



TECHNICAL AND COMPLIANCE COMMITTEE

Eighth Regular Session

27 September- 2 October 2012

Pohnpei, Federated States of Micronesia

REPORT ON STATUS OF ROP DATA MANAGEMENT

Paper prepared by the WCPFC Secretariat and SPC-OFP

WCPFC-TCC8-2012/16_rev1

12 September 2012

1. This paper serves to provide an update on the status of ROP data management at SPC/OFP over the past twelve months. This paper expands on the version that was presented to SC8 (WCPFC-SC8-2012/ST IP02), and covers the following:

- Human resources involved in observer data management at SPC/OFP
- Current issues with observer data management
- Initiatives for distributing observer data processing
- WCPFC ROP data management financing and cost-optimisation
- Future expectations

2. The evolution of ROP data management from the current situation towards establishing observer data management within national observer programmes, including consideration for electronic reporting, has begun, but will take a number of years to fully implement, including consideration of the costs involved. To relieve the administrative burden in the current situation and ensure ROP data continue to be made available for the work of the Commission, some suggestions are made in the paper.

3. TCC8 is invited to recommend to WCPFC9:

- the relocation of the SPC Pohnpei ROP data entry staff (2) from SPC Pohnpei offices to the WCPFC Secretariat offices in January 2013.
- that the ROP data entry budget is maintained at least at the current level for the next three years, with consideration for adding the costs of the observer database management staff (observer data manager and data audit officer) to the 2014 and 2015 budget pending clarification of when current funding for these positions will terminate and discussions at respective TCC and WCPFC regular sessions in the next 2-3 years; and
- that the Secretariat be tasked with undertaking a more comprehensive analysis of future options for ROP data management, including options raised in the Cost Recovery and Optimisation of Commission Service Costs Report.

1. Introduction

1. Observer data management encompasses a number of activities that ensure the data collected by observers are made available for the work of the WCPFC in a form that is both representative and of acceptable quality. Observer Data Management covers the primary task of observer data entry into a standardised database system, but it also covers the many other activities described in Williams (2011).

2. The SPC/OFP has been processing observer data on behalf of their member countries for more than 15 years and has developed considerable infrastructure (staff and systems) to handle this large task. In recognition of this existing capacity and the fact that SPC/OFP manages other data collected by WCPFC, SPC/OFP has carried out the ROP data management task on behalf of the WCPFC since the inception of the ROP. Further the Seventh Regular Session of the Commission (6–10 December 2010) approved the continuation of this work in respect of the Regional Observer Programme (ROP) data in the short-medium term (Anon., 2010a, Anon., 2010b).

3. The Pacific Island Forum Fisheries Agency (FFA) also processes observer data* for the US Multilateral Purse seine Treaty and the FSM Arrangement and these data are regularly incorporated into the ROP data submitted to the WCPFC.

4. The majority of the observer data processed by the SPC are ROP-defined purse seine trips† which are currently designated as the highest priority for processing. The SPC/OFP also processes non-ROP (ie national) observer data that are of importance to the scientific work of the WCPFC and so have been included in the description of observer data management and data summaries, presented in this paper. Note however, that these data are not earmarked as WCPFC data, are not provided to the WCPFC Secretariat and are not included in the costing for ROP data entry (WCPFC ROP Data Management Project).

5. This paper serves to provide an update on the status of ROP data management at SPC/OFP over the past twelve months. This paper expands on the version that was presented to SC8 (WCPFC-SC8-2012/ST IP02), and covers the following:

- Human resources involved in observer data management at SPC/OFP
- Current issues with observer data management
- Initiatives for distributing observer data processing
- WCPFC ROP data management financing and cost-optimisation
- Future expectations

The TCC is encouraged to review the information in this paper and provide suggestions for enhancements for future WCPFC meetings, as required.

2. Human Resources for managing observer data

6. Over the past twelve months, the team dedicated to managing observer data has stabilised with continued project funds provided under the WCPFC ROP Data Management project, the New Zealand-funded 'Pacific Economic Growth Observer Programme' and the New Caledonian government. The current team comprises:

* SPC enters the length frequency data (PS-4 forms) for these observer programmes.

† ROP trips do not include that part of an observer trip conducted on a vessel fishing in their home waters (waters of national jurisdiction).

