SECOND E- REPORTING AND E-MONITORING INTERSESSIONAL WORKING GROUP MEETING (ERandEMWG2)

The Stones Hotel, Bali, INDONESIA

1 – 2 August 2016

SUMMARY REPORT

AGENDA ITEM 1 — OPENING OF MEETING

1.1 Welcome

1. The ERandEMWG Chair, Ms Kerry Smith called the meeting to order, and introduced WCPFC Executive Director, Mr Feleti P. Teo OBE to deliver opening remarks (**Attachment 1**).

2. The Chair welcomed participants to the second meeting of the ERandEMWG, and provided some opening remarks recalling the outcomes from ERandEMWG1 and overviewing the provisional agenda for the second meeting of the working group. Key points were that:

    i. ERandEMWG1 had considered a draft electronic reporting technical standards, specifications and procedures for five key reporting requirements: eastern high seas pocket special management area (CMM 2010-02); high seas pocket one special management area (CMM 2014-01/2015-01); manual position reporting in the event of ALC/MTU failure; operational level catch and effort data and observer data (see Summary Report of ERandEMWG1, Attachment 5);

    ii. The Chair had written to CCMs in March confirming that CCMs had agreed to work with the Secretariat and SPC in relation to testing these draft E-reporting standards. Testing of data standards for operational level catch and effort data and observer data were noted to be key priorities in advance of ERandEMWG2. A report on progress will be provided to ERandEMWG2 by SPC;

    iii. Intersessionally some progress has been made on development of draft process standards for E-Monitoring that will be further discussed;

    iv. The terms of reference has a requirement for the Commission to review progress by the working group in 2016, so ERandEMWG2 should provide some recommendation to the Commission with this in mind.

3. The following members, cooperating non-members and participating territories (CCMs) attended ERandEMWG2: American Samoa, Australia, China, Cook Islands, European Union, Federated States of Micronesia (FSM), Fiji, Indonesia, Japan, Kiribati, Republic of Korea, Republic of the Marshall Islands (RMI), Nauru, New Zealand, Papua New Guinea

(PNG), Philippines, Samoa, Solomon Islands, Chinese Taipei, Tonga, Tokelau, Tuvalu United States of America (USA), and Vanuatu.

4. The following intergovernmental Organisations, the Agreement on Conservation of Albatross and Petrels (ACAP), Pacific Islands Forum Fisheries Agency (FFA), the Parties to the Nauru Agreement (PNA) Office, and the Secretariat of the Pacific Community (SPC), attended EMandERWG2.

5. Observers representing Birdlife International, Environmental Defense Fund, International Seafood Sustainability Foundation (ISSF), PEW Charitable Trusts, Sustainable Fisheries Partnerships and World Wildlife Fund (WWF) also attended ERandEMWG2.

6. A list of EMandERWG2 meeting participants is at **Attachment 2**.

1.2 Adoption of Agenda

7. The provisional agenda (WCPFC-2016- ERandEMWG2-02) as adopted is at **Attachment 3**.

AGENDA ITEM 2 — REVIEW OF INFORMATION / UPDATES ON APPLICATION OF ER AND EM TECHNOLOGIES IN WCPO

2.1 Report from Secretariat, including review of 2015/16 WCPFC activities and reminder of ERandEMWG TOR

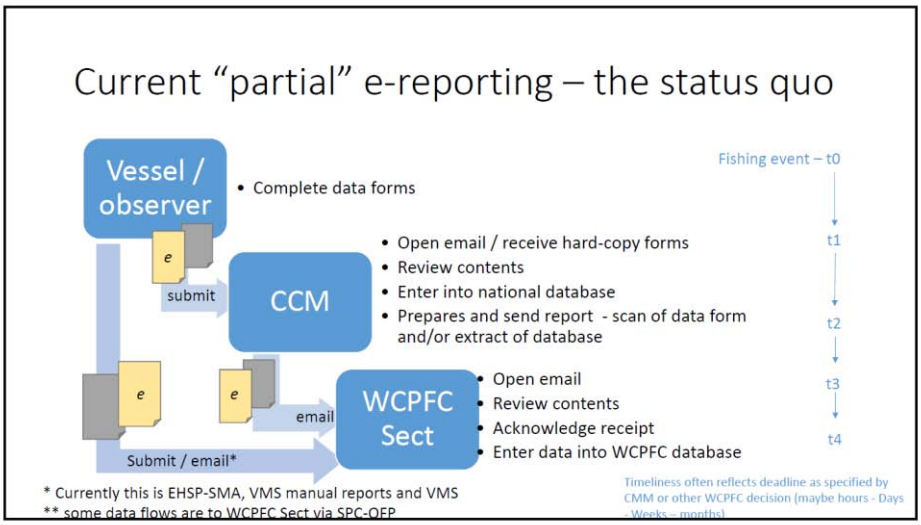
8. The Compliance Manager, Dr Lara Manarangi-Trott introduced WCPFC-2016-ERandEMWG2-03, which reviews the background to the establishment of the EMandERWG and overviews intersessional activities by the Secretariat on E-reporting and E monitoring during 2015/16. It was noted that no nominations for technical experts from CCMs were received in response to the request in WCPFC Circular 2015/23 for the technical-sub working group.

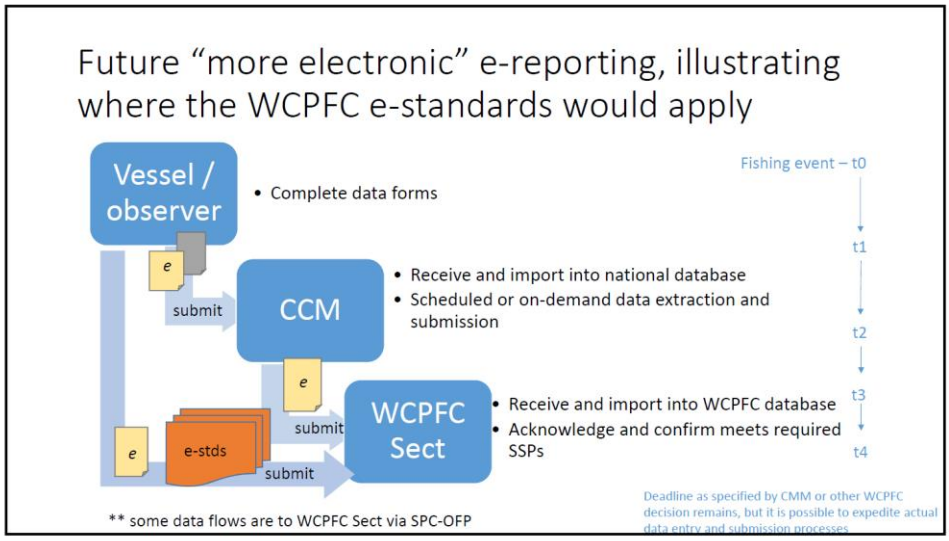
9. During the presentation of the paper, the Secretariat referred participants to Figure 2 in EMandERWG1 Summary Report which is reproduced as Figure 1 below. It was noted that currently the status quo for reporting to the Commission necessarily involves some degree of human intervention, including opening and acknowledging receipt of emails to ascertain the type of required report and the submitting CCM. It was noted that the data may be sent by CCMs contained in a variety of attachments and formats. Documenting the data submission standards ensures that data that conforms to the standards is able to enter the Commission's databases with little or no human intervention and will ensure the efficient use of resources, within national administrations, the WCPFC Secretariat and SPC. The draft electronic reporting technical standards, specifications and procedures for five key reporting requirements are to be further considered by the ERandEMWG with this future scenario in mind. It was noted that these five reporting requirements were a starting point, and that other standards that would be useful to develop in the near-term include CMM 2009-06 reporting by vessels and observers, and for submissions of aggregated catch and effort data (Scientific Data to be Provided to the Commission, paragraph 4).

10. In the brief discussion that followed the presentation, Japan expressed appreciation that the ERandEMWG fully respected and did not prejudice the rights and obligations of flag State CCMs for data collecting and validation as described in the agreed terms of referenceThis CCM also

noted that in reviewing the draft electronic reporting data fields for observer data, that there could be some merit in future revisions to the minimum required ROP data fields being considered by the Commission.

Figure 1 future state where as a result of the development of electronic data standards a minimal degree of human intervention is required (below).





2.2 Report from CCMs and observer participants

11. The Chair opened the floor for updates from CCMs on their E-technologies. A number of CCMs and observer organisations provided updates to the meeting.

12. **Australia** provided a presentation of *Catch reporting under E-Monitoring in the Australian Pacific longline fishery* (WCPFC-2016-ERandEMWG2-DP01). This was an overview of E-Monitoring as applied to its Pacific tuna longline fishery where full E-Monitoring coverage commenced from July 2015. A description of the E-Monitoring system objectives and design was provided as well as information on the performance of

the system during its first eight months of operation. A key objective of the Australian E-Monitoring system is to facilitate a fleet wide improvement in the quality and coverage of the data and information that is reported by fishing vessels (primarily logbooks). This is achieved through an audit process and feedback cycle where E-Monitoring data are collected and analysed in association with related logbook data, then performance feedback is provided to individual fishers on the accuracy of their logbooks. If required there may be subsequent compliance action.

13. Some outcomes of the Australian E-Monitoring program, particularly with respect to catch and discard estimation, were presented for the first eight months of operation. Total E-Monitoring and logbook data were compared and showed good correlation for retained catch but there remained some divergence in total catch estimates and taxonomic identification, particularly in estimates of discards. Encouragingly, there was good evidence that the E-Monitoring system has modified fisher behavior with respect to logbook reporting with substantial improvements to the quality of logbook reporting for discards.

14. In response to several comments with regard to costs of E-Monitoring and E-Reporting technologies as well as privacy concerns related to information generated by those technologies, **WWF** noted its recently concluded Electronic Fisheries Information System (EFIS) Cost/Benefits Analysis (CBA) which was presented in March 2016 in association with a series of Monitoring, Control, and Surveillance (MCS) meetings held in Auckland, New Zealand. WWF pointed out that the EFIS CBA discretely addressed the costs and benefits of the technologies as well as potential legislative solutions for privacy challenges. WWF noted that all materials from the MCS Emerging Technologies Workshop as well as the EFIS CBA are publicly available for use and review at https://drive.google.com/open?id=0B79T78ZKDRNiUWFRWUxsdzhYWlk

15. **Korea** gave a presentation on its Fisheries Monitoring System and status of ER/EM implementation. The key parts included the operation of Korean Fisheries Monitoring Center (FMC), Korean Fisheries Information Management System (KFIMS), Electronic Reporting System (ERS), status of the EM pilot project, and system demonstration. With regard to EM trial, Korea highlighted that video footage and sensor data would be transmitted to FMC in real-time in order to detect IUU fishing and to ensure the safety of vessel crew.

16. The presentation by the **Philippines** covered how E-reporting was carried out onboard the Philippine flagged catcher vessels specifically the purse seine and ringnet vessels operating in HSP1. This project commenced in 2013 in partnership with the Philippine VMS service provider and in consultation with SPC and aims to develop a system which reports vessel logsheet data electronically and in real time via the same satellite channel/transmissions that issued for VMS reporting. The E-reporting system "MARLIN 100" is a dedicated device (data terminal equipment / touch screen tablet) connected via a serial cable to the VMS unit and demonstration of the system and training was undertaken for boat captains and onboard Fisheries Observers prior to the vessels departure/deployment to High Seas Pocket 1. Data submitted is based on the SPC Regional Logsheet format that was required to be submitted by the vessels and transmitted data can be accessed and viewed from a dedicated secured website by authorized personnel only. Data generated can also be exported into MS Excel format for storage and analysis purposes. In 2015, only 81% of the

catch data was transmitted due to some technical issues and to address this, the MARLIN 100 will undergo a hardware upgrade to a wireless (Bluetooth connected) tablet and also a more user friendly software application. The Philippines noted their support for the draft SSPs for Electronic Reporting but noted that they would also be willing to participate in testing the application of the said SSP's and were seeking technical support//guidance from SPC and the Secretariat in this regard.

17. **Fiji** presented on the 3 year pilot project under the Common Oceans project Output 2.2.1 that it is currently engaged in, as of the January 2016, with the United Nations Food and Agriculture Organisation and the Ministry for Fisheries and Forests [MoFF] as per a Letter of Agreement between them. At present, 5 of the 50 vessels, under the licensed Fiji National Long-line Fleet have been outfitted with EMS. 17 MCS staff members, predominantly observers, under the MoFF have been trained in analyzing vessel trips using the Seatube View Monitoring [SVM] system and have been carrying out analysis on the current 6 SVMs. Fiji stated that the EMS tool would not replace its observer program, who are providing 100% coverage to EMS vessels trips but would provide an effective compliance tool that would assist with vessel and data coverage, amongst other matters.

18. The **USA** described four E-technology initiatives.

    i. For E-Reporting, the Hawaii-permitted longline fishery is beta testing Elogbooks to assess necessary software modifications which involve satellite connectivity and compliance with NOAA Data Security requirements. An additional issue affecting the implementation of E-Reporting is that the Hawaii-permitted longline fishery participants are from several cultural groups, each with various levels of English competency and computer technical skills; therefore, individual training on E-Reporting software will be required.

    ii. The Pacific Islands Region Observer Program (PIROP) has a developed the Thorium mobile application for observer data collection and completed one at-sea pilot test of this application in the Hawaii-permitted longline fishery. The program beta tested the user interface, including the 32 forms on a tablet that observers use to report data. The observer collected data are sent in real-time through to the PIROP debriefing staff.

    iii. The Hawaii-permitted shallow-set longline fishery currently has 100% coverage. The fishery is moving forward with E-Monitoring as some of the fleet has moved to the west coast of N. America thereby complicating observer placements with a corresponding increase in costs. The project anticipates E-Monitoring hardware and installation, data view software and training for conducting catch and bycatch comparisons.

    iv. The USA is developing a low cost E-Monitoring system for target catch and sea turtle bycatch monitoring in small-scale fisheries. Such technology has broad applications in both international as well as US based fisheries. The project improves on the design of the low cost E-Monitoring platform by making it more flexible in its power supply and adding a monitor port to enable easier camera positioning. These camera systems have been used in small scale gillnet fisheries based in Mexico, Peru, and Indonesia where a comparison is made with E-Monitoring systems to onboard observer data.

19. **New Zealand** reported on their upcoming Integrated Electronic Monitoring and Reporting System (IEMRS). This system will involve the implementation of electronic catch reporting on all commercial fishing vessels, as well as implementation of electronic monitoring of commercial fishing activities using automated on-board cameras on selected fisheries. There will also be a requirement for location information to be received from all commercial fishing vessels via Vessel Monitoring Systems. There will be development of a data management infrastructure to support the new regime, including an upgrade of the Catch Effort database and associated systems and processes. A policy and regulatory review and amendment to support the new monitoring and reporting regime, and including consideration of New Zealand's international obligations for fisheries monitoring will also occur. Identification of funding opportunities to support the implementation of IEMRS within existing levels of cost recovery will be included in this work as well as change management associated with the introduction of IEMRS. The expected timeframe for implementation of IEMRS is that it will be put in place from 2016 – 2018, rolling out as business-as-usual by October 2018.

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20. **PNG**, on behalf of **PNA**, noted that they have been working on FIMS for over 8 years now with Quick Access Computing. Further developments of the system are carried out by iFIMS Limited. PNA use FIMS to manage the Vessel Days Scheme (VDS). The FIMS "TRIPS' Module is for Electronic Catch Reporting. This component of FIMS are utilized by Country Users for VDS Validation, Catch Documentation Scheme (CDS) verification, Marine Stewardship Council verification and Fisheries Management and MCS purposes. Electronic Reporting data flows from FIMS to SPC and National IMS to improve quality and timeliness of data. The Module provides industry with a platform to manage and eLodge data near real time via IFIMS. Catch reporting and other functions are available for any country. There are over 220 purse seine vessels currently registered. iFIMS provides for Catch Reporting to the regional database - PNA FIMS. iFIMS was rolled out to all Bi-lateral Partners in November 2013 and since 1st of January 2014, vessels fishing in PNG waters have lodged catch and activity data to FIMS.

21. In terms of the data format used, FIMS uses the North Atlantic Format (NAF) data format which has all the required fields. SPC have developed a NAF data loader for electronic data received from FIMS. Observer Workbook, CDS and MSC Eforms are developed in FIMS. Observer Workbook Android App initial field trials were very successful. Trials have been completed and implementation is planned for the PNA, FSMA, US Treaty and National observer programs with discussions and continuous development with SPC on error checking of business rules at point of data entry and data transmission to SPC. FIMS also has a component for FAD Buoy Tracking. Initial trials in 2015 were successful and promising. Ongoing trials will be conducted in 2016 and 2017. FAD buoy data received from the buoy service provider are in NAF format.

22. Overall, PNG noted that the technology is well developed and in place. Advantages of the system includes error checking at point of data entry for improved data quality and integration of other data sets such as VMS to provide tools which improve data completeness. The system also provides the Observer with their own independent source of two-way communication back to shore, including SOS location tracking in the case of an emergency.

23. **Tonga** noted that they continue to support the implementation of Electronic Reporting and are currently trialling E-reporting using SPC's eTUNALOG software for the electronic submission of LL fleets logsheets. This work commenced in May this year (2016) follows the installation of the tuna database from TUFMAN 1 to the cloud base TUFMAN 2 database in Tonga on March this year. The fishing company and skippers are cooperating with this trial of electronic reporting. Tonga advised that they faced some minor challenges especially when sending electronic data to TUFMAN 2 database but worked closely with SPC in modifying reporting features so the eTunalog data is uploaded straight to TUFMAN 2 database, and it now works very well. The trial is implemented on 3 longline vessels which were actively operating by the time of implementation. At present, 2 new vessels recently joint the fleets and look forward to also include them in the project. Tonga took the opportunity to acknowledge the assistance of SPC/OFP team for their great help with software and laptops used for Tonga etunalog which helped in reducing data collection effort for fishers and also minimised error in manual data entry.

24. **FSM** noted that they are currently doing E-Reporting work with PNA with their observers entering the data into tablets through the PNA FIMS when they undertake PNA trips. FSM is also trialling the use of DeLorme Inreach devices with FFA for observers to use on longlines. FFA with SPC is providing technical support on E-Reporting and E-Monitoring hardware before implementation on FSM flagged vessels. There are also plans to work with an international non-profit organization to explore the use of E-Monitoring on the longline fleet. This work is pending Congressional approval and may commence either end of this year or early next year. FSM noted that they currently have an electronic reporting officer housed within NORMA, funded and supported through SPC. FSM continues to seek support for further development of this position and support the continued work of electronic technologies.

25. **WWF** introduced the proposed Port Inspector Electronic Reporting System (PIERS), which seeks to provide hardware to support E-Reporting by port samplers, port inspectors, landings inspectors, and/or customs officials during in-port transshipment of vessels at harbour or during shoreside landings. This E-Reporting platform would allow real time or near real time input of data from a ruggedised tablet computer, providing delivery of information necessary for proper verification and validation of catch at the point of landing or in-port transshipment. The project is meant to complement and supplement other E-Reporting initiatives in the region and WWF has consulted with SPC on the TAILS system as an option for software as well as with FIMS as a potential software provider, noting the expectation that the project is expected to be implemented in early 2017.

26. Considerable discussion followed each presentation by CCMs. A number of key areas were raised including:

    i. The extent to which costs for establishing and implementing E-monitoring technologies have been paid by governments and/or industry;

    ii. Sharing of strategies and experiences with improving industry awareness and acceptance of E-technologies;

    iii. The extent to which fishery interactions with species of special interest, such as seabirds, could be estimated to the species level from E-monitoring;

iv. Whether there were any practical or privacy issues encountered with implementing E-monitoring technologies on small vessels;

v. Considerations of cost and employment opportunities for on-board vs office observers in E-monitoring programmes; and

vi. Whether/how e-monitoring footage was used in investigations/prosecutions and how long footage needed to be stored.

27. The chairs summary included noting that there is lots of work and developments being undertaken at a national level by many CCMs. A common theme was that there was a need to have procedures that ensure data can get from vessels to Fisheries Monitoring Centre in a timely manner. The extent of trials and implementation of E-technologies across the WCPFC membership, is increasing the urgency for standards and specifications to be agreed at the WCPFC level, which takes into account the developments amongst WCPFC members. Technologies are evolving in capability and they are also becoming more cost-effective.

2.3 Report from SPC

28. SPC presented WCPFC-2016-ERandEMWG2-IP01 – Appendix I, providing a report on the *Monitoring (Longline) Process Standards Workshop*. In June 2016, SPC with support from ISSF organised a three day technical workshop in Noumea to begin the process of establishing E-Monitoring data standards for longline fisheries - increasingly sought by E-Monitoring service providers in the region. The workshop brought together experts currently involved in the use of electronic monitoring systems and electronic monitoring service providers. The workshop acknowledged the requirements for new policy and legislation around E-Monitoring, at both the national and regional level, but noted that area was beyond its mandate. The core work of the workshop was determining how the WCPFC Regional Observer Programme minimum data fields for longline observers could be collected using E-Monitoring technology currently and in the future.

29. As a starting point, the E-reporting longline data standards drafted for the WCPFC provided the framework for a step-by-step approach to crafting E-Monitoring data standards. The other reference tool that proved helpful to the workshop was the report on the trial of electronic monitoring carried out in the Solomon Islands (in IP-02). The workshop also documented data fields for further consideration by the appropriate data groups either for inclusion, retirement or as potential new data fields once technological issues are resolved. The full draft technical standard arising from the workshop is WCPFC-2016-ERandEMWG2-04.

30. The workshop acknowledged that the E-Monitoring longline data standards are a positive start to the work that needs to be achieved, but recognised that on-going work will be required, especially in the early years and in maintaining the standards as data needs evolve. It was noted that E-monitoring can provide additional information to support fishery management objectives and standards could be expanded to include the full range of needs such as transshipment and compliance. The data standards do not include advice on vessel coverage levels, the limitations around cost or the legal requirements and these will need to be explored before enhanced E-Monitoring is a successful source of data in the region. The draft standard does, however, fulfil the immediate need of supplying service

providers with the data standards they require to achieve the common goal of improving reliability of data reported and enhancing data collection from tuna longline vessels in the WCPFC Convention Area.

31. SPC presented WCPFC-2016-ERandEMWG2-IP03 a report of the first strategy meeting of the tuna Data Collection Committee (DCC). The Data Collection Committee has been in place since 1995. Against a background of multiple data forms, the initial meeting stated its objective as "developing standardised tuna fishery collection forms to reduce the complexity of data collection, processing and analysis" in SPC and FFA member countries. From the start the committee has been composed of staff from SPC and FFA, along with invited guests from national programmes and with occasional attendance from industry.

32. The outputs of previous meetings were harmonised paper copy forms for logsheets, unloadings, observer, port sampling and others data types. Additionally; data fields have been defined, collection instructions provided, and deliberations on data fields inclusion or retirement documented. The DCC reports have been formally adopted by Pacific Island Country and Territories (PICTs) member countries through the Forum Fisheries Committee (FFC) and the Heads of Fisheries (HOF) meetings. The WCPFC first influenced the work of the DCC during its seventh meeting, when the DCC provided advice and comments on the draft of the 'Minimum Data Standards' for the WCPFC's Regional Observer Programme. Subsequent DCC meetings reviewed the various WCPFC instruments and extracted the data collection fields for inclusion into the DCC format. This work aimed to ensure that regional standards for PICTs met their needs and were in compliance with the WCPFC data measures. DCC9 noted the significant data collection possibilities arising from the advent of electronic collection through E-Reporting and E-Monitoring.

33. In 2016, a Strategy Meeting was convened to assess a way forward given the rapid development of electronic data collection. A significant difference between the work of the WCPFC and the DCC is that the DCC can and does provide a mechanism for its members to set data standards above and beyond those of the Commission. SPC reported that the meeting agreed that there was an ongoing role for DCC work in an electronic environment and proposed terms of reference and a draft medium term work plan. Going forward the DCC will focus on standardising data collection for fishing in FFA/SPC members' waters, supporting data collection which is critical to regional stock assessment and fisheries management, and ensuring that data standards, irrespective of paper or electronic, are practical and documented. The focus will remain on creating standards to facilitate the development of products capable of delivering appropriate outputs for the regional management and data repository structures. In general terms, how this will be achieved is set out in the strategic plan attached to the meeting report which includes a prioritised work plan for the next five years, with each work stream being data, quality, process or interface related. The draft EM (longline) process standard (WCPFC-2016-ERandEMWG2-04) is an example of the work plan beginning to be implemented.

34. SPC presented WCPFC-2016-ERandEMWG2-IP01 an *Update on the implementation of E-monitoring and e-reporting technologies in the WCPO.* The paper is focussed on an update on: 2014 Solomon's trial (see paper WCPFC-2016-ERandEMWG2-IP02), work in New Caledonia and Fiji, on Luen Thai vesssels, experience with the eTunalog, the DCC strategy meeting (refer to WCPFC-2016-ERandEM2-IP03), and the E-Monitoring Process

Standard workshop (WCPFC-2016-ERandEM2-02). As those updates are addressed elsewhere in this meeting report, only the following two key points are drawn out. Through support funding from the ISSF, SPC has been collaborating with the Republic of the Marshall Islands, the Federated States of Micronesia, the Cook Islands and the Solomon Islands to establish national ER and EM positions within fisheries authorities to oversee day to day coordination of ER and EM trials and provide a link between the fisheries authorities, the fishing industry, the service providers and SPC. There are two similar ER and EM officers present in Papua New Guinea. Investing in such positions is absolutely necessary to ensure member countries can build the capacity to adopt and manage ER and EM technologies efficiently.

35. The paper also notes likely future work. SPC plans to convene another technical standards workshop aiming at drafting a process standard for E-Monitoring on purse seine fishing vessels using a similar approach to the draft E-Monitoring (longline) process standard (WCPFC-2016-ERandEMWG2-04). E-Monitoring trials on purse seine vessels are also envisaged in collaboration with member countries and service providers, noting that while there is already 100% observer coverage on purse seine vessels operating in the WCPO, E-Monitoring could be used to supplement their work, for example to validate reporting regarding set type, thus alleviating any un-due pressure on the observers. E-Monitoring in purse seine could also potentially be used to obtain more precise species and size composition data.

Report from FAD Management Options IWG Chair

36. The FAD MngtOptions IWG Chair provided a brief update on the work that has progressed since WCPFC12. With respect to the research plan proposal an initial draft had been developed for discussion at SC12. With respect to the work on FAD Marking and Identification, the consultancy has been advertised and awarded with the draft report expected to be presented at TCC12. With respect to the work on the development of data fields to be used for log sheet monitoring of FADs, a set of data fields have been complied and will be discussed at SC12. The most relevant work item with linkages to the ERandEM WG will be on data fields for logsheet monitoring of FADs as E-Reporting is getting rolled out fairly quickly.

AGENDA ITEM 3 — DRAFT E-REPORTING STANDARDS (& STRATEGIES)

37. SPC presented WCPFC-2016-ERandEMWG2-IP01 an *Update on the implementation of E-monitoring and e-reporting technologies in the WCPO*. At ERadERWG1 held in Nadi, Fiji in July 2015, several CCMs volunteered to liaise with the WCPFC Science Service Provider to test the draft E-Reporting standards over the coming year. A presentation was provided on the testing undertaken by several entities over the past year:

38. A data analyst from the New Zealand Ministry of Primary Industry (MPI) liaised with the WCPFC Science Service Provider over the past year and identified data items in their operational catch/effort data that can be aligned to the draft ER data standard. Future work will include review of which of their observer data fields can be aligned to the draft ER observer data standards;

39. A technical service provider (SATLINK) that has developed and supports an E-Monitoring observer data system trialed in the longline fisheries in two CCMs has included a tool that

generates XML data in the format specified in the draft ER observer data standards. These data can therefore be readily loaded into the WCPFC observer (ROP) database. They have requested the provision of an XSD (XML schema file) so they can ensure consistency with structure and validation checks required under the standards;

40. E-reported logbook data from the PNA-supported iFIMS system have been recently provided to the WCPFC Science Service Provider in JSON format aligned to the WCPFC draft ER data standards with a plan to provide E-Reported observer data in the future.

41. Version control was introduced into the draft E-Reporting data standards to manage additions/modifications in the future. A proposal for future work was provided including (i) a request for more testing and feedback from CCMs, (ii) the development of XSD and JSON schema files which have been requested by several technical service providers, (iii) the development of data loaders for the E-data recently received and (iv) consideration for the development of a 'metadata database' for the draft E-Reporting data standards acknowledging this would provide a mechanism for managing the updates and dissemination of the standards in a more efficient manner.

42. The Compliance Manager overviewed Attachment 5 of the Summary Report of ERandEMWG1, containing the draft electronic reporting technical standards, specifications and procedures (see **Attachment 4**). The formulation of the draft document was presented as a consultation document that drew from the format, language and approach of the RFV SSPs. It is proposed that the implementation of the data standards would provide CCMs with the opportunity to continue to report as they do currently (in a variety of attachments and formats) or they may choose to submit data conforming to the standards which can enter the Commission's databases with little or no human intervention and will ensure the efficient use of resources, within national administrations, the WCPFC Secretariat and SPC. The consultation document cover text is followed by a number of Attachments:

    - 1A: Electronic data standard to be used for paragraph 2 of CMM 2010-02 Conservation and Management Measure for the Eastern High Seas Pocket Special Management Area (or its replacement) (EHSPSMARPT)
    - 1B: Electronic data standard to be used for Attachment C paragraph 3 of CMM 2014-01 Conservation and Management Measure for Bigeye, Yellowfin and Skipjack tuna in the Western and Central Pacific Ocean (or its replacement) (HSP1MARPT)
    - 1C: Electronic data standard to be used for WCPFC9 decision on the Standard format for manual position reporting in the event of ALC/MTU Malfunction or Failure (WCPFC9 Summary Report Attachment H) (or its replacement) (VMSMNLRPT)
    - 2: Electronic Formatting Specifications for EHSPSMARPT, HSP1SMARPT and VMSMNLRPT
    - 3A: Electronic data standard to be used for WCPFC ROP Minimum Standard Data Fields, as amended by WCPFC11 decisions;
    - 3B: Electronic data standard to be used for Paragraph 3 and Annex 1 of Scientific Data to be Provided to the Commission.

- 4: Electronic Formatting Specifications for observer data and logbook data.

43. Key points raised in the discussion included:

i. Recognition that some CCMs were wanting to undertake further testing of the five draft electronic reporting technical standards, specifications and procedures, and sought samples of test data to assist CCMs with their review and testing;

ii. A desire that CCMs, Secretariat and SPC work towards a revised document that could be considered for adoption at WCPFC13 as a living document;

iii. Noting that ERandEMWG1 had discussed some matters that were still to be incorporated into the cover consultation document text which were yet to be incorporated into the current draft electronic reporting technical standards, specifications and procedures;

iv. Noting that some amendments had been identified by SPC that would be incorporated into the next version of the draft electronic reporting technical standards, specifications and procedures for observer data, for example relevant WCPFC12 decisions;

v. An expectation that some CCMs may also have some suggested changes to the draft electronic reporting data technical standards, specifications and procedures for the five reporting obligations based on their review of the document and testing activities;

vi. Recognising that some CCMs required assistance and capacity building so that they can commence trialing and implementing E-technologies, and funding assistance as well as technical support is needed;

vii. Support for development of a WCPFC metadata database, to electronically store information on the standards, to provide a mechanism for versioning the draft electronic reporting technical standards, specifications and procedures, and for disseminating the technical information about the standards to CCMs and their service providers;

viii. Recognising that the draft electronic reporting technical standards, specifications and procedures does not cater for all formats that are presently being used by some CCMs, and requests that the draft electronic reporting technical standards, specifications and procedures to be modified to adequately cater for these formats for E-reporting;

ix. Support for the Secretariat and SPC being adequately resourced so as to support the testing and eventual implementation of the draft electronic reporting technical standards, specifications and procedures, including for WCPFC database development to include data loaders and processes that can cater for the breadth of formats now being considered by CCMs for their E-reporting;

x. Considering that the process for updating the draft electronic reporting technical standards, specifications and procedures should include allowance for at least six months before agreed changes take effect; and

xi. The use of ER for the transhipment reporting requirements under CMM 2009-06 (declarations, notifications and observer) will improve the timeliness and quality of data provided to the Commission.

Agreed recommendations

I. ERandEM WG2 noted the use of e-technologies by CCMs in support of their national information management system development and further noted the need to consider how this work could be supported at the regional level. ERandEM WG2 recommended that additional resources are allocated to support the WCPFC Secretariat and the Scientific and Data Services Provider (SPC-OFP) in this regard, and these would be working towards the testing and acceptance of the E-reporting draft data standards referred to paragraph III. ERandEM WG tasked the WCPFC Secretariat and SPC to develop a proposal including costings for consideration by FAC.

II. ERandEM WG2 recommends that SC12 and TCC12 note the work being done by SPC, with input from CCMs, on refining the draft E-Reporting standards for operational level catch and effort data and observer data and the anticipated work on draft E-Reporting standards for HSP1 and HSP-SMA reporting and manual reporting in the event of MTU malfunction (**Attachment 4**). The group noted that the draft standards were expected to be updated based on relevant decisions of the Commission. ERandEM WG recommended that the Secretariat notify CCMs of updates to the draft standards, including the reason for the update, and invite comment before they come into effect. Some CCMs suggested that an annual implementation date would be helpful (eg by 1 June). It was recommended that this process be captured as part of the draft standards.

III. In regards to working towards the testing and acceptance of the E-Reporting draft data standards, the ERandEMWG2 recommended:

i. The Scientific and Data Services Provider (SPC-OFP) produce examples of the output from the draft ER standards for logbook and observer data in XML, JSON, CSV formats and these can then be made available to CCMs via the WCPFC web site;

ii. The WCPFC Secretariat, with assistance from the Scientific and Data Services Provider (SPC-OFP), prepare a paper for the WCPFC13 FAC with a detailed work plan and costings for the following work:

a. The development of appropriate mechanisms (e.g. XSD[1] and JSON[2] schema) for describing the elements in the ER data standard formats (e.g. XML[1] and JSON) to assist the technical service providers* in adhering to the standards;

b. The development and implementation of a metadata[3] database of the E-Reporting and E-Monitoring data standards, which would include

[1] XSD = XML Schema (W3C) (XML = Extensible Markup Language)
[2] JSON = JavaScript Object Notation
[3] Metadata = Metadata are "data that provides information about other data". Two types of metadata exist: structural metadata and descriptive metadata. Structural metadata are data about the containers of data. Descriptive metadata use individual instances of application data or the data content. { https://en.wikipedia.org/wiki/Metadata}

establishing the database structure, an appropriate user interface for managing the data (by the WCPFC Secretariat and SPC) and tools to disseminate the metadata to both non-technical and technical users (e.g. web query interface)

IV. The ERandEM WG2 recommends that interested CCMs work with the Secretariat and Scientific and Data Services Provider (SPC-OFP) to ensure all current formats used for submissions to WCPFC, eg North Atlantic Format (NAF)[4], are adequately catered for in the draft E-Reporting standards (**Attachment 4**).

V. ERandEM WG2 recommends the WCPFC Secretariat develop draft E-Reporting standards for transshipment reporting requirements (particularly declarations, notification and observer) required under CMM 2009-06.

VI. ERandEM WG2 recommends that the Secretariat be tasked, working with the Scientific and Data Services Provider (SPC-OFP), to develop a revised draft E-reporting standards document to takes into account the outcomes of the CCM testing and feedback from CCMs on the current draft of this document. CCMs are asked to provide comments on **Attachment 4** by TCC12. This document should be circulated by the Secretariat to all ERandEM WG participants for their review and seek suggestions on how to progress the adoption of the E-Reporting standards by WCPFC13.

VII. ERandEM WG2 noted that there may be a need to convene a meeting of the technical expert sub-working group, following WCPFC13 to progress technical discussions on E-reporting standards (observer and logbook catch and effort data). The output from this meeting will be presented to ERandEMWG3.

AGENDA ITEM 4 — E-MONITORING PROCESS/STANDARDS

44. The Chair opened this agenda item with some general remarks. The key points were:

- Trials have been undertaken of E-monitoring and the findings were that E-monitoring does have the capability to meet each CCMs trial objectives;
- There are a range of different objectives for E-monitoring that might differ amongst CCMs and fisheries;
- Standards need to be set for the region as a whole, so CCMs who are implementing E-monitoring technologies can know what is expected as a WCPFC requirement;
- Noting that IP04 suggests the possibility that E-monitoring might follow an approach similar to the audit process for the ROP;

45. SPC presented WCPFC-2016-ERandEMWG2-04 *Draft WCPFC E-monitoring process standard data fields for operational longline observer data.* (**Attachment 5**) A presentation was provided on a three-day workshop held at SPC headquarters in New Caledonia to begin the process of establishing EM technical standards. The workshop was attend by SPC and FFA technical staff, representatives from three member countries and

[4] NAF = North Atlantic Format

representatives from six EM technical service providers. The workshop's main objective was to determine how the WCPFC Regional Observer Programme minimum data fields for longline observers could be collected using E-Monitoring technology currently and in the future. The workshop also noted key issues regarding the implementation of E-Monitoring in the region with an aim to develop and discuss these issues in further detail at a next workshop. A brief report of the meeting is available in attached at Appendix I of WCPFC-2016-ERandEMWG2 IP-01, and the main output of the workshop - the draft EM 'how' standards – are provided in working paper WCPFC-2016-ERandEMWG2 -04.

46. Key points raised in the discussion included:

i. That the draft process standards might be considered an initial data needs analysis for use of E-monitoring technologies related to the existing ROP data fields;

ii. Noting that some ROP data fields can be collected by E-monitoring and others require supplementary forms of sampling;

iii. A concern that there may be some privacy issues for use of E-monitoring on certain small vessels;

iv. Noting that the SPC workshop and ISSF workshop did consider the utility of E-monitoring for gathering data on fisheries impacts on species of special interest, but the workshop had recognized this as an initial review and that further work was required;

v. Considering that it would be useful for there to be some consideration by the ERandEMWG as to the extent to which E-monitoring can be used to supplement and be considered equivalent for the collection of ROP data fields;

vi. Noting that some proposals for draft E-monitoring standards are presently under development and consideration in Scientific Committees of other tuna RFMOs (IOTC and ICCAT);

vii. Noting that the proposed WCPFC metadata database for E-reporting, could be designed to include E-monitoring metadata;

viii. It may be useful for E-monitoring discussions within the ERandEMWG to be broadened to consider not just the E-monitoring technology but to consider what might be the required elements for an E-monitoring Program; and

ix. Further work is needed on ways that E-monitoring can be validated and used as evidence in court and compliance reviews.

Agreed recommendations

VIII. ERandEM WG2 recognised the progress by some CCMs with respect to trials of E-Reporting and E-Monitoring technologies. Some CCMs reported that they remain interested in understanding further how these technologies could enhance their data management frameworks and asked for capacity assistance in this regard. The ERandEM WG acknowledged those requests and encourages participants to share their experiences.

IX. ERandEM WG2 acknowledged that there would be benefit in preparing a concept paper that explored what an E-Monitoring Program would look like and what may be needed to ensure that data collected under an E-Monitoring Program could be considered equivalent to the WCPFC ROP. The Chair agreed to take this on as a task with input from ERandEM WG participants. The ERandEM WG2 recommended that the Chair progress the concept paper.

AGENDA ITEM 5 — GENERAL DISCUSSION AND NEXT STEPS

Agreed recommendations

X. ERandEM WG2 reviewed the TOR, and the workplan therein. ERandEM WG2 reports that good progress is being made on items 1 – 5 in workplan.

XI. ERandEM WG2 recommends that the Commission note and acknowledge the progress made by many CCMs from trialing through to implementing e-technologies.

XII. The ERandEM WG2 recommends that the working group continues under existing TOR, and is reviewed in 2017. `

XIII. The ERandEM WG2 recommends that the next meeting (ERandEM WG3) be prior to SC13.

47. The Chair thanked participants for their contributions to the discussions and closed the meeting at 4pm on Tuesday 2 August 2016.

Attachment 1

Western and Central Pacific Fisheries Commission

Second Meeting of the IWG on Electronic Reporting and Electronic Monitoring
[1-2 August, 2016 at Kuta, Bali, Indonesia]

Opening Remarks by the Executive Director, Mr Feleti P Teo

Madam Chair.

Thank you for availing me the opportunity to make some remarks at this opening session of the working group meeting.

I join you, Madam Chair, in extending a warm welcome to participants to Bali and to this, the second meeting of the IWG on Electronic Reporting and Electronic Monitoring.

I suspect that most of the participants, if not all, will be staying on for the Scientific Committee. So the meeting starting today will be the prelude to the scientific committee meeting that will start on Wednesday and run till next week ending on Thursday 11th August.

This WG was established by the Commission (WCPFC) at its annual meeting in December 2014. Its establishment bear testament to the huge potential that the Commission recognized in the contribution that electronic technologies can make in supporting sustainable fisheries management through enhanced timely and quality reporting and monitoring.

The Commission in establishing the working group was also cognizant of the fact that many members were already using electronic reporting and electronic monitoring using various forms and different technologies.

So the terms of reference for the working group were crafted to take full account of those existing reporting and monitoring arrangements and develop minimum standards and procedures that will guide the Commission when accepting data in electronic form.

It is not within the mandate of this working group to determine the specifications for the technologies to be used. I thought I need to make that point quite clearly, as there has been some misguidance on what the scope of the work of this working group.

So the objective of this working group is to work on processes and standards that will provide opportunities for e-technologies to be utilized by WCPFC members in collecting their fisheries data and as appropriate meeting their reporting obligations to the Commission.

In pursuit of its mandate, the working group had its first meeting in July last year in Nadi, Fiji. That inaugural meeting was convened in conjunction with the meeting of the working group on the ROP.

Under the guidance of the Chair Ms Kerry Smith of Australia, the working group was able to make some advancement in the development of standards and procedures for electronic reporting. And these standards were presented to TCC last year and the annual meeting of the Commission that was held at this very room in December of last year.

The Commission in considering the report of the first meeting of the working group and the recommendations of TCC tasked the working group to undertake further work on the standards developed for electronic reporting and to commence work on the development of similar standards for electronic monitoring.

So colleagues that is in fact the gist of the task for the working group for today and part of tomorrow.

But prior to your meeting today, there has been work undertaken intersessionally in preparation for your meeting today. And I wish to acknowledge that work and those that participated and contributed to it. So I wish to thank the Chair for guiding that work and SPC and other Commission members that participated in the trialing (or testing) of the designated standards. The outcomes of those trials will be presented for your deliberation and further guidance.

Madam Chair, I wish not take more time of the working group, but I thought useful to provide some broader context to the work of the working group conscious that there may be participants present that may not be too familiar with the work of the working group.

In closing, my staff remain ready and available to support you and the work of the working group and I wish the meeting successful deliberations.

Thank you.

END

Attachment 2

SECOND E- REPORTING AND E-MONITORING INTERSESSIONAL WORKING GROUP MEETING (ERandEMWG2)

The Stones Hotel, Bali, INDONESIA

1 – 2 August 2016

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Attachment 3

SECOND E- REPORTING AND E-MONITORING INTERSESSIONAL WORKING GROUP MEETING (ERandEMWG2)

The Stones Hotel, Bali, INDONESIA

1 – 2 August 2016

AGENDA

Monday 1st August 2016 (Day 1)

		Doc list
9.00-9.30am	**AGENDA ITEM 1. WELCOME AND OPENING**	
	1.1 Opening	
	1.2 Adoption of agenda	
	1.3 Meeting arrangements	
9.30 – 10.30am	**AGENDA ITEM 2. REVIEW OF INFORMATION / UPDATES ON APPLICATIONS OF ER AND EM TECHNOLOGIES IN WCPO**	
	2.1 Report from Secretariat, including review of 2015/16 WCPFC activities and reminder of ERandEMWG TOR	
	2.2 Brief update from CCMs on how the ERandEM standards have been/will be implemented	
	2.3 Report from Sub-regional Agencies a. Outcome of SPC/FFA Data Collection Committee (DCC) b. Report from SPC on outcome of EM 'how' standard workshop c. Other reports	
10:30 - 11.00am	**Morning tea**	
11.00- 11:30am	2.3 Report from Sub-regional Agencies (continued)	
	2.4 Reports from Chairs of other WCPFC IWGs	
11:30.00 – 12.30pm	**AGENDA ITEM 3. DRAFT E-REPORTING STANDARDS (& STRATEGIES)** 3.1 Report from SPC on result of testing of ER standards for observer & operational logsheet data	
	3.2 Discuss any proposed refinements to the draft ER data standards agreed at previous workshop a. Logsheet and observer data standards, including suggestions based on result of testing b. EHSP c. HSP1 d. VMS Manual Reporting	

		Doc list
12.30 -1.30pm	**Lunch**	
1.30-2.00pm	3.2 Discuss any proposed refinements to the draft ER data standards agreed at previous workshop (continued	
2.00-3.00pm	3.3 Review of any proposed new draft E-Reporting standard	
3.00 -3.30pm	**Afternoon tea**	
3:30-5:30pm	3.3 Review of any proposed new draft E-Reporting standard (continued) 3.4 Next Steps for ER standards	

Tuesday 2nd August 2016 (Day 2)

8.30 – 9.00am	**Recap from Day 1**	
9.00-10.30am	**AGENDA ITEM 4. E-MONITORING PROCESS/STANDARDS** 4.1 Discuss EM (process) standards and the way forward	
10.30 – 11am	**Morning tea**	
11-12.30pm	4.2 Discuss EM (process) standards and the way forward (continued)	
12.30 -1.30pm	**Lunch**	
1.30-2.30pm	**AGENDA ITEM 5: GENERAL DISCUSSION AND NEXT STEPS** 5.1 General discussion and outcome – next steps 5.1.1 Review progress against TOR, to be included in report to WCPFC13 5.2 Report to SC12/TCC12/WCPFC13 5.3 Notes on linkages to other IWGs and work of other subsidiary bodies	
2.30 – 3.00pm	**AGENDA ITEM 6: OTHER MATTERSs,**	
	AGENDA ITEM 7: CLOSE	

Attachment 4

Draft electronic reporting technical standards, specifications and procedures for five key reporting requirements: eastern high seas pocket special management area (CMM 2010-02); high seas pocket one special management area (CMM 2014-01/2015-01); manual position reporting in the event of ALC/MTU failure; operational level catch and effort data and observer data

Note this is the same version as Summary Report of ERandEMWG1, Attachment 5 (10 July 2015)

CONSULTATION DOCUMENT_as amended by ERandEMWG1

DRAFT - STANDARDS, SPECIFICATIONS AND PROCEDURES (SSP) FOR ELECTRONIC REPORTING IN THE WESTERN AND CENTRAL PACIFIC FISHERIES COMMISSION

Objectives for the SSP

1. These SSP are a set of data standards that, at a minimum:

    a. provide a basis for those CCMs who are considering the implementation of electronic reporting technologies in their fisheries;

    b. provides a mechanism, for those CCMs who have commenced implementation of electronic reporting technologies in their fisheries, to have the option of using these technologies to facilitate their implementation of certain reporting requirements to the Commission;

    c. provides a basis for the Secretariats preparations to be ready to receive a standardized set of electronically reported fisheries data from CCMs and as appropriate from vessels;

    d. takes into account current and developing fisheries monitoring and information management systems in use in WCPFC fisheries; and

    e. where practicable, is mindful of existing and proposed data standards and formats in other regional bodies and RFMOs.

