TUNA FISHERY DATA COLLECTION COMMITTEE

*Longline Electronic Monitoring*

*Compliance Data and*

*Transhipment Standards*

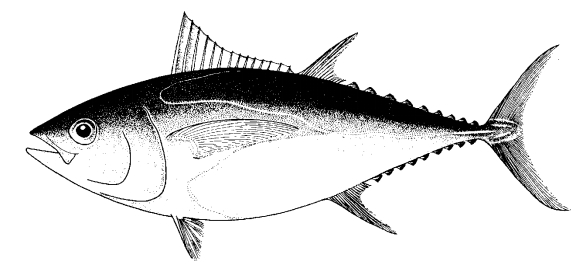
*Workshop*

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from Noumea,

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# PRELIMINARIES

## Appointment of Chairperson and Rapporteurs

Mr Timothy Park of the Pacific Community (SPC) agreed to continue on in the role of chairperson for the Tuna Fishery Data Collection Committee (DCC). Mr Malo Hosken was nominated as the SPC contact for the meeting, while Ms ‘Ana Taholo was the Forum Fisheries Agency (FFA) nomination. Ms Deirdre Brogan was elected the head rapporteur for the meeting.

## Adoption of Agenda

The indicative schedule was circulated before the meeting and adopted without change. All reference and discussion documents were posted on the meeting [website](https://oceanfish.spc.int/en/meetingsworkshops/dcc/512-ll-em-compliance-data-and-transhipment-standards-workshop-2020). The meeting was held online using the Zoom platform. The online participants included staff from FFA, Western and Central Pacific Fisheries Commission (WCPFC), Parties to the Nauru Agreement (PNA), Commission for the Conservation of Southern Bluefin Tuna (CCSBT) and member countries with the technical expertise in electronic monitoring; Fiji, Federated States of Micronesia (FSM), Palau, Republic of the Marshall Islands (RMI), and the Solomon Islands.

## Opening Remarks

Mr. Netani Tavaga (Ministry of Fisheries, Fiji) offered the opening prayer.

The main focus of the meeting was to review the status of longline electronic monitoring (LL EM) minimum data fields for compliance and, in addition, propose minimum standards for transhipment monitoring (data fields and training). The early agenda sessions were scheduled to examine and propose a set of compliance data fields under compliance categories, to consolidate with the table of science data fields which were developed at the DCC Feb, 2020 meeting. DCC has always offered a platform for hearty discussions around the need, the purpose, suitability and utility of tuna fishery data fields. This expertise is now turning its attention to data fields for electronic monitoring. An outcome of the meeting would be a comprehensive set of compliance fields for LL EM, which can be progressed through the usual channels of the Monitoring, Compliance and Surveillance working group (MCSWG) and the Forum Fisheries Committee (FFC) meeting.

# BRIEF RECAP ON STATUS OF EM LL MINIMUM DATA FIELDS

This session was presented by Mr Hosken (SPC) using the list of recommendations that were developed during the pre-DCC Oct, 2020 meeting. The discussion paper (DP) is available on the meeting website.

[DP-04: Pre-Data Collection Committee Workshop](https://oceanfish.spc.int/en/publications/doc_download/2053-dcc-2020-nov-dp-04-pre-data-collection-committee-workshop-october-2020-final)

As a recap, the draft longline electronic monitoring standards were developed at meetings held at SPC during 2016 and 2017. The agreed data standards were tabled, reviewed and approved by the WCPFC E- reporting and E-monitoring working group (ERandEMWG). These were subsequently delivered to member countries data review centres, and have been used to analyse longline electronic monitoring video since that time. These standards were once again reviewed by the DCC Feb, 2020 meeting and the results of that work was tabled as an information paper at the 16th WCPFC Scientific Meeting (WCPFC SC16) and the 4th ERandEM Working Group. A subsequent review occurred during a pre-DCC meeting (Oct, 2020) where the status, effectiveness and relevance of each data standard was evaluated by a core group of member countries running national longline electronic programmes. Many of the key recommendations from that pre-DCC meeting make up the recommendations that are now being presented to the participants for consideration.

Discussions around improving the process of calibration of the digital length measurement tool was given considerable time during the pre-DCC meeting. A key issue is ensuring that the calibration is done correctly, which in a practical sense often means ensuring the measurement is done inside the calibration area, or on the mat. Gaining support from the service providers to ensure that they continue to engage in further research and development is essential to provide high quality length data in the future.

During this presentation the participants reviewed the recommendations that were accepted by the pre-DCC Oct, 2020 meeting. The following discussion points were raised:

FSM stated a preference for reducing workloads through the provision of pre-loaded tables like the regional fishing vessel (RFV) list. It was stated that this can be made a requirement of the standards as long as the information (RFV or other) is in the public domain.

The analyst’s name will be added as new data field to better identify the individual analyst. The workshop suggested that the process for generating unique codes identifying analysts should be done in the same manner as is presently done for observers. Observer names and codes are stored in the regional field staff reference table. This table also stores their skills and trainings. Generating the analyst’s code in the same manner as the observer code was generally agreed upon. If, however, a requirement to generate these codes separately is identified it can easily be done.

Capturing the name of the data review centre and the name of the county separately will facilitate the identification of the actual review centre while maintaining the integrity of the ownership (country). This also paves the way forward for one country to review the data for another country, as the ownership of the data (country) won’t change only the name of the review centre.

All data review centres will need to adhere to the review standards, however the type of data being analysed may differ between data review centres.

The reason or purpose for collecting each data field is shown in the final table for minimum data field standards in the  [LL EM Data Fields DCC Feb. 2020](https://oceanfish.spc.int/en/meetingsworkshops/dcc/510-data-collection-committee-review-of-longline-electronic-monitoring-data-fields-4-6-feb-2020) meeting.

