



SKIPPERS WORKSHOPS ROUND 8 - REPORT 13. ISSF Skippers Workshops bring tuna fishers together with marine scientists for participatory sessions — at key fishing ports worldwide — to share ideas and information on best practices to reduce bycatch.

Skippers workshops are an important component of ISSF's mission. Held throughout the year at major ports in the Atlantic, Pacific, and Indian Oceans, ISSF workshops have welcomed crew members from vessels fishing under more than 25 national flags. In 2018, we have embarked on our 8th round of Skipper Workshops. The information below summarizes results obtained during the noted Round 8 workshop.

Date: 1th October 2018

Nº Participants: 54 (see Appendix I)

Presenting Scientists: JEFFERSON MURUA

SKIPPERS WORKSHOPS COMMENTS + NEW IDEAS

COLOR CODES FOR MEASURE ACCEPTANCE LEVEL

HIGH

MID-HIGH

MID

MID-LOW

LOW

SHARKS

Shark fishing in the net

- Few fishers commented on this option, but those who did thought that the large size of sharks would make it difficult to implement.
- Skippers estimated that the number of sharks in FAD sets in Peruvian waters is relatively low (1-5 individuals) and even less in free school sets. In FAD sets silky sharks are more common, while in free school sets hammerhead and thresher sharks of large adult size are encountered too.
- Few of these vessels set frequently on FADs (mostly on FADs encountered and “appropriated” from other fleets), so their focus is on free school sets. Trials for fishing sharks in the net in the recent Atlantic research-cruise in Gabon seemed to perform poorly in free school sets (i.e. sharks would not feed on the bait). If this is the case also in the Eastern Pacific, then this activity would not be efficient for many of the free school sets that Peruvian fishers undertake.

With Support From:





Release practices from deck

- Only one or two vessels have hoppers. The rest release bycatch by laying down the brail on the top deck floor and manually extract bycatch species.
- Note that more than half the Peruvian tuna fleet are not “purpose-built” tuna purse seiners, but anchoveta purse seiners that go to port and change their anchoveta small-mesh net for a tuna net. Therefore, the layout of the top deck, where release practices takes place is different. The top deck is spacious, so size restrictions to introduce release tools is not an issue, like it is in small tuna purse seiners. However, they lack cranes to lift mechanically large animals like manta rays using techniques like the cargo net method. Instead, larger specimens like manta rays or sharks are sometimes taken out by using a canvas or net which is lifted by hand by four crew (e.g. each person holding one corner of the canvas) and tilting it over the side of the vessel.
- Not all large sharks are readily released, because if they are too lively and aggressive crew fear they can be bitten. Fishers viewed positively the development of release equipment for dangerous bycatch species which would ensure crew safety first.
- Fishers liked the idea of the release “stretcher bed” but none of them had applied it yet.
- Sometimes large manta rays are released directly with the brail. If it is laying on the top of the brail, part of the fish in the brail will be unloaded first by partially opening the brail and then the manta ray is put back at sea.
- A captain showed interest in training for fishers to tag fish and bycatch species, in a similar way to the training that some Ecuadorian observers have received in the IATTC pilot study marking mobulids to assess release survival rates. Application of tags, especially conventional ones like spaghetti tags, can be easily taught, but perhaps more difficult with archival satellite tags in tunas or other species requiring rapid application of incisions and sutures. Having fishers doing tagging tasks would increase sample size and save costs (e.g. boat rental time for scientific marking campaigns). It would also empower fishers and make them more aware of bycatch releases.
- Boat decks do not have a door in the deck railing through which bycatch can be released. However, the railing in these boats is very low (e.g. < 50 cm high), so it is not difficult to lift bycatches over it for release.

