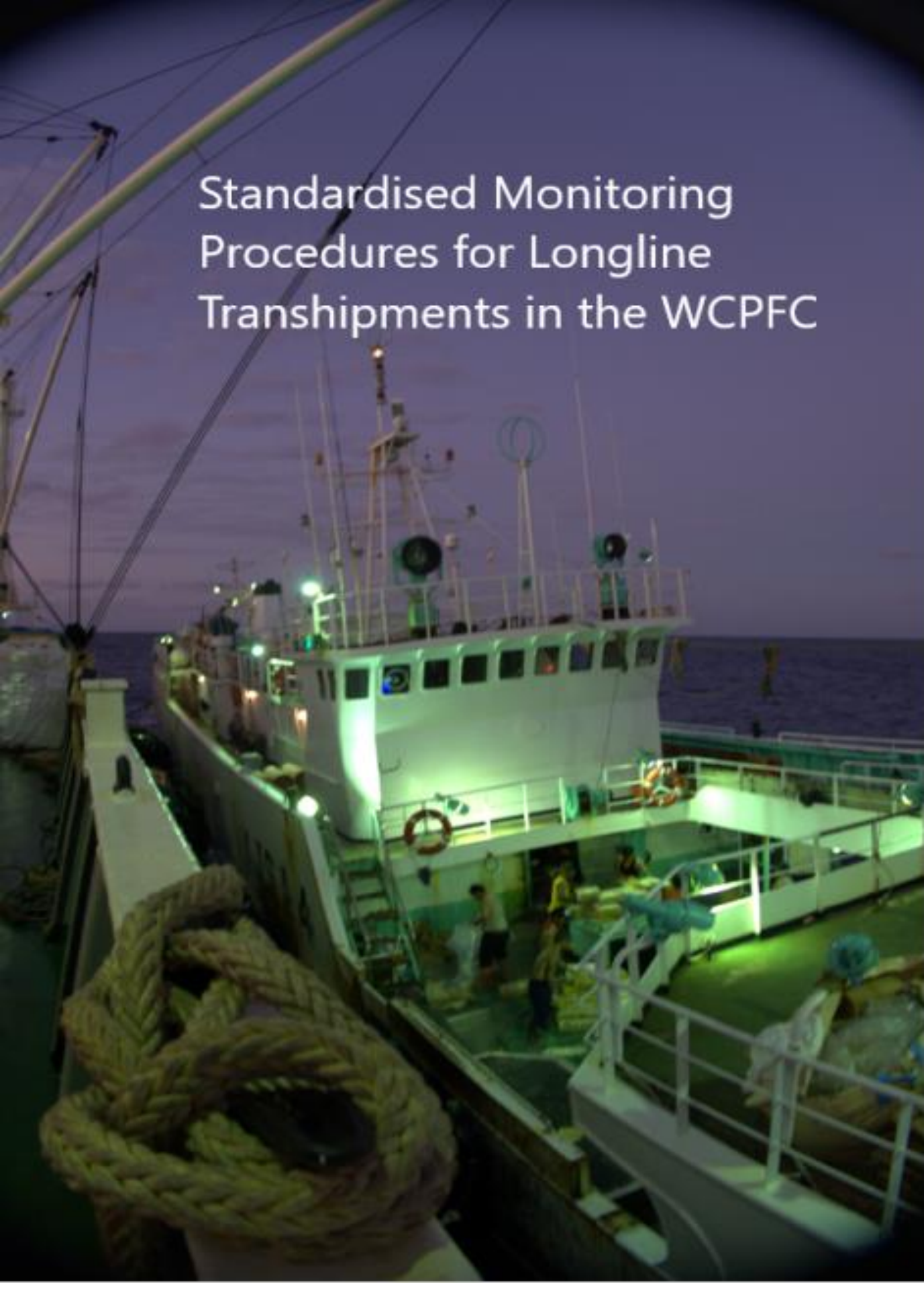
Standardised Monitoring Procedures for Longline Transhipments in the WCPFC



Standardised Monitoring Procedures for Longline Transhipments in the WCPFC

By Deirdre Brogan

January, 2020

EXECUTIVE SUMMARY

- After one trip onboard a carrier vessel, we suggest that **longline transhipments can be monitored through a count of individual fish**; and that this method is especially informative for monitoring some of the larger species like bigeye and yellowfin which are easier to detect and enumerate. This coincides well with the species that are currently being managed under catch limits in the WCPFC.

  We have shown that when applied the monitoring protocol can help inform managers as to the validity of the transhipment declarations. That said further development of the protocol is required and the introduction of crane scales on longline carrier vessels will help to improve monitoring.

- **PIRFO trained observers** are well placed to monitor longline transhipments in the WCPFC area. They have, through basic certification, already acquired most of the skills required to carry out this work. That said, sampling longline transhipment is not immediately obvious. Further training, and separate certification is warranted.

  We invite Heads of Fisheries to note the introduction of a new workbook and the associated data standards for longline carrier observations and ask that they encourage their national observer programmes to take part in the proposed trial implementation and associated trainings.

- We found that it was possible to replicate many of the Port State Measures that are normally applied to unloading vessels out at-sea. Supporting new procedures for observers to inform the Regional Fisheries Surveillance Centre of transhipments in real-time, using their two-way communication device, will substantially improve the compliance monitoring of transhipments.

- We invite Fishery Managers to review practices around **partial unloadings** and bring their attention to the fact that with each successive partial unload our ability to link the catch to the logsheet, and most especially fishing area is diminished.

ACKNOWLEDGEMENTS

My thanks go to the following people:

- Hugh Walton (FFA) and Peter Williams (SPC) for the project concept, and to Hugh for continuing on with the project coordination.
- Tim Park (SPC), along with Philp Lens (FFA) for project supervision

I would also like to acknowledge the help of Mr Karl Staisch (WCPFC), Bryan Scott (FFA), the RFSC team at FFA, Brian Belay (MRAG), Emmanuel Schneider (SPC), Francisco Blaha, Truman Jano (NORMA), Nick Vogel (IATTC), Mr Kevin Lin (Fishery Agent), Aurélien Panizza (SPC), Donald David (WCPFC). And Ian Knuckey for his early review http://www.fishwell.com.au

The project funding was provided by PEW Charitable Trusts

WITHOUT VANUATU FISHERIES …

It was important that there was a good back-up system for the at-sea component, and that was only possible through deployment under a well-managed national observer programme.

When the request for a boarding was made Vanuatu Fisheries accepted the proposal and did not hesitate to add the consultant to their national observer programme to ensure her protection under CMM 2016-03 and their national programme's insurance. Neither did they hesitate to contact the vessel when there was a difference of opinion between the consultant and the vessel captain. An enormous thanks goes to the team of John Mahit and Tony Taleo and their Director Mr. Naviti.

An observer from Vanuatu, Ms Linda Berry, was also onboard the vessel. She is acknowledged throughout the report for her specific contributions, her exceptional energy, dedication to the job and eye for detail.

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BACKGROUND

Transhipment is defined to mean “the unloading of all or any of the fish onboard a fishing vessel to another fishing vessel either at sea or in port” (Western and Central Pacific Fisheries – WCPFC’s Convention Article 1 (h)).

Article 29 (1) of WCPFC Convention states, as a general rule, “In order to support efforts to ensure accurate reporting of catches, the members of the Commission shall encourage their fishing vessels, to the extent practicable, to conduct transhipment in port.” Recognizing this point, the Commission adopted CMM 2009-06 which requires that there shall be no transhipment on the high seas except where a CCM has determined, in accordance with certain guidelines (para 37) that it is impracticable for certain vessels to operate without being able to tranship on the high seas and has advised the Commission of such (para 34).

CMM 2009-06 also operationalizes a number of Article 29 requirements including the establishment of terms and conditions for transhipments in areas beyond national jurisdiction (Article 29(4) and Annex III (4)) including required reporting and the requirement to have a regional observer programme observer present to monitor and verify high seas transhipments (CMM 2009-06, para 14 – 17 and 35).

Monitoring of transhipment by observers is required under the WCPFC’s Conservation and management measure 2009-06 Regulation on Transhipment. More explicitly Para 14. States that ''Observers shall monitor implementation of this Measure and confirm to the extent possible that the transhipped quantities of fish are consistent with other information available to the observer, which may include:

a. the catch reported in the WCPFC Transshipment Declaration;

b. data in catch and effort logsheets, including catch and effort logsheets reported to coastal States for fish taken in waters of such coastal States;

c. vessel position data; and

d. the intended port of landing’’.

Since the implementation of the Compliance and Management Measure (CMM) 2009-06 Regulation of Transhipment the submission of observer reports to the WCPFC ROP has been low, while placement has been noted to be high.[1] To provide fishery observers from Forum Fisheries Agency (FFA) member countries with an appropriate set of data fields (in a format they are comfortable with), and to deliver the associated training FFA and the Pacific Community (SPC) devised a project to address the issue. Two project components were drawn up and a call for tenders placed on the FFA website in April,

[1] Chris Wold et al., *Observer Reporting of Transhipments in in the WCPFC*, WCPFC-TCC15-2019-OP06

2019. See https://www.ffa.int/node/2246. Funding for both components was provided by PEW Charitable Trusts. This report responds to the first component which was to produce the standardised data fields for longline carrier transhipment monitoring, along with a detailed protocol. The associated component for training will follow immediately afterwards.

OBJECTIVES

The objectives of this project were to;

1) design a monitoring program for Pacific Island Regional Fisheries Observers (PIFRO) deployed on longline carrier vessels to monitor transhipments
2) propose the data collection standards
3) trial the monitoring program at sea
4) map the proposed standards to those of neighbouring Regional Fishery Management Organisation (RFMO) transhipment observer programmes
5) provide the associated e-standards
6) make suggestions for the implementation of the standards over a trial period

In considering what questions the monitoring programme should answer we kept the WCPFC's CMM 2009-06 Regulation of Transhipment as the central focus of the work. Adding on from that, it was clear that there was a need to consider and perhaps replicate any monitoring that would normally apply to transhipping vessels if they were to unload their catch in port. For that reason, port-based data standards are especially relevant. There is also a strong need to address FFA members concerns that by failing to unloaded in port vessels are missing out on regular compliance checks. And finally, the fact that the monitoring will be carried out by observers brings its own set of requirements, essentially to check on the observer's own safety, but also to verify whether any of the current observer data standards are relevant to transhipment observations.

The **overarching objective** of this project was to see **what data standards observers <u>can</u> collect**. In planning the approach for the trip, two things were clear 1) that very little background information on transhipment practices is available and 2) that while listing the data standards observers *should* collect would be helpful for fishery managers, and somewhat an easy task in an office environment, the list is mostly redundant if observers cannot collect the requested data fields at sea.

Observers do not work in isolation and an integrated approach to transhipment monitoring using the fishing vessel's logsheets, transhipment declarations, port state measures, unloading data, VMS tracking etc is the best approach for monitoring transhipment. This is something that is already being addressed in many parts of the WCPFC. Linking the proposed observer standards to other data types is not explicitly addressed in the methodology, however the consultant was keenly aware of other monitoring initiatives. A more global approach to transhipment monitoring could be addressed by future work.

METHODS

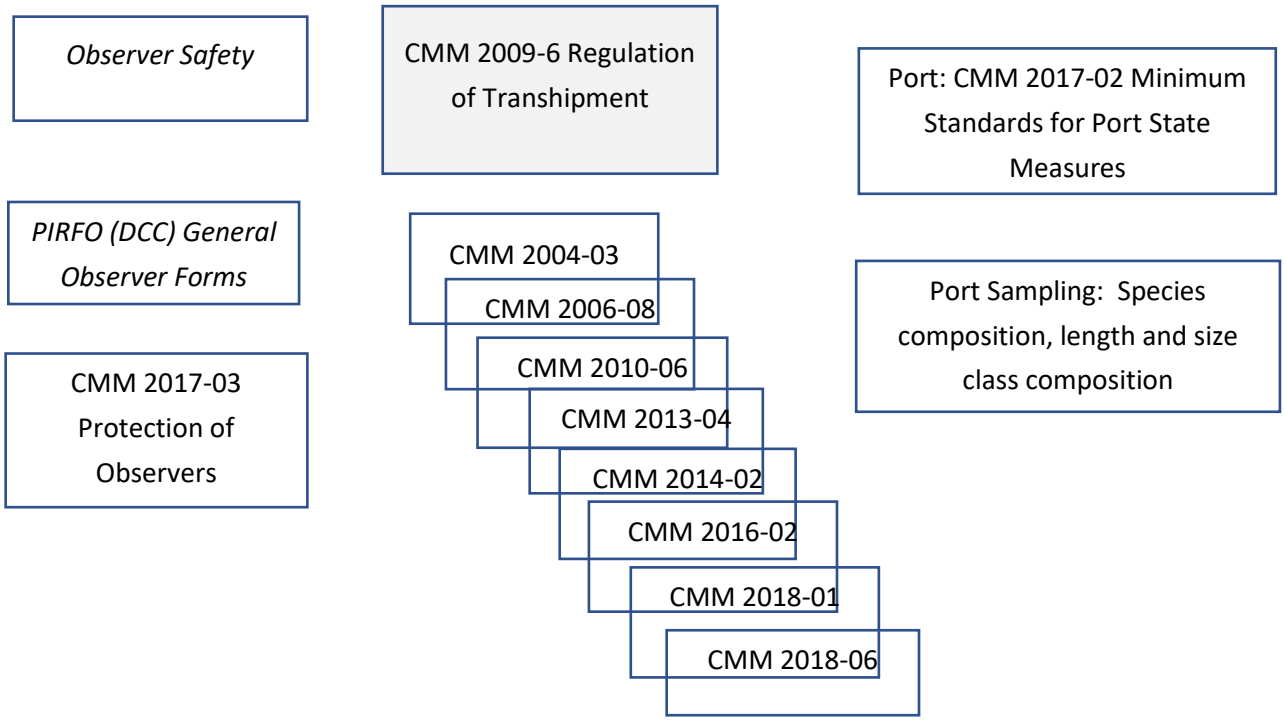
The main methods were;

- A review of relevant data standards in current observer formats and CMMs
- Gathering a detailed description of transhipment activities
- Onboard sampling for species composition, quantity and size
- Implementing the 'Port State Measures' monitoring at sea

PREPARATIONS

1. REVIEW OF RELEVANT DATA STANDARDS FROM CURRENT OBSERVER FORMAT AND CMMS

Data Standards Building Blocks



To develop the basic framework and in consideration of the target audience i.e. Pacific Island Regional Fisheries Observers (PIRFO), we took the following into account:

- Copies of SPC/FFA regional observer forms https://oceanfish.spc.int/en/data-collection/241-data-collection-forms .
- Copies of WCPFC Fish Carrier forms https://www.wcpfc.int/regional-observer-programme .

- MRAG Americas operate a tuna transhipment observer program in the Eastern Pacific for the Inter- American Tropical Tuna Commission (IATTC). A copy of their observer data forms was requested and generously provided by Brian Belay on the 3rd July. Still while replicating MRAG's approach would be useful, we thought there was also an opportunity to provide a fresh approach and perhaps something more compatible with Pacific Island Regional Fishery Observer's (PIFRO) training.
- Previous field trips to the ports of Pohnpei (Federate States of Micronesia) and Noro (Solomon Islands) proved helpful. In the port of Pohnpei, we observed tuna fish being removed from an ultra-low temperature longline vessel (ULT). A crane scale was used to capture the weight, and the port sampler enumerated the species, while noting that the processed state of the fish (fins, tail removed) meant species identification was difficult. In Noro the unloadings of ULT longliners had many similarities, but the catch was unloaded *individually*, and therefore easier to monitor.
- Relevant CMMs
    i. 2004-03 Specification for the Markings and Identification of Fishing Vessels
    ii. 2006-08 Boarding and Inspection Procedures
    iii. 2010-06 List of Vessels Presumed to have carried out IUU Activities
    iv. 2013-04 Implementation of UVI
    v. 2014-02 Commission VMS
    vi. 2016-02 Eastern High Seas Pocket Special Management Area
    vii. 2017-04 Pollution
    viii. 2018-01 Bigye, Yellowfin and Skipjack
    ix. 2018-06 Record of Fishing Vessels and Authorisation to fish
    x. 2017-02 Minimum Standards for Port State Measures
- Along with CMMs relating to specific species swordfish, sharks etc
- Proceedings from the International Observer and Fisheries Monitoring Conference improved our knowledge
- There are many photos and some videos of longline transhipments available on the internet. Most of these show strings of yellowfin and bigeye being transferred. A good example is here https://www.flickr.com/photos/georgestoyle/6106207952/in/photostream/ ; and,
- A video of a port unloading can be found here https://www.youtube.com/watch?v=Fnpo8aFMs5g#action=share .

Trip Preparation

Equipment

Trip preparation included sourcing sampling and safety equipment.

- The Forum Fisheries Agency (FFA) supplied a life jacket, a Delorme "InReach" 2-way communication device, and a personal location beacon (PLB).
- The vessel supplied a hard hat, safety shoes, another life jacket and an immersion suit.
- The Pacific Community (SPC) supplied a 1.5-metre calliper, two deck tapes for length measurement, printed draft sampling forms and species identification manuals.

A relatively inexpensive crane scale was purchased from Shanghai Baiying Weighing Apparatus Co., Ltd. The crane scale came with an additional administration burden as the importation of weighing scales is regulated in New Caledonia.

After discussions with SPC, and subsequently Pew, the following photography equipment was sourced and purchased en-route to the vessel.

- 3 x GoPro 7 (silver)
- 2 x Chesty Mount
- 1 x Jaws Flex Clamp Mount
- 1 x Head Strap
- 1 x Wrist Mount
- 1 x GoPro Dual Battery Charger
- 3 x GoPro rechargeable Batteries
- 1 x Canon Powershot Mark G7 X Mark II
- 6 x MicroSDXC Cards 128 MB

Data Collection preparations

Draft data collection forms were prepared and printed at SPC. These are shown in appendix 1.

VMS verification

Following discussions with compliance personnel at PEW and FFA procedures were put in place to inform the FFA Regional Surveillance Centre of any transhipments in real-time. The idea was to use the two-way communication device (now a compulsory piece of gear for observers) to inform the RFSC of the identity of any vessel involved in transhipment, so their VMS transmissions could be verified.

Vessel selection

The tender was awarded on the 30 May, 2019. The first task was to find an appropriate vessel. The National Observer Programme (NOP) of Vanuatu was approached for assistance in sourcing a suitable longline carrier vessel. Their observers currently board around twenty carrier vessels a year. Vanuatu's fishery agent kindly selected an appropriate vessel in July. Ultimately this trip was abandoned to allow time for the project signatures to be completed. A second trip was requested and allocated by the same fishing agent on the 9th September, 2019. The consultant (Ms Brogan) joined the vessel on Monday 23 September.

The carrier vessel was unloading when the consultant boarded the vessel in the port of Kaohsiung, Taiwan. This provided an opportunity to photograph some of the catch, test the video equipment and get familiar with the vessel layout. The vessel took four days to unload the catch and then three more to load cargo for the longline vessels. The actual departure date was established after the consultant boarded the vessel.

All longline carrier vessels are required to carry a regional observer programme (ROP) observer. Ms. Linda Berry from Vanuatu was the ROP observer that accompanied the consultant on the trip. This was Ms. Berry's second trip on the carrier vessel.

2. GATHERING A DETAILED DESCRIPTION OF TRANSHIPMENT ACTIVITIES

Trip Description

Before our departure the Captain informed the consultant that the trip would consist of 20 days of transit, 20 days of transhipment and 20 days of return to the same port. This cruise plan was mostly accurate.

The vessel departed Kaohsiung on the 3rd October, 2019 and steamed for 20 days towards 5° N, 150° W (**Error! Reference source not found.**). Once in the transhipment area, the vessel took fish onboard from 13 longline fishing vessels over 21 days. Three were flagged to Taiwan and ten to Vanuatu. A total amount of 1,914 metric tons was taken onboard. The vessel then steamed back to the port of Kaohsiung. Unexpectedly, due to business arrangements, we stayed adrift outside the port for four days until our arrival at the quay on the 1st December.

