
IATTC

Review of the IATTC Regional Observer Programme

Covering the period January 3, 2013 to February 24, 2014



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**REVIEW OF THE IATTC REGIONAL OBSERVER PROGRAM
COVERING IATTC DEPLOYMENTS IATTC101 to IATTC132
(November 26, 2011 to January 31, 2013)
SUBMITTED BY MRAG AMERICAS**

1. Introduction

In 2008 IATTC adopted Recommendation [06-11] to establish a Programme for Transshipment in response to concerns that at-sea transshipment operations constituted a gap in the enforcement scheme of the Commission. MRAG Americas (MRAG) has been implementing the Regional Observer Program (ROP) since its inception in January 2009.

The ROP aims to address Member State concerns regarding laundering of Illegal, Unregulated and Unreported (IUU) tuna catches by monitoring transshipments at sea from Large Scale Longline Tuna Vessels (LSLTVs) operating in the Convention Area. Recommendation [06-11] states that all tuna and tuna like species transhipped in the Convention area must be done so in port. However, at sea transshipments can be authorised by Contracting Parties provided the Carrier Vessel (CV) has VMS capabilities and a trained IATTC observer is on board to monitor the process.

This report provides a summary of the ROP's forth year covering IATTC deployments IATTC133 to IATTC165 completed between January 2013 and February 2014.

2. Deployments

2.1 Summary of deployments

A total of 491 IATTC transshipments have been monitored during 33 trips consisting of 1989 sea days, with an average deployment length of 60.27 days. The total weight of fish observed being transhipped over the period was 39,346.91 metric tonnes (Table 1) with an average transshipment weight of 80.14MT. There has been a 15.2% percent increase in sea days compared to the IATTC deployments from December 2011 to January 2012. Of the 491 transshipments 171 were from China flagged vessels (35%), 80 were from Chinese Taipei flagged vessels (17%) and 142 from Japanese flagged vessels (38%). The remaining 10% where from Korea (41) and Vanuatu (51) (Figure 1). The locations of all the transshipments are shown in Figure 4 green.

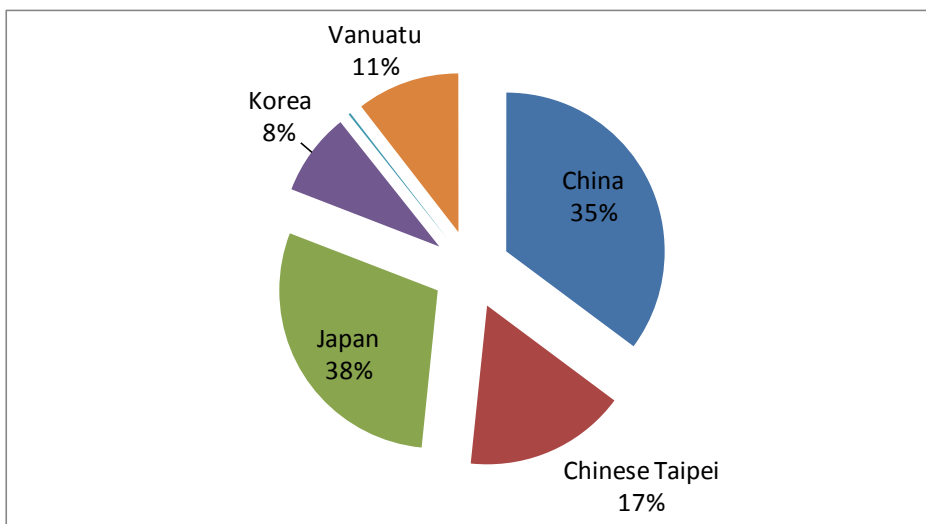


Figure 1. Percentage contribution by flag state to the total number of IATTC transshipments for IATTC deployments 133 to 165 (January 2013 to February of 2014)

In addition to the IATTC transshipments, MRAG observers were also onboard for 147 WCPFC transshipments of which 104 were fully observed. The total weight of fish observed being transhipped over the period was 9,584.53 metric tonnes (Table 1), however, this weight does not include 43 transshipments for which the declarations were not provided. The average transshipment weight of 92.16MT for the 104 transshipments the observer was provided a declaration. Of the 147 transshipments 55 were from China flagged vessels (39%), 23 were from Chinese Taipei flagged vessels (16%) and 26 were from Korea flagged vessels (8%). The remaining 27% were from Indonesia (9), Japan (12), Kiribati (5), Philippines (3) and Vanuatu (14). The locations of all the transshipments are shown in Figure 4 in red.

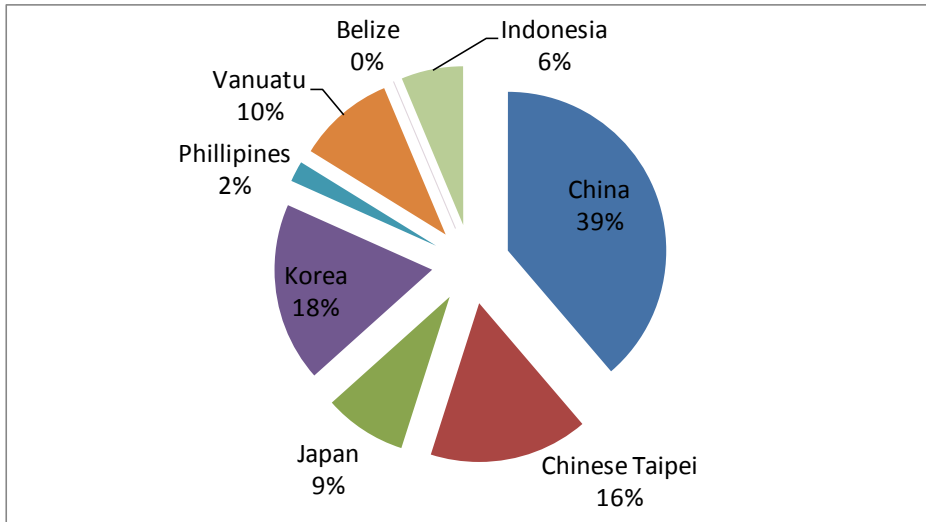


Figure 2. Percentage contribution by flag state to the total number of WCPFC transshipments for IATTC deployments 133 to 165 (January 2013 to February of 2014)