In the future DCC could consider another column to show how each data field is used in analysis.

Recommendation #8 (software name and version) could be automated and embedded into the review software so the analyst would not be required to fill it. DCC should consider what process or language could be used to require service providers to deliver this important information without classifying it as a minimum data field.

The purpose of collecting the ‘bait weight’ was queried. It was noted that it is important data and is used in economic studies. It is also known that are there are alternative ways of collecting the data e.g. industry records. Fiji noted that they were easily able to trap the weight of the bait through EM video, explaining that the placement of the camera has proven helpful. The meeting decided to further explore the requirement to record total weight bait, noting the philosophy of project 93 and the possibility of collecting the information through complementary monitoring methods.

Once again, DCC questioned the need to display or capture data fields that continue to produce no data. More pertinently, capturing attributes of ‘special gear’, used to prevent sea-bird interactions continuously produces null data sets. It is frequently shown that sea-bird interactions are rare in member countries. WCPFC stated that it was still necessary to show that interactions with sea-birds are being monitored, even if these interactions are low or non-existent in some member countries as questions around sea-birds are regularly tabled at commission meetings. The meeting strongly recommended that service providers continue to capture the special gear attributes data fields in their software.

During the LL EM Data Fields DCC Feb, 2020 meeting it was noted that capturing hook number is only mandatory for species of special interest (SSIs). However, some service providers’ software continues to make this mandatory for all hooked species. So currently, some countries are capturing the hook number for all catch, while others are not. This places an unequal burden on some countries. More troublingly, some processes allow the analyst to capture *an estimate* of the hook number. This invalidates all records. SPC suggested that the standards be re-written to allow countries to make their own decision on whether to collect this data, while noting that estimating the hook number should never be done. This data field should no longer be mandatory. SPC explained that in the future this will be done using algorithms and/or smart hooks and the analyst will only have to identify the event in the video sequence. In the meantime, Fiji stated that the extra burden of recording the actual hook numbers for all catch was not too onerous for the moment.

Some species codes for species not normally found in the Western and Central Pacific Ocean (WCPO) have been recorded, perhaps by error. A new field (or process) to show whether the analyst has confidence in the species they have identified was proposed. The ability to capture the correct species may depend on the camera angle etc. Degrees of confidence could also be prescribed. 1- very accurate, 2 – less accurate, etc., although a definite or non-definite category may be more useful. Flagging unclear species identification may help with auditing processes. Analysts currently use the FAO code ‘UNS-unidentified species’ or a group-level code to record species they cannot identify. A warning message could appear if a non-WCPO species is entered into the system. On rare occasions non-WCPO species may migrate to areas outside their normal range. The language in the processes should define more clearly how records for non-WCPO species could be accepted as true.

Mr Hosken (SPC) explained the pressing need for service providers to strongly engage in the calibration and use of the length measurement tool. A number of countries are wondering if their EM length data can be used for stock assessment purposes.

The calibration of the measurement tool will be enhanced by providing a stricter protocol around its use, and strengthened through the provision of specific data fields to capture adherence to the protocol. If each element of protocol has been followed the length measurement will be classified as ‘precise’. The calibration process requires a mat to be placed on the deck. This is currently being done at the start of every trip, but in the future observers (or crew) could be tasked with this. Length measurements can also be verified by comparing them with observer or port sampling data.

Length measurements must be precise to within one cm if the data is to be used in stock assessments. This requirement is species dependent, (i.e. for bigeye and yellowfin it is 1 cm, but for albacore it is 2cm) and this could be clarified in the protocol. The interplay between point three and point four of the measurement protocols was queried. It was suggested that if point three (calibration mat in place) was valid, then point 4 (analyst’s determination of precision) was not necessary. Point four supports the idea that an analyst is best placed to decide whether a measurement is accurate or not, and their expertise should be trapped by the protocol. FSM highlighted the effect of the quality of equipment (cameras, mat movement etc.) on the precision of the measurement.

SPC mentioned that length is highly influential in stock assessments and that if weak data is used it can lower the confidence in the assessment. If length measurement data does not meet the stock assessment criteria, they can still be used in other analysis, or perhaps in stock assessments. This will depend on how the data influences (changes) the stock assessment result.

A new field to show that a short video clip was captured was proposed. This would be for catch events and it would be helpful for auditing purposes. The video clip would be automatically captured and saved. This decision to use this process could be made at the national level. In discussions there were some reluctance around the amount of extra file storage this would take. Some reflection is required on why this footage would be required. Fiji noted that they did this but only for compliance and SSI events. A system to classify the type or times to take these of clips may help this proposal. The procedures could be automated once classified. The challenges of using more storage space should considered against the advantages of quickly getting back to incidents, as time spent searching for the right hard drive etc. often hampers efforts to find processed video in a timely manner. FSM thought that this might be a good feature for vessels on the High Seas, as it would be easier to send the video to the country of interest

The updated recommendations are available as an output from this meeting’s website.

# EM LL MINIMUM COMPLIANCE DATA FIELDS

## Review of proposed compliance categories

[DP-05 Compliance Categories](https://oceanfish.spc.int/en/publications/doc_download/2054-dcc-2020-nov-dp-05-compliance-categories-final)

Ms Taholo (FFA) presented this paper.

The new compliance categories for electronic monitoring have been developed over a number of meetings. The work began with the DCC Feb, 2020 meeting, although it was not possible to finish the work at that point. Following on from that meeting the compliance categories were tabled at the 23RD Monitoring, Control and Surveillance Working Group (MCSWG-23) in May, 2020. The MCSWG-23 also found that further work was required and so was re-tasked to DCC..

