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REGIONAL OBSERVER PROGRAMME
DATA ADMINISTRATION AND MANAGEMENT OPTIONS

WCPFC-TCC5-2009/08
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Purpose of this paper

1.   To review issues, including costs, associated with options for the administration and management of data and information associated with the Regional Observer Programme (ROP).

Background

2.   ROP data management centre costs and hosting possibilities were discussed at the ROP-IWG3 (see paragraphs 23 to 29 of the ROP-IWG3 Summary Report). ROP-IWG3 recommended a comparison of costs associated with the following three data hosting options:

  a)   current arrangements with SPC at Noumea, New Caledonia;

  b)   data entry and hosting at SPC's offices, Suva, Fiji; and

  c)   data entry and hosting at the Commission Secretariat office, Pohnpei, Federated States of Micronesia.

3.   The Fifth Regular Session of the Scientific Committee (SC5), 10-21 August 2009, Port Vila, Vanuatu discussed the above three options and suggested that further costing options could also be considered for each location where applicable:

  a)   data entered by the FFA Secretariat for the sub-regional programmes and the data service provider (SPC) entering data for national observer programmes contributing to the ROP;

  b)   data entered by the observer service provider responsible to national programmes that have received interim authorization and are contributing to the ROP, the FFA Secretariat for the sub-regional observer programmes, and data service provider (SPC) for some observer providers unable to enter data;

  c)   data entered by observer service provider responsible to national programmes that have received interim authorization and are contributing to the ROP, and the FFA Secretariat for sub-regional observer programmes. Note: No data entry by SPC as the Commission's data service provider.

Data volume forecasts

4.   Conservation and Management Measure (CMM) 2008-01 requires 100 per cent observer coverage of the purse seine fishery between 20°N-20°S for the period August-September 2009 and then continuously from January 2010. CMM 2007-01 sets a target of 5 per cent coverage of the longline fishery within the WCPFC Convention Area by June 2012.

5.   With the assistance of the Oceanic Fisheries Programme of the Secretariat of the Pacific Community (SPC-OFP), the number of trips associated with the coverage targets for the tropical purse seine fishery and the longline[1] fishery have been estimated (Attachment A). These estimates were then used to project data volumes that will be generated by the ROP under the agreed target coverage scenarios for the purse seine and longline fleets (Tables 1 and 2).

Estimated number of trips that will require observer coverage

6.   Based on the SPC-OFP estimates, an estimated 3,036 observer trips will be required to achieve the required coverage (2,174 for the purse seine fishery and 862 for the longline fishery) (Tables 1 and 2, and Attachment A).

Table 1 - Purse Seine

		Estimated Annual trips	Observer coverage (%)	Required Observer trips
TROPICAL PURSE-SEINE	Pure domestic (SIDs)	179	100%	179
	Trips covered by CCM (non-SIDs)	131	100%	131
	Trips Covered by Regional prgms	512	100%	512
	ROP-defined trips	1,351	100%	1,351
	TOTAL	2,174		2,174

Table 2 - Longline

		Estimated Annual trips	Observer coverage (%)	Required Observer trips
LONGLINE	DWFN - ROP	2,007	5%	100
	Offshore - SIDs home EEZ and adjacent high seas only	2,776	5%	139
	Offshore - non-SIDs home EEZ and adjacent high seas only	4,282	5%	214
	Offshore - ROP - locally-based foreign fleets	3,768	5%	188
	Offshore - ROP - domestic, but multiple EEZ/ high seas	4,406	5%	220
	TOTAL	17,238		862

Data Management Centre Cost Items

Office overheads

7.   Equipment, freight and communication costs are assumed to be similar for each of the three locations.

Staff costs

8.   Salary costs vary between the three locations considered for the data management centre. Fiji salary costs are based on salary scales in effect in Fiji for the Council of Regional Organisations in the Pacific (CROP) organisations, SPC salary levels have been applied to the Noumea option and WCPFC salary levels and benefits applied to the Pohnpei option. A 15 per cent Administration Fee has been added to all salary and benefits costs (Table 3).

