summary Report**

**Table 2.** Work Programme for 2008 and budget. Core funding is shown against high priority (#1) items on the basis of that only \$250,000 indicative funding will be available in 2007 (indicative funding of \$375,000 will be available in 2008). Additional funding for other high and lower priority items will need to be obtained from other sources.

Strategic Research Priority/Research Activity or Project		2007 funding required		2008 funding required		Priority	Comments
		Core	Other	Core	Other		
<i>Collection, compilation and verification of data from the fishery</i>							
<b>Annex 1</b>	Data management services (SPC-OFP services)	139,000	1,000,000	146,000		1	Total costs based on SPC costs of employment of 1 scientific position plus travel, computer support. "Other funding" currently secured by OFP.
<b>Annex 1</b>	Develop a draft list of fields of data that observers should collect for longline and purse-seine, for consideration at the 2007 meeting of the ST-SWG					1	Costs included in SPC-OFP services
<b>On-going</b>	Indonesian and Philippines Data Collection Project (including FAD related studies)	30,000		100,000		1	College of Fisheries and Ocean Sciences, University of the Philippines in the Visayas, Miag-ao, Iloilo, Philippines
<b>Outstanding</b>	Rescue of historical commercial catch data from the Philippines (and Indonesia and Vietnam)	15,000		15,000		1	
<b>Annex 1</b>	Develop a draft list of objectives and priorities for data to be collected by observers for fisheries other than purse-seine and longline, for consideration at the 2007 meeting of the ST-SWG					2	Costs included in SPC-OFP services

<b>Done</b>	Publication and distribution costs for reproducing materials developed by the FT-SWG in languages useful for the Scientific Committee	[5,000]	5,000			2	
<b>Annex 1</b>	Quantification of changes in fishing efficiency due to changes in fishing gears and fish finding technologies					2	Used to assess changes in fishing power over time for incorporation in CPUE standardisation analyses. SPC-OFP services, as time allows.
<b>Annex 1</b>	Quantification of changes in longline selectivity due to changes in gears and patterns of deployment					2	Used to model changes in selectivity over time required in MFCL assessment models. SPC-OFP services as time allows.
<b>Outstanding</b>	Undertake a study to develop a database that clearly defines vessel and gear attributes and operational details.		10,000			3	
Sub-total (non SPC-OFP services)		45,000	15,000	115,000			
<b><i>Monitoring and Assessment of Stocks</i></b>							
<b>Stock assessment and modelling</b>							
<b>Annex 1</b>	Detailed stock assessments for selected stocks (SPC-OFP services)	139,000	500,000	146,000		1	Total costs based on SPC costs of employment of 1 scientific position plus travel, computer support. "Other funding" currently secured by OFP.
<b>Annex 1</b>	Continued refinement of stock assessment models			30,000		1	Includes refinement of models to standardise CPUE. Costs included in SPC-OFP services.
<b>Annex 1</b>	Exploration of sensitivity of assessment outcomes to structural assumptions in					1	This work would also include the development of better



	models						diagnostics to more objectively determine plausible model structure. Costs included in SPC-OFP services.
<b>Done</b>	Investigation of alternative stock status reference points	10,000				2	Includes identification of appropriate target and limit reference points
<b>Annex 1</b>	Development of an appropriate index of abundance for region 7					2	Needed to index the time-series of recruitment in MFCL assessment models. Costs included in SPC-OFP services.
<b>Annex 1</b>	Development of recruitment indices independent of the MFCL model					2	Required to index recruitment in stock assessment models. Currently funded SPC-OFP project.
<b>Biological studies</b>							
<b>Annex 1</b>	Ongoing and newly funded research with sonic and archival tags in Hawaii, PNG and other areas					1	Currently funded SPC-OFP and Univ. of Hawaii projects
<b>Outstanding</b>	Comprehensive study of bigeye tuna reproductive biology		40,000		40,000	1	
<b>On-going</b>	Supply TDRs and hook timers to regional observer programmes (48 TDRs @ \$600 ea, 400 hook timers @ \$45 ea)	50,000				1	
<b>Outstanding</b>	Better determination length-weight relationships for the principal target species		5,000			3	Includes investigation of possible spatial-temporal differences and required for input into MFCL assessment models.
<b>Tagging studies</b>							

<b>On-going</b>	Contribution to Regional Tuna Tagging Project Preparation of Phase 2 Tagging Proposal	[6,000]	500,000		1,500,000	1	Voluntary funding contributions from CCMs, SPC projects provide equivalent level of support. In kind support from CCMs and IATTC desirable.
Sub-total (non SPC-OFP services)		60,000	545,000		1,540,000		
<b>Monitoring and assessment of the ecosystem</b>							
<b>On-going</b>	Ecological Risk Analysis (including PSA)	100,000		100,000		1	Detailed analyses of high risk spp from PSA analysis. Level 1 in 2007 and Level 2 in 2008, Level 3 dedicated assessments in 2009
<b>Done (EB WP-3)</b>	Turtle/sea bird interactions and fishery overlaps	30,000		30,000		1	Desk top study
<b>Outstanding</b>	Seabird and turtle education and extension of fishers		100,000		100,000	1	Includes travel and publication costs
<b>Outstanding</b>	Turtle de-hooking devices		50,000		50,000	1	Half of these funds are for personnel costs, half for equipment
<b>Outstanding</b>	Development / review of models for evaluation of impacts on ecosystem, including development of reference points		100,000		100,000	2	Required to model and assess fishery impacts on the ecosystems
<b>Outstanding</b>	Studies on biology of high risk species		30,000		30,000	2	Scholarships for tertiary study
<b>Outstanding</b>	Turtle population assessments		50,000		50,000	2	Three year project to continue into 2009, involving collation of data eventually leading to quantitative assessments
<b>Outstanding</b>	Survival of hooked and released seabirds		30,000		30,000	2	Will require sourcing external funding for satellite/archival

							tags
<b>Outstanding</b>	Turtle tagging and associated materials		30,000		30,000	2	Will require sourcing external funding for satellite/archival tags. Conventional tags can probably be obtained at little or no cost from SPREP
<b>Outstanding</b>	Offal discards and haul-back mitigation studies		250,000		250,000	3	
Sub-total		130,000	640,000	130,000	640,000		
<b><i>Evaluation of management options</i></b>							
<b>Outstanding</b>	Continued development of methods to evaluate potential management strategies, including MSE development and uncertainty		100,000		100,000	1	Required to evaluate efficacy of candidate management options. Current evaluation of options included in SPC-OFP services. Additional funding required to development comprehensive MSE framework.
Sub-total			100,000		100,000		
GRAND TOTAL (non SPC-OFP services)		235,000	1,300,000	245,000	2,280,000		
SPC-OFP		278,000	1,500,000	292,000			
<b>Outstanding</b>	Independent Review of Science Structure and Function	80,000					WCPFC Core Budget
<b>On-going</b>	Information Security Policy	15,000		25,000			