- Two (2) technical staff at SPC Noumea overseeing observer data management (currently NZ project funded)
 - Observer Data Manager
 - Observer Data Audit Officer
- Twelve (12) observer Data Entry staff
 - One observer data registry officer at SPC Noumea (WCPFC funded);
 - Nine (9) data entry staff at SPC Noumea (5 WCPFC funded and 4 funded by NC govt.);
 - Two (2) data entry staff at SPC Pohnpei (WCPFC funded);

7. Staff movements over the past year include,

- Recruitment of two new staff at SPC Pohnpei, following the resignations of the staff originally employed in June 2011;
- Recruitment of two new full-time staff at SPC Noumea in March/April 2012 to replace one staff member who resigned in December 2011, and another whose contract was not renewed in April 2012;
- Recruitment of one staff at SPC Noumea on a short-term contract from February-May 2012;
- Commencement of one volunteer data entry staff at SPC Noumea for a period of three months (July-September 2012).

8. In addition to the cadre of staff dedicated to observer data management, there are several other SPC/OFP staff involved in this area, including:

- Fishery Monitoring Section staff in the observer support unit (3), who are regularly called on for their knowledge and expertise in resolving issues identified in the observer data during data entry;
- Head of OFP Data Management Section, who works with the Observer data manager on strategy, priorities related to observer data management, human resources issues, preparation of ROP data for inclusion in stock assessments and related analytical work, and responding to requests for ROP data summaries from the WCPFC Secretariat;
- SPC core (non-ROP) data entry staff members have contributed, at no expense to WCPFC, approximately eight person-months (representing a value to the WCPFC of approximately US\$25,000) during 2011 in reducing the backlog in processing ROP data.
- Fishery Monitoring Section staff who organize the printing and distribution of observer workbooks to SPC member observer programmes who are providers to the ROP.
- Fishery Monitoring and Data Management Section staff who are involved in the provision of scanners and associated software in the offices of fisheries administrations for the electronic provision of scanned observer work books to SPC/OFP.
- OFP staff on duty travel and Pacific Island participants at regional meetings, who occasionally carry scanned data back to SPC/OFP for processing.

9. SPC observer data entry staff are required to successfully complete selected modules (1-2 weeks training) of the PIRFO observer training course to understand the tuna fisheries and the data collected by observers. The four new data entry recruits at SPC Noumea undertook the course in early 2012. Over the past six months, the new data entry staff based at SPC Pohnpei have undertaken basic training in observer work provided by the WCPFC Secretariat Observer Coordinator and the OFP Observer Training Officer based in Pohnpei. After an initial familiarisation period and training, the newly recruited data entry staff members have attained the target rate of data entry assigned to cover the rate of incoming data.

3. Status of Observer data entry and issues

10. Table 1 shows the status of observer data entered by SPC as at 10th July 2012. Tables 2 and 3 provide an indication of the breakdown of observer data processed by observer programme and by purse seine fleet, respectively. Figure 1 provides a visual impression of the amount of observer data collected and processed in the tropical WCPFC purse seine fishery in one year under the CMM requirements for 100% observer coverage.

11. Observer data for an estimated 79% (1,367 trips) of all observer purse seine trips conducted during 2010 have been received at SPC at the time of writing this paper. Observer data for an estimated 56% (1,009 trips) of trips undertaken in 2011 have also been received. For the data received at SPC, 12% (167 trips) of those received for 2010 activities, and 8% (77 trips) of those received for 2011, have problems that need to be resolved before the data are ready for entry.

12. A total of 97% (1,160 trips) of the observer data received at SPC for 2010 observer activities have now been entered (excluding the problematic trips). A total of 62% (575 trips) of observer data received at SPC for 2011 activities have now been entered (excluding the problematic trips).

13. The 'problematic' trip data held at SPC are mainly due to incomplete or poor quality scanned data submissions which prevent the trip data being entered. Most of these problems are being resolved with the distribution of new scanning software, a user manual, a secure FTP site that automatically transfer scanned data overnight to SPC and more stringent procedures for managing the scanning process. A process of identifying the need to rescan observer trip data has been implemented at SPC and resubmissions of the scanned data are requested from national programmes and the trip data entry can continue once the new scans have been received.

14. It is understood that some of the data not yet submitted to SPC have been rejected by the national programme for one reason or another (incomplete or bad quality). The extent of the rejected trips is not yet known, and SPC is working with national and sub-regional observer programmes to document the extent of data rejected by the observer programme, including recommendations for the provision of these data to SPC, even if they are not to be entered.