This meeting was tasked with generating individual compliance data fields for electronic monitoring to populate the agreed categories. The initial approach was to use the GEN-3 observer ‘Trip Summary’ form as a template, as it comes with number of advantages. It is already used by observers, it is closely aligned to the WCPFC minimum data standards for observers, and through its use in the compliance monitoring scheme it is domesticized by member countries. Another source of possible compliance data fields are the current WCPFC Conservation and Management Measures (CMMs) and these were explored.

Possible data fields listed in Annex 1 of the paper were reviewed and discussed by the participants.

## EM LL Additional Data Fields for Compliance

[DP-05 Compliance Categories](https://oceanfish.spc.int/en/publications/doc_download/2054-dcc-2020-nov-dp-05-compliance-categories-final)

Possible data fields listed in Annex 1 of the paper were reviewed and discussed by the participants.

This paper was presented by ‘Ana Taholo (FFA).

### Pollution

MARPOL was the first category to be considered at the meeting. It was not known if MARPOL has been signed by all member countries and for this reason, the MARPOL category was re-titled ‘pollution’. This proposed change was accepted. As a clarification it was noted that the WCPFC CMM on MARPOL only considers the dumping of plastics and it does not take the dumping of fishing gear into account, though it does exe3mpt deployment of gear for later retrieval..

The GEN 3 form offers five queries around pollution infringements for observers to deliberate on. After some discussions the participants suggested that only the discharge of plastics and oil could be trapped by LL EM. In the case of pollution, and in fact for most compliance data fields, the placement of the camera will be a decisive factor in whether the infringement can be captured. To fully capture pollution events on vessels all camera blind spots would need to be covered/removed.

It was clear that LL EM will not be able to capture all pollution elements on the GEN-3 form e.g. whether the vessel ‘failed to report on pollution’. Of interest is that FFA will shortly be conducting an analysis of MARPOL compliance that may feed into this process at a later stage.

### Targeting Species other than those they are licensed to target

Normally LL EM is fully capable of determining whether the vessel was targeting species it is not licensed to do so by capturing *the type of gear* and bait that was deployed, and possibly the location of the fishing. As a clarification the group was reminded of DCC Feb, 2020 discussions where it was clarified that the EM analysts will flag the video if a potential compliance event has occurred, but compliance personnel will be responsible for determining if a compliance event has occurred.

### Social Behaviour

After considering the four listed points under GEN-3 and the CMM on observer safety, the group suggested that EM can capture any observer or crew mistreatment that happens within the view of the camera. Camera obstruction or tampering can also be captured under this category. It would not be possible to spot if a vessel ‘requested an incident not be reported’ or if it ‘failed to provide proper accommodation for the observer’.

### Criminal behaviour

There were no known infringements in this category that could successfully captured by LL EM. It may be possible to capture; people trafficking (if an excess number of persons transfer between vessels), extreme violence or the transfer of substances that are clearly contraband.

### Licensing Conditions

Fiji clarified that most of the corresponding GEN-3 compliance elements (area fished, type of gear, bunkering activity, stowing gear) can be captured though EM. It will not be possible to see if the vessel has a current licence. No other relevant compliance elements were found after a review of national legislation.

### Species of Special Interest

There are currently four CMMs relating to species of species interest (turtles, birds, cetaceans and sharks) and these were reviewed.

Much of the discussions were around how to interpret or operationalise the shark finning regulations. It was explained that the intention of the CMM was to prohibit shark finning, and in that regards sharks must always have their own fins attached to the carcass when landed in port. However, processing of the sharks can be seen on deck during fishing period, and EM will capture this. It would also be important to demonstrate monitoring for the no-take regulations around oceanic whitetips and silky sharks. A specific data field should be added to show this. Normally, it will be clear and easy to capture species of special interest that are trapped by the gear and landed on deck. However, it is less likely that LL EM will capture interactions of species of special interest with gear that does not result in a capture.

Compliance data can be automatically populated through validation of species and fate codes, freeing the analysts to do other work. Although there will continue to be a need to read through the video in a manner that will ensure that all possible compliance events are trapped. FSM reminded the group that there may be some complexity in flagging compliance events based on the vessel’s flag, the area fished, and location of the data review centre.

### Gear Compliance

The participants confirmed that all of the special gear attributes can be detected by LL EM. These data fields (tori poles, blue bait, deep-setting line shooter and strategic offal disposal) could be automatically generated for vessels fishing between 25°S and 23°N, where the use of this gear is not compulsory. The participants suggested that even if data fields are automatically generated it is better if the specific data fields are listed and viewable by the analyst. This shows that monitoring is taking place. It was also possible for the camera to see if the vessel was using a line cutter gear for landed turtles.

### Transhipment

Transhipment events would be triggered when two vessels come into proximity and a transfer of fish was noted. The EM analyst could capture the name of any transhipping vessel and run an auto-check on the regional or WCPFC fishing vessel list, check on its authorisation to tranship, and the location of the transhipment.

### Other National Regulations

After a review of other national regulations, no other relevant compliance events were identified. This was confirmed by LL EM staff in FSM and Fiji.

### Others

It was thought not possible for LL EM to capture whether the vessel was monitoring international safety frequencies or completing the logbook correctly. High grading of catch is mostly relevant for purse-seine vessel, so this was less relevant for longline monitoring.

A ‘catchall’ data field for other potential compliance events was suggested and accepted.

Across a number of compliance topics, the group suggested that camera location was important, and that the poor camera placement either through maliciously intent or otherwise could result in limited capture of compliance events.

There was agreement of a way forward with EM LL minimum compliance data fields.

The updated data compliance data fields are available as an output from this meeting’s website.