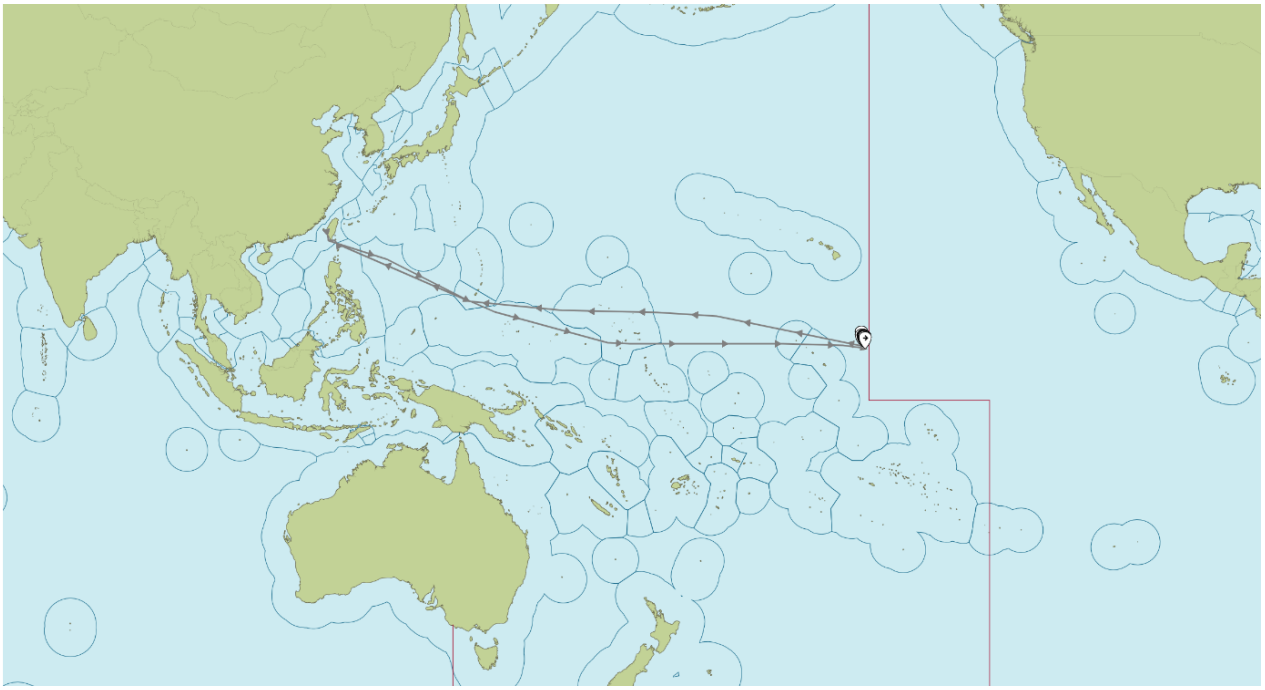


Figure 1 Cruise Track - source TUFMAN2 Database

Vessel and Trip Details

The name of the carrier vessel and the 13 longline fishing vessels that took part in the transhipments are not identified in this report, but have been provided separately to the FFA and SPC Project Coordinators. The carrier vessel and all of the encountered longline fishing vessels were found on the WCPFC Record of Vessels (RFV) which was downloaded from wcpfc.int on the 16th Sept, 2019.

The carrier vessel was constructed in Japan in the mid-1990s. It had an overall length of approximately 90 meters, and a fish storage capacity of approximately 2,500 metric tons. The listed details for the

carrier vessel on the WCPFC RFV were found to be correct except for the name of the Captain and the vessel owner. We were fully informed that the ownership of the carrier vessel had been transferred to a charter before the start of the trip[2].

It was an uneventful twenty-day steam, at an average speed of 10 knots, out to the transhipment grounds with just one evening of heavy seas. The first transhipment occurred on the 20th day. Subsequent transhipments followed, and there was only a limited amount of time when the carrier vessel did not have a fishing vessel alongside. We were always informed of the time the next longliner would come alongside.

Vessel	Alongside	Offside	Transhipment Position
#1	20/10/2019 14:11 hrs	21/10/2019 21.57 hrs	4°55 N, 151.02 W
#2	22/10/2019 09.53 hrs	23/10/2019 20.35 hrs	4°57 N, 150.51 W
#3	24/10/2019 06.04 hrs	24/10/2019 23.00 hrs	5°00 N, 150.55 W
#4	25/10/2019 05.40 hrs	26/10/2019 00.10 hrs	5°32 N, 151.00 W
#5	26/10/2019 06.54 hrs	27/10/2019 13.14 hrs	4°53 N, 150.59 W
#6	27/10/2019 15.18 hrs	28/10/2019 19.44 hrs	5°38 N, 151.22 W
#7	29/10/2019 11.52 hrs	29/10/2019 23. 43 hrs	4°52 N, 150.51 W
#8	30/10/2019 11.33 hrs	31/10/2019 23.43 hrs	5°02 N, 151.04 W
#9	01/11/2019 07.20 hrs	01/11/2019 19.15 hrs	4°53N, 150.52 W
#10	02/11/2019 06.41 hrs	04/11/2019 12.08 hrs	4°41 N, 150.45 W
#11	05/11/2019 06.42 hrs	06/11/2019 00.31 hrs	5°02 N, 151.04 W
#12	06/11/2019 10.22 hrs	07/11/2019 15.54 hrs	4°59 N, 151.02 W
#13	07/11/2019 16.02 hrs	08/11/2019 00.47 hrs	5°04 N, 151.19 W

[2] The term charter here refers to a business arrangement and does not imply any flagging or licensing arrangements. A charter company is responsible for the day to day operation of the vessel, which is separate to the vessel owner. This is a common business model for carrier vessels. From 'WCPO Transhipment Business Ecosystem Study, MRAG, October, 2019'.

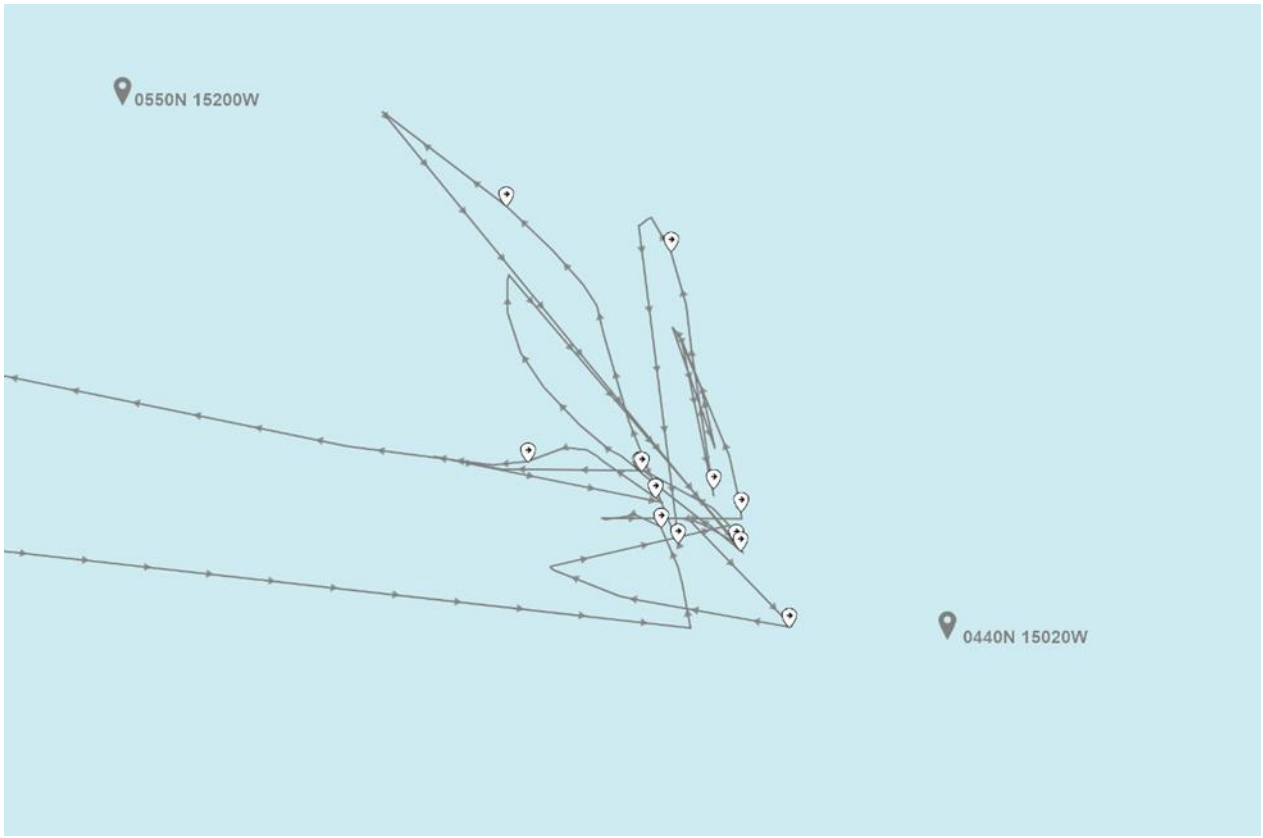


Figure 2 Transhipment Area - source TUFMAN 2 Database (*two transhipment points are the same*)

Ms. Berry provided valuable information about the carrier's vessel's previous trip. It had carried out transhipments around 30° S and 130° W during the month of August, 2019. It took on fish from eleven vessels, all of which we encountered again during our trip. Was our carrier working with specific fishing vessel belonging to a code group? One of the transhipments during that period was not completed due to heavy seas.

Somewhat surprisingly we learned in the early hours of the first transhipment that this carrier vessel was taking on catch from longline vessels that had been targeting the southern albacore fishery. This was unexpected. All of the preparations (video reviews, discussions, form preparations) were targeted towards transhipment from the bigeye/yellowfin tropical fishery. In some ways this emphasises the lack of background information available on transhipment in the WCPFC area, and the pressing need to categorise and describe the process. Additionally, for this voyage, the carrier used nets to transfer the fish. Ms. Berry was able to confirm that they had not used a net during their previous voyage. According to the Captain nets were used to get a better estimate of the amount of fish that was transferred.

We received a "pre-declaration" list of the vessels and the amounts (by fishing area) that they intended to tranship seven days before the first transhipment. From the first day of transhipment, a longline fishing vessel was generally visible from the carrier for a number of hours before the transhipment. As the transhipments progressed and delays were encountered, the number of longliners that were waiting to tranship, and were visible from the carrier vessel, increased. After one

particularly long transhipment we could see three longliners. Also, from the end of the first transhipment there was a bunker vessel in the vicinity at all times.

Transhipment Description

To begin the process of developing observer monitoring procedures, the longline transhipment procedures are categorised and described below.

Alongside (ropes tied) – the longline fishing vessel comes alongside the carrier vessel.

Figure 3 Preparing to receive a longline fishing vessel.

Three large fenders were lowered from the carrier vessel before the longliner (which was generally one to three nautical miles away for at least a few hours before transhipment) deliberately moved towards the carrier vessel. Ropes were secured at the bow first and then at the stern. Generally, longliners were secured to the port side of the carrier vessel. The port side of the carrier also features a metal track for a small 'cart' to move fish between hatches. On one occasion a longliner was secured to the starboard side of the carrier vessel before proceeding to transfer fish. We note that there was no metal track on the starboard side of the carrier vessel.

We found that the movement of the fenders indicates that another vessel will come alongside, but it does not indicate that a transfer of fish will take place. On the 4 November, 2019 "Vessel 13" came alongside and took cargo onboard, but not fish. It came alongside again on the 7 November, 2019 and transferred its catch. We also found that opening the hatch does not indicate that catch will be transferred. Frozen bait is kept in the carrier vessel's hatches and so hatches are also opened to transfer only frozen bait.

Transhipment (Transfer of fish) – the carrier vessel takes fish onboard.

Generally, the Captain of carrier vessel invited the longline vessel to transfer fish almost immediately after the longliner was secured and the ropes tied. The first transfer of fish was often within 40 minutes of the vessel ropes being tied. The carrier vessel kept an eye on the quality of the transferred fish and had the ultimate say in whether fish would be taken onboard or not.

We used the term "**swing**" to describe the transfer of one unit of fish. In a swing, fish are attached to the carrier vessel's hook and cable by either 1) ropes (i.e. a "string") or 2) by a net.

As mentioned earlier, our carrier vessel used a net to transfer the fish. The carrier vessel supplied the net to the fishing vessel. It was placed flat out on the deck and the fish were placed on it before transfer. This was the only point of the operation where we had a full view of the fish that were going to be transferred, and therefore the point of observation.

All but one of the longliners had the same deck configuration. That is - one hatch with a door entry on the stern side of the deck, one "central" hatch, two equally sized hatches towards the bow end of the deck, and also there was one other hatch placed closer to the bow, but normally we could not see that hatch from the carrier vessel.

For most swings, a green net was used and for some swings a larger yellow net was used. When the yellow net was used it was sent over for every second swing. However, its use was limited and it was never used for a full transhipment period. For that reason, its use was not included in any data analysis.

Figure 4 Monofilament and ropes

Every fish had a closed loop of monofilament added to their carcass (normally to the caudal end) to help with their transfer, most likely added when the fish were hauled onboard the longliner. A closed circle of thicker rope (also supplied by the carrier vessel) was fed through these loops to gather the fish together. Then either ends of this thick looped rope were slipped over the hook at the end of either vessel's winch/boom cable. Initially, the fish are removed from the longline vessel's hatch, with its cable and hook, and then placed on the deck. (With the net fishery the fish are actually placed on the net). A second or additional ropes are often added to the hook, creating individual circles of fish attached to the cable.

At this point there is a change in cables, and the crew removed the longliner's hook from the ropes and replaced it with the carrier vessel's hook. With the net transfer the four corners of the net are gathered up and attached to the carrier's hook and cable. We only observed a transfer of a 'string'

of fish on a couple of occasions and at all times the fish were placed on the deck first before the hook and cables were exchanged. Further observations of transfers of fish in strings are required.

At times we used a count of the thicker ropes as an indicator of the total number of fish being transferred. That said, the total number of fish strung onto a rope was not consistent. There were four hatches on the carrier vessel (they were numbered from 1 – closest to the bow to 4 – closest to the stern). When fish were transferred into the two central hatches, the nets were transferred directly from the longliners. When filling hatches one and four, the net was first placed into the small cart. The cart was moved to either end of the deck using a horizonal system of winches and pulleys and then the net was lifted from the cart and placed into the hatch.

Transhipments were sometimes interrupted by other activities; mostly the movement of cargo and infrequently the movement of catch between hatches. Transhipment was also interrupted by rain and crew rest. To ensure full coverage we stayed on standby during these periods (a big shout out goes to Ms Berry who observed most of the cargo transfers- thanks!). It is probably not necessary for observer to be present for cargo transfers, but they must be alert for the end of the cargo transfer, in case transhipment starts again. The vessel was helpful in alerting us of the time that transhipment re-started, but the transfer of fish re-commenced quickly when transhipment resumed.

When we asked the Captain to inform the observer of the start of transhipment (or continuation) he made a good point that while he could always inform the observer it was not his responsibility to wake up or ensure that the observer was on deck for the start of the transhipment.

The only signal to indicate that the end of the transhipment was imminent was watching the crew or officials on either boat communicating.

- **Transfer of Cargo**

The vessel took on a lot of cargo while in port. Cargo was mostly contained inside large wooden boxes and as far as we could see various items like clothes, food and machine parts were inside. Multiple boxes containing bait were also part of the cargo transfers. From Ms Berry we learnt that cargo was not transferred during the last transhipment period, so we suggest longliners take cargo onboard during every second transhipment.

The moment cargo was transferred during transhipment was inconsistent. Initially cargo was transferred *after* the transhipment but as transhipments progressed, we saw cargo transferred *during* transhipment. This may be linked with requiring space in the hatches. We note that one vessel came alongside and took cargo onboard three days before they transferred the catch.

- **Crew rest**

There were some break periods for crew rest during transhipment, but mostly these occurred after transhipments. The Captain would express the start time for the next transhipment in terms of the crews' rest requirements.

- **Moving Fish**

The catch was moved between hatches on a few occasions. This will have some implications for tracking fish for catch documentation schemes.

- **Offside** (ropes untied) the longline vessel steams away from the carrier vessel

The longline vessel threw off its ropes very soon after transhipment (or cargo transfer) was complete.

3. *ONBOARD SAMPLING FOR SPECIES COMPOSITION, QUANTITY AND SIZE*

The Observation Point

Figure 5 Observing Transhipment

When nets of fish are being transferred catch estimation is done looking at the deck of the longline vessel**.** The point of observation for the observer is beside the rail and to either side of the hatches. Observers need to keep clear from any swinging nets. Keeping an eye out for the ship ropes is also counselled. We suspect that looking in the direction of the longline vessel deck will be helpful when strings of fish are transferred. At times it will not be possible to have a direct line of sight to the unloading fish, but if we were still able to maintain our count.

As and aside we also found the physical environment challenging, as unlike in other fisheries, observers are required to be under the hot sun for the whole day. Proper long-sleeved clothing and sun-cream is required by everyone. The environment was also challenging for our electronic equipment and this would need to be considered if tablet development is proposed etc.

Estimating Number

Observers on longline fishing vessels have described that catch is reported to the wheelhouse in terms of the total number landed. Catch is rarely weighed; however, for certain species the count will be reported to the bridge in separate weight categories. During our trip we could see these weight categories marked up on the working deck of some longliners. In many ways a count of the catch is the true unit of quantity on longline vessels, while weight declared on logsheets and other documents seems to be an eye-estimate.

Observers on carrier vessels can observe and record *a count* of the catch on the deck of the longline vessel before it is transferred. How easily this can be done will depend on; how many hatches are

being unloaded at the same time, how many 'circles' of fish are strung off the cable, how good their line of sight is and how fast the unloading is.

Observers should be able to overcome all of these challenges *by just giving it a go*, doing their best and following the protocol. We used a simple hand tally and a basic calculator (keeps a second count) when counting. In any case, there is no need to train people to count; both Ms Berry and myself developed our own styles as will other observers.

Estimating Weight

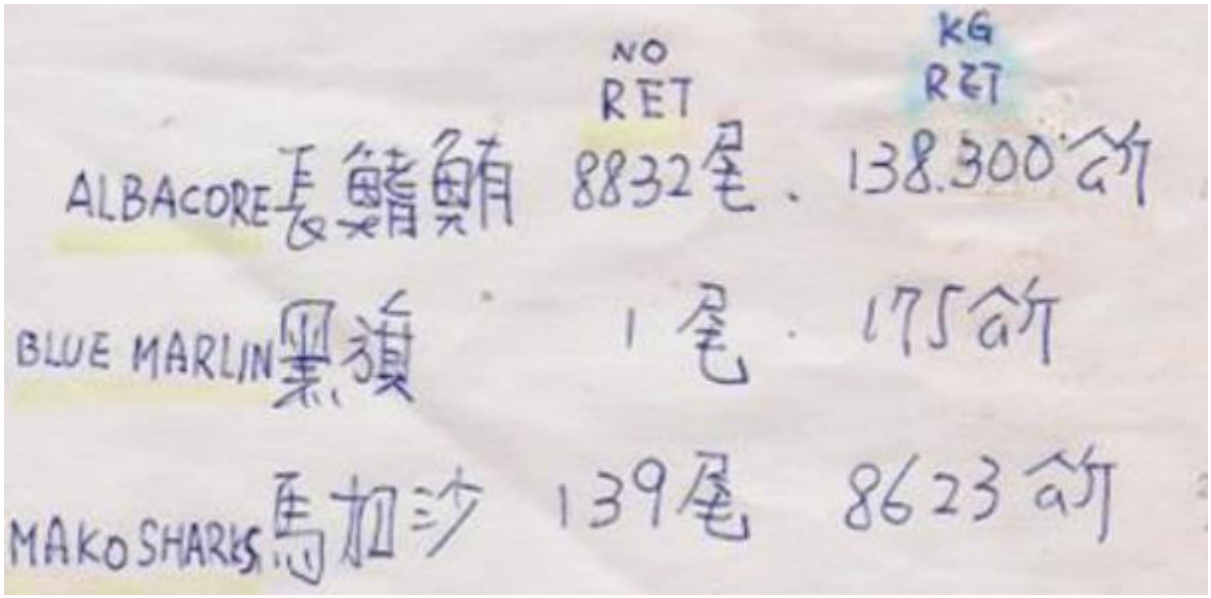
We developed three methods to estimate the weight of the catch

a) To begin with a relatively inexpensive crane scale {(OCS-3A) Shanghai Baiying Weighing Apparatus Co., Ltd} was used to weigh each net. The scale was kindly installed by the Chief Officer. Unfortunately, the weight readings we got were obviously incorrect during the first transhipment. From 66 readings the average net weight was 432 kg. This weight did not concur with what we saw visually. Neither did the chief officer seem that impressed– he kept wondering was the time record the weight record (i.e. the time record was 09.01 hrs etc). It was not clear why the recording was much lower than we expected. Did the purse-seine float that was placed over the crane scale interfere with the reading.

We used the crane-scale again during the third transhipment. During the first transfer the purse-seine float started to slip off. The results we got were more in line with our visual expectations (over 5 transfers we got an average net weight of 955 kgs). But soon afterwards the crane scale broke and its bright orange castings flew across the deck. It was no longer possible to get a scaled weight of the transferred catch.

Fortunately, we came across two other methods for establishing weight during the trip.

b) When asked for their logsheets each longliner also provided a separate page showing both **a count** and **a total weight** for each species that was transferred. This was unexpected. We have not seen this information provided before in FFA member countries. We called these ***catch summary pages***. More examples of these are available in appendix 4. One small quirk of these pages was that the English name was not always provided so once or twice Ms. Berry was able to interpret the species using the Chinese script from other pages. In essence these pages are the equivalent to a unloading forms.



Summary Catch Page

Vessel	ALB		
	No.	WGT	AV. WGT
#2	8,832	138,300	**15.7**
#3	4,628	78,000	**16.9**
#4	5,189	82,000	**15.8**
#5	2,881	44,000	**15.3**
#6	6,626	98,000	**14.8**
#7	2,534	43,500	**17.2**
#8	2,161	35,647	**16.5**
#8	759	5,061	**6.7**
#9	4,920	73,327	**14.9**
#10	14,644	180,000	**12.3**
#11	4,142	52,527	**12.7**
#12	8,257	98,329	**11.9**
#13	6,333	51,484	**8.1**
#13	502	7,038	**14.0**

WEIGHT IS IN KILOS

By listing out the information from these pages we were able to obtain an average weight of each species. The example on the left displays the data for albacore; the total number, the total weight and the calculated average individual weight provided by 12 of the vessels we encountered (the first vessel did not provide the information). Vessels number and 8 and 13 provided the information for albacore in two different size categories. The full table for all species is provided as appendix 2. We can see that the average weight for the species is similar, but it is not the same, across the different vessels. Looking at the average weight of the opah on this table suggests that the catch summary pages show 'processed weight'.

c) We inferred that one net of albacore weighed approximately one metric ton from 1) a visual estimate 2) the five scaled weights we accepted as being true and 3) from the vessel's estimate noting that the mate's receipts for the fourth vessel concurred with the fact that they were attributing one metric ton to each net of albacore.