MRAG observers were also onboard for 18 port transshipments where product was loaded from LSTLVs in port. The total weight of fish observed being transhipped over the period was 1381.42 metric tonnes (Table 1), however, this weight does not include 4 transshipments from Kiribati flagged vessels which the declarations were not provided. The average transshipment weight of 98.67MT for the 14 transshipments the observer was provided a declaration. Of the 18 transshipments 7 were from Korea flagged vessels (39%), 4 were from Fiji flagged vessels (23%) and 2 were from Japan flagged vessels (11%). The remaining 27% were from Chinese Taipei (2), Kiribati (2) and Vanuatu (1). The locations of all the transshipments are shown in Figure 4 in yellow,

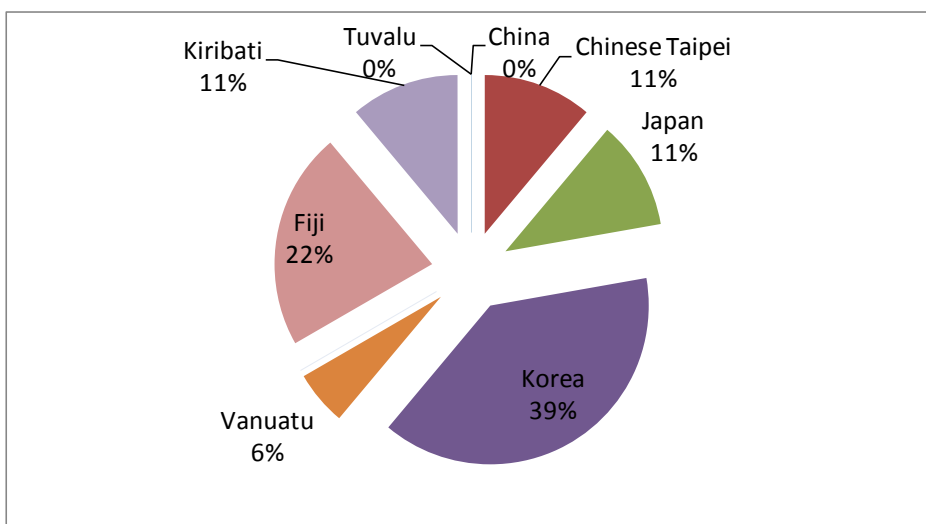


Figure 3. Percentage contribution by flag state to the total number of Port transshipments for IATTC deployments 133 to 165 (January 2013 to February of 2014)