9.   The IT and database development costs for Fiji and Pohnpei (0.5 per cent) are a higher percentage than is given for SPC Noumea (0.05 per cent). This is because SPC, Noumea has a well established and well staffed IT section that could cover the IT requirements of a data entry section,

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[1] The number of trips estimated for longline fisheries exclude the coastal longline fishery of Japan, and the domestic longline fisheries of the Philippines and Indonesia.

whereas if the data management was to be established in Fiji or Pohnpei, an IT staff member will need to be employed to service data management IT needs.

10.   It is estimated that sixteen (16) data entry operators will be required to enter all ROP data depending on the final assessment of data processing requirements for the longline fishery.

Table 3 - Staff Cost Comparisons

Noumea - * includes performance bonus, provident fund, leave loading, insurance, housing, education allowance and management fees	Annual Unit Cost US$	Number of staff required	Total annual Salary Cost US$
Observer Data Manager	163886	1	163886
Observer Data Quality Control Technician	131089	1	131089
Data Entry staff	47195	16	755120
Database Development Staff	131089	0.05	6555
IT System Support Technicians	131089	0.05	6555
TOTAL			**1,063,205**

Fiji * includes, Super, housing, education allowance, medical insurance and 15% administration fee	Annual Unit Cost US$	Number of staff required	Total annual Salary Cost US$
Observer Data Manager	109223	1	109223
Observer Data Quality Control Technician	71150	1	71150
Data Entry staff	12645	16	202320
Database Development Staff	109223	0.5	54611
IT System Support Technicians	71150	0.5	35575
TOTAL			**472879**

Pohnpei * includes , super, COLDA, housing, location, education allowance, medical insurance and 15% administration fee	Annual Unit Cost US$	Number of staff required	Total annual Salary Cost US$
*Observer Data Manager (J5 level)	148300	1	148300
*Observer Data Quality Control Technician (I5 level)	118 513	1	118,513
Data Entry staff Average of support level range Treasury officer	14,600	16	233600
Database Development Staff	148300	0.5	74150
IT System Support Technicians	118513	0.5	59257
TOTAL			**633820**

Data work books

11.   The cost for producing and delivering Observer Work Books (OWBs) to the participating national and sub-regional programmes is estimated to be US$75.00 per observer trip. For 3,000 observer trips a year the total costs for producing and delivering the Observer Work Book is estimated to be US$225,000.

Equipment costs[2]

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[2] Assumptions - There will be 16 x staff recruited for data punching and verification work, and the equipment will conform to the WCPFC Secretariat's Equipment Replacement Policy and Procedures.

12.   If data entry for the ROP was hosted in Pohnpei or Fiji, the following equipment would be required:

- Database server (1);
- Network equipment (switches);
- Desktop computers (20);
- Laptop computers (2);
- Network printers (3);
- Scanners (2);
- Photocopier (1); and
- UPS for all equipment.

Table 4 - Equipment Costs[3]

Item Description	Unit Price	QTY	Total Price (US$)
Server Hardware:- HP ProLiant ML350 G5 1 $9,000.00 $9,000.00 - Dual Intel Quad Core Xeon 2.0GHz Processor - 8GB PC2-5300 RAM - 300GB 15K SAS Hard Disk Drives (6 disks) - Redundant Power Supply - SCSI RAID Controller - 3 year warranty	9,000	1	9,000
Server Software:- Microsoft Windows Server 2008 OLP 1 Microsoft Windows Server 2008 OLP CALs Microsoft Office SharePoint Server 2007 OLP Microsoft Office SharePoint Server 2007 OLP CALs Microsoft SQL Server 2005 Processor OLP Symantec Backup Exec SQL Agent	950 40 5,750 125 7,000 1,500	1 20 1 20 1 1	950 800 5,750 2,500 7,000 1,500
Network accessories:- Managed switch (100/1,000Mbps) Cables	3,000	1	3,000
Networkable scanners (high speed, robust and heavy duty for high volume scanning)	5,000	2	10,000
Networkable printers (high speed, robust and heavy duty for high volume printing)	5,000	3	15,000
Adequate UPS capacity for server equipment such as APC SmartUPS RM 3000VA with:- APC Network Management Card	3,000	1	3,000
Sub-total 1			*58,500*
User Desktops including hardware and software licences such as Windows XP/7, MS Office 2007 and Antivirus	3,500	20	70,000
User Laptops including hardware and software licences such as Windows XP/7, MS Office 2007 and Antivirus	4,500	2	9,000
Sub-total 2			*79,000*
Contingencies	10,000	1	10,000