Scope of application

2. These SSPs apply initially to the following reporting requirements under these conservation and management measures or decisions of the WCPFC:
    a. Paragraph 2 of CMM 2010-02 *Conservation and Management Measure for the Eastern High Seas Pocket Special Management Area*;
    b. Attachment C paragraph 3 of CMM 2014-01 *Conservation and Management Measure for Bigeye, Yellowfin and Skipjack tuna in the Western and Central Pacific Ocean*;
    c. WCPFC9 decision on the *Standard format for manual position reporting in the event of ALC/MTU Malfunction or Failure* (WCPFC9 Summary Report Attachment H); and
    d. Paragraph 3 and Annex 1 of *Scientific Data to be Provided to the Commission*;
    e. *WCPFC ROP Minimum Standard Data Fields*, as amended by WCPFC11 decisions.

3. Until decided otherwise by the Commission, other forms of electronically reported data, and as appropriate hard copy formats, will continue to be acceptable forms of reporting from CCMs, and as appropriate from their vessels, to meet agreed reporting requirements under the above listed conservation and management measures or decisions of the WCPFC.

4. These SSP, including any agreed amendments, will take effect [six] months after adoption by the WCPFC.

Responsibilities of CCMs

5. It shall be the responsibility of CCMs who choose to use electronic reporting technologies to meet certain WCPFC reporting requirements to:

    a. submit electronically reported data to the WCPFC Secretariat[1] that includes the minimum required fields and also meets the structure and format specifications of Attachment 1A, 1B, 1C, 3A and 3B as appropriate; and

    b. submit electronically reported data to the WCPFC Secretariat that meet the electronic format specifications of Attachment 2 and 4, as appropriate.[2]

6. It shall be the responsibility of CCMs to inform the WCPFC Secretariat of any confidentiality requirements that may need to be taken into account upon receipt of such data.

Responsibilities of the WCPFC Secretariat

7. It shall be the responsibility of the WCPFC Secretariat to:

    a. develop and maintain the technical and administrative systems that ensure data confidentiality[3] needed to receive electronically reported data from CCMs, which may be submitted and that meet the electronic format specifications of Attachment 2 and 4;

    b. acknowledge, upon receipt of electronically reported data from a CCM or as appropriate from a vessel, receipt of the data and indicate to the CCM and as appropriate to the vessel, in a timely manner whether the data meet the minimum

[1] It is recognized that some CCMs, who are SPC members, submit data described in Attachment 3A and 3B to WCPFC via SPC-OFP

[2] The Commission may consider additional modes of transmission, such as modes involving direct links between the Commission's and CCMs' databases.

[3] In accordance with applicable data confidentiality rules, including Rules and Procedures for the Protection, Access to, and Dissemination of Data Compiled by the Commission (2007 and 2009)

data requirements and, if applicable, whether they meet the electronic formatting specifications of Attachment 2 and 4;

c. monitor and report annually to the TCC, and as appropriate the SC, on the performance of these electronic reporting standards and their application and, as necessary, make recommendations for improvements or modifications;

d. recommend continual improvements to these SSPs, including, where appropriate, standards and codes that are consistent with those used in other international fora, such as the FAO and UN/CEFACT; and

e. ensure the electronic data standards are publically available and is suitably version controlled.

Attachment 1A. Electronic data standard to be used for paragraph 2 of CMM 2010-02 Conservation and Management Measure for the Eastern High Seas Pocket Special Management Area *(or its replacement)* (EHSPSMARPT)

EHSP-SMA reporting				
2. Flag States shall require their vessels to submit reports, directly, or through such organisations designated by the flag state to the Commission at least 6 hours prior to entry and no later than 6 hours prior to exiting the E-HSP. Such reports shall also contain estimated catch (kilograms) on board. This information shall immediately be transmitted by the Commission Secretariat to the adjacent coastal states/territories, and shall be considered non-public domain data. The report shall be in the following format: *VID/Entry/Exit: Date/Time[1]; Lat/Long[1]; YFT/BET/ALB/SKJ/SWO/SHK/OTH/TOT(kgs) /TRANSHIPMENT (Y/N) [2]* *[1] Of anticipated point of entry or exit.* *[2] WCPFC11 agreed to amend CMM 2010-02 paragraph 2 to add vessel name to reporting requirements*				
Field name	**Field format**	**Field description/instructions**	**Example**	**Ref. in CMMs**
VID	Number (integer)	This number is generated automatically by the WCPFC Record of Fishing Vessels (RFV), and is now a field that in accordance with CMM 2014-03 is displayed, for all vessels on the WCPFC RFV.	10503	2010-02: 02 2014-03
Entry/Exit	Text	Enter "ENTRY" for reports prior to entry to Eastern High Seas Pocket Special Management Area. Enter "EXIT" for reports made prior to exiting the Eastern High Seas Pocket Special Management Area	ENTRY	2010-02: 02
Date/Time	Number (integer)	Of anticipated point of entry or exit, in UTC and 24 hour format (ISO 8601) [YYYY]-[MM]-[DD]T[HH]:[MM]Z	2014-01-24T23:00Z	2010-02: 02
Latitude	Number (integer)	Positions to degrees and minutes to 3 decimal places (ISO 6709) +/- DDMM.MMM	- 14.166 (*for* 14-10-00 S)	2010-02: 02
Longtitude	Number (integer)	Positions to degrees and minutes to 3 decimal places (ISO 6709) +/- DDDMM.MMM	- 157.45 (*for* 157-27-00 W)	2010-02: 02
Yellowfin	Number (integer)	Provide total weight (kg) of YELLOWFIN onboard. Enter "0" if NONE	23	2010-02: 02
Bigeye	Number (integer)	Provide total weight (kg) of BIGEYE onboard. Enter "0" if NONE	16	2010-02: 02
Albacore	Number (integer)	Provide total weight (kg) of ALBACORE onboard. Enter "0" if NONE	0	2010-02: 02

EHSP-SMA reporting

2. Flag States shall require their vessels to submit reports, directly, or through such organisations designated by the flag state to the Commission at least 6 hours prior to entry and no later than 6 hours prior to exiting the E-HSP. Such reports shall also contain estimated catch (kilograms) on board. This information shall immediately be transmitted by the Commission Secretariat to the adjacent coastal states/territories, and shall be considered non-public domain data. The report shall be in the following format:

VID/Entry/Exit: Date/Time[1]; Lat/Long[1]; YFT/BET/ALB/SKJ/SWO/SHK/OTH/TOT(kgs) /TRANSHIPMENT (Y/N) [2]

[1] Of anticipated point of entry or exit.

[2] WCPFC11 agreed to amend CMM 2010-02 paragraph 2 to add vessel name to reporting requirements

Field name	Field format	Field description/instructions	Example	Ref. in CMMs
Skipjack	Number (integer)	Provide total weight (kg) of SKIPJACK onboard. Enter "0" if NONE	0	2010-02: 02
Swordfish	Number (integer)	Provide total weight (kg) of SWORDFISH onboard. Enter "0" if NONE	0	2010-02: 02
Shark	Number (integer)	Provide total weight (kg) of SHARKS onboard. Enter "0" if NONE	0	2010-02: 02
Other	Number (integer)	Provide total weight (kg) of OTHER CATCHES onboard Enter "0" if NONE	5	2010-02: 02
Total	Number (integer)	Provide total weight (kg) of all species on board. Enter "0" if NONE	54	2010-02: 02
Transshipment (Y/N)	Text	Enter "Y" if intend to transship in Eastern High Seas Pocket Special Management Enter "N" if do not intend to transship in Eastern High Seas Pocket Special Management	N	2010-02: 02
WCPFC Identification Number (WIN)	Text	Vessel identifier assigned by flag State in accordance with CMM 2004-03, in UPPER CASE	ABC1234	2013-10: 6(a)
Vessel Name	Text	Name of the fishing vessel as indicated on flag State registration, in UPPER CASE	SEA MAPLE II	2013-10: 6(a)

Attachment 1B. Electronic data standard to be used for Attachment C paragraph 3 of CMM 2014-01 Conservation and Management Measure for Bigeye, Yellowfin and Skipjack tuna in the Western and Central Pacific Ocean *(or its replacement)* (HSP1MARPT)

PHILIPPINES HSP1-SMA reporting *3. Philippines shall require its concerned vessels to submit reports to the Commission at least 24 hours prior to entry and no more than 6 hours prior to exiting the HSP-1 SMA. This information may, in turn, be transmitted to the adjacent coastal States/Territories.* *The report shall be in the following format: VID/Entry or Exit: Date/Time; Lat/Long*				
Field name	**Field format**	**Field description/instructions**	**Example**	**Ref. in CMMs**
VID	Number (integer)	This number is generated automatically by the WCPFC Record of Fishing Vessels (RFV), and is now a field that in accordance with CMM 2014-03 is displayed, for all vessels on the WCPFC RFV.	10503	2014-03
WCPFC Identification Number (WIN)	Text	Vessel identifier assigned by flag State in accordance with CMM 2004-03, in UPPER CASE	ABC1234	2013-10: 6(a)
Vessel Name	Text	Name of the fishing vessel as indicated on flag State registration, in UPPER CASE	SEA MAPLE II	2013-10: 6(a)
Entry/Exit	Text	Enter "ENTRY" for reports prior to entry to High Seas Pocket 1 - Special Management Area. Enter "EXIT" for reports made prior to exiting the High Seas Pocket 1 - Special Management Area.	EXIT	2014-01: Att C 03
Date/Time	Number (integer)	Of anticipated point of entry or exit, in UTC and 24 hour format (ISO 8601) [YYYY]-[MM]-[DD]T[HH]:[MM]Z	2014-01-24T23:00Z	2014-01: Att C 03
Latitude	Number (integer)	Positions to degrees and minutes to 3 decimal places (ISO 6709) +/- DDMM.MMM	- 14.166 (*for* 14-10-00 S)	2014-01: Att C 03
Longtitude	Number (integer)	Positions to degrees and minutes to 3 decimal places (ISO 6709) +/- DDDMM.MMM	- 157.45 (*for* 157-27-00 W)	2014-01: Att C 03

Attachment 1C. Electronic data standard to be used for WCPFC9 decision on the Standard format for manual position reporting in the event of ALC/MTU Malfunction or Failure (WCPFC9 Summary Report Attachment H) *(or its replacement)* (VMSMNLRPT)

MANUAL POSITION REPORTING IN THE EVENT OF ALC/MTU MALFUNCTION OR FAILURE *WCPFC9 agreed standard format for manual position reporting in the event of ALC/MTU Malfunction or Failure:* *1 WIN* *2 Vessel Name* *3 Date: dd/mm/yy* *4 Time: 24 hour format HH:MM (UTC)* *5 Latitude – DD-MM-SS (N/S)* *6 Longitude – DDD-MM-SS (E/W)* *7 Activity (Fishing/Searching/Transit/Transhipping)*				
Field name	**Field format**	**Field description/instructions**	**Example**	**Ref. in CMMs**
VID	Number (integer)	This number is generated automatically by the WCPFC Record of Fishing Vessels (RFV), and is now a field that in accordance with CMM 2014-03 is displayed, for all vessels on the WCPFC RFV.	10503	2014-03**
WCPFC Identification Number (WIN)	Text	Vessel identifier assigned by flag State in accordance with CMM 2004-03, in UPPER CASE	ABC1234	2013-10: 6(a)
Vessel Name	Text	Name of the fishing vessel as indicated on flag State registration, in UPPER CASE	SEA MAPLE II	2013-10: 6(a)
Date/Time	Number (integer)	Of anticipated point of entry or exit, in UTC and 24 hour format (ISO 8601) [YYYY]-[MM]-[DD]T[HH]:[MM]Z	2014-01-24T23:00Z	2014-01: Att C 03
Latitude	Number (integer)	Positions to degrees and minutes to 3 decimal places (ISO 6709) +/- DDMM.MMM	- 14.166 (*for* 14-10-00 S)	2014-01: Att C 03
Longtitude	Number (integer)	Positions to degrees and minutes to 3 decimal places (ISO 6709) +/- DDDMM.MMM	- 157.45 (*for* 157-27-00 W)	2014-01: Att C 03
Activity	Text	Enter “FISHING” Enter “SEARCHING” Enter “TRANSIT” Enter “TRANSHIPPING”	TRANSIT	WCPFC9 decision

** - VID is an additional data field and is necessary to support operational “upload” into WCPFC databases

Attachment 2. Electronic Formatting Specifications for EHSPSMARPT, HSP1SMARPT and VMSMNLRPT

These specifications describe the electronic files that CCMs must provide if they choose to use electronic reporting technologies to meet the following WCPFC reporting requirements:

i. Paragraph 2 of CMM 2010-02 *Conservation and Management Measure for the Eastern High Seas Pocket Special Management Area* (CMM 2010-02: 02)
ii. Attachment C paragraph 3 of CMM 2014-01 *Conservation and Management Measure for Bigeye, Yellowfin and Skipjack tuna in the Western and Central Pacific Ocean* (CMM 2014-01: Att C 03); and
iii. WCPFC9 decision on the *Standard format for manual position reporting in the event of ALC/MTU Malfunction or Failure* (WCPFC9 Summary Report Attachment H) to meet (CMM 2014-02 9a VMS SSPs 5.4 - 5.5).

A) File type

The information must be provided in one of the following formats:

Microsoft Excel file ; Comma separated values (CSV) file ; Text file

B) File name

The name of the file must be: XX_ VID_xxxxxxxxxx_ DDMMYYYY.sssss
where:

- XX – two letter ISO country code (CMM 2014-03 Att 7) of the CCM providing the file
- VID – five digit integer assigned number for a vessels record on the WCPFC Record of Fishing Vessels (RFV) (CMM 2014-03)
- xxxxxxxxxx – a ten digit code to represent the type of CMM reporting requirement
  EHSPSMARPT – CMM 2010-02: 02
  HSP1SMARPT – CMM 2014-01: Att C 03
  VMSMNLRPT – VMS manual report for ALC failure or malfunction (CMM 2014-02 9a VMS SSPs 5.4 - 5.5)
- DDMMYYYY – the date of the provision of the file
- sssss – the standard file suffix (xls or xlsx if Excel file; csv if CSV file; txt if Text file)

For example:

CK_5936_EHSPSMARPT_11082013.xlsx (Excel file Eastern High Sea Pocket Special Management Area Report provided by Cook Islands for vessel with VID 5936, on 11 August 2013)

C) File content and structure

Each record in the electronic file represents a single report. Each record must have the structure specified in Attachment 1A, 1B or 1C, including the same sequence of fields.

Sample electronic reporting files with the proper formats are available from the Secretariat.

Attachment 3A. Electronic data standard to be used for WCPFC ROP Minimum Standard Data Fields, as amended by WCPFC11 decisions.

Western and Central Pacific Fisheries Commission (WCPFC)

E-REPORTING STANDARD DATA FIELDS

OPERATIONAL OBSERVER DATA

Draft – Version 1.0

10th June 2015

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INTRODUCTION

These tables set out the proposed standards for the provision of operational OBSERVER data fields collected in the WCPFC tropical purse seine and the longline fisheries through E-Reporting. These tables provide the minimum requirements for data entities, data formats and data validation to be established for data submitted to the national and regional fisheries authorities from E-Reporting systems. The data fields contained herein are based on information collected under the current regional standard data collection forms. This document acknowledges that national fisheries authorities require certain data fields that are not mandatory WCPFC Regional Observer Programme (ROP) data fields (for example, for anticipated Catch Documentation System – CDS – requirements), so a column in these tables identifies whether the data field is a mandatory WCFPC data field[1] or not.

These E-Reporting data field standards are consistent with, and should be considered in conjunction with more detailed instructions[2] on how to collect observer data provided by SPC.

These tables are intended for, *inter alia*, E-Reporting service providers who have been contracted to provide electronic systems to record OBSERVER data collected on-board purse seine vessels.

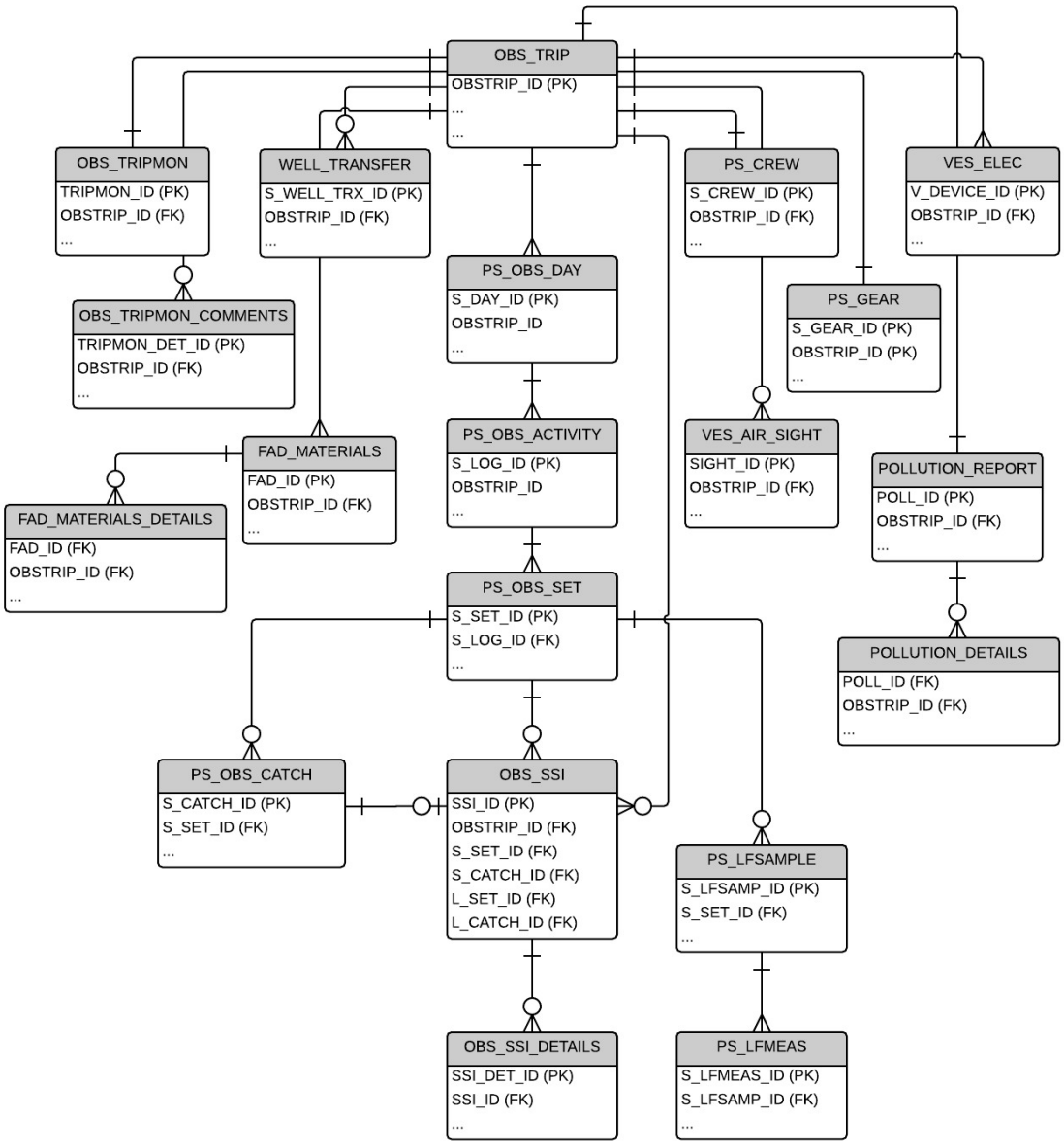
[1] The minimum standard WCPFC Regional Observer programme (ROP) data fields for purse seine data are found in the "WCPFC ROP Minimum Standard Data Fields & Instructions" http://www.wcpfc.int/doc/table-rop-data-fields-including-instructions

[2] In addition to the minimum WCPFC ROP data fields, instructions for observer data collection in the WCPFC Area are available with the regional standard observer data collection forms at http://www.spc.int/oceanfish/en/data-collection/241-data-collection-forms, general information/instruction for observers at http://www.spc.int/OceanFish/en/ofpsection/fisheries-monitoring/observers and http://www.spc.int/OceanFish/en/certification-and-training-standards.

1. PURSE SEINE OBSERVER E-REPORTING STANDARDS

1.1 DATA MODEL DIAGRAM

The following basic data model diagram outlines the structure of the entities and their relationships for purse seine operational OBSERVER data collected by E-Reporting systems and submitted to national and regional fisheries authorities. The tables that follow provide more information on the mechanisms of the links (relationships) between the entities.



1.2 TRIP-LEVEL DATA

OBS_TRIP "The start of a trip is defined to occur when a vessel (a) leaves port after unloading part or all of the catch to transit to a fishing area or (b) recommences fishing operations or transits to a fishing area after transshipping part or all of the catch at sea (when this occurs in accordance with the terms and conditions of article 4 of Annex III of the Convention, subject to specific exemptions as per article 29 of the Convention)."					
FIELD	**Data Collection Instructions**	**Field format notes**	**Validation rules**	**XML TAG**	**WCPFC FIELD**
TRIP IDENTIFIER	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be VESSEL + DEPARTURE DATE			<OBSTRIP_ID>	Y
OBSPRG_CODE	OBSERVER SERVICE PROVIDERS identification– National or sub-regional observer programmes For national programmes, this is the COUNTRY_CODE + 'OB' for example, 'PGOB' – for the PNG national observer programme. For Sub-regional programmes, the following codes are used. 'TTOB' – US Multilateral Treaty Observer programme 'FAOB' – FSM Arrangement Observer Programme	Char (4)	Observer programme code must be must valid country. Refer to valid ISO two-letter Country Codes - ISO 3166 For example, refer to http://en.wikipedia.org/wiki/ISO_3166-1	<OBSPRG_CODE>	Y
STAFF_CODE	Observer field staff NAME CODE. This will be unique and link to information kept at the regional level including Observer Name, Nationality of observer, Observer provider.	VarChar (5)	Staff code must exist in the regional Observer (FIELD_STAFF) Name Table. The unique 5-letter staff codes are generated and maintained by SPC/FFA.	<STAFF_CODE>	Y
TRIPNO	Unique TRIPNO for each observer in a given year (Regional Standard) Use the last two digits of the trip year followed by a dash and increment number for each trip in a year FOR THAT OBSERVER. YY-XX, for example, '14-01' would represent the first trip for an observer in the calendar year 2014	Char (5)	Must adhere to the regional standard	<TRIPNO>	N
TRIPNO_INTERNAL	TRIPNO as allocated and used by the respective Observer service provider. (If this system is different from the regional standard (e.g. the US PS MLT observer programme trip number uses the format '24LP/xxx')	VarChar (15)		<TRIPNO_INT>	N

OBS_TRIP

"The start of a trip is defined to occur when a vessel (a) leaves port after unloading part or all of the catch to transit to a fishing area or (b) recommences fishing operations or transits to a fishing area after transshipping part or all of the catch at sea (when this occurs in accordance with the terms and conditions of article 4 of Annex III of the Convention, subject to specific exemptions as per article 29 of the Convention)."

FIELD	Data Collection Instructions	Field format notes	Validation rules	XML TAG	WCPFC FIELD
DATE and TIME OF DEPARTURE	Depart DATE/TIME for the observer trip (Observer's departure) Vessel depart date/time will be obtained from other sources of data (e.g. VMS Data)	REFER TO APPENDIX A1	Use UTC DATE for the departure date.	<DEP_DATE>	Y
DATE AND TIME OF ARRIVAL IN PORT	Return DATE/TIME for the observer trip (from the observer's point of view) Vessel return date/time will be obtained from other sources of data (e.g. VMS Data)	REFER TO APPENDIX A1	Use UTC DATE for the return date. DD/MM/YY	<RET_DATE>	Y
GEAR_CODE	Link to ref_gears table	Char (1)	Must be a valid GEAR: 'L' – Longline; 'S' – Purse seine; 'P' – Pole-and-line	<GEAR_CODE>	Y
FISHING PERMIT/LICENSE NUMBERS	PROVIDE License/Permit number that the vessel holds for the period of the TRIP.	CHAR(40) UPPER CASE	Where possible, include validation to ensure the Permit format relevant to the agreement (national or sub-regional) complies to the required format.	<LICENSE_NO>	N
VESSEL IDENIFIER	REFER TO APPENDIX A4				
VERSN_ID	Data standards version	Int		<VERSN_ID>	N
COUNTRY_CODE	Two letter COUNTRY CODE for the country who organise the trip	Char (2)	Refer to valid ISO two-letter Country Codes - ISO 3166 For example, refer to http://en.wikipedia.org/wiki/ISO_3166-1	<COUNTRY_CODE>	Y
PORT OF DEPARTURE	PROVIDE the Port of Departure	REFER TO APPENDIX A3	Must be valid United Nations - Code for Trade and Transport Locations (UN/LOCODE) – see http://www.unece.org/cefact/locode/service/location	<DEP_PORT>	Y
PORT OF RETURN	PROVIDE the Port of Return for Unloading	REFER TO APPENDIX A3	Must be valid United Nations - Code for Trade and Transport Locations (UN/LOCODE)	<RET_PORT>	Y
DEP_LAT	The actual depart LAT position for the trip (if departing AT SEA)	REFER TO APPENDIX A2		<DEP_LAT>	Y
DEP_LON	The actual depart LON position for the trip (if departing AT SEA)	REFER TO APPENDIX A2		<DEP_LON>	Y
RET_LAT	The actual return LAT position for the trip (if departing AT SEA)	REFER TO APPENDIX A2		<RET_LAT>	Y
RET_LON	The actual return LON position for the trip (if departing AT SEA)	REFER TO APPENDIX A2		<RET_LON>	Y
VESOWNER	NAME of the vessel owner	NVarChar (50)		<VESOWNER>	Y
VESCAPTAIN	NAME of the captain of the vessel	NVarChar (50)		<VESCAPTAIN>	Y
VESCAPT_NATION	NATIONALITY of the captain of the vessel	Char (2)	Refer to valid ISO two-letter Country	<VESCAPT_CO_CODE>	Y

OBS_TRIP

"The start of a trip is defined to occur when a vessel (a) leaves port after unloading part or all of the catch to transit to a fishing area or (b) recommences fishing operations or transits to a fishing area after transshipping part or all of the catch at sea (when this occurs in accordance with the terms and conditions of article 4 of Annex III of the Convention, subject to specific exemptions as per article 29 of the Convention)."

FIELD	Data Collection Instructions	Field format notes	Validation rules	XML TAG	WCPFC FIELD
	Two letter COUNTRY CODE for the country who organise the trip		Codes - ISO 3166 For example, refer to http://en.wikipedia.org/wiki/ISO_3166-1		
VESCAPT_ID_DOC	Captain's Document ID	NVarChar (20)		<VESCAPT_ID_DOC>	Y
VESMASTER	NAME of the fishing master	NVarChar (50)		<VESMASTER>	
VESMAST_NATION	NATIONALITY of the vessel MASTER Two letter COUNTRY CODE for the country who organise the trip	Char (2)	Refer to valid ISO two-letter Country Codes - ISO 3166 For example, refer to http://en.wikipedia.org/wiki/ISO_3166-1	<VESCAPT_CO_CODE>	Y
VESMAST_ID_DOC	FISHING MASTERS's Document ID	NVarChar (20)		<VESCAPT_ID_DOC>	Y
CREW_NUMBER	Total number of CREW onboard during the trip	Int		<CREW_NUMBER>	Y
SPILL	FLAG to indicated the trip was a SPILL SAMPLE trip	Bit		<SPILL>	N
CADET	FLAG to indicated whether the trip was observed by a CADET observer	Bit		<CADET>	N
SHARKTARGET	FLAG to indicated a trip has targeted SHARKS (LONGLINE trips only)	Bit		<SHARKTARGET>	N
COMMENTS	General comments about the trip	NText		<COMMENTS>	N

1.3 DAILY SUMMARY DATA

PS_OBS_DAY The observer must provide the information in this table (daily logged DAY) for EACH DAY AT SEA for the period of the trip.					
FIELD	**Data Collection Instructions**	**Field format notes**	**Validation rules**	**XML TAG**	**WCPFC FIELD**
TRIP IDENTIFIER	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be VESSEL + DEPARTURE DATE			<OBSTRIP_ID>	Y
DAY LOG IDENTIFIER	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be VESSEL + DEPARTURE DATE + LOCAL DAY LOG DATE			<S_DAY_ID>	Y
DAY_START	Local Date and time at the start of the logged date.	REFER TO APPENDIX A1		<START_DATE>	Y
UTC_DAY_START	UTC equivalent of DAY_START	REFER TO APPENDIX A1		<UTC_START_DATE>	Y
LOG_NOFISH_N	For the entire logged day, provide the Number of logs sighted but no schools association.	SmallInt		<LOG_NOFISH_N>	Y
LOG_FISH_N	For the entire logged day, provide the Number of log associated schools sighted.	SmallInt		<LOG_FISH_N>	Y
SCH_FISH_N	For the entire logged day, provide the	SmallInt		<SCH_FISH_N>	Y
FAD_FISH_N	For the entire logged day, provide the Number of anchored FADs sighted.	SmallInt		<FAD_FISH_N>	Y
FAD_NOFISH_N	For the entire logged day, provide the Number of anchored FADS sighted but no schools association.	SmallInt		<FAD_NOFISH_N>	Y
GEN3TODAY_ANS	For the entire logged day, provide the FLAG to indicate that incident has occurred on GEN3.	Char (1)	Must be consistent with the GEN-3 data.	<GEN3TODAY_ANS>	N
DIARYPAGE	Journal page # which has detail explanations of the incident	VarChar (50)		<DIARYPAGE>	N

1.4 ACTIVITY LOG DATA

PS_OBS_ACTIVITY **The observer must PROVIDE a record of EACH change in ACTIVITY for EACH DAY AT SEA for the period of the trip. This is effectively the OBSERVER's ACTIVITY LOG**					
FIELD	**Data Collection Instructions**	**Field format notes**	**Validation rules**	**XML TAG**	**WCPFC FIELD**
TRIP IDENTIFIER	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be VESSEL + DEPARTURE DATE			<OBSTRIP_ID>	Y
ACTIVITY LOG IDENTIFIER	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be VESSEL + DEPARTURE DATE + DAY LOG DATE + ACTIVITY LOG TIME			<S_LOG_ID>	Y
ACT_DATE	Local/Ship's date and time of Activity log recording.	REFER TO APPENDIX A1	Must be consistent with the start of DAY log DATE	<ACT_DATE>	Y
UTC_ACT_DATE	UTC equivalent of ACT_DATE	REFER TO APPENDIX A1		<UTC_ACT_DATE>	Y
LAT	Latitude at which this ACTIVITY LOG recorded	REFER TO APPENDIX A2		<LAT>	Y
LON	Longitude at which this ACTIVITY LOG recorded.	REFER TO APPENDIX A2		<LON>	Y
S_ACTIV_ID	Purse seine activity code.	REFER TO APPENDIX A5		<S_ACTIV_ID>	Y
SCHAS_ID	School association code.	REFER TO APPENDIX A6		<SCHAS_ID>	Y
DETON_ID	Detection id. code. Must be 1-6 or 0 for no information.	REFER TO APPENDIX A7		<DETON_ID>	Y
BEACON	Beacon number where	NVarChar (20)	Can only be recorded where an activity is related to an event for investigating, deploying, retrieving or setting on a floating object. REFER TO APPENDIX A5	<BEACON>	N
COMMENTS	Observer comments related to this activity	NText		<COMMENTS>	N

1.5 SET-LEVEL DATA

PS_OBS_SET The observer must PROVIDE the following information for EACH FISHING SET for the period of the trip.						
FIELD	**Data Collection Instructions**		**Field format notes**	**Validation rules**	**XML TAG**	**WCPFC FIELD**
TRIP IDENTIFIER	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be VESSEL + DEPARTURE DATE				<OBSTRIP_ID>	Y
SET IDENTIFIER	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be VESSEL + DEPARTURE DATE + SET START DATE + SET START TIME			Must be consistent with PS_OBS_ACTIVITY record where S_ACTIV_ID = 1 (A fishing set).	<S_SET_ID>	Y
SET_NUMBER	Unique # for the SET ni this trip		Int		<SET_NUMBER>	N
SKIFFOFF_TIME	DEFINED as the START of SET – Local DATE/Time when net skiff off with net		REFER TO APPENDIX A1		<SKIFFOFF_TIME>	Y
SKIFFOFF_UTC	UTC DATE & TIME of START of SET		REFER TO APPENDIX A1	Must be aligned to SKIFFOFF_TIME	<SKIFFOFF_UTC>	Y
WINCHON_TIME	LOCAL DATE/TIME when winches start to haul the net.		REFER TO APPENDIX A1		<WINCHON_TIME>	Y
WINCHON_UTC	UTC DATE & TIME when winches start to haul the net.		REFER TO APPENDIX A1	Must be aligned to WINCHON_TIME	<WINCHON_UTC>	Y
RINGUP_TIME	LOCAL DATE/TIME when purse ring is raised from the water.		REFER TO APPENDIX A1		<RINGUP_TIME>	Y
RINGUP_UTC	UTC DATE & TIME when purse ring is raised from the water.		REFER TO APPENDIX A1	Must be aligned to RINGUP_TIME	<RINGUP_UTC>	Y
SBRAIL_TIME	LOCAL DATE/TIME when brailing begins.		REFER TO APPENDIX A1		<SBRAIL_TIME>	Y
SBRAIL_UTC	UTC DATE & TIME when brailing begins.		REFER TO APPENDIX A1	Must be aligned to SBRAIL_TIME	<SBRAIL_UTC>	Y
EBRAIL_TIME	LOCAL DATE/TIME when brailing ends.		REFER TO APPENDIX A1		<EBRAIL_TIME>	Y
EBRAIL_UTC	UTC DATE & TIME when brailing ends.		REFER TO APPENDIX A1	Must be aligned to EBRAIL_TIME	<EBRAIL_UTC>	Y
STOP_TIME	LOCAL DATE/TIME for the END of SET - Time when net skiff comes on-board i.e. end of set.		REFER TO APPENDIX A1		<STOP_TIME>	Y
STOP_UTC	UTC DATE & TIME – Date &Time when net skiff comes on-board i.e. end of set.		REFER TO APPENDIX A1	Must be aligned to STOP_TIME	<STOP_UTC>	Y
LD_BRAILS	Sum of all brails		Decimal (8,3)		<LD_BRAILS>	N
LD_BRAILS2	Sum of brails (#2)- only where a second type of brailer was used		Decimal (8,3)		<LD_BRAILS2>	N
MTTOTAL_OBS	Total observed catch (TUNA and BYCATCH) (mt)		Decimal (8,3)		<MT_TOTAL_OBS>	Y
MTTUNA_OBS	TOTAL amount of TUNA observed (mt)		Decimal (8,3)	Derived from and consistent with MTTOTAL_OBS minus all the bycatch (mt) listed under PS_OBS_CATCH for this SET	<MTTUNA_OBS>	Y
TOTSKJ_ANS	SKIPJACK	FLAG to indicate whether SKJ is presence in the set catch	Char (1)		<TOTSKJ_ANS>	Y
PERC_SKJ		% of SKJ in the set catch	Int		<PERC_SKJ>	Y
MTSKJ_OBS		Metric Tonnes of SKJ in the set catch	Decimal (8,3)	Determined from MTTUNA_OBS and PERC_SKJ fields	<MTSKJ_OBS>	Y
TOTYFT_ANS	YEL LOW FIN	FLAG to indicate whether YFT is presence in the set catch	Char (1)		<TOTYFT_ANS>	Y
PERC_YFT		% of YFT in the set catch	Int		<PERC_YFT>	Y

PS_OBS_SET

The observer must PROVIDE the following information for EACH FISHING SET for the period of the trip.

FIELD	Data Collection Instructions		Field format notes	Validation rules	XML TAG	WCPFC FIELD
MTYFT_OBS		Metric Tonnes of YFT in the set catch	Decimal (8,3)	Determined from MTTUNA_OBS and PERC_YFT fields	<MTYFT_OBS>	Y
LARGE_YFT_ANS		FLAG to indicate YFT in the set catch	Char (1)		<LARGE_YFT_ANS>	Y
PERC_LARGE_YFT		% of large YFT in the set catch	Int		<PERC_LARGE_YFT>	Y
NB_LARGE_YFT		# of large YFT in the set catch	Int		<NB_LARGE_YFT>	Y
TOTBET_ANS	BIGEYE	FLAG to indicate whether BET is presence in the set catch	Char (1)		<TOTBET_ANS>	Y
PERC_BET		% of BET in the set catch	Int		<PERC_BET>	Y
MTBET_OBS		Metric Tonnes of BET in the set catch	Decimal (8,3)	Determined from MTTUNA_OBS and PERC_BET fields	<MTBET_OBS>	Y
LARGE_BET_ANS		FLAG to indicate BET in the set catch	Char (1)		<LARGE_BET_ANS>	Y
PERC_LARGE_BET		% of large BET in the set catch	Int		<PERC_LARGE_BET>	Y
NB_LARGE_BET		# of large BET in the set catch	Int		<NB_LARGE_BET>	Y
COMMENTS	comments		NText		<COMMENTS>	N
B_NBTAGS	Number of tags		SmallInt		<B_NBTAGS>	Y

1.6 SET CATCH DATA

PS_OBS_CATCH The observer must PROVIDE the following CATCH DETAILS for EACH FISHING SET for the period of the trip.					
FIELD	**Data Collection Instructions**	**Field format notes**	**Validation rules**	**XML TAG**	**WCPFC FIELD**
TRIP IDENTIFIER	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be VESSEL + DEPARTURE DATE			<OBSTRIP_ID>	Y
SET IDENTIFIER	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be VESSEL + DEPARTURE DATE + SET START DATE + SET START TIME		Must be consistent with PS_OBS_ACTIVITY record where S_ACTIV_ID = 1 (A fishing set).	<S_SET_ID>	Y
CATCH IDENTIFIER	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be VESSEL + DEPARTURE DATE + SET START DATE + SET START TIME + SPECIES CODE + FATE CODE			<S_CATCH_ID>	Y
SP_CODE	Species code.	Char (3)	REFER TO APPENDIX 8.	<SP_CODE>	Y
FATE_CODE	FATE of this catch. This indicates whether it was RETAINED, DISCARDED or ESCAPED, and any specific processing.	Char (3)	REFER TO APPENDIX 9	<FATE_CODE>	Y
COND_CODE	CONDITION of this catch. Relevant for the Species of Special Interest.	Char (2)	REFER TO APPENDIX 10	<COND_CODE>	Y
OBS_MT	Observer's visual estimate of TOTAL Species catch in metric tonnes. OBTAINED from the visual estimate of % of TUNA SPECIES in the respective fields for SKJ, YFT and BET in the table PS_OBS_SET. For BYCATCH species, this is the visual estimate, where relevant.	Decimal (8,3)		<OBS_MT>	Y
OBS_N	Species catch (in numbers). OBTAINED from the visual estimate, which may be relevant for DISCARDs of TUNA, the discards/retained catch of BILLFISH and most other bycatch species. Entry into this field is mandatory for any Species of Special interest.	Int	For Species of Special interest (Mammals, Turtles, Birds and Sharks) there must be a corresponding set of records in the Species of Special interest table.	<OBS_N>	Y
COMMENTS	Are there any comments for this species catch ? (Y/N)	NText		<COMMENTS>	N

1.7 SPECIES OF SPECIAL INTEREST DATA

OBS_SSI The observer must PROVIDE the following SPECIES OF SPECIAL INTEREST CATCH DETAILS for EACH FISHING SET for the period of the trip. There may be one or many records for each SSI record in PS_OBS_CATCH. When SIGHTED only, then this table is linked to the OBS_TRIP database table.					
FIELD	**Data Collection Instructions**	**Field format notes**	**Validation rules**	**XML TAG**	**WCPFC FIELD**
TRIP IDENTIFIER	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be VESSEL + DEPARTURE DATE			<OBSTRIP_ID>	Y
SET IDENTIFIER - PS	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be VESSEL + DEPARTURE DATE + SET START DATE + SET START TIME		To be used to link to PS_OBS_SET when relevant When SGTYPE = 'L' or 'I' Must be consistent with PS_OBS_ACTIVITY record where S_ACTIV_ID = 1 (A fishing set).	<S_SET_ID>	Y
CATCH IDENTIFIER - PS	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be VESSEL + DEPARTURE DATE + SET START DATE + SET START TIME + SPECIES CODE + FATE CODE		To be used to link to PS_OBS_CATCH when relevant When SGTYPE = 'L' or 'I' Must be a link to the corresponding PS_OBS_CATCH record for this SSI	<S_CATCH_ID>	Y
SET IDENTIFIER – LL	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be VESSEL + DEPARTURE DATE + SET START DATE + SET START TIME		To be used to link to LL_OBS_SET when relevant When SGTYPE = 'L' or 'I' Must be consistent with PS_OBS_ACTIVITY record where S_ACTIV_ID = 1 (A fishing set).	<L_SET_ID>	Y
CATCH IDENTIFIER – LL	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be VESSEL + DEPARTURE DATE + SET START DATE + SET START TIME + SPECIES CODE + FATE CODE		To be used to link to LL_OBS_CATCH when relevant When SGTYPE = 'L' or 'I' Must be a link to the corresponding PS_OBS_CATCH record for this SSI	<L_CATCH_ID>	Y
SSI CATCH IDENTIFIER	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be VESSEL + DEPARTURE DATE + DAY LOG + SIGHTING TIME + SPECIES CODE + FATE CODE			<SSI_ID>	Y
SGTYPE	Type of Interaction : 'L' - Landed; "S"- Sighted; "I" - Interacted with Gear	Char (1)	Must be 'L' - Landed; "S"- Sighted; "I" - Interacted with Gear	<SGTYPE>	Y
SGTIME	Time of Interaction : 'L' - Time of Landing; "I" - Time of Interaction / sighting	Char (1)		<SGTIME>	Y
SSI_DATE	Local/Ship's date and time when	REFER TO	When SGTYPE = 'L' or 'I'	<SSI_DATE>	Y

OBS_SSI

The observer must PROVIDE the following SPECIES OF SPECIAL INTEREST CATCH DETAILS for EACH FISHING SET for the period of the trip. There may be one or many records for each SSI record in PS_OBS_CATCH. When SIGHTED only, then this table is linked to the OBS_TRIP database table.