4. Achievements over the past twelve months

15. The work related to observer data achieved over the past twelve months includes,

- Since January 2012, the new Observer database system (TUBs) has been used to process ROP observer data at SPC offices. This system continues to be enhanced to support the latest version of data entry forms, new reports and initial work to support the integration with the new Information Management Systems (IMS) established throughout the region;
- The TUBs Observer database system was installed in the offices of Papua New Guinea National Fisheries Authority (NFA) in May 2012 with training provided. Trial data entry is currently being undertaken, with expectation of 1-2 follow-up visits in the second half of 2012, including a visit to audit the data entered by PNG/NFA;
- A new observer reporting system, TUBS Viewer, was developed. This system is web-based and provides summary reports of observer data which will be made available to the WCPFC Secretariat and national and subregional observer programmes in the coming year;
- A new observer data quality control system was implemented at SPC in March 2012. This system operates like an electronic "help-desk" and facilitates the resolution of issues that arise during the data entry process and also the compilation and reporting of problem

categories which are subsequently reviewed by the observer debriefing and training staff to identify areas that need more focus in training.

- A new Observer Debriefing Database System was developed and established during the past twelve months. This system will be used by Observer Debriefers to, *inter alia*, enter the observer debriefing form data and provide reports highlighting problem areas which will in turn inform the process of enhancing data collection forms and identify key areas for re-training.
- A global observer trip list database was established. This database is planned to contain all of the trips conducted throughout the region, regardless of whether data have been provided or not. This database will assist in estimating the amount of data not yet provided and identifying trips where data have been rejected by the national programme.
- During 2012, several ROP data requests were approved under the 2007 and 2009 WCPFC data access, protection and dissemination procedures and were actioned by SPC, on instruction from the WCPFC Secretariat: EU-Spain, and New Zealand for access to ROP data related to their flagged vessels, and to Federated States of Micronesia and Nauru for access to ROP data related to activities within their areas under national jurisdiction and in an area of high seas out to 100nm. At the time of writing, the WCPFC Secretariat was considering a similar request from the Kingdom of Tonga.

5. Initiatives for distributing observer data processing

16. In addition to increasing resources for processing observer data over the past two years and six months (refer to Section 2 above), the following initiatives for trialling the distribution of observer data processing were undertaken in the past twelve months:

- The SPC-developed TUBs Observer database system has now been installed on a trial basis in the Marshall Islands (2010), the Philippines Bureau of Fisheries and Aquatic Resources (BFAR) (2011) and in the offices of PNG/NFA (2012). The latest version of TUBs is now stable and will potentially be available for additional trial sites in country fisheries offices in the coming year. At this stage, the schedule for installation is Fiji (late 2012/early 2013) and Cook Islands (late 2012/early 2013). The quality and coverage of data entered will be closely monitored in all TUBs sites over the coming year;
- The initiative to trial on-board observer data entry which commenced in 2011 with a trip by an FSM NORMA observer will continue in late 2012. The availability of “tablets” that support the WINDOWS operating system will mean that the TUBs observer database management system will be potentially operational with minimal modifications. The TUBs system will ensure the necessary level of data quality with referential integrity and validation checks already established in the system. It is expected that cosmetic changes to the screens to suit the tablet will be required to make the system easier to use. It is envisaged that later versions of “TUBs for tablets” should consider the integration with GPS units to automatically generate position and date/time data for storage in the databases.
- Another initiative currently being trialled is the use of voice recognition software to record the length frequency data collected by observers. This type of initiative is well established in other domains, such as on-line banking, stocktaking /inventory applications. In a very short time, SPC has developed an application to suit the recording of purse seine observer length frequency data using voice recognition. The benefits of this type of data collection include:
 - “Hands-free” – it allows the observer / port sampler to measure fish without having put down callipers and write on a form;

- More efficient – Observer length data collection and entry are currently the most time-consuming due to the volume of data involved;
- Off-the-shelf equipment (i.e. no need to develop customised hardware/equipment)
- Software easy to develop, customise and maintain (e.g. easy to implement validation checks)
- Flexible – different combinations of voice and audio feedback for validation can be used;
- Always have voice recording as a backup which can be linked to the digitised data (Debriefing and data quality issue)

6. WCPFC ROP data management financing and cost-optimisation

17. The WCPFC8 approved ROP data management budget for 2012 and indicative budget for 2013 and 2014 is shown below. WCPFC8 was informed by New Caledonia, that subject to the availability of funds the current level of contribution from New Caledonia will continue through 2014.