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[3] Costs for recommended equipment obtained in May 2009

Sub-total 3			*10,000*
Overall Total			**147,500**

Archival Storing

13.   There will be a requirement at the WCPFC Secretariat for secure and safe storage of ROP data that will include completed data sheets, written reports, photos and other information. The estimated cost to establish secure storage for ROP data at the WCPFC Secretariat is US $25,000.

14.   Hard-copy information will be retained for 5-7 yrs and then destroyed. Digital copies of the original data will be stored and retained indefinitely.

National and Sub-regional Observer Provider Cost Items

Digital reproduction

15.   As pointed out in the SPC notes, the quickest and cheapest method of getting the information to the data management centre, regardless of where it is situated, would be for it to be scanned and sent electronically. Alternatively, the provider who collects the original data and OWB data could send it by registered or normal mail. Depending on the number of reports collected by a provider it could also be air freighted. If data is to be scanned, the original data sheets and reports would need to be placed in a secure storage for the short time they are at the observer providers' office prior to forwarding to the WCPFC Secretariat for archival storage.

16.   The estimated cost of a heavy-duty multiple-page scanner is US$5,000. This item would need to be replaced every three years for each authorised programme. Many programmes may already have this equipment and require little assistance. However some programmes (particularly SIDs programmes), would very likely require assistance in setting up a scanner.

17.   The estimated cost for digital reproduction of information is US$50,000.

Data communications costs

18.   The estimated cost to send scanned reports to a data management centre would depend on the internal telecommunication charges of each country. The cost of electronically sending many of the 3,000 reports may be included as a cost that a provider absorbs as part of its overall communication costs. However there may be some observer providers who will seek reimbursement of these costs from the ROP.

19.   The estimated annual cost for data communications is US$30,000.

Freight

20.   There will be freight costs associated with transporting hard-copy observer data from national and/or sub-regional observer providers to the WCPFC Secretariat or data management service provider for data entry, as well as freight costs to send the original hard-copies direct to the WCPFC Secretariat from the observer programmes that send their scanned information to the data management service provider for data entry. There would also be freight costs associated with sending to the WCPFC Secretariat for archival storage any hard-copy information received by the data management service provider for data entry.

21.   The estimated annual cost for freight is US$25,000.

Travel Costs

22.   Regardless of where the data management centre is located, there will be a requirement for the Data Manager and technician to travel within the WCPFC region to resolve or help establish data management protocols, assist with training and attend meetings.

23.   The estimated annual cost of travel is US$35,000.

Office rental costs

24.   It is likely that office rental would only be required if the data management was not carried out by SPC, Noumea, SPC, Fiji, or at the WCPFC Secretariat, Pohnpei. At these locations the administration costs of 15 per cent would include office rental costs. If the data management was to be contracted out to private vendors, rental would most likely be part of their proposed costs.

Infrastructure and Establishment Costs

25.   Many of these the staff establishment costs would be included in the 15 per cent Administration Fee which would include the processing the payment of salaries and other benefits. However, furniture and other sundry items for the setup of a pool of observer data quality control and data entry personnel will be required. It is estimated that the cost of furniture, excluding IT systems, will be US$1,000 per person.

26.   The estimated establishment cost for furnishings is US$20,000.

Total Costs

27.   A comparison of data management centre hosting options demonstrates that personnel costs have the most impact on total costs. Equipment and other costs (Table 5) may vary between options but for this exercise it has been assumed that they will be the same for each option. Equipment costs for 16 data entry personnel are included in all options, including for Noumea. Estimated costs for each option are presented in Table 6.