With Support From:





	<p>- Most whale sharks are released by lowering the corks during the set. Some vessels do use weights, lowered down with the davit. Fishers agree that all accidentally caught whale sharks seem to leave the net in good condition.</p>
<p>Non-entangling DFADs</p>	<p>- The FADs used by the Peruvian fleet would comply with upcoming CIAT requirements for non-entangling FADs (NEFADs) to be obligatory from January 2019. All netting used comes from old anchoveta purse seine netting, with a mesh size of ½ inch. These would be lower entanglement risk FADs if we applied the categories in the ISSF guidelines. The net is held in open panels in the tail, reaching an average depth of 30 m. Meanwhile, the raft has a bamboo structure which is covered also with anchoveta netting.</p> <p>- Unlike the equatorial waters of the Eastern Pacific which have strong east to west currents, the Peruvian waters are characterized by much weaker currents. For this reason, the use of open panels or sails to slow down drift are not so necessary. Peruvian fishers agreed that the structure of the FAD's tail was not so important in their waters, and that using ropes or other net-free forms of subsurface appendage would not affect tuna catches. In fact, one of the problems they encounter is excessive biofouling (e.g. encrusting barnacles) adding weight to the open panel tail and sinking the FAD. This is especially true in waters south of Mancora, where cold waters from the Humboldt current are present. If they used ropes instead, the lower surface area for biofouling to adhere would diminish the weight gained due to encrusting organisms. In addition, construction and transport of FAD materials (e.g. single ropes vs net panels) would be simpler.</p> <p>- Fishers do not see sharks entangled in the tails of their FAD tails built with anchoveta purse seine netting.</p>
<p>Biodegradable FADs and FAD retrieval</p>	<p>- Skippers thought that biodegradable FADs would be a simpler option to minimize FAD pollution impacts than FAD retrieval. When their FADs drift out of Peruvian region vessels do not typically travel to retrieve them. Many of these reconverted anchoveta purse seiners are slow moving, have poor fuel efficiency and do not operate well in rough seas, this is the principal reason why they do not venture to fish in more distant waters off Peru. However, sometimes owner FAD vessel will pass on inform about the position of FADs that have drifted out of convenient areas to other colleague</p>

With Support From:





skippers (not necessarily from the same company, but friends) or will “sell” the FAD location to other boats operating in that region for a given price.

- These purse seiners do not use supply vessels, as it is prohibited by the IATTC, so there is not the option of helper vessels retrieving FADs for its owner vessel.

- There is no in port system of buoy returns to owner vessel, like in other key ports such as Manta (Ecuador), Abidjan (Ivory Coast) or Port Victoria (Seychelles) where buoys from appropriated FADs are placed collectively in one place and each boat goes to pick up their lost buoys. Instead in buoys are stolen, the skipper collecting it informs the original owner vessel and sells it back for a price. Return of buoys happens at sea rather than in a port.

- Other fisher commented that because his company does not buy buoys when they find other vessels’ FADs they will just fish on it but do not remove the buoy. If he found a FAD during the day, because he did not have a replacement buoy to track the location of the found FAD, he would place a light beacon on the FAD’s raft to keep visual contact during the night until next morning’s set at dawn.

- All fishers thought there is very little FAD beaching in Peruvian waters. This is because the currents in this upwelling zone move from the coast outwards towards sea, so FADs are moved away from land rather than towards it.

- Fishers said that many of their FADs are rapidly stolen, as many boats operate within a relatively small zone and encounter rates are likely higher than in more open oceanic waters. Note that the principal Peruvian boats’ strategy is to find other vessels’ FADs. This is because the number of FADs per Peruvian vessel is quite low, probably less than 100 active buoys (some do not even deploy FADs), compared to other fleets. Due to exceedingly high FAD appropriations in this fishing zone, if the Peruvian fleet was to do biodegradable FAD trials, or even if Ecuadorian boats that spend 3-5 months of the year fishing in the Peruvian region seed biodegradable FADs there (e.g. TUNACONS/OPAGAC FIP project); they will have to make sure that most or all operating purse seine vessels adhere to the rule of keeping track of FAD identity by following the protocol of maintaining correct ID plates. Otherwise, a large proportion of experimental FAD information will be lost.

- A company manager asked if it would be possible to organize a biodegradable FAD building workshop for the fishers, where scientists would demonstrate in practice with biodegradable materials how to put together a functional biodegradable FAD. To date the closest thing to this was when some Spanish skippers and scientists collaborated in the premises of AZTI in Sukarrieta (Spain) for the BIOFAD project by building *in situ* two real-scale biodegradable FAD prototypes. These two

With Support From:





FADs were later shown to the rest of fishers coming to a series of meetings, so they could see and check the construction details of these BIOFADs.