Capturing the Processed States

The following table outlines the processed state of each of the transhipped species we saw during the trip. This may or may not be reflective of what will be seen on other carrier vessels.

Possible length and weight measurements are noted. Requirements for new length and weight measurement codes are also noted.

FAO SPECIES CODE	Processed States	Weight Measurements for observers	Length Measurements for observers
ALB > 7 kg	Gilled, Gutted, Tailed	GT	US, PS
ALB < 7 kg	Gilled, Gutted	GG	UF, US, PS
BET	Gilled, Gutted, Tailed	GT	US, PS
YFT	Gilled, Gutted, Tailed	GT	US, PS
MLS	Gutted, Tailed	None	PS
BUM	Headed, Gutted, Tailed	GX	PS
MAK	Headed, Tailed	Not available	Not available
BSH	Headed, Tailed, Stomach (belly?) removed	Not available	Not available
LAG	Headed, Tailed, Stomach removed – see picture	Not available	Not available
WAH	Headed, Gutted, Tailed	GX	PS
BUK	Headed, Gutted, Tailed	GX	PS
OIL	Headed, Gutted, Tailed	GX	PS

Legend:
UF: Upper fork-to-caudal tail
US: Upper jaw-to-front of second dorsal fin
PS: Pectoral fin-to-front of second dorsal fin
GG: Gilled and gutted
GT: Gilled, gutted and tailed
GX: Gutted, headed and tailed

Species Identification

Species identification was somewhat challenging. Most fish were highly processed with their distinguishing features removed and the body colour subdued from the ice glaze.

One thing to note is that it was not enough to identify the species from the traditional dorsal view, but also a ventral view. Fish swivel quickly and training in species identification with video should be considered.

ALB - *Thunnus alalonga* (Albacore)

Albacore tuna were easily identified as tuna that *do not* have the operculum removed. The gills and guts were always intact and the caudal tail removed, except for smaller fish where the caudal tail was left on.

BET – *Thunnus obesus* (Bigeye)

We did not see a lot of bigeye during the trip. The most common feature for identifying bigeye without their fins is the body shape. Bigeye was always gilled, gutted, tailed and the operculum was removed.

If the observer is able to get up close to the tuna the finlet colour (yellow with a black edge on bigeye) will be helpful.

YFT – *Thunnus albacares (*Yellowfin)

Again, we saw very few yellowfin during this trip, but currently the most common feature for identifying yellowfin without their fins is the body shape. Yellowfin was always gilled, gutted, tailed and the operculum was removed.

The finlets were intact, so the finlet colour (yellow with very little or no black edge on yellowfin) will be helpful if access to the fish is possible.

The more slender, elongated body shape is the main identification feature for processed yellowfin.

SWO – *Xiphias gladius (Swordfish)*

Swordfish were headed, tailed and gutted.

The smooth, scale-less body helps to identify the species, but it is not always apparent in the frozen state.

All the swordfish that we saw had *one ventral cut*.

This became an important identification feature when the species swivel quickly. Swordfish can be confused with marlin (most especially blue marlin) as their heads are removed and the colours fade during storage.

MARLIN

Marlin without fins can be identified using colour, the depth of the scales and the alignment of the second dorsal and second anal fins. Once again without direct access to the marlin species identification was difficult. While the deep orange colour of striped marlin is obvious with fresh fish, it was not clear with the frozen marlin under a bright sun.

The longline vessels informed us of a head-on (striped) and head off (blue) species identification feature. This was something that I was personally reluctant to use, as it is not inherent to the species and could be changed by the fisher without notice. Still, at this stage we can see that there seems to be a difference in processing between striped and blue marlin.

It would be helpful to look at whether observers can use scale depth to identify the different species of marlin, but the frozen state and ice glaze may prohibit this. Observers should be trained to identify marlin with the alignment of the 2nd dorsal and 2nd anal fins in case they get access to the fish.

To distinguish marlin from swordfish we used the size of the ventral cut.

MLS – *Tetrapturus audax* (Striped marlin)

Fishers suggest that striped marlins are presented with their head attached. It may be possible to see the distinct orange colour of the striped marlin flesh.

BUM – *Makaira nigricans* (Blue marlin)

Fishers suggest that blue marlins are presented with their heads removed.

BLM – *Makaira indica* (Black marlin)

It may not be possible to identify black marlin without access to the fish.

Marlin contd.

Striped marlin on the left-hand-side (head intact) and blue marlin on the right-hand side (head removed). The colour difference between MLS and BUM is more visible in the photo, but it was not visible during the trip. This may be due to the lighting conditions.

Sharks – Only two types of sharks were recorded on the logsheets and transferred to the carrier vessel. These were mako and blue sharks.

MAK - *Isurus spp***.** - Mako Sharks

In the top photo we can see the distinct colouring of the mako shark. However, as sharks swivelled identification became more difficult and it was necessary to use identification features on the ventral side to confirm our identification. It was not possible to distinguish short-finned mako from long-finned mako.

The grey dorsal colour distinctly meets the white ventral colour at the end of the lateral line.

The blue shark is skinnier, and does not fan out at the caudal end.

On the ventral side, the mako shark is broader and the caudal end fans out.

BSH – *Prionace glauca*- Blue Shark

The blue shark is quite distinct from the mako shark. That said we did have some challenges identifying it during the first two transhipments. The key is being able to identify it ventrally as well as dorsally.

Blue sharks were skinny, often darker dorsally when compared to mako sharks and there was no distinct lateral line at the caudal end.

Many blue sharks, one mako?

OTHERS

LAG - *lampris guttatus* -Opah

Hard to mis-identify these bright orange fish, even if half of the fish has been removed through processing.

BUK – *Gasterochisma melampus* - Butterfly Kingfish

These fish have large scales and distinct scombroid finlets. The heads were removed.

OIL - *Ruvettus pretiosus*- Oilfish

Large oilfish were more common than previously seen in tropical and sub-tropical longline unloadings (deeper sets?) There were no distinct identification features. During transhipment it was difficult to distinguish between an oilfish and an escolar (*Lepidocybium flavobrunneum*) except the oilfish is generally larger. There are no photos of the escolar.

WAH – *Acanthocybium solandri* - Wahoo

In its processed state wahoo was identified as a longer fish, with distinct pink body cavity. It was similar to the short-billed spearfish, which we also saw. The short-billed spearfish was notably more slender. There is no photo of the short-billed spearfish.

Shark Belly

We saw a lot of this. Possibly cut from the blue shark. Some had small fins attached.
A 3-letter-code is required to capture it in data records.

Size Composition

Port samplers collect length measurements from longline vessels unloading in port. We attempted to replicate this sampling onboard the carrier vessel. We could see four possible approaches to recording length measurements.

- *From the cart*

When fish are destined for the two outside hatches (numbers 1 and 4) the net is first dropped into a 'cart' and then the cart is moved along a track until it reaches the outside hatch. At this point the contents of the net are moved into the hatch. The cart is an ideal location to select and remove fish for sampling. The main challenge with sampling from the cart would be removing large fish. We note that it would not be possible for **one observer** to simultaneously enumerating the catch from the longliners deck **and** take length measurements. Another challenge is that at times some of the smaller albacore were held back on the longliner, and if this happens no representative sampling can take place on the carrier vessel.

- *From the string*

  Only a small number of 'strings' of fish were observed so it was not possible to test this approach. We suggest, after viewing photographs, that if strings of fish are lowered to the deck, then taking length measurements would be relatively straight forward, and the observer could continue to enumerate the catch when sampling from a string. Of course, the vessel would need to be informed and agree with this solution.

- *From the hatch*

  After some discussions with the Captain, sampling at the top of the hatch was proposed. He suggested that the observer could stand at the top of the hatch (when full) and measure any fish within arm's reach. This may be worth considering, but it certainly has some limitations in terms of the number of fish that could sampled and the vessels that could be sampled.

- *From the fishing vessel*

  We transferred to the fishing vessel to obtain length measurements. This looked like a good solution, and while we did manage to get a good length sample (see results on page 48) there were some challenges. We explain on page 36 why transferring to the longline vessel is probably not safe.

  Additionally, during our sampling we found that deeply frozen fish transform into solid, heavy masses that shoot across the deck unexpectedly when the vessel sways. Fortunately, the deck configuration of the sampled vessel provided more protection, but overall *it would not seem prudent to propose this sampling protocol to observers.*

Protocol A: Using a crane scale to get total weight

DATA STANDARDS:

TIME OF NET TRANSFER–SCALED WEIGHT OF NET - FAO SPECIES CODE – COUNT OF SPECIES

In the first transhipment we put our efforts into establishing the net's weight using the **crane scale**. The chief officer helped to attach the crane scale to the cable. He was very interested in its use, which suggests that industry would welcome the introduction of this type of equipment. We recorded the time of the net transfer, the name and the number of each species and the total weight.

Unfortunately, the crane scale readings were obviously incorrect during the first transhipment. From 66 readings we got an average net weight of 432 kg. The weight of net did not concur with what we saw visually. The chief officer did not seem impressed either – he kept wondering was the time record the weight record (i.e. the time record was 09.01 hrs etc). It was not clear why the recording was much lower than we expected. Was it because we placed a purse-seine float over the crane scale to protect it?

We used the crane-scale again during the third transhipment. During the first transfer the purse-seine float started to slip off. The results we got were move in line with our expectations (over 5 transfers we got an average net weight of 955 kgs). But soon afterwards the crane scale broke and its bright orange castings flew across the deck. It was no longer possible to get a scaled weight of the net.

- **Protocol A Result**: My own interpretation is that vessels would very much welcome the use of crane scale for their own data collection reasons, but that the model we used 1) did not give a good reading when protected with the purse-seine float and 2) without the protective cover it could not handle the harsh environment which included continuously moving from 30 °C to – 20 °C in the space of 3-4 minutes, as well as being hit against rock hard surfaces (albacore!).

Protocol B: Enumeration of all fish

DATA STANDARDS:

TIME OF NET TRANSFER–FAO SPECIES CODE – COUNT OF SPECIES

During the second transhipment we were without the crane scale so we attempted to count the fish. Initially, this was an attempt to get an average net weight. Our attempts proved helpful in other ways. We had a very good view of the albacore being unloaded and as they fell the albacore seemed to 'clink' against one another. It was possible to count the sound.

After the transhipment we began to understand the value of the of paper that was submitted by the longliner with the log sheets. These pages, often handwritten, showed the total number and the total weight of each species that they were to be unloaded. We later learnt that the total weight is the

same as what was declared on the transhipment. Examples are posted as appendix XX. We called these the '**vessel catch summary pages.** We have not seen this type of information provided by vessels to FFA member countries before. Essentially, they are the equivalent of a vessel unloadings form.

When we matched out our own albacore count to the total number on the longline vessel's *catch summary page* they compared well. The match for the other species was not as close. In response to this, we reviewed our shark identification methods and we decided not to count the smaller species that are less relevant to fisheries management. (butterfly kingfish, oilfish, escolar, etc and the numerous pieces of shark belly.)

- Protocol B Result: The fact that the vessel catch summary page provides both the total number and the total weight for each species that is transferred is extremely helpful. It is a key piece of data for transhipment monitoring. We were not able to count every single type of fish that was in the net. Things move quickly and you can only keep so many numbers in your head…It would be a lot easier with electronic monitoring.

Protocol C: Enumeration of selected species

DATA STANDARDS:

TIME OF NET TRANSFER–FAO SPECIES CODE FOR SELECTED SPECIES ONLY – COUNT OF SPECIES

Under the amended protocol 'C' we counted all the tuna, shark, marlin, swordfish and opah. We occasionally counted mahi mahi and some of the lesser billfish species.

We divided the sampling load, alternating every few hours to ensure there was no individual enumerator affect. (That said, Ms. Berry definitely did more, it was hard to get the clipboard from her at times! The project results are so much better because of her enthusiasm and energy. Thanks!)

- Result of Protocol C: We were happy with the results we got using Protocol C, and continued with this protocol for the rest of the trip. This seemed to be the correct approach, as by continuing on with the same protocol we were able to comment on the differences samples or transhipments.

Protocol D: Enumeration of selected species with length sampling

DATA STANDARDS:

TIME OF NET TRANSFER–FAO SPECIES CODE FOR SELECTED SPECIES ONLY - COUNT OF SPECIES- LENGTH IN CM

Under protocol D we transferred to the longline vessel to enumerate the catch and get a length measurement sample of albacore. The enumerator stood by the wheelhouse and the sampler was on the deck of the vessel. One or two fish were chosen from each open net (basically on the deck). A sample of 106 fish was taken.

4. *Implementing Port State Measures at Sea*

Transferring to the Longline Vessel

Transhipping fishing vessel do not come to port for long periods, and therefore they do not undergo the frequent inspections that longliners unloading in port are subjected to.

Should observers transfer and inspect the longliners? To answer this question, we first looked at what type of information could be collected by the observer and referred to past copies of Standard Operational Procedures (SOPS) used in FFA member countries and ANNEX A Guidelines for Port State Inspection Procedures of CMM 2017-02.

- Port Inspection duties
- Check the documentation
- Check whether the VMS is operational.
- Check the vessel markings
- Check the hold and after unloading establish if there was a full or partial unloading
- Check the fishing gear, including any mitigation gear.
- Check for any illegal catch including shark fins.
- Check the vessel's license and registration papers.

So, a lot can be done, but is it safe for observers to move to the fishing vessels?

We can see in footnote 171 — in the TCC paper "Observer Reporting of Transhipment in the WCPFC {WCPFC – TCC15-2019-OP06}" that transferring to the longline vessels is considered very dangerous in the IATTC area, but that observers in other RFMO areas (i.e. Indian Ocean Tuna Commission – IOTC) do transfer to the longline vessels to carry out checks.

Safety Concerns

The 'basket' for moving between the vessels seems unsafe. The basket consists of a wooden plank as the floor, with netting used as the enclosure. On our vessel this netting reached up higher than a standing adult (so the person would be fully enclosed). Other vessels have the enclosure up to waist height. The basket is hoisted by the carrier's boom cable – the same one that is used to transfer fish. The crew steady the swing of the basket by pulling on an attached rope.

- If the basket falls the person will be inside an enclosed net. It may be difficult to get out of this, especially if the basket falls into the water.
- If the crew let go of the steadying rope, the basket could slam into the side of the fishing vessel.
- The observer has not been 'placed' on the fishing vessel. There is no agreement between the fishing vessel and the national observer programme with regards to the observer's safety. In fact, our own Captain (carrier vessel) mentioned that he would no longer be responsible for our safety if we transferred to the fishing vessel.
- For good reasons MCS 'Boarding Parties' usually consist of several persons. The observer would be alone.

The consultant and the observer transferred to the fishing vessel during this trip. For the consultant it was to assess the possibility of getting a length measurement sample, but as explained on page 33, the sampling was more dangerous than expected. It is clear from some photos we have seen that some PIRFO observers are currently transferring to the fishing vessels. **The Regional Observer Coordinator's Workshop should review and comment on the safety of observers transferring to the fishing vessels.**

Suggested alternatives to the information that observers can collect from boarding the longline fishing vessels are outlined below:

Port Inspection	Alternative
Check the logsheet, or other documentation	The logsheet can be sent over in a small basket for the observer to review
Check whether the VMS is operational.	A text can be sent to the appropriate VMS office via the observer's 2-way device to check if the VMS is transmitting. This would require standardised procedures for the observers.
Check the vessel markings	These can be seen from the carrier vessel.
Check the hold to see if a full or partial unloading was carried out.	This is helpful information, but there is no onus on vessels to complete a full unloading. During the trip we asked some of the crew if the vessel was fully unloaded and this worked at times. Other times we found that the crew were too shy or afraid of their Captain to respond.
Check the fishing gear for any mitigation gear.	Observers could ask for samples of the fishing gear to be sent to the carrier vessel (but would it be representative?). We could see a lot of the fishing gear from the carrier vessel, but not the terminal gear. Collecting information on longline

	vessel mitigation devices may best be done by observers deployed on longliners. We were able to check for tori poles.
Check for any SSIs including shark fins	No known alternative.
Check the vessel's license and registration papers.	This can be done from the national fishery offices.
Measure all species for length, or for larger freezer vessels measure a sub-sample.	Alternatives for length measurement are outlined in page 33.

Reviewing the logsheets

Normally observers do not 'collect' logsheets to ensure they are not held responsible if they go missing. CMM 2009 Regulation on Transhipment suggests under paragraph 14 that observers can use the logsheets to check the transhipment declarations.

14. Observers shall monitor implementation of this Measure and confirm to the extent possible that the transshipped quantities of fish are consistent with other information available to the observer, which may include:b. data in catch and effort logsheets, including catch and effort logsheets reported to coastal States for fish taken in waters of such coastal States;

For this project, we asked the Captain to provide the logsheets. His reply was quaint – 'I am not your waiter', but he did happily make arrangement for them to be provided. The logsheet records were appropriate, properly filled, and mostly up to date. Their last date of transhipment was properly recorded as 'a day not fishing' and the fishing positions showed that all the vessels had been fishing in the same area on the same date (Appendix 3: 'Results by Individual Vessel')

Once sampling started to settle down we checked the landings and compared them with the declarations. Most were fine. One vessel's declaration was much higher than their logsheet, but we knew they had not fully unloaded during the last transhipment due to the weather conditions so... For another their logsheet record was not consistent with the transhipment declaration for fishing area, or the amount landed. One was correct for the amount, but not the area. We noticed one logsheet had **extremely** high shark catches over a period of one week. I suggest this can only be achieved with shark targeting gear.

Checking declarations against logsheets may be best done through data management processes. Are there any benefits in having observers check logsheets and if so should their findings be trapped through the data standards? We suggest that observers could be trained to do this work, although it may be enough for them to do it when there is time and report their findings in the trip report.

Inspecting Encountered Vessels

- All vessels were properly marked and licensed for the High Seas. One vessel had some fishing floats covering the horizontal IRCS marking, but the IRCS was clearly visible on the side of the upper deck, as well as the side of the hull.
- Three vessels had their VMS antennas covered, perhaps to protect them from the weather. Information on this has been sent to the surveillance centre.
- We saw a tori pole on one vessel. Another vessel noted that it used a tori pole as a mitigation method, but none were seen.

Sea Bird Monitoring

We took a look at the WCPFC paper {WCPFC-TCC13-2017-OP01 Piloting Data Collection through Transhipment Monitoring as an opportunity for Monitoring the Implementation of the WCPFC seabird CMM} to see what data observers could collect.

In essence the paper requests that observer collect the following information;

1. Stern shots: Photos of the stern of the vessel to ascertain the nature of any bird-scaring line poles (or 'Tori poles'), to estimate the attachment height above sea level and whether the pole is sufficiently robust to support a BSL with 100 m aerial extent during setting operations

➢ Response: It was relatively easy to take pictures of the stern of the longliners. The last vessel had a tori pole – see photo, but no others were seen. It is not fully clear what observers need to look for. Can tori poles be stowed away? To properly compile these photos a photo management system is required, and this could be set up at the national or regional level. It was not clear if vessels would have their tori poles in place when transhipping, or if they might be stored away. Examples of tori poles would help observers take more appropriate pictures. Cameras may be required.

2. Night setting: 10-15 photographs taken at random, of non-consecutive pages of logbooks from the past three months, to check for fishing effort south of 30o S and north of 23oN, whether or not gear was set at night
- Response: This may be better met by requesting access to logsheet data. Transhipment observers can access logsheets but they may be fully occupied with sampling. They will need cameras or phones to take these pictures. There was no copying machine on the carrier vessel.
3. Line weighting: Photos of a subset of fishing gear (in baskets, coils or boxes) to check if vessels are using line weighting or not
- Response: The terminal gear we saw was stored inside toughened opaque plastic bags and it was not possible to see line weights etc. It may not be possible for observers to do this unless they transfer to the vessel, or a sub-set of the terminal longline gear is sent over to the carrier vessel.
4. Bird scaring lines: Where possible, photos of bird-scaring lines if any are present/visible.
- Response: All rope gear was stowed away in toughened opaque plastic bags. It may not be possible for observers to do this unless they transfer to the longline vessel, or the bird-scaring lines are sent over to the carrier vessel.

Real-time verification of VMS reporting

After advice from FFA (Bryan Scott) and PEW (Mark Young) the two-way communication device (now compulsory for observers) was used to alert the regional surveillance centre in real-time of any transhipment activity. This allowed the surveillance centre to verify the VMS transmissions.

The following messages were sent;

- IRCS – the international call sign when the longline vessel was actively approaching the carrier vessel
- ALSIDE - when the longline vessel was alongside and the ropes were tied
- TRSTART – when the transfer of fish started
- TREND – when the transfer of fish ended
- OFFSIDE – when the longline vessel threw off its rope and departed from the carrier vessel

Messages were also sent when other vessels were sighted (tankers, longliners etc).

After the trip, FFA suggested that there was some merit in continuing with the project and hopefully broadening it to involve all transhipment observers. FFA would need to set up a workable protocol, including an ''on-off system'' to verify when observers are actually deployed on the carrier vessel, a processing system to automatically capture the information, and the staffing resources to follow-up on any non-compliance by the vessels. There would be additional costs to national observer

programme with regards to the transmission fees from the two-way communication unit, so discussions around that would be required.