	<i>Approved 2012</i>	<i>Indicative 2013</i>	<i>Indicative 2014</i>
Regional Observer Programm data entry (SPC) <i>see Note 3</i>	334,769	334,769	334,769

Note # 3 Reg. Obs. Prog. Data entry support (SPC): The line item for data entry costs are offset by donations paid directly to SPC from New Caledonia and New Zealand. The funds from New Zealand will continue through to May 2014. An increase in the indicative budget will be made in FAC6.

18. The 2012 WCPFC ROP data management project budget should provide for following staff complement:

- One observer data registry officer at SPC Noumea;
- Nine (9) data entry staff at SPC Noumea;
- Four (4) data entry staff at SPC Pohnpei ;

19. Therefore, in 2012 two of the Pohnpei-based data entry positions and one of the Noumea-based data entry positions have not been filled in 2012, although some overtime was offered to fill the gaps in Noumea, particularly in the lead-up to SC8. The turnover of staff in data-entry positions in both Pohnpei and Noumea during 2011/12 has meant that staff recruitment efforts have been devoted to the replacement of staff. Also, given that the budget is approved for one year only each December, recruitment of new staff must be aligned to the funding cycle, which is invariably the start of each year only.

20. It is expected that the future costs to WCPFC of ROP data management will increase from mid-2014, in particular once the funding from NZ and New Caledonia (provided directly to SPC) concludes and the costs for the database management staff (Observer data manager and Observer data audit officer) need to be covered. In the original WCPFC budget submission that was provided to TCC7/WCPFC8, it was noted that the ongoing costs of maintaining the current levels of ROP data management staffing (in the absence of NZ and NC funds) was approximately \$ 896,811. This estimate needs to be re-calculated given the likely developments foreshadowed in this paper.

21. The WCPFC Cost Recovery and Commission Services Costs Report (Wyatt and Wallis, 2011) recognised that the ROP which commenced in 2009 is a key component of scientific data collection and compliance monitoring for the Commission. The study recommended that direct costs of data entry should be paid by vessels, based on an average cost per vessel regardless of whether they

carry an observer. During WCPFC8, there was some preliminary discussion on the study following its presentation including a proposal for some further work on cost optimisation of ROP data entry, but due to insufficient time WCPFC8 did not finalise recommendations with regard to recommendations of the study. Other select points of note from the Study, are provided in Box 1 for the reference of TCC8.

7. Future expectations

7.1 Relocating SPC Pohnpei Data Entry Staff to the WCPFC Secretariat

22. The WCPFC Secretariat and SPC have discussed the merits of moving the ROP data entry staff currently located in SPC Pohnpei offices to the WCPFC Secretariat offices on a number of occasions. The main benefits include having a closer relationship with the WCPFC ROP staff and more direct administration of the positions. The ROP data entry staff based at SPC Pohnpei cover the processing of about 50% of the data collected by the FSM National Oceanic Resources Management Authority (NORMA) observers. NORMA have now provided formal authorisation for the SPC Pohnpei data entry staff to move to the WCPFC Secretariat offices on the proviso that SPC data management staff continue to provide technical support to the data entry staff and for the database system, and to compile the data to be entered into the ROP database held by the WCPFC Secretariat.

23. In May 2012, an in-principle agreement was reached between WCPFC Secretariat and SPC-OFP to relocate the ROP data entry staff from SPC Pohnpei offices to the WCPFC Secretariat offices. Pending formal approval by the Commission at the December 2012 regular session, this move would occur on January 1st 2013 with the current staff members moving from SPC contracts to WCPFC contracts and the expectation of recruiting a further two staff members at some stage during early 2013 (to cover 100% of the NORMA observer data entry). SPC will facilitate the move in collaboration with the WCPFC Secretariat which will include the installation of the new data entry software and training.

24. The implications of the relocation and the recruitment of two additional staff to cover 100% of the NORMA observer data is still being examined by WCPFC Secretariat and SPC. Further details will be provided in the WCPFC9 FAC papers.