- When talking about FAD retrieval possibilities with self-operated FADs, a Peruvian scientist pointed out the gliders designed by the company Liquid Robotics (www.liquid-robotics.com/). At the surface the glider due to its size and dark coloration could look a bit like a FAD. However, these gliders use solar and wave energy technology to propel themselves. Each glider costs several thousand USD, so this technology currently might not be practical to use, but maybe in the future some of the self-propulsion elements could be incorporated into FADs.

SMALL TUNA

Buoys with echo-sounder and acoustic pre-estimation

- Despite the lower number of buoys used by Peruvian vessels, the ones used mostly are instrumented with echo-sounders. The principal brand used is Zunibal, which has the lower market price compared to other brands.

- Fishers were very interested in potentially discerning species composition under each FAD with the help of the echo-sounder buoys.

- Some participants said they use a lot the sonar to locate free school tuna. This habit comes from their background as anchoveta fishers. A skipper claimed that half the free school captures he makes come from finding the tuna travelling beneath the surface with the sonar.

- Captains did point out that with boat acoustics, especially the sonar, if the school of tunas was directly “looking at the boat” (i.e. heads pointing towards the vessel) then the received signal was very low and the mark on the screen almost negligible. This is because the sonar and/or sounder beams do not bounce back as strongly, because the fish becomes almost “invisible” to their emissions in this head-first position. Often what happens is that once the boat gets closer to the school, the tuna reaction is to turn around to escape in a lateral direction to the vessel. When this happens suddenly the sonar signal bouncing back greatly increases and better reflects the true size of the tuna school.

With Support From:





	<p>- Fishers said that they often fishers just use the sonar to decide whether to make a set, and rarely will use the boat sounder for pre-estimations. If there is sufficient fish, the set threshold being low (e.g. < 5 t), then they will make the set.</p>
<p>Short tail FADs and BET ID</p>	<p>- Fishers when asked if they thought that deeper appendage FADs attracted more bigeye than shorter tailed ones, answered that FAD depth did not determine the amount of bigeye present. For them bigeye presence was more related to the oceanographic characteristics in a given zone (e.g. water temperature, nutrients, etc.).</p> <p>- Peruvian skippers use FADs which are of a standard depth of 30 m. They have not experimented making deeper FADs (e.g. 50-80) like some other companies from Ecuador have been doing in recent times (see Skippers Workshop report 8.9.). However, fishers had encountered at times deeper FADs from other fleets and had even fished on some of them.</p> <p>- During brailing fishers do the estimation of catch species composition by spreading the contents of the first brail and one of the latter brails on the deck and sampling the proportions of the species present. A skipper thought that they do the species ID estimations quite accurately, as if they depart significantly from the later sampling which takes place at port during unloading, they risk important fines by the Peruvian authorities from the agency PRODUCE.</p> <p>- A PDF file with the bigeye and yellowfin tuna identification guides by Itano et al. have been distributed via email to the fleet managers of the companies so they can circulate among their skippers.</p> <p>- Information required for the recently approved FAD forms by the IATTC where shown during the workshop presentation and discussed with participants. Fishers had some doubts about the ID code of the FAD, whether it had to be the buoy code or a specific code given to each FAD by the commission. Fishers had been only filling in IATTC FAD forms since last year.</p>
<p>BONY FISH AND OTHERS</p>	

With Support From:





Utilization	<ul style="list-style-type: none"> - Fishers informed that in FAD sets in Peru they encounter very small amounts of small tuna species (e.g. frigate tuna, bullet tuna, etc.). These species tend to be retained onboard and sold on land. Other species of bonny fish such as dolphin fish or wahoo are consumed onboard by fishers. - Occasionally, a shark that has arrived dead to deck is consumed onboard. Although utilization of most bycatch is viewed positively by ISSF rather than discard it dead to sea, with certain species like sharks and mantas, scientists do not promote their consumption or sale as it could generate a market demand and disincentive to release live.
LONG TERM (FUNDAMENTAL RESEARCH) ACTIONS	
Fishing and ecosystem impacts	<ul style="list-style-type: none"> - Older captains commented that the increasing number of FADs in Peruvian waters has diminished the amount of free school tunas, as they thought the tunas get “trapped” under the FADs.
CPUE AND FISHING EFFICIENCY	
Fishing technology, observers and FADs	<ul style="list-style-type: none"> - The anchoveta purse seiners fishing for tuna, only target tuna for about 5 months of the year (October-February). Even during that period, they might go back to anchoveta fishing for a month, usually during December, if they have not reached their annual anchoveta catch quota. To swap between tuna and anchoveta fishing the purse seine net must be changed. A fleet manager informed that the net change can be done very fast, in less than a day. - Unlike other fleets in the Eastern Pacific (e.g. Ecuador, Panama, etc.), Peruvian fishers do not make opportunistic sets on dolphins. Captains do not have AIDCP licenses required by IATTC for fishing on dolphins either. Peruvian boats fish mostly inside their own EEZ, sometimes fishing outside of Ecuador, but never venture into more northern areas of the Eastern Pacific where dolphin-yellowfin tuna associations are more common. - Many fishers had not heard before about Electronic Monitoring Systems (EMS). There was certain degree of discontent with person observers, captains pointed out that some observers were continuously on the lookout for any non-compliance to ask for bribes.

With Support From:





- There was a small Peruvian tuna fleet in the 70s, but it disappeared several years later. Since about 2013, after receiving a 5000 cubic meter allowance by IATTC (resolution C11-12), about 10 boats are fishing for tuna. More than half these vessels are anchoveta purse seiners, that simply change from anchoveta to tuna purse seine net. The anchoveta net is much heavier (due to the small mesh size, more material used). The tuna purse seine net used by anchoveta vessels differs somewhat from a conventional tuna net, having a more angled cut at the extremes (i.e. more trapezoidal shape than rectangular). The fishing maneuver also differs slightly.
- When anchoveta purse seiners fish for tuna, they require extra crew like the speedboat driver, etc. which they will temporarily hire for the months of tuna fishing. When Peruvians started fishing tuna in 2013 some companies hired Ecuadorian skippers with long experience in tuna purse seining to captain their tuna vessels during this first “learning period”. However, now most captains are experienced Peruvian anchoveta fishers who have learnt to fish tuna as well.
- A fleet manager commented that Peruvian fishers had to do the “mental adaptation” from anchoveta fishing, in which trips are very short (e.g. 1-2 days) with very large sets (e.g. 200-300 t), to fishing on tuna with longer trips (e.g. 1 month) and average smaller sets (e.g. 10-30 t).

NEXT SKIPPERS WORKSHOPS: SUKARRIETA (SPAIN) 15-30 NOVEMBER 2018

With Support From:





Appendix I – Participant Lists ISSF Skipper Workshops Lima (Peru) Oct 1st 2018

NAME	PROFESSION	VESSEL	COMPANY
MARTIN SANTIVANEZ YUFFRA	MARINE BIOLOGIST		CFG-COPEINCA
NATHALY PEREIRA LETONA	FISHERIES ENGINEER		CFG-COPEINCA
BRENDA BERNABE LA ROSA	FISHERIES ENGINEER		IMARPE
DANY ULLOA ESPEJO	SCIENTIST		IMARPE
GERMAN VELAUCHAGA CARPIO	SCIENTIST		IMARPE
GLADYS CÁRDENAS QUINTANA	MARINE BIOLOGIST		IMARPE
HANS TTITO SÁNCHEZ	SCIENTIST		IMARPE
JAIME ATIQUIPA ORTIZ	SCIENTIST		IMARPE
JOEL MACOTE BERNAOLA	FISHERIES ENGINEER		IMARPE
JULIO RICARDO ALARCÓN VÉLEZ	FISHERIES ENGINEER		IMARPE
LUIS ALEJOS DIAZ	FISHERIES ENGINEER		IMARPE
SOFÍA RIVADENEYRA VILLAFUERTE	MARINE BIOLOGIST		IMARPE
MARIANO GUTIERREZ	SCIENTIST		INSTITUTO HUMBOLDT DE INVESTIGACIÓN MARINA Y ACUÍCOLA (IHMA)
SUSAN GERAL DINE MONTERO SALGADO	SCIENTIST		INSTITUTO HUMBOLDT DE INVESTIGACIÓN MARINA Y ACUÍCOLA (IHMA)
CRISTIAN MIGUEL CONDORI TITO	FISHERIES ENGINEER		DSF-PRODUCE
ROSSY YESENIA CHUMBE CEDEÑO	FISHERIES MANAGER		DSF-PRODUCE