Table 1 Summary of transhipments 133 to 165

TRIP ID	CARRIER VESSEL	FLAG	OBS ID	OBSERVER	EMBARKATION			DISEMBARKATION			TRIP LENGTH (DAYS)	TOTAL IATTC TSs	TOTAL WCPFC TS	TOTAL PORT TS	Total TS	TOTAL IATTC WEIGHT	TOTAL WCPFC TS	TOTAL PORT WEIGHT	TOTAL WEIHT
					DATE	CITY	COUNTRY	DATE	CITY	COUNTRY									
133	Shota Maru	Vanuatu	002	Bennett, James	14-Jan-13	Suva	Fiji	10-Mar-13	Majuro	RMI	56	21	0	0	21	1,913.9	0.0	0.0	1,913.9
134	Yu Hsiang Maru	Vanuatu	034	Alexander, Ricky	5-Jan-13	Papeete	Tahiti	14-Feb-13	Busan	Korea	41	11	0	0	11	1,046.3	0.0	0.0	1,046.3
135	Meita Maru	Vanuatu	029	Suarez, Lucas	7-Jan-13	Busan	Korea	4-Mar-13	Busan	Korea	57	5	2	0	7	779.8	-	0.0	779.8
136	SL Bogo	Korea	020	aab, Daniel	9-Jan-13	Busan	Korea	24-Mar-13	Shimizu	Japan	75	7	7	4	18	755.5	901.1	344.8	2,001.3
137	Haru	Vanuatu	027	Pudenz, Justin	1-Feb-13	Kaohsiung		12-Apr-13	Papeete	Tahiti	71	26	7	0	33	2,195.3	518.7	0.0	2,714.0
138	Seiwa	Kiribati	026	Larner, Heath	5-Feb-13	Busan	Korea	17-Apr-13	Busan	Korea	72	10	6	0	16	1,275.2	465.4	0.0	1,740.6
139	Tenho Maru	Vanuatu	008	Lobdell, James	9-Mar-13	Papeete	Tahiti	18-Apr-13	Shimizu	Japan	41	9	8	0	17	817.7	171.5	0.0	989.2
140	Harima 2	Panama	025	Clifton, Samantha	24-Mar-13	Kaohsiung		8-Jun-13	Shimizu	Japan	77	12	8	0	20	1,082.7	573.2	0.0	1,655.9
141	Taiho Maru	Vanuatu	009	Swan, Fred	9-Apr-13	Papeete	Tahiti	5-May-13	Majuro	RMI	27	8	2	0	10	905.1	252.8	0.0	1,157.9
142	Kaiho Maru	Vanuatu	039	Scheuerman, David	6-Apr-13	Kaohsiung		21-Jun-13	JeJu Island	Korea	77	2	19	0	21	196.7	1,541.4	0.0	1,738.1
143	SL Bogo	Korea	037	Randy Tsung	11-Apr-13	Busan	Korea	13-Jun-13	Busan	Korea	64	5	7	2	14	771.2	816.8	293.5	1,881.5
144	Yu Hsiang Maru	Vanuatu	040	Richardson, Louis	14-May-13	Papeete	Tahiti	20-Jun-13	Busan	Korea	38	5	5	0	10	275.3	-	0.0	275.3
145	Shota Maru (tuna s	Vanuatu	029	Suarez, Lucas	9-May-13	Kaohsiung		21-Aug-13	Shimizu	Japan	105	31	1	0	32	1,732.4	-	0.0	1,732.4
146	Victoria	Vanuatu	002	Bennett, James	15-May-13	Kaohsiung		22-Jul-13	Suva	Fiji	69	16	1	0	17	1,611.3	73.4	0.0	1,684.7
147	Harima 2	Panama	027	Pudenz, Justin	23-Jun-13	Kaohsiung		31-Aug-13	Papeete	Tahiti	70	29	1	0	30	1,682.7	82.2	0.0	1,764.9
148	Tenho Maru	Vanuatu	035	Gauthier, Michael	26-May-13	Kaohsiung		18-Jul-13	Papeete	Tahiti	54	3	14	0	17	272.2	-	0.0	272.2
149	Seiwa	Kiribati	020	aab, Daniel	19-Jun-13	Xmas Island	Kiribati	20-Jul-13	Busan	Korea	32	3	1	0	4	682.3	163.2	0.0	845.5
150	Taiho Maru	Vanuatu	008	Lobdell, James	6-Jul-13	Kaohsiung		18-Sep-13	Pusan	Korea	75	16	0	1	17	1,258.1	185.8	0.0	1,443.9
151	SL Bogo	Korea	037	Randy Tsung	8-Jul-13	Busan	Korea	7-Sep-13	Shimizu	Japan	62	4	7	3	14	591.7	824.3	-	1,416.0
152	Shin Izu	Vanuatu	009	Swan, Fred	23-Jul-13	Kaohsiung		16-Oct-13	Majuro	RMI	86	19	6	0	25	1,430.9	378.8	0.0	1,809.7
153	Shin Ho Chun no.1	Kiribati	002	Bennett, James	3-Sep-13	Papeete	Tahiti	14-Oct-13	Suva	Fiji	42	17	0	0	17	2,053.0	0.0	0.0	2,053.0
154	Lung Yuin	Vanuatu	020	Aab, Daniel	9-Sep-13	Papeete	Tahiti	29-Oct-13	Kaohsiung		51	16	0	0	16	1,636.5	0.0	0.0	1,636.5
155	Yu Hsiang Maru	Vanuatu	040	Richardson, Louis	23-Aug-13	Suva	Fiji	4-Oct-13	Papeete	Tahiti	43	20	1	0	21	1,499.5	-	0.0	1,499.5
156	Tuna Princess	Vanuatu	029	Suarez, Lucas	13-Sep-13	Kaohsiung		18-Nov-13	Papeete	Tahiti	67	30	2	0	32	2,132.1	-	0.0	2,132.1
157	Victoria	Vanuatu	025	Clifton, Samantha	25-Sep-13	Kaohsiung		23-Nov-13	Papeete	Tahiti	60	20	7	0	27	1,882.6	462.0	0.0	2,344.6
158	Heng Yu	Belize	037	Randy Tsung	25-Oct-13	Kaohsiung		6-Jan-14	Kaohsiung		74	37	0	0	37	755.2	0.0	0.0	755.2
159	SL Bogo	Korea	008	Lobdell, James	4-Oct-13	Busan	Korea	30-Oct-13	Papeete	Tahiti	27	0	0	2	2	0.0	0.0	178.5	178.5
160	Harima 2	Panama	039	Scheuerman, David	17-Oct-13	Kaohsiung		23-Dec-13	Papeete	Tahiti	68	30	7	0	37	2,116.7	551.4	0.0	2,668.1
161	Tenho Maru	Vanuatu	040	Richardson, Louis	25-Oct-13	Kaohsiung		18-Dec-13	Majuro	RMI	55	2	18	0	20	215.0	-	0.0	215.0
162	Taiho Maru	Vanuatu	027	Pudenz, Justin	7-Nov-13	Kaohsiung		17-Jan-14	Majuro	RMI	72	6	16	0	22	675.5	1,680.1	0.0	2,355.6
163	Yu Hsiang Maru	Vanuatu	002	Bennett, James	30-Nov-13	Kaohsiung		10-Feb-14	Papeete	Tahiti	73	21	6	0	27	1,725.1	507.1	0.0	2,232.2
164	Shin Ho Chun no.1	Kiribati	035	Gauthier, Michael	21-Dec-13	Papeete	Tahiti	22-Jan-14	Papeete	Tahiti	33	24	0	0	24	2,007.7	0.0	0.0	2,007.7
165	Shin Izu	Vanuatu	020	Aab, Daniel	9-Dec-13	Kaohsiung		21-Feb-14	Apia	Samoa	75	24	0	0	24	1,371.9	0.0	0.0	1,371.9
TOTAL											1989	489	159	12		39,347.1	10,149.2	816.8	50,313.1