FIELD	Data Collection Instructions	Field format notes	Validation rules	XML TAG	WCPFC FIELD
	this SSI was encountered.	APPENDIX A1	Must be consistent with PS_OBS_ACTIVITY record – ACT_DATE		
UTC_SSI_DATE	UTC equivalent of SSI_DATE	REFER TO APPENDIX A1	When SGTYPE = 'L' or 'I' Must be consistent with PS_OBS_ACTIVITY record – UTC_ACT_DATE	<UTC_SSI_DATE>	Y
LAT	Latitude at which this SSI was encountered	REFER TO APPENDIX A2	When SGTYPE = 'L' or 'I' Must be consistent with PS_OBS_ACTIVITY record – LAT	<LAT>	Y
LON	Longitude at which this SSI was encountered	REFER TO APPENDIX A2	When SGTYPE = 'L' or 'I' Must be consistent with PS_OBS_ACTIVITY record – LON	<LON>	Y
SP_CODE	SSI Species encountered. Link to species table	Char (3)	REFER TO APPENDIX 8. Must correspond to the PS_OBS_CATCH record	<SP_CODE>	Y
SP_DESC	Extended Species Description	NText		<SP_DESC>	N
LANDED_COND_CODE	Condition code on LANDING	Char (2)	REFER TO APPENDIX 10	<LANDED_COND_CODE>	Y
LANDED_COND_DESC	Description of Condition on Landing or at start of interaction with vessel's gear	NText		<LANDED_COND_DESC>	Y
LANDED_HANDLING	Description of handling on landing	NText		<LANDED_HANDLING>	N
LANDED_LEN	Length of landed species	Decimal (5,1)		<LANDED_LEN>	Y
LEN_CODE	Length code of the individual	Char (2)	REFER TO APPENDIX 11	<LEN_CODE>	Y
LANDED_SEX_CODE	Sex code of the individual	Char (1)	REFER TO APPENDIX 12	<LANDED_SEX_CODE>	Y
DISCARD_COND_CODE	Condition code on RELEASE/DISCARD, or at the END of interaction with vessel's gear	Char (2)	REFER TO APPENDIX 10	<DISCARD_COND_CODE>	Y
DISCARD_COND_DESC	Description of Condition on RELEASE/DISCARD, or at the END of interaction with vessel's gear	NText		<DISCARD_COND_DESC>	Y
SHK_FIN_WT_KGS	Estimated SHARK FIN WEIGHT (kgs)	Decimal (5,0)		<SHK_FIN_WT_KGS>	Y
SHK_FIN_BODY_KGS	Estimated SHARK CARCASS WEIGHT (kgs)	Decimal (5,0)		<SHK_FIN_BODY_KGS>	Y
TAG_RET_NO	Tag Number recovered from animal	NVarChar (7)		<TAG_RET_NO>	Y
TAG_RET_TYPE	Type of Tag recovered from animal	NVarChar (5)		<TAG_RET_TYPE>	Y
TAG_RET_ORG	Origin of Tag recovered from animal (Organisation)	NVarChar (10)		<TAG_RET_ORG>	Y
TAG_PLACE_NO	Tag number placed on animal	NVarChar (14)		<TAG_PLACE_NO>	Y
TAG_PLACE_TYPE	Type of Tag placed on animal	NVarChar (8)		<TAG_PLACE_TYPE>	Y
TAG_PLACE_ORG	Origin of Tag placed on animal (Organisation)	NVarChar (10)		<TAG_PLACE_ORG>	Y
INTACT_ID	Vessel activity when INTERACTION occurs	Int	REFER TO APPENDIX 13	<INTACT_ID>	Y

OBS_SSI

The observer must PROVIDE the following SPECIES OF SPECIAL INTEREST CATCH DETAILS for EACH FISHING SET for the period of the trip. There may be one or many records for each SSI record in PS_OBS_CATCH. When SIGHTED only, then this table is linked to the OBS_TRIP database table.

FIELD	Data Collection Instructions	Field format notes	Validation rules	XML TAG	WCPFC FIELD
INTACT_OTHER	Other types of interaction	NVarChar (20)		<INTACT_OTHER>	Y
INT_DESCRIBE	Description of the interaction	NText		<INT_DESCRIBE>	Y
SGACT_ID	Vessel activity when SIGHTING occurs	Int	REFER TO APPENDIX 13	<SGACT_ID>	Y
SGACT_OTHER	Indicates "other" Vessel Activity	NVarChar (20)		<SGACT_OTHER>	N
SIGHT_N	Number of individuals sighted	SmallInt		<SIGHT_N>	Y
SIGHT_ADULT_N	Number of adults sighted	SmallInt		<SIGHT_ADULT_N>	N
SIGHT_JUV_N	Number of juveniles sighted	SmallInt		<SIGHT_JUV_N>	N
SIGHT_LEN	Estimated overall length (Average if more than one individual)	NText		<SIGHT_LEN>	N
SIGHT_DIST	Distance of sighted animals from vessel	Decimal (7,3)		<SIGHT_DIST>	N
SIGHT_DIST_UNIT	Units used for SIGHT_DIST	INT	1 = Metres; 2 = kilometres; 3 = Nautical miles	<SIGHT_DIST_UNIT>	N
SIGHT_DIST_NM	Distance in nautical miles	Decimal (10,4)		<SIGHT_DIST_NM>	N
SIGHT_BEHAV	Description of behaviour of Sighted animals	NText		<SIGHT_BEHAV>	N

1.8 SPECIES OF SPECIAL INTEREST DETAILS DATA

OBS_SSI_DETAILS The observer must PROVIDE the following SPECIES OF SPECIAL INTEREST CATCH DETAILS for EACH FISHING SET for the period of the trip. The specific detail of each interaction needs to be recorded/stored here.					
FIELD	**Data Collection Instructions**	**Field format notes**	**Validation rules**	**XML TAG**	**WCPFC FIELD**
TRIP IDENTIFIER	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be VESSEL + DEPARTURE DATE			<OBSTRIP_ID>	Y
SSI CATCH IDENTIFIER	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be VESSEL + DEPARTURE DATE + DAY LOG + SIGHTING TIME + SPECIES CODE + FATE CODE		Link to OBS_SSI table	<SSI_ID>	Y
SSI DETAILS IDENTIFIER	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be VESSEL + DEPARTURE DATE + DAY LOG + SIGHTING TIME + SPECIES CODE + FATE CODE			<SSI_DET_ID>	Y
START_END	Indication of “START” or “END” of interaction	Char (1)	Must be either ‘S’ for START or ‘E’ for END	<START_END>	Y
SSI_NUMBER	Number of animals interacted	Int		<SSI_NUMBER>	Y
COND_CODE	CONDITION at the point of recording (either START or END)	Char (2)	REFER TO APPENDIX 10	<COND_CODE>	Y
DESCRIPTION	Descriptions of the interaction	VarChar (100)		<DESCRIPTION>	N

1.9 LENGTH SAMPLE DATA

PS_LFSAMPLE PROVIDE the information related to the size (length) and species composition SAMPLE from each FISHING SET.					
FIELD	**Data Collection Instructions**	**Field format notes**	**Validation rules**	**XML TAG**	**WCPFC FIELD**
TRIP IDENTIFIER	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be VESSEL + DEPARTURE DATE			<OBSTRIP_ID>	Y
SET IDENTIFIER	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be VESSEL + DEPARTURE DATE + SET START DATE + SET START TIME			<S_SET_ID>	Y
LF SAMPLE IDENTIFIER	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be VESSEL + DEPARTURE DATE + DAY LOG + SET START DATE + SET START TIME + SAMPLE_TYPE			<S_LFSAMP _ID>	Y
SAMPLETYPE_ID	Sample Type	CHAR(1)	REFER TO APPENDIX 14	<SAMPLETYPE_ID>	Y
OTHER_DESC	Description other sampling type	NText		<OTHER_DESC>	N
FISH_PER_BRAIL	Target # of fish for sampling	SmallInt		<FISH_PER_BRAIL>	N
MEASURE_CODE	MEASURING INSTRUMENT	Char (1)	REFER TO APPENDIX 15	<MEASURE_CODE>	N
COMMENTS	Comments about the sampling	NText		<COMMENTS>	N
BRAIL_FULL_N	# of Full brail count	SmallInt		<BRAIL_FULL_N>	N
BRAIL_78_N	# of Seven eighths brail count	SmallInt		<BRAIL_78_N>	N
BRAIL_34_N	# of Three quarter brail count	SmallInt		<BRAIL_34_N>	N
BRAIL_23_N	# of Two third brail count	SmallInt		<BRAIL_23_N>	N
BRAIL_12_N	# of Half brail count	SmallInt		<BRAIL_12_N>	N
BRAIL_13_N	# of One third brail count	SmallInt		<BRAIL_13_N>	N
BRAIL_14_N	# of One quarter brail count	SmallInt		<BRAIL_14_N>	N
BRAIL_18_N	# of One eighth brail count	SmallInt		<BRAIL_18_N>	N
BRAIL_N	Total number of brails	SmallInt		<BRAIL_N>	N
SUM_BRAILS	Sum of All Brails	Decimal (7,2)		<SUM_BRAILS>	N
SAMPLED_BRAIL_NUM	# of sampled brail	Int		<SAMPLED_BRAIL_NUM>	N
MEASURED_N	# of samples measured	Int		<MEASURED_N>	N

1.10 INDIVIDUAL LENGTH DATA

PS_LFMEAS PROVIDE the individual fish measurements from the SAMPLE from each FISHING SET.					
FIELD	**Data Collection Instructions**	**Field format notes**	**Validation rules**	**XML TAG**	**WCPFC FIELD**
TRIP IDENTIFIER	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be VESSEL + DEPARTURE DATE			<OBSTRIP_ID>	Y
SET IDENTIFIER	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be VESSEL + DEPARTURE DATE + SET START DATE + SET START TIME			<S_SET_ID>	Y
LF SAMPLE IDENTIFIER	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be VESSEL + DEPARTURE DATE + DAY LOG + SET START DATE + SET START TIME + SAMPLE_TYPE			<S_LFSAMP _ID>	Y
LF MEASURE IDENTIFIER	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be VESSEL + DEPARTURE DATE + DAY LOG + SET START DATE + SET START TIME + SAMPLE_TYPE + SEQ_NUMBER			<S_LFMEAS_ID>	Y
SEQ_NUMBER	Measurement number.	Int		<SEQ_NUMBER>	N
SP_CODE	Link to species table	Char (3)	REFER TO APPENDIX 8.	<SP_CODE>	Y
LEN	Length (cm). Expect that the following measurements have been taken by the observers, as instructed. TUNA SPECIES - Upper jaw to fork length; SHARK SPECIES - total length; BILLFISH SPECIES - Lower jaw to fork length for billfish.	SmallInt		<LEN>	Y

1.11 TRIP MONITORING QUESTIONS

OBS_TRIPMON PROVIDE the details of the OBSERVER GEN-3 "OBSERVER VESSEL TRIP MONITORING FORM". One record per question.					
FIELD	**Data Collection Instructions**	**Field format notes**	**Validation rules**	**XML TAG**	**WCPFC FIELD**
TRIP IDENTIFIER	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be VESSEL + DEPARTURE DATE			<OBSTRIP_ID>	Y
TRIP MONITORING IDENTIFIER	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be VESSEL + DEPARTURE DATE + UNIQUE SEQ NUMBER			<TRIPMON_ID>	Y
QUESTION_CODE	Unique CODE for each question in GEN3	Char (4)	REFER TO APPENDIX 16	<QUESTION_CODE>	Y
ANSWER	FLAG to indicate whether has been answered or NOT	Char (1)	MUST BE 'Y', 'N' or 'X'- not answered	<ANSWER>	Y
JOURNAL_PAGE	Detail description of the incident	NText		<JOURNAL_PAGE>	Y

1.12 TRIP MONITORING COMMENTS

OBS_TRIPMON_COMMENTS PROVIDE the details of the OBSERVER GEN-3 "OBSERVER VESSEL TRIP MONITORING FORM". One record per day of trip monitoring reported event/incident.					
FIELD	**Data Collection Instructions**	**Field format notes**	**Validation rules**	**XML TAG**	**WCPFC FIELD**
TRIP IDENTIFIER	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be VESSEL + DEPARTURE DATE			<OBSTRIP_ID>	Y
TRIP MONITORING COMMENTS IDENTIFIER	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be VESSEL + DEPARTURE DATE + UNIQUE SEQ NUMBER			<TRIPMON_DET_ID>	Y
GEN3_DATE	Date of the incident on GEN3	REFER TO APPENDIX A1		<GEN3_DATE>	Y
COMMENTS	Detail description of the incident	NText		<COMMENTS>	Y

1.13 VESSEL/AIRCRAFT SIGHTINGS DATA

VES_AIR_SIGHT PROVIDE the details on the GEN-1 form -- VESSEL AND AIRCRAFT SIGHTINGS / FISH, BUNKERING and OTHER TRANSFERS LOGS					
FIELD	**Data Collection Instructions**	**Field format notes**	**Validation rules**	**XML TAG**	**WCPFC FIELD**
TRIP IDENTIFIER	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be VESSEL + DEPARTURE DATE			<OBSTRIP_ID>	Y
SIGHTING IDENTIFIER	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be VESSEL + DEPARTURE DATE + SIGHT_DATE_TIME			<SIGHT_ID>	Y
SIGHT_DATE_TIME	Date/Time of sighting	REFER TO APPENDIX A1		<SIGHTING_DATE>	Y
LAT	Latitude of SIGHTING	REFER TO APPENDIX A2		<LAT>	Y
LON	Longitude of SIGHTING	REFER TO APPENDIX A2		<LON>	Y
VESSEL IDENIFIER	REFER TO APPENDIX A4				
VATYP_ID	Vessel / Aircraft type	Int	REFER TO APPENDIX 17	<VATYP_ID>	Y
BEARING_DIR	Bearing (0-360 degrees)	SmallInt		<BEARING_DIR>	Y
DISTANCE	Distance	Decimal (7,3)		<DISTANCE>	Y
DIST_UNIT	Units of Distance	INT	1 = Metres; 2 = kilometres; 3 = Nautical miles	<DIST_UNIT>	Y
ACTION_CODE	Action of Vessel/Aircraft sighted	Char (2)	REFER TO APPENDIX 18 for Vessel/Aircraft sightings only – only allow actions where FORM USED = 'GEN-1'	<ACTION_CODE>	Y
COMMENTS	Comments	NText		<COMMENTS>	Y

1.14 CREW DATA

PS_CREW PROVIDE the details of each PURSE SEINE CREW member on this TRIP.					
FIELD	**Data Collection Instructions**	**Field format notes**	**Validation rules**	**XML TAG**	**WCPFC FIELD**
TRIP IDENTIFIER	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be VESSEL + DEPARTURE DATE			<OBSTRIP_ID>	Y
CREW IDENTIFIER	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be VESSEL + DEPARTURE DATE + CREW NAME			<S_CREW_ID>	Y
VSJOB_ID	CREW JOB TYPE	Int	REFER TO APPENDIX 19	<VSJOB_ID>	N
NAME	Name of the person in this position	NVarChar (50)		<NAME>	Y
COUNTRY_CODE	Nationality of the person in this position	Char (2)	Refer to valid ISO two-letter Country Codes - ISO 3166 For example, refer to http://en.wikipedia.org/wiki/ISO_3166-1	<COUNTRY_CODE>	Y
EXP_YR	Experience in Years	SmallInt		<EXP_YR>	N
EXP_MO	Experience in months	SmallInt		<EXP_MO>	N
COMMENTS	Comments	NText		<COMMENTS>	N

1.15 MARINE DEVICES DATA

VES_ELEC PROVIDE information on the standard Marine Electronic devices.					
FIELD	**Data Collection Instructions**	**Field format notes**	**Validation rules**	**XML TAG**	**WCPFC FIELD**
TRIP IDENTIFIER	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be VESSEL + DEPARTURE DATE			<OBSTRIP_ID>	Y
TRIP/VESSEL DEVICE IDENTIFIER	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be VESSEL + DEPARTURE DATE + DEVICE_ID			<V_DEVICE_ID>	Y
DEVICE_ID	Marine Device CODE.	Int	Refer to APPENDIX 20 - the DEVICES should only be available according to the respective gear code (e.g. "S" for purse seine or "L" for longline is in the GEAR LIST CODES column)	<DEVICE_ID>	Y
ONBOARD_CODE	Is this DEVICE SIGHTED ONBOARD ?	Char (1)	'Y' or 'N'	<ONBOARD_CODE>	Y
USAGE_CODE	Is this DEVICE USED ?	Char (3)	Refer to APPENDIX 21	<USAGE_CODE>	N
MAKE_DESC	Description of Make	NVarChar (30)		<MAKE_DESC>	N
MODEL_DESC	Description of Model	NVarChar (30)		<MODEL_DESC>	N
COMMENTS	Comments	NText		<COMMENTS>	N

1.16 WELL TRANSFER DATA

WELL_TRANSFER PROVIDE information for each transfer to/from storage WELLs during the trip. This may become mandatory WCPFC data collection related to CDS.					
FIELD	**Data Collection Instructions**	**Field format notes**	**Validation rules**	**XML TAG**	**WCPFC FIELD**
TRIP IDENTIFIER	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be VESSEL + DEPARTURE DATE			<OBSTRIP_ID>	N
WELL TRANSFER IDENTIFIER	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be VESSEL + DEPARTURE DATE + TRX_DATE			<S_WELL_TRX_ID>	N
TRX_DATE	DATE and TIME of fish transfer	REFER TO APPENDIX A1		<TRX_DATE>	N
ACTION_CODE	WELL TRANSFER ACTION CODE	Char (2)	REFER TO APPENDIX 18 for Well transfers only – only allow actions where FORM USED = 'PS-5	<ACTION_CODE>	N
SOURCE	Fish transfer source Can be the 'NET' and valid well number or a VESSEL	VarChar (80)	Can be the 'NET' and valid well number or a VESSEL	<SOURCE>	N
DESTINATION	Description of the transfer destination Can be Well No., vessel, SHORE or DISCARD	VarChar (80)	Can be Well No., vessel, SHORE or DISCARD	<DESTINATION>	N
WELL_MT	Weight of the fish transfer	Decimal (8,3)		<WELL_MT>	N
CHANGE	Change of transfer – add or remove	Char (1)	Must be either '+', '-' or '0' (for no change)	<CHANGE>	N
NEW_TOTAL	New cumulative to for the transfer	Decimal (8,3)		<NEW_TOTAL>	N
ON_LOGSHEET	FLAG to indicate the transfer has been stated on the logsheet	Char (1)		<ON_LOGSHEET>	N
COMMENTS	Comments made on the fish transfer	NText		<COMMENTS>	N

1.17 PURSE SEINE GEAR DATA

PS_GEAR PROVIDE information on the PURSE SEINE GEAR on the vessel.					
FIELD	**Data Collection Instructions**	**Field format notes**	**Validation rules**	**XML TAG**	**WCPFC FIELD**
TRIP IDENTIFIER	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be VESSEL + DEPARTURE DATE			<OBSTRIP_ID>	Y
PS GEAR IDENTIFIER	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be VESSEL + DEPARTURE DATE			<S_GEAR_ID>	Y
PB_MAKE	Power block make	NVarChar (20)		<PB_MAKE>	N
PB_MODEL	Power block model	NVarChar (20)		<PB_MODEL>	N
PW_MAKE	Purse winch make	NVarChar (20)		<PW_MAKE>	N
PW_MODEL	Purse winch model	NVarChar (20)		<PW_MODEL>	N
NET_DEPTH	Max depth of the net	SmallInt		<NET_DEPTH>	Y
NET_DEPTH_UNIT_ID	Net Depth unit of measurement M – metres; Y- Yards; F-Fathoms	Int	Must be M, Y, F or blank	<NET_DEPTH_UNIT_ID>	Y
NET_LENGTH	Max length of the net	SmallInt		<NET_LENGTH>	Y
NET_LENGTH_UNIT_ID	Net Length unit of measurement M – metres; Y- Yards; F-Fathoms	Int	Must be M, Y, F or blank	<NET_LENGTH_UNIT_ID>	Y
NET_STRIPS	Number of net strips	SmallInt		<NET_STRIPS>	N
NET_HANG_RATIO	Max net hang ratio	SmallInt		<NET_HANG_RATIO>	N
MESH_MAIN	Main Mesh size	SmallInt		<MESH_MAIN>	Y
MESH_MAIN_UNIT_ID	Main mesh size unit of measurement C – centimetres; I - Inches	Int	Must be C, I or blank	<MESH_MAIN_UNIT_ID>	Y
BRAIL_SIZE1	Brail #1 Capacity	Decimal (5,1)		<BRAIL_SIZE1>	Y
BRAIL_SIZE2	Brail #2 Capacity	Decimal (5,1)		<BRAIL_SIZE2>	Y
BRAIL_TYPE	Brailing Type Description	NText		<BRAIL_TYPE>	Y

1.18 FAD MATERIAL DATA

PS_FAD_MATERIAL PROVIDE information on the FAD MATERIAL observed during the trip.					
FIELD	**Data Collection Instructions**	**Field format notes**	**Validation rules**	**XML TAG**	**WCPFC FIELD**
TRIP IDENTIFIER	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be VESSEL + DEPARTURE DATE			<OBSTRIP_ID>	Y
FAD EVENT IDENTIFIER	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be VESSEL + DEPARTURE DATE + FAD EVENT DATE/TIME			<FAD_ID>	Y
FAD_EVENT_DATE	DATE/TIME of the FAD observation event	REFER TO APPENDIX A1		<FAD_EVENT_DATE>	Y
OBJECT_NUMBER	Number allocated for the object	SmallInt		<OBJECT_NUMBER>	Y
ORIGIN_CODE	Original CODE of the FAD	REFER TO APPENDIX A24	Code 5 or 6 used for FADs with radio buoy attached	<ORIGIN_CODE>	Y
DEPLOYMENT_DATE	Date of FAD deployment	REFER TO APPENDIX A1		<DEPLOYMENT_DATE>	Y
LAT	LAT postion of deployment	REFER TO APPENDIX A2		<LAT>	Y
LON	LON postion of deployment	REFER TO APPENDIX A2		<LON>	Y
SSI_TRAPPED	FLAG to indicate whether any SSI are trapped on the FAD	Char (1)		<SSI_TRAPPED>	Y
AS_FOUND_CODE	CODE to indicate whether the FAD “as Found”	Int		<AS_FOUND_CODE>	Y
AS_LEFT_CODE	CODE to indicate whether the FAD “as Left”	Int		<AS_LEFT_CODE>	Y
MAX_DEPTH_M	Max DEPTH of the FAD in metres	Decimal (5,1)		<MAX_DEPTH_M>	Y
LENGTH_M	Max LENGTH of the FAD in metres	Decimal (5,1)		<LENGTH_M>	Y
WIDTH_M	Max WIDTH of the FAD in metres	Decimal (5,1)		<WIDTH_M>	Y
BUOY_NUMBER	Buoy number stated on the FAD	NVarChar (20)		<BUOY_NUMBER>	Y
MARKINGS	Markings on the FAD	NVarChar (50)		<MARKINGS>	Y
COMMENTS	Comments made by the observer about the FAD	NText		<COMMENTS>	Y

1.19 FAD MATERIAL DETAIL

PS_FAD_MATERIAL_DETAIL PROVIDE information on the FAD MATERIAL DETAIL observed during the trip.					
FIELD	**Data Collection Instructions**	**Field format notes**	**Validation rules**	**XML TAG**	**WCPFC FIELD**
TRIP IDENTIFIER	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be VESSEL + DEPARTURE DATE			<OBSTRIP_ID>	Y
FAD EVENT IDENTIFIER	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be VESSEL + DEPARTURE DATE + FAD EVENT DATE/TIME			<FAD_ID>	Y
MATERIAL_CODE	FAD Material CODE	REFER TO APPENDIX A26	Material Code must exist in the ref_ids table	<MATERIAL_CODE>	Y
IS_ATTACHMENT	FLAG to indicate if there is an attachment to the FAD	Char (1)	'Y' or 'N'	<IS_ATTACHMENT>	Y

1.20 OBSERVER POLLUTION REPORT

OBS_POLLUTION PROVIDE information any Pollution observed during the trip.					
FIELD	**Data Collection Instructions**	**Field format notes**	**Validation rules**	**XML TAG**	**WCPFC FIELD**
TRIP IDENTIFIER	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be VESSEL + DEPARTURE DATE			<OBSTRIP_ID>	Y
POLLUTION EVENT IDENTIFIER	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be VESSEL + DEPARTURE DATE + INCIDENT DATE/TIME			<POLL_ID>	Y
INC_DATE	DATE & TIME of the incident	REFER TO APPENDIX A1		<INC_DTIME>	Y
LAT	Latitude where incident occured	REFER TO APPENDIX A2		<LAT>	Y
LON	Longitude where incident occured	REFER TO APPENDIX A2		<LON>	Y
PORT_ID	PORT where incident occurred	REFER TO APPENDIX A3		<PORT_ID>	N
ACTIV_ID	Activity when event occurred	REFER TO APPENDIX A5		<ACTIV_ID>	N
VESSEL IDENIFIER	REFER TO APPENDIX A4				
VATYP_ID	Vessel / Aircraft type	Int	REFER TO APPENDIX 17	<VATYP_ID>	N
BEARING_DIR	Compass Bearing to offending vessel	SmallInt		<BEARING_DIR>	N
DISTANCE	Distance to offending vessel	Decimal (7,3)		<DISTANCE>	N
COMMENTS	Additional comments	NText		<COMMENTS>	N
STICKERS_ANS	Response to "Stickers" question	Char (1)	'Y' or 'N'	<STICKERS_ANS>	N
AWARE_ANS	Response to "MARPOL" question	Char (1)	'Y' or 'N'	<AWARE_ANS>	N
ADVISED_ANS	Response to "INFRINGEMENTS" question	Char (1)	'Y' or 'N'	<ADVISED_ANS>	N
PHOTOS_ANS	Response to "PHOTOS" question	Char (1)	'Y' or 'N'	<PHOTOS_ANS>	N
PHOTO_NUMBERS	Number of photos taken on the incident	NVarChar (50)		<PHOTO_NUMBERS>	N

1.21 OBSERVER POLLUTION DETAILS

OBS_POLLUTION_DETAILS PROVIDE information any Pollution details observed during the trip.					
FIELD	**Data Collection Instructions**	**Field format notes**	**Validation rules**	**XML TAG**	**WCPFC FIELD**
TRIP IDENTIFIER	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be VESSEL + DEPARTURE DATE			<OBSTRIP_ID>	Y
POLLUTION EVENT IDENTIFIER	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be VESSEL + DEPARTURE DATE + INCIDENT DATE/TIME			<POLL_ID>	Y
POLLUTIONTYPE_ID	Pollution type code	REFER TO APPENDIX A31	For example, Disposal of OFFAL MANAGEMENT is a WCFPC required field.	<POLLUTIONTYPE_ID>	Y
MATERIAL_ID	Pollution Materials code	REFER TO APPENDIX A29		<MATERIAL_ID>	
POLL_GEAR_ID	Pollution Gear code	REFER TO APPENDIX A28		<POLL_GEAR_ID>	
POLL_SRC_ID	Pollution Source code	REFER TO APPENDIX A30	For example, Disposal of OFFAL MANAGEMENT is a WCFPC required field.	<POLL_SRC_ID>	Y
POLL_DESC	Description of pollution type	NText	For example, Disposal of OFFAL MANAGEMENT is a WCFPC required field.	<POLL_DESC>	Y
POLL_QTY	Description of pollution quantity	NText	For example, Disposal of OFFAL MANAGEMENT is a WCFPC required field.	<POLL_QTY>	Y

1.22 OBSERVER JOURNAL

OBS_JOURNAL PROVIDE a description of the day's activities in a daily journal record for the trip.					
FIELD	**Data Collection Instructions**	**Field format notes**	**Validation rules**	**XML TAG**	**WCPFC FIELD**
TRIP IDENTIFIER	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be VESSEL + DEPARTURE DATE			<OBSTRIP_ID>	N
DAILY JOURNAL IDENTIFIER	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be VESSEL + DEPARTURE DATE			<OBS_JRNL_ID>	N
JRNL_DATE	DATE of Journal entry	REFER TO APPENDIX A1		<JRNL_DATE>	N
JRNL_TEXT	Daily journal entry	NText		<JRNL_TEXT>	N

1.23 PURSE SEINE TRIP REPORT

PS_TRIP_REPORT PROVIDE descriptive information on the trip. Refer to the relevant sections in http://www.spc.int/OceanFish/en/publications/doc_download/1334-2014-ps-trip-report-					
FIELD	**Data Collection Instructions**	**Field format notes**	**Validation rules**	**XML TAG**	**WCPFC FIELD**
TRIP IDENTIFIER	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be VESSEL + DEPARTURE DATE			<OBSTRIP_ID>	N
1_BACKGROUND	(Refer to relevant section in link above)	NText		<1_BACKGROUND>	N
2_0_CRUISE_SUMMARY	(Refer to relevant section in link above)	NText		<2_0_CRUISE_SUMMARY>	N
2_1_AREA_FISHED	(Refer to relevant section in link above)	NText		<2_1_AREA_FISHED>	N
2_2_END_OF_TRIP	(Refer to relevant section in link above)	NText		<2_2_END_OF_TRIP>	N
3_0_DATA_COLLECTED	(Refer to relevant section in link above)	NText		<3_0_DATA_COLLECTED>	N
4_0_VESSEL_CREW	Refer to relevant section in link above)	NText		<4_0_VESSEL_CREW>	N
4_1_VESS_INFO	Refer to relevant section in link above)	NText		<4_1_VESS_INFO>	N
4_2_CREW_NATION	Refer to relevant section in link above)	NText		<4_2_CREW_NATION>	N
4_2_1_PIC	Refer to relevant section in link above)	NText		<4_2_1_PIC>	N
4_3_FISHING_GEAR	Refer to relevant section in link above)	NText		<4_3_FISHING_GEAR>	N
4_3_1_BRAIL	Refer to relevant section in link above)	NText		<4_3_1_BRAIL>	N
4_3_2 NET	Refer to relevant section in link above)	NText		<4_3_2 NET>	N
4_4_ELEC	Refer to relevant section in link above)	NText		<4_4_ELEC>	N
4_5_SAFETY_EQ	Refer to relevant section in link above)	NText		<4_5_SAFETY_EQ>	N
4_6_OTHER_GEAR	Refer to relevant section in link above)	NText		<4_6_OTHER_GEAR>	N
5_0_FISH_STRATEGY	Refer to relevant section in link above)	NText		<5_0_FISH_STRATEGY>	N
5_1_FLOAT_SCHS	Refer to relevant section in link above)	NText		<5_1_FLOAT_SCHS>	N
5_2_FREE_SCHS	Refer to relevant section in link above)	NText		<5_2_FREE_SCHS>	N
5_3_SET_TECH	Refer to relevant section in link above)	NText		<5_3_SET_TECH>	N
5_4_VESS_ADV	Refer to relevant section in link above)	NText		<5_4_VESS_ADV>	N
5_5_HELICOPTER	Refer to relevant section in link above)	NText		<5_5_HELICOPTER>	N
5_6_FISH_SUCC	Refer to relevant section in link above)	NText		<5_6_FISH_SUCC>	N
5_7_FISH_INFO	Refer to relevant section in link above)	NText		<5_7_FISH_INFO>	N
6_0_COC	Refer to relevant section in link above)	NText		<6_0_COC>	N
7_0_ENVIRON	Refer to relevant section in link above)	NText		<7_0_ENVIRON>	N
8_1_TARGET_RET	Refer to relevant section in link above)	NText		<8_1_TARGET_RET>	N
8_2_TARGET_DISC	Refer to relevant section in link above)	NText		<8_2_TARGET_DISC>	N
8_3_TARGET_LOG	Refer to relevant section in link above)	NText		<8_3_TARGET_LOG>	N
8_4_BYCATCH	Refer to relevant section in link above)	NText		<8_4_BYCATCH>	N
8_4_1_BYC_LOG_COMP	Refer to relevant section in link above)	NText		<8_4_1_BYC_LOG_COMP>	N
8_4_2_BILL	Refer to relevant section in link above)	NText		<8_4_2_BILL>	N
8_4_3_SHARKS_RAYS	Refer to relevant section in link above)	NText		<8_4_3_SHARKS_RAYS>	N
8_4_4_OTHER_BY-CATCH	Refer to relevant section in link above)	NText		<8_4_4_OTHER_BY-CATCH>	N
8_4_5_UNSPEC_SP_CODES	Refer to relevant section in link above)	NText		<8_4_5_UNSPEC_SP_CODES>	N
8_4_6_SSI_LAND	Refer to relevant section in link above)	NText		<8_4_6_SSI_LAND>	N
8_4_7_SSI_INTERACT	Refer to relevant section in link above)	NText		<8_4_7_SSI_INTERACT>	N
8_4_8_SSI_SIGHT	Refer to relevant section in link above)	NText		<8_4_8_SSI_SIGHT>	N
9_0_SAMPLING	Refer to relevant section in link above)	NText		<9_0_SAMPLING>	N
9_1_GRAB	Refer to relevant section in link above)	NText		<9_1_GRAB>	N

PS_TRIP_REPORT

PROVIDE descriptive information on the trip.

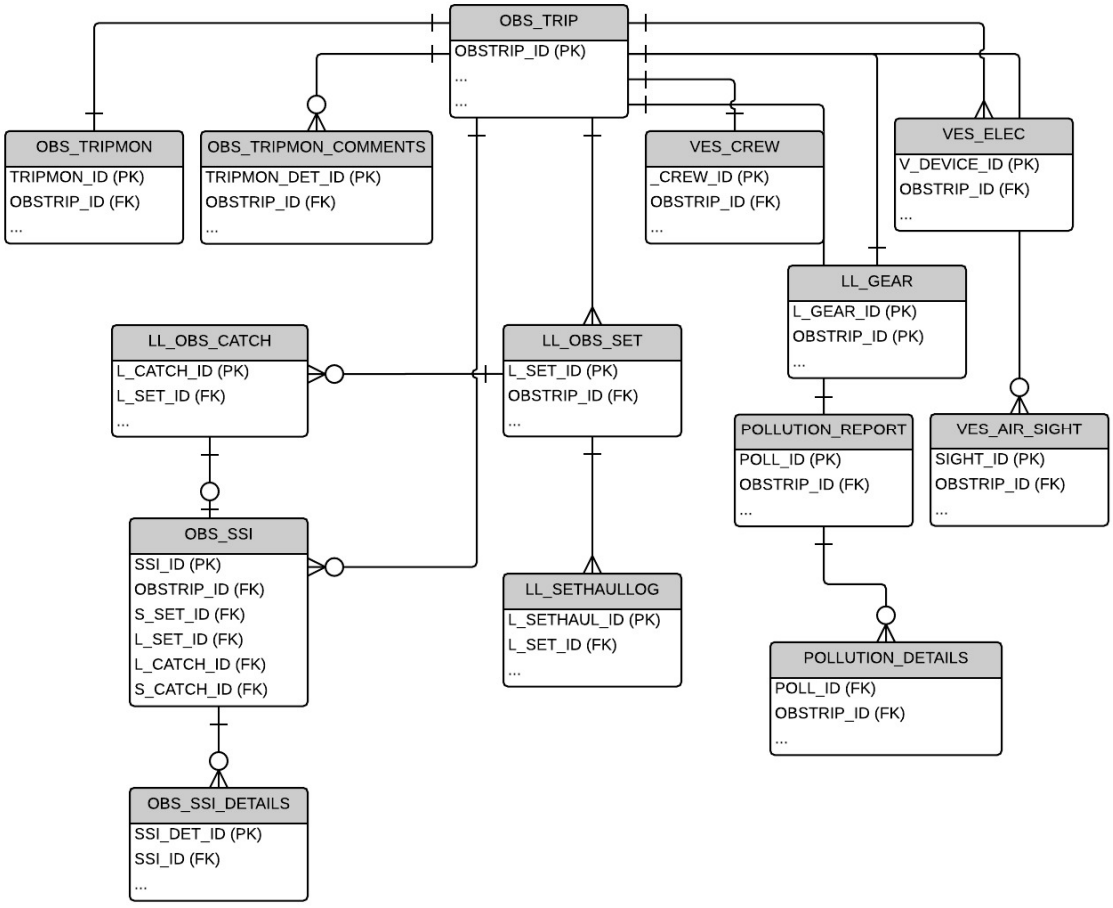
Refer to the relevant sections in http://www.spc.int/OceanFish/en/publications/doc_download/1334-2014-ps-trip-report-

FIELD	Data Collection Instructions	Field format notes	Validation rules	XML TAG	WCPFC FIELD
9_2_SPILL	Refer to relevant section in link above)	NText		<9_2_SPILL>	N
9_3_OTHER	Refer to relevant section in link above)	NText		<9_3_OTHER>	N
10_0_OTHER_PROJ	Refer to relevant section in link above)	NText		<10_0_OTHER_PROJ>	N
11_0_WELL_LOAD	Refer to relevant section in link above)	NText		<11_0_WELL_LOAD>	N
12_0_VESS _DATA	Refer to relevant section in link above)	NText		<12_0_VESS _DATA>	N
13_0_GENERAL	Refer to relevant section in link above)	NText		<13_0_GENERAL>	N
14_0_ TRIP_MON	Refer to relevant section in link above)	NText		<14_0_ TRIP_MON>	N
14_1_CLARIFY	Refer to relevant section in link above)	NText		<14_1_CLARIFY>	N
14_2_RECOMMEND	Refer to relevant section in link above)	NText		<14_2_RECOMMEND>	N
14_3_CREW_INFO	Refer to relevant section in link above)	NText		<14_3_CREW_INFO>	N
14_4_MEDICAL	Refer to relevant section in link above)	NText		<14_4_MEDICAL>	N
14_5_PHOTOS	Refer to relevant section in link above)	NText		<14_5_PHOTOS>	N
14_6_OTHER INFO	Refer to relevant section in link above)	NText		<14_6_OTHER INFO>	N
15_0_PROBS	Refer to relevant section in link above)	NText		<15_0_PROBS>	N
15_1_FORM_CH_RECS	Refer to relevant section in link above)	NText		<15_1_FORM_CH_RECS>	N
16_0_CONCL	Refer to relevant section in link above)	NText		<16_0_CONCL>	N
17_0_ACKS	Refer to relevant section in link above)	NText		<17_0_ACKS>	N

2. LONGLINE OBSERVER E-REPORTING STANDARDS

2.1 DATA MODEL DIAGRAM

The following basic data model diagram outlines the structure of the entities and their relationships for purse seine operational OBSERVER data collected by E-Reporting systems and submitted to national and regional fisheries authorities. The tables that follow provide more information on the mechanisms of the links (relationships) between the entities.



2.2 TRIP-LEVEL DATA

(see the common OBS_TRIP table under 1.2 TRIP-LEVEL DATA)

2.3 SET-LEVEL DATA

LL_OBS_SET The observer must PROVIDE the following information for EACH FISHING SET/HAUL during the trip.					
FIELD	**Data Collection Instructions**	**Field format notes**	**Validation rules**	**XML TAG**	**WCPFC FIELD**
TRIP IDENTIFIER	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be VESSEL + DEPARTURE DATE			<OBSTRIP_ID>	Y
SET IDENTIFIER	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be VESSEL + DEPARTURE DATE + SET START DATE + SET START TIME			<L_SET_ID>	Y
SET_NUMBER	Unique # for the SET in this trip	Int		<SET_NUMBER>	N
OBSERVED_YN	Flag to indicate whether set was observer or not.	Bit		<OBSERVED_YN>	N
SET_DATE	Start Date/time for set.	REFER TO APPENDIX A1		<SET_DATE>	Y
HK_BT_FLT	Number of hooks between floats	SmallInt	Must be 1-60, or -1 for no information.	<HK_BT_FLT>	Y
BASK_SET	Number of baskets set.	SmallInt		<BASK_SET>	Y
BASK_OBSERVED	Number of basket observed (bottom of form, Nov 07 version)	SmallInt		<BASK_OBSERVED>	Y
HOOK_SET	Total number of hooks set.	SmallInt		<HOOK_SET>	Y
HOOK_OBSERVED	Number of hooks observed and data recorded.	SmallInt		<HOOK_OBSERVED>	Y
FLOAT_LENGTH	Length of floatline (m)	SmallInt		<FLOAT_LENGTH>	Y
LSPEED	Line setting speed.	Decimal (5,1)		<LSPEED>	Y
LSPEED_UNIT_ID	Link to ref_ids table	CHAR(1)	Must be ‘M’ for metres/second or ‘K’ for knots	<LSPEED_UNIT_ID>	Y
BRANCH_INTVL	Time interval (secs.) between branchline sets.	SmallInt		<BRANCH_INTVL>	Y
BRANCH_DIST	Mainline distance between branchlines (m).	Decimal (4,1)		<BRANCH_DIST>	Y
VESSEL_SET_SPEED	Vessel setting Speed (Knots).	Decimal (5,1)		<VESSEL_SET_SPEED>	N
LIGHTSTICKS	Number of lightsticks used	SmallInt		<LIGHTSTICKS>	Y
TDRS	Number of Time Depth recorders used	SmallInt		<TDRS>	Y
BRANCH_LENGTH	Length of branchline (m) (If all are of a consistent length, otherwise use next set of fields).	Decimal (4,1)		<BRANCH_LENGTH>	Y
BRANCH_0_20	Number of branchlines between successive floats that are < 20 m.	SmallInt		<BRANCH_0_20>	Y
BRANCH_20_34	Number of branchlines between successive floats that are 20-35 m.	SmallInt		<BRANCH_20_34>	Y
BRANCH_35_50	Number of branchlines between successive floats that are 35-50 m.	SmallInt		<BRANCH_35_50>	Y
BRANCH_50_99	Number of branchlines between successive floats that are > 50 m.	SmallInt		<BRANCH_50_99>	Y
FLOAT_HOOK_N	The total number of hooks that have been hung directly from the floatline for this set.	SmallInt		<FLOAT_HOOK_N>	Y
TAR_SP_CODE	Target Species id recorded on the form	Char (3)	REFER TO APPENDIX 8.	<TAR_SP_CODE>	Y

LL_OBS_SET The observer must PROVIDE the following information for EACH FISHING SET/HAUL during the trip.					
FIELD	**Data Collection Instructions**	**Field format notes**	**Validation rules**	**XML TAG**	**WCPFC FIELD**
	for this set (refer to the SPECIES table)				
TARGET_TUN_YN	ADDITIONAL FLAG indication for MULTIPLE targeting	Bit		<TARGET_TUN_YN>	Y
TARGET_SWO_YN	ADDITIONAL FLAG indication for MULTIPLE targeting	Bit		<TARGET_SWO_YN>	Y
TARGET_SKH_YN	ADDITIONAL FLAG indication for MULTIPLE targeting	Bit		<TARGET_SKH_YN>	Y
SETDETAILS	General notes on the setting procedures. Any comments relating to the setting strategy. For example has there been any specific targetting of shark in this set.	NText		<SETDETAILS>	N
BAIT1_SP_CODE	Bait species id. # 1	Char (3)	REFER TO APPENDIX 8.	<BAIT1_SP_CODE>	Y
BAIT2_SP_CODE	Bait species id. # 2	Char (3)	REFER TO APPENDIX 8.	<BAIT2_SP_CODE>	Y
BAIT3_SP_CODE	Bait species id. # 3	Char (3)	REFER TO APPENDIX 8.	<BAIT3_SP_CODE>	Y
BAIT4_SP_CODE	Bait species id. # 4	Char (3)	REFER TO APPENDIX 8.	<BAIT4_SP_CODE>	Y
BAIT5_SP_CODE	Bait species id. # 5	Char (3)	REFER TO APPENDIX 8.	<BAIT5_SP_CODE>	Y
BAIT1_W	Weight of bait species #1 used, (kg)	SmallInt		<BAIT1_W>	N
BAIT2_W	Weight of bait species #2 used, (kg)	SmallInt		<BAIT2_W>	N
BAIT3_W	Weight of bait species #3 used, (kg)	SmallInt		<BAIT3_W>	N
BAIT4_W	Weight of bait species #4 used, (kg)	SmallInt		<BAIT4_W>	N
BAIT5_W	Weight of bait species #5 used, (kg)	SmallInt		<BAIT5_W>	N
BAIT1_H	Hook number(s) in basket that Bait 1 was placed	NVarChar (25)	(Hook numbers separated by commas)	<BAIT1_H>	N
BAIT2_H	Hook number(s) in basket that Bait 2 was placed	NVarChar (25)	(Hook numbers separated by commas)	<BAIT2_H>	N
BAIT3_H	Hook number(s) in basket that Bait 3 was placed	NVarChar (25)	(Hook numbers separated by commas)	<BAIT3_H>	N
BAIT4_H	Hook number(s) in basket that Bait 4 was placed	NVarChar (25)	(Hook numbers separated by commas)	<BAIT4_H>	N
BAIT5_H	Hook number(s) in basket that Bait 5 was placed	NVarChar (25)	(Hook numbers separated by commas)	<BAIT5_H>	N
BAIT1_DYED_YN	FLAG indication on dyed on bait #1	SmallInt		<BAIT1_DYED_YN>	Y
BAIT2_DYED_YN	FLAG indication on dyed on bait #2	SmallInt		<BAIT2_DYED_YN>	Y
BAIT3_DYED_YN	FLAG indication on dyed on bait #3	SmallInt		<BAIT3_DYED_YN>	Y
BAIT4_DYED_YN	FLAG indication on dyed on bait #4	SmallInt		<BAIT4_DYED_YN>	Y
BAIT5_DYED_YN	FLAG indication on dyed on bait #5	SmallInt		<BAIT5_DYED_YN>	Y
TORI_POLES_YN	FLAG indication on tori poles used	SmallInt		<TORI_POLES_YN>	Y
BIRD_CURTAIN_YN	FLAG indication on bird curtain used	SmallInt		<BIRD_CURTAIN_YN>	Y
WT_LINES_YN	FLAG indication on weighted lines used	SmallInt		<WT_LINES_YN>	Y
UW_CHUTE_YN	FLAG indication on underwater chute used	SmallInt		<UW_CHUTE_YN>	Y

2.4 SET-HAUL LOG DATA

LL_SETHAULLOG **The E-Reporting system must PROVIDE the following log information for EACH SET/HAUL during the period of the trip, typically on a 30-minute basis.**					
FIELD	**Data Collection Instructions**	**Field format notes**	**Validation rules**	**XML TAG**	**WCPFC FIELD**
TRIP IDENTIFIER	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be VESSEL + DEPARTURE DATE			<OBSTRIP_ID>	Y
SET IDENTIFIER	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be VESSEL + DEPARTURE DATE + SET START DATE + SET START TIME			<L_SET_ID>	Y
SETHAUL LOG IDENTIFIER	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be VESSEL + DEPARTURE DATE + SET START DATE + SET START TIME + LOG DATE + LOG TIME			<L_SETHAULOG_ID>	Y
LOG_DATE	Date/TIME of log reading	REFER TO APPENDIX A1		<LOG_DATE>	Y
SETHAUL	Status of gear at this logged date/time : Set (S) Haul (H) or Soak (K)	Char (4)	Must be either 'S', 'H', 'K'	<SETHAUL>	Y
STEND_ID	Indicator for status of the SET-HAUL 83 – First log record for the SET (start of SET information) 84 – Last log record for the SET (end of SET information) 85 – First log record for the HAUL (start of HAUL information) 86 – Last log record for the HAUL (end of HAUL information)	Int	Must be 83, 84, 85, 86 or NULL	<STEND_ID>	Y
LAT	Latitude (long format)	REFER TO APPENDIX A2		<LAT>	Y
LON	Longitude (long format)	REFER TO APPENDIX A2		<LON>	Y
COMMENTS	Comments	NText		<COMMENTS>	N