5. *Recording Other Observations*

Pollution

Unfortunately, pollution incidents were common. MARPOL signage was abundant, but plastics were continuously thrown into the sea. There were properly marked bins on deck, but they were not emptied when we were in port. A poignant moment was watching three juvenile oceanic whitetip sharks chewing on the kitchen waste, which included plastics.

Thoughts -If the carrier vessel takes multiple bait boxes onboard and each one contains plastic and these are delivered to the fishing vessels (which stay out for a year), where does the plastic go …? Bait boxes were not the only thing with plastic that were delivered to the longliners.

Observers should collect information on pollution incidents.

6 Capture

Tagging

We received one bird tag from one of the fishing vessels. The return details of the tag are below.

From: WEIMERSKIRCH Henri
Sent: Tuesday 10 December 2019 21:55

To: Deirdre BROGAN

Cc: UMR7372.equipe_predmarins

Subject: RE:Tag retrieval : OIS Museum Paris BS

Dear Deirdre

Thanks very much for this recovery of one of our birds.

This bird was a wandering albatross (*Diomedea exulans*) banded as a chick before fledging on 15/10/2013 at Cap Cotter, Kerguelen Islands. These young birds often disperse into the Pacific Ocean from the Indian Ocean, but remain in the southern hemisphere, never higher than 20°S. So this vessel probably went into the southern ocean at some stage. I would be very interested to receive any additional information on the movement of this fishing vessel, since we never had recaptures from a Chinese fishing vessel.

Thanks again for your help

Regards

Partial Unloadings

The vessels did not hide the fact that they were keeping yellowfin and bigeye onboard. We were informed at a lunch before the trip with the Manager of Trimarine that yellowfin and bigeye are currently being kept onboard for up to six months due to market prices. I understood that they will only be unloaded when the fishing vessels return to port. Many FFA member countries require port to port unloadings, to improve the traceability of the catch. Fishery Managers are reminded that with each successive partial unload from a fishing vessel the ability to link the catch to fishing area provided on the logsheet is diminished.

RESULTS

According to the carrier vessel's declarations an average of 147 metric tons (mt) of catch was transferred; of which 77 mt was normally albacore and 44 mt shark.

We were provided with a pre-declaration table by the carrier vessel seven days before the first transhipment. This table is available in appendix 3. The total weights in the pre-declaration table were nearly always the same as those in the final declaration, **except** where there were changes to the amounts transferred during transhipment. This mostly happened near the end of the trip when the carrier vessel filled, and we were informed of these changes.

Albacore was generally transferred as a single species (eleven out of thirteen transhipments) and normally it was the first species to be unloaded (eight out of thirteen transhipments). Nets containing sharks generally followed, and then at times billfish, although very few vessels unloaded billfish. For two transhipments albacore was mixed in with other species, so we looked at the species composition of the nets and derived a total number of albacore nets.

The average number of fish counted during the sampling was 5,300 albacore, 1,290 blue shark, 147 mako shark and 547 opah.

The average percentage match that was achieved between the sampler's count and vessel's number, for albacore, sharks and opah was 85 %. There was not enough swordfish to establish an average percentage match, and our counts of marlin have been affected by some reluctance around species identification.

The full results of the sampling are provided in the table below.

Declaration Date, Vessel Name, Protocol		SUMMARY OF WCPFC DECLARATIONS (KILOGRAMS), AND OBSERVED AMOUNTS (NUMBERS)										
		ALB	BSH	MAK	SHK		SWO	MLS	BET	YFT	OTHER	TOTAL
21/10/2019	WCPFC - KG	48,000			31,700		535	550	3,840	1,250	4,700	90,575
	FV -number											
Vessel # 1	No. of Nets	46										108
	Obs - number											
Protocol A	% obsd. (no.)											
		ALB	BSH	MAK	SHK	LAG	SWO	MLS	BUM	MAR	OTHER	TOTAL
22/10/2019	WCPFC - KG	138,300			71,035				175		29,132	238,642
	FV -number	8,832	2,334	139	2,473	779	0		1			
Vessel # 2	No. of Nets	157										304
	Obs - number	8,578	1,623	297	{57,048 kg}	604	1		0			
Protocol B	% obsd. (no.)	97%	70%*	213%*	78%	77%	0%*		0%*			
		ALB	BSH	MAK	SHK	LAG	SWO	MLS	BUM	MAR	OTHER	TOTAL
24/10/2019	WCPFC - KG	78,000			48,700						13,300	140,000
	FV -number	4,628	1,802	151	1,953	478						
Vessel # 3	No. of Nets	70										170
	Obs - number	3,661	1,678	141	{50,678kg}	429						
Protocol C	% obsd. (no.)	80%	93%	93%		89%						

- WCPFC – KG: The carrier vessel's WCPFC declaration of quantity transhipped in kilograms
- FV – number: The longline fishing vessel's count for each species as submitted to the observer on the vessel catch summary page
- No. of Nets: The total number of nets with albacore (ALB) and the total number of all nets as observed during on-deck sampling
- Obs – number: The total number of each species as counted during on-deck sampling
  {A derived weight calculated from the sample count multiplied by the average weight of the species weight see appendix 2.}
- % Obsd (no.): A percentage match between the longline vessel's number and the sampling count (100 / FV – number X Obs – number)

  * The species identification was incorrect and was adjusted after this transhipment

		SUMMARY OF WCPFC DECLARATIONS (KILOGRAMS), AND OBSERVED AMOUNTS (NUMBERS)										
		ALB	BSH	MAK	SHK	LAG	SWO	MLS	BUM	MAR	OTHER	TOTAL
25/10/2019	WCPFC - KG	**82,000**			**59,900**						**25,129**	**167,029**
	FV -number	5,189	1,895	141	2,036	808						
Vessel # 4	No. of Nets	**72**										129
	Obs - number	4,280	1,783	160	{54,358kg}	833						
Protocol C	% obsd. (no.)	82%	95%	113%		103%						
		ALB	BSH	MAK	SHK	LAG	SWO	MLS	BUM	MAR	OTHER	TOTAL
26/10/2019	WCPFC - KG	**44,000**			**62,100**		**26,420**	**10,620**	**570**		**24,340**	**168,050**
	FV -number	2,881	1,754	195	1,949	804	397	161	10			
Vessel # 5	No. of Nets	**20**										120
	Obs - number	1,363	1,483	196	{48,358kg}	369*	352	134	2			
Protocol C	% obsd. (no.)	47%	84%	101%		45%	88%	84%	20%			
		ALB	BSH	MAK	SHK	LAG	SWO	MLS	BUM	MAR	OTHER	TOTAL
28/10/2019	WCPFC - KG	**78,000**			**64,100**				**620**		**23,550**	**166,270**
	FV -number	6,626	2,102	139	2,241	898				0		
Vessel # 6	No. of Nets	**81**										184
	Obs - number	6,162	1,709	117	{50,284kg}	660				13		
Protocol C	% obsd. (no.)	90%	84%	81%		74%				0%		
		ALB	BSH	MAK	SHK	LAG	SWO	MLS	BUM	MAR	OTHER	TOTAL
29/10/2019	WCPFC - KG	**43,500**			**51,800**						**19,427**	**114,727**
	FV -number	2,534	1,592	143	1,735	638						
Vessel # 7	No. of Nets	**44**										76
	Obs - number	2,106	820	87	{25,670kg}	275						
Protocol C	% obsd. (no.)	83%	51%	60%		43%						
		ALB	BSH	MAK	SHK	LAG	SWO	MLS	BUM	MAR	OTHER	TOTAL
30/10/2019	WCPFC - KG	**40,000**			**62,000**						**40,000**	**142,000**
	FV -number	2,920	1,710	129	1,839	1,090						
Vessel # 8	No. of Nets	**36**										126
	Obs - number	2,331	1,654	107	{48,354kg}	1,171						
Protocol C	% obsd. (no.)	80%	96%	82%		107%						

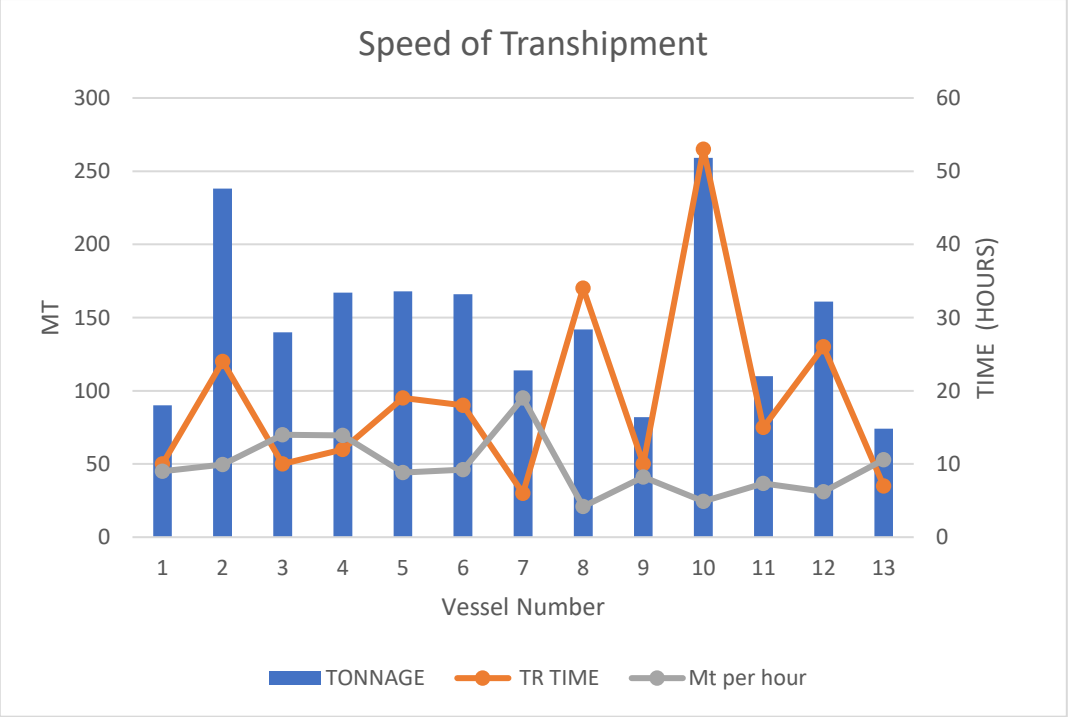
		SUMMARY OF WCPFC DECLARATIONS (KILOGRAMS), AND OBSERVED AMOUNTS (NUMBERS)										
		ALB	BSH	MAK	SHK	LAG	SWO	MLS	BUM	MAR	OTHER	TOTAL
01/11/2019	WCPFC - KG	**73,327**			**4,339**						**4,975**	**82,641**
	FV -number	4,920	0	89	89	286						
Vessel # 9	No. of Nets	**74**										78
	Obs - number	4,730	0	86	{4,300kg}	285						
Protocol C	% obsd. (no.)	96%	No BSH	96%		99%						
		ALB	BSH	MAK	SHK	LAG	SWO	MLS	BUM	MAR	OTHER	TOTAL
02/11/2019	WCPFC - KG	**180,000**			**61,495**						**17,600**	**259,095**
	FV -number	14,644	2,033	168	2,201	532						
Vessel # 10	No. of Nets	**182**										261
	Obs - number	12,824	1,970	163	{59,370kg}	562						
Protocol C	% obsd. (no.)	87%	97%	97%		106%						
		ALB	BSH	MAK	SHK	LAG	SWO	MLS	BUM	MAR	OTHER	TOTAL
05/11/2019	WCPFC - KG	**47,000**			**40,000**				**630**		**22,600**	**110,230**
	FV -number	4,142	1,530	147	1,677	818			12			
Vessel # 11	No. of Nets	**46**										117
	Obs - number	3,527	1,083	86	{32,458kg}	661			0			
Protocol C	% obsd. (no.)	85%	70%	58%		80%			0%			
		ALB	BSH	MAK	SHK	LAG	SWO	MLS	BUM	MAR	OTHER	TOTAL
06/11/2019	WCPFC - KG	**99,000**			**26,500**		**9,770**	**5,500**	**1,950**		**18,500**	**161,220**
	FV -number	8,257	390	258	648	699	129	91	40			
Vessel # 12	No. of Nets	**138**										194
	Obs - number	8,618	387	184	{18,875kg}	622	123	57	19			
Protocol C	% obsd. (no.)	104%	99%	71%		88%	95%	62%	48%			
		ALB	BSH	MAK	SHK	LAG	SWO	MLS	BUM	MAR	OTHER	TOTAL
07/11/2019	WCPFC - KG	**58,522**			**0**		**690**				**15,204**	**74,416**
	FV -number	6,835	0	0	0	189	9			0		
Vessel # 13	No. of Nets	**62**										80
	Obs - number	5,116	0	0	{0}	215	0			9		
Protocol C	% obsd. (no.)	74%				118%	0%			0%		

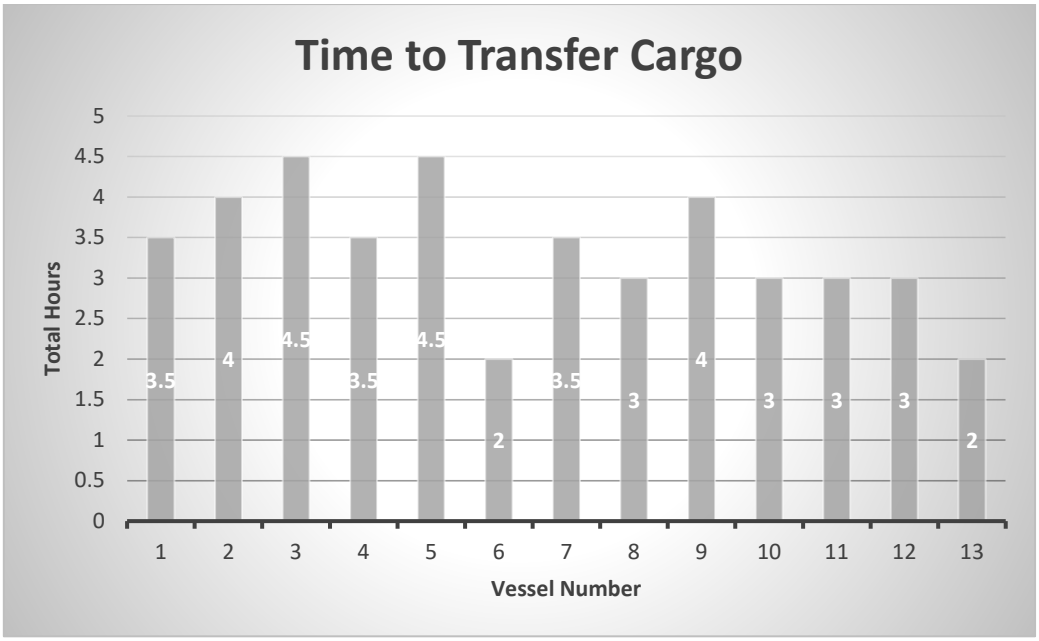
Transhipment Activities

The transhipments had large tonnages and required extensive observation time.

Vessels generally transhipped at a speed of 10 metric tons per hour. This slowed as time went on, most probably due to crew fatigue. The transhipment times were calculated from the time of the first net transfer up until the last. The time includes stoppages for rain, rest and movement of fish between hatches and cargo transfer occasionally. Cargo was moved before, during and after transhipment. The longest transhipment time was fifty-three hours.

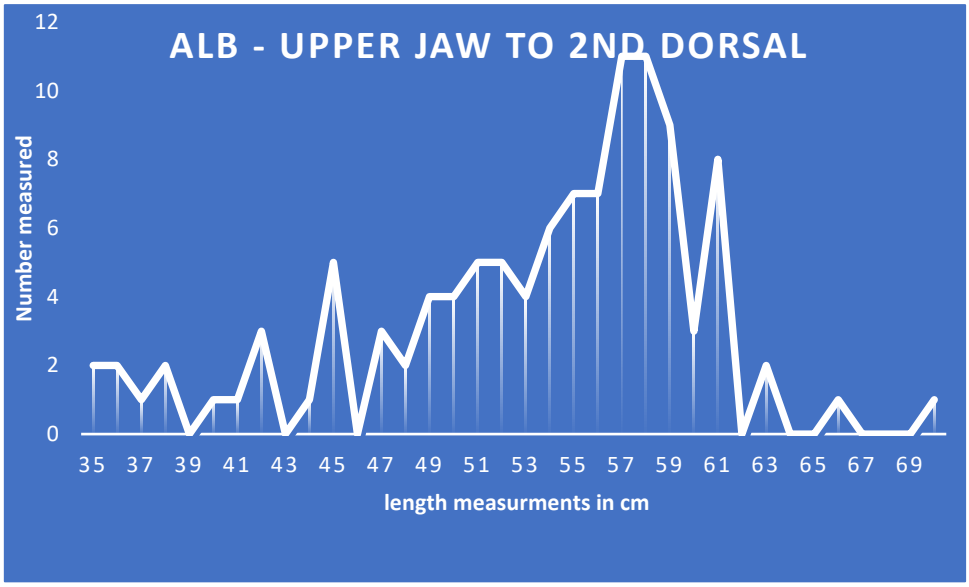
A review of the IATTC's regional transhipment observer programme by MRAG in 2017 noted an average transhipment weight of 75 mt for transhipments occurring in 2016. Our average tonnage was closer to 150 mt. This may be a feature of the albacore fishery.





The transfer of cargo added an average of 3.5 hours to the time the longline vessels were alongside. Information we picked up during the trip suggests that longliners generally receive cargo every second transhipment (i.e. every 3-4 months).

Length Sampling



This graph shows the results of our random sampling for size composition (length) on the thirteenth vessel. We found that gathering length data from the longline vessel's deck was possible, but it is not recommended for safety reasons.

DISSCUSSIONS

Consistent with the Quantities Declared?

To ensure their own safety and reduce their exposure to bribes PIRFO observers do not certify, validate or assess catches against any management or fish trade regimes. That role is for managers, but the results of the monitoring programme should allow mangers, in accordance with CMM 2009-06, to "confirm to the extent possible that the transhipped quantities of fish are consistent with other information available to the observer". To see if the proposed monitoring programme will allow managers to assess the transhipment declarations, we looked at the results from the trip. Our comments on the validity of each individual WCPFC declaration are available in Appendix 3. 'Results by Individual Vessel'.

We first compared the sampled weight of albacore to the declared weight;

- Seven of the vessels had a difference of +/- 5%
- Four of the vessels had a difference of +/- 15%
- One of the vessels had a difference of + 30%
- One of the vessels had a difference of -50 %

We suggest that two vessel's declaration for albacore were not consistent with the sampling results.

When we compared the numbers sampled to the vessel's count for three of the main species (albacore, blue shark, mako shark, but also opah) our average percentage match was 85 %. We identified declarations that were not consistent with the sampling when their percentage match was significantly different to the average match.

We were also able to identify four factors that can affect the percentage match

1. The observer's own innate ability to concentrate and record the data
2. The sampling conditions. Obviously, if the transfer of fish is fast, the line of sight limited, and there are a lot of circles of fish on the cable it is harder for the observer to obtain a good count.
3. If the vessel transfers less catch than originally stated on their catch summary page (something we saw when the carrier vessel started to fill up), and they *do not amend the number* on their catch summary page, then this will generally lead to a higher match.
4. If more fish are *intentionally* transferred then the percentage match may be higher and closer to 100% not because the observer did a 'better' job enumerating every single fish, but because they have observed more tonnage. The same is obviously true for when less fish are transferred, though less likely to be confused with a good sample.

To capture factors 1-3 *data standards* have been added to the monitoring design, and observers are encouraged to comment on the sampling conditions and factors affecting their percentage match in their trip report. This could be removed after the trial period.

In summary, the sample size is small (thirteen vessels) and the sampling conditions more difficult than we would normally expect, but it is clear that the proposed methodology can detect declarations that are not consistent with the observed amounts.

Number or Weight

In hindsight, despite our initial intentions of not replicating MRAG's design, at least not intentionally, we probably have. The provision of the **vessel summary catch page** has clearly influenced our decision to adopt and to continue with count as an independent estimate of quantity. Since we have never seen this information submitted in FFA member countries before, we suspect that since vessels were so used to providing it to MRAG observers they casually submitted it to us. Any similarities to the MRAG observer programme in the IATTC area will help with any future data harmonisation efforts.

Obtaining a count is simple method for observers to achieve as it requires no extra equipment and WCPFC are asked to take note of the importance of **number** in the longline transhipment fishery, but we recognise that CMM 2009-06 requires transhipping vessels to report the *tonnage* of product that is transhipped.

Under the current methodology we were able to use the average weight of sharks (from the vessel weight tables) and apply this to the sample count to get a sample weight for sharks. This can be done for other species.

Obtaining a *scaled weight* of the transferred catch will help improve the monitoring programme. It is evident that our methodology was strengthened by confirming the weight of an albacore net with a crane scale. Having a scale weight will provide a way of capturing the quantity of 'other' fish or products that were transferred, and it will be especially useful to get an independent estimate of weight for catches that are transferred as a single species.

For the moment the extent of crane scale use in the transhipment fishery is not known. If a crane scale weight does become available to observers the proposed methodology (count) could be reviewed as it is quite intensive method to apply in the field. Providing an eye-estimate the species composition of swings is an alternative method and this could be explored further if crane scale become more widely available. Using an eye-estimate of species composition as PIFRO purse-seine observers currently do is an alternative method; although summarising the species composition for each net would be tedious. Further work may be required.