Table 5 - Estimated costs for management of observer data, not including staff costs

Item	Estimated cost (US$)
Equipment Costs	**147,500**
Data work books	**227,000**
Archival Storing establishment plus Scanner & Server for storage	**25,000**
Scan reports to data management centre	**30,000**
Heavy duty multiple page scanner for 10 programmes	**50,000**
Transporting hard copies to the WCPFC Secretariat	**25,000**
Travel Costs	**35,000**
Infrastructure and Establishment Costs	**20,000**
	559,500

Table 6 – Estimated costs for each option

	Options	Est. cost per trip (US$)	Estimated total cost (US$)
1	SPC, Noumea, New Caledonia	**535**	**1,622,705**
2	SPC, Suva, Fiji	**340**	**1,032,379**
3	WCPFC, Pohnpei, Federated States of Micronesia	**393**	**1,193,320**
4	FFA, Honiara and SPC, Noumea enter data	**535**	**1,350,340**
4	FFA, Honiara and SPC, Fiji enter data	**340**	**858,160**
4	FFA, Honiara and WCPFC, Pohnpei enter data	**393**	**991,932**
5	Obs. Providers, FFA Honiara and SPC, Noumea	**535**	**893,450**
5	Obs. Providers, FFA, Honiara and SPC, Fiji	**340**	**567,800**
5	Obs. Providers, FFA, Honiara WCPFC, Pohnpei	**393**	**656,310**
6	Obs. Providers, FFA, Honiara enter all data	**0**	**50,000**

Options from ROP-IWG3 and SC5

Options 1-3

28.   These options assume that all data will be entered by one data administration provider whereas options 4 -6 provide an assessment of costs if data is entered by more than one provider, with some or all providers absorbing the data entry costs. Using the number of trips and the costs for options 1-3 an estimated average cost per trip for data entry can be calculated (Table 6). These averages have been used to determine costs for options 4 -6.

Option 4

29.   This option envisages the FFA Secretariat entering the data collected by the sub-regional observer programmes. An estimated 512 trips will be covered annually by the ROP for purse seiners operating under these arrangements. If the FFA Secretariat elects to enter this data at its own cost, the amount of data to be entered by the WCPFC data provider (SPC) would be reduced by approximately 512 trips (refer to Table 1), leaving 2,524 trips to be entered by the data provider. The costs associated with option 4 are presented in Table 6.

Option 5 (longline data)

30.   This option envisages authorized observer providers entering the ROP observer data at their own cost. At this point it is not possible to accurately assess the number of observer trips involved. Using the average trip cost (as per Table 6) and the information from Tables 1 and 2, it is estimated that 832 longline trips will require data entry.

31.   Under a scenario of the observer provider entering the data it is estimated that approximately 65 per cent of longline trips could be entered by the ROP national observer providers, at their own expense. Approximately 35 per cent of data would be entered by the WCPFC data provider (SPC).

Option 5 (purse seine data)

32.   This option envisages 38 per cent (822 trips) for purse seine trips will be entered by observer providers and the FFA Secretariat, leaving 62 per cent (1,352 trips) of purse seine data to be entered by the WCPFC data provider (SPC).

33.   Combining the figures for long line and purse-seine in option 5, a total 45 per cent (1,366 trips) would be entered by national observer providers and the FFA Secretariat, with a further 55 per cent (1,670) entered by the WCPFC data provider (SPC). Costs associated with option 5 are included in Table 6.

Option 6

34.   This option envisages that there would be no charge to the WCPFC for data entry as costs would be absorbed by the national observer providers and FFA Secretariat. However, there would still be some costs associated with storage and freight of hard-copies to a central data library. The estimated costs associated with option 6 are included in Table 6.

Other Possible Options

35.   While there are many possible combinations of the six options presented in this paper, several other options could also be considered, including:

a) observers entering their own data onboard vessels with a supplied laptop computer and appropriate software. This information could be sent to an observer provider upon their return to port or by regularly downloading the information via satellite from the vessel to a land-based data centre;

b) observers entering data directly into specially-designed and programmed electronic hand-held data collection units. These units could communicate by satellite direct to a land-based database at regular intervals during the day; and

c) use of private data-entry companies.

Conclusion

36.   It is clear that the ROP represents a significant investment in improving the acquisition of scientific data and other information for WCPO tuna fisheries and monitoring the implementation of the Commission's conservation and management measures. To achieve maximum value of the data and information collected under the ROP it will be critical to maintain harmonized standards for both the scope and quality of data collected.