With Support From:





OMAR RIOS BRAW DE RUEDA	FISHERIES MANAGER		DSF-PRODUCE
ALEX URBINA CARDENAS	FISHERIES ENGINEER		DSF-PRODUCE
RITER VARGAS ROJAS	FISHERIES ENGINEER		DSF-PRODUCE
GLENNY SILVA CAMPOS	ADMINISTRATION		DSF-PRODUCE
ANIBAL ALIAGA ROSALES	FLEET MANAGER		PESQUERA DIAMANTE
CARLOS MARIANO AREVALO ACURCIO	SKIPPER	CP SEBASTIAN	PESQUERA DIAMANTE
ADIB BECERRA DIAZ	SKIPPER	DON JUAN	PESQUERA DIAMANTE
ALEJANDRO GONZALO CAMPOS ALBA	OPERATIONS MANAGER		PESQUERA DIAMANTE
JIMMY JOSE CASTAÑEDA CHINININ	PRODUCER		PESQUERA DIAMANTE
CARLOS ESCOBAR MEDINA	INVESTIGACIÓN		PESQUERA DIAMANTE
PAUL ROLANDO VELASQUEZ CARRANZA	CREW	MARIA JOSE	PESQUERA DIAMANTE
YOSSE DIANA GUADALUPE LOZADA FARFAN	FISHERIES RESEARCHER		PESQUERA DIAMANTE
JUAN CARLOS ZAMBRANO CAYCHO	CREW		PESQUERA DIAMANTE
VICTOR LLAUCE BALTAZAR	SKIPPER	MARIA JOSE	PESQUERA DIAMANTE
IVAN ZAMBRANO LAYCHO	DECK BOSS	MARIA JOSE	PESQUERA DIAMANTE
DIANA LOZADA FARFAN	ANALIST		PESQUERA DIAMANTE
JHON HERALD ROBLES TRUJILLO	FISHERIES ENGINEER		PESQUERA EXALMAR
RICARDO BENITO ABAD SOTO	SKIPPER		PESQUERA HAYDUK
MARIO ALBERTO ASMAT DYER	SKIPPER	KIRRA B	PESQUERA HAYDUK
LUIS ENRIQUE BELTRAN CORZO	SKIPPER		PESQUERA HAYDUK
IVAN JIMMY DIAZ BAILLY	SKIPPER	BAMAR VIII	PESQUERA HAYDUK
JAVIER PEDRO MARTIN GALLO SOTO	SKIPPER	ISABELITA	PESQUERA HAYDUK
BERLY GIL SAUCEDO	ANALIST		PESQUERA HAYDUK
LUIS ALBERTO JARA DOMINGUEZ	SKIPPER		PESQUERA HAYDUK

With Support From:





ALEJANDRO ISABEL MEJIA ARTEAGA	SKIPPER	BAMAR VIII	PESQUERA HAYDUK
JOSE EDGAR MEJIA CARRILLO	SKIPPER	KIRRA B	PESQUERA HAYDUK
ALEJANDRO VICENTE MENDEZ UTRILLA	SKIPPER		PESQUERA HAYDUK
CARLOS MARTIN QUIÑONES VERTIZ	SKIPPER		PESQUERA HAYDUK
ADOLFO BRUMER QUISPE TRINIDAD	FISHERIES ENGINEER		PESQUERA HAYDUK
LITO GILMER SAUCEDO TORRES	SKIPPER	BAMAR I	PESQUERA HAYDUK
LIONAR R. TORRES ROMERO	CREW		PESQUERA HAYDUK
CHARLES TORRES ROMERO	CREW		PESQUERA HAYDUK
ALEJANDRO MENDEZ UTRILLA	SKIPPER	BAMAR I	PESQUERA HAYDUK
LUIS ENRIQUE BELTRAN CORZO	SKIPPER	BAMAR I	PESQUERA HAYDUK
PABLO LIÑAN ALVA	SKIPPER	HUACHO CINCO	PESQUERA MAJAT SAC
CYNTHIA VASQUEZ PAREDES	ADMINISTRATION		PUERTOS DEL PACIFICO
FEDERICO IRIARTE	FISHERIES ENGINEER		PUERTOS DEL PACIFICO
GLORIA MENESES YANCE	ANALIST		SNP