Monitoring Coverage

We found that time to complete transhipments could be very long. Most transhipment were over twenty-four hours, and one was over fifty hours. It would not have been possible for a single observer to fully monitor these transhipments. It is likely, that transhipments from the albacore fishery take longer, but we will need more data to confirm this. In the meantime, observers placed during the trial period will need direction on how much, or how little, they need to observe. At this stage the protocol

attempts to trap the total number of nets missed by observer (in the same manner unobserved hooks on a longliner are trapped). This protocol could be developed further.

Future work

The proposed monitoring protocol should go a long way towards capturing useful information from longline transhipments. The following is a list of items that may help to improve the monitoring programme.

- Assess how well the proposed monitoring programme functions with transhipments from the tropical bigeye- yellowfin fishery.
- Improve the capture of weight through the identification of suitable crane scales for longline transhipment and working with industry to implement crane scales across the fleet.
- Look at improving the data collection around hatch design, hatch storage procedures and current and future refrigeration techniques. An important aspect that could be improved is the *movement of fish between hatches*. Currently it can be captured in the comments section of the on-deck count sheet in the meantime, but more information is required to provide a specific data standard.
- Improve the estimation of number and weight from 'other' species
- Only limited work was done on capturing specifics about the carrier vessel's own construction. However, noting that the longline carrier fleet in the WCPFC is said to be aging the monitoring programme should aim to document the current vessel specifications and those in the future. Future vessel design is likely to come with more e-technologies for vessel management and safety, improved fuel use, developments in the materials used and clean fuel.

Strength and Weaknesses of Observers

Strengths

- Observers can, *using the carrier vessel's email*, send an early data report. This may be helpful for any catch documentation schemes.
- Observers can get an **early copy** of the unloading **vessel's logsheet**, if provided with a tool to scan them.
- Observers can independently send real-time transhipment positions to better inform regional surveillance centres about VMS transmissions
- If electronic monitoring is implemented observers may be able to retrieve hard drives etc. for review in an FFA member country.

Weakness

- The transhipments we covered had large catch amounts and required long observation hours. It would not be possible for a single observer to monitor these transhipments in their totality. This may be a feature of an albacore fishery, so further work is required to establish the average observer time for transhipment observers. An additional observer or EM would be required.
- Ensuring the observer's safety limits the monitoring that can be achieved (transfer to longliner etc).

OUTPUTS:

Data Standards for Transhipment Observers

After one trip the following is offered as the **data standards framework** for monitoring by observers onboard longline transhipment vessels.

CORE

OBSERVER SAFETY

TRANSHIPMENT DETAILS

TRIP DETAILS

COMPLIANCE STANDARDS

PORT INSPECTION PROCEDURES

VESSEL AND AIRCRAFT SIGHTINGS

OBS. TRIP MONITORING SUMMARY (GEN-3)

ADDITIONAL STANDARDS

VESSEL DETAILS

POLLUTION

TAGGING

Possible Standards

SPECIES OF SPECIAL INTEREST SIGHTINGS

MARKET DESTINATION

What Not to Collect

The Tuna Fishery Data Collection Committee (DCC) has, for over twenty years, been proactive and somewhat visionary in adding new data fields. The data collection system has matured and stabilised, and changes to the data standards are less frequent. Using the DCC observer standards made compiling this monitoring programme easier.

Still, while there is no criticism of DCC, every data field comes with an administrative burden that is not always obvious. A new data field may appear first in the DCC report; but it also has to be added into training, data collection apps or forms, e-monitoring, databases, debriefing and scoring formats, along with data reporting.

When deciding what data not to collect, the following should be considered:

In deciding what data not to collect the following should be considered

- Data that is not being analysed should not be collected.
- Data collection may have to be collected continuously. Sporadic surveys can be considered.
- Some data only needs be collected once. Subsequently any *changes* to the data standard can be recorded. We see this with vessel details.
- Some data standards are only required when an observer is present and should not automatically imply data collection through electronic monitoring systems (*for instance lifejackets*…)

The DCC strategy should turn towards identifying and documenting the sampling design framework including; the objectives, time-frames, the interested data partners and the data analysis plans for each data type. Without this data **should not be collected**. Doing this seems burdensome and there may be resistance but data analysis is required to further inform and improve data collection. It is also a burden on observers and others to put their energies into data standards that are no longer necessary, or to collect data in an incorrect manner because data analysis has not been completed.

For the longline transhipment monitoring programme we would strongly suggest that a sampling design for the specific data types be drawn up. Without this framework information like vessel and species of species interest and even pollution data should not be collected.

Specific notes on what not to collect for longline transhipment monitoring have been documented under the Outputs section of the report.

Core Standards

The core elements cover what *must* be collected by transhipment observers. Interesting the MRAG forms focus on the items we list as core elements. This may help to inform future discussions on data standard harmonisation across RFMOs. Identifying core elements may also be helpful for electronic monitoring work.

TYPE	FORM	NAME
OBS. SAFETY	SUP-1	Placement Form
TRANSIT PASSEN	None	Observer's Trip Report
SAMPLING	LC-4 WATERPROOF	Count Sheet Form
SIZE CLASS	LC-5 WATERPROOF	Sampling Form
CATCH DECLARE	LC-6	Transhipment Summary Form
TRIP DATES	LC-1	Trip Details
DAILY LOG	AMENDED DAILY LOG FORM (PS-2)	Daily Log

- **OBSERVER SAFETY**

TYPE	FORM	NAME
OBS. SAFETY	SUP-1	Placement Form
TRANSIT PASSEN	None	Observer's Trip Report

CURRENT: Placement Form

The current SPC / FFA Regional Observer Placement form offers a check list of safety items to be signed off before the vessel departs. It was developed from the WCPFC's ROP vessel safety check form. Currently the placement form is not trapped electronically. The form is correctly treated more like a contract of understanding than data standards, and this approach seems acceptable**. However, as a core element of observer safety** (that shows things like whether an observer was actually issued with a PLB etc) and **an indicator of observer trip coverage**, more attention should be paid to the processes for its storage, access and retrieval. The simplest way to do that may be to capture its use under a document management standard. ***ROCW and DCC are encouraged to comment on the implementation, management and access to the placement form.***

Any review of the placement form should include;

- Procedures for its implementation in foreign ports
- Capturing it under a document management system
- Modernising the vessel safety checklist
- Moving the vessel and captain contact details (phone number) from the trip detail form
- Integrating the vessel report on the observer into the placement form

NEW: Transiting Passengers

An additional concern with safety is unlisted persons (transiting passengers) on board. During the trip there were two fishers that were transiting to the fishing ground to work on the longliners, not listed on the crew list. It would be beneficial to observer's safety to collect the name of these 'transiting' passengers. Additionally, information on the persons employment agency, salary and perhaps treatment if returning from a fishing vessel may allow countries to assess labour/employment conditions as outlined in the FFA harmonised minimum terms and conditions (HMTCs). It may be sufficient to compile this information through the observer's trip report. No new data standards are proposed at this stage.

- **TRANSHIPMENT DETAILS**

TYPE	FORM	NAME
SAMPLING	LC-4 WATERPROOF	Count Sheet Form
SIZE CLASS	LC-5 WATERPROOF	Sampling Form
CATCH DECLARE	LC-6	Transhipment Summary Form

The main outcome of this project was capturing the transhipment details. Two new sampling forms and a data summary form are proposed.

NEW: Count Sheet

DATA FIELD	Data Collection Instructions
TIME	Record the time the swing goes over the carrier vessel rail
SPECIES	Record the 3-letter FAO species code
COUNT	The total number of the species that was transferred on the swing (net/string)
WEIGHT KG	The total weight of the swing, if a crane scale is present
HATCH NUMBER	Record the hatch number the fish was placed at the start of sampling and again if the hatch number changes during sampling
SWINGS (TOTAL)	The total number of swings monitored on this form (*or another format*)
SWINGS (MISSED)	The total number of swings missed on this form (*or another format*)

- **Count Sheet: What data standards should not to be collected**

We have not included a data standard to capture the processed state. We suggest that the processed state of each species does not change frequently, and that most ultra-low temperature longline vessels process fish in the same manner. For the trial period we suggest that observers fully describe the processed state of the fish and once it is possible to code the processed state this data standard can be captured at the vessel encounter level.

NEW: Length Measurement Form

DATA FIELD	Data Collection Instructions
SPECIES	Record the 3-letter FAO species code
LENGTH	Total Length in centimetre
LENGTH CODE	PIFRO Length Measurement Codes

A simple form to collect any length measurement is proposed. At this stage the sampling protocol has not been finalised.

NEW: Declaration Summary

DATA FIELD	Data Collection Instructions
OBSERVER	
SPECIES	Record the 3-letter FAO species code
WEIGHT INDICATOR	For swings with SINGLE species transferred, the total number of nets, or total crane weight if scale available
% - PERCENTAGE	100 divided by the vessel's species number of the species multiplied by the observer's total number of the species.
OBSERVER COUNT	The total number of the species counted by the observer * where
FISHING VESSEL CATCH SUMMARY	
VESSEL COUNT	From the Catch Summary Page, total number of this species
VESSEL WEIGHT	From the Catch Summary Page, the total weight of this species
AV. WEIGHT	From the Catch Summary Page, total weight divided by total number
DECLARATION	
WCPFC	The total amount of the species in kilograms caught in the WCPFC area, declared to WCPFC
IATTC	The total amount of the species in kilograms as caught in the IATTC area, declared to WCPFC
OVERLAP	The total amount of the species in kilograms as caught in the Overlap area, to WCPFC
TOTAL	The final total amount of the species in kilograms as caught all areas and declared to WCPFC
TOTAL SWINGS OBSD	The total number of swings observed
TOTAL SWINGS MISSED	An estimate of the total number of swings missed by the observer
SWING TOTAL	The total number of swings transferred
JUDGE IT	Circle to show how good sampling conditions were
CARRIER FULL	Tick Yes to state the Carrier Vessel was full, and not able to take all of the f.v. catch onboard

NEW: Length Measurement Form

DATA FIELD	Data Collection Instructions
SPECIES	Record the 3-letter FAO species code
LENGTH	Total Length in centimetre
LENGTH CODE	PIFRO Length Measurement Codes

- **TRIP DETAILS**

TYPE	FORM	NAME
TRIP DATES	LC-1	Trip Details
DAILY LOG	AMENDED DAILY LOG FORM (PS-2)	Daily Log

NEW: Trip Details

The trip detail form captures the trip dates for the observer, the carrier vessel and any transit vessel. The form also provides a way of checking the WCPFC RFV.

- **Trip Details: What data standards should not be collected**

The vessel communication and VMS details are also recorded, but in the long-term these may be better placed on the placement form.

AMENDED: Daily log

We suggest capturing the trip details, includes transhipment activity with the same format as the SPC/FF Daily Log form (currently used on purse-seiners). The following *new* activity codes are provided to capture transhipment activity;

NEW ACTIVITY CODES

- Alongside (or ropes tied)
- Transhipment *(amend the PS activity code 16 Transhipment and Bunkering)*
- Cargo Transfer
- Crew Rest (during transhipment)
- Rain (*Use the current activity code 5 or suggest other*)
- Moving fish
- Offside (or ropes released)

- **Daily log: What data standards should not be collected**

Neither the EEZ/RFMO or the weather data fields are used in data analysis. They could be removed, although both are helpful for an observers' day-to-day knowledge.

Compliance Standards

These compliance data standards are offered as items that can be currently achieved by observers.

TYPE	FORM	NAME
VESSEL ENCOUN.	LC-X	Vessel Encounter Form
VESS. SIGHTINGS	GEN-1	Vessel and Aircraft Sightings

MONIT. SUMMARY	GEN-3	Vessel Trip Monitoring Summary
VMS REAL TIME	NONE	Procedures for Real-time Verification of VMS Transmission

- **PORT INSPECTION PROCEDURES**

NEW: Vessel Encounter Form

DATA FIELD	Data Collection Instructions
WCPFV RFV	The longline vessel is listed on the WCPFC Register of Fishing Vessels
VESSEL MARKINGS	The vessel markings appropriate? (Yes or No)
TORI POLES VISIBLE	Were any tori poles / brackets observed on the fishing vessel? (Yes/No)
SSI	Did you notice any species of special interest on the vessel? (Yes, No)
FULLY OR PARTIALLY UNLOADED	F.V. crew interview - was their vessel fully or partially unloaded. (Fully, partially, no response)
COMMENT	Record a comment about the vessel encounter

- **VESSEL SIGHTINGS**

CURRENT: Vessel Sightings GEN-1

Records of vessel and aircraft sightings are perhaps helpful data observer can provide in a fishery where IUU vessel involvement is *perceived* to be high. We encountered one vessel outside of the immediate transhipment area (a fishing vessel inside a national jurisdiction).

- **GEN-1: What data standards should not be collected**

  It may be confusing for observers if they are asked to record the any fish transfers by the carrier vessel on the GEN-1 form. These have been removed.

- **MONITORING SUMMARY**

CURRENT: Monitoring Summary GEN-3

The type of infringements that may occur on a transhipment vessel are very similar to those on other fishing vessels, and the use of the current GEN-3 form seems appropriate for transhipment observers.

- **GEN-3: What data standards should not be collected**

  The transhipment observer should not record infringements by the fishing vessels on their GEN-3 form.

Some data standards on the GEN-3 form are not appropriate for transhipment observer (logsheet catches etc). Since a complete revision of the GEN-3 form has been discussed by DCC, we have left any revisions of the GEN-3 form to the DCC.

Other compliance procedures

The DCC could comment on whether it is necessary or appropriate for observers to review or **copy** the logsheets

Additional Standards

TYPE	FORM	NAME
VESSEL DETAILS	NEW FORM	LC-1
POLLUTION	CURRENT FORM	GEN-6
TAGGING	CURRENT FORM	SPC Tag Recovery Form

- **VESSEL DETAILS**

NEW: Trip Details Form (LC-1)

Vessel details are captured on the Trip Details form. The approach is to validate the WCPFC Record of Fishing Vessels. As outlined under 'discussions' further work capturing appropriate vessel details may be required.

Vessel Details *(under Trip Details)* **What data standards should not be collected**

- The communication services, VMS or observer details may be more appropriately trapped and processed under the placement form.

- **POLLUTION**

CURRENT: Pollution Report GEN-6

Notes on pollution were provided on page 60.

- **TAGGING**

CURRENT: Tagging Form

After one trip we can see that a tagging form will be a helpful addition to the monitoring programme.

We have used the cannery recovery form, as it allows records from multiple fishing vessel to be captured. It may not be the most appropriate form and the SPC Tagging Team are asked to comment.

Possible Standards

TYPE	FORM	NAME
SSI SIGHTINGS	CURRENT FORM	GEN-2
DESTINATION	CURRENT FORM	WCPFC: FC-3 Catch Destination Form

- **SSI SIGHTINGS**

CURRENT: GEN-2 (Sightings)

The species of special interest sighting (SSIs) GEN-2 form was used during this trip. Some dolphins and birds were sighted. The need to collect SSI sightings without a documented sampling design needs to be reviewed. Still asking observers during the long number of transit days to spend an hour a day searching for sightings of **vessels or SSIs** will have other benefits, including increasing the observer's visibility and improving their communication with the vessel officers.

- **MARKET DESTINATION**

CURRENT : (Catch Destination)

Capturing the destination of the catch is helpful for catch documentation schemes and economic analysis. The WCPFC form is useful in this regard. That said, this information is not always available to the observer before they disembark. During the previous trip the observer was informed that the destination was Kaohsiung, but we subsequently found out (after a lunch with Trimarine) that the catch was sent to Japan, as 'container rates were currently low'.

A Plan for Training

Fortunately, PIFRO observers have, through basic certification, already acquired many of the skills required to carry out this work. That said transhipment observations offers some additional challenges and PIFRO observers will be better prepared and positioned after gaining specific certification in longline transhipment observation.

The following is offered as a possible agenda for training;

- CMM 2009-06 on transhipment and others outlined on page 10.
- Accessing and downloading the WCPFC RFV
- New transhipment forms
- Reading, understanding and transcribing the vessel's WCPFC transcription declaration
- Selecting appropriate vessels for length sampling from the pre-declaration table
- Port State Measure and how these are used for vessel encounters, VMS etc.
- Carrier Vessel Safety: Wires and ropes under strain, man overboard in temperate waters, transfers to longline vessels.
- Challenges in sampling – as per page XX.
- New terminology in transhipment observing
- Priorities in sampling, observation periods, time away from deck
- What happens during transit periods?
- Working with observers from other RFMOs
- Trip Report
- (Reading the logsheets) if required

Trial Period

The project envisages a trial period to implement the new monitoring procedures. We suggest the following should be considered during the trial period.

- Prioritise the deployment of senior observer and certified debriefers.
- Provide training to countries currently involved in transhipment observation i.e. Vanuatu and Kiribati while establishing an agreement on data submission during the trial period.
- Target training towards observers with debriefing certification.
- Place a time frame around the trial period and a review date.
- Establish a sampling plan for known requirements – better species id photos, crane scale weight etc.
- Maintain communication with the observers during the trial period by gathering their personal contact details.
- **Fully** debrief every observer with the forms provided.
- Review the outputs of the trial through a mini-DCC.

Resources required for the trial period

The following resources may be required during the proposed trial period

- Trainers' travel and salaries, other training costs (infrastructure/ support)
- Printed workbooks
- Safety Equipment (2-way communication devices, PLBs, lifejackets)
- Cameras
- Callipers
- FFA/SPC staff time
- A review workshop

Risk Assessment

The following items are identified as possible risks to implementing the new monitoring standards in FFA member countries.

- The monitoring programme is more likely to be accepted by national observer programmes if the workbook data can be entered into a functional database. Update TUFMAN 2 database.
- Vessels may be surprised by PIRFOs new sampling regime and the change of behaviour by observers. Inform vessels.
- Changes to PIRFO sampling may affect how observers from WCPFC and IATTC interact. Initiate discussions with MRAG Americas to ensure observers from both RFMOS are aware of each other's roles and data collection programmes.
- Ensure there are sufficient callipers available. Buy callipers.
- The length (in time) of transhipments may be too long for complete observation by a single observer. Consider using two observers or electronic monitoring to cover these potential gaps. Instruct observers on how much coverage is required during the trial period.
- The availability of alcohol from the bond store may put observers at a greater risk. Discuss this specific issue with observers to limit the risk, while reminding them of their national codes of conduct.
- Vessels may not provide the catch summary page. Make this compulsory.

RECOMMENDATIONS:

WCPFC

- In any review of the CMM 2009-06 consider the importance of **number** as a unit of catch for longline vessels
- Consider the implications of partial unloadings on the requirement to verify catch and fishing area
- **Require** vessels to supply observers with the catch summary page
- If possible, work with vessel operators during the trial and subsequent trial period informing them of changes to observer's sampling regime.
- Start discussions with neighbouring RMFOs to fully describe and document the similarities and differences in the sampling programmes to achieve harmonisation across RFMOs in data collection and perhaps training certification.
- Note that more than one observer may be need to cover some transhipments
- Understand that scientists are not covered by CMM 2017-03 unless they are added to a NOP. It would be helpful to explore procedures to add persons that are not observers; but who carry out scientific, technical or other work at-sea for short time periods, and directly support the functions of the WCPFC to an independent list of approved ROP observers.

ROCW

- Recognise the value of the placement form in terms of the observer security.
- Review the placement form content, and comment on the procedures for the collection and management of completed placement forms; along with the placement procedures for observers in foreign ports
- Review and comment on the safety of observers transferring to the longline vessel from longline carrier vessels
- Review and comment on the safety of observers on transhipment observers working outside areas of national legislation.
- Comment on any extended observation time required from transhipment observers.
- Comment on whether it is necessary or appropriate for observers to review or **copy** the logsheets
- Discuss the proposed protocol for observers to alert the RFSC of transhipments via the observers' 2-way communication device.

- Look for opportunities for foreign language training for observers
- Note that carrier vessels offer duty free alcohol and this may challenge observers to adhere to their codes of conduct.

DCC

- Take note of the proposed longline transhipment observer forms.
- Consider implementing a data collection format similar to the catch summary page for use by vessels transhipping at sea to document the catch they unloaded.
- Review the *implementation* of 2016 version of the longline logsheet – expanded version, (or any subsequent version) with fleets that are known to tranship at-sea, or explore other methods for vessels to show days they have transhipped at sea.
- The DCC could comment on whether it is necessary or appropriate for observers to review or **copy** the logsheets
- Start the process of documenting the objectives, timelines, any data analysis plans for all observer data types and identify the relevant organisations and interested parties.

SPC

- Review and continue to look for solutions around the collection of size class data from transhipment vessels.
- Review and continue to develop the methodologies for the collection of number and weight by observers on transhipment vessels.
- Include a component for longline observer transhipment data entry in the TUFMAN 2 database.
- Comment on the requests for transhipment observers to obtain information from logsheets (CMM 2009-06), and take photographs (Monitoring Sea Birds) and whether this would be better done through logsheet data management
- Continue to improve the species identification training material available for highly processed fish.
- Consider offering additional compliance reports in TUFMAN 2 (High Shark catch, comparison of logsheets catch with declaration for area and amounts etc).
- Consider providing or providing advice to national observer programmes on file management services for photographs.
- Provide a 3-letter code for shark belly.