37.   It will also be important to ensure that data is processed in a timely manner, is verified and consolidated in a common database for subsequent use by the Commission. The investment in the acquisition of the data will be undermined if robust data administration and management systems and procedures are not adhered to.

Advice and Recommendations

38.   TCC5 is invited to provide advice and recommendations to the Commission on data administration and management options for the ROP, including ROP observer data collection issues such as archival storage of data, and data freight and handling procedures.

OBSERVER DATA MANAGEMENT COSTS
Notes on Observer data management costs prepared by
the Secretariat of the Pacific Community-Noumea

May 2009

Introduction

The following information has been prepared on the basis that the WCPFC will be required to implement 100% observer coverage of the purse seine fishery and 5% coverage of the longline fishery within the WCPFC Convention Area. The following assumptions have been made in preparing the information presented herein:

- The purse seine fishery to be covered will be limited to 20°N-20°S

- The longline fishery excludes the Coastal longline fishery of Japan and the domestic longline fisheries of Philippines, Vietnam and Indonesia.

- Where possible, the longline fishery has been broken down into the following categories to facilitate review of the resources required to cover each category as required.

As a guideline to how much data will be collected by observers, Tables 1 and 2 show the estimated number of trips undertaken in the WCPFC Convention Area per year, broken down by gear and fleet category. The estimate of the number of trips in the purse seine fishery is reasonably indicative, but the estimated number of annual trips for some longline fleets may only be approximate at this stage.

While it is acknowledged that there are many scenarios for establishing observer data management in the region, including distributed data management at the national and/or sub-regional levels, this document only considers the costs of managing all observer data at one site (SPC). Simple modification of the unit costs can be made to produce estimates of hosting the regional observer data management unit at another site. An attempt has also been made to provide a breakdown of the data by fleet category which will allow estimates of costs at finer levels.

Table 1. Estimated number of purse seine trips by fleet in the WCPFC Convention Area

			Estimated Annual trips	Observer coverage (%)	Required Observer trips
TROPICAL PURSE-SEINE		Pure domestic (SIDs)	179	100%	179
		Trips covered by CCM (non-SIDs)	131	100%	131
		Trips Covered by Regional prgms	512	100%	512
		ROP-defined trips	1,351	100%	1,351
		TOTAL	2,174		2,174

Notes
1. Refer to the tables in the ANNEX for a fleet breakdown
2. Covers the tropical area only (20°N-20°S)
3. Annual trips for Philippines and Indonesia domestic fisheries are probably underestimated

The costs prepared herein do not take into account resources (personnel, materials, etc.) that would normally be covered under "observer operations management". For example, this document considers that the debriefing process and the supply of calipers, pencils, recorders, GPS units, etc. falls under "observer operations management" and so should not be included in the costing for "observer data management".

Table 2. Estimated number of purse seine trips by fleet in the WCPFC Convention Area

		Estimated Annual trips	Observer coverage (%)	Required Observer trips
LONGLINE	DWFN - ROP	2,007	5%	100
	Offshore - SIDs home EEZ and adjacent high seas only	2,776	5%	139
	Offshore - non-SIDs home EEZ and adjacent high seas only	4,282	5%	214
	Offshore - ROP - locally-based foreign fleets	3,768	5%	188
	Offshore - ROP - domestic, but multiple EEZ/ high seas	4,406	5%	220
	TOTAL	17,238		862

Notes
1. Refer to the tables in the ANNEX for a fleet breakdown
2. Covers the WCPFC Convention Area
3. Excludes the following fleets
   - Coastal Japanese
   - Vietnamese
   - Domestic Philippines
   - Domestic Indonesian

Resources required for the management of observer data collection under the ROP

Personnel requirements

Data processing staff

The data processing staff will be required to have adequate computational, reading and writing skills. Ideally, the data entry staff will be trained typists or equivalent experience. The data entry staff will also be required to undertake the standard observer training course and obtain a pass score in all subjects.