Appendix II – ISSF Skipper Workshop group photo Lima (Peru) 1 October 2018

With Support From:





Appendix III- ISSF Skipper Workshop Participants since 2010 by stakeholder group

With Support From:





WS	LOCATION	DATE	DEPPERS	CREW	SHIP OWNERS	FLEET MANAGERS	FLEET REP.	GOV. OFFICIALS	SCIENTISTS	TOTAL
1.0	SUKARRIETA (SPAIN)	27/11/2009	15	1	1	1	6	1	0	25
1.1	MANTA (ECUADOR)	18/09/2010	56	18	1	0	1	0	0	76
1.2	PANAMA CITY (PANAMA)	22/09/2010	6	6	1	0	0	3	6	22
1.3	ACCRA (GHANA)	10/11/2010	2	0	0	2	21	6	1	32
1.4	SUKARRIETA (SPAIN)	13-17/12/2010	32	0	0	0	6	0	5	43
1.5/1.6	MAHE (SEYCHELLES) / PORT IDIUS (MAURITIUS)	1-19/02/2011	11	5	0	0	1	0	0	17
1.7	PAGO PAGO (AMERICAN SAMOA)	05/03/2011	2	0	2	1	4	3	2	14
1.8	MALURO (MARSHALL ISLANDS)	22/06/2011	2	1	0	0	1	1	0	5
1.9	POHNPEI (MICRONESIA)	24/06/2011	3	1	0	0	4	0	0	8
2.1	ACCRA (GHANA)	14/03/2012	2	0	0	2	18	6	0	28
2.2	MAHE (SEYCHELLES)	21-18/05/12	5	2	0	0	1	0	0	8
2.3	PAGO PAGO (AMERICAN SAMOA)	11/06/2012	3	2	0	0	3	0	2	10
2.4	GENERAL SANTOS (PHILIPPINES)	08/09/2012	26	4	0	1	3	0	21	55
2.5	BINTUNG (INDONESIA)	11/09/2012	20	0	0	0	0	25	3	48
2.6	JAKARTA (INDONESIA)	13/09/2012	13	1	0	0	0	10	3	27
2.7	MANTA (ECUADOR)	26-27/09/2012	17	4	4	0	1	0	1	27
2.8	SUKARRIETA (SPAIN)	09/10-27/11-5/12/2012	87	3	2	2	9	0	6	109
3.1	ACCRA (GHANA)	08/02/2013	13	0	2	1	18	7	0	41
3.2	UMU (PERU)	05/08/2013	0	0	2	2	16	2	15	37
3.3	MANTA (ECUADOR)	08/08/2013	37	5	0	3	4	1	0	50
3.4	PANAMA CITY (PANAMA)	2/10/2013	2	0	2	1	7	0	7	19
3.5	SUKARRIETA (SPAIN)	07/11-10/12/2013	44	6	2	2	5	0	0	59
4.1	BUSAN (KOREA)	14/02/2014	8	9	0	1	10	3	12	43
4.2	KAGOSHIMA (JAPAN)	18/02/2014	1	0	0	6	12	0	0	19
4.3	CANGAS (SPAIN)	28-29/05/2014	20	10	0	0	0	0	0	30
4.4	ACCRA (GHANA)	15/07/2014	7	6	10	9	11	4	1	48
4.5	MANTA (ECUADOR)	12/08/2014	35	1	0	0	1	0	3	40
4.6	JAKARTA (INDONESIA)	19/08/2014	21	2	0	0	1	1	3	28
4.7	GENERAL SANTOS (PHILIPPINES)	05/09/2014	24	6	0	0	2	0	2	34
4.8	SUKARRIETA (SPAIN)	18/09-14/10/2014	52	5	0	1	3	0	1	63
4.9	PAGO PAGO (AMERICAN SAMOA)	15-20/10/2014	8	1	0	0	4	0	1	14
5.1	MANZANILLO (MEXICO)	12/01/2015	34	20	1	1	2	4	0	62
5.2	MAZATLAN (MEXICO)	14/01/2015	65	46	0	1	1	4	1	118