# EM LL POLICY OUTCOMES

## Development/review of TORs for work related to developing SSPs

In June, 2020 the Forum Fisheries Committee (FFC) adopted the Longline Electronic Monitoring Policy in support of the development of national LL EM programmes, and this document will serve as a driving force for LL EM work in the future. The policy includes a number of key tasks and FFC agreed that the three secretariats SPC, FFA and PNA should come together and develop a medium-term work plan. The majority of the required work will be around developing the standards, (which is Section 7 of the policy document).

The three agencies have now met twice and has focused on developing a workplan. The action items in the workplan will form the basis of Terms of Reference (TOR) for specialists to progress the identified tasks., The workplan has been developed as a spreadsheet to structure tasks to achieve the outputs identified in the policy. The workplan has been constructed to articulate the intentions of the LL EM Policy and aggregates tasks around each of the EM Policy’s standards. The workplan includes a version control, identifies when agencies meet, the work that was done, suggests priority tasks, the lead agency and focal person that is responsible for each task, tis priority and feasibility. The budget, although not fully identified, has been allocated a column, and general time frame for completion was added.

The document will remain a living document, and updates will be presented to DCC. It was not provided to the participants, but this will be done in the future possibly through a LL EM website.

After an introduction to the concept, agencies sought comment and general support for this approach from the participants. FSM welcomed the new tool and were confident that they would provide feedback once they had time to review it.

## Equipment Standards.

[DP-08 Draft TORs for EM Equipment Onboard Vessels](https://oceanfish.spc.int/en/publications/doc_download/2064-dcc-2020-nov-dp-08-draft-tors-for-em-equipment-onboard-vessels)

[DP-09 Draft TORs for EM Equipment in DRCs](https://oceanfish.spc.int/en/publications/doc_download/2066-dcc-2020-nov-dp-09-draft-tors-for-em-equipment-in-drcs)

These papers were presented by Malo Hosken (SPC).

The equipment standards are referred to in the LL EM Policy. To advance the equipment standards the draft Terms of References that will guide the work of any specialist were shared with the meeting participants. Any work should be done in collaboration with active LL EM member countries, with an overall intention of possibly completing the work before the next DCC.

It was acknowledged that there are some linkages between this and the standards for the E-Reporting tools used onboard, so those linkages could be made clear in the next version of equipment SSPs. FSM requested that the onboard backup and storage equipment be covered in the equipment SSPs, pointing out that this was separate to the backup systems used in the DRC.

SPC suggested that the potential structure of the equipment SSPs, could be based on previous work done on the SSPs for the regional vessel monitoring system (VMS), accepting that EM equipment is more complex than VMS. FFA confirmed that the VMS SSPs are publicly available and that it would be a good reference document for the identified consultant.

Fiji requested that the equipment standards ensured that marine grade equipment, is used as past experiences have shown that land-based equipment can be damaged easily. RMI enquired about the data needs listed for observer and crew safety in the document. They understood that this was not a current data element and queried whether the inclusion of this would be an additional burden on small developing programmes. SPC replied that this was based on a number of requests for EM to monitor observer safety, but it was not compulsory and could be implemented at the national level.

In response to the presentation FFA clarified that the integrity of the EM systems is covered under section 10 of the LL EM policy.

## Coverage Analysis Rates

[DP-01 Draft Guidelines for EM Coverage Analysis Rates](https://oceanfish.spc.int/en/publications/doc_download/2048-dcc-2020-nov-dp-01-draft-guidelines-for-em-ll-coverage-analysis-rates-final)

This paper was presented by Peter Williams (SPC).

The basis for establishing LL EM coverage (number of vessels with LL EM video equipment onboard) and analysis rates (the percentage of sets from an individual trip reviewed) can be found in the LL EM Policy Paper, or more specifically in section 7.2.1 of the Policy. The Policy provides broad coverage (100%) and analysis (20 %) rates. The planning and policy meeting identified an early task as developing the guidelines to help establish the standards for implementing coverage and analysis rates.

The intention of the presentation is to initiate the discussion that will help advance the draft guidelines to ensure there will be consistency and compatibility across the region. It also acknowledges that an understanding of the resource requirements (costs) is required to obtain a systematic approach to coverage (equipment) and analysis (review).

As an FFA policy document, the LL EM policy refers to vessels that are licensed to fish in and around FFA Members’ waters, and includes Members’ domestic fleets. The FFA vessel register provides a good foundation for establishing coverage. In doing this there needs to be some acknowledgement that some countries are presently more advanced in their use of LL EM. VMS has already set a precedent for the implementation of compliance equipment onboard vessels, and this approach could be duplicated. In the long-term coverage rates would need to be compatible with WCPFC’s Regional Electronic Monitoring Programme (REMP) and the philosophy of Project 93 (integrated data), while acknowledging that coverage rates would need to be equal or unbiased across all fleets. i.e. the longline High Seas fishery.

All longline vessels will be required to have EM equipment onboard (100% coverage of EM equipment). It was noted that the type of monitoring equipment vessels use may affect the coverage rate or more specifically the confidence in the data (if the video is not readable). This shows the need to detail the quality of the camera in the equipment SSPs, and also demonstrates how many of the SSPs will be interchangeable.

The FFA vessel register could be a good platform to register LL EM equipment. Additional checks would be around who supplies the information and who checks the validity of the submitted information. Other tasks to be covered would be drafting national legislations to ensure the installation is a mandatory requirement.

The actual EM analysis coverage rates can be set by individual counties (although there is some requirement to align to the regional agreed levels). It has already been established through the WCPFC that LL EM will *compliment* observer coverage, but one comment suggested that it was not understood if vessels with 100% observer coverage would still be required to have EM onboard. In reply it was clarified that EM is an *independent source* of data to observer data, and therefore it would *not* be affected by observer coverage rates. Different sources of data can still be combined for scientific analysis.