7.2 Short to mid-term expectations related to the ROP data dissemination and use of ROP data in Compliance Monitoring

25. The WCPFC Secretariat anticipates that requests for access to ROP data under the 2007 and 2009 WCPFC data access, protection and dissemination procedures will be ongoing, and has the potential to grow from the present level of requests. During TCC7 and WCPFC8, flag CCMs made it clear that they expect, in accordance with Annex B of CMM 2007-01 (para 1c), to be able to receive timely notification of comments by the observers regarding vessel operations. Coastal States Members have also expressed interest in having regular access to ROP data related to fishing activities that occur within or in nearby high seas areas to their EEZs.

26. SPC-OFP has established extraction programmes which will enable ROP data requests relating to historical (non-near-real time ROP information) to be satisfied on a more timely and efficient basis. However, WCPFC Secretariat and SPC-OFP recognise that there are inevitably some current limitations to WCPFC/SPC-OFP's ability to disseminate ROP data to CCMs under the WCPFC data access, protection and dissemination rules and procedures, for example, issues related to the timeliness of ROP data submissions to WCPFC/SPC-OFP.

27. In addition, the WCPFC Secretariat notes that additional resources will be required if ROP data are expected to be used increasingly in WCPFC Compliance Monitoring, including if the Compliance Monitoring Scheme is extended beyond 2012. For example, the WCPFC will need to further develop the WCPFC Integrated MCS Information Management System (*for further detail see paper on anticipated resource implications from CMS WCPFC-TCC8-2012/19*).

7.3 Mid- to long-term expectations for ROP Data Management

28. The data entry staff required to enter the significant increase in observer data collected throughout the region since January 2010 is near full complement with the planned addition of two additional staff at WCPFC Secretariat expected in early 2013. Some of the backlog of observer data entry will continue to be addressed through the core SPC data entry staff (i.e. those staff not recruited for ROP data entry) where possible. At this stage, the additional data entry burden that the implementation of 5% observer coverage in the longline fishery (January 2013) will bring has not yet been factored in.

29. It is hoped that the problems in scanning and transmitting observer data to SPC/OFP and the WCPFC Secretariat (ROP data only) will continue to improve over the coming year.

30. SPC will continue to work closely with the WCPFC Secretariat over the coming year on the following areas:

- Continued provision of ROP data on a regular basis and training in accessing the ROP data using current Observer Trip Viewer tool;
- Meeting with WCPFC Secretariat to get their requirements for contributing to the establishment of a comprehensive reporting system for ROP data, mainly aligned to their requirements for CMM and Compliance Monitoring;
- Pending approval from WCPFC9, facilitate the move of Pohnpei ROP data entry staff from SPC Pohnpei to WCFPC Secretariat offices, including training, and the recruitment of additional staff;

31. SPC data management staff, including those not dedicated to observer data management, will continue to investigate options for distributing observer data entry in the coming years to the extent that resources (human and financial) are available, noting that on-site support in national programmes, comprising an experienced observer coordinator and technical database person, is an essential requirement for these initiatives.

32. With the gradual installation of the TUBs Observer database in the offices of Pacific Island member countries (and potentially other certified ROP providers) in the next 3-4 years, the burden for data processing at SPC will reduce, although work in areas such as training, data quality control and importing data into the main ROP database is expected to significantly increase.

33. The potential implementation of electronic recording of observer data in the coming years will also reduce the burden on data processing at SPC, although resources (e.g. funding and human resources) for recurrent equipment costs, ongoing training and technical support are likely to exceed the current budget. This would should be the subject of a comprehensive costing study.

34. SPC will also continue to work with the Pacific Islands Forum Fisheries Agency (FFA) and the PNA office to improve efficiencies in observer data management, including the adoption of the TUBs system as the regional standard for processing data collected by observers.

8. TCC8 Recommendations

35. The evolution of ROP data management from the current situation towards establishing observer data management within national observer programmes, including consideration for electronic reporting, has begun, but will take a number of years to fully implement, including consideration of the costs involved. To relieve the administrative burden in the current situation and ensure ROP data continue to be made available for the work of the Commission, further consideration needs to be given to the future of ROP data management. TCC8 is invited to recommend to WCPFC9:

- the relocation of the SPC Pohnpei ROP data entry staff (2) from SPC Pohnpei offices to the WCPFC Secretariat offices in January 2013.
- that the ROP data entry budget is maintained at least at the current level for the next three years, with consideration for adding the costs of the observer database management staff (observer data manager and data audit officer) to the 2014 and 2015 budget pending clarification of when current funding for these positions will terminate and discussions at respective TCC and WCPFC regular sessions in the next 2-3 years; and
- that the Secretariat be tasked with undertaking a more comprehensive analysis of future options for ROP data management, including options raised in the Cost Recovery and Optimisation of Commission Service Costs Report.