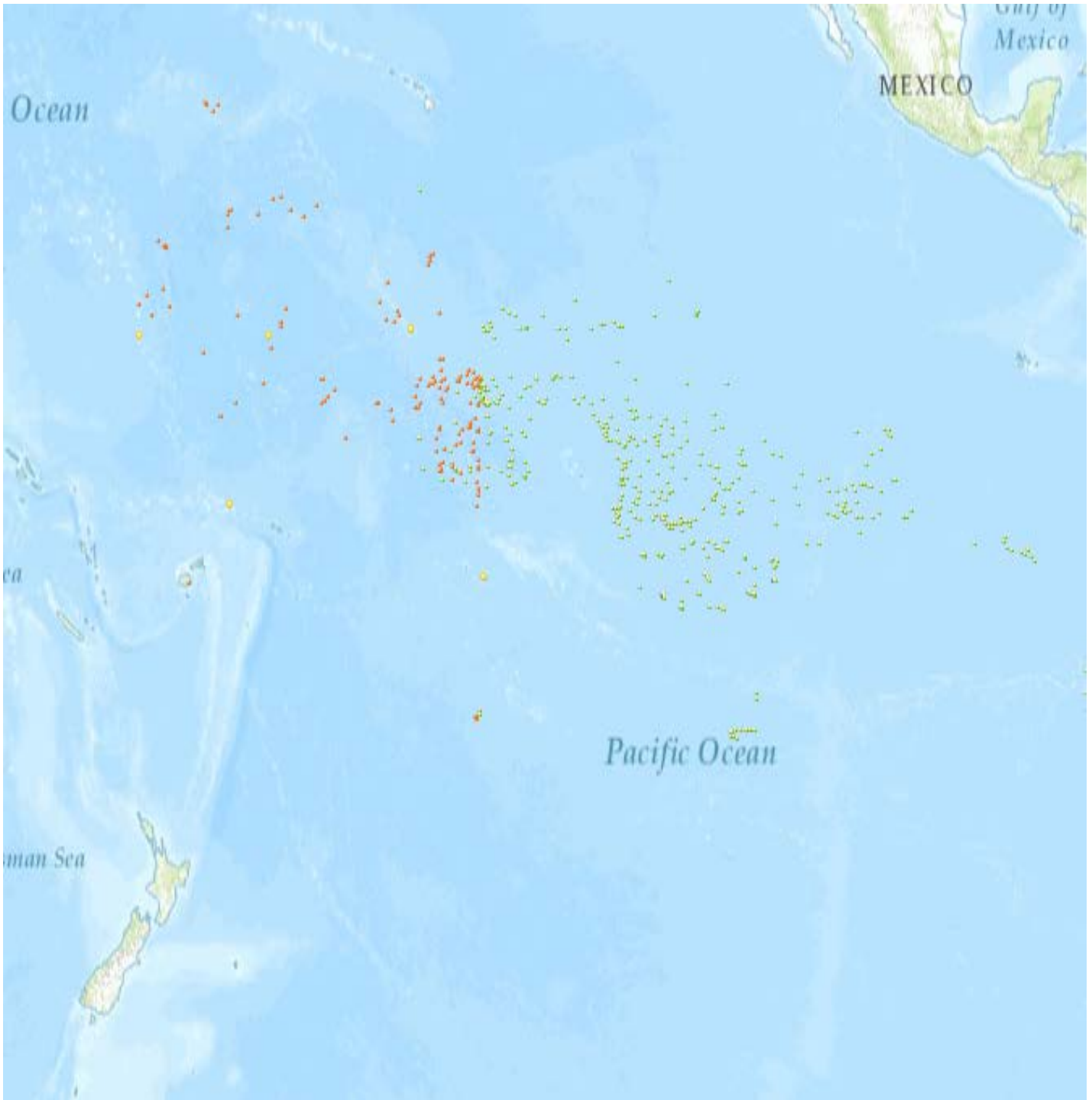


Figure 4 Locations of observed transshipments for IATTC observer deployments commencing in January 2013 to February 2014 . Green = IATTC, Red = WCPFC, Yellow = Port

A summary of the ROP deployments from 133 to 165 completed January 2013 and February 2014 is shown in Figure 5. It can be seen that March was the programme's most active month in terms of numbers of observers deployed, followed closely by August. However, August was the most active month in terms of total weight transhipped. 5 c) and d) show the total amount transferred during deployments completed since the last annual review.

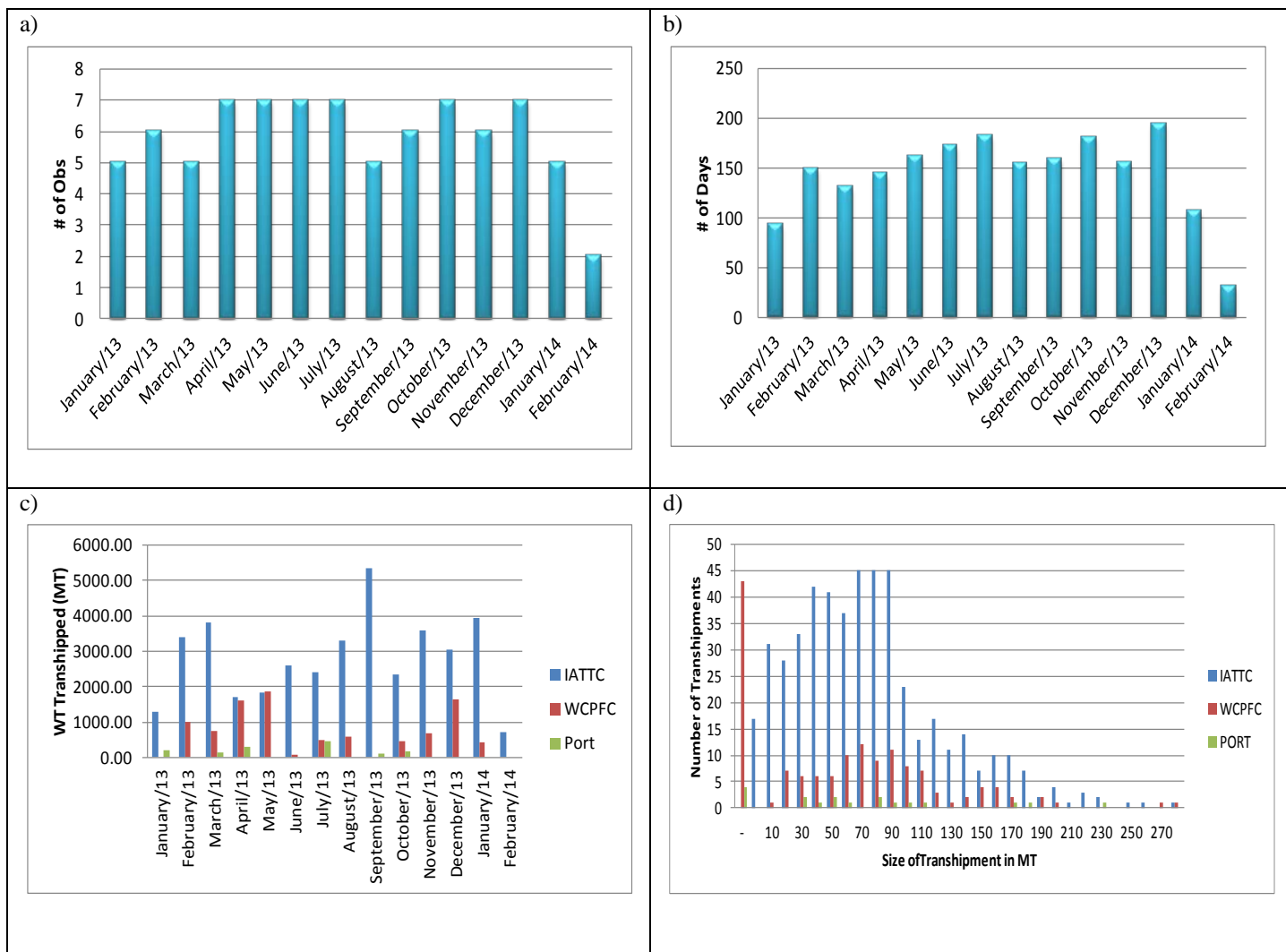


Figure 5 Activity by month a) Number of observers deployed, b) Number of deployed days), c) Weight transhipped per month and d) Total amount by transshipment

2.2 Procedures and logistics

The deployment request procedure begins with the Carrier Company requesting an observer via their country's Fisheries Agency. The Observer request is sent to the IATTC program who forwards to Bryan Belay, MRAG's IATTC coordinator. Mr. Belay coordinates the travel and deployment of the IATTC observer and coordinates with the Carrier Company in cases of changes to the CVs schedule. MRAG also communicates with Carrier Companies to establish estimated deployments to allow for long term planning and to ensure MRAG has enough observers to meet needs. Of the 33 IATTC deployments during the reported period, MRAG observers deployed on 16 different CVs, all previously had an IATTC observer on board, except for the Heng Yu. All vessels were made aware of the necessary requirements and procedures.