The tasks that data processing staff would be required to undertake include:

- Data entry and verification
- Data Quality control
- Liaison with Observer data manager and Data Quality Control technician with regard to improving the quality of observer data
- Other duties in line with observer data management

Observer Data manager

The Observer data manager is required to have appropriate post-graduate tertiary qualifications (e.g. IT and/or fisheries biology with strong computing component) and at least five years experience in managing large-scale fisheries databases, including high-level experience in developing database applications.

The tasks that the Observer data manager would be required to undertake include:

- Manage the data entry staff and the Data Quality Control Technician;

- Liaise with CCMs and regional agencies to ensure the timely provision of data;

- Establish and implement protocols to ensure the highest quality of the data;

- Liaise with Database developers in the database development phase and when updates to the system are required;

- Prepare data summaries, data exports, and reports for dissemination to users of the data, including;
    - WCPFC Secretariat
    - Scientists conducting analyses on behalf of the WCPFC
    - Commission meetings
    - Scientific Committee
    - Technical and Compliance Committee
    - CCMs
    - SPC and FFA
    - Other Tuna RFMOs
    - Authorised requests from external parties
- Designing and conducting training courses to ensure quality data (reports .....

Data Quality Control Technician

The Data Quality Control technician is required to have appropriate tertiary qualifications (e.g. in Information technology) and at least five years experience in developing database applications.

The tasks that the Data Quality Control technician would be required to undertake include:

- Registration of observer data as it is received

- Import electronic data processed elsewhere

- Perform the ongoing data quality control checks of the data which will involved liaison with national and regional observer programmes

- Ensure that national and regional observer programmes have adequate data collection forms and other materials related to data...

- Liaise with the data entry staff with respect to data quality control

- Prepare reports showing data quality control for national and regional programmes (feedback)

IT technicians

Access to IT technicians will be required to install and maintain the hardware. It is suggested that 5% of the year might be dedicated to IT technical support.

Database development staff

Access to Database development staff will be required to maintain the system, although this may be a task of the observer database manager and data quality control officer. It is suggested that 5% of the year might be dedicated to outside database development support.

Summary of personnel costs

The SPC has at least ten years experience in processing observer data and are well placed to provide estimates on the amount of time that it takes to process an observer trip. The length of time to process an observer trip varies depending on the following factors

- The type of gear (purse seine typically requires more data to be collected and therefore processed)

- The length of the trip (the longer the trip, the more data to process.

- The skills and experience of the data entry operator (the more experienced and/or the faster the typist, the quicker the observer data will be entered). More experienced data entry staff will also produce higher quality data!

- Problems with the data, for example, poorly recorded or missing entries in the data, missing pages, erroneous data due to inexperience.

In order to determine how many data entry staff will be required to process all observer data to be collected throughout the region according to the required coverage rates, several the parameters have been determined. From experience, a data entry officer has approximately 200 days per year available to dedicate to data entry, after considering the following:

- Annual leave

- National holidays

- Contingency for Sick leave

- Contingency for work other than data entry

An experienced, skilled data entry officer will usually process a **purse seine observer trip** (including post-entry data quality control) in **1–1.5 days** (depending on the factors described above). However, an inexperienced data entry officer will usually take about 2 days to process a purse seine observer trip. Table 3 shows the estimated time taken to enter each type of observer trip based on experience.

Table 4 shows the estimated number of data entry staff required to enter each category of gear/fleet observer data based on best- and worst-case scenario situations. In the best-case situation with experienced, skilled staff available, 15 data entry staff would be required. However, in the worst-case scenario, up to 31 data entry staff (or double the number of staff) would be required, and there would be concerns regarding the quality of the processed data.

Table 5 shows the salary cost of hosting all observer data entry at SPC based on the required levels of observer coverage.

Table 3. Estimated time taken for a data entry officer to enter an observer trip, by gear, fleet and the level of skill/experience.

	Days to enter one observer trip	
	Experienced data entry staff	In-experienced data entry staff
Purse seine trip	1 - 1.5	2 - 2.5
Longline trip (offshore)	0.75	1.25 - 1.5
Longline trip (Distant-water)	2	3.5

Table 4. Estimated number of staff required to entry observer data based on required coverage rates.