Coverage should consider spatial bias, as more trips occur in the EEZs than in the High Seas. It was clarified that in the presented document, which is for FFA member countries, the High Seas vessels were nationally flagged vessels who also fish in the adjacent High Seas. Once the work on coverage level is brought to the WCPFC level, coverage rates for non-FFA flagged vessels fishing on the High Seas can be decided and will be a high priority for FFA members.

A tool to randomly select the 20% of sets for analysis will need to be developed. This tool should follow certain ‘business rules’ clarified in the SSPs that consider fairness as well as science and compliance analysis requirements. The rules could illustrate the procedures for any missing video; either by requiring the vessel to go to manual reporting, return to port, or through the provision of any observer data (if onboard). The SSPs for VMS offer some guidance (or precedents) on malfunctioning equipment, but other solutions may be more pertinent for LL EM. Both systems can send real-time alerts in regard to equipment failure.

A regional risk-based analysis would need to take any possible equipment failure into account, and this could be decided at the national level. It was noted that compliance infringements may trigger increased analysis. That said, this was complicated by the combination of the flag of the vessel, the review centre location and the location of fishing. For instance, it was not yet clear who would review the footage for the High Seas, and FSM pointed out the agreed action would depend on whether a vessel was breaking a national law or another flag state’s law.

Analysis should always be done by certified EM Analysts.

The paper offered some guidelines on how analysis rates could be achieved at the national level; noting that for the moment there are no agreements on analysis rates, which may be different between foreign and domestic vessels. Budgeting guidelines considers that the cost of recovering the hard drives will be dependent on the port of return, which will ultimately be affected by the final location of the data review centres. These could be based nationally, or within or outside the region. There will be a need to achieve a regional analysis rate and the sub-regional agencies may play a role in that, if only to fill in data gaps, which will be decided by the level of national engagement, which is agreed at national level.

FSM outlined some of their own experiences, and confirmed that that some of their biggest challenges have been retrieving hard drives from overseas ports. They noted that the location of the data review centre should take both the retrieval of the hard-drives and the on-going maintenance of the onboard systems into consideration. SPC suggested that if DRC are established outside the region it is likely that auditing of these centres will be required. FSM confirmed that the retrieval of hard drives can be covered in licensing conditions, but that it will be more difficult to establish for fleets that only fish on the high seas and do not off-load in a regional port.

Outsourcing this work may one solution. Setting out the standards and ensuring they are met through auditing would enable this approach. Ultimately it will be up to member countries to continue these discussions and agree on the way forward.

Tables showing possible scenarios for analysis rates by a member country were presented as a possible guideline. In the tables, different DRCs are used for different components of the fleet. Much like other types of data, bi-lateral agreement or sub-regional data-sharing arrangements may be required to allow DRCs to analyse video from other countries. A second table showed a worked example of the total number hours required to analyse all videos for one country as distributed across the national analyst team, and perhaps sub-regional review centres. This example could be used by countries to estimate costs. FSM asked that the table is updated to include vessels that both depart and return to non-FFA ports.

Ms Taholo (FFA) raised that independence and impartiality in monitoring is an important principle. This is a guiding principle of [Regional Longline EM Policy](https://oceanfish.spc.int/en/publications/doc_download/2047-ffa-ll-em-policy-final-ffc114-adopted) for the implementation of regional and national EM programmes. This implies a country should not review its own trips, but it was of course easier to retrieve the hard drives from vessels that unload locally. One possibility would be to keep DRCs independent from the country, but that may be constrained by the number of vessels unloading. For instance, the 5 vessels equipped with LL EM and landing locally in FSM were unlikely to utilise an independent centre outside FSM. A further complication are vessels fishing in multiple zones. Attributing the data from these trips would be challenging, but it can be done by drilling down to the separate data strata. WCPFC mentioned that obtaining 100% video coverage, but only using 20% will require further reflection on the rules for the stored data. Further discussion is warranted.

The tables and the meeting’s useful discussions will serve as the basis for future guidelines for countries to set coverage levels. SPC offered to work with individual countries intersessionally.

## EM Records analysis

[DP-06 – EM Data Analysis and Quality Assurance TORs](https://oceanfish.spc.int/en/publications/doc_download/2062-dcc-2020-nov-dp-06-em-data-analysis-and-quality-assurance-tors-final)

Tim Park (SPC) presented this paper.

In the draft LL EM policy it is noted that countries will need to adopt standards for EM records’ analysis (how videos are read) and quality assurance (show best practices are followed). To progress work in this area it was noted that the basis for how data should be acquired from LL EM video is outlined in the document on minimum data standards for EM.

The draft Terms of Reference for a consultancy to do this work has been drawn up. The TORs include reviewing current documentation and procedures and subsequently producing detailed instructions on how the analyst should capture each data field. The data outputs should allow the LL EM data to be easily integrated with data capture through other data systems or monitoring programmes. The TORs could elaborate on how data fields are captured (data protocols), which the standards need to consider.

The requirement for data quality assurance for EM records was addressed under the draft consultative proposal for minimum data standards for the REMP. The paper suggested that CMMs ensure that data quality procedures are in place and include data quality checks (cross-checking) and reviewing (debriefing). The EM quality assurance process was further explored at the second EM Process Standards Workshop (2017).