There have also been a number of occasions where a vessel has moved between WCPFC and IATTC areas and the observer has remained on board saving on deployment costs.

The main observer tasks as specified by IATTC Recommendation [06-11] remain:

1. Record and report upon the transshipment activities carried out;
2. Verify the position of the vessel when engaged in transshipping;
3. Observe and estimate products transhipped;
4. Verify and record the name of the LSTLV concerned and its IATTC number;
5. Verify the data contained in the transshipment declaration;
6. Certify the data contained in the transshipment declaration;
7. Countersign the transshipment declaration;
8. Issue a report every 5th day deployed of the carrier vessel's transshipping activities; and
9. Establish general reports compiling the information collected in accordance with IATTC Program requirements and provide the captain the opportunity to include therein any relevant information.

Tasks 1 and 3 remain the prioritised tasks carried out by the observers and take up the majority of the observers' time through the counting, identifying and recording the weights of the species transferred and the movements of the carrier vessel. In agreement with the IATTC Secretariat the MRAG continues to submit reports every 15 days summarising daily transshipment activity rather than issuing daily reports.

On days prior to transshipment operations standby times and tonnage of products for transshipment are written on a dry erase board in the officer's mess and crew mess and the IATTC Observers are provided a pre-transshipment declaration copy. Onboard procedures for transshipment are initiated punctually at posted standby times. An announcement on the ship's public address initiates operations. Afterwards fenders were deployed. Transshipments typically, though not always, began during daylight hours, most often morning, and can last into late afternoon or as late as early evening. Most CVs conduct one to two transshipments daily from one to two LSTLVs. CVs transship frozen fish products into one of three decks (A B or C) of available cargo holds. Typical at sea transfer type are transshipment from LSTLV hold or LSTLV deck to CV hold using line segments or in some instances cargo nets. Line segments or cargo nets (unit of transshipment) are loaded with one to seventy eight frozen fish products depending upon such factors as product species, product mass, partially processed product type, pace of LSTLV crew, location of product within LSTLV hold, availability of LSTLV hydraulic winches and total transshipment time. Products are manually sorted and stowed in the CV hold according to LSTLV and discharge location for record keeping. Crew rotations in the cargo holds last for one hour and transfer speed of frozen fish product varied between 10mt and 30mt per hour.

LSTLV reports including product counts and weights are obtained by the CV's 2nd Officer from the LSTLV Captains then made available to the IATTC Observer within the first two hours of transshipment. The IATTC Observers are provided a copy of the LSTLV numbers and weights report within the first two hours of transshipment. Transshipment Declarations are prepared by the CVs 2nd Officer within the first two hours of transshipment and provided to the IATTC Observer for countersignature, certification and verification. A copy of the Transshipment Declaration is provided directly to the IATTC Observer during transshipment.

3.1. Species Identification

The three most abundant species observed transhipped are: *Thunnus obesus* (bigeye tuna; species code BET); this species are uniformly transhipped gilled and gutted (GG). Second: *Thunnus albacares* (yellowfin tuna; species code YFT). This species are also transhipped uniformly gilled and gutted (GG). And third: *Xiphias gladius* (broadbill swordfish; species code SWO); this species was transhipped both dressed (DR) and filleted (FL).

The other main species transhipped were: *Tetrapturus audax* (striped marlin; species code MLS); were transhipped predominantly gilled and gutted (GG), with an occasional dressed specimen observed; *Makaira nigricans* (blue marlin; species code BUM) were predominantly transhipped dressed (DR) but occasionally gilled and gutted; and *Thunnus alalunga* (albacore tuna; species code ALB); this species was consistently transhipped whole, (round or RD).

Distinguishing between shark species is not always possible due to the variety of processing techniques used. Where it was possible to discern between shark species blue shark (*Prionace glauca*) and mako sharks (*Isurus spp.*) were found to be the main shark species transhipped. Aside from sharks (SKH) and opah, *Lampris guttatus* (LAG), the remainder of what is transhipped, the observer classifies as other fish (OTF). This classification includes, but is not limited to: *Acanthocybium solandri* (wahoo; species code WAH), *Lepidocybium flavobrunneum* (escolar; species code LEC), *Tetrapturus angustirostris* (shortbill spearfish; species code SSP), *Ruvettus pretiosus* (oilfish; species code OIL) and *Coryphaena hippurus* (dolphinfish; species code DOL). In addition smaller amounts of *K. pelamis*, *Bramidae* species, *Selachimorpha/Pleurotremata* species. These various species are transhipped either dressed (DR) or whole (RD), depending upon the LSTLV. The observer attempts to keep a distinction between OTF species and provide each species with independent overall estimated weights. While some of the OTF species are identifiable to a degree, identifying every single species in the conglomerate that composes each string every transshipment can prove daunting. When identifying OTF species becomes an issue, observers lump together these species into a singular product code of OTF to obtain an accurate estimate of numbers to compare to the numbers claimed by the LSTLV; so as to estimate an overall weight.

Observed weight estimates were obtained by multiplying the observer tally for each species to the average weight derived from the transshipment declaration. See section: (Weight Estimation) for more detail on weight. Tuna are recorded by species where they can be positively identified or as mixed tuna species where they can only be counted. Distinguishing between the different tuna species can be difficult in their processed condition; the accuracy of identification is dependent on how easily the observer can discern certain diagnostic features on and in the tuna trunks. To aid identification laminated identification guides have been produced depicting the major species transhipped, their diagnostic features and the different processing states that they may be transhipped in. The method of transfer can have an influence on species identification; experienced observers have reported that they can identify the species of tuna trunks that are lying on the deck of the LSTLV before being transhipped.