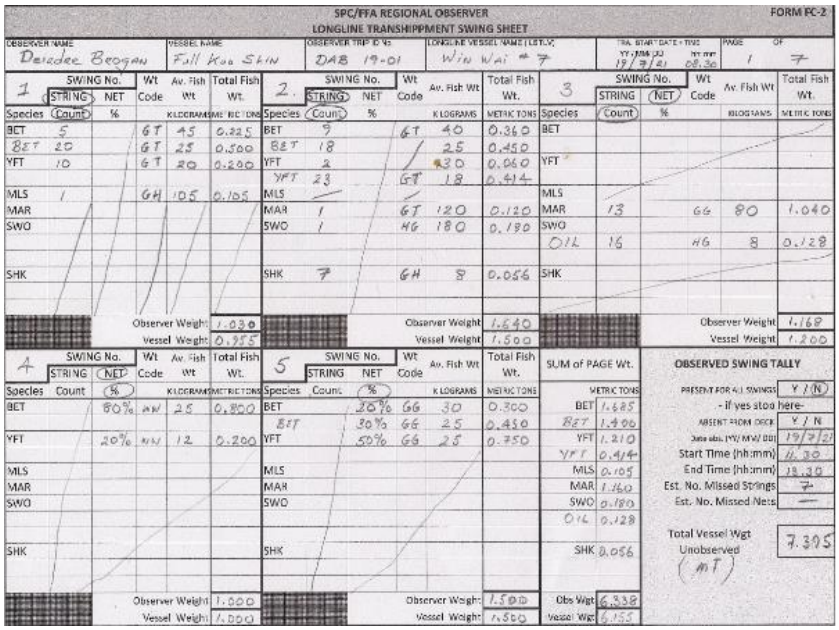
FFA

- Discuss with member countries, document the process and if found appropriate, implement real-time verification of transhipments with observer alerts.

- Ask member countries to consider the implications of partial unloadings against any requirements to verify catch and fishing area.
- Take note of the data collection processes for vessel safety and human trafficking and employment conditions.
- Review and continue to provide comments on the data standards for observers to cover vessel encounters at sea (derived from port state measures).
- Encourage FFA member countries to use the new observer data standards for longline carrier vessels and strongly encourage member countries to submit any collected data through the normal observer data submission processes.

APPENDICES:

Appendix 1: Pre-trip data forms



SPC/FFA REGIONAL OBSERVER — FORM FC-2
LONGLINE TRANSHIPPMENT SWING SHEET

OBSERVER NAME	VESSEL NAME	OBSERVER TRIP ID No.	LONGLINE VESSEL NAME (LSTLV)	TRA. START DATE + TIME YY / MM / DD hh: mm	PAGE	OF
Deirdre Brogan	Full Kua Skin	DAB 19-01	Win Wai # 7	19/7/21 08:30	1	7

1 SWING No. STRING	NET	Wt Code	Av. Fish Wt KILOGRAMS	Total Fish Wt. METRIC TONS
BET 5		GT	45	0.225
BET 20		GT	25	0.500
YFT 10		GT	20	0.200
MLS 1		GH	105	0.105
MAR				
SWO				
SHK				
Observer Weight: 1.030				
Vessel Weight: 0.995				

2 SWING No. STRING	NET	Wt Code	Av. Fish Wt KILOGRAMS	Total Fish Wt. METRIC TONS
BET 9		GT	40	0.360
BET 18		/	25	0.450
YFT 2			30	0.060
YFT 23		GT	18	0.414
MLS				
MAR 1		GT	120	0.120
SWO 1		HG	180	0.180
SHK 7		GH	8	0.056
Observer Weight 1.640				
Vessel Weight 1.500				

3 SWING No. STRING	NET	Wt Code	Av. Fish Wt KILOGRAMS	Total Fish Wt. METRIC TONS
BET				
YFT				
MLS				
MAR 13		GG	80	1.040
SWO				
OIL 16		HG	8	0.128
SHK				
Observer Weight 1.168				
Vessel Weight 1.200				

4 SWING No. STRING	NET	Wt Code	Av. Fish Wt KILOGRAMS	Total Fish Wt. METRIC TONS
BET 80%	MW	25	0.800	
YFT 20%	MW	12	0.200	
MLS				
MAR				
SWO				
SHK				
Observer Weight 1.000				
Vessel Weight 1.000				

5 SWING No. STRING	NET	Wt Code	Av. Fish Wt KILOGRAMS	Total Fish Wt. METRIC TONS
BET 20%	GG	30		0.300
BET 30%	GG	25		0.450
YFT 50%	GG	25		0.750
MLS				
MAR				
SWO				
SHK				
Observer Weight: 1.500				
Vessel Weight: 1.500				

SUM of PAGE Wt. METRIC TONS	
BET	1.685
BET	1.406
YFT	1.210
YFT	0.414
MLS	0.105
MAR	1.160
SWO	0.180
OIL	0.128
SHK	0.056
Obs Wgt	6.338
Vessel Wgt	6.155

OBSERVED SWING TALLY

PRESENT FOR ALL SWINGS - If yes stop here-	Y / N
ABSENT FROM DECK	Y / N
Date obs. (YY/ MM/ DD)	19/7/21
Start Time (hh:mm)	11:30
End Time (hh:mm)	18:30
Est. No. Missed Strings	7
Est. No. Missed Nets	—
Total Vessel Wgt Unobserved (MT)	7.305

SPC/FFA REGIONAL OBSERVER — FORM FC-1
LONGLINE TRANSHIPPMENT START SHEET

OBSERVER NAME	VESSEL NAME	OBSERVER TRIP ID No.	LONGLINE VESSEL NAME (LSTLV)	TRANSHIP No.	OF

MUST BE FILLED IN FOR EVERY TRANSHIPPMENT

NAME OF TRANSHIPPING/ OFFLOADING (LONGLINE) VESSEL:

FLAG:

COUNTRY REGISTRATION NUMBER:

IRCS:

UVI:

VESSEL MASTER NAME: VESSEL MASTER NAME VESSEL COMPANY OR OWNER:

OFFLOADING VESSEL GEAR TYPE: LOGSHEET SUPPLIED: Y / N

DATE AND TIME VESSEL STARTED TRANSHIPPING:

SUMMARY OF OBSERVATIONS ON THE OFFLOADING VESSEL

FORM FC-3

LONGLINE TRANSHIPPMENT END SHEET

OBSERVER NAME	VESSEL NAME	OBSERVER TRIP ID No.	LONGLINE VESSEL NAME (LSTLV)	TRA. START DATE + TIME YY / MM/ DD hh: mm	PAGE	OF

		Metric T.
LOGSHEET FINAL	BET	
	YFT	
	MLS	
	MAR	
	SWO	
	SHK	
	Vess Wt	

		Metric T.
OBSERVER FINAL	BET	
	YFT	
	MLS	
	MAR	
	SWO	
	SHK	
	Obs Wt	
	Vess Wt	

		WCPFC Metric T.	
TRANSHIP DECLARE	BET		
	YFT		
	MLS		
	MAR		
	SWO		
	SHK		
	Vess Wt		

		IATTC Metric T.	
TRANSHIP DECLARE	BET		
	YFT		
	MLS		
	MAR		
	SWO		
	SHK		
	Vess Wt		

SUMMARY OF OBSERVATIONS THIS TRANSHIPMENT

Was it a FULL or PARTIAL Unloading for the LL vessel ?

FULL PARTIAL

Observer Coverage of this transhippment

Est No. of Missed Strings

Est. No. of Missed Nets

Appendix 2: Weight tables

AVERAGE SPEICIES WEIGHTS FROM CATCH SUMMARY PAGE

	ALB			BSH			MAK			MLS			BUM			LAG		
Vessel	No.	WGT	AV. WGT	No.	WGT	AV. WGT	No.	WGT	AV. WGT	No.	WGT	AV. WGT	No.	WGT	AV. WGT	No.	WGT	AV. WGT
#2	8,832	138,300	**15.7**	2,334	62,412	**26.7**	139	8,623	**62.0**				1	175	**175.0**	779	10,998	**14.1**
#3	4,628	78,000	**16.9**	1,802	42,000	**23.3**	151	6,700	**44.4**							478	5,500	**11.5**
#4	5,189	82,000	**15.8**	1,895	53,200	**28.1**	141	6,700	**47.5**							808	11,500	**14.2**
#5	2,881	44,000	**15.3**	1,754	50,800	**29.0**	218	11,000	**50.5**	161	10787	**67.0**	10	570	**57.0**	825	12,622	**15.3**
#6	6,626	98,000	**14.8**	2,102	59,000	**28.1**	139	6,829	**49.1**							898	13,890	**15.5**
#7	2,534	43,500	**17.2**	1,592	45,000	**28.3**	143	6,800	**47.6**							638	8,000	**12.5**
#8	2,161	35,647	**16.5**	1,710	45,648	**26.7**	129	6,593	**51.1**									
#8	759	5,061	**6.7**															
#9	4,920	73,327	**14.9**	none			89	4,339	**48.8**							286	3,054	**10.7**
#10	14,644	180,000	**12.3**	1,595	44,510	**27.9**	168	6,985	**41.6**							532	6,700	**12.6**
#11	4,142	52,527	**12.7**				147	7,378	**50.2**				12	628	**52.3**	818	9,224	**11.2**
#12	8,257	98,329	**11.9**	1,602	40,693	**25.4**	258	14,778	**57.3**	91	5292	**58.2**	40	2041	**51.0**	699	10,054	**14.4**
#13	6,333	51,484	**8.1**	none									1	53	**53.0**	64	933	**14.6**
#13	502	7,038	**14.0**										8	690	**86.3**	125	1,777	**14.2**

WEIGHT IS IN KILOS

Appendix 3. Results by individual vessels

VESSEL NUMBER ONE

A: Vessel's Pre-Transhipment Declaration Table

WCPFC							
ALB	**BET**	**YFT**	**SWO**	**BUM**	**MLS**	**Sharks**	**Others**
	2.300	0.250	0.370		0.400		
OVERLAP							
ALB	**BET**	**YFT**	**SWO**	**BUM**	**MLS**	**Sharks**	**Others**
37.000	0.540	1.000	0.165		0.150	24.200	2.600
IATTC							
ALB	**BET**	**YFT**	**SWO**	**BUM**	**MLS**	**Sharks**	**Others**
11.000	1.000					7.500	2.100
TOTAL							
ALB	**BET**	**YFT**	**SWO**	**BUM**	**MLS**	**Sharks**	**Others**
48.000	3.840	1.250	0.535	0.000	0.550	31.700	4.700

B: Comparison of Final Declaration and Observer Sampling

Declaration Date, Vessel Name, Protocol		*SUMMARY OF WCPFC DECLARATIONS (KILOGRAMS), AND OBSERVED AMOUNTS (NUMBERS)*										
		ALB	**BSH**	**MAK**	**SHK**		**SWO**	**MLS**	**BET**	**YFT**	**OTHER**	**TOTAL**
21/10/2019	***WCPFC - KG***	**48,000**			**31,700**		**535**	**550**	**3,840**	**1,250**	**4,700**	**90,575**
	FV -number											
Vessel # 1	***No. of Nets***	**46**										108
	Obs - number											
Protocol A	***% obsd. (no.)***											

C: Vessel's Activity during Transhipment

# 1	ALONGSIDE	CARGO START	CARGO END	TR START	TR END	CARGO START	CARGO END	OFFSIDE
20/10/2019	14.11	15.25	20.17					
21/10/2019				06.21	16.14	17.53	21.24	21.57

Vessel Number One Contd.

Date of last Transhipment – 15th August, 2019.

- *Notes: This is our first vessel. The fishing vessel stayed approx. 2-3 nautical miles away from the carrier vessel during the evening until transhipment started in the afternoon. We also noticed a petrol boat arriving into the area towards the end of the transhipment. It stayed close to the carrier until our last transhipment. We kept a copy of the logsheet and reviewed it later on. The catch positions on the logsheet for albacore are mostly consistent with the declaration.*
- *Sampling:* Protocol A: Establish the total weight with a crane scale

  We used the crane scale to estimate the total weight, but the readings are obviously incorrect. The reason is unclear, but perhaps the purse-seine float that was placed around the crane scale for protection is affecting the reading. The data does give us the number of nets and the time of each transfer though. We hesitantly start the process of counting the total number for each species, but the results are weak, so they are provided in the results. This is one of the few transhipments that we see bigeye and yellowfin tuna.

- *Declaration:* We did not count all species during this transhipment. However, from a later net weight and the net count the albacore declaration seems to be consistent with our net tally.
- *Video*: We have film and photos of the vessel's arrival and the transhipment. Put the Go pro on the 'chesty' mount. The mount is too low for filming over the rail.

VESSEL NUMBER TWO

A: Vessel's Pre-Transhipment Declaration Table

WCPFC							
ALB	**BET**	**YFT**	**SWO**	**BUM**	**MLS**	**Sharks**	**Others**
40.000						23.630	20.322
OVERLAP							
ALB	**BET**	**YFT**	**SWO**	**BUM**	**MLS**	**Sharks**	**Others**
64.525						25.304	5.063
IATTC							
ALB	**BET**	**YFT**	**SWO**	**BUM**	**MLS**	**Sharks**	**Others**
33.775						22.101	3.922
TOTAL							
ALB	**BET**	**YFT**	**SWO**	**BUM**	**MLS**	**Sharks**	**Others**
138.300	0.000	0.000	0.000	0.000	0.000	71.035	29.307

B: Comparison of Final Declaration and Observer Sampling

		ALB	BSH	MAK	SHK	LAG	SWO	MLS	BUM	MAR	OTHER	TOTAL
22/10/2019	*WCPFC - KG*	**138,300**			**71,035**				**175**		**29,132**	**238,642**
	FV -number	8,832	2,334	139	2,473	779	0		1			
Vessel # 2	***No. of Nets***	**157**										304
	Obs - number	8,578	1,623	297	{57,048 kg}	604	1		0			
Protocol B	***% obsd. (no.)***	97%	70%*	213%*	78%	77%	0%*		0%*			

C: Vessel's Activity during Transhipment

# 2	ALONGSIDE	TR START	TR STOP	OFFSIDE	ALONGSIDE	TR CONTINUES	TR END	CARGO START	CARGO END	OFFSIDE
22/10/2019	09.53	10.46								
23/10/2019			06.55	08.02	10.57	11.38	15.55	16.15	20.10	20.35

Vessel Number Two Contd.

Date of last Transhipment – 19th August, 2019

- Notes: Linda tells me this vessel did not offload all of their catch during the last transhipment due to the heavy seas. So, they have a large amount to transfer. It shows in the photo…the vessel is well set into the water. One fishing crew member who travelled with us from Kaohsiung joined this vessel. This vessel is wrapping the fins of the Mako sharks (only) in plastic, and these are tied to the body. Some other vessels do this, but not all. After the transhipment our vessel transited for a while. We are informed that TW regulations require carrier vessels to be 24 nm from national EEZs.
- *Fishing Vessel MCS:* The VMS antenna (but also some other antennas) have strong plastic coverings over them. It may just be weather protection. (Post – trip: This was followed up with FFA).
  Sampling: **Protocol B:** Enumeration of all species

  An easy boat to sample. Good line of view, the frozen albacore sounded off as they fell against each other. Still, it was a long night, and we worked in relays. The night also brought rain, so transhipment stopped a few times, and there were periods of stand-by. (This can be seen on the sampling form).
  Video: Attached the GoPro to the rail handle and reinforced the grip with a rope to get an hour of video of ALB and an hour of sharks.

- *Declaration:* In hindsight, the albacore declaration is on the limit of being consistent with the observer's sampling. Even though this is only our second boat in hindsight it was one of the easiest to sample as most albacore were unloaded from the hatches individually. The difference between our estimate of albacore weight and the declaration is 13 per cent. A larger difference than most other vessel, but perhaps acceptable? After transhipment we are not happy with our shark numbers. We both thought we had done a good job, but our final numbers are not close to the vessels. We had some doubts over our shark identification, so we used the photos that we had taken of the sharks in port and the Go Pro videos to zoom in on the difference between the blue shark and mako sharks. We hadn't realised how white the under belly of the BSH can be at times. Confusing to find that they have declared a marlin, but we counted a swordfish. But there it is on the video. Ahh, the colouring is more like a swordfish under all the ice. Oh well, good thing we had the video. The marlin is not in the pre-tranship declaration, but it is there in the final declaration - not an issue…

VESSEL NUMBER THREE

A: Vessel's Pre-Transhipment Declaration Table

WCPFC							
ALB	**BET**	**YFT**	**SWO**	**BUM**	**MLS**	**Sharks**	**Others**
						16.660	5.239
OVERLAP							
ALB	**BET**	**YFT**	**SWO**	**BUM**	**MLS**	**Sharks**	**Others**
44.233						23.705	6.580
IATTC							
ALB	**BET**	**YFT**	**SWO**	**BUM**	**MLS**	**Sharks**	**Others**
33.767						8.335	1.481
TOTAL							
ALB	**BET**	**YFT**	**SWO**	**BUM**	**MLS**	**Sharks**	**Others**
78.000	0.000	0.000	0.000	0.000	0.000	48.700	13.300

B: Comparison of Final Declaration and Observer Sampling

		ALB	BSH	MAK	SHK	LAG	SWO	MLS	BUM	MAR	OTHER	TOTAL
24/10/2019	*WCPFC - KG*	**78,000**			**48,700**						**13,300**	**140,000**
	FV -number	4,628	1,802	151	1,953	478						
Vessel # 3	*No. of Nets*	**70**										170
	Obs - number	3,661	1,678	141	{50,678kg}	429						
Protocol C	*% obsd. (no.)*	80%	93%	93%		89%						

C: Vessel's Activity during Transhipment

# 3	ALONGSIDE	TR START	TR END	CARGO START	CARGO END	OFFSIDE
24/10/2019	06.04	06.40	16.39	18.16	22.45	23.00

Vessel Number Three Contd.

Date of last Transhipment – 17th August, 2019.

- *Notes* – None, it is starting to look like a typical transhipment….
- *MCs Fishing Vessel*: The IRCS on the top of the vessel is partially obscured by fishing floats, although the IRCS is fully visible on the port and starboard sides.
- *Sampling* **Protocol C:** Enumeration of selected species
- The Chief Officer brought the crane scale out, and it started to give a more reasonable reading, but we end the day with a dead crane scale…Fortunately, it gave a few readings before it died. We count all species. We find the ALB count difficult to start with today. They unloaded ALB from three hatches simultaneously and each string had 3 circles of ALB. We just do our best and keep going. In the end we get and 80% match with the ALB declaration and much higher match with their sharks' numbers (now that we have corrected the species id).

- Declaration: The declaration seems compatible with the observer sampling
- *Video:* We have a night video of this vessel departing. We also have one-hour video of albacore and one-hour video of shark unloadings.

VESSEL NUMBER FOUR

A: Vessel's Pre-Transhipment Declaration Table

WCPFC							
ALB	**BET**	**YFT**	**SWO**	**BUM**	**MLS**	**Sharks**	**Others**
						23.275	16.365
OVERLAP							
ALB	**BET**	**YFT**	**SWO**	**BUM**	**MLS**	**Sharks**	**Others**
68.603						28.498	6.438
IATTC							
ALB	**BET**	**YFT**	**SWO**	**BUM**	**MLS**	**Sharks**	**Others**
13.397						8.127	2.326
TOTAL							
ALB	**BET**	**YFT**	**SWO**	**BUM**	**MLS**	**Sharks**	**Others**
82.000	0.000	0.000	0.000	0.000	0.000	59.900	25.129

B: Comparison of Final Declaration and Observer Sampling

		SUMMARY OF WCPFC DECLARATIONS (KILOGRAMS), AND OBSERVED AMOUNTS (NUMBERS)										
		ALB	**BSH**	**MAK**	**SHK**	**LAG**	**SWO**	**MLS**	**BUM**	**MAR**	**OTHER**	**TOTAL**
25/10/2019	*WCPFC - KG*	**82,000**			**59,900**						**25,129**	**167,029**
	FV -number	5,189	1,895	141	2,036	808						
Vessel # 4	***No. of Nets***	**72**										129
	Obs - number	4,280	1,783	160	{54,358kg}	833						
Protocol C	***% obsd. (no.)***	82%	95%	113%		103%						

C: Vessel's Activity during Transhipment

# 4	ALONGSIDE	TR START	TR END	CARGO START	CARGO END	OFFSIDE
25/10/2019	05.40	06.09	18.47	20.13	23.56	
26/10/2019						00.10

Vessel Number Four Contd.

Date of last Transhipment – 18th August, 2019

- *Notes:* There are two VU crew on this fishing vessel. They say they are happy with the conditions and get $ 300 a month. Near the end of transhipment, I see the mate's receipt in the wheelhouse - it says '72' for ALB and '95' for others (the units are not given). So, the vessel is also using one metric ton for each count of albacore. We do not see a mate's receipt again. For the first time we notice that the longline vessel is keeping the smaller ALB back. They are being removed from the hatch with the rest of the ALB, but are then sent back into the hatch with a door. No plastic around the Mako fins. There is rain during the transhipment.
- *Fishing Vessel MCS:* First letter of IRCS on hull not easy to read.
- *Video:* We have video for both the shark and albacore unloadings.
- *Sampling* **Protocol C:** Enumeration of selected species
- *Declaration*: The declaration seems to be compatible with the observer's sampling. Our match with their shark numbers is high. We suggest this is because we did a good job.