The process of interpreting video to produce data was the point where data quality processes are required. The quality assurance process requires both verification and validation. Verification standards should involve both automated and human checks of the data. Data can be verified with a number of automated checks for completeness, data ranges and format. Having an independent reviewer also ensures that the protocols for interpreting the videos into data have been followed. This may include checking for how critical incidents were identified and processed, include interviewing the analysts and perhaps require double-reviews of some records. Validation would be the process of cross referencing EM with other sources and compare the EM data to complementary sources of data.

Draft Terms of Reference for a consultant to develop the SSP for EM data quality were presented. FSM asked whether the process would be done at the data review centre or by service providers – who currently carry out some of this work. SPC pointed out the consultancy would look into these issues, but that it was likely to be a combination of both. FSM voiced their support for good data quality processes as it was important that the data gathered through the EM process was useable. They would also appreciate a process to acknowledge good analysts.

## EM Training and Capacity

[DP-07 EM Training and Capacity TOR.](https://oceanfish.spc.int/en/publications/doc_download/2063-dcc-2020-nov-dp-07-em-training-and-capacity-tor-final)

Tim Park (SPC) presented this paper.

LL EM Policy requires member countries to develop standardised training for EM systems. The training should be cost effective, involve SPC, FFA and PNA and draw on the experience of PIRFO.

An early draft consultative process for REMP also noted that analysts should undergo training.

The SPC/FFA membership has established the PIRFO framework which includes a unit of competency for EM Analyst training. This competency details the knowledge and skills required to be an EM analyst. It is set at Level 3, as an endorsement unit with the basic observer qualification as a pre-requisite, it is structured to focus on the skills required for EM analysis, while relying on certain skills such as species identification to be taught in basic observer training.

Three PIRFO qualifications have been accredited under the ‘Pacific Qualifications Framework’ by the Pacific Board of Educational Quality. With this the foundations to obtain recognition for any future EM Analyst trainings have already been well established.

Work is now focusing on developing the training material for EM analysts, and SPC (Hosken) has already made a start on this. Documentation is required to provide the material for the training. It is also a compulsory pre-cursor to establish the training and assessment strategy (TAS) and to get external recognition and validation of the qualification. There is a need to describe and show who and what will be taught, the curriculum outline and assessment materials.

The Terms of Reference to develop the training standards were presented. Current trainings in the region, run by EM service providers are aligned to one or two of the elements of the competencies (e.g. set up and record), so this type of training could continue to be delivered, but the other elements of the EM Competency are also needed and these could be covered by national trainers or colleges.

FSM enquired about the need for EM Analysts training and queried whether observer training was not sufficient. It was noted that certified EM training was an important process to guarantee the quality of the data produced. It is important to show through certified training that the analysts do follow the data acquisition protocols, or that they meet the minimum standards of knowledge and skills for the job. This acts as proof of competency if the data is challenged either by a science or a legal process.

# TRANSHIPMENT DATA STANDARDS

## Transhipment Data Standards

There were two presentation under this section referring to the discussion papers DP-02 and DP-03.

[DP-03 Proposed Generic Minimum Transhipment Data Standards](https://oceanfish.spc.int/index.php?option=com_docman&task=doc_download&gid=2050&Itemid=77)

Tim Park (SPC) presented this paper.

It was noted that these generic draft guideline for minimum transhipment data fields are not specific to how the data are collected, either by observers, electronic monitoring or in port. At the moment observers and port samplers are collecting this information.

As background it was noted that an MRAG 2016 report highlighted that IUU in the tropical tuna fishery is principally driven by misreporting (49%) and transhipping (39%). Increased monitoring of transhipments is especially important for longliners as current independent monitoring (observer) coverage is currently low. Wold noted that for 2019, more than 50% of longliners were registered to tranship on the high seas, despite the fact that high seas transhipment is meant to be an exception from the regulation to tranship in port. A significant amount of the total tuna caught in the WCPFC (34% of bigeye and 27% of albacore) are being transhipped at sea, which precludes other important demographic data that is being collected by port samplers. The number of vessels, the number of transhipments and the amount of fish transhipped are all known to be increasing, despite the requirement for transhipments to occur in port.

The monitoring of transhipments exempted from the requirement to tranship in port is through 100% observer coverage of transhipments (CMM2009-06), with the observer generally being deployed on the carrier receiving vessel. The role of the observer is largely to verify the transhipment declaration information and they sign the declaration. However the observer monitoring system for longline transhipments needs to collect and record required data independently of the carrier and fishing vessel’s declaration, however there are currently no minimum data standards.

Interestingly the coverage of transhipments by observers has remained consistent throughout 2020, despite observer coverage on fishing vessels declining due to COVID-19 travel restrictions, of the 409 reported transhipments that took place between 1 April and 18 August 2020, only 11 (around 3 %) were not observed (WCPFC-TCC16-2020-RP03). Independent transhipment monitoring could have provided further information if minimum data standards were implemented.

The purpose of the paper is to propose minimum data fields. At the moment the transhipment declaration is signed off by observers, but no independent data is collected. The fields the observers are required to record are noted in the CMM on transhipment.

The data fields proposed are not meant to detract from the intention of member countries to cease high seas transhipments. The intention of the paper is about proposing minimum data standards for transhipments wherever they occur. The information category and purpose of the proposed data field are shown in the list of proposed minimum data fields for transhipment.

CCSBT noted that it has signed a Memorandum of Cooperation (MoC) on transhipment with the WCPFC which would potentially allow the transhipment of southern bluefin tuna in the WCPFC area if successfully operationalised. These minimum data standards (DP03) could be used to facilitate operationalisation of the WCPFC-CCSBT transhipment MoC if they meet CCSBT’s minimum transhipment reporting requirements, and so could also potentially support any cross-endorsement of WCPFC observers (monitoring). CCSBT noted that coverage rates (numbers/percentage of swings containing SBT observed) would be helpful information. In reply it was noted that the protocols may answer this. Ensuring that the data fields for the CCSBT CDS information[[1]](#footnote-1) are included would also be a positive step towards operationalising the MoC.