Product numbers are estimated by visual means. As each string was extracted from the LSTLV hold, the observer first determines the most abundant species that compose the string. That species is given the benefit to be tallied with the hand counter. Other species that were identified with certainty are either counted on the observer's hand, tallied on paper, or their counts are repeated into a voice recorder.

Thunnus obesus (bigeye tuna; species code BET) are identified primarily by their large eye, stout body, and black edged finlets. These fish were transhipped gilled and gutted (GG)

Thunnus albacares (yellowfin tuna; species code YFT) are identified by the shape of the head, the tapering of the caudal peduncle, overall body shape, finlet color, and relatively small eye when compared to *T. obesus*. This species was also transhipped gilled and gutted.

Xiphias gladius (broadbill swordfish; species code SWO) are difficult to miss. This species was identified by body shape, coloration, and the single keel present on the caudal peduncle. *X. gladius* were transhipped dressed (DR) and on occasion filleted (FL).

Thunnus alalunga (albacore tuna; species code ALB) are transhipped whole, (round, or RD). *T. alalunga* are identified by the overall body shape, the narrowing of the head in the maxillary region and the condition of transshipment (RD). The observer relies upon the rounded hump of the body abruptly ending and becoming the narrow caudal peduncle to identify damaged specimens.

Makaira nigricans (blue marlin; species code BUM) are identified by elongated scales, body shape, size, and coloration.

Tetrapturus audax (striped marlin; species code MLS) are identified by scale shape, body shape, and coloration. *T. audax* tended to be more slender and lighter in color than *M. nigricans*.

Lampris guttatus (opah; species code LAG). This species is identified by its distinct body shape, color and markings. *L. guttatus* were transhipped either dressed (DR) or whole (RD).

Acanthocybium solandri (wahoo; species code WAH) are identified by body shape, size, and distinct body markings. This species was transhipped dressed (DR).

Lepidocybium flavobrunneum (escolar; species code LEC) are identified by body shape, fins, lateral line, and the distinct demarcation on both sides of the head. This species was transhipped both whole(RD), and dressed(DR).

Tetrapturus angustirostris (shortbill spearfish; species code SSP) are identified by their very slender body shape, fins, and manner in which they were dressed by the LSTLV.

Ruvettus pretiosus (oilfish; species code OIL) are identified by their rough scales and body shape. This species was transhipped both dressed(DR) and whole (RD).

Coryphaena hippurus (dolphinfish; species code DOL) are an unmistakable species identified by body shape, coloration, and head shape when available. This species was transshipped both dressed(DR) and whole(RD).

Several different species of shark are also transhipped. Because of the dressed (DR) condition (lacking heads and fins), and the amount of time they are visible to the observer; these species are often lumped into the single category of (SKH).

Shark fins (SF) are observed transhipped in large bundles, and occasionally wrapped in plastic sacks.

The LSTLVs tranship frozen bags of mixed fish parts. These bags consisted of gonads, intestines, stomachs, and sometimes chunks of unidentifiable flesh. Observers are able to identify some of these bundles when they constitute a single type of product; but for the most parts the observer are unable to discern if they were product of a similar species or many different genera.

3.2. Weight Estimation

The methodology used by observers for estimating transshipment weights remains the same as those previously described by the MRAG. Deployment observations still show that very few carrier vessels use electronic hook-scales. Observers are tasked with estimating the weight of transshipped product by the species and species group that they tally during their observation period(s). The main purpose is to verify the weights recorded by the carrier and LSTLVs on the Transshipment Declaration. The observer records the weight estimates on the Observer portion of the Form T4 (iii). There are five (5) preferred options for accomplishing this task. These options are ordered by preference of implementation - Option #1 being first and Option #5 being last. Observers will avoid estimating the weight of strings by solely visual means. If visual estimations are used, the observer must document the rational and means of the visual estimation thoroughly.

- The most accurate and independent weight estimations observers can make will come as a derivative of their tally estimations (assuming that these tallies are complete for the observation period(s) recorded).
- Observers will only complete the String Weight field on the T4 (ii) when a hook scale is available (Option #1).
- The Observer Fraction of estimated weight of transshipped product (by species, species groups is the summation of each species'/species groups' tallied in the observation period(s), multiplied by average weights (independently estimated or derived from Declaration numbers).

Option #1 – Weights from CV Hook Scale Readouts: If the carrier vessel employs an operational in-line scale, observers can make an estimation of the total weight of the product transhipped by:

- Total Weight - sum the recorded CV scale readouts for all strings in a transshipment.
- Total Product Count - Sum of species tally estimations (by species/species groups),
- Proportional Weight of Product – Use number of fish and weight from Transshipment Declaration to proportion the Total Weight into a weight for each product code declared.

$$\text{Total Product Weight} = \frac{\text{Declared Product count} \times \text{Total Weight}}{\text{Declared Product Weight}}$$

- If the Declared weight or total count of products is not available from the vessel, determine an average weight for strings of non-mixed product. For example, if a transshipment has three strings of BET without other species, sum the total weight of the three strings and divide by the estimated count of the product on those three strings. Observer will use the largest possible sample size to determine average weights.

Option #2 – Weights from Declared Average Weights: Observer can derive average weights from (as a proportion of) “declared” information if and only if the carrier vessel, the LSTLV, or a combination of the two “declare” **both** numbers and weights of product. This is not a full independent estimation, but may be the best estimate available.

- Use number of fish and weight from Transshipment Declaration to determine an average weight for each product/species code declared.
- Multiply the independently collected tally data by declared average weights of each respective product/species group to derive observer weights.
- If observer’s product/species group designations are more specific than those declared by the vessel/LSTLV - observer may need to proportion the OTH group into multiple species codes.

Option #3 - Hanging Scale to Determine Average Weight – If vessel has a hanging scale, the observer will take weights on a random systematic basis from every nth string. The observer will use the fish(es) selected by the carrier vessel to test temperature as part of the weight sample. The observer will select X number of fish from each string based on a systematic sampling scheme with a random starting point. The observer will maximize the sampling size, collecting as many fish as possible, without causing excessive delay in the transshipment process. Confirm with carrier vessel crew that weight sampling will be allowable (will require every nth string to stop shortly before lowering into the hold).

For example, the observer may select three fish from each 3rd string starting at the string corresponding to the roll of a six-sided die. The observer will try to maintain the same selection process throughout the cruise, randomly selecting the starting point. Fish selection will be selected in the same manner each time also, ie lowest fish, three fish closest to a point on rail, etc. Changes in transshipment procedures may force the observer to alter the sampling scheme to ensure excessive delays are not caused. Provide thorough notes regarding the sampling design.