VESSEL NUMBER FIVE

A: Vessel's Pre-Transhipment Declaration Table

WCPFC							
ALB	**BET**	**YFT**	**SWO**	**BUM**	**MLS**	**Sharks**	**Others**
			22.200	0.380	8.300	32.00	15.000
OVERLAP							
ALB	**BET**	**YFT**	**SWO**	**BUM**	**MLS**	**Sharks**	**Others**
20.000			2.920		0.350	16.000	2.600
IATTC							
ALB	**BET**	**YFT**	**SWO**	**BUM**	**MLS**	**Sharks**	**Others**
20.000						6.500	2.300
TOTAL							
ALB	**BET**	**YFT**	**SWO**	**BUM**	**MLS**	**Sharks**	**Others**
40.000	0.000	0.000	26.040	0.380	10.250	54.500	19.900

B: Comparison of Final Declaration and Observer Sampling

		ALB	BSH	MAK	SHK	LAG	SWO	MLS	BUM	MAR	OTHER	TOTAL
26/10/2019	*WCPFC - KG*	**44,000**			**62,100**		**26,420**	**10,620**	**570**		**24,340**	**168,050**
	FV -number	2,881	1,754	195	1,949	804	397	161	10			
Vessel # 5	*No. of Nets*	**20**										120
	Obs - number	1,363	1,483	196	{48,358kg}	369*	352	134	2			
Protocol C	*% obsd. (no.)*	47%	84%	101%		45%	88%	84%	20%			

*mixed nets

C: Vessel's Activity during Transhipment

# 5	ALONGSIDE	TR START	TR END	CARGO START	CARGO END	OFFSIDE
26/10/2019	06.54	07.40				
27/10/2019			02.58	03.36	12.58	13.14

Vessel Number Five Contd.

Date of last Transhipment – 26th August, 2019

Fishing Position on 25rd Sept: 33 S, 128 W.

- *Notes :* Old Captain on the LLer. The carrier's winch cable breaks at one point, so our Captain places a rope to coral the observers away from the hatches. The transhipment was prolonged due to rain, this is recorded on the sampling form. We see yellowfin being transferred from one hatch to another hatch on the fishing vessel, but it does not come onto the carrier vessel. A metal bird tag is thrown over from the fishing vessel – OIS musem (details sent). We look at the longliners logsheets and take photos. There is an area for fishers to record self-sampling. It gives an average weight of ALB as 17 kg. There are four VU crew on this boat. They seem happy enough, but they have been out for a long time and are looking forward to the return; in four months' time apparently. We can see two f.Vs and a petrol boat on the horizon at mid- day.
- *Fishing Vessel MCS*. The VMS antenna is covered in the same manner as before (heavy plastic covering) Not sure if it is still transmitting or not.
- *Sampling* We did a good job….We see SSP for the first time. First time we see mixed net – other species in with the albacore, so it is harder to work out the net tally.

- *Video –* we have three separate pieces of video. Shows SWO, OTHER and yellowfin being transferred between hatches.
- *Declaration:* We believe that after considering; our time on deck, the total number of nets transferred and the observer's count of ALB the albacore declaration is not correct. It seems to be an over- declaration, but why would they do that? …. We definitely did not see the amount of opah they declared…but it seems to be okay for the rest of the species.

VESSEL NUMBER SIX

A: Vessel's Pre-Transhipment Declaration Table

WCPFC							
ALB	**BET**	**YFT**	**SWO**	**BUM**	**MLS**	**Sharks**	**Others**
30.000				0,120		47.250	20.150
OVERLAP							
ALB	**BET**	**YFT**	**SWO**	**BUM**	**MLS**	**Sharks**	**Others**
40.000				0.050		11.750	2.700
IATTC							
ALB	**BET**	**YFT**	**SWO**	**BUM**	**MLS**	**Sharks**	**Others**
8.000						5.100	0.700
TOTAL							
ALB	**BET**	**YFT**	**SWO**	**BUM**	**MLS**	**Sharks**	**Others**
78.000	0.000	0.000	0.000	0.170	0.000	64.100	23.550

B: Comparison of Final Declaration and Observer Sampling

		ALB	BSH	MAK	SHK	LAG	SWO	MLS	BUM	MAR	OTHER	TOTAL
28/10/2019	*WCPFC - KG*	**78,000**			**64,100**				**620**		**23,550**	**166,270**
	FV -number	6,626	2,102	139	2,241	898				0		
Vessel # 6	*No. of Nets*	**81**										184
	Obs - number	6,162	1,709	117	{50,284kg}					13		
Protocol C	*% obsd. (no.)*	90%	84%	81%						0%		

C: Vessel's Activity during Transhipment

# 6	ALONGSIDE	CARGO START	CARGO END	TR START	TR END	CARGO START	CARGO END	OFFSIDE
27/10/2019	15.18	16.26	18.00					
28/10/2019				00.51	18.56	19.00	19.21	19.44

Vessel Number Six Contd.

Date of last Transhipment – 20th August, 2019

Fishing Position on 25rd Sept: 33 S, 127 W.

- *Notes:* Amend delorme reading, TRSTART one hour earlier... Vessel stopped all activity for a long time after unloading some cargo.
- *Fishing Vessel MCS:* All clear. No tori poles seen, but otherwise okay
- *Sampling* **Protocol C:** Enumeration of selected species
- *Sampling:* Some mixed nets. For the first two or three nets, there was a lot of LAG in the ALB nets, but gradually the amount of LAG reduces and then tapers off. We start to see them use two different nets - one yellow one and then one green one. The yellow net was larger. So, there is more ALB than the net tally suggests? But there is also less ALB in the initial nets due to the LAG so…
- *Video:* There is video of the ALB unloading under night conditions, and also video of the shark unloadings.
- *Declaration:* The declaration seems to be compatible with the observer sampling. They did not record any count of marlin, but their declaration was compatible with our count.

VESSEL NUMBER SEVEN

A: Vessel's Pre-Transhipment Declaration Table

WCPFC							
ALB	**BET**	**YFT**	**SWO**	**BUM**	**MLS**	**Sharks**	**Others**
						22.815	10.961
OVERLAP							
ALB	**BET**	**YFT**	**SWO**	**BUM**	**MLS**	**Sharks**	**Others**
31.963						18.729	6.730
IATTC							
ALB	**BET**	**YFT**	**SWO**	**BUM**	**MLS**	**Sharks**	**Others**
10.037						10.256	1.736
TOTAL							
ALB	**BET**	**YFT**	**SWO**	**BUM**	**MLS**	**Sharks**	**Others**
42.000	0.000	0.000	0.000	0.000	0.000	51.800	19.427

B: Comparison of Final Declaration and Observer Sampling

		ALB	BSH	MAK	SHK	LAG	SWO	MLS	BUM	MAR	OTHER	TOTAL
29/10/2019	***WCPFC - KG***	**43,500**			**51,800**						**19,427**	**114,727**
	FV -number	2,534	1,592	143	1,735	638						
Vessel # 7	***No. of Nets***	**44**										76
	Obs - number	2,106	820	87	{25,670kg}	275						
Protocol C	***% obsd. (no.)***	83%	51%	60%		43%						

C: Vessel's Activity during Transhipment

# 7	ALONGSIDE	TR START	TR END	CARGO START	CARGO END	OFFSIDE
29/10/2019	11.52	12.28	18.31	19.44	23.31	23.56

Vessel Number Seven Contd.

Date of last Transhipment – 25th August, 2019

Fishing Position on 25th Sept: 33 S, 126 W.

- *Notes:* A shearwater bird took a rest on our stern ropes for 24hrs. Sent a Delorme text outlining continuous interference by the Capt. Fast transhipment, 110 mt in six hours. Nice sunny day.
- *MCS Fishing Vessels:* All markings etc are correct. All vessel ID okay. Call Sign on upper deck partially covered, but this is not a legal requirement. VMS may be okay, but we can see a small electric tie over it. Photo to be sent to FFA.
- *Sampling* **Protocol C:** Enumeration of selected species

- *Sampling*: Capt stopped my length sampling. I thought we had an agreement at the start of the trip that I could sample …anyway. Noticed that the small ALB were being removed and placed into the hatch so these would not be trapped sampling. Ms Berry recorded most of today's shark count.
- *Video:* There is no video of this unloading.
- *Declaration:* We are sure that in terms of the time spent on deck, the number of nets tallied and the results of our count that the vessel offloaded fewer sharks and opah (moonfish) than they declared. They have over-declared. Again, not sure why they would do this, but this is what we saw.

VESSEL NUMBER EIGHT

A: Vessel's Pre-Transhipment Declaration Table

WCPFC							
ALB	**BET**	**YFT**	**SWO**	**BUM**	**MLS**	**Sharks**	**Others**
OVERLAP							
ALB	**BET**	**YFT**	**SWO**	**BUM**	**MLS**	**Sharks**	**Others**
30.000						59.500	36.050
IATTC							
ALB	**BET**	**YFT**	**SWO**	**BUM**	**MLS**	**Sharks**	**Others**
10.000						2.500	3.950
TOTAL							
ALB	**BET**	**YFT**	**SWO**	**BUM**	**MLS**	**Sharks**	**Others**
40.000	0.000	0.000	0.000	0.000	0.000	62.000	40.000

B: Comparison of Final Declaration and Observer Sampling

		ALB	BSH	MAK	SHK	LAG	SWO	MLS	BUM	MAR	OTHER	TOTAL
30/10/2019	*WCPFC - KG*	**40,000**			**62,000**						**40,000**	**142,000**
	FV -number	2,920	1,710	129	1,839	1,090						
Vessel # 8	***No. of Nets***	**36**										126
	Obs - number	2,331	1,654	107	{48,354kg}	1,171						
Protocol C	***% obsd. (no.)***	80%	96%	82%		107%						

C: Vessel's Activity during Transhipment

# 8	ALONGSIDE	TR START	TS STOP	CARGO START	CARGO STOP	TS CONTINUE	TS STOP	CARGO CONT.	CARGO STOP	CARGO CONT.	CAGGO END	MOVE CARGO ST	MOVE CARGO END	TS CONTINUE	TS ENDS	OFFSIDE
30/10/2019	11.33	12.12	14.50	15.51	18.00	18.57										
31/10/2019							01.44	02.15	03.16	08.22	10.27	10.41	15.07	19.54	20.42	23.43

Vessel Number Eight Contd.

Date of last Transhipment – 22nd August, 2019

Fishing Position on 25rd Sept: 32 S, 131 W.

- *Notes:* There was one Vanuatu crew onboard this boat. He moved to our carrier vessel to help inside the hatches. He said he was happy on the longliner, and when his Captain was out of sight, he was comfortable talking about life. There was a lot of stopping and starting with cargo today. We had crew rest from 03.16 hrs until 08.22 hrs. How do we code all these activities? We can use 'end' to denote the activity has completely finished, but it may start again later. 'Stop' may be sufficient to denote an activity is complete, but 'transhipment end' is probably required to denote when transhipment is completely finished.
- *MCS Fishing Vessel:* The size of the IRCS seems smaller when compared to other vessels, but I don't have an instrument to measure it. It is probably fine and is still quite visible.
- *Sampling* **Protocol C:** Enumeration of selected species
- There were no issues sampling the vessels. We suggest we did good counting today. Initially there seemed to be some quality issues with the sharks- not fully frozen. The carrier vessel was about to reject them, and they looked a bit off to us also, the sound of frozen fish hitting the deck is missing, but in the end, they were taken onboard, and this has not affected our sampling. Noticed a lot of small albacore today. Let's say about 20% of the ALB seemed 'smaller' than what we had seen to this point.
- *Video:* There is no video of this unloading.
- *Declaration:* The declaration seems compatible with the observer sampling. Our albacore match at 80% seems to be reflective of what we can achieve for albacore at the moment. It is true that our count for opah is higher than the vessel's. We suggest that it is very easy for the observer to count these large bright fish and our count is reliable.

VESSEL NUMBER NINE

A: Vessel's Pre-Transhipment Declaration Table

WCPFC							
ALB	**BET**	**YFT**	**SWO**	**BUM**	**MLS**	**Sharks**	**Others**
OVERLAP							
ALB	**BET**	**YFT**	**SWO**	**BUM**	**MLS**	**Sharks**	**Others**
52.103						4.000	3.900
IATTC							
ALB	**BET**	**YFT**	**SWO**	**BUM**	**MLS**	**Sharks**	**Others**
19.897						1.057	1.280
TOTAL							
ALB	**BET**	**YFT**	**SWO**	**BUM**	**MLS**	**Sharks**	**Others**
72.000	0.000	0.000	0.000	0.000	0.000	5.057	5.180

B: Comparison of Final Declaration and Observer Sampling

		ALB	BSH	MAK	SHK	LAG	SWO	MLS	BUM	MAR	OTHER	TOTAL
01/11/2019	*WCPFC - KG*	**73,327**			**4,339**						**4,975**	**82,641**
	FV -number	4,920	0	89	89	286						
Vessel # 9	***No. of Nets***	**74**										78
	Obs - number	4,730	0	86	{4,300kg}	285						
Protocol C	***% obsd. (no.)***	96%	No BSH	96%		99%						

C: Vessel's Activity during Transhipment

# 9	ALONGSIDE	TR START	TS STOP	CARGO STOP	CARGO ENDS	TS CONTINUE	TS END	CARGO CONTD	CARGO END	OFFSIDE
01/11/2019	07.20	08.11	12.21	13.25	16.14	16.50	17.44	18.12	18.55	19.15

Vessel Number Nine Contd.

Date of last Transhipment – 23rd August, 2019

Fishing Position on 25rd Sept: 32 S, 129 W.

- *Notes:* We checked the logsheet for compatibility with the declaration. The amount of ALB recorded as landed from the IATTC area (since the last transhipment) is approximately 30,000 mt. They declared 19, 897 mt. The total amount of ALB recorded on the logsheet since the last transhipment was 60, 522 mt. They declared 72, 000 mt this transhipment. The logsheet shows they retained 384 yft/bet since the date of the last transhipment, none were unloaded.
- *MCS Fishing Vessel:* All transponders were covered in heavy green plastic. We have a photo of this.
- *Sampling* **Protocol C:** Enumeration of selected species

- *Sampling:* We were happy with our counts today. No blue sharks were offloaded.
- *Video:* there is no video of this unloading.
- *Declaration:* The declaration seems to be compatible with the observer's sampling.

VESSEL NUMBER TEN

A: Vessel's Pre-Transhipment Declaration Table

WCPFC							
ALB	**BET**	**YFT**	**SWO**	**BUM**	**MLS**	**Sharks**	**Others**
68.810						11.006	8.011
OVERLAP							
ALB	**BET**	**YFT**	**SWO**	**BUM**	**MLS**	**Sharks**	**Others**
102.266						23.681	6.460
IATTC							
ALB	**BET**	**YFT**	**SWO**	**BUM**	**MLS**	**Sharks**	**Others**
8.924						7.813	3.029
TOTAL							
ALB	**BET**	**YFT**	**SWO**	**BUM**	**MLS**	**Sharks**	**Others**
180.000	0.000	0.000	0.000	0.000	0.000	42.500	17.500

B: Comparison of Final Declaration and Observer Sampling

		ALB	BSH	MAK	SHK	LAG	SWO	MLS	BUM	MAR	OTHER	TOTAL
02/11/2019	*WCPFC - KG*	**180,000**			**61,495**						**17,600**	**259,095**
	FV -number	14,644	2,033	168	2,201	532						
Vessel # 10	*No. of Nets*	**182**										261
	Obs - number	12,824	1,970	163	{59,370kg}	562						
Protocol C	*% obsd. (no.)*	87%	97%	97%		106%						

C: Vessel's Activity during Transhipment

# 10	ALONGSIDE	TR START	TS STOP	CARGO BEGIN	CARGO STOP	CARGO CONTD	CARGO STOP	TS CONTINUE	TS ENDS	CARGO CONTD	CARGO ENDS	OFFSIDE
02/11/2019	06.41	07.15										
03/11/2019			09.42	10.17	12.32	13.30	14.03	14.59				
04/11/2019									10.30	11.08	11.45	1208

Vessel Number Ten Contd.

Date of last Transhipment – Not observed during last trip

Fishing Position on 25rd Sept : 34 S, 125 W.

- *Notes* It looks like this vessel had one week of very high shark catches and low ALB catches during Sept. Was it targeting sharks? Should there be MCS alerts in logsheet entry? Very long transhipment. Would not be possible with one person. Energy levels start to go down….for everyone.
- *MCS Fishing Vessel –* We cannot see the traditional cone shaped VMS transponder, but it is probably okay. Send photos to FFA. No tori poles. IRCS correct.
- *Sampling* **Protocol C:** Enumeration of selected species
- *Sampling* We are happy with our sampling today. It looks like we are getting very good at the shark counts and can mostly replicate the vessel counts at this stage. Our count for opah is higher than the vessel once again…
- *Video –* There is no video of this vessel. Photos are available.

- *Declaration –* The declaration seems to be compatible with the observer's sampling. However, the shark weights are different on the pre-declaration table and the final declaration, but it seems to be okay.

VESSEL NUMBER ELEVEN

A: Vessel's Pre-Transhipment Declaration Table

WCPFC							
ALB	**BET**	**YFT**	**SWO**	**BUM**	**MLS**	**Sharks**	**Others**
6.000						42.600	16.000
OVERLAP							
ALB	**BET**	**YFT**	**SWO**	**BUM**	**MLS**	**Sharks**	**Others**
25.000						9.900	2.000
IATTC							
ALB	**BET**	**YFT**	**SWO**	**BUM**	**MLS**	**Sharks**	**Others**
12.000						9.700	1.000
TOTAL							
ALB	**BET**	**YFT**	**SWO**	**BUM**	**MLS**	**Sharks**	**Others**
43.000	0.000	0.000	0.000	0.000	0.000	62.200	19.000

B: Comparison of Final Declaration and Observer Sampling

		ALB	BSH	MAK	SHK	LAG	SWO	MLS	BUM	MAR	OTHER	TOTAL
05/11/2019	*WCPFC - KG*	**47,000**			**40,000**				**630**		**22,600**	**110,230**
	FV -number	4,142	1,530	147	1,677	818			12			
Vessel # 11	*No. of Nets*	**46**										117
	Obs - number	3,527	1,083	86	{32,458kg}	661			0			
Protocol C	*% obsd. (no.)*	85%	70%	58%		80%			0%			

C: Vessel's Activity during Transhipment

# 11	ALONGSIDE	TR START	TR STOP	CARGO START	CARGO ENDS	TS CONTINUE	TS END	CARGO CONTD	CARGO END	OFFSIDE
05/11/2019	06.42	0720	1859	19.38	21.15	21.35	22.04	22.47		
06/11/2019									00.04	00.31

Vessel Number Eleven Contd.

Date of last Transhipment – 21 August, 2019

Fishing Position on 25rd Sept: 33 S, 128 W.

- *Notes*: As the last few boats come alongside space onboard the carrier vessel starts to become a problem. At the very least the carrier vessel now has to move fish between hatches.
- *MCS Fishing Vessel:* No horizontal IRCS. Neither can I see the VMS transponder but probably okay. Check photos.
- *Sampling* **Protocol C:** Enumeration of selected species
- It was a very difficult start to the shark count. The first few swings to come across were 'strings' of sharks, - not nets. They were assembling these strings of shark in three different locations on deck, so we had to try and keep the counts going for each of these strings. They were transferred quickly once assembled. Fortunately, after a few transfers they started to use nets again.

- At the end there was no space left on board so not all shark was offloaded. Did they change the declaration - yes.
- *Video:* There is video of the shark unloading. This shows the sharks being transferred as strings, not nets.
- *Declaration:* The declaration seems to be compatible with the observer's sampling. The vessel did change their pre-declaration figures (weight) for sharks. They did not change the information on the catch summary page, so this is probably why our percentage match is much lower for sharks today. Their declaration reflects what we saw on-board – i.e. limited space, so not all sharks transferred.

VESSEL NUMBER TWELVE

A: Vessel's Pre-Transhipment Declaration Table

WCPFC							
ALB	**BET**	**YFT**	**SWO**	**BUM**	**MLS**	**Sharks**	**Others**
47.000			5.700	1.000	3.200	27.000	14.000
OVERLAP							
ALB	**BET**	**YFT**	**SWO**	**BUM**	**MLS**	**Sharks**	**Others**
40.000			3.400		0.600	21.000	1.500
IATTC							
ALB	**BET**	**YFT**	**SWO**	**BUM**	**MLS**	**Sharks**	**Others**
9.000			0.670	0.200	1.300	4.500	2.000
TOTAL							
ALB	**BET**	**YFT**	**SWO**	**BUM**	**MLS**	**Sharks**	**Others**
96.000	0.000	0.000	9.770	1.200	5.100	52.500	17.500

B: Comparison of Final Declaration and Observer Sampling

		ALB	BSH	MAK	SHK	LAG	SWO	MLS	BUM	MAR	OTHER	TOTAL
06/11/2019	*WCPFC - KG*	**99,000**			**26,500**		**9,770**	**5,500**	**1,950**		**18,500**	**161,220**
	FV -number	8,257	390	258	648	699	129	91	40			
Vessel # 12	*No. of Nets*	**138**										194
	Obs - number	8,618	387	184	{18,875kg}	622	123	57	19			
Protocol C	*% obsd. (no.)*	104%	99%	71%		88%	95%	62%	48%			

C: Vessel's Activity during Transhipment

# 12	ALONGSIDE	MOVE CARGO	CARGO END	TS START	TS STOP	CARGO START	CARGO STOP	TS CONTINUE	TS STOP	TS CONTINUE	TS ENDS	CARGO CONTINUE	CARGO ENDS	OFFSIDE
06/11/2019	10.22	11.30	11.37	11.51	19.55	20.30	21.55	22.10						
07/11/2019									00.45	07.24	14.29	14.40	15.34	15.54

Vessel Number Twelve Contd.