2.5 SET CATCH DATA

LL_OBS_CATCH The observer must PROVIDE the following CATCH DETAILS for EACH FISHING HAUL for the period of the trip.					
FIELD	**Data Collection Instructions**	**Field format notes**	**Validation rules**	**XML TAG**	**WCPFC FIELD**
TRIP IDENTIFIER	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be VESSEL + DEPARTURE DATE			<OBSTRIP_ID>	Y
SET IDENTIFIER	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be VESSEL + DEPARTURE DATE + SET START DATE + SET START TIME			<L_SET_ID>	Y
CATCH IDENTIFIER	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be VESSEL + DEPARTURE DATE + SET START DATE + SET START TIME + CATCH EVENT DATE + CATCH EVENT TIME			<L_CATCH_ID>	Y
CATCH_DATE	Date/TIME of individual catch event	REFER TO APPENDIX A1		<CATCH_DATE>	Y
HOOK_NO	Hook number (since the last float). Hook number=99 represents catch on a hook hanging directly from the floatline.	SmallInt		<HOOK_NO>	Y
SP_CODE	Species code.	Char (3)	REFER TO APPENDIX 8. Only shark species can have a FATE as 'RFR' and 'DFR'.	<SP_CODE>	Y
FATE_CODE	FATE of this catch. This indicates whether it was RETAINED, DISCARDED or ESCAPED, and any specific processing.	Char (3)	REFER TO APPENDIX 9 Only shark species can have a FATE as 'RFR' and 'DFR'.	<FATE_CODE>	Y
COND_CODE	CONDITION of this catch on LANDING. Relevant for the Species of Special Interest.	Char (2)	REFER TO APPENDIX 10	<COND_CODE>	Y
COND_REL_CODE	CONDITION of this catch on RELEASE/DISCARD. Relevant for the Species of Special Interest.	Char (2)	REFER TO APPENDIX 10		Y
LEN	Length (cm).	SmallInt	Refer to SPECIES RANGE table for these species	<LEN>	Y
LEN_CODE	Length measurement code	Char (2)	REFER TO APPENDIX 11	<LEN_CODE>	Y
WT	Weight (kgs) – must be measured weight and not a visual estimate	Decimal (5,1)		<WT>	N
WT_CODE	Weight code.	Char (2)	REFER TO APPENDIX 22	<WT_CODE>	N
SEX_CODE	SEX of fish	Char (1)	REFER TO APPENDEX 12	<SEX_CODE>	Y
GSTAGE_CODE	GONAD STAGE CODE	Char (1)	REFER TO APPENDIX 23	<GSTAGE_CODE>	N
COMMENTS	Comments	NVarChar (40)		<COMMENTS>	N

2.6 SPECIES OF SPECIAL INTEREST DATA

(see 1.7 SPECIES OF SPECIAL INTEREST DATA)

2.7 SPECIES OF SPECIAL INTEREST DETAILS DATA

(see 1.8 SPECIES OF SPECIAL INTEREST DETAIL DATA)

2.8 TRIP MONITORING QUESTIONS

(see 1.11 TRIP MONITORING DATA)

2.9 TRIP MONITORING COMMENTS

(see 1.12 TRIP MONITORING COMMENTS)

2.10 VESSEL/AIRCRAFT SIGHTINGS DATA

(see 1.13 VESSEL/AIRCRAFT SIGHTINGS)

2.11 MARINE DEVICES DATA

(see 1.15 MARINE DEVICES DATA)

2.12 CREW DATA

VES_CREW PROVIDE the summary details of VESSEL CREW by NATIONALITY on this TRIP.					
FIELD	**Data Collection Instructions**	**Field format notes**	**Validation rules**	**XML TAG**	**WCPFC FIELD**
TRIP IDENTIFIER	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be VESSEL + DEPARTURE DATE			<OBSTRIP_ID>	Y
CREW IDENTIFIER	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be VESSEL + DEPARTURE DATE + COUNTRY_CODE			<V_CREW_ID>	Y
COUNTRY_CODE	Nationality of the CREW	Char (2)	Refer to valid ISO two-letter Country Codes - ISO 3166 For example, refer to http://en.wikipedia.org/wiki/ISO_3166-1	<COUNTRY_CODE>	Y
CREWCOUNT	Total number of crew on board during the trip for this COUNTRY OF NATIONALITY	SmallInt		<CREWCOUNT>	Y

2.13 LONGLINE GEAR DATA

LL_GEAR PROVIDE information on the LONGLINE GEAR on the vessel.					
FIELD	**Data Collection Instructions**	**Field format notes**	**Validation rules**	**XML TAG**	**WCPFC FIELD**
TRIP IDENTIFIER	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be VESSEL + DEPARTURE DATE			<OBSTRIP_ID>	Y
LL GEAR IDENTIFIER	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be VESSEL + DEPARTURE DATE			<L_GEAR_ID>	Y
MLINEHAUL_ANS	Mainline hauler (Y/N)	Char (1)	Must be 'Y', 'N' or 'X' (observer did not respond to this question)	<MLINEHAUL_ANS>	Y
MLINEHAUL_USAGE_CODE	Link to ref_usage table	Char (3)	REFER TO APPENDIX 21	<MLINEHAUL_USAGE_CODE>	Y
MLINEHAUL_COMMENTS	Comments on Mainline Hauler	NVarChar (50)		<MLINEHAUL_COMMENTS>	N
BLINEHAUL_ANS	Branchline hauler (Y/N)	Char (1)	Must be 'Y', 'N' or 'X' (observer did not respond to this question)	<BLINEHAUL_ANS>	Y
BLINEHAUL_USAGE_CODE	Link to ref_usage table	Char (3)	REFER TO APPENDIX 21	<BLINEHAUL_USAGE_CODE>	Y
BLINEHAUL_COMMENTS	Comments on Branchline Hauler	NVarChar (50)		<BLINEHAUL_COMMENTS>	N
LSHOOT_ANS	Line shooter (Y/N)	Char (1)	Must be 'Y', 'N' or 'X' (observer did not respond to this question)	<LSHOOT_ANS>	Y
LSHOOT_USAGE_CODE	Link to ref_usage table	Char (3)	REFER TO APPENDIX 21	<LSHOOT_USAGE_CODE>	Y
LSHOOT_COMMENTS	Comments on Line shooter	NVarChar (50)		<LSHOOT_COMMENTS>	N
BAITTHR_ANS	Automatic bait thrower (Y/N)	Char (1)	Must be 'Y', 'N' or 'X' (observer did not respond to this question)	<BAITTHR_ANS>	Y
BAITTHR_USAGE_CODE	Link to ref_usage table	Char (3)	REFER TO APPENDIX 21	<BAITTHR_USAGE_CODE>	Y
BAITTHR_COMMENTS	Comments on Automatic Bait thrower	NVarChar (50)		<BAITTHR_COMMENTS>	N
BRANCHATT_ANS	Automatic branchline attacher (Y/N)	Char (1)	Must be 'Y', 'N' or 'X' (observer did not respond to this question)	<BRANCHATT_ANS>	Y
BRANCHATT_USAGE_CODE	Link to ref_usage table	Char (3)	REFER TO APPENDIX 21	<BRANCHATT_USAGE_CODE>	Y
BRANCHATT_COMMENTS	Comments on Automatic Branchline attacher	NVarChar (50)		<BRANCHATT_COMMENTS>	N
WT_SCA_ANS	Weighing scales (Y/N)	Char (1)	Must be 'Y', 'N' or 'X' (observer did not respond to this question)	<WT_SCA_ANS>	N
WT_SCA_USAGE_CODE	Weighing scales USAGE	Char (3)	REFER TO APPENDIX 21	<WT_SCA_USAGE_CODE>	N
WT_SCA_COMMENTS	Comments on Automatic B Weighing scales	NVarChar (50)		<WT_SCA_COMMENTS>	N
MLINE_COMP	Composition of mainline	NText		<MLINE_COMP>	Y
BLINE_COMP	Composition of branchlines	NText		<BLINE_COMP>	Y
MLINE_MAT	Mainline material	NVarChar (15)		<MLINE_MAT>	Y
MLINE_MAT_DESC	Mainline material description	NVarChar (50)		<MLINE_MAT_DESC>	Y
MLINE_LEN	Mainline length (nm)	Decimal (5,1)		<MLINE_LEN>	Y
MLINE_DIAM	Mainline diameter (mm)	Decimal (4,1)		<MLINE_DIAM>	Y
BLINE_MAT1	Composition of branchlines (Material #1)	NVarChar (40)		<BLINE_MAT1>	Y
BLINE_MAT1_DESC	Branchlines (Material #1)	NVarChar (50)		<BLINE_MAT1_DESC>	Y

LL_GEAR

PROVIDE information on the LONGLINE GEAR on the vessel.

FIELD	Data Collection Instructions	Field format notes	Validation rules	XML TAG	WCPFC FIELD
	description				
BLINE_MAT2	Composition of branchlines (Material #2)	NVarChar (40)		<BLINE_MAT2>	Y
BLINE_MAT2_DESC	Branchlines (Material #2) description	NVarChar (50)		<BLINE_MAT2_DESC>	Y
BLINE_MAT3	Composition of branchlines (Material #3)	NVarChar (40)		<BLINE_MAT3>	Y
BLINE_MAT3_DESC	Branchlines (Material #3) description	NVarChar (50)		<BLINE_MAT3_DESC>	Y
WIRETRACE_ANS	Presence orf wire trace (Y/N)	Char (1)	Must be 'Y', 'N' or 'X' (observer did not respond to this question)	<WIRETRACE_ANS>	Y
SEAWATER_ANS	Refrigeration method - Sea water ?	Char (1)	Must be 'Y', 'N' or 'X' (observer did not respond to this question)	<SEAWATER_ANS>	Y
BLASTFREEZER_ANS	Refrigeration method - blast freezer ?	Char (1)	Must be 'Y', 'N' or 'X' (observer did not respond to this question)	<BLASTFREEZER_ANS>	Y
ICE_ANS	Refrigeration method - Ice ?	Char (1)	Must be 'Y', 'N' or 'X' (observer did not respond to this question)	<ICE_ANS>	Y
CHILLEDSEAWATER_ANS	Refrigeration method - Chilled Sea water ?	Char (1)	Must be 'Y', 'N' or 'X' (observer did not respond to this question)	<CHILLEDSEAWATER_ANS>	Y
OTHERSTORAGE_ANS	Refrigeration method - other ?	Char (1)	Must be 'Y', 'N' or 'X' (observer did not respond to this question)	<OTHERSTORAGE_ANS>	Y
OTHERSTORAGE_DESC	Refrigeration method – other description	NVarChar (50)		<OTHERSTORAGE_DESC>	Y
HKSJAPAN_SIZE	Japanese hook size	NVarChar (50)		<HKSJAPAN_SIZE>	Y
HKSJAPAN_PERC	% of Japanese hook	TinyInt		<HKSJAPAN_PERC>	N
HKSJAPAN_ORS	Japanese hook original size	NVarChar (5)		<HKSJAPAN_ORS>	Y
HKSCIRCLE_SIZE	Circle hook size	NVarChar (50)		<HKSCIRCLE_SIZE>	Y
HKSCIRCLE_PERC	% of Circle hook	TinyInt		<HKSCIRCLE_PERC>	N
HKSCIRCLE_ORS	Circle hook original size	NVarChar (5)		<HKSCIRCLE_ORS>	Y
HKSJ_SIZE	J hook size	NVarChar (50)		<HKSJ_SIZE>	Y
HKSJ_PERC	% of J hook size	TinyInt		<HKSJ_PERC>	N
HKSJ_ORS	J hook original size	NVarChar (5)		<HKSJ_ORS>	Y
HKSOTH_TYPE	Other hook types description	NVarChar (50)		<HKSOTH_TYPE>	Y
HKSOTH_SIZE	Other hook type size	NVarChar (50)		<HKSOTH_SIZE>	Y
HKSOTH_PERC	% of Other hook types	TinyInt		<HKSOTH_PERC>	N
HKSOTH_ORS	Others types of hook original size	NVarChar (5)		<HKSOTH_ORS>	Y
BLINE_MAT1_DIAM	Branchlines (Material #1) diameter	Decimal (4,1)		<BLINE_MAT1_DIAM>	Y
BLINE_MAT2_DIAM	Branchlines (Material #2) diameter	Decimal (4,1)		<BLINE_MAT2_DIAM>	Y

2.14 POLLUTION REPORT

(see 1.20 POLLUTION REPORT and 1.21 POLLUTION DETAILS)

2.15 OBSERVER JOURNAL

(see 1.22 OBSERVER JOURNAL)

2.16 LONGLINE TRIP REPORT

LL_TRIP_REPORT PROVIDE descriptive information on the trip. Refer to the relevant sections in http://www.spc.int/OceanFish/en/publications/doc_download/1318-2014-ll-trip-report					
FIELD	**Data Collection Instructions**	**Field format notes**	**Validation rules**	**XML TAG**	**WCPFC FIELD**
TRIP IDENTIFIER	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be VESSEL + DEPARTURE DATE			<OBSTRIP_ID>	N
1_BACKGROUND	(Refer to relevant section in link above)	NText		<1_BACKGROUND>	N
2_0_CRUISE_SUMMARY	(Refer to relevant section in link above)	NText		<2_0_CRUISE_SUMMARY>	N
2_1_AREA_FISHED	(Refer to relevant section in link above)	NText		<2_1_AREA_FISHED>	N
2_2_END_OF_TRIP	(Refer to relevant section in link above)	NText		<2_2_END_OF_TRIP>	N
3_0_DATA_COLLECTED	(Refer to relevant section in link above)	NText		<3_0_DATA_COLLECTED>	N
3_1_OTHER_DATA_COLL	(Refer to relevant section in link above)	NText		<3_1_OTHER_DATA_COLL>	N
4_0_COC	Refer to relevant section in link above)	NText		<4_0_COC>	N
5_1_VESS_INFO	Refer to relevant section in link above)	NText		<5_1_VESS_INFO>	N
5_2_CREW_NATION	Refer to relevant section in link above)	NText		<5_2_CREW_NATION>	N
5_2_1_PIC	Refer to relevant section in link above)	NText		<5_2_1_PIC>	N
5_3_ELEC	Refer to relevant section in link above)	NText		<5_3_ELEC>	N
5_3_1_RADIO_BUOYS	Refer to relevant section in link above)	NText		<5_3_1_RADIO_BUOYS>	N
5_4_FISHING_GEAR	Refer to relevant section in link above)	NText		<5_4_FISHING_GEAR>	N
5_4_1_MAINLINE	Refer to relevant section in link above)	NText		<5_4_1_MAINLINE>	N
5_4_2_BRANCHLINES	Refer to relevant section in link above)	NText		<5_4_2_BRANCHLINES>	N
5_4_3_FLOATLINES	Refer to relevant section in link above)	NText		<5_4_3_FLOATLINES>	N
5_4_4_BLINE_WTS	Refer to relevant section in link above)	NText		<5_4_4_BLINE_WTS>	N
5_4_5_FISH_HOOKS	Refer to relevant section in link above)	NText		<5_4_5_FISH_HOOKS>	N
5_5_SAFETY_EQ	Refer to relevant section in link above)	NText		<5_5_SAFETY_EQ>	N
5_6_REGRIG	Refer to relevant section in link above)	NText		<5_6_REGRIG>	N
5_7_OTHER_GEAR	Refer to relevant section in link above)	NText		<5_7_OTHER_GEAR>	N
6_0_FISH_STRATEGY	Refer to relevant section in link above)	NText		<6_0_FISH_STRATEGY>	N
6_1_FISHERY_INFO	Refer to relevant section in link above)	NText		<6_1_FISHERY_INFO>	N
6_2_OCEAN_FEATURES	Refer to relevant section in link above)	NText		<6_2_OCEAN_FEATURES>	N
6_3_SET_HAUL	Refer to relevant section in link above)	NText		<6_3_SET_HAUL>	N
6_4_TARGET_DEPTH	Refer to relevant section in link above)	NText		<6_4_TARGET_DEPTH>	N
6_5_BAITING	Refer to relevant section in link above)	NText		<6_5_BAITING>	N
6_6_MITIGATION	Refer to relevant section in link above)	NText		<6_6_MITIGATION>	N
6_6_1_FISH_OFFAL	Refer to relevant section in link above)	NText		<6_6_1_FISH_OFFAL>	N
6_7_HAUL_PROCESS	Refer to relevant section in link above)	NText		<6_7_HAUL_PROCESS>	N
6_8_UNUSUAL_SET	Refer to relevant section in link above)	NText		<6_8_UNUSUAL_SET>	N
6_9_CHANGES_SETS	Refer to relevant section in link above)	NText		<6_9_CHANGES_SETS>	N
7_1_WEATHER	Refer to relevant section in link above)	NText		<7_1_WEATHER>	N
7_2_SEA_COND	Refer to relevant section in link above)	NText		<7_2_SEA_COND>	N
7_3_MOON_PHASE	Refer to relevant section in link above)	NText		<7_3_MOON_PHASE>	N
8_1_TARGET_CATCH	Refer to relevant section in link above)	NText		<8_1_TARGET_CATCH>	N
8_1_1_TARGET_PROC	Refer to relevant section in link above)	NText		<8_1_1_TARGET_PROC>	N
8_1_2_TARGET _DISC	Refer to relevant section in link above)	NText		<8_1_2_TARGET _DISC>	N

LL_TRIP_REPORT

PROVIDE descriptive information on the trip.

Refer to the relevant sections in http://www.spc.int/OceanFish/en/publications/doc_download/1318-2014-ll-trip-report

FIELD	Data Collection Instructions	Field format notes	Validation rules	XML TAG	WCPFC FIELD
8_1_3_TARGET_DAMAGE	Refer to relevant section in link above)	NText		<8_1_3_TARGET_DAMAGE>	N
8_2_1_OTHER_TUN_BILL	Refer to relevant section in link above)	NText		<8_2_1_OTHER_TUN_BILL>	N
8_2_2_SHARKS_RAYS	Refer to relevant section in link above)	NText		<8_2_2_SHARKS_RAYS>	N
8_2_3_OTHER_BY-CATCH	Refer to relevant section in link above)	NText		<8_2_3_OTHER_BY-CATCH>	N
8_3_UNSPEC_SP_CODES	Refer to relevant section in link above)	NText		<8_3_UNSPEC_SP_CODES>	N
8_4_1_SSI_LAND	Refer to relevant section in link above)	NText		<8_4_1_SSI_LAND>	N
8_4_2_SSI_INTERACT	Refer to relevant section in link above)	NText		<8_4_2_SSI_INTERACT>	N
8_4_3_SSI_MAM	Refer to relevant section in link above)	NText		<8_4_3_SSI_MAM>	N
8_4_4_SSI_SIGHT	Refer to relevant section in link above)	NText		<8_4_4_SSI_SIGHT>	N
9_0_TRANS	Refer to relevant section in link above)	NText		<9_0_TRANS>	N
10_1_TAGS	Refer to relevant section in link above)	NText		<10_1_TAGS>	N
10_2_STOMACH	Refer to relevant section in link above)	NText		<10_2_STOMACH>	N
10_3_OTHER	Refer to relevant section in link above)	NText		<10_3_OTHER>	N
11_0_ TRIP_MON	Refer to relevant section in link above)	NText		<11_0_ TRIP_MON>	N
11_1_CLARIFY	Refer to relevant section in link above)	NText		<11_1_CLARIFY>	N
11_2_RECOMMEND	Refer to relevant section in link above)	NText		<11_2_RECOMMEND>	N
11_3_CREW_INFO	Refer to relevant section in link above)	NText		<11_3_CREW_INFO>	N
11_4_MEDICAL	Refer to relevant section in link above)	NText		<11_4_MEDICAL>	N
11_5_PHOTOS	Refer to relevant section in link above)	NText		<11_5_PHOTOS>	N
11_6_OTHER INFO	Refer to relevant section in link above)	NText		<11_6_OTHER INFO>	N
12_0_VESS _DATA	Refer to relevant section in link above)	NText		<12_0_VESS _DATA>	N
13_0_GENERAL	Refer to relevant section in link above)	NText		<13_0_GENERAL>	N
14_0_PROBS	Refer to relevant section in link above)	NText		<14_0_PROBS>	N
14_1_FORM_CH_RECS	Refer to relevant section in link above)	NText		<14_1_FORM_CH_RECS>	N
15_0_CONCL	Refer to relevant section in link above)	NText		<15_0_CONCL>	N
16_0_ACKS	Refer to relevant section in link above)	NText		<16_0_ACKS>	N

APPENDICES

APPENDIX A1 – DATE/TIME FORMAT

The DATE/TIME formats must adhere to the following standard:

ISO 8601 - Dates and times format – both local and UTC dates

[YYYY]-[MM]-[DD]T[HH]:[MM]Z for fields designated as UTC date/time

[YYYY]-[MM]-[DD]T[HH]:[MM] for fields designated as LOCAL date/time

APPENDIX A2 – POSITION/COORDINATE FORMAT

The Latitude and Longitude coordinates must adhere to the ISO 6709 – Positions
Degrees and minutes to 3 decimal places

LATITUDE	+/- DDMM.MMM
LONGITUDE	+/- DDDMM.MMM

APPENDIX A3 – PORT LOCATION CODES

The PORT LOCATION Codes must adhere to the UN/LOCODE standard UPPERCASE CHAR(5)
United Nations - Code for Trade and Transport Locations (UN/LOCODE) – see
http://www.unece.org/cefact/locode/service/location

APPENDIX A4 – VESSEL IDENTIFICATION

The attributes to be provided for the VESSEL needs to be consistent with several VESSEL registers at the global and regional level. The most important are the proposed IMO/UVI standard vessel identifier (UVI), the WCPFC vessel register and the FFA Vessel register.

FIELD	Data Collection Instructions	Field format notes	Validation rules	XML TAG	WCPFC FIELD
VESSEL NAME	PROVIDE the VESSEL attributes which should be consistent with the attributes stored in the WCPFC and FFA Regional Vessel Registers	CHAR(30) UPPER CASE	Must be consistent with the WCPFC and FFA Vessel Registers	<VESSELNAME>	Y
COUNTRY OF VESSEL REGISTRATION		CHAR(2) ISO 3166-1 alpha-2 two-letter country code UPPER CASE	ISO 3166-1 alpha-2 two-letter country code Must be consistent with the WCPFC and FFA Vessel Registers Country of registration is distinct from the chartering nation, where relevant	<COUNTRYREG>	Y
VESSEL REGISTRATION NUMBER		CHAR(20) UPPER CASE	Must be consistent with the WCPFC and FFA Vessel Registers	<REGNO>	Y
FFA VESSEL REGISTER NUMBER		INTEGER(5)	Must be consistent with the FFA Vessel Register	<FFAVID>	N
WCPFC RFV VID		INTEGER(10)	Must be consistent with the WCPFC RFV	<WIN>	Y
UNIVERSAL VESSEL IDENTIFIER (UVI)		INTEGER(10)	Must be consistent with the WCPFC and FFA Vessel Registers	<IMO_UVI>	N
VESSEL INTERNATIONAL CALLSIGN		CHAR(10) UPPER CASE	Must be consistent with the WCPFC and FFA Vessel Registers	<IRCS>	Y

APPENDIX A5 – PURSE SEINE OBSERVER ACTIVITY CODES

S_ACTIV_ID	Description	FAD reference (to record BEACON field)	FORM Code version (old)
1	Set	YES	1
2	Searching		2
3	Transit		3
4	No fishing - Breakdown		4
5	No fishing - Bad weather		5
6	In port - please specify		6
7	Net cleaning set		7
8	Investigate free school		8
9	Investigate floating object	YES	9
10	Deploy - raft, FAD or payao	YES	10D
11	Retrieve - raft, FAD or payao	YES	10R
12	No fishing - Drifting at day's end		11
13	No fishing - Drifting with floating object	YES	12
14	No fishing - Other reason (specify)		13
15	Drifting -With fish aggregating lights	YES	14
16	Retrieve radio buoy	YES	15R
17	Deploy radio buoy	YES	15D
18	Transhipping or bunkering		16
19	Servicing FAD or floating object	YES	17
20	*Helicoptor takes off to search*		*H1*
21	*Helicopter returned from search*		*H2*

APPENDIX A6 – PURSE SEINE TUNA SCHOOL ASSOCIATION CODES

S_ACTIV_ID	Description	SCHOOL TYPE CATEGORY
1	Unassociated (free school)	UNASSOCIATED
2	Feeding on Baitfish (free school)	UNASSOCIATED
3	Drifting log, debris or dead animal	ASSOCIATED
4	Drifting raft, FAD or payao	ASSOCIATED
5	Anchored raft, FAD or payao	ASSOCIATED
6	Live whale	ASSOCIATED
7	Live whale shark	ASSOCIATED
8	Other (please specify)	
9	No tuna associated	

APPENDIX A7 – PURSE SEINE TUNA SCHOOL DETECTION CODES

DETON _ID	Description
1	Seen from vessel
2	Seen from helicopter; Use when vessel gets to the school of tuna that helicopter either: 1. reported on; or 2. dropped buoy on.
3	Marked with beacon
4	Bird radar
5	Sonar / depth sounder
6	Info. from other vessel
7	Anchored FAD / payao (recorded)

APPENDIX A8 – SPECIES CODES

Refer to the FAO three-letter species codes:

http://www.fao.org/fishery/collection/asfis/en

APPENDIX A9 – OBSERVER FATE CODES

FATE CODE	DESCRIPTION
DCF	Discarded - Line cut or Other
DDL	Discarded - Difficult to land
DFR	Discarded - fins removed and trunk discarded
DFW	Discarded - Discarded from well
DGD	Discarded - Gear damage
DNS	Discarded - No space in freezer
DOR	Discarded - other reason (specify)
DPA	Discarded - Protected species - Alive
DPD	Discarded - Protected species - Dead
DPQ	Discarded - poor quality
DPS	Discarded - protected species (e.g. turtles)
DPU	Discarded - Protected Species - Condition unknown
DSD	Discarded - Shark damage
DSO	Discarded - rejected (struck off before landing)
DTS	Discarded - too small
DUS	Discarded - Undesirable species
DVF	Discarded - Vessel fully loaded
DWD	Discarded - Whale damage
ESC	Escaped
RCC	Retained - Crew Consumption
RFL	Retained - Filleted
RFR	Retained - fins removed and trunk retained
RGG	Retained - gilled and gutted (retained for sale)
RGO	Retained - gutted only
RGT	Retained - gilled gutted and tailed (for sale)
RHG	Retained - headed and gutted (Marlin)
RHT	Retained - Headed, gutted and tailed
RMD	Retained - fins removed/trunk retained (MANDATORY)
ROR	Retained - other reason (specify)
RPT	Retained - partial (e.g. fillet, loin)
RSD	Retained - Shark damage
RTL	Retained - Tailed
RWD	Retained - Whale Damage
RWG	Retained - Winged
RWW	Retained - whole
UUU	Unknown - not observed

APPENDIX A10 – OBSERVER CONDITION CODES

CONDITION CODE	Description
A0	Alive but unable to describe condition
A1	Alive and healthy
A2	Alive, but injured or distressed
A3	Alive, but unlikely to live
A4	Entangled, okay
A5	Entangled, injured
A6	Hooked, externally, injured
A7	Hooked, internally, injured
A8	Hooked, unknown, injured
D	Dead
D1	Entangled, dead
D2	Hooked, externally, dead
D3	Hooked, internally, dead
D4	Hooked, unknown, dead
U	Condition, unknown
U1	Entangled, unknown condition
U2	Hooked, externally, condition unknown
U3	Hooked, internally, condition unknown
U4	Hooked, unknown, condition unknown

APPENDIX A11 – LENGTH CODES

Length Code	Description
AN	Anal fin length
BL	Bill to fork in tail
CC	Curved Carapace Length
CK	Cleithrum to anterior base caudal keel
CL	carapace length (turtles)
CW	Carapace width
CX	Cleithrum to caudal fork
EO	Posterior eye orbital to caudal fork
EV	Posterior eye orbital to vent
FF	1st dorsal to fork in tail
FN	Weight of all fins (sharks)
FS	1st dorsal to 2nd dorsal
FW	Fillets weight
GF	Gilled, gutted, headed, flaps removed
GG	Gilled and gutted weight
GH	Gutted and headed weight
GI	Girth
GO	Gutted only (gills left in)
GT	Gilled, gutted and tailed
GX	Gutted, headed and tailed
LF	lower jaw to fork in tail
NM	not measured
OW	Observer's Estimate
PF	pectoral fin to fork in tail
PS	Pectoral fin to 2nd dorsal
SC	Straight Carapace Length
SL	Tip of snout to end of caudal peduncle
TH	Body Thickness (Width)
TL	tip of snout to end of tail
TW	total width (tip of wings - rays)
UF	upper jaw to fork in tail
US	Upper jaw to 2nd dorsal fin
WW	Whole weight

APPENDIX A12 – SEX CODES

Sex Code	Description
F	Female
I	Indeterminate (checked but unsure)
M	Male
U	Unknown (not checked)

APPENDIX A13 – Vessel activity (SSI interaction) codes

Activity Code for interaction	Description
1	SETTING
2	HAULING
3	SEARCHING
4	TRANSITING
5	OTHER

APPENDIX A14 – SIZE and SPECIES COMPOSIION SAMPLE PROTOCOL

Sample Type	Description
R	Random (GRAB) sample
S	SPILL sample
B	Bycatch only sampling
F	Small-fish only sampling
O	Other type of sampling protocol (please specify)

APPENDIX A15 – MEASURING INSTRUMENTS Codes

Measure Code	Description
B	BOARD
C	CALLIPER - ALUMINIUM
E	EYE
R	RULER
T	TAPE
U	UNKNOWN
W	CALLIPER - WOOD

APPENDIX A16 – TRIP MONITORING QUESTION Codes

QUESTION CODE	Description	WCPFC Question
RS-A	Did the operator or any crew member assault, obstruct, resist, delay, refuse boarding to, intimidate or interefere with observers in the performance of their duties	Y
RS-B	Request that an event not be reported by the observer	Y
RS-C	Mistreat other crew	N
RS-D	Did operator fail to provide observer with food, accommodation, etc.	Y
NR-A	Fish in areas where the vessel is not permitted to fish	Y
NR-B	Target species other than those they are licenced to target	N
NR-C	Use a fishing method other than the method the vessel was designed or licensed	Y
NR-D	Not display or present a valid (and current) licence document onboard	N
NR-E	Transfer or transship fish from or to another vessel	Y
NR-F	Was involved in bunkering activities	N
NR-G	Fail to stow fishing gear when entering areas where vessel is not authorised to fish	Y
WC-A	Fail to comply with any Commission Conservation and Management Measures (CMMs)	Y
WC-B	High-grade the catch	Y
WC-C	Fish on FAD during FAD Closure	N
LP-A	Inaccurately record vessel position on vessel log sheets for sets, hauling and catch	Y
LP-B	Fail to report vessel positions to countries where required	Y
LC-A	Inaccurately record retained 'Target Species' in the Vessel logs [or weekly reports]	Y
LC-B	Inaccurately record 'Target Species' Discards	Y
LC-C	Record target species inaccurately [eg. combine bigeye/yellowfin/skipjack catch]	Y
LC-D	Not record bycatch discards	N
LC-E	Inaccurately record retained bycatch Species	Y
LC-F	Inaccurately record discarded bycatch species	Y
SI-A	Land on deck Species of Special Interest (SSIs)	N
SI-B	Interact (not land) with SSIs	Y
PN-A	Dispose of any metals, plastics, chemicals or old fishing gear	Y
PN-B	Discharge any oil	Y
PN-C	Lose any fishing gear	Y
PN-D	Abandon any fishing gear	Y
PN-E	Fail to report any abandoned gear	Y
SS-A	Fail to monitor international safety frequencies	Y
SS-B	Carry out-of-date safety equipment	N

APPENDIX A17 – VESSEL / AIRCRAFT SIGHTINGS Codes

CODE	Description
1	SINGLE PURSE SEINE
2	LONGLINE
3	POLE AND LINE
4	MOTHERSHIP
5	TROLL
6	NET BOAT
7	BUNKER
8	SEARCH, ANCHOR OR LIGHT BOAT
9	FISH CARRIER
10	TRAWLER
11	LIGHT AIRCRAFT
12	HELICOPTER
13	OTHER

APPENDIX A18 – ACTION Codes

Action Codes	Description	FORM Used
AG	Aground	GEN6
BG	Bunkering (transfer of fuel), vessel observer is on is GIVING	GEN1, GEN6
BR	Bunkering (transfer of fuel), vessel observer is on is RECEIVING	GEN1, GEN6
CR	Retained from a set solely because of catch-retention rules	PS5
DF	Dumping of fish	GEN1
DS	Discarded into the sea	PS5
FI	Fishing	GEN1, GEN6
FO	Fish On-board	PS5
FS	From set	PS5
NF	Not fishing	GEN1
OG	Other, vessel observer is on is GIVING	GEN1
OR	Other, vessel observer is on is RECEIVING	GEN1
PF	Possibly fishing	GEN1
SG	Set sharing, vessel observer is on is GIVING	GEN1
SR	Set sharing, vessel observer is on is RECEIVING	GEN1,PS5
TG	Transferring fish between vessels, vessel observer is on is GIVING	GEN1,PS5, GEN6
TR	Transferring fish between vessels, vessel observer is on is RECEIVING	GEN1,PS5, GEN6
UL	Unloaded at cannery or cool store	PS5
WT	Transferred between wells	PS5

GEN1 – Vessel / Aircraft sightings
GEN6 – Pollution Report
PS-5 – Purse seine Well transfer

APPENDIX A19 – Purse seine CREW JOB Codes

CODE	Description
1	CAPTAIN
2	NAVIGATOR/MASTER
3	MATE
4	CHIEF ENGINEER
5	ASSISTANT ENGINEER
6	DECK BOSS
7	COOK
8	HELICOPTER PILOT
9	SKIFF MAN
10	WINCH MAN
11	HELICOPTER MECHANIC
12	CREW
13	NAVIGATOR
14	FISHING MASTER
15	RADIO OPERATOR
16	TRANSLATOR

APPENDIX A20 – MARINE DEVICES Codes

Code	Description	WCPFC FIELD	GEAR LIST CODES
1	BATHYTHERMOGRAPH MBT	YES	
2	BIRD RADAR	YES	SP
3	CHART PLOTTER	YES	LSP
4	DEPTH SOUNDER	YES	LSP
5	DOPPLER CURRENT MONITOR	YES	
6	SATELLITE BUOY	YES	S
7	FISHERY INFORMATION SERVICES	YES	LSP
8	GPS	YES	LSP
9	NAVIGATIONAL RADAR #1	YES	LP
10	RADIO BUOYS - CALL-UP	YES	LSP
11	RADIO BUOYS - NON CALL-UP	YES	LSP
12	RADIO BEACON DIRECTION FINDER	YES	LSP
13	SATELLITE - HF TELEX	YES	
14	SEA SURFACE TEMP. GAUGE	YES	LP
15	SONAR	YES	LSP
16	HF RADIO TELEPHONE	YES	
17	SMART-LINK PHONE	YES	
18	TRACK PLOTTER	YES	LSP
19	VESSEL MONITORING SYSTEM (VMS)	YES	LSP
20	WEATHER FACSIMILE	YES	LP
21	WEATHER SATELLITE MONITOR	YES	
22	NET SOUNDER		LSP
23	BINOCULARS		P
24	ECHO SOUNDING BUOY		S
25	EPIRB		

APPENDIX A21 – DEVICE USAGE codes

Code	Description
	Not mentioned
ALL	used all the time for fishing
BRO	broken now but used normally
NA	Not applicable / Not filled
NOL	no longer ever used
OIF	used only in transit
RAR	used rarely
SIF	used often but only in fishing
TRA	used all the time

APPENDIX A22 – WEIGHT MEASUREMENT codes

Weight measurement code	Description
CW	Captain's Estimate
FN	Weight of all fins (sharks)
FW	Fillets weight
GF	Gilled, gutted, headed, flaps removed
GG	Gilled and gutted
GH	Gutted and headed
GO	Gutted only (gills left in)
GT	Gilled, gutted and tailed
GX	Gutted, headed and tailed
NM	Not measured
OW	Observer's Estimate
TW	Trunk weight
WW	Whole weight

APPENDIX A23 – GONAD STAGE codes

Gonad stage code	Short description	Description
N	No information	No information
I	Immature	Ovary small and slender. Cross-section round
E	Early Maturing	Enlarged, pale yellow ovaries. Ova not visible.
L	Late Maturing	Enlarged, turgid, orange-yellow ovaries. Ova opaque
M	Mature	Enlarged, richly vascular, orange ovaries, losing turgidity. Ova translucent.
R	Ripe	Greatly enlarged ovaries, not turgid. Ova easily dislodged and extruded by pressure.
S	Spent	Flaccid, vascular ovaries. Most ova gone. Often dark orange-red coloration.
R	Recovering	Vascular ovaries. Next batch of ova developing.

APPENDIX A24 – FAD ORIGIN codes

FAD ORIGIN CODE	Description
1	Your vessel deployed this trip
2	Your vessel deployed previous trip
3	Other vessel (owner consent)
4	Other vessel (no owner consent)
5	Other vessel (consent unknown)
6	Drifting and foudn by your vessel
7	Deployed by FAD auxillary vessel
8	Origin unknown
9	Other origin

APPENDIX A25 – FAD DETECTION codes

FAD DETECTION CODE	Description
1	Seen from Vessel (no other method)
2	Seen from Helicopter
3	Marked with Radio beacon
4	Bird Radar
6	Info. from other vessel
7	Anchored (GPS)
8	Marked with Satellite Beacon
9	Navigation Radar
10	Lights
11	Flock of Birds sighted from vessel
12	Other (please specify)
13	Vessel deploying FAD (not detected)

APPENDIX A26 – FAD MATERIAL codes

FAD MATERIAL CODE	Description
1	Logs, Trees or debris tied together
2	Timber/planks/pallets/spools
3	PVC or Plastic tubing
4	Plastic drums
5	Plastic Sheeting
6	Metal Drums (i.e. 44 gallon)
7	Philippines design drum FAD
8	Bamboo/Cane
9	Floats/Corks
10	Unknown (describe)
11	Chain, cable rings, weights
12	Cord/rope
13	Netting hanging underneath FAD
14	Bait containers
15	Sacking/bagging
16	Coconut fronds/tree branches
17	Other (describe)

APPENDIX A27 – FAD TYPE codes

FAD TYPE CODE	Description
1	Man made object (Drifting FAD)
2	Man made object (Non FAD)
3	Tree or log (natural, free floating)
4	Tree or logs (converted into FAD)
5	Debris (flotsam bunched together)
6	Dead Animal (specify; i.e. whale, horse, etc.)
7	Anchored Raft, FAD, or Payao
8	Anchored Tree or Logs
9	Other (please specify)
10	Man made object (Drifting FAD)-changed

APPENDIX A28 – POLLUTION GEAR codes

POLLUTION GEAR CODE	DESCRIPTION
1	Lost during fishing
2	Abandoned
3	Dumped

APPENDIX A29 – POLLUTION MATERIALS codes

POLUTION MATERIALS CODES	DESCRIPTION
1	Plastics
2	Metals
3	Waste Oils
4	Chemicals
5	Old fishing gear
6	General garbage

APPENDIX A30 – POLLUTION SOURCE codes

POLLUTION SOURCE CODES	DESCRIPTION
1	Vessel Aground/Collision
2	Vessel at Anchor/Bearth
3	Vessel Underway
4	Land Based Source
5	Other

APPENDIX A31 – POLLUTION TYPE codes

POLLUTION TYPE CODES	DESCRIPTION
1	Waste dumped overboard
2	Oil splillages and leakages
3	Abandoned or Lost Fishing Gear

Attachment 3B. Electronic data standard to be used for Paragraph 3 and Annex 1 of Scientific Data to be Provided to the Commission

Western and Central Pacific Fisheries Commission (WCPFC)

E-REPORTING STANDARD DATA FIELDS

OPERATIONAL LOGSHEET DATA

Draft – Version 2.0

7th June 2015

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INTRODUCTION

These tables set out the proposed standards for the provision of operational logsheet data fields collected in the WCPFC tropical purse seine fishery and the longline fisheries through E-Reporting. These tables provide the minimum requirements for data entities, data formats and data validation to be established for data submitted to the national and regional fisheries authorities from E-Reporting systems. The data fields contained herein are based on information collected under the current regional standard data collection forms. This document acknowledges that national fisheries authorities require data (e.g. licence/permit numbers and for anticipated Catch Documentation System – CDS – requirements) that are not mandatory WCPFC data fields, so a column in these tables identifies whether the data field is a mandatory WCFPC data field[1] or not.

These E-Reporting data field standards are consistent with, and should be considered in conjunction with more detailed instructions[2] on how to collect LOGBOOK data provided by SPC.

These tables are intended for, *inter alia*, E-Reporting service providers who have been contracted to provide electronic systems to record LOGBOOK information on-board purse seine vessels.

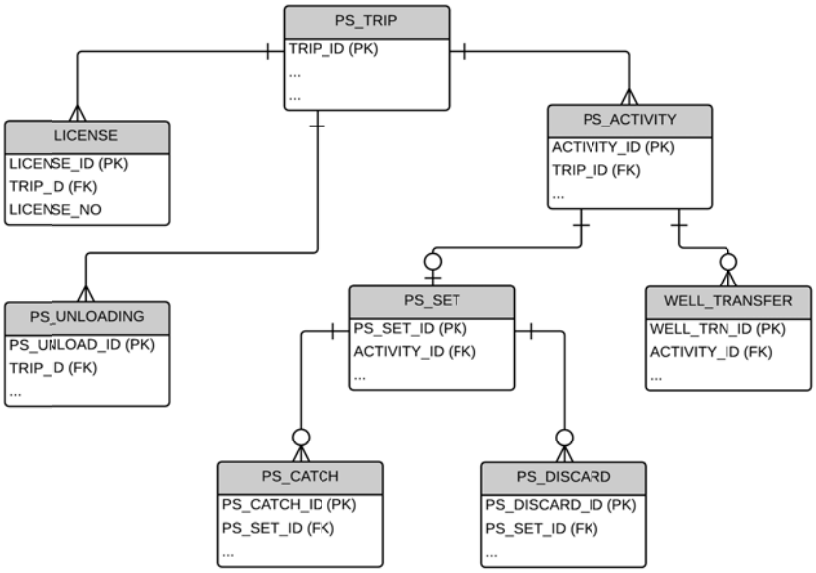
[1] The mandatory WCPFC data fields for operational LOGBOOK data are found in the "Scientific Data to be provided to the Commission - Attachment K, Annex 1. Standards for the Provision of Operational Level Catch and Effort Data"
http://www.wcpfc.int/system/files/Scientific%20Data%20to%20be%20Provided%20to%20the%20Commission%20-%20decision%20made%20by%20WCPFC10%20%28clean%29.pdf

[2] In addition to the WCPFC LOGBOOK data fields requirements, instructions for LOGBOOK data collection in the WCPFC Area are available with the regional standard observer data collection forms at http://www.spc.int/oceanfish/en/data-collection/241-data-collection-forms.

1. PURSE SEINE LOGBOOK E-REPORTING STANDARDS

1.1 DATA MODEL DIAGRAM

The following basic data model diagram outlines the structure of the entities and their relationships for purse seine operational logsheet data collected by E-Reporting systems and submitted to national and regional fisheries authorities. The tables that follow provide more information on the mechanisms of the links (relationships) between the entities.



1.2 PURSE SEINE TRIP-LEVEL DATA

PS_TRIP "The start of a trip is defined to occur when a vessel (a) leaves port after unloading part or all of the catch to transit to a fishing area or (b) recommences fishing operations or transits to a fishing area after transshipping part or all of the catch at sea (when this occurs in accordance with the terms and conditions of article 4 of Annex III of the Convention, subject to specific exemptions as per article 29 of the Convention)."						
FIELD	**Data Collection Instructions**	**Field format notes**	**Validation rules**	**NAF CODE**	**XML TAG**	**WCPFC FIELD**
TRIP IDENTIFIER	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be VESSEL IDENTIFIER + DEPARTURE DATE				<TRIP_ID>	
VESSEL IDENIFIER	REFER TO APPENDIX A4					
COUNTRY OF CHARTER	PROVIDE the Country responsible for chartering the vessel, where relevant. This only applies if the vessel has been chartered according to the requirements under WCFPC CMM 2012-05 – chartering notifications.	CHAR(2) ISO 3166-1 alpha-2 two-letter country code UPPER CASE	ISO 3166-1 alpha-2 two-letter country code This field must be completed if it has been listed as a chartered vessel on the WCPFC web site according to the requirements under WCFPC CMM 2012-05 – chartering notifications.	CS	<CHARTER>	Y
AGENT FOR UNLOADING	PROVIDE the name of the Agent for the Unloading	CHAR(50)	Where possible, link this field to a reference table of authorised Agents for unloading. (referential integrity)	AN	<AGENT>	N
TRIP NUMBER	PROVIDE the trip number undertaken by this vessel for the year. Trip number is sequential, starting at 1 for first trip of the year for each vessel.	INTEGER(2)		TN	<TRIPNO>	N
PORT OF DEPARTURE	PROVIDE the Port of Departure	REFER TO APPENDIX A3	Must be valid United Nations - Code for Trade and Transport Locations (UN/LOCODE) – see http://www.unece.org/cefact/locode/service/location	PE	<PORTDEPART>	Y
PLACE OF UNLOADING	PROVIDE the Port of Return for Unloading	REFER TO APPENDIX A3	Must be valid United Nations - Code for Trade and Transport Locations (UN/LOCODE)	PO	<PORTUNLOAD>	Y
DATE and TIME OF DEPARTURE	PROVIDE the GMT/UTC DATE and TIME of departure for this	REFER TO APPENDIX A1	ISO 8601 - Dates and times format The chronology of Departure date with respect to Date of	SD ST	<DATEDEPART> <TIMEDEPART>	Y

PS_TRIP

"The start of a trip is defined to occur when a vessel (a) leaves port after unloading part or all of the catch to transit to a fishing area or (b) recommences fishing operations or transits to a fishing area after transshipping part or all of the catch at sea (when this occurs in accordance with the terms and conditions of article 4 of Annex III of the Convention, subject to specific exemptions as per article 29 of the Convention)."