[DP-02 Draft EM Data Fields – LL Transhipment](https://oceanfish.spc.int/en/publications/doc_download/2049-dcc-2020-nov-dp-02-draft-em-data-fields-ll-transhipment-final)

Peter Williams (SPC) presented this paper.

There is growing interest, especially with the COVID-19 pathogen curtailing observer activity, to use EM to monitor longline transhipments. One NGO has already placed EM on a carrier vessel and they are interested in providing appropriate data, by implementing any available minimum data standards for transhipment. A recent member survey found that the main objective for EM transhipments was catch validation of logbooks which is an important data gap on the High Seas. The presentation offered draft DCC minimum standards for transhipments, which could be moved forward intersessionally by work on a member country transhipment vessel. The proposed data fields considered the transhipment study conducted in the WCPFC and also MRAG transhipment monitoring publications. It takes into account the project 93 philosophy which allows for the collection of data through different data systems. Integrating a crane scale into the EM system is considered a critical competent of any efforts to collect data from transhipments.

*Full definitions* of the following data fields were provided in the paper.

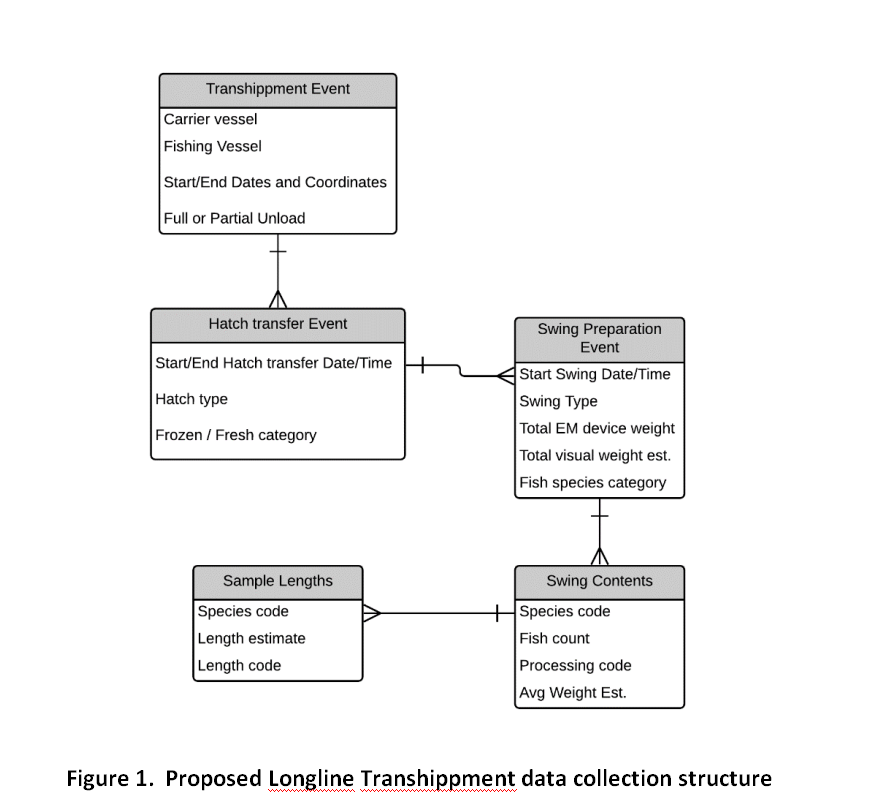
**Transhipment Event –** point when the transfer of fish from the fishing vessel to the carrier starts, to the point of completion

**Hatch Transfer Event –** entire unload of catch from a specific hatch on the fishing vessel**.**

**Swing Preparation Event** – preparation for the transfer of a group of fish, once the fish has been pulled from the hatch and placed on the deck of the longline vessel.

**Swing Contents –** components of each swing in terms of the weight and or the number of fish by species.

**Sample Length**. – length measurements from individual fish.



Further discussions on the rates of analysis of transhipment EM video are required. It seems clear that observers will not always be able to provide full coverage, although perhaps two observers could, as long as observer’s safety on deck can be assured. It maybe that EM is best placed to cover all transhipment events.

RMI asked whether there is anyway of standardising the weight that is in the net, but it was explained that not enough observations (trips) have been completed to answer the question. The procedures for gathering length measurement was queried, especially if the fish are hanging in the air (grapes of fish). In response it was noted that calibration was probably best done on the longline deck, and that measurements from suspended fish may require new technology. Alternatively, if LL EM is installed on the longliners length measurements can be got from their EM systems.

Processing the transhipment data would take time so exploring e-reporting systems to expediate the transfer of the information should be considered. At the very least a confirmation of the names of the vessels coming alongside should be transferred quickly. This can be done with the carrier vessel’s internet service. Reducing the amount of data to be transferred may allow the observer to send information independently to the ship’s device. CCSBT noted its procedures for receiving transhipment declarations. With respect to operationalising its transhipment MoC with WCPFC, CCSBT noted that the inclusion of further operational data fields is necessary.

## Coverage and Analysis Rate Protocols

It is not yet possible to propose coverage rates for transhipment EM. We now know that it seems unlikely that observers will be able to monitor each transhipment in their totality. They could, however, do random sampling of some swing events, but the level of sampling is not yet known. A meeting recommendation could be that sampling protocols for transhipment should be developed.

## Transhipment Training Standards

[DP-10 Transhipment Training Standards](https://oceanfish.spc.int/en/publications/doc_download/2065-dcc-2020-nov-dp-10-transhipment-training-standards)

Tim Park (SPC) presented this paper.