		Required Observer trips	Experienced/Skilled (best case)		Inexperienced / Unskilled (worst-case)		SPC recommended	
			Trips per day	Staff required	Trips per day	Staff required	Trips per day	Staff required
PURSE-SEINE	Pure domestic (SIDs)	179	1.00	0.90	2.25	2.02	1.10	0.99
	Trips covered by CCM (non-SIDs)	131	1.00	0.66	2.25	1.48	1.10	0.72
	Trips Covered by Regional prgms	512	1.00	2.56	2.25	5.76	1.10	2.82
	ROP-defined trips	1,351	1.00	6.76	2.25	15.20	1.10	7.43
	TOTAL	2,174		11		24		12

		Required Observer trips	Experienced/Skilled (best case)		Inexperienced / Unskilled (worst-case)		SPC recommended	
			Trips per day	Staff required	Trips per day	Staff required	Trips per day	Staff required
LONGLINE	DWFN - ROP	100	2.00	1.00	3.50	1.76	2.00	1.00
	Offshore - SIDs home EEZ and adjacent high seas only	139	0.75	0.52	1.25	0.87	0.75	0.52
	Offshore - non-SIDs home EEZ and adjacent high seas only	214	0.75	0.80	1.25	1.34	0.75	0.80
	Offshore - ROP - locally-based foreign fleets	188	0.75	0.71	1.25	1.18	0.75	0.71
	Offshore - ROP - domestic, but multiple EEZ/ high seas	220	0.75	0.83	1.25	1.38	0.75	0.83
	TOTAL	862		4		7		4

Table 5. Estimated Annual salary costs to process all observer data at SPC, Noumea, New Caledonia

	Annual Unit Cost (CFP)	Number of staff required	Total Annual Salary cost (CFP)
Observer Data Manager	14,375,000	1	14,375,000
Observer Data Quality Control technician	11,500,000	1	11,500,000
Data Entry Staff	4,140,000	16	66,240,000
Database Development staff	11,500,000	0.05	575,000
IT System Support Technicians	11,500,000	0.05	575,000
TOTAL	38,640,000		93,265,000

Notes
1. In each case, the unit salary cost includes the following :
   - Annual Performance Bonus
   - Provident fund contribution by SPC
   - Leave loading (repatriation costs, home leave etc.)
   - Insurance (medical and life)
   - Housing costs (professional staff)
   - Child allowance
   - Education allowance
   - SPC Management Fee (worst-case scenario of 15%, but this could be halved, at least)

Material requirements

Data Collection Forms - Workbooks

Observer data collection forms exist as "workbooks". The current cost of printing a workbook (using professional services) and delivery to national/regional programmes has been estimated to be between 5,000-7,000 CFP per unit, depending on the gear and the trip length (longer trips need larger books). It has been considered impractical/expensive to consider the current costs of producing/freight workbooks for the ROP, and alternative ways of providing workbooks to national and regional programmes may be required.

The most convenient way to provide workbooks to observers may be to have them produced using equipment and materials readily available to the national/regional observer programme. In this case, the following materials would need to be considered and costed for each observer programme:

- Provision of a printer of adequate quality and reliability

- Equipment (printer/photocopier) that <u>must be capable of printing on waterproof paper</u>

- Local technical support to service and maintain the printer/photocopier

- Adequate supply of paper

- Adequate supply of "waterproof" paper

- Funds to cover annual maintenance of the equipment

- Readily available supply of printer cartridges

- A binding machine

- Specific instructions or a computer system that would facilitate the printing/production of a workbook

Another more efficient option might be to have sub-regional offices responsible for printing, binding and distributing the workbooks and this could put forward as an alternative option for costing.

Computer Hardware

There will need to be adequate computer hardware to support the observer data management unit.

- Database server

- Air conditioning (for server)

- Network equipment (routers, cables, etc.)

- Desktop computers for each staff member

- Laptops for Observer data manager and Observer data quality technician

- Printers (2?)

- Scanner

- Photocopier

- UPSs

- Consumables (e.g. Paper, Print cartridges)

- Need to consider costs for three-year equipment replacement

- Internet costs

For SPC, some of these items would be covered by the infrastructure and management fee.

Archival storage

The hard-copy data will need to be stored in a suitable filing facility, so should be included in the costs. Eventually, scanned copies could be stored and hard-copy data older than five years could be destroyed.