FIELD	Data Collection Instructions	Field format notes	Validation rules	NAF CODE	XML TAG	WCPFC FIELD
	trip		arrival in port and the Days at sea must be valid.			
DATE AND TIME OF ARRIVAL IN PORT	PROVIDE the GMT/UTC DATE and TIME of arrival back in port for this trip	REFER TO APPENDIX A1	ISO 8601 - Dates and times format The chronology of Arrival date with respect to Date of Departure and the Days at sea must be valid.	ED ET	<DATEARRIVAL> <TIMEARRIVAL>	Y
FISH ONBOARD – START	PROVIDE the total amount of fish on-board at the time of leaving port on this trip.	NUMBER(4)	WARNING: Should be a realistic amount. For example, having catch >200 t. would be unrealistic?	QS	<AMOUNTSTART>	N
FISH ONBOARD – END	PROVIDE the total amount of fish on-board AFTER ALL UNLOADINGs have been undertaken before the next trip.	NUMBER(4)	WARNING: Should be a realistic amount. For example, having catch >200 t. would be unrealistic? Having catch greater than what was caught on the trip is not possible.	QE	<AMOUNTAFTER>	N

1.3 LICENSE/PERMIT DATA

LICENSE PROVIDE each LICENSE/PERMIT that the vessel holds for the period of the trip.						
FIELD	**Data Collection Instructions**	**Field format notes**	**Validation rules**	**NAF CODE**	**XML TAG**	**WCPFC FIELD**
TRIP IDENTIFIER	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be VESSEL + DEPARTURE DATE				<TRIP_ID>	
FISHING PERMIT/LICENSE NUMBERS	PROVIDE License/Permit number that the vessel holds for the period of the TRIP.	CHAR(40) UPPER CASE	Where possible, include validation to ensure the Permit format relevant to the agreement (national or sub-regional) complies to the required format.	LC	<LICENSE_NO>	N

1.4 PS UNLOADING DATA

PS_UNLOADING PROVIDE information for TRIP UNLOADING INFORMATION which covers one or several unloading events during or at the end of the trip to (i) carriers, (ii) on-shore processing plants (Canneries) and/or (iii) a net-share event with another catcher vessel						
FIELD	**Data Collection Instructions**	**Field format notes**	**Validation rules**	**NAF CODE**	**XML TAG**	**WCPFC FIELD**
TRIP IDENTIFIER	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be VESSEL + DEPARTURE DATE		Link to TRIP information		<TRIP_ID>	
UNLOADING START DATE	PROVIDE the start date for this specific Unloading event	REFER TO APPENDIX A1	ISO 8601 - Dates and times format GMT/UTC time [YYYY]-[MM]-[DD]T[HH]:[MM]Z The chronology of Unload Start date with respect to other dates for the trip and unloading must be valid.	SD	<STARTDATE>	N
UNLOADING END DATE	PROVIDE the end date for this specific Unloading event	REFER TO APPENDIX A1	ISO 8601 - Dates and times format GMT/UTC time [YYYY]-[MM]-[DD]T[HH]:[MM]Z The chronology of Unload End date with respect to other dates for the trip and unloading must be valid.	ED	<ENDDATE>	N
CARRIER VESSEL IDENTIFIER	REFER TO APPENDIX A4 If relevant, PROVIDE the receiving CARRIER VESSEL for this specific Unloading event. Note that for NET-SHARE events, this could be another purse seine catcher vessel. If Relevant, PROVIDE the FFA VID for the CARRIER vessel. Must be consistent with the WCPFC and FFA Vessel Registers					
CANNERY/ DESTINATION	If relevant, PROVIDE the receiving CANNERY/DESTINATION for this specific Unloading event.	CHAR(40) UPPER CASE	Where possible, link this field to a reference table of authorised Canneries/Destinations (referential integrity)	FD FN	<DESTINATION>	N
SKJ UNLOADED	PROVIDE the total weight (metric tonnes) of SKIPJACK unloaded in this specific Unloading event	DECIMAL(7,3)	CONTROL TOTAL CHECK: Total amounts for this trip should reconcile checking total trip catch, catch on-board at start, catch on-board at end and all unloading events.	DQ	<UNLOADSKJ>	N
YFT UNLOADED	PROVIDE the total weight (metric tonnes) of YELLOWFIN unloaded in this specific Unloading event	DECIMAL(7,3)		DQ	<UNLOADYFT>	N
BET UNLOADED	PROVIDE the total weight (metric tonnes) of BIGEYE unloaded in this specific Unloading event	DECIMAL(7,3)		DQ	<UNLOADBET>	N
MIXED TUNA UNLOADED	PROVIDE the total weight (metric tonnes) of MIXED TUNA unloaded in this specific Unloading event	DECIMAL(7,3)		DQ	<UNLOADMIX>	N

PS_UNLOADING

PROVIDE information for TRIP UNLOADING INFORMATION which covers one or several unloading events during or at the end of the trip to (i) carriers, (ii) on-shore processing plants (Canneries) and/or (iii) a net-share event with another catcher vessel

FIELD	Data Collection Instructions	Field format notes	Validation rules	NAF CODE	XML TAG	WCPFC FIELD
OTHERS UNLOADED	PROVIDE the total weight (metric tonnes) of OTHERS unloaded in this specific Unloading event	DECIMAL(7,3)		DQ	<UNLOADOTH>	N
REJECTS UNLOADED	PROVIDE the total weight (metric tonnes) of REJECTED TUNA unloaded in this specific Unloading event	DECIMAL(7,3)		RT	<UNLOADREJ>	N

1.5 PS ACTIVITY DATA

PS_ACTIVITY PROVIDE information on the designated activities for each DAY AT SEA						
FIELD	**Data Collection Instructions**	**Field format notes**	**Validation rules**	**NAF CODE**	**XML TAG**	**WCPFC FIELD**
TRIP IDENTIFIER	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be VESSEL + DEPARTURE DATE		Link to TRIP information		<TRIP_ID>	
ACTIVITY IDENTIFIER	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be DATE + START TIME OF ACTIVITY				<ACTIVITY_ID>	
DATE	PROVIDE the DATE for each day that the vessel is at sea.	REFER TO APPENDIX A1	Expect to be automatically integrated/generated with GPS DEVICE	DA	<DATE_EVENT >	Y
START TIME OF ACTIVITY	PROVIDE the time when the ACTIVITY started	REFER TO APPENDIX A1	Expect to be automatically integrated/generated with GPS DEVICE	ST	<TIME_EVENT>	Y
LATITUDE	PROVIDE the LATITUDE position when the ACTIVITY started	REFER TO APPENDIX A2	Expect to be automatically integrated/generated with GPS DEVICE	LT	<LAT> <LATH>	Y
LONGITUDE	PROVIDE the LONGITUDE position when the ACTIVITY started	REFER TO APPENDIX A2	Expect to be automatically integrated/generated with GPS DEVICE	LG	<LON> <LONH>	Y
ACTIVITY	PROVIDE each new ACTIVITY of the vessel within the DAY	REFER TO APPENDIX A5	The code must be within the valid range. Ensure relational integrity for certain values, for example, “1 – Fishing Set” must link to a SET record and perhaps to other tables “8 – Non-Set Well Transfer” must link to a WELL_TRANSFER record	AT	<S_ACT_ID>	Y

1.6 PS SET LEVEL DATA

PS_SET PROVIDE information for each FISHING SET						
FIELD	**Data Collection Instructions**	**Field format notes**	**Validation rules**	**NAF CODE**	**XML TAG**	**WCPFC FIELD**
TRIP IDENTIFIER	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be VESSEL + DEPARTURE DATE		Link to TRIP information		<TRIP_ID>	
ACTIVITY IDENTIFIER	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be DATE + START TIME OF ACTIVITY		Link to ACTIVITY (SET)		<ACTIVITY_ID>	
START DATE/TIME OF SET	PROVIDE the start time of the set which is defined at the time the SKIFF is launched.	REFER TO APPENDIX A1	Expect to be automatically integrated/generated with GPS DEVICE The chronology of SET START TIME with respect to other dates/times for the trip must be valid.	ST	<SETSTART>	Y
END DATE/TIME OF SET	PROVIDE the end time of the set which is defined as the time when the “RINGS UP” ON DECK.	REFER TO APPENDIX A1	Expect to be automatically integrated/generated with GPS DEVICE The chronology of SET END TIME with respect to other dates/times for the trip must be valid.	ET	<SETEND>	Y
SCHOOL ASSOCIATION	PROVIDE the School Associated Code	REFER TO APPENDIX A6	The code must be within the valid range.	SA	<SCHOOL>	Y
SCHOOL ASSOCIATION NOTE	PROVIDE information of the SCHOOL ASSOCIATION in cases where the school association is not covered in the list of School association codes 1. To 7.	VARCHAR(30)	Used only when the SCHOOL ASSOCIATION = 8	SA	<SCH_NOTE>	Y

1.7 PS CATCH DATA

PS_CATCH PROVIDE information on each species catch RETAINED from a SET						
FIELD	**Data Collection Instructions**	**Field format notes**	**Validation rules**	**NAF CODE**	**XML TAG**	**WCPFC FIELD**
TRIP IDENTIFIER	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be VESSEL + DEPARTURE DATE		Link to TRIP information		<TRIP_ID>	
ACTIVITY IDENTIFIER	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be DATE + START TIME OF ACTIVITY		Link to ACTIVITY (SET)		<ACTIVITY_ID>	
SET IDENTIFIER	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be DATE + START TIME OF SET		Link to PS_SET		<PS_SET_ID>	
SPECIES CODE	For each species taken in the set and RETAINED, PROVIDE the SPECIES CODE according to the FAO standard species code list	CHAR(3)	REFER TO APPENDIX 7.	DC	<SP_CODE>	Y
SIZE CATEGORY	For Yellowfin (YFT) and Bigeye tuna (BET) RETAINED catch, distinguish the catch by size category < 9kgs and > 9kgs) otherwise leave blank.	CHAR(2)	LG - Large Fish (>= 9 kgs) SM - Small Fish (< 9 kgs) <Blank> - Not applicable Validate that it can only be used for YFT and BET.	DC	<SP_SIZE>	N
WELL TO	Well number where the catch is moved to. Set catch for this species/size category may be moved to more than one well. (Used for Catch Documentation systems).	CHAR(3)	Valid code DIS – Discard of fish to sea from a well (e.g. due to spoilage) Snn – Starboard well with number = <nn> Pnn – Port well with number = <nn> Cnn – Central well with number = <nn>	TC	<WELL_TO>	N
RETAINED WEIGHT	PROVIDE the RETAINED ESTIMATED WEIGHT (metric tonnes, to 3 decimal places if possible) covering this species/size category combination.	DECIMAL(7,3)	Validate that it is within the acceptable range for this species. (Refer to the SPECIES_RANGE table provided)	DC	<SP_RET_MT>	Y
RETAINED NUMBER	PROVIDE the RETAINED NUMBER covering this species/size category combination. This is only required for non-target species.	INTEGER(6)	Validate that it is within the acceptable range for this species. (Refer to the SPECIES_RANGE table provided)	DC	<SP_RET_NO>	N

1.8 PS DISCARD DATA

PS_DISCARD PROVIDE information on each species catch DISCARDED from a SET						
FIELD	**Data Collection Instructions**	**Field format notes**	**Validation rules**	**NAF CODE**	**XML TAG**	**WCPFC FIELD**
TRIP IDENTIFIER	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be VESSEL + DEPARTURE DATE		Link to TRIP information		<TRIP_ID>	
ACTIVITY IDENTIFIER	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be DATE + START TIME OF ACTIVITY		Link to ACTIVITY (SET)		<ACTIVITY_ID>	
SET IDENTIFIER	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be DATE + START TIME OF SET		Link to PS_SET		<PS_SET_ID>	
SPECIES CODE	For each species taken in the set and DISCARDED, PROVIDE the SPECIES CODE according to the FAO standard species code list	CHAR(3)	REFER TO APPENDIX 7.	DI	<SP_CODE>	Y
DISCARDED WEIGHT	PROVIDE the DISCARDED ESTIMATED WEIGHT (metric tonnes, to 3 decimal places if possible) covering this species.	DECIMAL(7,3)	Validate that it is within the acceptable range for this species. (Refer to the SPECIES_RANGE table provided)	DI	<SP_DISC_MT>	Y
DISCARDED NUMBER	PROVIDE the DISCARDED NUMBER, where appropriate.	INTEGER(6)	Validate that it is within the acceptable range for this species. (Refer to the SPECIES_RANGE table provided)	DI	<SP_DISC_NO>	Y
REASON FOR DISCARD	PROVIDE the reason for the DISCARD.	INTEGER(1)	REFER TO APPENDIX 8.	DI	<DISC_REA_ID>	Y
REASON FOR DISCARD NOTE	PROVIDE information of the REASON FOR DISCARD in cases where the code is not covered in the list of Reason codes 1. To 4.	VARCHAR(30)	Used only when the REASON FOR DISCARD = 5	DI	<DISC_NOTE>	Y

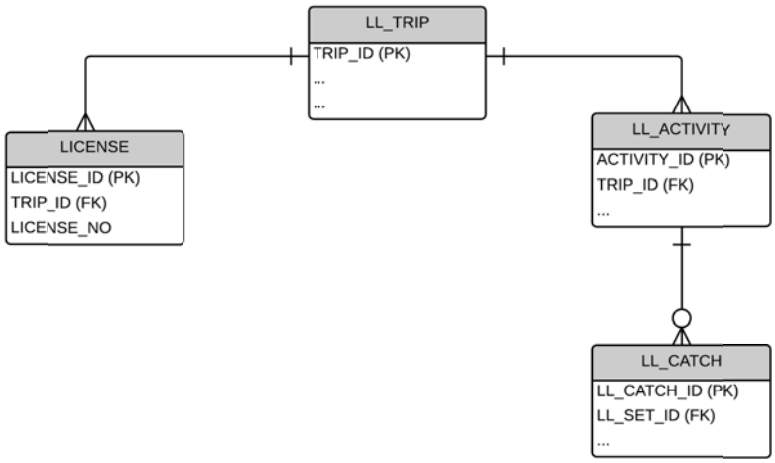
1.9 PS WELL TRANSFER DATA

WELL_TRANSFER PROVIDE information on each WELL TRANSFER or NET-to-WELL TRANSFER when the relevant ACTIVITIES are recorded						
FIELD	**Data Collection Instructions**	**Field format notes**	**Validation rules**	**NAF CODE**	**XML TAG**	**WCPFC FIELD**
TRIP IDENTIFIER	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be VESSEL + DEPARTURE DATE		Link to TRIP information		<TRIP_ID>	
ACTIVITY IDENTIFIER	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be DATE + START TIME OF ACTIVITY		Link to ACTIVITY (SET or WELL TRANSFER)		<ACTIVITY_ID>	
WELL FROM	Well number or the NET (in the case of a set) where the catch is coming from.	CHAR(3)	Valid code Snn – Starboard well with number = <nn> Pnn – Port well with number = <nn> Cnn – Central well with number = <nn>	TC	<WELL_FROM>	N
WELL TO	Well number where the catch is moved to. Note that this includes DISCARDs of fish from the well.	CHAR(3)	Valid code DIS – Discard of fish to sea from a well (e.g. due to spoilage) Snn – Starboard well with number = <nn> Pnn – Port well with number = <nn> Cnn – Central well with number = <nn>	TC	<WELL_TO>	N
SPECIES CODE	For each species catch transferred, PROVIDE the SPECIES CODE according to the FAO standard species code list	CHAR(3) UPPER CASE	REFER TO APPENDIX 7.	TC	<SP_CODE_WELL>	N
SIZE CATEGORY	For Yellowfin (YFT) and Bigeye tuna (BET) transferred catch, distinguish the catch by size category < 9kgs and > 9kgs) otherwise leave blank.	CHAR(2)	LG - Large Fish (>= 9 kgs) SM - Small Fish (< 9 kgs) <Blank> - Not applicable Validate that it can only be used for YFT and BET.	DC	<SP_WELL_SIZE>	N
WEIGHT TRANSERRED	PROVIDE the WEIGHT (metric tonnes, to 3 decimal places if possible) of the species transferred.	DECIMAL(6,3)		TC	<SP_WELL_MT>	N

2. LONGLINE LOGBOOK E-REPORTING STANDARDS

2.1 DATA MODEL DIAGRAM

The following basic data model diagram outlines the structure of the entities and their relationships for longline operational logsheet data collected by E-Reporting systems and submitted to national and regional fisheries authorities. The tables that follow provide more information on the mechanisms of the links (relationships) between the entities.



2.2 LONGLINE TRIP-LEVEL DATA

LL_TRIP "The start of a trip is defined to occur when a vessel (a) leaves port after unloading part or all of the catch to transit to a fishing area or (b) recommences fishing operations or transits to a fishing area after transshipping part or all of the catch at sea (when this occurs in accordance with the terms and conditions of article 4 of Annex III of the Convention, subject to specific exemptions as per article 29 of the Convention)."						
FIELD	**Data Collection Instructions**	**Field format notes**	**Validation rules**	**NAF CODE**	**XML TAG**	**WCPFC FIELD**
TRIP IDENTIFIER	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be VESSEL IDENTIFIER + DEPARTURE DATE				<TRIP_ID>	
VESSEL IDENIFIER	REFER TO APPENDIX A4					
COUNTRY OF CHARTER	PROVIDE the Country responsible for chartering the vessel, where relevant. This only applies if the vessel has been chartered according to the requirements under WCFPC CMM 2012-05 – chartering notifications.	CHAR(2) ISO 3166-1 alpha-2 two-letter country code UPPER CASE	ISO 3166-1 alpha-2 two-letter country code This field must be completed if it has been listed as a chartered vessel on the WCPFC web site according to the requirements under WCFPC CMM 2012-05 – chartering notifications.	CS	<CHARTER>	Y
AGENT FOR UNLOADING	PROVIDE the name of the Agent for the Unloading	CHAR(50)	Where possible, link this field to a reference table of authorised Agents for unloading. (referential integrity)	AN	<AGENT>	N
TRIP NUMBER	PROVIDE the trip number undertaken by this vessel for the year. Trip number is sequential, starting at 1 for first trip of the year for each vessel.	INTEGER(2)		TN	<TRIPNO>	N
PRIMARY TARGET SPECIES	PROVIDE the Primary Target species for this trip	CHAR(3)	REFER TO APPENDIX A7	DC	<SP_CODE_TARGET>	N
PORT OF DEPARTURE	PROVIDE the Port of Departure	CHAR(5) UN/LOCODE UPPERCASE	REFER TO APPENDIX A3	PE	<PORTDEPART>	Y
PLACE OF UNLOADING / TRANSHIPPMENT AT SEA	PROVIDE the Port of Return for Unloading or indicate TRANSHIPMENT AT SEA	CHAR(5) UN/LOCODE UPPERCASE	REFER TO APPENDIX A3	PO	<PORTUNLOAD>	Y

LL_TRIP

"The start of a trip is defined to occur when a vessel (a) leaves port after unloading part or all of the catch to transit to a fishing area or (b) recommences fishing operations or transits to a fishing area after transshipping part or all of the catch at sea (when this occurs in accordance with the terms and conditions of article 4 of Annex III of the Convention, subject to specific exemptions as per article 29 of the Convention)."

FIELD	Data Collection Instructions	Field format notes	Validation rules	NAF CODE	XML TAG	WCPFC FIELD
DATE and TIME OF DEPARTURE	PROVIDE the GMT/UTC DATE and TIME of departure for this trip	REFER TO APPENDIX A1	REFER TO APPENDIX A1	SD ST	<DATEDEPART>	Y
DATE AND TIME OF ARRIVAL IN PORT / TRANSHIPMENT AT SEA	PROVIDE the GMT/UTC DATE and TIME of arrival back in port for this trip or indicate DATE for the TRANSHIPMENT AT SEA	REFER TO APPENDIX A1	REFER TO APPENDIX A1	ED ET	<DATEARRIVAL>	Y

2.3 LICENSE/PERMIT DATA

LICENSE PROVIDE each LICENSE/PERMIT that the vessel holds for the period of the trip.						
FIELD	**Data Collection Instructions**	**Field format notes**	**Validation rules**	**NAF CODE**	**XML TAG**	**WCPFC FIELD**
TRIP IDENTIFIER	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be VESSEL + DEPARTURE DATE				<TRIP_ID>	
FISHING PERMIT/LICENSE NUMBERS	PROVIDE License/Permit number that the vessel holds for the period of the TRIP.	CHAR(40) UPPER CASE	Where possible, include validation to ensure the Permit format relevant to the agreement (national or sub-regional) complies to the required format.	LC	<LICENSE_NO>	N

2.4 LL ACTIVITY/SET DATA

LL_ACTIVITY **PROVIDE the following information on EACH FISHING SET; if there was no fishing set on that day, provide information on the MAIN ACTIVITY FOR THAT DAY AT SEA**						
FIELD	**Data Collection Instructions**	**Field format notes**	**Validation rules**	**NAF CODE**	**XML TAG**	**WCPFC FIELD**
TRIP IDENTIFIER	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be VESSEL + DEPARTURE DATE		Link to TRIP information		<TRIP_ID>	
ACTIVITY IDENTIFIER	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be DATE + START TIME OF ACTIVITY				<ACTIVITY_ID>	
ACTIVITY DATE/TIME	PROVIDE the NOON DATE/TIME for each day that the vessel is at sea when a set was not made on that day, OR the START DATE/TIME of the SET	REFER TO APPENDIX A1	Expect to be automatically integrated/generated with GPS DEVICE	DA	<ACT_DATE>	Y
ACTIVITY	PROVIDE the ACTIVITY CODE	NUMBER(2)	REFER TO APPENDIX A5	AT	<L_ACT_ID>	Y
LATITUDE	PROVIDE the LATITUDE position when the ACTIVITY started	REFER TO APPENDIX A2	Expect to be automatically integrated/generated with GPS DEVICE Check of position relative to previous position and whether it is realistic to have travelled that distance in the allotted time.	LT	<LAT> <LATH>	Y
LONGITUDE	PROVIDE the LONGITUDE position when the ACTIVITY started	REFER TO APPENDIX A2	Expect to be automatically integrated/generated with GPS DEVICE Check of position relative to previous position and whether it is realistic to have travelled that distance in the allotted time.	LG	<LON> <LONH>	Y
HOOKS BETWEEN FLOATS	PROVIDE the HOOKS BETWEEN FLOATS (synonymous to BRANCHLINES between FLOATS) for this set	NUMBER(2)	The code must be within the valid range. Only relevant with ACTIVITY = “1 – FISHING SET”	SA	<HK_BTWN_FLT>	Y
HOOKS	PROVIDE the total number of HOOKs set	NUMBER(4)	The code must be within the valid range (e.g. < 5,000 hooks). Only relevant with ACTIVITY = “1 – FISHING SET”	SA	<HOOKS>	Y

2.5 LL CATCH DATA

LL_CATCH PROVIDE information on each species catch from a SET						
FIELD	**Data Collection Instructions**	**Field format notes**	**Validation rules**	**NAF CODE**	**XML TAG**	**WCPFC FIELD**
TRIP IDENTIFIER	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be VESSEL + DEPARTURE DATE		Link to TRIP information		<TRIP_ID>	
ACTIVITY IDENTIFIER	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be DATE + START TIME OF ACTIVITY		Link to ACTIVITY (SET)		<ACTIVITY_ID>	
SPECIES CODE	For each species taken in the set, PROVIDE the SPECIES CODE according to the FAO standard species code list	CHAR(3) UPPER CASE	REFER TO APPENDIX 8.	DC	<SP_CODE_RET>	Y
RETAINED NUMBER	PROVIDE the NUMBER OF RETAINED FISH covering this species.	INTEGER(6)	Validate that it is within the acceptable range for this species. (Refer to the SPECIES_RANGE table provided)	DC	<SP_RET_NO>	Y
RETAINED WEIGHT	PROVIDE the RETAINED ESTIMATED WEIGHT (metric tonnes to three decimal places) for this species.	DECIMAL(6,3)	Validate that it is within the acceptable range for this species. (Refer to the SPECIES_RANGE table provided)	DC	<SP_RET_MT>	Y
DISCARDED / RELEASED NUMBER	PROVIDE the NUMBER of this species DISCARDED or RELEASED.	INTEGER(6)	Validate that it is within the acceptable range for this species. (Refer to the SPECIES_RANGE table provided)	DC	<SP_RET_NO>	Y

APPENDICES

APPENDIX A1 – DATE/TIME FORMAT

The DATE/TIME formats must adhere to the following standard:

ISO 8601 - Dates and times format – both local and UTC dates

[YYYY]-[MM]-[DD]T[HH]:[MM]Z for fields designated as UTC date/time

[YYYY]-[MM]-[DD]T[HH]:[MM] for fields designated as LOCAL date/time

APPENDIX A2 – POSITION/COORDINATE FORMAT

The Latitude and Longitude coordinates must adhere to the ISO 6709 – Positions
Degrees and minutes to 3 decimal places

LATITUDE	+/- DDMM.MMM
LONGITUDE	+/- DDDMM.MMM

APPENDIX A3 – PORT LOCATION CODES

The PORT LOCATION Codes must adhere to the UN/LOCODE standard UPPERCASE CHAR(5)
United Nations - Code for Trade and Transport Locations (UN/LOCODE) – see
http://www.unece.org/cefact/locode/service/location

APPENDIX A4 – VESSEL IDENTIFICATION

The attributes to be provided for the VESSEL needs to be consistent with several VESSEL registers at the global and regional level. The most important are the proposed IMO/UVI standard vessel identifier (UVI), the WCPFC vessel register and the FFA Vessel register.

FIELD	Data Collection Instructions	Field format notes	Validation rules	XML TAG	WCPFC FIELD
VESSEL NAME	PROVIDE the VESSEL attributes which should be consistent with the attributes stored in the WCPFC and FFA Regional Vessel Registers	CHAR(30) UPPER CASE	Must be consistent with the WCPFC and FFA Vessel Registers	<VESSELNAME>	Y
COUNTRY OF VESSEL REGISTRATION		CHAR(2) ISO 3166-1 alpha-2 two-letter country code UPPER CASE	ISO 3166-1 alpha-2 two-letter country code Must be consistent with the WCPFC and FFA Vessel Registers Country of registration is distinct from the chartering nation, where relevant	<COUNTRYREG>	Y
VESSEL REGISTRATION NUMBER		CHAR(20) UPPER CASE	Must be consistent with the WCPFC and FFA Vessel Registers	<REGNO>	Y
FFA VESSEL REGISTER NUMBER		INTEGER(5)	Must be consistent with the FFA Vessel Register	<FFAVID>	N
WCPFC RFV VID		INTEGER(10)	Must be consistent with the WCPFC RFV	<WIN>	Y
UNIVERSAL VESSEL IDENTIFIER (UVI)		INTEGER(10)	Must be consistent with the WCPFC and FFA Vessel Registers	<IMO_UVI>	N
VESSEL INTERNATIONAL CALLSIGN		CHAR(10) UPPER CASE	Must be consistent with the WCPFC and FFA Vessel Registers	<IRCS>	Y

APPENDIX A5 – PURSE SEINE OBSERVER ACTIVITY CODES

S_ACTIV_ID	Description	PURSE SEINE LOGSHEET	LONGLINE LOGSHEET	PURSE SEINE OBSERVER
1	Set	Y	Y	Y
2	Searching	Y	N	Y
3	Transit	Y	Y	Y
4	No fishing - Breakdown	Y	Y	Y
5	No fishing - Bad weather	Y	Y	Y
6	In port - please specify	Y	Y	Y
7	Net cleaning set	Y	N	Y
8	Investigate free school	Y	N	Y
9	Investigate floating object	Y	N	Y
10	Deploy - raft, FAD or payao	Y	N	Y
11	Retrieve - raft, FAD or payao	Y	N	Y
12	No fishing - Drifting at day's end	N	N	Y
13	No fishing - Drifting with floating object	N	N	Y
14	No fishing - Other reason (specify)	N	N	Y
15	Drifting -With fish aggregating lights	N	N	Y
16	Retrieve radio buoy	N	N	Y
17	Deploy radio buoy	N	N	Y
18	Transhipping or bunkering	N	Y	Y
19	Servicing FAD or floating object	Y	N	Y
20	*Helicoptor takes off to search*	*N*	*N*	*Y*
21	*Helicopter returned from search*	*N*	*N*	*Y*

APPENDIX A6 – PURSE SEINE TUNA SCHOOL ASSOCIATION CODES

S_ACTIV_ID	Description	SCHOOL TYPE CATEGORY
1	Unassociated (free school)	UNASSOCIATED
2	Feeding on Baitfish (free school)	UNASSOCIATED
3	Drifting log, debris or dead animal	ASSOCIATED
4	Drifting raft, FAD or payao	ASSOCIATED
5	Anchored raft, FAD or payao	ASSOCIATED
6	Live whale	ASSOCIATED
7	Live whale shark	ASSOCIATED
8	Other (please specify)	
9	No tuna associated	

APPENDIX A7 – SPECIES CODES

Refer to the FAO three-letter species codes:

http://www.fao.org/fishery/collection/asfis/en

APPENDIX A8 – PURSE SEINE REASON FOR DISCARD

REASON CODE	Description
1	FISH DAMAGED / UNFIT FOR CONSUMPTION
2	VESSEL FULLY LOADED
3	GEAR FAILURE
4	NON-TARGET SPECIES
5	OTHER REASON (SPECIFY)

Attachment 4. Electronic Formatting Specifications for observer data and logbook data

These specifications describe the electronic files that CCMs must provide if they choose to choose to use electronic reporting technologies to meet the following WCPFC reporting requirements:

i. Paragraph 3 and Annex 1 of *Scientific Data to be Provided to the Commission*;
ii. *WCPFC ROP Minimum Standard Data Fields*, as amended by WCPFC11 decisions.

A) File type

The information must be provided in one of the following formats:

Microsoft Excel file ; Comma separated values (CSV) text file ; Text file (TAB delimited) ; text file (no delimiters) XML

B) File name

The name of the file must be: **XX_DDD_VID_DEPDATE_<Table_Name>.EXT**

- **XX** – two letter ISO country code (CMM 2014-03 Att 7) of the CCM providing the file
- **DDD** – type of report (LOG – logbook e-data and OBS – Observers e-data)
- **VID** – five digit integer assigned number for a vessels record on the WCPFC Record of Fishing Vessels (RFV) (CMM 2014-03)
- **DEPDATE** – Departure date of the Vessel trip (format YYYYMMDD)
- **<Table_Name>** – Respective (subset data) table name within this data type (refer to the relevant list of tables in the E-Reporting LOGSHEET and OBSERVER data field standards)
- **EXT** – the standard file extension (according to one of the five available formats)
  - XML
  - TXT file – COMMA delimited (CSV)
  - TXT file – TAB delimited
  - TXT file – No delimiters
  - XLS

Example : FM_OBS_35641_20140214_PS_CATCH.CSV
Represents a comma-delimited file provided by Federated States of Micronesia for an observer trip on-board the vessel identified with WCPFC RFV id as '35641' with a departure date of 14/03/2014; This file is the subset data for this trip corresponding to the PS_CATCH Table in the ER Observer data standards document

C) File content and structure

Each record in the electronic file represents a single report. Each record must have the structure specified in Attachment 3A or 3B, including the same sequence of fields.
Sample electronic reporting files with the proper formats are available from the Secretariat.

Attachment 5

Draft WCPFC E-monitoring process standard data fields for operational longline observer data

Note this is the same version as contained in WCPFC-2016-ERandEMWG2-04

SECOND E- REPORTING AND E-MONITORING INTERSESSIONAL WORKING GROUP MEETING (ERandEMWG2)

The Stones Hotel, Bali, INDONESIA

1 – 2 August 2016

DRAFT WCPFC E-MONITORING STANDARD DATA FIELDS FOR OPERATIONAL LONGLINE OBSERVER DATA

WCPFC-2016-ERandEMWG2-04

19 July 2016

Funded by the International Seafood Sustainability Foundation (ISSF) and organised by the Pacific Community (SPC), a three-day workshop on 'Electronic Monitoring Longline Process Standards' took place at the SPC headquarters in Noumea between the 27th and 29th of June 2016 (see WCPFC-2016-ERandEMWG2-IP01 Appendix I). This report is the result of a consultancy prior to that meeting and the input of participants at and after the meeting. Preparation of this report was generously funded by ISSF.

E-MONITORING PROCESS STANDARDS
FOR DATA EXTRACTION TO LONGLINE OBSERVER DATA FIELDS

July 2016

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INTRODUCTION

These tables set out Draft Process Standards for the provision of operational OBSERVER data fields collected in the WCPFC longline (LL) fisheries through E-monitoring (EM) systems. They provide the minimum requirements for data entities, data formats and data validation to be established for data submitted to the national and regional fisheries authorities from EM systems. The data fields contained herein are based on information collected under the current regional standard data collection forms[1]. This document acknowledges that national fisheries authorities require certain data fields that are not mandatory WCPFC Regional Observer Programme (ROP) data fields (for example, for anticipated Catch Documentation System – CDS – requirements), so a column in these tables identifies whether the data field is a mandatory WCFPC data field[2] or not.

These Draft Process Standards are consistent with, and should be considered in conjunction with more detailed instructions[3] on how to collect observer data provided by SPC. They are intended for, inter alia, service providers who have been contracted to provide EM systems to record OBSERVER data collected directly by EM systems and by officer observers reviewing EM data.

In accordance with Recommendation 4 of Hosken *et al.* (2014), EM technical service providers should provide a system that allows capture and entry of data that incorporates quality control processes that are equivalent to those of the TUBS system. The data — meeting the relevant standards — should then be able to be exported to authorised recipients including the WCPFC.

METHODS

INPUTS AND OUTPUT FORMAT

The format of the Draft EM Process Standard was to generally follow that identified in the Western and Central Pacific Fisheries Commission (WCPFC) E-REPORTING STANDARD DATA FIELDS for OPERATIONAL OBSERVER DATA Draft – Version 1.0 dated 10th June 2015 (as reflected in the WCPFC EREM WG1 meeting report).

The Pre-Trial Review of Data Standards for Regional Observer Programme of the Solomon Islands EM trial report (Hosken 20014) was useful in providing an initial summary of the material required for the standard to be developed.

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[1] Note: there have been some recent changes in the Standards not reflected in the current ER standard on which this document is based. These include 1) changes that were considered by the DCC in 2014 and 2) changes agreed by the last Commission meeting but yet to be considered by the DCC. These updates will need to be included during 2017 – after the next DCC meeting.

[2] The minimum standard WCPFC Regional Observer programme (ROP) data fields for purse seine data are found in the "WCPFC ROP Minimum Standard Data Fields & Instructions" http://www.wcpfc.int/doc/table-rop-data-fields-including-instructions

[3] In addition to the minimum WCPFC ROP data fields, instructions for observer data collection in the WCPFC Area are available with the regional standard observer data collection forms at http://www.spc.int/oceanfish/en/data-collection/241-data-collection-forms, general information/instruction for observers at http://www.spc.int/OceanFish/en/ofpsection/fisheries-monitoring/observers and http://www.spc.int/OceanFish/en/certification-and-training-standards.

MODIFICATION OF TABLES FOR E-MONITORING

The procedure to produce the Draft Process Standards began with the WCPFC E-Reporting Standard Data Fields. Based on previous knowledge of EM programs and the recent work on EM of Solomon Is longliners (Hosken *et al.* 2014), the capacity for EM to collect observer data was considered for each field in every table. A workshop comprising participants from SPC, FFA, WCPFC and a range of EM providers was used to assess each field in the following manner.

Each field was rated and colour-coded for EM as follows:

EM ready	–	Able to be easily and immediately collected;
EM with work	–	Potentially collected with further hardware/software modification;
EM not likely	–	Not feasibly or practically collected in the medium term;
EM Natural Key	–	Potential as an internally generated Natural Key[4];
EM new field	–	A new field required specifically for E-Monitoring;
EM redundant	–	A field that is potentially redundant as a result of E-Monitoring.

In addition to the codes above, the source from which each field can or could be collected (or not) both currently and in the future was identified. These were coded as follows

SETUP	—	Hard-coded or recorded at the time in which the EM equipment is installed on the vessel.
PRE	—	Hardcopy reporting or preferably E-Reporting from a pre-trip onsite inspection of the vessel and discussion with owner / captain / crew;
OO	—	Recorded by an Office Observer (OO) based on visual reference to images / footage / sensors;
POST	—	Hardcopy reporting or preferably E-Reporting from a post-trip onsite inspection of the vessel and discussion with owner / captain / crew;
AG	—	Automatically generated by the EM system components;
OO -> AG	—	A special case of the above where an event is detected by the Office observer and the EM system automatically generates the field value;
CF	—	A calculated field arithmetically generated from one or more of the above field types.

Notes were made on any of the main issued discussed for each field.

[4] A Natural Key is formed of unique logical (real world) attributes and used as an identifier in a relational database independently of the database schema.

OVERARCHING ISSUES

As workshop participants went through the above process, a number of overarching issues (not specific to any particular field) were noted. These issues were largely outside the scope of the workshop but are briefly described below.

DATABASE MANAGEMENT

Record of data source

An "office observer" (OO) will not be able to collect all the LL Observer data fields just from reviewing image/sensor information. These will include specific vessel fields, trip fields and a variety of other fields as mentioned below:

Vessel fields

Some fields will relate specifically to the vessel (e.g. vessel identification fields, fishing gear, and safety equipment) and should not change (or rarely change) over time. When a vessel has EM equipment installed for the first time (SETUP), EM providers may be able to hardcode this information into the software following inspection of the vessel. Alternatively, staff from the licencing fisheries authority could conduct a physical inspection of the vessel to collect vessel data fields which cannot be collected by E-Monitoring.

In theory, once this first inspection has been conducted, there shouldn't be a need to re-inspect the vessel before each trip. The vessel operator would, however, be required to inform the licencing authority of any changes made to the vessel. Alternatively, the licencing authority could conduct 'spot' inspections to ensure the vessel is still compliant with the initial vessel details, this may be particularly relevant for 'high IUU risk' vessels.

Trip Fields

There are a range of fields that will relate specifically to a particular trip and have the potential to change from trip to trip or even during a trip (e.g. Departure Port, Master, Crew, Equipment etc.). As a consequence, a pre-trip (PRE) and/or post-trip (POST) port inspection of the vessel will be required. The inspection could be conducted by a team and include the office observer (although the latter may be cost-prohibitive). For example, during the first inspection all fishing gear could be compliant with fisheries regulations but after a few trips specialized gear used to target sharks (wire traces) could be introduced and these would not necessarily be so evident to see being deployed or hauled when the office observer reviews the footage.

These trip data fields will need to be collected by an authorised fisheries officer using either a paper form (e.g. the Observer LL-1 form) or preferably an equivalent electronic form. When analysis of the EM records begin, the office observer would need to transcribe or download the data collected on the form/E-form onto the specialized EM review software.

Other fields

There are numerous other data fields that may be difficult or impractical for an EM system to feasibly or effectively collect (e.g. air sightings data, pollution data). As above, alternative methods of collection may be possible, such as automatically generating the data from the EM system (AG)

or calculating the required data from information in other fields (CF). Workshop participants recognised that there are some fields that cannot be feasibly or effectively collected by EM.

Source clarification

Contrasting to the current situation in which an observer (single source) personally records all of the trip information in paper logbooks and journals, the introduction of EM opens the possibility that data will come from multiple sources. Recognising this, it is important that the end user knows the source of each data field. This might be achieved in a number of ways:

- Attach XML attribute to each field stating source as e.g. OO, AG, PRE, POST, CF, SETUP;
- Sources allocated at the Extract Transfer Loader level;
- Provide additional "source" fields where required;
- Could be implicit from the version;
- Incorporated in the metadata by service provider to accompany data.

Description of field calculation from provider

An extension of the above issue is that there are a variety of ways in which some fields can be automatically generated or calculated. Each different field/data calculation method may incorporate different assumptions and biases that need to be understood. Metadata needs to be provided by service providers clearly defining how each field is generated/calculated. This could be done in conjunction with software development process and version control.

Need to link PRE or POST data with EM TRIP

As indicated above, EM data will be supplemented from data from other databases.

- How will access to necessary auxiliary databases be managed?
- Standardised definitions will be required that enable links with other databases provide an alternative;
- Is there an application that collects the auxiliary data needed by service providers?
  - E.g. Webservice
- Is there enough data to populate the Natural Keys?

Data certainty / reliability

There may be a number of factors that influence the certainty / accuracy / precision of data collected by EM (e.g. lens clarity, field of view, light levels, resolution etc.) and interpreted by an office observer. For example, an office observer may see that a fish is caught but may be unable to identify the fish accurately despite the ability to replay images/footage. In these instances, it is necessary for different users to be able to associate the level of uncertainty with the data field. This might be achieved in a number of ways:

- Attach XML attribute to each field stating source as certainty (e.g. 1, 2, 3 Hi Med Low);
- Provide additional "certainty" fields where required.

EM compatibility with current observer database

Given the above, it is quite possible that the database for EM will be significantly different from that used for onboard observers. The pros and cons of trying to integrate the two sources of similar information into one database needs to be considered.

- Need (or otherwise) for separate databases?
- EM database will need integration of data from other sources (databases)
  - Eg Pre-departure data suggested to augment EM observer data

Cross-validation of EM data

Cross-validation of data from different databases can improve data quality by highlight areas of

- E.g. with VMS, logsheets, port inspections, port sampling
- EM is likely to facilitate improved cross-validation processes through improved timeliness of data.
  - Eg. Use of Natural Keys
- This is a current issues that applies more generally than just for EM.

Different methods of collection of the same data

EM provides the potential for the same information to be collected by different methods. This enable the most cost-effective or accurate method to be explored and determined. Some examples of this are provided.

- Automatically generated fields vs office observer generated
  - E.g. smart gear[5] vs observer time
  - Explore the cost trade-offs.
- Using EM possibilities versus access other data
  - E.g. for counting crew numbers. This could potentially be done by EM (by identifying different crew members using cameras) but may be far more effective and cost-efficient to conduct a pre-trip inspection.

Change management needs to be controlled

There will be ongoing changes and improvements as EM becomes more established throughout the fishery. Appropriate standards need to be established to document and implement these changes across the system, including:

- Database
- XML
- Version control
- Protocols for correcting data post-submission

Duplicate fields.

There are duplicated fields across the different paper forms. An EM system could resolve these redundant fields.

- Eg. SSI fields could be linked to the catch table through catch ID and species (SSI only)
  - E.g. certain field from a marine turtle encounter in LL-4 could be automatically filled into the GEN2 (SSI)

[5] "Smart Gear" is loosely described as fishing gear (e.g. hook, float, line, scale) equipped with a transmitting/receiving device which is linked to the EM system. Information collected via the smart gear can be used to auto-generate EM data.

- Field codes may need to be revisited to ensure consistency.

Trip Reports

The current hardcopy Trip Report has been designed with a focus on onboard observers. The fields required in an EM Trip Report need to be reviewed.

QUALITY ASSURANCE

Quality control

There are numerous stages and processes by which quality control of onboard observer data is maintained and improved. Systems need to be developed to ensure EM systems have a similar level of quality control.

- Provide service providers with a comprehensive list of validation rules;
  - Some validation rules already available from current observer program that can be transferred to EM (e.g. Provision of XSD for XML)
- Feedback to service providers;
- Image interpretation
  - Standard required for re-reviewing by same or second analyst?
- Provide a test environment for EM providers;
- Develop mechanisms for successful data upload flag / response;
- Minimum qualifications (sea time?) for the office observer;
- Calibration of digital measuring tools;
- EM Debriefing and auditing process;
- All of the above will likely be an ongoing process.

Standard time measurement

The LL observer guide says onboard observers should record the ship's time on all forms except the GEN-1 form, and since vessels use a variety of times, observers are asked to collect a second time, or standard time, so people reviewing several observer trips can compare the time of day when activities took place. There was general agreement that UTC data and time should be the standard used in all EM data fields.

Equipment failure (hardware and/or software)

There will need to be standards and procedures put in place to deal with minor and major failures that may occur with EM hardware and software. These may need to address the following questions:

- Who will identify what has occurred and how important it is?
- How will people identify when failures have occurred?
- How to deal with missing / corrupt data that may result?
- What are the quality control mechanisms?
- Who needs to know?
- Who needs (is authorized) to respond / fix the issue?
  - E.g. MOU between coastal or flag state / service provider / vessel

- How is the flagged in the database (at all levels)?

Security

There are a range of issues regarding equipment and data security.