Observer combines the actual weights and divides by the total number of fish weighed for each product/species group. This average weight is then multiplied by the total estimated counts for each product/species group to reach a Total Product Weight.

Total Product Weight = Avg wt for Species x Total Observer Count Species

Option #4 - Weights from Length-Sampling: If no scale is available, observer will sample for length measurements and convert to weight to determine an average weight for each product/species group. A length-sampling strategy can help to acquire an independent estimation of weights. The average weight is applied to the observer estimate of fish in each product/species code similar to Option #2.

- Confirm with carrier vessel crew that length sampling will be allowable (will require every nth string to stop shortly before lowering into the hold.)
- Consider the circumstances and the resources on hand.
- Devise a random systematic sampling scheme that will be most representative and at the same time practical in implementation (see length sampling below).
- Fine-tune sampling design as required; however, try to maintain the same structure throughout the cruise if possible.
- Provide thorough notes regarding the sampling design.

Total Product Weight = Avg wt for Species x Total Observer Count Species

Option #5 – Weights from Declared Weights: If Option #4 is not possible (i.e. no numbers are declared), or there is not viable information to make an independent estimate:

- Record the weights reported by the carrier vessel found on the IATTC Declaration Form, proportioning “other” species as with Option #4.
- Pursue ideas for reaching an independent estimate with MRAG.
- Provide thorough notes regarding why a weight estimations by other means cannot be accomplished and describe the outlook for implementing other options.

4. Reporting Protocols

Following are the Pre-Sea Forms and Report, to be completed prior to departing for sea on the assigned carrier vessel:

- Form T1 - Observer/Vessel Details
- Form T2 - Deployment Forms (i, ii and/or iii)
- Form T3 – Pre-Sea Inspection Checklist
- Report R1 - Transshipment Details Report

Form T1 - Observer/Vessel Details:

Form T1 describes the basic information required to identify the observer’s deployment onboard their assigned carrier vessel. This form will only be completed for carrier vessels and not completed for any other vessel (i.e. transfer vessels).

Form T2 - Deployment Form:

Form T2 (with all pertinent sub-forms) describes all vessels boarded during an Observer’s deployment.

The T2 is split up into three sub-forms:

- T2 (i) on Carrier Vessel
- T2 (ii) on Transfer Vessel (Outgoing)
- T2 (iii) on Transfer Vessel (Return)

Form T3 – Pre-Sea Inspection Checklist:

The Form T3, Pre-Sea Inspection Checklist, will be completed for all vessels boarded by the observer during a deployment(not including launches). For each vessel boarded, it is important that the observer complete inspections, clearly documenting any problem with the inspection and/or with the vessel’s cooperation with the observer, before:

- Carrier vessel departs port (or away from transfer vessel), or
- Transfer vessel departs port (or away from carrier vessel)

Depending on the circumstances of embarkation on to a vessel, arranging a proper Pre-Sea Inspection may require foresight and planning on the part of the observer (especially in cases of at-sea transfers). Observers will ensure that all parties involved understand the importance of the Inspection and the gravity of a failed inspection. In completing the form, the observer will need to personally check a number of features around the vessel, particularly relating to safety and communications. This Inspection will be performed by the Observer in the presence of at least one vessel Officer and, when possible, a local vessel agent and/or an IATTC Consortium partner.

Report R1 – Observer Deployment Report:

Report R1, the Observer Deployment Report, summarizes certain essential details collected in the T1, T2, and T3 forms. This report must be completed for every vessel boarded by the observer during a deployment.

The Report R1 is a pre-sea report and will be returned digitally (and by fax) to MRAG prior to departing for sea (certainly within 24 hours of deployment), along with the Form T3. If assigned vessel (carrier or transfer) does not pass the Pre-Sea Inspection, the Report R1 and the Form T3 will be returned to MRAG as soon as possible and follow up with a phone call.

Mid-Deployment Forms and Reports

The mid-deployment forms and reports need to be completed periodically throughout an observer's deployment:

- Form T4 – Transshipment Details Form – each IATTC transshipment will have a T4 which consists on a summary of the LSTLV characteristics, observer estimate of product transshipped, LSTLV and Carrier vessels estimates of product, and a summary of the fish counts (and weights if available) on a per string basis.
- Report R2 – Observer 5-Day Report – details the LSTLV, date, position and catch summary of transshipment within the report period. Observer will e-mail or fax a R2 Report on the 5th, 10th, 15th, 20th, 25th, and last day of each month.
- Photo and Video Log – Observers will maintain an Excel file which records date, transshipment number, which tracks pictures based on a file name.

If the vessel has a reliable e-mail system, e-mail all associated T4s (as well as other linked documentation) to MRAG on a 5-day basis with the R2 reports, according to the above schedule.

Form T4 – Transshipment Details Form:

Each cruise may include more than 30 separate transshipments with different LSTLVs. A separate T4 form must be completed for each transshipment event. The sections are numbered by important, not sequentially. The order of the sections on the form layout is T4(i),(iii),(iv),(ii). The first section of this form T4(i) requires the observer to identify the LSTLV transshipping with the carrier vessel. In addition, the observer will record the timings and positions of transshipments.

The second part of the Transshipment Details Form T4(iii) contains the observer estimates of the species, product codes, fish counts and weights. The observer calculates the percentage of transshipment observed. Section T4(iv) has tables to record the product information provided in the Declaration Form, as reported by the LSTLV, and by the Carrier vessel.

The final part of the form T4(ii) track the tuna products transferred between vessels. The tunas are typically transferred using a boom winch, in batches of between 10-30 individual fish. The observer estimates the numbers of fish and species composition of each load or string. The tunas will be partially processed and frozen. Thus, species identification can sometimes be difficult. The observer will refer to the species identification guides provided with the Observer Manual (Appendix I), so that they become practiced at discerning between tuna species.

Observers will complete the following procedure for each transshipment and associated T4. The Observation number is the same as the transshipment number. Keep transshipment numbers in order by date and region. For example TS1 to TSxx for IATTC, Port1 to Portxx for port transshipments, and WP1 to WPxx for transshipment west of 150W. If observer takes a break or LSTLV divides a transshipment into two parts use A,B, C, to designate the parts of the transshipment (TS1A, TS1B,).