Fishing Position on 25rd Sept: 32 S, 130 W.

Date of last Transhipment – 14th August, 2019

- *Notes:* On the pre-declaration the vessel has attributed about 47,000 mt of ALB to the WCPFC area. We don't see this on the logsheets. According to the logsheet the majority of the ALB landed since the last transhipment comes from the overlap and IATTC area. But the declaration totals are compatible with the logsheet totals (for ALB).
- *MCS Fishing Vessel:* Name on the lifeboat is not the same as the vessel. One letter is incorrect. Everything else okay.
- *Sampling* **Protocol C:** Enumeration of selected species

- *Sampling* Our sampling went well. The vessel told us they were only going to offload 390 blue sharks. We counted 387, so as dedicated samplers that makes us happy …
- *Video:* Video of the vessel approaching and then one of the albacore unloading. We have marked a 30 mins sector of the video with our hand and this is aligned with a marking on our data form. Our counts could be verified.
- *Declaration:* We suggest that this is an under-declaration of albacore. From the net tally, and from our counts we believe that this vessel transferred more albacore than they declared. There is a 30 per cent difference between the declared weight for albacore and the sampled weight. Our higher match for albacore numbers probably reflect the fact that we saw more albacore, not that we counted everything. Our marlin counts are significantly lower today. Not sure, is our hesitation around marlin identification affecting our count – taking too long to identify etc, or? It is also worth noting that the summary page was in Chinese script so difficult to map the English name to the right number.

VESSEL NUMBER THIRTEEN

A: Vessel's Pre-Transhipment Declaration Table

WCPFC							
ALB	**BET**	**YFT**	**SWO**	**BUM**	**MLS**	**Sharks**	**Others**
51.484						14.356	12.991
OVERLAP							
ALB	**BET**	**YFT**	**SWO**	**BUM**	**MLS**	**Sharks**	**Others**
6.437						1.785	1.323
IATTC							
ALB	**BET**	**YFT**	**SWO**	**BUM**	**MLS**	**Sharks**	**Others**
TOTAL							
ALB	**BET**	**YFT**	**SWO**	**BUM**	**MLS**	**Sharks**	**Others**
57.921	0.000	0.000	0.000	0.000	0.000	16.141	14.314

B: Comparison of Final Declaration and Observer Sampling

		ALB	BSH	MAK	SHK	LAG	SWO	MLS	BUM	MAR	OTHER	TOTAL
07/11/2019	*WCPFC - KG*	**58,522**			**0**		**690**				**15,204**	**74,416**
	FV -number	6,835	0	0	0	189	9			0		
Vessel # 13	***No. of Nets***	**62**										80
	Obs - number	5,116	0	0	{0}	215	0			9		
Protocol C	***% obsd. (no.)***	74%				118%	0%			0%		

C: Vessel's Activity during Transhipment

# 13	ALONGSIDE	TS START	TS END	OFFSIDE
07/11/2019	16.02	16.54		
08/11/2019			00.08	00.47

Vessel Number Thirteen Contd.

Date of last Transhipment – Not observed during last trip

Notes: From early on this vessel was highlighted for length measurement sampling. On the pre-declaration table most of the albacore was listed as coming from the WCPFC area. I discussed the sampling with the Captain two days before the transhipment and then we transferred over for sampling. There was only a short time to look at the logsheet before unloading started (we were also offered dinner on the boat). The logsheet was compatible with the pre-declaration. The only thing was that the last 10 days of the logsheet had not been filled in. This vessel had also ome alongside a few days earlier and took cargo onboard.

# 13	ALONGSIDE	CARGO START	CARGO END	OFFSIDE
04/11/2019	15.44	16.18	18.10	18.38

MCS Fishing Vessel: There were no issues. We did not carry out any additional checks as transhipment happened straight away. We could not see the VMS in the wheelhouse, so perhaps it was in the Captain's cabin.

- *Sampling* **Protocol D:** Enumeration of selected species with length sampling

Random sample of albacore. One fish per net, but later on two was possible. I choose the fish and they were carried over. Only one fish was incorrectly selected by the fisher. Later I changed my position and could move to the fish myself.

Sampling conditions were very difficult today! There were hugh numbers of ALB on the cable. Hugh circles of 30 alb, and three circles on a string. Ms. Berry kept the count while I measured the fish, but it was a very difficult job. You can see that our count match is much lower.

Video : There is no video of this vessel. Species id photos were limited by the evening light.

Declaration: We believe that the albacore declaration is compatible with the observer's sampling, but the billfish declaration is not. The low observer count for albacore is due to the difficult counting environment. However, we *definitely* saw marlin and not swordfish…we were on the deck…

Vessel #2

大盛魚貨量

	NO RET	KG RET
ALBACORE 長鰭鮪	8832尾	138.300公
BLUE MARLIN 黑旗	1尾	175公
MAKO SHARKS 馬加沙	139尾	8623公
BLUE 水沙	2334尾	62412公
ESCOLAR 油甘	331尾	3779公
SPOTTRD 紅刀	779尾	10998公
BUK 大鱗魚	415尾	13975公
WAHOO SAILFISH 其它魚種	46尾	380公

總合計 238.642公

Vessel #3

忠安

魚種	魚種英文名	WCPFC	OVERLAP	IATTC	小計
長鰭鮪	ALBACORE		44,233	33,767	78,000
馬加沙	MORO SHARKS	2,086	2,788	1,826	6,700
水沙	BLUE SHARKS	14,574	20,917	6,509	42,000
油甘	OIL FISH	1,078	1,723	299	3,100
紅皮刀	SPOTTRD	3,270	1,048	1,182	5,500
大鱗魚	BUK	891	3,809		4,700
總合計					140,000

長鰭 4628
" 151
1802
320
498
190

Vessel #4. pg 1

金順安6號

魚種	魚種英文名	WCPFC	OVERLAP	IATTC	小計
長鰭鮪	ALBACORE		68,603	13,397	82,000
馬加沙	MORO SHARKS	1,949	3,278	1,473	6,700
水沙	BLUE SHARKS	21,326	25,220	6,654	53,200
油甘	OIL FISH	2,155	1,275	370	3,800
紅皮刀	SPOTTRD	7,151	2,493	1,856	11,500
大鱗魚	BUK	7,059	2,670		9,729
其他魚類	OTHER			100	100
總合計					167,029

Vessel #4. pg 2.

15.80

長鰭鮪 ALBAORE = 5189 尾
馬加沙 MORO SHARKS = 1411 尾
水沙 BLUE-SHARKS = 1875
油干 OIL-FISH = 403 尾
大鱗魚 BUK = 401 尾
紅皮刀 SPOTTR 808 尾
其他魚類 OTHER 1 尾

Vessel # 7.

永安

魚種	魚種英文名	WCPFC	OVERLAP	IATTC	小計	
長鰭鮪	ALBACORE		33,463	10,037	43,500	2534尾
馬加沙	MORO SHARKS	2,100	2,456	2,244	6,800	143、尾、
水沙	BLUE SHARKS	20,715	16,273	8,012	45,000	1572、尾、
油甘	OIL FISH	1,225	1,220	755	3,200	341、尾、
紅皮刀	SPOTTRD	4,726	2,293	981	8,000	638、尾、
大鱗魚	BUK	5,010	3,217		8,227	358、尾、
其他魚類	OTHER				0	
總合計					114,727	

永安 #7.

金春12號 轉載明細單

ALBACORE 長鰭鮪 -> 10上 -> 2161 尾 35647 公斤 -> 10下5上 -> 759尾5061 公斤 80%

BIGEYE 大目 -> 尾 公斤 中目 -> 尾 公斤 小目 -> 尾 公斤

YELLOWFIN 大串 -> 尾 公斤 中串 -> 尾 公斤 小串 -> 尾 公斤

STRIPED.MARLIN 紅肉 <--> 旗魚 -> 尾 公斤 40下 尾 公斤

SWORDFISH 劍旗魚 -> 上 尾 公斤 25下 尾 公斤

BLUE.SHARK 水鯊 -> 1710 尾 45648 公斤

MAKO.SHARKS 尼加鯊 -> 129 尾 6593 公斤

escolar 油魚 -> 464 尾 5339 公斤

SKIPJACK 鰹魚 -> 85 尾 1019 公斤

wahoo 五盔 -> 13 尾 249 公斤

Spearfted 紅皮刀 -> 1090 尾 17679 公斤

Spear. fish 杉旗 -> 7 尾 103 公斤

other. species 雜魚 -> 1516 尾 8780 公斤

肚及肉 -> 8637 公斤

總重量 = 144955 公斤

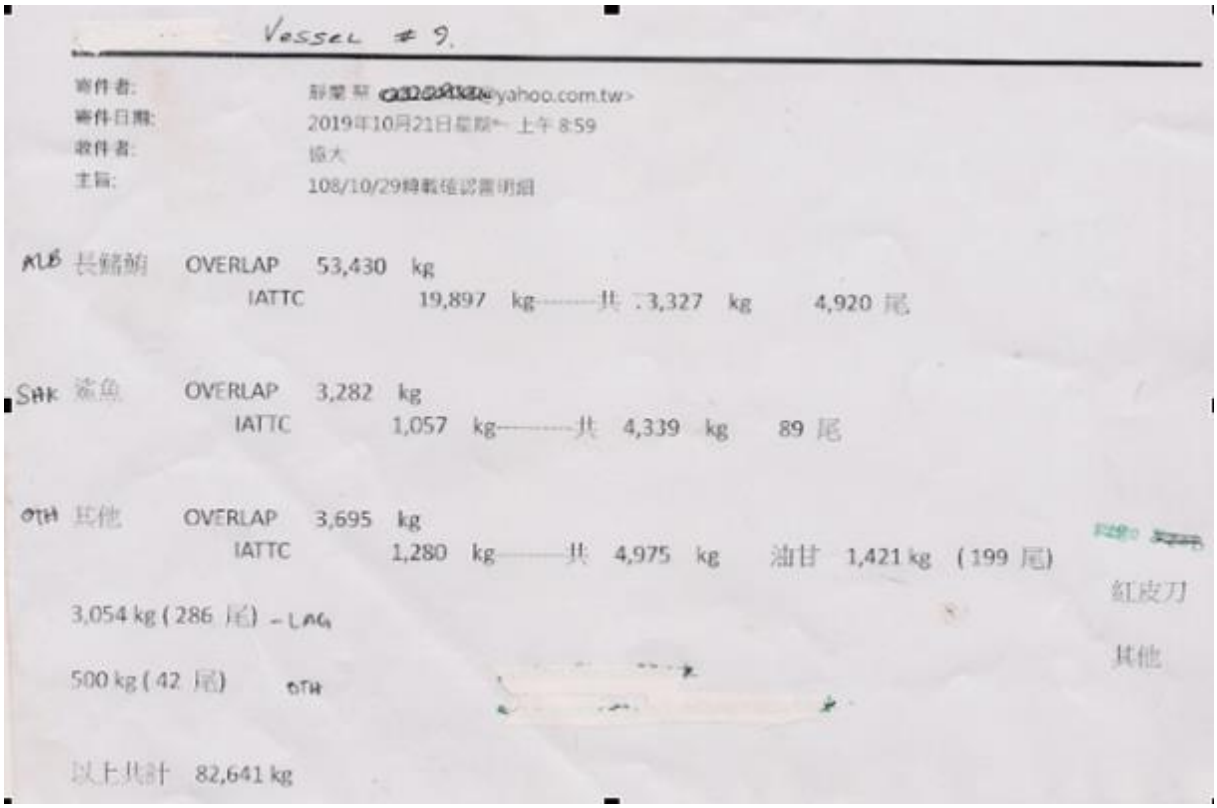
108 年 10 月 19 日

船長 -> 洪文玉

附註:(有彩帶的是南緯)

(沒有彩帶的是北緯)

Vessel #8.



Vessel #9.

寄件者: 彭[redacted]@yahoo.com.tw>
寄件日期: 2019年10月21日星期一 上午 8:59
收件者: 協大
主旨: 108/10/29轉載確認書明細

ALB 長鰭鮪 OVERLAP 53,430 kg
IATTC 19,897 kg——共 3,327 kg 4,920 尾

SHK 鯊魚 OVERLAP 3,282 kg
IATTC 1,057 kg——共 4,339 kg 89 尾

OTH 其他 OVERLAP 3,695 kg
IATTC 1,280 kg——共 4,975 kg 油甘 1,421 kg (199 尾)

3,054 kg (286 尾) - LAG

500 kg (42 尾) OTH

以上共計 82,641 kg

紅皮刀

其他

尾數

大旺 轉載數量 Vessel #10.

魚種中文	魚種英文	WCPFC	OVERLAP	IATTC	小計
14644 長鰭鮪	ALBACORE	68,810	102,266	8,924	180,000
168 馬加沙	MORO SHARKS	1,170	3,915	1,900	6,985
1595 水沙	BLUE SHARKS	9,836	15,066	19,608	44,510
700 油甘	OIL FISH	1,154	1,000	446	2,600
532 紅皮刀	SPOTTRD	4,227	1,465	1,008	6,700
314 大鬚魚	BUK	2,430	3,995	1,075	7,500
76 其他什魚	OTHER FISH	200	400	200	800
總計					249,095

ALB - 長鰭	MAK 馬加	BUM 黑旗	鰆鱼	LAG 紅皮刀
4142尾	147尾	12尾	126尾	407
52527	7378	628	1603	10176
雅馬	BSH 肚皮	美国丈目	LAG 油干	
41尾	1530尾	122尾	818尾	
438	22070	2702	7224	
沙鱼				
1310尾				
34317				

124200

Vessel #11

大穩

ALB 長鰭 8257尾 98329公斤。 Vessel #12.

雜魚：

MLS	紅肉	91尾	5292公斤。
SWO	劍旗	129尾	9175公斤。
MAK	馬加	258尾	14778公斤。
BSH	沙魚	1602尾	40693公斤。
	粗芝	16尾	384公斤。
	油干	763尾	6192公斤。
	沙撓	159尾	1933公斤。
LAG	紅皮刀	699尾	10054公斤。
	雅媛	101尾	1027公斤。
	美國大目	34尾	1021公斤。
BUM	黑旗	40尾	2041公斤。
	白旗	2尾	96公斤。
	鬼頭刀	47尾	403公斤。
	雨傘旗	2尾	33公斤。
	小花魚	84尾	666公斤。
	黑皮刀	8尾	49公斤。

93,837公斤。

Vessel # 13.

萬那杜籍漁船 轉載前通報(新表格)

漁船船名	[redacted]
漁船國際呼號	[redacted]
漁船船長英文姓名	[redacted]
運搬船英文船名	[redacted]
運搬船國籍	[redacted]
運搬船國際呼號	[redacted]
運搬船上 WCPFC 觀察員英文姓名	
轉載日期	台灣 2019.11.08 (當地 2019.11.07)
轉載地點（經緯度）	N05°00', W151°00'

轉載魚種、重量、捕獲區域及處理方式

魚種	捕獲區域	全魚未處理	去鰓去內臟	去內臟去頭	去鰓去內臟去尾	去鰓去頭去尾	去內臟	總重量	
ALB	WCPFC	51484						51484	6333尾
ALB	OVERLAP	7038						7038	502尾
SKJ	WCPFC	880						880	176尾
SKJ	OVERLAP	425						425	85尾
BUM	WCPFC				53			53	1尾
BUM	OVERLAP				690			690	8尾
OIL	WCPFC				4163			4163	659尾
OIL	OVERLAP				581			581	77尾
SSP	OVERLAP				12			12	1尾
LAG	WCPFC				933			933	64尾
LAG	OVERLAP				1777			1777	125尾
DOL	WCPFC	5						5	1尾
DOL	OVERLAP	24						24	4尾
OTH	WCPFC				5701			5701	411尾
OTH	OVERLAP				728			728	59尾

註: 1. 捕獲區域請填 WCPFC, IATTC 或經濟水域內(EEZ)
2. 重量請以公斤為單位

74494 Kg

8506尾

請於轉載前至少 2 天前預報，謝謝您的合作。

轉載完成請傳真轉載聲明書給本公司

Appendix 5: Comparison with MRAG data standards

A one-way mapping of the MRAG data standards against the proposed standards

IATTC Request Number	X
Observer's Name	✓
Observer's Signature	X
Carrier Vessel Name	✓
IATTC Ref No.	X
Vessel Call Sign	✓
Port / IATTC Area of Boarding	✓
Deployment Start	✓
Deployment End	✓

(On Carrier Vessel)	
Vessel Name	✓
Call Sign	✓
IATTC Ref No.	X
Flag State	✓
Registration No	✓
Operator / Company	✓
Captain	✓
Tuna Products onboard (Yes / No)	X
Time Zone (GMT -plus or minus)	✓
Deployment / Disembarkation from the Carrier Vessel	
Boarding (month / day / year)	✓
Deployment Method	X
Position	✓
Boarding Location	✓
Inspection performed Y/N	✓
Problems (Y/N)	✓
If yes provide ref:	✓
Disembarkation	
(month / day / year)	✓
Disembarkation Method	X
Disembarkation Location	✓

(On Carrier Vessel)	
Vessel Name	✓
Call Sign	✓
IATTC Ref No.	X
Flag State	✓
Registration No	✓
Operator / Company	✓
Captain	✓
Tuna Products onboard (Yes / No)	X
Time Zone (GMT -plus or minus)	✓
Deployment / Disembarkation from the Carrier Vessel	
Boarding (month / day / year)	✓
Deployment Method	X
Position	✓
Boarding Location	✓
Inspection performed Y/N	✓
Problems (Y/N)	✓
If yes provide ref:	✓
Disembarkation	
(month / day / year)	✓
Disembarkation Method	X
Disembarkation Location	✓

(On Transfer Vessel) Outgoing / Return	
Inspection performed Y/N	X
Problems (Y/N)	X
If yes provide ref:	X
Disembarkation	✓
(month / day / year)	✓
Disembarkation Method	X
Disembarkation Location	✓

Pre-Sea Inspection

Inspected by:	
Observer / Coordinator	✓
Date	✓
Signature	✓
Vessel Agent / Agency	✓
Port / Position	✓
Vessel Details	
Vessel Name	✓
Captain Name	✓
Call Sign	✓
Flag	✓
Size GRT	✓
LOA	✓
Number of Crew	X
Vessel Contact Number	✓
Telephone	✓
Fax	✓
Inmarsat (A/C/M) & No.	✓
Vessel Agents	X
Name	X
Telephone	X
Fax	X
Mobile	X

Safety Equipment	
Valid Safety Certificate (Y/N	X
Issuing Authority	X
Life Boats	✓
Type	X
Number	X
Category	
Launch method (Gravity Davit or Free Fall)	X
Life Rafts	✓
Type	✓
Number	X
Capacity	X
Hydrostatic release yes / no	X
Date Service Due	X
Life Jackets	
Type (Inflatable / Packed)	X
Number	✓
Location (Cabin / Muster Station/ Both)	✓
SOLAS Approved (Yes / No)	X
Immersion Suits	
Number	X
Location (Cabin / Muster Station/ Both)	✓
SOLAS Approved (Yes / No)	✓

Life Buoys	✓
Number	✓
Free Release Yes / No	✓
Light / SART Attached	✓
Flares : Location	✓
If check No. / Exp Date	✓
First Aid Materials Lcation	✓
Certified Medical Officer	✓
Fire Extinguishers	✓
Positioned in main corridor's Y/N	✓
Charge seals intact (Y/N)	✓
Positioned on bridge (Y/N)	✓
Charge seals intact (Y/N)	✓
GMDSS Requirements	
Radio Equipment	✓
HF Operational yes or no	✓
MF Operational yes or no	✓
VHF Operational yes or no	✓
INMARSAT Operational yes or no	✓
NAVTEX Operational yes or no	✓
EPIRBs	
Type	✓
Number	✓
Location (Cabin / Muster Station/ Both)	✓
Release Manual / Float free	✓
Accommodation:	
Single Cabin or Share	✓
Comment	✓
Vessel Emergency Evacuation and Muster Stations Lists - Displayed (Y/N)	✓

Transhipment Details Form

Observation (TS #)	✓
Period Start (mm/dd/yyyy) hh:mm	✓
Period End: (mm/dd/yyyy) hh:mm	✓
Transhipment Interruped (Y/N)	✓
Number of Interruptions:	✓
Total Time Interruptions:	✓
Unit: String #	✓
Number of Fish per String	X
BET	✓
No.	✓
Prod Code	X
YFT	✓
No.	✓
Prod Code	X
SWO	✓
No.	✓
Prod Code	X
(Species Name)	✓
No.	✓
Prod Code	X
(Species Name)	✓
No.	✓
Prod Code	✓
BET	✓
No.	✓
Prod Code	X
Total No.	✓
String Weight CV Scale	✓

Attachment 1. E-standards.

Attachment. 2. Longline carrier observer workbook, with trip report

Attachment 3. Integrated debriefing, evaluation and score form

Reading list

- REVIEW OF THE IATTC REGIONAL OBSERVER PROGRAM COVERING IATTC DEPLOYMENTS IATTC234 to IATTC277 (January 1, 2016 to March 1, 2017) SUBMITTED BY MRAG AMERICAS

- Pepperell, J. and P.A. Grewe. A field guide to the IndoPacific Billfishes. Australia: Commonwealth Scientific and Industrial Research Organisation (CSIRO).

- WCPO Transhipment Business Ecosystem Study, MRAG, October, 2019