- The need for tamper-evident systems.
- What is the chain of custody requirements for hardware/software / images?
- Does a system need to meet minimum security requirements?
- Are standards for commercial-in-confidence for providers and staff (including office observers) required?
- Will the data rules and procedures already available for observer data need to be changed or improved to allow for EM data?

Standards for camera placement and number

There is no clear definition of the standards required for the number and placement of cameras and sensors on longline vessels — this has basically been left to service providers to determine given the expected outputs. Is there a need for more specific guidance required? Issues that may need to be considered include:

- What requirement is there to detect specific events?
  - Gear setting
  - Gear hauling
  - Catch identification / measuring
  - Fish processing areas
  - Sightings
  - Transhipment
- Is there a need to determination event priorities?
- There is a need to consider the cost / benefit of hardware installations.

Use of cameras in the workplace raises a range of issues regarding personal privacy and occupational health and safety. Guidance will be required as to which EM products are appropriate and when they should be used.

- E.g. Use of cameras in the wheelhouse to capture use of vessel electrics (LL1) is possible but may invade privacy;
- There may be other ways to determine equipment usage than cameras

Data timeframes of from EM system

EM systems potentially allow for near real-time collection of some onboard data (date/time/position/sensor).

- Is this required?
- What is the maximum timeframe for obtaining information and how will this be enforced.

SSI Interactions

Onboard observers use knowledge, expertise and a range of real-time sensory information to determine whether SSI interactions have occurred and what might be the resultant fate of an animal from such an interaction. An integral part of this is the ability to see an event and follow it (by sight)

as it develops. Onboard cameras and sensors have only a limited ability to achieve this. One example of this discussed was whether an SSI can be identified on setting through just the use of a camera – given that the camera will only be focussed on one position of the line-setting with a reasonably limited field of view. This generated more questions than answers.

- Will SSI interactions require redefinition due to limits on camera field of view?
- Are there implications on number of cameras required to meet SSI reporting requirements?
- How will EM-generated data meet CMM requirements?

In addition to the above, there are some codes/fields regardless of EM which are gear specific (e.g. turtle hooking not needed for Purse seine) that warrant reconsideration of whether different SSI fields are needed for different gears

Overall, there were quite a number of overarching SSI issues that need to be reviewed, including EM capacity for detection.

Protocols for sub-sampling sets determined

EM has the potential to monitor every longline set and haul, potentially automatically. This means that a huge amount of information is potentially available for review and data input.

- Is some level of sub-sampling of these sets required?
- How much and what information needs to be sampled?
- The decisions on this are likely to be part of the regional monitoring strategy.

Retrieving image / sensor information from vessels (especially during transhipment)

There are a variety of processes used by different service providers to retrieve image and sensor data from a vessel. These are reasonably straight forward when a vessel regularly returns to port, but may become problematic when vessels tranship and undertake multiple trips without returning to port.

- Difficult logistics on board longliners;
- Obligations under licensing agreements;
- How to ensure timeliness of EM data availability;
- Lack / limit of communication options;
- Special case of cross-country trips.

Retention of image / sensor data

Policies on ownership / storage / access / destruction / confidentiality / duplication of image and sensor data need to be developed.

EM POTENTIAL FOR MCS AND CMMS

There is significant potential for EM to play a larger role in the management of the WCP tuna fisheries than to augment observer data. One of the most important overarching issues is that guidelines are required for establishing national legal frameworks around EM – both policy and legislation.

EM within broader MCS capacity (including CDS)

There is general recognition of the benefits and potential use of EM across a broad range of management requirements. These need to be explored.

- E.g. EM generated data verifying catch in a CDS traceability process
- EM as an audit tool?
- The credibility of EM systems and capacity of office observer to be used as a compliance tool need to be established

Value-adding to the EM generated data

There is underutilised capacity available in EM systems and EM-generated data that needs to be explored.

- E.g. Use of CDS to link catch of individual (barcoded) fish to enable measurement
- Verification of processes for third-party certification schemes.
- Expanding fields that can be captured using EM, e.g. Date/time, position and image can be automatically generated for events that were not previously required. E.g.:
  - Individual fish catch;
  - Float deployment and retrieval;
  - Hook deployment and retrieval;
  - Line cuts and retrieval;
  - Retained images as evidence.

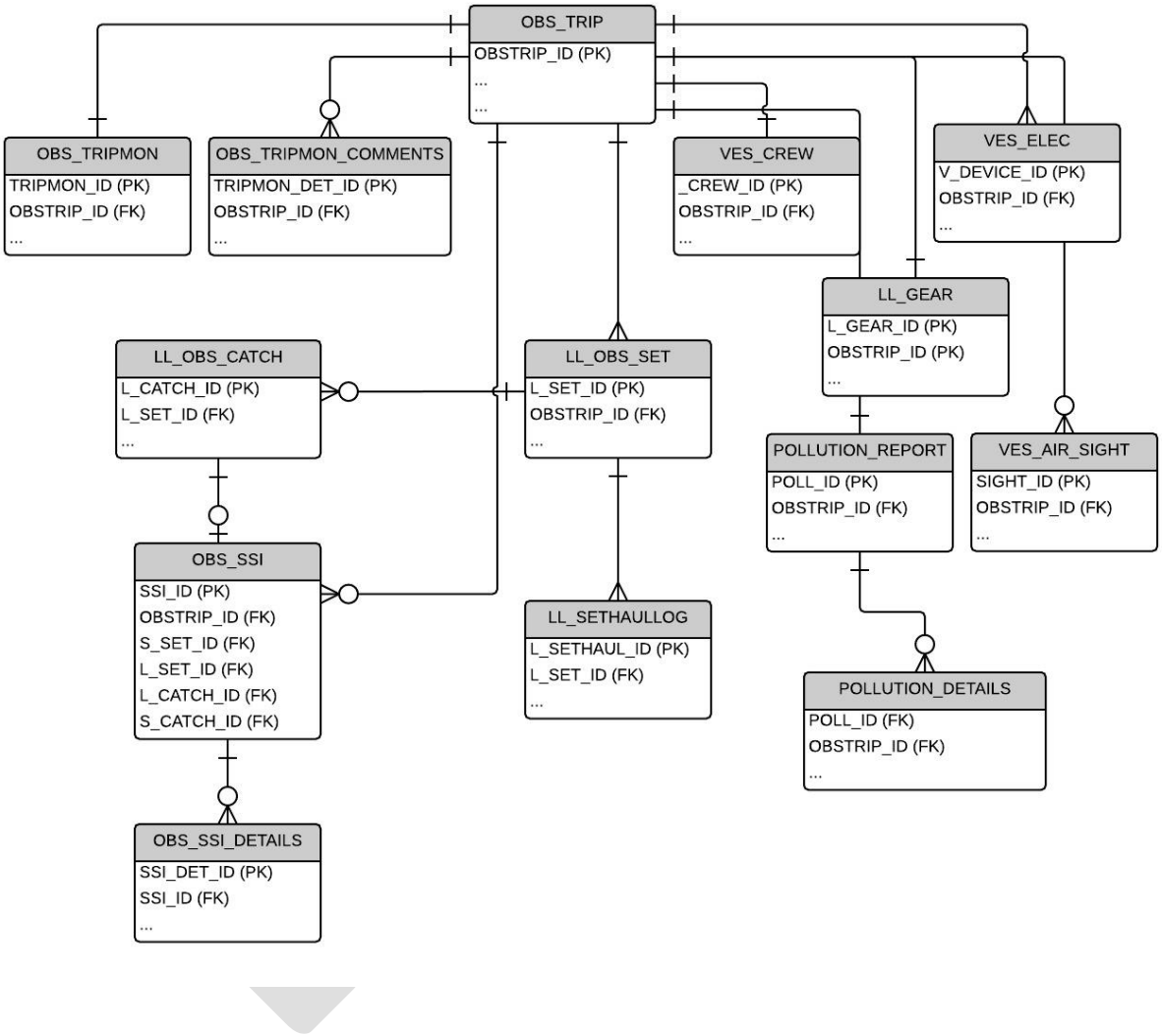
RESOURCING

The introduction and maintenance of EM systems is requiring, and will continue to require significant human and capital resources. The priorities for EM implementation and use need to be determined and sufficient funds need to be accessed to support its introduction in a planned manner.

LONGLINE OBSERVER EM PROCESS STANDARDS

DATA MODEL DIAGRAM

The following basic data model diagram outlines the structure of the entities and their relationships for longline operational OBSERVER data collected by E-Reporting systems and submitted to national and regional fisheries authorities. The tables that follow provide more information on the mechanisms of the links (relationships) between the entities.



TRIP-LEVEL DATA

- OBS_TRIP
- VES_CREW
- VES_ELEC
- LL_GEAR
- LL_TRIP_REPORT

OBS_TRIP

"The start of a trip is defined to occur when a vessel (a) leaves port after unloading part or all of the catch to transit to a fishing area or (b) recommences fishing operations or transits to a fishing area after transshipping part or all of the catch at sea (when this occurs in accordance with the terms and conditions

FIELD	Data Collection Instructions	Current Entry Source SETUP PRE OO POST AG CF	Future Entry Source SETUP PRE OO POST AG CF	Field format notes	Validation rules	XML TAG	WCPFC FIELD	Notes
TRIP IDENTIFIER	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be VESSEL + DEPARTURE DATE	CF	CF			<OBSTRIP_ID>	Y	
obsprg_code	OBSERVER SERVICE PROVIDERS identification– National or sub-regional observer programmes For national programmes, this is the COUNTRY_CODE + 'OB' for example, 'PGOB' – for the PNG national observer programme. For Sub-regional programmes, the following codes are used. 'TTOB' – US Multilateral Treaty Observer programme 'FAOB' – FSM Arrangement Observer Programme	OO	OO AG	Char (4)	Observer programme code must be must valid country. Refer to valid ISO two-letter Country Codes - ISO 3166	<obsprg_code>	Y	This should be Observer program code for the person responsible for reviewing the video and compiling ROP information. Will this always be a country code if a third party is providing the EM reading service? Consider use of another code instead of "OB" to be specific that data was EM collected.(e.g. "PGOO" or "PGEM") Needs to be reviewed by DCC WCPFC
staff_code	Observer field staff NAME CODE. This will be unique and link to information kept at the regional level including Observer Name, Nationality of observer, Observer provider. Currently generated by SPC currently	OO	OO	VarChar (5)	Staff code must exist in the regional Observer (FIELD_STAFF) Name Table. The unique 5-letter staff codes are generated and maintained by SPC/FFA.	<staff_code>	Y	This should be staff name code for the person responsible for reviewing the video and compiling ROP information (office observer) Does this field need to be modified to include a fifth character "V" for vessel observer and "O" for Office observer? Or should this be a completely separate field OBSTYPE?
staff_code_2	Additional staff NAME CODE. This will be unique and link to information kept at the regional level including Staff Name, Nationality of staff, Staff provider. Such additional staff may include port data collection officer that collects the PRE and POST data.	OO	OO					Identifies additional staff Needs to be reviewed / agreed by DCC WCPFC
Provider_code	Identifies the service provider	SETUP AG	SETUP AG					Identifies the service provider Needs to be reviewed / agreed by DCC WCPFC
Software_vers_A	Identifies the data analysis software version	AG	AG					Identifies the data analysis software version Needs to be reviewed / agreed by DCC WCPFC

EM ready | EM Natural Key | EM with work | EM new field | EM not likely | EM redundant

OBS_TRIP

"The start of a trip is defined to occur when a vessel (a) leaves port after unloading part or all of the catch to transit to a fishing area or (b) recommences fishing operations or transits to a fishing area after transshipping part or all of the catch at sea (when this occurs in accordance with the terms and conditions

FIELD	Data Collection Instructions	Current Entry Source SETUP PRE OO POST AG CF	Future Entry Source SETUP PRE OO POST AG CF	Field format notes	Validation rules	XML TAG	WCPFC FIELD	Notes
								Provide the link to the specific versions metadata
Software_vers_B	Identifies the EM equipment software version							Identifies the data analysis software version Needs to be reviewed / agreed by DCC WCPFC Provide the link to the specific versions metadata
tripno	Unique TRIPNO for each observer in a given year (Regional Standard) Use the last two digits of the trip year followed by a dash and increment number for each trip in a year FOR THAT OBSERVER. YY-XX, for example, '14-01' would represent the first trip for an observer in the calendar year 2014			Char (5)	Must adhere to the regional standard	<tripno>	N	Does this assume that the office observer must start and finish a Trip before the next one? If they have multiple trips, then this should be sequential based on which trip was started first. This can be uniquely identified through combination of vessel, Dep_date and Staff Incremental increase in trip numbers for an observer should include EM trips reviewed – The alternative is to have a code of EM collected data – which might be needed anyway?
tripno_internal	TRIPNO as allocated and used by the respective Observer service provider. (If this system is different from the regional standard (e.g. the US PS MLT observer programme trip number uses the format '24LP/xxx')			VarChar (15)		<tripno_INT>	N	This field might provide an opportunity for marking as an EM trip This can be uniquely identified through combination of vessel, Dep_date and Staff
DATE and TIME OF DEPARTURE	Depart DATE/TIME for the observer trip (Observer's departure) Obtained from other sources of data (e.g. VMS) Automatically generated by the vessel leaving a defined port box geofence. May be identified by office observer Recorded during a pre-trip inspection	OO PRE	AG OO PRE	REFER TO APPENDIX A1	Use UTC DATE for the departure date. **Should this be ships date and time?** **Must adhere to the ISO 8601 format in Appendix A1**	<dep_date>	Y	Transhipment at sea is an issue A standard is required defining a database of each port and a geofence. ***Needs tobe reviewed / agreed by DCC / WCPFC*** This may need to refer to start of trip (that can include transhipment) rather than return to port. Need to be reviewed by DCC / WCPFC.

EM ready
EM with work
EM not likely
EM Natural Key
EM new field
EM redundant

OBS_TRIP

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FIELD	Data Collection Instructions	Current Entry Source SETUP PRE OO POST AG CF	Future Entry Source SETUP PRE OO POST AG CF	Field format notes	Validation rules	XML TAG	WCPFC FIELD	Notes
DATE AND TIME OF ARRIVAL IN PORT	Return DATE/TIME for the observer trip (from the observer's point of view) Obtained from other sources of data (e.g. VMS) Automatically generated by the vessel leaving a defined port box geofence. May be identified by office observer Recorded during a pre-trip inspection	OO POST	AG OO POST	REFER TO APPENDIX A1	Use UTC DATE for the return date. Should this be ships date and time? Must adhere to the ISO 8601 format in Appendix A1	<ret_date>	Y	This may need to refer to end of trip (that can include transhipment) rather than return to port. Need to be reviewed by DCC / WCPFC. A standard is required defining a database of each port and a geofence. *Needs tobe reviewed / agreed by DCC / WCPFC*
gear_code	Link to ref_gears table Selected by the office observer Could be determine by pre-trip vessel inspection or licencing information Automatically generarated from the vessel identifier and hardwired into the software	OO PRE	AG SETUP	Char (1)	Must be a valid GEAR: 'L' – Longline; 'S' – Purse seine; 'P' – Pole-and-line	<gear_code>	Y	In future it will almost certainly be derived from the vessel identfier automatically
FISHING PERMIT/LICENSE NUMBERS	PROVIDE License/Permit number that the vessel holds for the period of the TRIP.			CHAR(40)	Where possible, include validation to ensure the Permit format relevant to the agreement (national or sub-regional) complies to the required format.	<License_NO>	N	All that is needed is the vessel identifier and time preiod of the trip to link to licencing data The need for this with EM is questionable and the data is not used or accurate Review by DCC and WCPFC
VESSEL IDENIFIER	REFER TO APPENDIX A4	SETUP	SETUP					Ideally this would be UVI and programmed into the sogware during setup The service provider needs to have access to this data and vessel names
versn_id	Data standards version This is version of the hardcopy form			Int		<versn_id>	N	
XML_version_id		SETUP	SETUP		Refer to valid ISO two-letter Country Codes - ISO 3166			*Needs to be reviewed / agreed by DCC / WCPFC*
country_code	Two letter COUNTRY CODE for the country who organise the trip			Char (2)	Refer to valid ISO two-letter Country Codes - ISO 3166	<country_code>	Y	This is identical to the first two letter of OBSPRG

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FIELD	Data Collection Instructions	Current Entry Source SETUP PRE OO POST AG CF	Future Entry Source SETUP PRE OO POST AG CF	Field format notes	Validation rules	XML TAG	WCPFC FIELD	Notes
								Review by the DCC / WCPFC
PORT OF DEPARTURE	PROVIDE the Port of Departure Obtained from other sources of data (e.g. VMS) Automatically generated by the vessel leaving a defined port box geofence. May be identified by office observer Recorded during a pre-trip inspection	**OO PRE**	**AG OO PRE**	REFER TO APPENDIX A3	Must be valid United Nations - Code for Trade and Transport Locations (UN/LOCODE) – see http://www.unece.org/cefact/locode/service/location **Not mandatory?**	<DEP_PORT>	Y	A standard is required defining a database of each port and a geofence. ***Needs to be reviewed / agreed by DCC / WCPFC*** Automatically recorded from VMS / GPS
PORT OF RETURN	PROVIDE the Port of Return for Unloading Obtained from other sources of data (e.g. VMS) Automatically generated by the vessel leaving a defined port box geofence. May be identified by office observer Recorded during a post-trip inspection	**OO POST**	**AG OO POST**	REFER TO APPENDIX A3	Must be valid United Nations - Code for Trade and Transport Locations (UN/LOCODE) **Not mandatory?**	<RET_PORT>	Y	A standard is required defining a database of each port and a geofence. ***Needs to be reviewed / agreed by DCC / WCPFC*** Automatically recorded from VMS / GPS
dep_lat	The actual depart LAT position for the trip (if departing AT SEA) Obtained from other sources of data (e.g. VMS) Automatically generated by the vessel leaving a defined port box geofence. May be identified by office observer Recorded during a pre-trip inspection	**OO PRE**	**AG OO PRE**	REFER TO APPENDIX A2	**Must adhere to the ISO 6709 – Positions** **Degrees and minutes to 3 decimal places** **Not mandatory?**	<dep_lat>	Y	A standard is required defining a database of each port and a geofence. ***Needs to be reviewed / agreed by DCC / WCPFC*** Automatically recorded from VMS / GPS
	The actual depart LON position for the trip (if departing AT SEA)				**Must adhere to the ISO 6709 – Positions**			

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FIELD	Data Collection Instructions	Current Entry Source SETUP PRE OO POST AG CF	Future Entry Source SETUP PRE OO POST AG CF	Field format notes	Validation rules	XML TAG	WCPFC FIELD	Notes
dep_lon	Obtained from other sources of data (e.g. VMS) Automatically generated by the vessel leaving a defined port box geofence. May be identified by office observer Recorded during a pre-trip inspection	OO PRE	AG OO PRE	REFER TO APPENDIX A2	Degrees and minutes to 3 decimal places Not mandatory?	<dep_lon>	Y	A standard is required defining a database of each port and a geofence. ***Needs to be reviewed / agreed by DCC / WCPFC*** Automatically recorded from VMS / GPS
ret_lat	The actual return LAT position for the trip (if departing AT SEA) Obtained from other sources of data (e.g. VMS) Automatically generated by the vessel leaving a defined port box geofence. May be identified by office observer Recorded during a pre-trip inspection	OO POST	AG OO POST	REFER TO APPENDIX A2	Must adhere to the ISO 6709 – Positions Degrees and minutes to 3 decimal places Not mandatory?	<ret_lat>	Y	A standard is required defining a database of each port and a geofence. ***Needs to be reviewed / agreed by DCC / WCPFC*** Automatically recorded from VMS / GPS
ret_lon	The actual return LON position for the trip (if departing AT SEA) Obtained from other sources of data (e.g. VMS) Automatically generated by the vessel leaving a defined port box geofence. May be identified by office observer Recorded during a pre-trip inspection	OO POST	AG OO POST	REFER TO APPENDIX A2	Must adhere to the ISO 6709 – Positions Degrees and minutes to 3 decimal places Not mandatory?	<ret_lon>	Y	A standard is required defining a database of each port and a geofence. ***Needs tobe reviewed / agreed by DCC / WCPFC*** Automatically recorded from VMS / GPS
vesowner	NAME of the vessel owner	PRE	PRE	NVarChar (50)	Name and contact if possible of the owner of the vessel, if it is owned by a company, then use the company name.	<vesowner>	Y	This can be obtained
vescaptain	NAME of the captain of the vessel	PRE	PRE	NVarChar (50)		<vescaptain>	Y	
VESCAPT_NATION	NATIONALITY of the captain of the vessel	PRE	PRE	Char (2)	Refer to valid ISO two-letter Country Codes - ISO 3166 For example, refer to http://en.wikipedia.org/wiki/ISO_3166-1	<vescapt_CO_CODE>	Y	

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FIELD	Data Collection Instructions	Current Entry Source SETUP PRE OO POST AG CF	Future Entry Source SETUP PRE OO POST AG CF	Field format notes	Validation rules	XML TAG	WCPFC FIELD	Notes
	Two letter COUNTRY CODE for the country who organise the trip							
VESCAPT_ID_DOC	Captain's Document ID	PRE	PRE	NVarChar (20)		<VESCAPT_ID_DOC>	Y	
vesmaster	NAME of the fishing master	PRE	PRE	NVarChar (50)	Is there a annual list? (I doubt it)	<vesmaster>		
VESMAST_NATION	NATIONALITY of the vessel MASTER Two letter COUNTRY CODE for the country who organise the trip	PRE	PRE	Char (2)	Refer to valid ISO two-letter Country Codes - ISO 3166 For example, refer to http://en.wikipedia.org/wiki/ISO_3166-1	<vescapt_CO_CODE>	Y	
VESMAST_ID_DOC	FISHING MASTERS's Document ID	PRE	PRE	NVarChar (20)		<VESCAPT_ID_DOC>	Y	
crew_number	Total number of CREW onboard during the trip	PRE	PRE	Int		<crew_number>	Y	Recorded by the port data collection officer on FORM LL-1 and then entered into data capture screen
spill	FLAG to indicated the trip was a SPILL SAMPLE trip			Bit		<spill>	N	Don't think this is relevant to LL
cadet	FLAG to indicated whether the trip was observed by a CADET observer			Bit		<cadet>	N	This could relate to the office observer What credentials would indicate that officer observer is no longer a "cadet"
sharktarget	FLAG to indicate a trip has targeted SHARKS (LONGLINE trips only)			Bit		<sharktarget>	N	
comments	General comments about the trip	OO	OO	NText		<comments>	N	General comments
EM comments	General comments about EM the trip	OO	OO	NText		<comments>	N	Comments specifically regarding quality of EM information ***Needs tobe reviewed / agreed by DCC / WCPFC***

EM ready
EM with work
EM not likely
EM Natural Key
EM new field
EM redundant

VES_CREW PROVIDE the summary details of VESSEL CREW by NATIONALITY on this TRIP.								
FIELD	Data Collection Instructions	Current Entry Source	Future Entry Source	Field format notes	Validation rules	XML TAG	WCPFC FIELD	Issues
		SETUP PRE OO POST AG CF	SETUP PRE OO POST AG CF					
TRIP IDENTIFIER	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be VESSEL + DEPARTURE DATE	CF	CF			<OBSTRIP_ID>	Y	
CREW IDENTIFIER	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be VESSEL + DEPARTURE DATE + COUNTRY_CODE	CF	CF			<V_CREW_ID>	Y	
country_code	Nationality of the CREW	PRE SETUP	PRE SETUP	Char (2)	Refer to valid ISO two-letter Country Codes - ISO 3166 For example, refer to http://en.wikipedia.org/wiki/ISO_3166-1	<country_code>	Y	**Will require interview with skipper.**
crewcount	Total number of crew on board during the trip for this COUNTRY OF NATIONALITY	PRE	PRE	SmallInt		<crewcount>	Y	**Will require interview with skipper.**

EM ready
EM with work
EM not likely
EM Natural Key
EM new field
EM redundant

VES_ELEC PROVIDE information on the standard Marine Electronic devices.								
FIELD	Data Collection Instructions	Current Entry Source SETUP PRE OO POST AG CF	Future Entry Source SETUP PRE OO POST AG CF	Field format notes	Validation rules	XML TAG	WCPFC FIELD	Notes
TRIP IDENTIFIER	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be VESSEL + DEPARTURE DATE	CF	CF			<OBSTRIP_ID>	Y	
TRIP/VESSEL DEVICE IDENTIFIER	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be VESSEL + DEPARTURE DATE + DEVICE_ID	CF	CF			<V_DEVICE_ID>	Y	
device_id	Marine Device CODE.	PRE SETUP	PRE SETUP	Int	Refer to APPENDIX 20 - the DEVICES should only be available according to the respective gear code (e.g. "S" for purse seine or "L" for longline is in the GEAR LIST CODES column)	<device_id>	Y	Will require pre-inspection interview with skipper and tour of wheelhouse.
ONBOARD_code	Is this DEVICE SIGHTED ONBOARD ?	PRE SETUP	PRE SETUP	Char (1)	'Y' or 'N'	<ONBOARD_code>	Y	As above
usage_code	Is this DEVICE USED ?			Char (3)	Refer to APPENDIX 21	<usage_code>	N	Use of cameras in the wheelhouse to capture use of vessel electrics is possible but may invade privacy May be able to be automatically generated from electrical monitoring of wheelhouse devices (other than cameras) e.g.sensors?
make_desc	Description of Make	PRE SETUP	PRE SETUP	NVarChar (30)	Dropdown List?	<make_desc>	N	As above
model_desc	Description of Model	PRE SETUP	PRE SETUP	NVarChar (30)	Dropdown List - Child of Make?	<model_desc>	N	As above
comments	Comments			NText	Free text	<comments>	N	As above

EM ready
EM with work
EM not likely
EM Natural Key
EM new field
EM redundant

LL_GEAR PROVIDE information on the LONGLINE GEAR on the vessel.								
FIELD	Data Collection Instructions	Current Entry Source SETUP PRE OO POST AG CF	Future Entry Source SETUP PRE OO POST AG CF	Field format notes	Validation rules	XML TAG	WCPFC FIELD	Notes
TRIP IDENTIFIER	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be VESSEL + DEPARTURE DATE	CF	CF			<OBSTRIP_ID>	Y	
LL GEAR IDENTIFIER	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be VESSEL + DEPARTURE DATE	CF	CF			<L_GEAR_ID>	Y	
mlinehaul_ans	Mainline hauler (Y/N)	SETUP PRE OO	SETUP PRE OO	Char (1)	Must be 'Y', 'N' or 'X' (observer did not respond to this question)	<mlinehaul_ans>	Y	**Can be recorded by the OO only if in field of view of a camera.**
mlinehaul_usage_code	Link to ref_usage table	OO	OO	Char (3)	REFER TO APPENDIX 21	<mlinehaul_usage_code>	Y	**Can be recorded by the OO only if in field of view of a camera.**
mlinehaul_comments	Comments on Mainline Hauler	OO	OO	NVarChar (50)		<mlinehaul_comments>	N	**Can be recorded by the OO only if in field of view of a camera.**
blinehaul_ans	Branchline hauler (Y/N)	SETUP PRE OO	SETUP PRE OO	Char (1)	Must be 'Y', 'N' or 'X' (observer did not respond to this question)	<blinehaul_ans>	Y	**Can be recorded by the OO only if in field of view of a camera.**
blinehaul_usage_code	Link to ref_usage table	OO	OO	Char (3)	REFER TO APPENDIX 21	<blinehaul_usage_code>	Y	**Can be recorded by the OO only if in field of view of a camera.**
blinehaul_comments	Comments on Branchline Hauler	OO	OO	NVarChar (50)		<blinehaul_comments>	N	**Can be recorded by the OO only if in field of view of a camera.**
lshoot_ans	Line shooter (Y/N)	SETUP PRE OO	SETUP PRE OO	Char (1)	Must be 'Y', 'N' or 'X' (observer did not respond to this question)	<lshoot_ans>	Y	**Can be recorded by the OO only if in field of view of a camera.**
lshoot_usage_code	Link to ref_usage table	OO	OO	Char (3)	REFER TO APPENDIX 21	<lshoot_usage_code>	Y	**Can be recorded by the OO only if in field of view of a camera.**
lshoot_comments	Comments on Line shooter	OO	OO	NVarChar (50)		<lshoot_comments>	N	**Can be recorded by the OO only if in field of view of a camera.**
baitthr_ans	Automatic bait thrower (Y/N)	SETUP PRE OO	SETUP PRE OO	Char (1)	Must be 'Y', 'N' or 'X' (observer did not respond to this question)	<baitthr_ans>	Y	**Can be recorded by the OO only if in field of view of a camera.**

EM ready
EM with work
EM not likely
EM Natural Key
EM new field
EM redundant

LL_GEAR PROVIDE information on the LONGLINE GEAR on the vessel.								
FIELD	Data Collection Instructions	Current Entry Source SETUP PRE OO POST AG CF	Future Entry Source SETUP PRE OO POST AG CF	Field format notes	Validation rules	XML TAG	WCPFC FIELD	Notes
baitthr_usage_code	Link to ref_usage table	OO	OO	Char (3)	REFER TO APPENDIX 21	<baitthr_usage_code>	Y	**Can be recorded by the OO only if in field of view of a camera.**
baitthr_comments	Comments on Automatic Bait thrower	OO	OO	NVarChar (50)		<baitthr_comments>	N	**Can be recorded by the OO only if in field of view of a camera.**
branchatt_ans	Automatic branchline attacher (Y/N)	SETUP PRE OO	SETUP PRE OO	Char (1)	Must be 'Y', 'N' or 'X' (observer did not respond to this question)	<branchatt_ans>	Y	**Can be recorded by the OO only if in field of view of a camera.**
branchatt_usage_code	Link to ref_usage table	OO	OO	Char (3)	REFER TO APPENDIX 21	<branchatt_usage_code>	Y	**Can be recorded by the OO only if in field of view of a camera.**
branchatt_comments	Comments on Automatic Branchline attacher	OO	OO	NVarChar (50)		<branchatt_comments>	N	**Can be recorded by the OO only if in field of view of a camera.**
wT_Sca_ans	Weighing scales (Y/N)	SETUP PRE OO	SETUP PRE OO	Char (1)	Must be 'Y', 'N' or 'X' (observer did not respond to this question)	<WT_SCA_ANS>	N	**Can be recorded by the OO only if in field of view of a camera.**
wT_Sca_usage_code	Weighing scales USAGE	OO	OO	Char (3)	REFER TO APPENDIX 21	<WT_SCA_USAGE_CODE>	N	**Can be recorded by the OO only if in field of view of a camera.**
wT_sca_comments	Comments on Automatic B Weighing scales	OO	OO	NVarChar (50)		<WT_SCA_COMMENTS>	N	**Can be recorded by the OO only if in field of view of a camera.**
mline_comp	Composition of mainline	SETUP PRE	SETUP PRE	NText		<mline_comp>	Y	
bline_comp	Composition of branchlines	SETUP PRE	SETUP PRE	NText		<bline_comp>	Y	
mline_mat	Mainline material	SETUP PRE	SETUP PRE	NVarChar (15)		<mline_mat>	Y	

EM ready
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EM not likely
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EM redundant

LL_GEAR PROVIDE information on the LONGLINE GEAR on the vessel.								
FIELD	Data Collection Instructions	Current Entry Source SETUP PRE OO POST AG CF	Future Entry Source SETUP PRE OO POST AG CF	Field format notes	Validation rules	XML TAG	WCPFC FIELD	Notes
mline_mat_desc	Mainline material description	SETUP PRE	SETUP PRE	NVarChar (50)		<mline_mat_desc>	Y	
mline_len	Mainline length (nm) Recorded by the EM system after being flagged by the office observer.	OO -> AG	OO -> AG CF	Decimal (5,1)		<mline_len>	Y	This may be able to be calculated automatically using float markers and position
mline_diam	Mainline diameter (mm)	SETUP PRE	SETUP PRE	Decimal (4,1)		<mline_diam>	Y	
bline_mat1	Composition of branchlines (Material #1)	SETUP PRE	SETUP PRE	NVarChar (40)		<bline_mat1>	Y	
bline_mat1_desc	Branchlines (Material #1) description	SETUP PRE	SETUP PRE	NVarChar (50)		<bline_mat1_desc>	Y	
bline_mat2	Composition of branchlines (Material #2)	SETUP PRE	SETUP PRE	NVarChar (40)		<bline_mat2>	Y	
bline_mat2_desc	Branchlines (Material #2) description	SETUP PRE	SETUP PRE	NVarChar (50)		<bline_mat2_desc>	Y	
bline_mat3	Composition of branchlines (Material #3)	SETUP PRE	SETUP PRE	NVarChar (40)		<bline_mat3>	Y	
bline_mat3_desc	Branchlines (Material #3) description	SETUP PRE	SETUP PRE	NVarChar (50)		<bline_mat3_desc>	Y	
wiretrace_ans	Presence of wire trace (Y/N)	SETUP PRE OO	SETUP PRE OO	Char (1)	Must be 'Y', 'N' or 'X' (observer did not respond to this question)	<wiretrace_ans>	Y	Should be able to be detected by OO if sufficient clarity / definition
	Refrigeration method - Sea water ?				Must be 'Y', 'N' or 'X' (observer did	<seawater		

EM ready
EM with work
EM not likely
EM Natural Key
EM new field
EM redundant

LL_GEAR

PROVIDE information on the LONGLINE GEAR on the vessel.

FIELD	Data Collection Instructions	Current Entry Source	Future Entry Source	Field format notes	Validation rules	XML TAG	WCPFC FIELD	Notes
		SETUP PRE OO POST AG CF	SETUP PRE OO POST AG CF					
seawater_ans		SETUP PRE	SETUP PRE	Char (1)	Must be 'Y', 'N' or 'X' (observer did not respond to this question)	<seawater_ans>	Y	
blastfreezer_ans	Refrigeration method - blast freezer ?	SETUP PRE	SETUP PRE	Char (1)	Must be 'Y', 'N' or 'X' (observer did not respond to this question)	<blastfreezer_ans>	Y	
ice_ans	Refrigeration method - Ice ?	SETUP PRE	SETUP PRE	Char (1)	Must be 'Y', 'N' or 'X' (observer did not respond to this question)	<ice_ans>	Y	
chilledseawater_ans	Refrigeration method - Chilled Sea water ?	SETUP PRE	SETUP PRE	Char (1)	Must be 'Y', 'N' or 'X' (observer did not respond to this question)	<chilledseawater_ans>	Y	
otherstorage_ans	Refrigeration method - other ?	SETUP PRE	SETUP PRE	Char (1)	Must be 'Y', 'N' or 'X' (observer did not respond to this question)	<otherstorage_ans>	Y	
otherstorage_desc	Refrigeration method – other description	SETUP PRE	SETUP PRE	NVarChar (50)		<otherstorage_desc>	Y	
hksjapan_size	Japanese hook size	SETUP PRE	SETUP PRE	NVarChar (50)		<hksjapan_size>	Y	
hksjapan_perc	% of Japanese hook	SETUP PRE	SETUP PRE	TinyInt		<hksjapan_perc>	N	
hksjapan_ors	Japanese hook original size	SETUP PRE	SETUP PRE	NVarChar (5)		<hksjapan_ors>	Y	
hkscircle_size	Circle hook size	SETUP PRE	SETUP PRE	NVarChar (50)		<hkscircle_size>	Y	
hkscircle_perc	% of Circle hook	SETUP PRE	SETUP PRE	TinyInt		<hkscircle_perc>	N	
hkscircle_ors	Circle hook original size	SETUP PRE	SETUP PRE	NVarChar (5)		<hkscircle_ors>	Y	
	J hook size							

EM ready
EM Natural Key
EM with work
EM new field
EM not likely
EM redundant

LL_GEAR PROVIDE information on the LONGLINE GEAR on the vessel.								
FIELD	Data Collection Instructions	Current Entry Source SETUP PRE OO POST AG CF	Future Entry Source SETUP PRE OO POST AG CF	Field format notes	Validation rules	XML TAG	WCPFC FIELD	Notes
hksj_size		SETUP PRE	SETUP PRE	NVarChar (50)		<hksj_size>	Y	
hksj_perc	% of J hook size	SETUP PRE	SETUP PRE	TinyInt		<hksj_perc>	N	
hksj_ors	J hook original size	SETUP PRE	SETUP PRE	NVarChar (5)		<hksj_ors>	Y	
hksoth_type	Other hook types description	SETUP PRE	SETUP PRE	NVarChar (50)		<hksoth_type>	Y	
hksoth_size	Other hook type size	SETUP PRE	SETUP PRE	NVarChar (50)		<hksoth_size>	Y	
hksoth_perc	% of Other hook types	SETUP PRE	SETUP PRE	TinyInt		<hksoth_perc>	N	
hksoth_ors	Others types of hook original size	SETUP PRE	SETUP PRE	NVarChar (5)		<hksoth_ors>	Y	
bline_mat1_diam	Branchlines (Material #1) diameter	SETUP PRE	SETUP PRE	Decimal (4,1)		<bline_mat1_diam>	Y	
bline_mat2_diam	Branchlines (Material #2) diameter	SETUP PRE	SETUP PRE	Decimal (4,1)		<bline_mat2_diam>	Y	

EM ready
EM with work
EM not likely
EM Natural Key
EM new field
EM redundant

LL_TRIP_REPORT

PROVIDE descriptive information on the trip.

Refer to the relevant sections in http://www.spc.int/OceanFish/en/publications/doc_download/1318-2014-ll-trip-report

FIELD	Data Collection Instructions	Future Entry Source SETUP PRE OO POST AG CF	Future Entry Source SETUP PRE OO POST AG CF	Field format notes	Validation rules	XML TAG	WCPFC FIELD	Notes
TRIP IDENTIFIER	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be VESSEL + DEPARTURE DATE	CF	CF			<OBSTRIP_ID>	N	The current hardcopy Trip Report has been designed with a focus on onboard observers. ***The fields required in an EM trip report needs to be reviewed by DCC / WCPFC.***
1_BACKGROUND	(Refer to relevant section in link above)	PRE OO POST	PRE OO POST	NText		<1_BACKGROUND>	N	The following can be populated from data already recorded: - Observer service provider - PDCO name - Office observer name
2_0_CRUISE_SUMMARY	(Refer to relevant section in link above)	PRE OO POST	PRE OO POST	NText		<2_0_CRUISE_SUMMARY>	N	Recorded by the office observer and Pre- and Post-inspections. The following can be populated / calculated from data already recorded: - Port of departure - Date and time of departure - Time between departure and start of first set - the number of fishing operations fully monitored by the office observer · The summary table in Appendix 1
2_1_Area_FISHED	(Refer to relevant section in link above)	PRE OO POST	PRE OO POST	NText		<2_1_Area_FISHED>	N	Recorded by the office observer. The following can be populated from data already recorded: - Range of latitudes and longitudes Or region / 5 degree blocks - Date and time of departure and return
2_2_END_OF_TRIP	(Refer to relevant section in link above)	PRE OO POST	PRE OO POST	NText		<2_2_END_OF_TRIP>	N	Recorded by the office observer and Pre- and Post-inspections. The following can be populated from data already recorded: - Port of return - Date and time of return The following can be calculated from data already recorded: - Time between end of last set and date and time of return

EM ready | EM Natural Key | EM with work | EM new field | EM not likely | EM redundant

LL_TRIP_REPORT

PROVIDE descriptive information on the trip.

Refer to the relevant sections in http://www.spc.int/OceanFish/en/publications/doc_download/1318-2014-ll-trip-report

FIELD	Data Collection Instructions	Future Entry Source SETUP PRE OO POST AG CF	Future Entry Source SETUP PRE OO POST AG CF	Field format notes	Validation rules	XML TAG	WCPFC FIELD	Notes
								- total number of fishing operations made by the vessel - the number of fishing operations fully monitored by the office observer - average number of hooks set per fishing operation
3_0_DATA_COLLECTED	(Refer to relevant section in link above)	PRE OO POST	PRE OO POST	NText		<3_0_DATA_COLLECTED>	N	Recorded by the office observer and Pre- and Post-inspections. A lot of this could be automatically completed by the EM database.
3_1_OTHER_DATA_COLL	(Refer to relevant section in link above)	PRE OO POST	PRE OO POST	NText		<3_1_OTHER_DATA_COLL>	N	Recorded by the office observer and Pre- and Post-inspections.
4_0_COC	Refer to relevant section in link above)	PRE OO POST	PRE OO POST	NText		<4_0_COC>	N	Recorded by the office observer and Pre- and Post-inspections.
5_1_VESS_INFO	Refer to relevant section in link above)	PRE OO POST	PRE OO POST	NText		<5_1_VESS_INFO>	N	Recorded by the office observer and Pre- and Post-inspections. Vessel details could be automatically populated from the vessel register (https://www.wcpfc.int/record-fishing-vessel-database) including: - Owner - Tonnage - Length - Freezer capacity
5_2_CREW_NATION	Refer to relevant section in link above)	PRE POST	PRE POST	NText		<5_2_CREW_NATION>	N	Recorded Pre- and Post-inspections.
5_2_1_PIC	Refer to relevant section in link above)	PRE POST	PRE POST	NText		<5_2_1_PIC>	N	Recorded Pre- and Post-inspections.
5_3_ELEC	Refer to relevant section in link above)	PRE POST	PRE POST	NText		<5_3_ELEC>	N	Recorded Pre- and Post-inspections.
5_3_1_RADIO_BUOYS	Refer to relevant section in link above)	PRE POST	PRE POST	NText		<5_3_1_RADIO_BUOYS>	N	Recorded Pre- and Post-inspections.
5_4_FISHING_GEAR	Refer to relevant section in link above)	PRE POST	PRE POST	NText		<5_4_FISHING_GEAR>	N	Recorded Pre- and Post-inspections.
5_4_1_MAINLINE	Refer to relevant section in link above)	PRE OO POST	PRE OO POST	NText		<5_4_1_MAINLINE>	N	Recorded by the office observer and Pre- and Post-inspections.

EM ready
EM with work
EM not likely
EM Natural Key
EM new field
EM redundant

LL_TRIP_REPORT

PROVIDE descriptive information on the trip.

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FIELD	Data Collection Instructions	Future Entry Source SETUP PRE OO POST AG CF	Future Entry Source SETUP PRE OO POST AG CF	Field format notes	Validation rules	XML TAG	WCPFC FIELD	Notes
5_4_2_BRANCHLINES	Refer to relevant section in link above)	PRE OO POST	PRE OO POST	NText		<5_4_2_BRANCHLINES>	N	Recorded by the office observer and Pre- and Post-inspections. The following can be calculated from data already recorded: - Average branchline length for trip - Average branchline length per set - Average number of branchlines used - Average number of sharklines per set from sum(FLOAT_HOOK_N) / number of sets
5_4_3_FLOATLINES	Refer to relevant section in link above)	PRE OO POST	PRE OO POST	NText		<5_4_3_FLOATLINES>	N	Recorded by the office observer and Pre- and Post-inspections. The following can be calculated from data already recorded: - Average float line (FLOAT_LENGTH) - Average float line per set (FLOAT_LENGTH)
5_4_4_bline_wts	Refer to relevant section in link above)	PRE OO POST	PRE OO POST	NText		<5_4_4_bline_wts>	N	Recorded by the office observer and Pre- and Post-inspections.
5_4_5_FISH_HOOKS	Refer to relevant section in link above)	PRE OO POST	PRE OO POST	NText		<5_4_5_FISH_HOOKS>	N	Recorded by the office observer and Pre- and Post-inspections. The following can be calculated from data already recorded: - Total number and percentage of hooks per set by hook type - Total number and percentage of hooks per trip by hook type
5_5_safety_eq	Refer to relevant section in link above)	PRE POST	PRE POST	NText		<5_5_safety_eq>	N	Not really relevant, but could be reported by PDCO.
5_6_REGRIG	Refer to relevant section in link above)	PRE OO POST	PRE OO POST	NText		<5_6_REGRIG>	N	Recorded by the office observer and Pre- and Post-inspections.
5_7_OTHER_GEAR	Refer to relevant section in link above)	PRE OO POST	PRE OO POST	NText		<5_7_OTHER_GEAR>	N	Recorded by the office observer and Pre- and Post-inspections.
6_0_fISH_STRATEGY	Refer to relevant section in link above)	PRE OO POST	PRE OO POST	NText		<6_0_fISH_STRATEGY>	N	Recorded by the office observer and Pre- and Post-inspections.
6_1_FISHERY_INFO	Refer to relevant section in link above)	PRE OO POST	PRE OO POST	NText		<6_1_FISHERY_INFO>	N	Recorded by the office observer and Pre- and Post-inspections.