The transhipment CMM (CMM2009-06) states that verification of transhipment data should be done through observer monitoring. The Commission has developed data forms that are being used by at least one programme, but no training exists. As Brogan (2020) noted, PIRFO observers have many of the skills required to monitor transhipments but there are some further specific skills needed for the roles. Training should cover gear specific safety issues, sampling protocols, form completion, priorities in sampling and differences in species identification. PIRFO currently has port sampling certification but there is no current qualification for unloading.

A PEW funded review (Blaha and Whitaker, 2020) suggested three competencies - monitoring unloadings in port, monitoring transhipments at sea and working effectively on a carrier vessel. There are a lot competencies with commonalities across other gears. This finding may warrant a complete restructure review for PIRFO training competencies, perhaps through a further consultancy. This will allow PIRFO to respond better to the integration of transhipment training into the current competencies. WCPFC enquired about existing transhipment training courses. It is known that MRAG does provide specific transhipment training to their observers in the IATTC area.

## DCC Strategy – 2021 – 2025

At this point no new updates to the DCC strategy are available. This item will normally be re-tabled at the next DCC.

# MEETING RECOMMENDATIONS

1. DCC-NOV-2020 meeting recommended the report of the meeting is forwarded to the following meetings:
   1. ROCW 21 (as an information paper)
   2. HoF13 (as an information paper)
   3. FFA MCS Working Group
   4. WCPFC SC and TCC (as an information paper)
   5. WCPFC ERandEM Working Group
2. DCC-NOV-2020 meeting recommended SPC, FFA and PNAO collaborate to establish a dedicated DCC E-Monitoring web page to store documents (agreed, draft and in progress) relevant to the work required through the Regional Longline Fisheries Electronic Monitoring Policy (Reg. EM LL Policy) and associated discussions. In the shorter term, this web page will store, *inter alia*, the TORs for work to be conducted to develop EM SSPs, for example, and in the longer term, this web page will store, *inter alia*, the EM SSPs.

1. DCC-NOV-2020 meeting agreed on the two main outputs (see <https://oceanfish.spc.int/en/meetingsworkshops/dcc/512-ll-em-compliance-data-and-transhipment-standards-workshop-2020> ):
   1. The recommendations from the pre-DCC meeting reviewing the draft EM LL minimum data fields
   2. The updated structure and table for the EM LL potential Compliance Events, including Compliance CATEGORIES and EVENTS reference codes table;
2. DCC-NOV-2020 meeting recommended that the necessary updates should be made to the draft EM LL minimum data fields based on these outputs and this document is made available, *inter alia* :
3. On the new DCC EM web page;
4. Forwarded to MCS Working Group for their review and discussion;
5. DCC-NOV-2020 meeting recommended SPC, FFA and PNAO collaborate to finalise the Terms of Reference (TORs)for respective work identified in the REG. EM LL Policy which was advanced and presented to the meeting, and proceed to organize the required consultancies, covering the following areas:
   1. EM DRC Equipment standards SSPs
   2. EM Data Needs
   3. EM Automatic Alert Needs
   4. EM Technical Needs
6. EM Records Analysis SSPs
7. EM Quality Assurance Standards SSPs
8. EM Training standards SSPs
9. DCC-NOV-2020 noted the workplan developed by PNAO, FFA & SPC to advance the work required under the Reg. EM LL Policy and encouraged the agencies to progress this required work, in particular, the development and finalization of TORs for the different standards, in addition to those in recommendation #4.
10. DCC-NOV-2020 meeting noted the challenges with establishing standards at the national level for EM longline analysis coverage rates which are consistent with the regional standard suggested in the REG. EM Longline Policy. DCC-NOV-2020 recommended that the subregional agencies (SPC, FFA and PNAO) continue to collaborate with member countries to better understand the range of challenges (e.g. how to cover vessels landing in the ports of other countries) and advance the work on producing guidelines for establishing standards for EM LL analysis coverage rates in the coming year and report to the next DCC meeting in 2021.
11. DCC-NOV-2020 meeting noted the initial work on draft Generic Minimum Data Standards for Longline transhipment monitoring and draft EM Longline transhipment minimum data fields, mainly based on the Brogan (2020) study. DCC-NOV-2020 meeting recommended:
12. The subregional agencies (SPC, FFA and PNAO) and other relevant stakeholders including WCPFC and CCSBT collaborate with member countries, to enhance the data collection for transhipment observers based on the draft Generic Minimum Data Standards for Longline transhipment monitoring;
13. The subregional agencies (SPC, FFA and PNAO) consider the benefits of developing an E-Reporting tool for transhipment observers based on the draft Generic Minimum Data Standards for Longline transhipment monitoring, including the ability to transmit data in near-real time;
14. The subregional agencies (SPC, FFA and PNAO) collaborate with member countries, and other stakeholders (e.g. relevant NGOs) to conduct trials to test the viability of the draft EM longline data fields;
15. The training standard**s** for both longline transhipment observers and EM analysts should be advanced, as required;
16. The outcomes of the work on enhancing the data collection from Longline transhipments are reported to relevant regional meetings.

## Close of the Meeting

WCPFC thanked the DCC for the work that was achieved. They noted that it may be helpful to convey some of the progress to the IWG on transhipment, although this could be delayed until there is something more tangible available from member countries. However, any progress provided to WCPFC17 it would be gratefully noted.

In closing the meeting, the Chair noted that by facilitating a virtual meeting, the DCC had included more participants than usual. He thanked the participants for their numerous and important inputs.

The meeting closed to a round of vigorous applause.

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1. Catch Monitoring Form (CMF) number and tag series numbers [↑](#footnote-ref-1)