Scanners in countries collecting the observer data

Consideration needs to be given to how much it will costs to get the data to the central observer data management unit. Two options are possible, using the postal system or installing scanners at each national/regional programme and arranging for the scanner data to be sent.

For scanned data option, the following costs would need to be considered for each country collecting observer data:

- Scanner;
- Computer for scanner;
- Adequate internet connection to FTP scanned data files;
- Staff costs for scanning (or the observer);
- Maintenance of equipment;
- Three-year replacement costs for equipment.

Communication costs

Communication costs include:

- Telephone, FAX
- Internet (FTP)

For SPC, these are built into the management fee.

Travel costs

These are the costs for the observer data manager and data control technician to travel to train counterparts, liaise with observer coordinators, resolve problems, attend WCPFC meetings, etc.

Office Rental costs

This might be an issue depending on where the observer data management unit is to be hosted. This cost is not envisaged if SPC is used as the site for the unit.

Infrastructure, Management and Cooperate Services costs

This might be an issue depending on where the observer data management unit is to be hosted. For SPC, this cost is included in the management fee and the OFP provided the resources covering higher level management.

Other costs under this category might include:

- Allocation of housing (not applicable for SPC - covered in the salary costs);
- Finance management;
- IT management;
- HRM;
- Travel management.

Establishment costs

Establishment costs could include the following:

- Establishment cost for professional staff;
- The allocation of "office space";
- Development of a database system;
- Installation of Server and network;
- Installation of other equipment;
- Training of staff.

For SPC, some of these items would be covered by the infrastructure and management fee, or existing experience/software.

Major challenges

From experience dealing with observer data management in the region, the following are perceived to be the major challenges in managing observer data in the future:

- How to get the data to the observer data management unit;
- How to ensure the data are submitted <u>on a timely basis;</u>
- Data quality issues;
- Ensuring a regular/adequate supply of workbooks and other important materials.

Satisfying the requirements of national programmes, for example, that the data flow are not only one-way. They need feedback and they will be users of the data.

ANNEXES

Estimated purse seine trips per year by fleet and fleet type based on operational, aggregate and annual catch estimates data for 2004–2006.

Flag	Estimated Trips per year			
	Pure domestic (SIDs)	Trips covered by CCM (non-SIDs)	Trips Covered by Regional prgms	ROP-defined trips
AU		0		0
CN				78
ES				5
FM			34	
ID		68		
JP				302
KI			7	
KR				366
MH			61	
NZ				32
PG/FSMA			200	
PG/Domestic	160			
PH/Dom		63		63
PH/DWFN				78
SB	19			19
TW				347
US			211	
VU				61
	179	131	512	1,351

Notes
1. The estimate for the US fleet has been adjusted to reflect the current (2008/2009) vessel numbers in their fleet.
2. Some adjustments have been made to take into account the coverage of operational data available for each fleet.
3. Does not take into account some of the EPO-based fleets at this stage

Estimated longline trips per year by fleet and fleet type based on operational, aggregate and annual catch estimates data for 2004–2006.

Flag	DWFN-ROP	Offshore - SIDs home EEZ and adjacent high seas only	Offshore - non-SIDs home EEZ and adjacent high seas only	Offshore - foreign-based fleets	Offshore - ROP (multiple EEZ/ high seas)
			Estimated trips per year		
AS			244		
AU			1,405		
CK		347			
CN	485			1,939	
FJ		628			628
FM		96			96
ID					
JP/DW-OS	462				462
KI		0			
KR	485				
MH		1			
NC			356		
NU		36			
NZ			612		
PF			992		
PG		444			
PH					
PW		7			
SB		55			
TO		200			
TV		0			
TW/DW	420				
TW/OD					3,065
TW/OS				1,827	
US			672		
VN				3	
VU/DW	156				
VU/OS					154
WS		961			
	2,007	2,776	4,282	3,768	4,406

Notes
1. This table does not take into account the changes in vessels numbers of fleets during recent years. Some fleets have increased in vessels numbers while others have decreased in vessel numbers.
2. Some adjustments have been made to take into account the coverage of operational data available for each fleet.