EM ready
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EM redundant

LL_TRIP_REPORT

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FIELD	Data Collection Instructions	Future Entry Source SETUP PRE OO POST AG CF	Future Entry Source SETUP PRE OO POST AG CF	Field format notes	Validation rules	XML TAG	WCPFC FIELD	Notes
6_2_OCEAN_fEATURES	Refer to relevant section in link above)	PRE OO POST	PRE OO POST	NText		<6_2_OCEAN_fEATURES>	N	Recorded by the office observer and Pre- and Post-inspections.
6_3_set_hAUL	Refer to relevant section in link above)	PRE OO POST	PRE OO POST	NText		<6_3_set_hAUL>	N	Recorded by the office observer and Pre- and Post-inspections. A summary table could be automatically generated from the data already recorded for each set: - Start set time - Set duration - Start haul time - Haul duration - Average number of hooks per basket
6_4_TARGET_DEPTH	Refer to relevant section in link above)	PRE OO POST	PRE OO POST	NText		<6_4_TARGET_DEPTH>	N	Recorded by the office observer and Pre- and Post-inspections.
6_5_BAITING	Refer to relevant section in link above)	PRE OO POST	PRE OO POST	NText		<6_5_BAITING>	N	Recorded by the office observer and Pre- and Post-inspections. Bait sequence could be automatically summarised from data provided in LL-2/3 for each set.
6_6_MITIGATION	Refer to relevant section in link above)	PRE OO POST	PRE OO POST	NText		<6_6_MITIGATION>	N	Recorded by the office observer and Pre- and Post-inspections. A list of mitigation methods automatically summarised from data provided in LL-2/3 for each set.
6_6_1_FISH_OFFAL	Refer to relevant section in link above)	PRE OO POST	PRE OO POST	NText		<6_6_1_FISH_OFFAL>	N	Recorded by the office observer and Pre- and Post-inspections. The Sol Is report stated that “This information can only be collected onboard the fishing vessel during the trip. It would require the video to adequately identify the vessel’s practice with respect to disposal of offal.” But it could be obtained from interview with the skipper.
6_7_hAUL_PROCESS	Refer to relevant section in link above)	PRE OO POST	PRE OO POST	NText		<6_7_hAUL_PROCESS>	N	Recorded by the office observer and Pre- and Post-inspections.
6_8_UNUSUAL_SET	Refer to relevant section in link above) **Recorded by the OO.**	OO	OO	NText		<6_8_UNUSUAL_SET>	N	Recorded by the OO.

EM ready
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EM not likely
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EM redundant

LL_TRIP_REPORT

PROVIDE descriptive information on the trip.

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FIELD	Data Collection Instructions	Future Entry Source SETUP PRE OO POST AG CF	Future Entry Source SETUP PRE OO POST AG CF	Field format notes	Validation rules	XML TAG	WCPFC FIELD	Notes
6_9_CHANGES_SETS	Refer to relevant section in link above)	OO	OO	NText		<6_9_CHANGES_SETS>	N	Recorded by the OO. Summary tables of select set characteristics could be automatically generated.
7_1_WEATHER	Refer to relevant section in link above)	PRE OO POST	PRE OO POST	NText		<7_1_WEATHER>	N	Recorded by the office observer and Pre- and Post-inspections.
7_2_sEA_cond	Refer to relevant section in link above)	PRE OO POST	PRE OO POST	NText		<7_2_sEA_cond>	N	Recorded by the office observer and Pre- and Post-inspections.
7_3_MOOn_phase	Refer to relevant section in link above)	OO	OO	NText		<7_3_MOOn_phase>	N	Recorded by the PDCO from interviews and moon phase table / calculation. Summary graph of catch by species against moon phase could be automatically produced.
8_1_tARGET_cATCH	Refer to relevant section in link above)	PRE OO POST	PRE OO POST	NText		<8_1_tARGET_cATCH>	N	Recorded by the office observer and Pre- and Post-inspections. Summary table could be automatically produced for each shot showing - Target species (common name followed by the scientific name and FAO code) - Appendix 2 - Catch statistics and catch fate
8_1_1_tARGET_pROC	Refer to relevant section in link above)	PRE OO POST	PRE OO POST	NText		<8_1_1_tARGET_pROC>	N	Recorded by the office observer and Pre- and Post-inspections. The quality of this information could depend on wheter there is a camera over the area of processing.
8_1_2_Target_disc	Refer to relevant section in link above)	PRE OO POST	PRE OO POST	NText		<8_1_2_Target _disc>	N	Recorded by the office observer (discards) and Pre- and Post-inspections. Summary table could be automatically produced for the trip showing - Target species (common name followed by the scientific name and FAO code) discarded for each fate category
	Refer to relevant section in link above)							Recorded by the OO.

EM ready
EM with work
EM not likely
EM Natural Key
EM new field
EM redundant

LL_TRIP_REPORT

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FIELD	Data Collection Instructions	Future Entry Source SETUP PRE OO POST AG CF	Future Entry Source SETUP PRE OO POST AG CF	Field format notes	Validation rules	XML TAG	WCPFC FIELD	Notes
8_1_3_Target_damage		PRE OO POST	PRE OO POST	NText		<8_1_3_Target_damage>	N	Summary table could be automatically produced for the trip showing - Target species (common name followed by the scientific name and FAO code) retained or discarded for each “damage” fate category
8_2_1_Other_tun_bill	Refer to relevant section in link above)	PRE OO POST	PRE OO POST	NText		<8_2_1_Other_tun_bill>	N	Recorded by the office observer and Pre- and Post-inspections. (for processing is not visible to EM). Summary table of all non-target tuna and billfish could be automatically produced for the trip showing - Species (common name followed by the scientific name and FAO code) - Summary details listed Appendix 2
8_2_2_Sharks_rays	Refer to relevant section in link above)	PRE OO POST	PRE OO POST	NText		<8_2_2_Sharks_rays>	N	Recorded by the office observer and Pre- and Post-inspections. (for processing is not visible to EM). Summary table of all sharks and rays could be automatically produced for the trip showing - Species (common name followed by the scientific name and FAO code) - Summary details listed Appendix 2
8_2_3_Other_by-catch	Refer to relevant section in link above)	PRE OO POST	PRE OO POST	NText		<8_2_3_Other_by-catch>	N	Recorded by the office observer and Pre- and Post-inspections. (for processing is not visible to EM). Summary table of all other bycatch species could be automatically produced for the trip showing - Species (common name followed by the scientific name and FAO code) - Summary details listed Appendix 2
8_3_Unspec_sp_codes	Refer to relevant section in link above)			NText		<8_3_Unspec_sp_codes	N	Recorded by the OO.

EM ready
EM with work
EM not likely
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EM new field
EM redundant

LL_TRIP_REPORT

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FIELD	Data Collection Instructions	Future Entry Source SETUP PRE OO POST AG CF	Future Entry Source SETUP PRE OO POST AG CF	Field format notes	Validation rules	XML TAG	WCPFC FIELD	Notes
~~oucs~~						>		
8_4_1_Ssi_land	Refer to relevant section in link above)	OO	OO	NText		<8_4_1_Ssi_land>	N	Recorded by the OO. Table of all landed SSI individuals automatically produced for the trip showing - Species (common name followed by the scientific name and FAO code) - Gender - Size - Description of interaction (including prior sighting, treatment, problems with ID) - Condition when landed - Condition when released
8_4_2_Ssi_interact	Refer to relevant section in link above)	OO	OO	NText		<8_4_2_Ssi_interact>	N	Recorded by the OO. Table of all SSIs that interacted with vessel or gear only automatically produced for the trip showing - Species (common name followed by the scientific name and FAO code) - Condition at start of interaction - Condition at end of interaction Check to see if this is just for Purse seine
8_4_3_Ssi_mam	Refer to relevant section in link above)	PRE OO POST	PRE OO POST	NText		<8_4_3_Ssi_mam>	N	Recorded by the office observer and Pre- and Post-inspections.
8_4_4_Ssi_sight	Refer to relevant section in link above)	PRE OO POST	PRE OO POST	NText		<8_4_4_Ssi_sight>	N	Recorded by the office observer and Pre- and Post-inspections. Table of all SSIs that interacted with vessel or gear only automatically produced for the trip showing - Species (common name followed by the scientific name and FAO code) - Number of adults/juvs - Condition at end of interaction - Sight distance - Sight behaviour

EM ready | EM Natural Key | EM with work | EM new field | EM not likely | EM redundant

LL_TRIP_REPORT

PROVIDE descriptive information on the trip.

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FIELD	Data Collection Instructions	Future Entry Source SETUP PRE OO POST AG CF	Future Entry Source SETUP PRE OO POST AG CF	Field format notes	Validation rules	XML TAG	WCPFC FIELD	Notes
								From the Sol Is report "E-Monitoring is useful for collecting information on the landings of Species of Special Interest (SSIs), but the equipment may not be appropriately placed to collect information on the sightings of SSIs."
9_0_TRANS	Refer to relevant section in link above)	PRE OO POST	PRE OO POST	NText		<9_0_TRANS>	N	Recorded by the office observer and Pre- and Post-inspections. Some mention of EM being hooked up to cranes to collect transhipment data.
10_1_Tags	Refer to relevant section in link above)			NText		<10_1_Tags>	N	Not applicable unless industry tag animals.
10_2_Stomach	Refer to relevant section in link above)			NText		<10_2_Stomach>	N	Not applicable unless industry take stomach samples.
10_3_Other	Refer to relevant section in link above)			NText		<10_3_Other>	N	Not applicable unless industry take data for other projects.
11_0_ TRIP_MON	Refer to relevant section in link above)	PRE OO POST	PRE OO POST	NText		<11_0_ TRIP_MON>	N	Recorded by the office observer and Pre- and Post-inspections.
11_1_Clarify	Refer to relevant section in link above)	PRE OO POST	PRE OO POST	NText		<11_1_Clarify>	N	Recorded by the office observer and Pre- and Post-inspections. This should be under 13 - General
11_2_Recommend	Refer to relevant section in link above)	PRE POST	PRE POST	NText		<11_2_Recommend>	N	Recorded by the office observer and Pre- and Post-inspections. This should be under 13 - General
11_3_Crew_info	Refer to relevant section in link above)	PRE POST	PRE POST	NText		<11_3_Crew_info>	N	Recorded from Pre- and Post-inspections. This should be under 13 - General
11_4_Medical	Refer to relevant section in link above)	PRE POST	PRE POST	NText		<11_4_Medical>	N	Recorded from Pre- and Post-inspections. This should be under 13 - General
11_5_Photos	Refer to relevant section in link above)	PRE OO POST	PRE OO POST	NText		<11_5_Photos>	N	Recorded by the office observer and Pre- and Post-inspections. This should be under 13 - General
11_6_other_info	Refer to relevant section in link above)	PRE OO	PRE OO	NText		<11_6_othe	N	Recorded by the office observer and Pre- and Post-inspections.

EM ready
EM with work
EM not likely
EM Natural Key
EM new field
EM redundant

LL_TRIP_REPORT

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FIELD	Data Collection Instructions	Future Entry Source SETUP PRE OO POST AG CF	Future Entry Source SETUP PRE OO POST AG CF	Field format notes	Validation rules	XML TAG	WCPFC FIELD	Notes
11_0_Other_info		OO POST	OO POST	NText		r info>	N	This should be under 13 - General
12_0_VESS _DATA	Refer to relevant section in link above)	PRE POST	PRE POST	NText		<12_0_VESS _DATA>	N	Recorded from Pre- and Post-inspections.
13_0_GENERAL	Refer to relevant section in link above)	PRE OO POST	PRE OO POST	NText		<13_0_GENE RAL>	N	Recorded by the office observer and Pre- and Post-inspections. This could include problems with the EM system including location and angle of cameras.
14_0_PROBs	Refer to relevant section in link above)	PRE OO POST	PRE OO POST	NText		<14_0_PROB s>	N	Recorded by the office observer and Pre- and Post-inspections.
14_1_Form_ch_recs	Refer to relevant section in link above)	PRE OO POST	PRE OO POST	NText		<14_1_Form _ch_recs>	N	Recorded by the office observer and Pre- and Post-inspections.
15_0_CONCL	Refer to relevant section in link above)	PRE OO POST	PRE OO POST	NText		<15_0_CONC L>	N	Recorded by the office observer and Pre- and Post-inspections.
16_0_ACKs	Refer to relevant section in link above)	PRE OO POST	PRE OO POST	NText		<16_0_ACKs >	N	Recorded by the office observer and Pre- and Post-inspections.

EM ready
EM with work
EM not likely
EM Natural Key
EM new field
EM redundant

SET-LEVEL DATA

- LL_OBS_SET
- LL_SETHAULLOG
- LL_OBS_CATCH

LL_OBS_SET The observer must PROVIDE the following information for EACH FISHING SET/HAUL during the trip.								
FIELD	**Data Collection Instructions**	**Current Entry Source** SETUP PRE OO POST AG CF	**Future Entry Source** SETUP PRE OO POST AG CF	**Field format notes**	**Validation rules**	**XML TAG**	**WCPFC FIELD**	Notes
TRIP IDENTIFIER	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be VESSEL + DEPARTURE DATE	CF	CF			<OBSTRIP_ID>	Y	
SET IDENTIFIER	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be VESSEL + DEPARTURE DATE + SET START DATE + SET START TIME	CF	CF			<L_SET_ID>	Y	
set_number	Unique # for the SET in this trip Can be filled out by an office observer viewing footage or automatically generated from a variety of the EM system components	**OO AG**	**OO AG**	Int		<set_number>	N	Increases sequentially throughout the trip in the order that they happen. Set number will normally be the same as the vessel's set number.
observed_yn	Flag to indicate whether set was observed or not. Were all the start and end positions observed directly	**OO**	**OO**	Bit		<observed_yn>	N	This is not a clear/appropriate definition for the EM process. *Needs to be reviewed by DCC / WCPFC.*
set_date	Start Date/time for set. Date/time when the first bouy is thrown into the water (radio bouy or normal bouy) Can be filled out by an office observer viewing images or automatically generated from a variety of the EM system components	**OO AG**	**OO -> AG AG**	REFER TO APPENDIX A1	Use UTC DATE/TIME. **Ship's date was the standard for hardcopy forms** **Must adhere to the ISO 8601 format in Appendix A1** **Must be after Date and time of departure from port and before date and time of return to port**	<set_date>	Y	Recorded by the EM system when flagged by the office observer (or is this flagged by the gear sensors?). Inherent in most EM systems using OO visual or combination of camera / sensor / GPS Position is also a requirement but captured elsewhere
	Number of hooks between floats							This was an issue in the Sol Is trial. Observers frequently lost count. They found this was the "most difficult to compile based issues identified in the comparison between the data collected by the on-board and office observers".

EM ready
EM with work
EM not likely
EM Natural Key
EM new field
EM redundant

LL_OBS_SET

The observer must PROVIDE the following information for EACH FISHING SET/HAUL during the trip.

FIELD	Data Collection Instructions	Current Entry Source SETUP PRE OO POST AG CF	Future Entry Source SETUP PRE OO POST AG CF	Field format notes	Validation rules	XML TAG	WCPFC FIELD	Notes
hk_bt_flt	Office observer interpret from images. Determine whether it is more efficient / accuate done on set or haul. Could be evaluated by total hooks per basket and then total floats per basket. Longer term there is potential for AG through serial interface connection with Linemaster or electronic tagging of hooks and floats	OO	OO CF Possible AG	SmallInt	Must be 1-60, or -1 for no information.	<hk_bt_flt>	Y	They recommended that float and hook counts be built into the EM systems if possible to ensure accurate and time efficient data collection. Potential for use of EM equipment to count hooks exists but there is a trade off with costs. It is also time intensive for OO to record from visual On LL-2/3, there is only one record per set, and the instructions call it the "most common or average data during setting".
bask_set	Number of baskets set. Office observer interpret from images. Can be calculated as the total number of floats - 1	OO	OO Possible AG	SmallInt		<bask_set>	Y	Not as big an issue, but as for HK_BT_FLT
bask_observed	Number of baskets observed (bottom of form, Nov 07 version) Office observer interpret from images. The intent is to monitor the entire haul of a set (not a subset of baskets)	OO	OO CF AG	SmallInt		<bask_observed>	Y	Field is critical for CPUE This can be different from above due to tangles / equipment malfunction. The office observer should record the number of baskets observed.
hook_set	Total number of hooks set. Office observer interpret from images. Determine whether it is more efficient / accuate done on set or haul. Could be calculated by hooks per basket x no. of baskets Longer term there is potential for AG through serial interface connection with Linemaster or electronic tagging of hooks and floats	CF	CF Possible AG	SmallInt	If no information (-1) in HK_BT_FLT or BASK_SET, then HOOK_SET = -1	<hook_set>	Y	Automatically calculated from the number of hooks between baskets x the number of baskets. That is how its calculated for the datasheet, and there is no point the observer doing the calculation.
hook_observed	Number of hooks observed and data recorded. Could be calculated from HK_BT_FLT x bask_observed	OO	OO CF AG	SmallInt		<hook_observed>	Y	This could be calculated from HK_BT_FLT x bask_observed

EM ready
EM with work
EM not likely
EM Natural Key
EM new field
EM redundant

LL_OBS_SET The observer must PROVIDE the following information for EACH FISHING SET/HAUL during the trip.								
FIELD	Data Collection Instructions	Current Entry Source SETUP PRE OO POST AG CF	Future Entry Source SETUP PRE OO POST AG CF	Field format notes	Validation rules	XML TAG	WCPFC FIELD	Notes
float_length	Length of floatline (m) **Very difficult to monitor**	PRE	PRE	SmallInt		<float_length>	Y	Recorded by the port data collection officer on FORM LL-2/3 and then entered into data capture screen
lspeed	Line setting speed. Can be calculated from rotational speed of roller on shooter Possisbly CF from	AG	AG CF?	Decimal (5,1)	If no information (-1) in HK_BT_FLT or BRANCH_DIST or HOOK_SET, then LSPEED = 1	<lspeed>	Y	Observers only record this when there is a line shooter onboard with a visible line setting guide, otherwise they indicate its absence with a "-".
lspeed_unit_id	Link to ref_ids table	AG	AG	CHAR(1)	Must be 'M' for metres/second or 'K' for knots	<lspeed_unit_id>	Y	If this was calculated as above, the units should always be m/s
branch_intvl	Time interval (secs.) between branchline sets. Use timestamp for sequential branchlines **Serial interface with linemaster (AG)** Total time beacon to beacon and number of branchline sets Use audio beeps	OO CF	OO CF AG	SmallInt		<branch_intvl>	Y	In accordance with the LL Observer Guide, they should calculate the average time between when two branchlines are attached over at least three baskets. Although this could be calculated by the EM syster
branch_dist	Mainline distance between branchlines (m).	CF	CF	Decimal (4,1)	If no information (-1) in LSPEED or BRANCH_INTVL, then BRANCH_DIST = -1	<branch_dist>	Y	Automatically calculated from LSPEED (m/s) x BRANCH_INTVL
vessel_SET_speed	Vessel setting Speed (Knots). Automatically generated from EM system components (VMS, GPS)	AG CF	AG CF	Decimal (5,1)		<vessel_SET_speed>	N	This should be available from the VMS / GPS. The LL Observer Guide is fairly loose about what the average vessel speed is "Use the GPS to record the average vessel setting speed in knots. It is best to watch the GPS for several seconds at a time and also to check it a number of times during setting"

EM ready
EM with work
EM not likely
EM Natural Key
EM new field
EM redundant

LL_OBS_SET The observer must PROVIDE the following information for EACH FISHING SET/HAUL during the trip.								
FIELD	Data Collection Instructions	Current Entry Source SETUP PRE OO POST AG CF	Future Entry Source SETUP PRE OO POST AG CF	Field format notes	Validation rules	XML TAG	WCPFC FIELD	Notes
	Calculated from waypoints / time							Average vessel speed could be calculated by the EM system as the average speed between start_set and end_set time?
lightsticks	Number of lightsticks used Very difficult to monitor Use PRE to identify presence / absence. Compare this field with targeting field.	PRE OO	PRE OO	SmallInt		<lightsticks>	Y	The office observershould record the number of light sticks between one basket per set. This could be automatically multiplied by the number of baskets with the addition of another field in the EM system "LIGHTSTICKS_BASKET" which is for data entry of the number of light sticks used in one basket. That field is ther not picked up by the data loaded for the TUBS system. Sub-sampling may not be appropriate for accuracy. Full monitoring may be required The Sol Is report suggests that "The existence of TDRs and light-sticks can be checked prior to the trip and so it is not necessary to attE-Monitoring to obtain information for these fields on a set by set basis (but the pre-trip inspection would need to identify this)." But this only informs of their presence, not the number used. The observer Guide says "If the vessel is using light sticks, count the total number of light sticks used during the set. Generally, they are not placed on every single hook, so calculate the number of light sticks that are placed in one basket and multiply that number by the total number of baskets to get the total number of light sticks"

EM ready
EM with work
EM not likely
EM Natural Key
EM new field
EM redundant

LL_OBS_SET

The observer must PROVIDE the following information for EACH FISHING SET/HAUL during the trip.

FIELD	Data Collection Instructions	Current Entry Source SETUP PRE OO POST AG CF	Future Entry Source SETUP PRE OO POST AG CF	Field format notes	Validation rules	XML TAG	WCPFC FIELD	Notes
TDRs	Number of Time Depth recorders used Very difficult to monitor Use PRE to identify presence / absence. Compare this field with targeting field.	PRE OO	PRE OO	SmallInt	There should be something in here that requires a value so that you know a 0 means none were used.	<TDRs>	Y	The Sol Is report suggests that "The existence of TDRs and light-sticks can be checked prior to the trip and so it is not necessary to attE-Monitoring to obtain information for these fields on a set by set basis (but the pre-trip inspection would need to identify this)." But this only informs of their presence, not the number used. The Observer Guide talks about them as if they are deployed by the observer. And just asks was at least one deployed ("Y" or "N"). Same with the datasheet LL – 2/3 But the ROP and Sol Is report specify the number of TDRs, and the ROP states that this field refers to "Does the vessel use TDRs on its line, record the number it may use and where along the mainline they attach them to the branch lines."
branch_length	Length of branchline (m) (If all are of a consistent length, otherwise use next set of fields). **SEE FLOATLINE** **Potential use of colour-coded branchlines**	PRE	PRE	Decimal (4,1)		<branch_length>	Y	Very difficult for OO to determine
branch_0_20	Number of branchlines between successive floats that are < 20 m.	-	-	SmallInt		<branch_0_20>	Y	Very difficult for OO to determine
branch_20_34	Number of branchlines between successive floats that are 20-35 m.	-	-	SmallInt		<branch_20_34>	Y	Very difficult for OO to determine
branch_35_50	Number of branchlines between successive floats that are 35-50 m.	-	-	SmallInt		<branch_35_50>	Y	Very difficult for OO to determine
branch_50_99	Number of branchlines between successive floats that are > 50 m.	-	-	SmallInt		<branch_50_99>	Y	Very difficult for OO to determine

EM ready
EM with work
EM not likely
EM Natural Key
EM new field
EM redundant

LL_OBS_SET

The observer must PROVIDE the following information for EACH FISHING SET/HAUL during the trip.

FIELD	Data Collection Instructions	Current Entry Source SETUP PRE OO POST AG CF	Future Entry Source SETUP PRE OO POST AG CF	Field format notes	Validation rules	XML TAG	WCPFC FIELD	Notes
FLOAT_hook_n	The total number of hooks that have been hung directly from the floatline for this set. INCLUDE FLOAT HOOK LENGTH AS NEW FIELD	OO	OO	SmallInt		<FLOAT_hook_n>	Y	The office observer should record the shark lines observed being attached to floats during setting. Assume this is the "SHARK LINES on floats (Hook No.99s)" on the datasheet.
FLOAT_hook_l						<FLOAT_hook_l>		This needs to be checked was not in observer ER
tar_sp_code	Target Species id recorded on the form for this set (refer to the SPECIES table)	OO	OO	Char (3)	REFER TO APPENDIX 8.	<tar_sp_code>	Y	The Sol Is reported noted "Target species" at the set level should be determined from a combination of setting attributes (e.g. gear configuration and bait). Otherwise, the main target species should be known prior to and after the trip (e.g. examination of species composition of the catch)." Will need to be inferred by the OO from the gear.
target_tun_yn	ADDITIONAL FLAG indication for MULTIPLE targeting	OO	OO	Bit		<target_tun_yn>	Y	A combination of information from the pre-inspection and the gear configuration in the video, with the final decision made by the office observer.
target_swo_yn	ADDITIONAL FLAG indication for MULTIPLE targeting	OO	OO	Bit		<target_swo_yn>	Y	As above
target_skh_yn	ADDITIONAL FLAG indication for MULTIPLE targeting	OO	OO	Bit		<target_skh_yn>	Y	As above
setdetails	General notes on the setting procedures. Any comments relating to the setting strategy. For example has there been any specific targetting of shark in this set.	OO	OO	NText		<setdetails>	N	The office observer should record the general comments of set details.

EM ready
EM with work
EM not likely
EM Natural Key
EM new field
EM redundant

LL_OBS_SET

The observer must PROVIDE the following information for EACH FISHING SET/HAUL during the trip.

FIELD	Data Collection Instructions	Current Entry Source SETUP PRE OO POST AG CF	Future Entry Source SETUP PRE OO POST AG CF	Field format notes	Validation rules	XML TAG	WCPFC FIELD	Notes
bait1_sp_code	Bait species id. # 1	PRE OO	PRE OO	Char (3)	REFER TO APPENDIX 8.	<bait1_sp_code>	Y	The office observer should record the bait species. Camera position and resolution needs to enable this identification
bait2_sp_code	Bait species id. # 2	PRE OO	PRE OO	Char (3)	REFER TO APPENDIX 8.	<bait2_sp_code>	Y	As above
bait3_sp_code	Bait species id. # 3	PRE OO	PRE OO	Char (3)	REFER TO APPENDIX 8.	<bait3_sp_code>	Y	As above
bait4_sp_code	Bait species id. # 4	PRE OO	PRE OO	Char (3)	REFER TO APPENDIX 8.	<bait4_sp_code>	Y	As above
bait5_sp_code	Bait species id. # 5	PRE OO	PRE OO	Char (3)	REFER TO APPENDIX 8.	<bait5_sp_code>	Y	As above
bait1_w	Weight of bait species #1 used, (kg) Determined by camera placement and view during setting. May be difficult	OO?	OO?	SmallInt		<bait1_w>	N	Camera will need to be positioned so that it can view the baiter
bait2_w	Weight of bait species #2 used, (kg)	OO?	OO?	SmallInt		<bait2_w>	N	As above
bait3_w	Weight of bait species #3 used, (kg)	OO?	OO?	SmallInt		<bait3_w>	N	As above
bait4_w	Weight of bait species #4 used, (kg)	OO?	OO?	SmallInt		<bait4_w>	N	As above
bait5_w	Weight of bait species #5 used, (kg)	OO?	OO?	SmallInt		<bait5_w>	N	As above
bait1_h	Hook number(s) in basket that Bait 1 was placed	OO?	OO?	NVarChar (25)	(Hook numbers separated by commas)	<bait1_h>	N	The office observer should record the hook numbers for each bait type.
bait2_h	Hook number(s) in basket that Bait 2 was placed	OO?	OO?	NVarChar (25)	(Hook numbers separated by commas)	<bait2_h>	N	As above
bait3_h	Hook number(s) in basket that Bait 3 was placed	OO?	OO?	NVarChar (25)	(Hook numbers separated by commas)	<bait3_h>	N	As above
bait4_h	Hook number(s) in basket that Bait 4 was placed	OO?	OO?	NVarChar (25)	(Hook numbers separated by commas)	<bait4_h>	N	As above
bait5_h	Hook number(s) in basket that Bait 5 was placed	OO?	OO?	NVarChar (25)	(Hook numbers separated by commas)	<bait5_h>	N	As above
bait1_dyed_yn	FLAG indication on dyed on bait #1	PRE OO	PRE OO	SmallInt		<bait1_dyed_yn>	Y	As above

EM ready
EM with work
EM not likely
EM Natural Key
EM new field
EM redundant

LL_OBS_SET The observer must PROVIDE the following information for EACH FISHING SET/HAUL during the trip.								
FIELD	**Data Collection Instructions**	**Current Entry Source** SETUP PRE OO POST AG CF	**Future Entry Source** SETUP PRE OO POST AG CF	**Field format notes**	**Validation rules**	**XML TAG**	**WCPFC FIELD**	Notes
bait2_dyed_yn	FLAG indication on dyed on bait #2	PRE OO	PRE OO	SmallInt		<bait2_dyed_yn>	Y	As above
bait3_dyed_yn	FLAG indication on dyed on bait #3	PRE OO	PRE OO	SmallInt		<bait3_dyed_yn>	Y	As above
bait4_dyed_yn	FLAG indication on dyed on bait #4	PRE OO	PRE OO	SmallInt		<bait4_dyed_yn>	Y	As above
bait5_dyed_yn	FLAG indication on dyed on bait #5	PRE OO	PRE OO	SmallInt		<bait5_dyed_yn>	Y	As above
tori_poles_yn	FLAG indication on tori poles used	PRE OO	PRE OO	SmallInt		<tori_poles_yn>	Y	Presence should be determined from pre-inspection but use should be verified for each set by the office observer Camera will need to be positioned so that it can view the extent of the tori line
bird_curtain_yn	**PRE to determine whether they are onboard** **OO to determine whether they are used if yes for above**	**PRE** **OO**	**PRE** **OO**	SmallInt		<bird_curtain_yn>	Y	Presence should be determined from pre-inspection but use should be verified for each set by the office observer Camera will need to be positioned so that it can view both bird curtains while deployed.
wT_lines_yn	FLAG indication on weighted lines used Difficult to detect if weight is away from the hook	**OO**	**OO**	SmallInt		<wT_lines_yn>	Y	Presence should be determined from pre-inspection but use should be verified for each set by the office observer
uW_chute_yn	FLAG indication on underwater chute used	**PRE** **OO**	**PRE** **OO**	SmallInt		<uW_chute_yn>	Y	Although the presence of an underwater chute might be recorded from pre inspection, it can not be assumed that this will always be used. Could be hard to see with a camera.

EM ready
EM with work
EM not likely
EM Natural Key
EM new field
EM redundant

LL_SETHAULLOG

The E-Reporting system must PROVIDE the following log information for EACH SET/HAUL during the period of the trip, typically on a 60-minute basis.

FIELD	Notes on Data Collection Guidelines	Current Entry Source SETUP PRE OO POST AG CF	Future Entry Source SETUP PRE OO POST AG CF	Field format notes	Validation rules	XML TAG	WCPFC FIELD	Notes
TRIP IDENTIFIER	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be VESSEL + DEPARTURE DATE	CF	CF			<OBSTRIP_ID>	Y	
SET IDENTIFIER	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be VESSEL + DEPARTURE DATE + SET START DATE + SET START TIME	CF	CF			<L_SET_ID>	Y	
SETHAUL LOG IDENTIFIER	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be VESSEL + DEPARTURE DATE + SET START DATE + SET START TIME + LOG DATE + LOG TIME	CF	CF			<L_SETHAULOG_ID>	Y	
log_date	Date/TIME of log reading The date/time of the beginning of haul	OO -> AG	OO -> AG	REFER TO APPENDIX A1	**Must adhere to the ISO 8601 format in Appendix A1**	<log_date>	Y	In accordance with instructions on the back of logsheet FORM LL2/3, this could be set to automatically record details every half or 1 hour.
sethaul	Status of gear at this logged date/time : Set (S) Haul (H), Soak (K) or Float retrieved (F)	OO	AG	Char (4)	Must be either 'S', 'H', 'K' or 'F'	<sethaul>	Y	Datasheets and Observer Guide only ask for the haul log on hauling. But this could easily be recorded by the person responsible for reviewing the video and compiling ROP information. ***Now redundant due to field below - DCC / WCPFC tro review***
stend_id	Indicator for status of the SET-HAUL 83 – First log record for the SET (start of SET information) 84 – Last log record for the SET (end of SET information) 85 – First log record for the HAUL (start of HAUL information) 86 – Last log record for the HAUL (end of HAUL information) 87 - Location during setting per time period 88 – Location during haul per time period 91 – Float retrieval	 OO OO OO OO CF CF OO	 OO AG OO AG OO AG OO AG CF CF OO AG	Int	Must be 83, 84, 85, 86, 91 or NULL	<stend_id>	Y	As above, but this could easily be recorded by the person responsible for reviewing the video and compiling ROP information. Need to date/time each float retreived is being reviewed Can be calculated after the event For OO - only needs to record Start_Set End_Set Start_Haul End_Haul. Time period may be changed in future from 60 minutes All events are timestamp and position Should match VMS At this stage we don't know exactly how this will be done

EM ready
EM with work
EM not likely
EM Natural Key
EM new field
EM redundant

LL_SETHAULLOG

The E-Reporting system must PROVIDE the following log information for EACH SET/HAUL during the period of the trip, typically on a 60-minute basis.

FIELD	Notes on Data Collection Guidelines	Current Entry Source SETUP PRE OO POST AG CF	Future Entry Source SETUP PRE OO POST AG CF	Field format notes	Validation rules	XML TAG	WCPFC FIELD	Notes
	Potential additions for review by DCC / WCPFC - Line Breaks - Line retrieval - Line tangles - Line rehaul - and others							Should we just mark float set and float haul events. If floats are electronically tagged then this will be AG.
lat		OO -> AG	AG	REFER TO APPENDIX A2	**Must adhere to the ISO 6709 format in Appendix A2**	<lat>	Y	This could be set to automatically record details at a finer timescale
lon		OO -> AG	AG	REFER TO APPENDIX A2	**Must adhere to the ISO 6709 format in Appendix A2**	<lon>	Y	This could be set to automatically record details at a finer timescale
comments	Office observer records any comments	OO	OO	NText		<comments>	N	Recorded by the office observer.
FLOAT_ID	Unique identifier for the Float retrieved Could be sequential or Timestamp In future could use tagged bouys (RFID for example)	OO	OO AG	NVARCHAR(15)	Only used when Float retrieved (STEND_ID = 91) **E-Monitoring ONLY**	<FLOAT_ID>	N	Maybe whenever a float comes onboard, the observer flags it " Float retrieved", and each float is given a sequential number from 1 to … Review by DCC or WCPFC
HK_BT_FLT	Hooks between this float retrieved and the next float Collect through the timestamp	OO	OO AG	SmallInt	Must be 1-60, or -1 for no information. Only used when Float retrieved (STEND_ID = 91)	<hk_bt_flt> Maybe needs to be renaemd so as not to conflict <log_hk_bt_flt>	N	Recorded by the person responsible for reviewing the video and compiling ROP information. If this could be done then this field could be used for the LL_OBS_SET

EM ready
EM with work
EM not likely
EM Natural Key
EM new field
EM redundant

LL_OBS_CATCH

The observer must PROVIDE the following CATCH DETAILS for EACH FISHING HAUL for the period of the trip.

FIELD	Data Collection Instructions	Current Entry Source SETUP PRE OO POST AG CF	Future Entry Source SETUP PRE OO POST AG CF	Field format notes	Validation rules	XML TAG	WCPFC FIELD	Notes
TRIP IDENTIFIER	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be VESSEL + DEPARTURE DATE	CF	CF			<OBSTRIP_ID>	Y	
SET IDENTIFIER	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be VESSEL + DEPARTURE DATE + SET START DATE + SET START TIME	CF	CF			<L_SET_ID>	Y	
CATCH IDENTIFIER	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be VESSEL + DEPARTURE DATE + SET START DATE + SET START TIME + CATCH EVENT DATE + CATCH EVENT TIME	CF	CF			<L_CATCH_ID>	Y	
CATCH_date	Date/TIME of individual catch event Recorded by the EM system after being flagged by the office observer. Possible AG through video recognition software of catch events	OO -> AG	OO -> AG AG	REFER TO APPENDIX A1	**Must adhere to the ISO 8601 format in Appendix A1**	<catch_date>	Y	
lat	Latitude (long format) Recorded by the EM system after being flagged by the office observer.	OO -> AG	OO -> AG AG	REFER TO APPENDIX A2	Position of each catch event **E-Monitoring ONLY**	<lat>	N	
lon	Longitude (long format) Recorded by the EM system after being flagged by the office observer.	OO -> AG	OO -> AG AG	REFER TO APPENDIX A2	Position of each catch event **E-Monitoring ONLY** **Must adhere to the ISO 6709 format in Appendix A2**	<lon>	N	
hook_no	Hook number (since the last float). Hook number=99 represents catch on a hook hanging directly from the floatline. Counted by the office observer. Can also be counted as the 'No. of hooks per basket' minus the count of hooks until the next float. Automatically generated possible if Smart Hooks/Clips or rotation of line coiler. Could also use timestamp of catch event (down to second) against float event as a calculated field.	OO CF	OO CF Possible AG	SmallInt		<hook_no>	Y	**Recorded by the office observer.** If smarthooks then this field can link to set_haul log automatically
	Species code. Identified by office observer		OO					Camera lens clarity is important

EM ready
EM with work
EM not likely
EM Natural Key
EM new field
EM redundant

LL_OBS_CATCH

The observer must PROVIDE the following CATCH DETAILS for EACH FISHING HAUL for the period of the trip.

FIELD	Data Collection Instructions	Current Entry Source SETUP PRE OO POST AG CF	Future Entry Source SETUP PRE OO POST AG CF	Field format notes	Validation rules	XML TAG	WCPFC FIELD	Notes
sp_code	Possible AG through video recognition software	OO	OO Possible AG	Char (3)	REFER TO APPENDIX 8.	<sp_code>	Y	
fate_code	FATE of this catch. This indicates whether it was RETAINED, DISCARDED or ESCAPED, and any specific processing. Office observer to use range of cameras to determine the fate.	OO	OO	Char (3)	REFER TO APPENDIX 9 Only shark species can have a FATE as 'RFR' and 'DFR'.	<fate_code>	Y	Need clear definitions.
cond_code	CONDITION of this catch on LANDING. Relevant for the Species of Special Interest. Identified by office observer	OO	OO	Char (2)	REFER TO APPENDIX 10	<cond_code>	Y	Need to ensure consistency in the collection of condition (life status) information
cond_REL_code	CONDITION of this catch on RELEASE/DISCARD. Relevant for the Species of Special Interest. Identified by office observer	OO	OO	Char (2)	REFER TO APPENDIX 10	<cond_REL_code>	Y	Need to ensure consistency in the collection of condition (life status) information Video camera(s) need to be directed to the area where discarding/release would always occur.
len	Length (cm). Recorded by the office observer using a digital measuring tool	OO	OO AG Possible POST	SmallInt	Refer to SPECIES RANGE table for these species	<len>	Y	Define the resolution / precision (e.g. 2cm or 1cm) Office observer needs to be properly trained in digital measuring tool Calibration and algoithm need to be well defined and validated. Use a rule on the vessel? Fish may be barcoded in future for CDS allowing measurement at port
len_code	Length measurement code Recorded by the office observer. EM could provide default code dependent on species ID	OO	OO Possible AG Possible POS	Char (2)	REFER TO APPENDIX 11	<len_code>	Y	**Recorded by the office observer.**
wt	Weight (kgs) – must be measured weight and not a visual estimate			Decimal (5,1)		<wt>	N	Image (or serial connection) of weight from motion compensated scales Potential to calculate it from a length weight relationship.
wt_code	Weight code.			Char (2)	REFER TO APPENDIX 22	<wt_code>	N	
	SEX of fish							**Will not cover all species**

EM ready
EM with work
EM not likely
EM Natural Key
EM new field
EM redundant

LL_OBS_CATCH The observer must PROVIDE the following CATCH DETAILS for EACH FISHING HAUL for the period of the trip.								
FIELD	Data Collection Instructions	Current Entry Source SETUP PRE OO POST AG CF	Future Entry Source SETUP PRE OO POST AG CF	Field format notes	Validation rules	XML TAG	WCPFC FIELD	Notes
sex_code	Identified by office observer where possible	OO	OO	Char (1)	REFER TO APPENDEX 12	<sex_code>	Y	Investigate how to improve the consistency in the collection of sex information, if possible. The Observer Guide shows some examples of fish species where there are external differences in sex: Shark, Mahi mahi, Opah
gstage_CODE	GONAD STAGE CODE			Char (1)	REFER TO APPENDIX 23	<gstage_CODE>	N	
comments	Comments Record if tag fish encountered. Endeavour to complete tag recovery information	OO	OO	NVarChar (40)		<comments>	N	

EM ready
EM with work
EM not likely
EM Natural Key
EM new field
EM redundant

OBSERVER (DAILY) MONITORING DATA

- OBS_TRIPMON
- OBS_TRIPMON_COMM
- VESSEL_AIR_SIGHT
- OBS_POLUTION
- OBS_POLUTION_DETAILS
- OBS_JOURNAL

OBS_TRIPMON PROVIDE the details of the OBSERVER GEN-3 "OBSERVER VESSEL TRIP MONITORING FORM". One record per question.									
FIELD		Data Collection Instructions	Current Entry Source OO PRE POS AG	Future Entry Source OO PRE POS AG	Field format notes	Validation rules	XML TAG	WCPFC FIELD	Issues
TRIP IDENTIFIER		Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be VESSEL + DEPARTURE DATE	CF	CF			<OBSTRIP_ID>	Y	
TRIP MONITORING IDENTIFIER		Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be VESSEL + DEPARTURE DATE + UNIQUE SEQ NUMBER	CF	CF			<TRIPMON_ID>	Y	
		Unique CODE for each question in GEN3							
	RS-A	Did the operator or any crew member assault, obstruct, resist, delay, refuse boarding to, intimidate or interefere with observers in the performance of their duties	OO AG	OO AG				Y	Was there any damage / tampering of the equipment? Other mischief?
	RS-B	Request that an event not be reported by the observer						Y	N/A Interim obstruction? High level request of service provider?
	RS-C	Mistreat other crew	OO	OO				N	Only in the visible field of the cameras
	RS-D	Did operator fail to provide observer with food, accommodation, etc.						Y	N/A
	NR-A	Fish in areas where the vessel is not permitted to fish	AG	AG				Y	AG
	NR-B	Target species other than those they are licenced to target	OO	OO				N	Observer can recognise
	NR-C	Use a fishing method other than the method the vessel was designed or licensed	OO	OO				Y	Observer can recognise if in field of view
	NR-D	Not display or present a valid (and current) licence document onboard	PRE POS	PRE POS				N	
	NR-E	Transfer or transship fish from or to another vessel	OO AG	OO AG				Y	Likely to be able to be detected by office observer EM system could detect this to automatically generate

EM ready
EM with work
EM not likely
EM Natural Key
EM new field
EM redundant

OBS_TRIPMON

PROVIDE the details of the OBSERVER GEN-3 "OBSERVER VESSEL TRIP MONITORING FORM". One record per question.

FIELD	Data Collection Instructions		Current Entry Source OO PRE POS AG	Future Entry Source OO PRE POS AG	Field format notes	Validation rules	XML TAG	WCPFC FIELD	Issues
question_code	NR-F	Was involved in bunkering activities	OO AG	OO AG	Char (4)	REFER TO APPENDIX 16	<question_code>	N	Likely to be able to be detected by office observer EM system could detect this to automatically generate
	NR-G	Fail to stow fishing gear when entering areas where vessel is not authorised to fish	OO	OO				Y	Could get cameras to switch on with geo-fencing (beware accuracy +/- 3nm)
	WC-A	Fail to comply with any Commission Conservation and Management Measures (CMMs)	OO	OO				Y	Some CMMs may be able to be detected by office observer
	WC-B	High-grade the catch	OO POS -> CF	OO POS -> CF				Y	Compare lfreq of discarded
	WC-C	Fish on FAD during FAD Closure						N	N/A - purse seine
	LP-A	Inaccurately record vessel position on vessel log sheets for sets, hauling and catch	POS -> CF	POS -> CF				Y	Reconcile EM observer data with logsheet data
	LP-B	Fail to report vessel positions to countries where required	POS -> CF	POS -> CF				Y	Reconcile EM observer data with logsheet data
	LC-A	Inaccurately record retained 'Target Species' in the Vessel logs [or weekly reports]	POS -> CF	POS -> CF				Y	Reconcile EM observer data with logsheet data
	LC-B	Inaccurately record 'Target Species' Discards	POS -> CF	POS -> CF				Y	Reconcile EM observer data with logsheet data
	LC-C	Record target species inaccurately [eg. combine bigeye/yellowfin/skipjack catch]	POS -> CF	POS -> CF				Y	Reconcile EM observer data with logsheet data
	LC-D	Not record bycatch discards	POS -> CF	POS -> CF				N	Reconcile EM observer data with logsheet data
	LC-E	Inaccurately record retained bycatch Species	POS -> CF	POS -> CF				Y	Reconcile EM observer data with logsheet data
	LC-F	Inaccurately record discarded bycatch species	POS -> CF	POS -> CF				Y	Reconcile EM observer data with logsheet data
	SI-A	Land on deck Species of Special Interest (SSIs)	OO	OO				N	Observer can recognise
	SI-B	Interact (not land) with SSIs	OO	OO				Y	Observer can recognise
	PN-A	Dispose of any metals, plastics, chemicals or old fishing gear	OO	OO				Y	Only in the visible field of the cameras
	PN-B	Discharge any oil	OO	OO				Y	Only in the visible field of the cameras
	PN-C	Lose any fishing gear	OO	OO				Y	Only in the visible field of the cameras
	PN-D	Abandon any fishing gear	OO	OO				Y	Only in the visible field of the cameras
	PN-E	Fail to report any abandoned gear	OO	OO				Y	Only in the visible field of the cameras

EM ready
EM with work
EM not likely
EM Natural Key
EM new field
EM redundant

OBS_TRIPMON

PROVIDE the details of the OBSERVER GEN-3 "OBSERVER VESSEL TRIP MONITORING FORM". One record per question.

FIELD	Data Collection Instructions		Current Entry Source OO PRE POS AG	Future Entry Source OO PRE POS AG	Field format notes	Validation rules	XML TAG	WCPFC FIELD	Issues
	SS-A	Fail to monitor international safety frequencies						Y	
	SS-B	Carry out-of-date safety equipment	PRE POS	PRE POS				N	
answer	FLAG to indicate whether has been answered or NOT				Char (1)	MUST BE 'Y', 'N' or 'X'- not answered	<answer>	Y	See above
journal_page	Detail description of the incident		OO		NText		<journal_page>	Y	- Is a journal being kept by the office observer?

EM ready
EM with work
EM not likely
EM Natural Key
EM new field
EM redundant

OBS_TRIPMON_COMMENTS

PROVIDE the details of the OBSERVER GEN-3 "OBSERVER VESSEL TRIP MONITORING FORM". One record per day of trip monitoring reported event/incident.