9. References

- Anonymous. 2010a. Report of the Seventh Regular Session of the Commission for the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean. 7–11 December 2010, Honolulu, Hawaii, USA. Western and Central Pacific Fisheries Commission, Pohnpei, Federated States of Micronesia.
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- Wyatt, N and Wallis P. 2011. Cost Recovery and the Optimization of the Commission Services Costs – Report to the Secretariat of the Western Central Pacific Fisheries Commission, August 2011 (Revised version March 2012), WCPFC8-2011/13 Rev 1, Eighth Regular Session of the WCPFC, 26-30 March 2012, Tumon, Guam U.S.A.

10. Tables and Figures

Table 1. Purse seine ROP Observer data

YEAR	Estimated trips undertaken	Data received at SPC		Data entered at SPC			Problems awaiting resolution at SPC ²			Data not yet sent from Obsv. Progs.	
		Trips	%	Trips	% of total estimated trips	% of received without problems	Trips	% of total estimated trips	% of received	Trips	% of total
2010	1,739	1,367	79%	1,160	67%	97%	167	10%	12%	372	21%
2011	1,810	1,009	56%	575	32%	62%	77	4%	8%	801	44%

Notes

1. Estimated trips determined from VMS data. These trips exclude the Philippines and Indonesian domestic fisheries, purse seine trips undertaken completely outside the tropical waters (20°N-20°S) and trips by fleets completely in their waters of national jurisdiction (i.e. non-ROP trips).
2. In some instances, trips identified in the VMS data where no fishing actually took place (e.g. returning to home port in Asia for annual maintenance) may have been included in the "Estimated" trips.
3. There remain some trips which do not yet have the length frequency data received/entered (PS-4 forms).

Table 2. Provisional purse-seine observer trips undertaken in 2010 (left) and 2011 (right), by major observer programme

2010 Observer Trips						2011 Observer Trips					
Observer Programme	(Estimated) Trips undertaken	Trip data received at SPC	%	Trip data not yet received	%	Observer Programme	(Estimated) Trips undertaken	Trip data received at SPC	%	Trip data not yet received	%
FSM	373	206	55%	167	45%	FSM	355	145	41%	210	59%
Kiribati	200	109	55%	91	46%	Kiribati	150	44	29%	106	71%
RMI	82	59	72%	23	28%	RMI	80	21	26%	59	74%
Nauru	6	6	100%	0	0%	Nauru	5	5	100%	0	0%
PNG	387	385	99%	2	1%	PNG	642	370	58%	272	42%
Solomons	233	187	80%	46	20%	Solomons	160	89	56%	71	44%
US MLT	274	238	87%	36	13%	US MLT	238	189	79%	49	21%
FSM Arr.	184	177	96%	7	4%	FSM Arr.	180	146	81%	34	19%
Total	1,739	1,367	79%	372	21%	Total	1,810	1,009	56%	801	44%

Notes

1. Estimated trips excludes non-ROP trips
2. Values in red are approximate number of trips determined from anecdotal information.
3. Most of the US MLT and FSM Arrangement data for 2011 have only been received recently and have not yet been imported into the main database.
4. Some of the FSM Arrangement trips may be counted in the national programme trips and the FSM Arrangement trips may not account for those FSM Arrangement vessels covered under the Regional Arrangement (RA) between RMI and FSM, for example.