Report R2 – Observer 5-Day Report:

The R2 Report is a summary of the transshipments that occurred during the 5-day reporting period. The report only includes completed transshipments and only transshipments of fish are reported. If a transshipment is in progress at the end of a reporting period then it will be included in the next R2. Observers will compile and send their R2 reports on the schedule below:

- Period A – 1st to 5th
- Period B – 6th to 10th
- Period C – 11th to 15th
- Period D – 16th to 20th
- Period E – 21st to 25th
- Period F – 26th to the end of the month

It is important to send the R2s on time. If the e-mail is not working a fax copy to +1-907-677-6022 is acceptable.

Photo and Video Log and Files:

In order to easily sort and track pictures taken by observers, all relevant pictures taken on the cruise will be archived in an Excel photo log. Download, label and record all pictures on a daily basis in the order taken. The Photo and Video Log has a brief key at the top. Take photographs of LSTLV bow, stern, side, and stack insignia (if present); zoom in on any interesting features (such as shark fins or former names painted over but still visible, or other identifying characteristic.)

Report R3 – Supplier 15-Day Report

The R3 report is sent by MRAG to the IATTC on a bimonthly schedule. The R3 provides information on embarkations, transfers and disembarkations of observers. In addition, the R3 contains a summary of all the transshipments that occurred in the Eastern Pacific during the report period (compiled from observer R2 reports). It is not the responsibility of the observer to fill in this form; the R3 will be completed by the MRAG coordinator.

5. Observer Duties

Observers are tasked to report upon all transshipment operations that occur during their deployment aboard assigned carrier vessels. Currently MRAG has a contract with the IATTC to provide observers to vessels planning to transship within the Eastern Pacific. The IATTC Convention (management) Area begins at the 150° W line and includes all high seas waters east of that line of longitude, all the way to the Americas. MRAG does not currently have an agreement with the WCPFC to collect data on transshipments in the Western Pacific. The dividing line is the 150 W line, despite the fact that the WCPFC area overlaps the IATTC, particularly around Tahiti. If the transshipment occurs at-sea east of 150W an observer is required.

If the carrier vessel takes transshipments west of 150W, these will be designated WCPFC transshipments. The observer is to observe these transshipments at carrier vessel captain's discretion. If the captain allows WCPFC transshipments to be observed, follow the same procedures as for the IATTC transshipments, designate the transshipment number as WPI (number consecutively and independent of IATTC transshipments).

If the captain does not allow the WCPFC transshipments to be observed, the observer will not complete:

- 1) Gathering information directly from LSTLV captains
- 2) Monitoring actual transshipment operations;
- 3) Completing a Form T4 (ii-iv), T4(i) is still completed for all transshipments and;
- 4) Signing any transshipment documentation.

If the captain will not allow observations outside of the IATTC, the IATTC transshipment observer deployed on a carrier vessel transshipping outside of the IATTC Convention Area, will adhere to the above prohibitions to regular observation duties, which have precedence over any other instructions described within this document.

If transshipment begins on one side of the 150W and ends on the other side of the line, number the transshipment based on the start location and follows the procedures above for that region.

The main purpose for deploying observers aboard transshipment (carrier) vessels is to track at-sea transshipment operations between Large-Scale Tuna Longline Vessels (LSTLVs) and carrier vessels. The list of essential duties for observers on board carrier vessels operating in the assigned ROP Convention Area(s):

- 1) Record and verify identification information and other identifying characteristics of all transshipping LSTLVs.
- 2) Record and verify the times and positions of all transshipments.
- 3) Sign transshipment declaration documentation on observed transshipments.
- 4) Record and verify the species and product types transshipped, estimating numbers and estimating and/or verifying weights.
- 5) Issue periodic reports upon all transshipments.

Though observers should be equipped and able to complete all mid-deployment duties, they should know their priorities well and not jeopardize the completion of higher priority duties for the sake of completing less-essential duties.

Each day an observer is onboard the vessel there are three main duties that will be completed daily:

- a) Take daily position with heading and speed (same time each day if possible)
- b) Determine the ETA for next stop an/or next transshipment
- c) Record in Daily Observer Log notes regarding the days activities.

6. Observer Training

Currently there are 42 registered IATTC observers (Appendix 1), of which 17 are current and ready to deploy, 9 could deploy with a 1-day briefing, 15 have retired or moved to other programs and 1 has been decertified. MRAG has a sufficient pool of observer to provide an internationally distributed pool of observers ensuring that all deployment requests can be covered, even when requested at short notice.

MRAG did not conduct an IATTC training between November 2012 and January, due to a sufficient number of active observers.

Appendix 1 IATTC trained observers

Rank	Observer Name	Certification
1	Brown, Ethan	decert
2	Bennett, James	current
3	McNamara, Brian	retired
4	Dobbs, Eric	current
5	Stump, Chris	retired
6	Bary, Gregory	retired
7	Davis, Kieth	current
8	Lobdell, James	current
9	Swan, Frederick	current
10	Ransom, Dusty	retired
11	Zepplin, Tim	current
12	Powers, Mary	BRF required
13	Albright, Ryan	retired
14	Erickson-Davis, Morgar	BRF required
15	Prussick, Crystal	retired
16	Abranyi, Neil	retired
17	Browne, Peter	retired
18	Arias, George	retired
19	Kimes, Jeffrey	retired
20	Aab, Danny	current
21	Alpuerto, Scott	retired
22	Ashworth, Sarah	retired
23	Bason, Chris Kazuo 1/11 §	BRF required
24	Casey, Evan	BRF required
25	Cliffon, Samantha Lynn	current
26	Larner, Heath	current
27	Pudenz, Justin	current
28	Stoehr, Chris McVey	retired
29	Suarez, Lucas	current
30	Tran, Hiep	retired
31	Vasak, Nicole	BRF required
32	Not Assigned	
33	Not Assigned	
34	Alexander, Ricky	BRF required
35	Gauthier, Michael	current
36	Haggard, Melany	retired
37	Jui Lin, Tsung	current
38	Iuketic, Michael	current
39	McDonough, James	BRF required
40	Richardson, David Louis J	current
41	Scheuermann, David	current
42	Smith, Francis	BRF required
43	Ward, Brian	BRF required
44	Wojtkun, Marcin	current