FIELD	Data Collection Instructions	Current Entry Source SETUP PRE OO POST AG CF	Future Entry Source SETUP PRE OO POST AG CF	Field format notes	Validation rules	XML TAG	WCPFC FIELD	Issues
TRIP IDENTIFIER	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be VESSEL + DEPARTURE DATE					<OBSTRIP_ID>	Y	
TRIP MONITORING COMMENTS IDENTIFIER	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be VESSEL + DEPARTURE DATE + UNIQUE SEQ NUMBER					<TRIPMON_DET_ID>	Y	
gen3_date	Date of the incident on GEN3	OO -> AG	OO -> AG	REFER TO APPENDIX A1	**Must adhere to the ISO 8601 format in Appendix A1**	<gen3_date>	Y	
comments	Detail description of the incident	**OO**	**OO**	NText		<comments>	Y	**A list of events is required that the office observer needs to note depending on the camera?**

EM ready
EM with work
EM not likely
EM Natural Key
EM new field
EM redundant

1. VES_AIR_SIGHT

2. PROVIDE the details on the GEN-1 form -- VESSEL AND AIRCRAFT SIGHTINGS / FISH, BUNKERING and OTHER TRANSFERS LOGS

FIELD	Data Collection Instructions	Current Entry Source SETUP PRE OO POST AG CF	Future Entry Source SETUP PRE OO POST AG CF	Field format notes	Validation rules	XML TAG	WCPFC FIELD	Notes
TRIP IDENTIFIER	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be VESSEL + DEPARTURE DATE	CF	CF			<OBSTRIP_ID>	Y	
SIGHTING IDENTIFIER	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be VESSEL + DEPARTURE DATE + SIGHT_DATE_TIME	CF	CF			<sight_ID>	Y	
sight_date_TIME	Date/Time of sighting			REFER TO APPENDIX A1	**Must adhere to the ISO 8601 format in Appendix A1**	<sighting_date>	Y	**It is very unlikely that EM will be able to be used effectively to monitor aircraft sightings.**
lat	Latitude of SIGHTING			REFER TO APPENDIX A2	**Must adhere to the ISO 6709 format in Appendix A2**	<lat>	Y	**As above.**
lon	Longitude of SIGHTING			REFER TO APPENDIX A2	**Must adhere to the ISO 6709 format in Appendix A2**	<lon>	Y	**As above.**
VESSEL IDENIFIER	REFER TO APPENDIX A4							
vatyp_id				Int	REFER TO APPENDIX 17	<vatyp_id>	Y	
bearing_dir				SmallInt		<bearing_dir>	Y	
distance				Decimal (7,3)		<distance>	Y	
dist_unit				INT	1 = Metres; 2 = kilometres; 3 = Nautical miles	<dist_unit>	Y	
action_code				Char (2)	REFER TO APPENDIX 18 for Vessel/Aircraft sightings only – only allow actions where FORM USED = 'GEN-1'	<action_code>	Y	
comments				NText		<comments>	Y	

EM ready
EM with work
EM not likely
EM Natural Key
EM new field
EM redundant

1. VES_AIR_SIGHT 2. PROVIDE the details on the GEN-1 form -- VESSEL AND AIRCRAFT SIGHTINGS / FISH, BUNKERING and OTHER TRANSFERS LOGS								
FIELD	Data Collection Instructions	Current Entry Source SETUP PRE OO POST AG CF	Future Entry Source SETUP PRE OO POST AG CF	Field format notes	Validation rules	XML TAG	WCPFC FIELD	Notes
Comments				Next		<Comments>	1	

OBS_POLLUTION PROVIDE information any Pollution observed during the trip.								
FIELD	Data Collection Instructions	Current Entry Source SETUP PRE OO POST AG CF	Future Entry Source SETUP PRE OO POST AG CF	Field format notes	Validation rules	XML TAG	WCPFC FIELD	Notes
TRIP IDENTIFIER	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be VESSEL + DEPARTURE DATE	CF	CF			<OBSTRIP_ID>	Y	
POLLUTION EVENT IDENTIFIER	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be VESSEL + DEPARTURE DATE + INCIDENT DATE/TIME	CF	CF			<POLL_ID>	Y	
inc_dATE	DATE & TIME of the incident	OO	OO -> AG	REFER TO APPENDIX A1	**Must adhere to the ISO 8601 format in Appendix A1.**	<inc_dtime>	Y	**Can be recorded by the OO only if in field of view of a camera.** **The Sol Is report stated on page 15 that "monitoring of marine pollution was possible with E-Monitoring", but acknowledged that it is restricted to the viewing range of the cameras.**
lat	Latitude where incident occurred	OO	OO -> AG	REFER TO APPENDIX A2	**Must adhere to the ISO 6709 Appendix A2.**	<lat>	Y	**Can be recorded by the OO only if in field of view of a camera.**
lon	Longitude where incident occurred	OO	OO -> AG	REFER TO APPENDIX A2	**Must adhere to the ISO 6709 in Appendix A2.**	<lon>	Y	**Can be recorded by the OO only if in field of view of a camera.**
port_id	PORT where incident occurred	OO	OO -> AG	REFER TO APPENDIX A3	**Must adhere to the UN/LOCODE standard UN/LOCODE standard Appendix A3.**	<port_id>	N	**Can be recorded by the OO only if in field of view of a camera.**
activ_id	Activity when event occurred	OO	OO	REFER TO APPENDIX A5		<activ_id>	N	**Can be recorded by the OO only if in field of view of a camera.**
VESSEL IDENIFIER	REFER TO APPENDIX A4							
vatyp_id	Vessel / Aircraft type			Int	REFER TO APPENDIX 17	<vatyp_id>	N	**It is very unlikely that EM will be able to be used effectively to monitor pollution by other vessels.**
bearing_dir	Compass Bearing to offending vessel			SmallInt		<bearing_dir>	N	**As above**

EM ready
EM with work
EM not likely
EM Natural Key
EM new field
EM redundant

OBS_POLLUTION PROVIDE information any Pollution observed during the trip.								
FIELD	Data Collection Instructions	Current Entry Source SETUP PRE OO POST AG CF	Future Entry Source SETUP PRE OO POST AG CF	Field format notes	Validation rules	XML TAG	WCPFC FIELD	Notes
distance	Distance to offending vessel			Decimal (7,3)		<distance>	N	As above
comments	Additional comments			NText		<comments>	N	As above
stickers_ans	Response to "Stickers" question			Char (1)	'Y' or 'N'	<stickers_ans>	N	As the GEN-6 form is completed after the port visit, if this field is required then it should be reported for each trip by the PDCO.
aware_ans	Response to "MARPOL" question	POST	POST	Char (1)	'Y' or 'N'	<aware_ans>	N	As the GEN-6 form is completed after the port visit, if this field is required then it should be reported for each trip by the PDCO
advised_ans	Response to "INFRINGEMENTS" question	POST	POST	Char (1)	'Y' or 'N'	<advised_ans>	N	This is not applicable – the question is "If there were any infringements to the MARPOL Regulations did you advise the Captain of these infringements?"
photos_ans	Response to "PHOTOS" question			Char (1)	'Y' or 'N'	<photos_ans>	N	Recorded by the office observer from EM video.
photo_numbers	Number of photos taken on the incident			NVarChar (50)		<photo_numbers>	N	Recorded by the office observer.

EM ready
EM with work
EM not likely
EM Natural Key
EM new field
EM redundant

OBS_POLLUTION_DETAILS

PROVIDE information on any Pollution details observed during the trip.

FIELD	Data Collection Instructions	Current Entry Source SETUP PRE OO POST AG CF	Future Entry Source SETUP PRE OO POST AG CF	Field format notes	Validation rules	XML TAG	WCPFC FIELD	Notes
TRIP IDENTIFIER	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be VESSEL + DEPARTURE DATE	CF	CF			<OBSTRIP_ID>	Y	
POLLUTION EVENT IDENTIFIER	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be VESSEL + DEPARTURE DATE + INCIDENT DATE/TIME	CF	CF			<POLL_ID>	Y	
pollutiontype_id	Pollution type code	OO	OO	REFER TO APPENDIX A31	For example, Disposal of OFFAL MANAGEMENT is a WCFPC required field.	<pollution type_id>	Y	**Can be recorded by the OO only if in field of view of a camera.**
material_id	Pollution Materials code	OO	OO	REFER TO APPENDIX A29		<material_id>		**Can be recorded by the OO only if in field of view of a camera.**
POLL_GEAR_ID	Pollution Gear code	OO	OO	REFER TO APPENDIX A28		<POLL_GEAR_ID>		**Can be recorded by the OO only if in field of view of a camera.**
POLL_SRC_ID	Pollution Source code	OO	OO	REFER TO APPENDIX A30	For example, Disposal of OFFAL MANAGEMENT is a WCFPC required field.	<POLL_SRC_ID>	Y	**Can be recorded by the OO only if in field of view of a camera.**
poll_desc	Description of pollution type	OO	OO	NText	For example, Disposal of OFFAL MANAGEMENT is a WCFPC required field.	<poll_desc>	Y	**Can be recorded by the OO only if in field of view of a camera.**
poll_qty	Description of pollution quantity	OO	OO	NText	For example, Disposal of OFFAL MANAGEMENT is a WCFPC required field.	<poll_qty>	Y	**Can be recorded by the OO only if in field of view of a camera.**

EM ready
EM Natural Key
EM with work
EM new field
EM not likely
EM redundant

OBS_SSI

The observer must PROVIDE the following SPECIES OF SPECIAL INTEREST CATCH DETAILS for EACH FISHING SET for the period of the trip. There may be one or many records for each SSI record in PS_OBS_CATCH. When SIGHTED only, then this table is linked to the OBS_TRIP database table.

FIELD	Data Collection Instructions	Current Entry Source SETUP PRE OO POST AG CF	Future Entry Source SETUP PRE OO POST AG CF	Field format notes	Validation rules	XML TAG	WCPFC FIELD	Notes
TRIP IDENTIFIER	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be VESSEL + DEPARTURE DATE	CF	CF			<OBSTRIP_ID>	Y	
SET IDENTIFIER - PS	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be VESSEL + DEPARTURE DATE + SET START DATE + SET START TIME	CF	CF		To be used to link to PS OBS SET when relevant Must be consistent with PS_OBS_ACTIVITY record where S_ACTIV_ID = 1 (A fishing set).	<S_SET_ID>	Y	
CATCH IDENTIFIER - PS	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be VESSEL + DEPARTURE DATE + SET START DATE + SET START TIME + SPECIES CODE + FATE CODE	CF	CF		To be used to link to PS OBS CATCH when relevant Must be a link to the corresponding PS_OBS_CATCH record for this SSI	<S_CATCH_ID>	Y	
SET IDENTIFIER – LL	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be VESSEL + DEPARTURE DATE + SET START DATE + SET START TIME	CF	CF		To be used to link to LL OBS SET when relevant Must be consistent with PS_OBS_ACTIVITY record where S_ACTIV_ID = 1 (A fishing set).	<L_SET_ID>	Y	
CATCH IDENTIFIER – LL	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be VESSEL + DEPARTURE DATE + SET START DATE + SET START TIME + SPECIES CODE + FATE CODE	CF	CF		To be used to link to LL_OBS_CATCH when relevant Must be a link to the corresponding PS_OBS_CATCH record for this SSI	<L_CATCH_ID>	Y	
SSI CATCH IDENTIFIER	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be VESSEL + DEPARTURE DATE + DAY LOG + SIGHTING TIME + SPECIES CODE + FATE CODE	CF	CF			<SSI_ID>	Y	
sgtype	Type of Interaction : 'L' - Landed; "S"- Sighted; "I" - Interacted with Gear Recorded by the office observer.	OO	OO	Char (1)	Must be 'L' - Landed; "S"- Sighted; "I" - Interacted with Gear	<sgtype>	Y	Sightings will not be included It is likely that only interactions that involve the gear will be captured, and this depends heavily on the positioning of the cameras, particularly for mitigation of seabirds south of 25°S.

EM ready
EM with work
EM not likely
EM Natural Key
EM new field
EM redundant

OBS_SSI

The observer must PROVIDE the following SPECIES OF SPECIAL INTEREST CATCH DETAILS for EACH FISHING SET for the period of the trip. There may be one or many records for each SSI record in PS_OBS_CATCH. When SIGHTED only, then this table is linked to the OBS_TRIP database table.

FIELD	Data Collection Instructions	Current Entry Source SETUP PRE OO POST AG CF	Future Entry Source SETUP PRE OO POST AG CF	Field format notes	Validation rules	XML TAG	WCPFC FIELD	Notes
	Needs to be restricted to only landings and interactions with the gear during fishing. Required appropriate placement of cameras focussed towards gear entering exiting water.							Difficult to determine interaction with gear setting.
sgtime	Time of Interaction : 'L' - Time of Landing; "I" - Time of Interaction / sighting This is the time first observer sighting			Char (1)	**Must adhere to the ISO 8601 format in Appendix A1**	<sgtime>	Y	
SSI_date	Local/Ship's date and time when this SSI was encountered. Generated by EM when flagged by the office observer.	**OO -> AG**	**OO -> AG**	REFER TO APPENDIX A1	When SGTYPE = 'L' or 'I' Must be consistent with PS_OBS_ACTIVITY record – ACT_DATE **Must adhere to the ISO 8601 format in Appendix A1**	<SSI_date>	Y	Not using ship's time for EM
UTC_SSI_DATE	UTC equivalent of SSI_DATE Generated by EM when flagged by the office observer.	**OO -> AG**	**OO -> AG**	REFER TO APPENDIX A1	When SGTYPE = 'L' or 'I' Must be consistent with PS_OBS_ACTIVITY record – UTC_ACT_DATE **Must adhere to the ISO 8601 format in Appendix A1**	<UTC_SSI_DATE>	Y	This should be consistent with simialr field in OBS_Catch. Potentially redundant for landings
lat	Latitude at which this SSI was encountered	**OO -> AG**	**OO -> AG**	REFER TO APPENDIX A2	When SGTYPE = 'L' or 'I' **Must adhere to the ISO 6709 format in Appendix A2**	<lat>	Y	This should be consistent with similar field in OBS_Catch. Potentially redundant for landings
lon	Longitude at which this SSI was encountered	**OO -> AG**	**OO -> AG**	REFER TO APPENDIX A2	When SGTYPE = 'L' or 'I' **Must adhere to the ISO 6709 format in Appendix A2**	<lon>	Y	This should be consistent with similar field in OBS_Catch. Potentially redundant for landings
sp_code	SSI Species encountered. Link to species table Potential for AG using image recognition	**OO**	**OO Potentially AG**	Char (3)	REFER TO APPENDIX 8. Must correspond to the PS_OBS_CATCH record	<sp_code>	Y	This should be consistent with similar field in OBS_Catch. Potentially redundant for landings
sp_desc	Extended Species Description Recorded by the office observer.	**OO**	**OO**	NText		<sp_desc>	N	

EM ready
EM with work
EM not likely
EM Natural Key
EM new field
EM redundant

OBS_SSI

The observer must PROVIDE the following SPECIES OF SPECIAL INTEREST CATCH DETAILS for EACH FISHING SET for the period of the trip. There may be one or many records for each SSI record in PS_OBS_CATCH. When SIGHTED only, then this table is linked to the OBS_TRIP database table.

FIELD	Data Collection Instructions	Current Entry Source SETUP PRE OO POST AG CF	Future Entry Source SETUP PRE OO POST AG CF	Field format notes	Validation rules	XML TAG	WCPFC FIELD	Notes
landed_cond_code	Condition code on LANDING Recorded by the office observer.	OO	OO	Char (2)	REFER TO APPENDIX 10	<landed_cond_code>	Y	Probably redundant - recorded in OBS_CATCH Work to improve the consistency in the collection of condition (life status) information Potentially redundant if OBS_CATCH has correct codes. ***DCC / WCPFC need to review codes for consistency and relevance to the field***
landed_cond_desc	Description of Condition on Landing or at start of interaction with vessel's gear Recorded by the office observer.	OO	OO	NText		<landed_cond_desc>	Y	Work to improve the consistency in the collection of condition (life status) information
landed_handling	Describe interaction / treatment / release Recorded by the office observer.	OO	OO	NText		<landed_handling>	N	Work to improve the consistency in the collection of condition (life status) information
landed_len	Length of landed species			Decimal (5,1)		<landed_len>	Y	Already recorded in OBS_CATCH. Potentially redundant ***Needs to be reviewed / agreed by DCC / WCPFC***
len_code	Length code of the individual			Char (2)	REFER TO APPENDIX 11	<len_code>	Y	Already recorded in OBS_CATCH. Potentially redundant ***Needs to be reviewed / agreed by DCC / WCPFC***
landed_sex_code	Sex code of the individual			Char (1)	REFER TO APPENDIX 12	<landed_sex_code>	Y	Already recorded in OBS_CATCH. Potentially redundant ***Needs to be reviewed / agreed by DCC / WCPFC***
discard_cond_code	Condition code on RELEASE/DISCARD, or at the END of interaction with vessel's gear			Char (2)	REFER TO APPENDIX 10	<discard_cond_code>	Y	Already recorded in OBS_CATCH. Potentially redundant ***Needs to be reviewed / agreed by DCC / WCPFC***

EM ready
EM with work
EM not likely
EM Natural Key
EM new field
EM redundant

OBS_SSI

The observer must PROVIDE the following SPECIES OF SPECIAL INTEREST CATCH DETAILS for EACH FISHING SET for the period of the trip. There may be one or many records for each SSI record in PS_OBS_CATCH. When SIGHTED only, then this table is linked to the OBS_TRIP database table.

FIELD	Data Collection Instructions	Current Entry Source SETUP PRE OO POST AG CF	Future Entry Source SETUP PRE OO POST AG CF	Field format notes	Validation rules	XML TAG	WCPFC FIELD	Notes
discard_cond_desc	Description of Condition on RELEASE/DISCARD, or at the END of interaction with vessel's gear	OO	OO	NText		<discard_cond_desc>	Y	Recorded by the office observer.
shk_fin_wt_kgs	Estimated SHARK FIN WEIGHT (kgs)	POST	POST	Decimal (5,0)		<SHK_FIN_WT_KGS>	Y	Alternate sampling means (e.g. sampling elsewhere) to ensure the requirements are met.
shk_fin_body_kgs	Estimated SHARK CARCASS WEIGHT (kgs)	POST	POST	Decimal (5,0)		<SHK_FIN_BODY_KGS>	Y	
tag_ret_no	Tag Number recovered from animal Record if tag fish encountered. Endeavour to complete tag recovery information	OO -> POST	OO -> POST	NVarChar (7)		<tag_ret_no>	Y	Unlikely that tag number will be recorded Flagged by office observer and then probably best collected at post-inspection. On the Gen – 2 form, they will also need to record the time and date of landing and species to be able to match it up with the video.
tag_ret_type	Type of Tag recovered from animal Office observer record the tag type			NVarChar (5)		<tag_ret_type>	Y	Flagged by office observer and then probably best collected at post-inspection. On the Gen – 2 form, they will also need to record the time and date of landing and species to be able to match it up with the video.
tag_ret_org	Origin of Tag recovered from animal (Organisation)	POST	POST	NVarChar (10)		<tag_ret_org>	Y	Unlikely that organisation will be identified
tag_place_no	Tag number placed on animal			NVarChar (14)		<tag_place_no>	Y	Not applicable. But noting that this is a ROP minimum requirement, additional tagging could be conducted during onboard observer trips.
tag_place_type	Type of Tag placed on animal			NVarChar (8)		<tag_place_type>	Y	Not applicable
tag_place_org	Origin of Tag placed on animal (Organisation)			NVarChar (10)		<tag_place_org>	Y	Not applicable

EM ready
EM Natural Key
EM with work
EM new field
EM not likely
EM redundant

OBS_SSI

The observer must PROVIDE the following SPECIES OF SPECIAL INTEREST CATCH DETAILS for EACH FISHING SET for the period of the trip. There may be one or many records for each SSI record in PS_OBS_CATCH. When SIGHTED only, then this table is linked to the OBS_TRIP database table.

FIELD	Data Collection Instructions	Current Entry Source SETUP PRE OO POST AG CF	Future Entry Source SETUP PRE OO POST AG CF	Field format notes	Validation rules	XML TAG	WCPFC FIELD	Notes
intact_id	Vessel activity when INTERACTION occurs Recorded by the office observer.	OO CF	OO CF	Int	REFER TO APPENDIX 13	<intact_id>	Y	Recorded automatically by the EM system. Potentially reduntant because datetime of interaction is recorded and can be linked back to SETHAUL LOG By cross-referencing with set/haul start and end times.
intact_other	Other types of interaction Recorded by the office observer.	OO	OO	NVarChar (20)		<intact_other>	Y	Not applicabel because we have limited office observations to only setting and hauling Unlikely this would be used with EM
int_describe	Description of the interaction Recorded by the office observer.	OO	OO	NText		<int_describe>	Y	Potentailly redundant because description mentioned above. Needs to be reviewed by DCC WCPFC
sgact_id	Vessel activity when SIGHTING occurs			Int	REFER TO APPENDIX 13	<sgact_id>	Y	General sightings will not be recorded by LL EM
sgact_other	Indicates "other" Vessel Activity			NVarChar (20)		<sgact_other>	N	General sightings will not be recorded by LL EM
sight_n	Number of individuals sighted			SmallInt		<sight_n>	Y	General sightings will not be recorded by LL EM
sight_adult_n	Number of adults sighted			SmallInt		<sight_adult_n>	N	General sightings will not be recorded by LL EM
sight_juv_n	Number of juveniles sighted			SmallInt		<sight_juv_n>	N	General sightings will not be recorded by LL EM
sight_len	Estimated overall length (Average if more than one individual)			NText		<sight_len>	N	General sightings will not be recorded by LL EM
sight_dist	Distance of sighted animals from vessel			Decimal (7,3)		<sight_dist>	N	General sightings will not be recorded by LL EM

EM ready
EM Natural Key
EM with work
EM new field
EM not likely
EM redundant

OBS_SSI

The observer must PROVIDE the following SPECIES OF SPECIAL INTEREST CATCH DETAILS for EACH FISHING SET for the period of the trip. There may be one or many records for each SSI record in PS_OBS_CATCH. When SIGHTED only, then this table is linked to the OBS_TRIP database table.

FIELD	Data Collection Instructions	Current Entry Source SETUP PRE OO POST AG CF	Future Entry Source SETUP PRE OO POST AG CF	Field format notes	Validation rules	XML TAG	WCPFC FIELD	Notes
sight_dist_unit	Units used for SIGHT_DIST			INT	1 = Metres; 2 = kilometres; 3 = Nautical miles	<sight_dist_unit>	N	General sightings will not be recorded by LL EM
sight_dist_nm	Distance in nautical miles			Decimal (10,4)		<sight_dist_nm>	N	General sightings will not be recorded by LL EM
sight_behav	Description of behaviour of Sighted animals			NText		<sight_behav>	N	General sightings will not be recorded by LL EM

EM ready
EM with work
EM not likely
EM Natural Key
EM new field
EM redundant

OBS_SSI_DETAILS

The observer must PROVIDE the following SPECIES OF SPECIAL INTEREST CATCH DETAILS for EACH FISHING SET for the period of the trip. The specific detail of eac interaction needs to be recorded/stored here.

FIELD	Data Collection Instructions	Current Entry Source SETUP PRE OO POST AG CF	Future Entry Source SETUP PRE OO POST AG CF	Field format notes	Validation rules	XML TAG	WCPFC FIELD	Notes
TRIP IDENTIFIER	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be VESSEL + DEPARTURE DATE	CF	CF			<OBSTRIP_ID>	Y	
SSI CATCH IDENTIFIER	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be VESSEL + DEPARTURE DATE + DAY LOG + SIGHTING TIME + SPECIES CODE + FATE CODE	CF	CF		Link to OBS_SSI table	<SSI_ID>	Y	
SSI DETAILS IDENTIFIER	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be VESSEL + DEPARTURE DATE + DAY LOG + SIGHTING TIME + SPECIES CODE + FATE CODE	CF	CF			<SSI_DET_ID>	Y	
start_end	Indication of “START” or “END” of interaction Recorded by the EM system after being flagged by the office observer.	OO -> AG	OO -> AG	Char (1)	Must be either ‘S’ for START or ‘E’ for END	<start_end>	Y	Likely to be birds or large animal entangled in line
SSI_number	Number of animals interacted Counted by the office observer	OO	OO	Int		<SSI_number>	Y	Need good definitions of interactions to maintain consistnecy between observers
cond_code	CONDITION at the point of recording (either START or END)			Char (2)	REFER TO APPENDIX 10	<cond_code>	Y	This differs from landed_cond_code from the previous table in that it can be and interaction with the vessel of gear before the animal is landed on deck.
description	Descriptions of the interaction **Recorded by the office observer**	OO	OO	VarChar (100)		<description>	N	**For example caught on the branch line, tangled in the sharkline?**

EM ready
EM with work
EM not likely
EM Natural Key
EM new field
EM redundant

OBS_JOURNAL

PROVIDE a description of the day's activities in a daily journal record for the trip.

FIELD	Data Collection Instructions	Current Entry Source SETUP PRE OO POST AG CF	Future Entry Source SETUP PRE OO POST AG CF	Field format notes	Validation rules	XML TAG	WCPFC FIELD	Issues
TRIP IDENTIFIER	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be VESSEL + DEPARTURE DATE	CF	CF			<OBSTRIP_ID>	N	
DAILY JOURNAL IDENTIFIER	Internally generated. Can be NATURAL KEY or unique integer. NATURAL KEY would be VESSEL + DEPARTURE DATE	CF	CF			<OBS_JRNL_ID>	N	
JRNL_date	DATE of Journal entry	OO	OO	REFER TO APPENDIX A1	**Must adhere to the ISO 8601 format in Appendix A1**	<JRNL_date>	N	**Recorded by the office observer.**
JRNL_TEXT	Daily journal entry	OO	OO	NText		<JRNL_TEXT>	N	**Recorded by the office observer.**

EM ready
EM with work
EM not likely
EM Natural Key
EM new field
EM redundant

APPENDICES

APPENDIX A1 – DATE/TIME FORMAT

The DATE/TIME formats must adhere to the following standard:
ISO 8601 - Dates and times format – both local and UTC dates

[YYYY]-[MM]-[DD]T[HH]:[MM]Z for fields designated as UTC date/time

[YYYY]-[MM]-[DD]T[HH]:[MM] for fields designated as LOCAL date/time

APPENDIX A2 – POSITION/COORDINATE FORMAT

The Latitude and Longitude coordinates must adhere to the ISO 6709 – Positions
Degrees and minutes to 3 decimal places

LATITUDE	+/- DDMM.MMM
LONGITUDE	+/- DDDMM.MMM

APPENDIX A3 – PORT LOCATION CODES

The PORT LOCATION Codes must adhere to the UN/LOCODE standard UPPERCASE CHAR(5)
United Nations - Code for Trade and Transport Locations (UN/LOCODE) – see
http://www.unece.org/cefact/locode/service/location

APPENDIX A4 – VESSEL IDENTIFICATION

The attributes to be provided for the VESSEL needs to be consistent with several VESSEL registers at the global and regional level. The most important are the proposed IMO/UVI standard vessel identifier (UVI), the WCPFC vessel register and the FFA Vessel register.

FIELD	Data Collection Instructions	Field format notes	Validation rules	XML TAG	WCPFC FIELD
VESSEL NAME	PROVIDE the VESSEL attributes which should be consistent with the attributes stored in the WCPFC and FFA Regional Vessel Registers	CHAR(30) UPPER CASE	Must be consistent with the WCPFC and FFA Vessel Registers	<VESSELNAME>	Y
COUNTRY OF VESSEL REGISTRATION		CHAR(2) ISO 3166-1 alpha-2 two-letter country code UPPER CASE	ISO 3166-1 alpha-2 two-letter country code Must be consistent with the WCPFC and FFA Vessel Registers Country of registration is distinct from the chartering nation, where relevant	<COUNTRYREG>	Y
VESSEL REGISTRATION NUMBER Fishing Vessels		CHAR(20) UPPER CASE	Must be consistent with the WCPFC and FFA Vessel Registers	<REGNO>	Y
FFA VESSEL REGISTER NUMBER		INTEGER(5)	Must be consistent with the FFA Vessel Register	<FFAVID>	N
WCPFC RFV VID		INTEGER(10)	Must be consistent with the WCPFC RFV	<WIN>	Y
UNIVERSAL VESSEL IDENTIFIER (UVI)		INTEGER(10)	Must be consistent with the WCPFC and FFA Vessel Registers	<IMO_UVI>	N
VESSEL INTERNATIONAL CALLSIGN		CHAR(10) UPPER CASE	Must be consistent with the WCPFC and FFA Vessel Registers	<IRCS>	Y

APPENDIX A5 –OBSERVER ACTIVITY CODES (PARTIAL PURSE SEINE)

S_ACTIV_ID	Description	FAD reference (to record BEACON field)	FORM Code version (old)
1	Set	YES	1
2	Searching		2
3	Transit		3
4	No fishing - Breakdown		4
5	No fishing - Bad weather		5
6	In port - please specify		6
7	Net cleaning set		7
8	Investigate free school		8
9	Investigate floating object	YES	9
10	Deploy - raft, FAD or payao	YES	10D
11	Retrieve - raft, FAD or payao	YES	10R
12	No fishing - Drifting at day's end		11
13	No fishing - Drifting with floating object	YES	12
14	No fishing - Other reason (specify)		13
15	Drifting -With fish aggregating lights	YES	14
16	Retrieve radio buoy	YES	15R
17	Deploy radio buoy	YES	15D
18	Transhipping or bunkering		16
19	Servicing FAD or floating object	YES	17
20	*Helicoptor takes off to search*		*H1*
21	*Helicopter returned from search*		*H2*

APPENDIX A6 –TUNA SCHOOL ASSOCIATION CODES (PURSE SEINE ONLY)

S_ACTIV_ID	Description	SCHOOL TYPE CATEGORY
1	Unassociated (free school)	UNASSOCIATED
2	Feeding on Baitfish (free school)	UNASSOCIATED
3	Drifting log, debris or dead animal	ASSOCIATED
4	Drifting raft, FAD or payao	ASSOCIATED
5	Anchored raft, FAD or payao	ASSOCIATED
6	Live whale	ASSOCIATED
7	Live whale shark	ASSOCIATED
8	Other (please specify)	
9	No tuna associated	

APPENDIX A7 – PURSE SEINE TUNA SCHOOL DETECTION CODES (PURSE SEINE ONLY)

DETON _ID	Description
1	Seen from vessel
2	Seen from helicopter; Use when vessel gets to the school of tuna that helicopter either: 1. reported on; or 2. dropped buoy on.
3	Marked with beacon
4	Bird radar
5	Sonar / depth sounder
6	Info. from other vessel
7	Anchored FAD / payao (recorded)

APPENDIX A8 – SPECIES CODES

Refer to the FAO three-letter species codes:

http://www.fao.org/fishery/collection/asfis/en

APPENDIX A9 – OBSERVER FATE CODES

FATE CODE	DESCRIPTION
DCF	Discarded - Line cut or Other
DDL	Discarded - Difficult to land
DFR	Discarded - fins removed and trunk discarded
DFW	Discarded - Discarded from well
DGD	Discarded - Gear damage
DNS	Discarded - No space in freezer
DOR	Discarded - other reason (specify)
DPA	Discarded - Protected species - Alive
DPD	Discarded - Protected species - Dead
DPQ	Discarded - poor quality
DPS	Discarded - protected species (e.g. turtles)
DPU	Discarded - Protected Species - Condition unknown
DSD	Discarded - Shark damage
DSO	Discarded - rejected (struck off before landing)
DTS	Discarded - too small
DUS	Discarded - Undesirable species
DVF	Discarded - Vessel fully loaded
DWD	Discarded - Whale damage
ESC	Escaped
RCC	Retained - Crew Consumption
RFL	Retained - Filleted
RFR	Retained - fins removed and trunk retained
RGG	Retained - gilled and gutted (retained for sale)
RGO	Retained - gutted only
RGT	Retained - gilled gutted and tailed (for sale)
RHG	Retained - headed and gutted (Marlin)
RHT	Retained - Headed, gutted and tailed
RMD	Retained - fins removed/trunk retained (MANDATORY)
ROR	Retained - other reason (specify)
RPT	Retained - partial (e.g. fillet, loin)
RSD	Retained - Shark damage
RTL	Retained - Tailed
RWD	Retained - Whale Damage
RWG	Retained - Winged
RWW	Retained - whole
UUU	Unknown - not observed

APPENDIX A10 – OBSERVER CONDITION CODES

CONDITION CODE	Description
A0	Alive but unable to describe condition
A1	Alive and healthy
A2	Alive, but injured or distressed
A3	Alive, but unlikely to live
A4	Entangled, okay
A5	Entangled, injured
A6	Hooked, externally, injured
A7	Hooked, internally, injured
A8	Hooked, unknown, injured
D	Dead
D1	Entangled, dead
D2	Hooked, externally, dead
D3	Hooked, internally, dead
D4	Hooked, unknown, dead
U	Condition, unknown
U1	Entangled, unknown condition
U2	Hooked, externally, condition unknown
U3	Hooked, internally, condition unknown
U4	Hooked, unknown, condition unknown

APPENDIX A11 – LENGTH CODES

Length Code	Description
AN	Anal fin length
BL	Bill to fork in tail
CC	Curved Carapace Length
CK	Cleithrum to anterior base caudal keel
CL	carapace length (turtles)
CW	Carapace width
CX	Cleithrum to caudal fork
EO	Posterior eye orbital to caudal fork
EV	Posterior eye orbital to vent
FF	1st dorsal to fork in tail
FN	Weight of all fins (sharks)
FS	1st dorsal to 2nd dorsal
FW	Fillets weight
GF	Gilled, gutted, headed, flaps removed
GG	Gilled and gutted weight
GH	Gutted and headed weight
GI	Girth
GO	Gutted only (gills left in)
GT	Gilled, gutted and tailed
GX	Gutted, headed and tailed
LF	lower jaw to fork in tail
NM	not measured
OW	Observer's Estimate
PF	pectoral fin to fork in tail
PS	Pectoral fin to 2nd dorsal
SC	Straight Carapace Length
SL	Tip of snout to end of caudal peduncle
TH	Body Thickness (Width)
TL	tip of snout to end of tail
TW	total width (tip of wings - rays)
UF	upper jaw to fork in tail
US	Upper jaw to 2nd dorsal fin
WW	Whole weight

APPENDIX A12 – SEX CODES

Sex Code	Description
F	Female
I	Indeterminate (checked but unsure)
M	Male
U	Unknown (not checked)

APPENDIX A13 – VESSEL ACTIVITY (SSI INTERACTION) CODES

Activity Code for interaction	Description
1	SETTING
2	HAULING
3	SEARCHING
4	TRANSITING
5	OTHER

APPENDIX A14 – SIZE AND SPECIES COMPOSIION SAMPLE PROTOCOL (PURSE SEINE ONLY)

Sample Type	Description
R	Random (GRAB) sample
S	SPILL sample
B	Bycatch only sampling
F	Small-fish only sampling
O	Other type of sampling protocol (please specify)

APPENDIX A15 – MEASURING INSTRUMENTS CODES (MODIFY FOR EM)

Measure Code	Description
B	BOARD
C	CALLIPER - ALUMINIUM
E	EYE
R	RULER
T	TAPE
U	UNKNOWN
W	CALLIPER - WOOD

APPENDIX A16 – TRIP MONITORING QUESTION CODES

QUESTION CODE	Description	WCPFC Question
RS-A	Did the operator or any crew member assault, obstruct, resist, delay, refuse boarding to, intimidate or interefere with observers in the performance of their duties	Y
RS-B	Request that an event not be reported by the observer	Y
RS-C	Mistreat other crew	N
RS-D	Did operator fail to provide observer with food, accommodation, etc.	Y
NR-A	Fish in areas where the vessel is not permitted to fish	Y
NR-B	Target species other than those they are licenced to target	N
NR-C	Use a fishing method other than the method the vessel was designed or licensed	Y
NR-D	Not display or present a valid (and current) licence document onboard	N
NR-E	Transfer or transship fish from or to another vessel	Y
NR-F	Was involved in bunkering activities	N
NR-G	Fail to stow fishing gear when entering areas where vessel is not authorised to fish	Y
WC-A	Fail to comply with any Commission Conservation and Management Measures (CMMs)	Y
WC-B	High-grade the catch	Y
WC-C	Fish on FAD during FAD Closure	N
LP-A	Inaccurately record vessel position on vessel log sheets for sets, hauling and catch	Y
LP-B	Fail to report vessel positions to countries where required	Y
LC-A	Inaccurately record retained 'Target Species' in the Vessel logs [or weekly reports]	Y
LC-B	Inaccurately record 'Target Species' Discards	Y
LC-C	Record target species inaccurately [eg. combine bigeye/yellowfin/skipjack catch]	Y
LC-D	Not record bycatch discards	N
LC-E	Inaccurately record retained bycatch Species	Y
LC-F	Inaccurately record discarded bycatch species	Y
SI-A	Land on deck Species of Special Interest (SSIs)	N
SI-B	Interact (not land) with SSIs	Y
PN-A	Dispose of any metals, plastics, chemicals or old fishing gear	Y
PN-B	Discharge any oil	Y
PN-C	Lose any fishing gear	Y
PN-D	Abandon any fishing gear	Y
PN-E	Fail to report any abandoned gear	Y
SS-A	Fail to monitor international safety frequencies	Y
SS-B	Carry out-of-date safety equipment	N

APPENDIX A17 – VESSEL / AIRCRAFT SIGHTINGS CODES (DIFFICULT FOR EM)

CODE	Description
1	SINGLE PURSE SEINE
2	LONGLINE
3	POLE AND LINE
4	MOTHERSHIP
5	TROLL
6	NET BOAT
7	BUNKER
8	SEARCH, ANCHOR OR LIGHT BOAT
9	FISH CARRIER
10	TRAWLER
11	LIGHT AIRCRAFT
12	HELICOPTER
13	OTHER

APPENDIX A18 – ACTION CODES (PARTIAL PURSE SEINE)

Action Codes	Description	FORM Used
AG	Aground	GEN6
BG	Bunkering (transfer of fuel), vessel observer is on is GIVING	GEN1, GEN6
BR	Bunkering (transfer of fuel), vessel observer is on is RECEIVING	GEN1, GEN6
CR	Retained from a set solely because of catch-retention rules	PS5
DF	Dumping of fish	GEN1
DS	Discarded into the sea	PS5
FI	Fishing	GEN1, GEN6
FO	Fish On-board	PS5
FS	From set	PS5
NF	Not fishing	GEN1
OG	Other, vessel observer is on is GIVING	GEN1
OR	Other, vessel observer is on is RECEIVING	GEN1
PF	Possibly fishing	GEN1
SG	Set sharing, vessel observer is on is GIVING	GEN1
SR	Set sharing, vessel observer is on is RECEIVING	GEN1,PS5
TG	Transferring fish between vessels, vessel observer is on is GIVING	GEN1,PS5, GEN6
TR	Transferring fish between vessels, vessel observer is on is RECEIVING	GEN1,PS5, GEN6
UL	Unloaded at cannery or cool store	PS5
WT	Transferred between wells	PS5

GEN1 – Vessel / Aircraft sightings
GEN6 – Pollution Report
PS-5 – Purse seine Well transfer

APPENDIX A19 –CREW JOB CODES (PARTIAL PURSE SEINE)

CODE	Description
1	CAPTAIN
2	NAVIGATOR/MASTER
3	MATE
4	CHIEF ENGINEER
5	ASSISTANT ENGINEER
6	DECK BOSS
7	COOK
8	HELICOPTER PILOT
9	SKIFF MAN
10	WINCH MAN
11	HELICOPTER MECHANIC
12	CREW
13	NAVIGATOR
14	FISHING MASTER
15	RADIO OPERATOR
16	TRANSLATOR

APPENDIX A20 – MARINE DEVICES CODES (SOME DIFFICULT FOR EM)

Code	Description	WCPFC FIELD	GEAR LIST CODES
1	BATHYTHERMOGRAPH MBT	YES	
2	BIRD RADAR	YES	SP
3	CHART PLOTTER	YES	LSP
4	DEPTH SOUNDER	YES	LSP
5	DOPPLER CURRENT MONITOR	YES	
6	SATELLITE BUOY	YES	S
7	FISHERY INFORMATION SERVICES	YES	LSP
8	GPS	YES	LSP
9	NAVIGATIONAL RADAR #1	YES	LP
10	RADIO BUOYS - CALL-UP	YES	LSP
11	RADIO BUOYS - NON CALL-UP	YES	LSP
12	RADIO BEACON DIRECTION FINDER	YES	LSP
13	SATELLITE - HF TELEX	YES	
14	SEA SURFACE TEMP. GAUGE	YES	LP
15	SONAR	YES	LSP
16	HF RADIO TELEPHONE	YES	
17	SMART-LINK PHONE	YES	
18	TRACK PLOTTER	YES	LSP
19	VESSEL MONITORING SYSTEM (VMS)	YES	LSP
20	WEATHER FACSIMILE	YES	LP
21	WEATHER SATELLITE MONITOR	YES	
22	NET SOUNDER		LSP
23	BINOCULARS		P
24	ECHO SOUNDING BUOY		S
25	EPIRB		

APPENDIX A21 – DEVICE USAGE CODES

Code	Description
	Not mentioned
ALL	used all the time for fishing
BRO	broken now but used normally
NA	Not applicable / Not filled
NOL	no longer ever used
OIF	used only in transit
RAR	used rarely
SIF	used often but only in fishing
TRA	used all the time

APPENDIX A22 – WEIGHT MEASUREMENT CODES

Weight measurement code	Description
CW	Captain's Estimate
FN	Weight of all fins (sharks)
FW	Fillets weight
GF	Gilled, gutted, headed, flaps removed
GG	Gilled and gutted
GH	Gutted and headed
GO	Gutted only (gills left in)
GT	Gilled, gutted and tailed
GX	Gutted, headed and tailed
NM	Not measured
OW	Observer's Estimate
TW	Trunk weight
WW	Whole weight

APPENDIX A23 – GONAD STAGE CODES

Gonad stage code	Short description	Description
N	No information	No information
I	Immature	Ovary small and slender. Cross-section round
E	Early Maturing	Enlarged, pale yellow ovaries. Ova not visible.
L	Late Maturing	Enlarged, turgid, orange-yellow ovaries. Ova opaque
M	Mature	Enlarged, richly vascular, orange ovaries, losing turgidity. Ova translucent.
R	Ripe	Greatly enlarged ovaries, not turgid. Ova easily dislodged and extruded by pressure.
S	Spent	Flaccid, vascular ovaries. Most ova gone. Often dark orange-red coloration.
R	Recovering	Vascular ovaries. Next batch of ova developing.

APPENDIX A24 – FAD ORIGIN CODES (PURSE SEINE ONLY)

FAD ORIGIN CODE	Description
1	Your vessel deployed this trip
2	Your vessel deployed previous trip
3	Other vessel (owner consent)
4	Other vessel (no owner consent)
5	Other vessel (consent unknown)
6	Drifting and found by your vessel
7	Deployed by FAD auxiliary vessel
8	Origin unknown
9	Other origin

APPENDIX A25 – FAD DETECTION CODES APPENDIX A25 – FAD DETECTION CODES (PURSE SEINE ONLY)

FAD DETECTION CODE	Description
1	Seen from Vessel (no other method)
2	Seen from Helicopter
3	Marked with Radio beacon
4	Bird Radar
6	Info. from other vessel
7	Anchored (GPS)
8	Marked with Satellite Beacon
9	Navigation Radar
10	Lights
11	Flock of Birds sighted from vessel
12	Other (please specify)
13	Vessel deploying FAD (not detected)

APPENDIX A26 – FAD MATERIAL CODES (PURSE SEINE ONLY)

FAD MATERIAL CODE	Description
1	Logs, Trees or debris tied together
2	Timber/planks/pallets/spools
3	PVC or Plastic tubing
4	Plastic drums
5	Plastic Sheeting
6	Metal Drums (i.e. 44 gallon)
7	Philippines design drum FAD
8	Bamboo/Cane
9	Floats/Corks
10	Unknown (describe)
11	Chain, cable rings, weights
12	Cord/rope
13	Netting hanging underneath FAD
14	Bait containers
15	Sacking/bagging
16	Coconut fronds/tree branches
17	Other (describe)

APPENDIX A27 – FAD TYPE CODES (PURSE SEINE ONLY)

FAD TYPE CODE	Description
1	Man made object (Drifting FAD)
2	Man made object (Non FAD)
3	Tree or log (natural, free floating)
4	Tree or logs (converted into FAD)
5	Debris (flotsam bunched together)
6	Dead Animal (specify; i.e. whale, horse, etc.)
7	Anchored Raft, FAD, or Payao
8	Anchored Tree or Logs
9	Other (please specify)
10	Man made object (Drifting FAD)-changed

APPENDIX A28 – POLLUTION GEAR CODES

POLLUTION GEAR CODE	DESCRIPTION
1	Lost during fishing
2	Abandoned
3	Dumped

APPENDIX A29 – POLLUTION MATERIALS CODES

POLUTION MATERIALS CODES	DESCRIPTION
1	Plastics
2	Metals
3	Waste Oils
4	Chemicals
5	Old fishing gear
6	General garbage

APPENDIX A30 – POLLUTION SOURCE CODES

POLLUTION SOURCE CODES	DESCRIPTION
1	Vessel Aground/Collision
2	Vessel at Anchor/Bearth
3	Vessel Underway
4	Land Based Source
5	Other

APPENDIX A31 – POLLUTION TYPE CODES

POLLUTION TYPE CODES	DESCRIPTION
1	Waste dumped overboard
2	Oil splillages and leakages
3	Abandoned or Lost Fishing Gear