Table 3. Estimated purse-seine vessel trips and trip data received at SPC, by flag, for 2010 (left) and 2011 (right)

2010 Observer Trips			
Flag	Estimated Trips	Trip data received at SPC	%
China	75	47	63%
Chinese Taipei	260	160	62%
Ecuador	16	11	69%
El Salvador	8	6	75%
FSM	47	37	79%
Japan	240	204	85%
Kiribati	23	18	78%
Korea	293	225	77%
Marshall Is.	66	39	59%
New Zealand	25	3	12%
PNG	250	245	98%
Philippines	90	86	96%
Solomon Islands	15	4	27%
Spain	24	15	63%
Tuvalu	12	12	100%
USA	274	239	87%
Vanuatu	21	16	76%
Total	1,739	1,367	79%

2011 Observer Trips			
Flag	Estimated Trips	Trip data received at SPC	%
China	80	41	51%
Chinese Taipei	260	113	43%
Ecuador	51	13	25%
El Salvador	16	7	44%
FSM	55	33	60%
Japan	272	121	44%
Kiribati	56	12	21%
Korea	264	117	44%
Marshall Is.	93	64	69%
New Zealand	23	1	4%
PNG	196	186	95%
Philippines	105	97	92%
Solomon Islands	25	5	20%
Spain	32	0	0%
Tuvalu	6	1	17%
USA	248	189	76%
Vanuatu	28	9	32%
Total	1,810	1,009	56%

Notes

1. "Estimated trips" are provisional and based on the best combination of available logsheet and VMS data for the WCPFC Convention Area. These values exclude the domestic fisheries of the Philippines and Indonesia and domestic fleets based exclusively in PNG and the Solomon Islands waters (non-ROP trips).
2. In some instances, trips identified in the VMS data where no fishing actually took place (e.g. returning to home port in Asia for annual maintenance) may have been included in the "Estimated" trips.
3. Comparison of 2010 trips above and Tables 1 and 2 suggest there were some vessel trips without an observer. Further investigation is required.
4. "Obs. Trips" represent the observer data provided to SPC as at 15th July 2012, although a number of these trips are not yet be processed (see Tables 1 and 2).



Figure 1. The amount of purse seine observer data collected in the tropical WCPFC fishery in one year under the CMM requirements for 100% observer coverage.

43. The likely new 2011 CMM for yellowfin and bigeye tuna, 100 per cent observer coverage on purse seine fishing vessels, and the requirement by 2012 for 5 per cent observer coverage of all longline fishing vessels dictate the need for 400- 450 trained observers at present with an additional 200-250 trained observers by 2012 as a minimum, with continuing maintenance of these levels due to attrition.

44. National and sub-regional observer programmes currently recover costs for observer deployment observer salaries, and allowances through national observer service providers, and the tuna fishing industry. Costs for the training of observers from Pacific Island members of the FFA and SPC are generally covered by donor and member contributions to those two organizations. WCPFC members that are not members of the FFA and/or SPC are required to fund their own training courses so that their observers are trained to meet regional standards.

Optimising costs of delivery of service

45. The main cost driver of the ROP is the observer coverage rate. The costs of observer training and audit, observer salaries and incidentals, and data entry all depend on these rates. Because of the range of purposes for the ROP, it is not possible to specify its primary objective, and hence what the optimal coverage rate is for each vessel or gear type. This is a question that will need to be addressed by the WCPFC in each situation.

46. The main cost faced by the Commission in its budget is data entry. How best to manage these costs depends on the timescale under consideration:

(a) In the long term, on-board electronic data entry may be the best approach in a number of situations. While it requires capital investment, it appears to have lower on-going costs and fewer validation issues than the current system of post trip manual data entry. New Zealand's experience with onboard electronic data entry suggests that software development is the most costly item, as it is purpose built. The competitive nature of the electronics market keeps hardware costs manageable. If electronic data processing becomes used more widely in fisheries management, ready-made software packages should become available at a lower cost than bespoke ones.

(b) Who is in the best position to manage data entry service delivery then becomes a medium-term issue. The consultants were not able to find strong arguments as to whether national or regional management would drive more cost-effective service delivery.

(c) In the short term, the Commission should continue to take steps to reduce the costs to its members, including a requirement for subsidies from parties who wish to use higher cost providers. In the event that these costs cannot be kept down, the Secretariat should be given the authority to enter into commercial arrangements that will best manage costs. This could include realigning data requirements with the needs generated by fisheries management measures.

Other RFMOs

53. Other RFMOs use observer programs for a range of purposes. NAFO's observer programme has 100% vessel coverage, is for compliance purposes and the costs are borne by vessel operators. ICCAT and IATTC have observer programmes that are funded by the member countries that wish to use observers to manage specific activities of their vessel operators (e.g., observing transshipments to carrier vessels from large scale longline vessels). ICCAT has one programme that recovers the observer costs from the industry – vessel and farm owners' pay fixed and variable costs of observers of transfers from purse seiners to farms.