5.3	SAN DIEGO (USA)	12/02/2015	5	0	0	1	3	0	0	9
5.4	TEMA (GHANA)	08/03/2015	10	5	2	0	18	0	1	45
5.5	JAKARTA (INDONESIA)	19/06/2015	8	14	1	0	5	0	4	32
5.6	BINTUNG (INDONESIA)	22/06/2015	21	13	0	0	1	1	2	38
5.7	SIBOLGA (INDONESIA)	25/06/2015	22	15	0	0	0	1	1	39
5.8	UMU (PERU)	11/08/2015	10	5	1	1	16	3	6	42
5.9	MANTA (ECUADOR)	14/08/2015	83	8	3	8	6	0	0	108
5.10	BUSAN (KOREA)	15/08/2015	8	0	0	2	8	2	25	44
5.11	CONCARNEAU (FRANCE)	17/10/2015	14	6	0	0	2	2	0	22
5.12	SUKARRIETA (SPAIN)	8-26-30/10/2015	49	5	4	1	2	0	0	61
6.1	SHANGHAI (CHINA)	06/04/2016	10	0	0	6	5	0	6	27
6.2	TEMA (GHANA)	04/05/2016	8	6	2	5	20	4	2	47
6.3	WAO (SPAIN)	20/07/2016	51	23	0	1	0	0	0	75
6.4	MANTA (ECUADOR)	03/08/2016	33	17	0	2	3	0	1	56
6.5	POSORJA (ECUADOR)	05/08/2016	8	5	0	1	0	0	0	14
6.6	JAKARTA (INDONESIA)	05/08/2016	27	0	0	1	3	0	0	31
6.7	BINTUNG (INDONESIA)	07/09/2016	27	1	1	0	0	1	10	40
6.8	KENDARI (INDONESIA)	09/09/2016	32	0	1	3	1	3	10	50
6.9	BANDA (INDONESIA)	14/09/2016	21	0	0	0	6	0	0	27
6.10	SIBOLGA (INDONESIA)	14/09/2016	15	0	0	7	1	2	0	25
6.11	BAWDA ACB (INDONESIA)	16/09/2016	23	0	0	0	8	0	0	31
6.12	QUY NHON (VIETNAM)	17/09/2016	42	0	0	0	13	0	3	58
6.13	SUKARRIETA (SPAIN)	24-28/10/2016	42	5	1	0	3	0	1	52
6.14	MADERA (PORTUGAL)	01/11/2016	4	19	0	0	2	0	1	26
7.1	MANTA (ECUADOR)	10-12/10/2017	95	16	0	1	3	0	2	117
7.2	TEMA (GHANA)	11/03/2017	22	20	1	5	6	1	1	56
7.3	SAN DIEGO (USA)	17/03/2017	7	1	2	4	3	1	1	19
7.4	MALURO (MARSHALL ISLANDS)	03/04/2017	5	4	0	0	2	0	0	11
7.5	POHNPEI (MICRONESIA)	06/04/2017	8	6	1	0	2	0	2	19
7.6	KENDARI (INDONESIA)	03/04/2017	23	9	0	0	12	4	0	36
7.7	PACTEN-MAJALAGAR (INDONESIA)	05/04/2017	20	8	0	0	0	3	0	31
7.8	TULAMPITA-MAJALAGAR (INDONESIA)	07/04/2017	35	6	0	0	0	1	0	42
7.9	AMBON (INDONESIA)	11/04/2017	22	1	0	0	0	4	0	27
7.10	ZHOUSHAN (CHINA)	01/08/2017	8	1	0	4	8	0	3	24
7.11	WAO (SPAIN)	18/08/2017	24	68	0	0	0	0	0	92
7.12	SIBOLGA (INDONESIA)	02/09/2017	16	19	0	2	0	0	0	38
7.13	LAMPULO (INDONESIA)	07/09/2017	23	4	1	1	0	2	0	31
7.14	JAKARTA (INDONESIA)	11/09/2017	33	3	0	0	0	0	0	36
7.15	UMU (PERU)	20/10/2017	14	8	0	1	8	3	4	38
7.16	MANTA (ECUADOR)	04/10/2017	29	41	0	0	0	1	1	72
7.17	CONCARNEAU (FRANCE)	09/10/2017	27	7	0	1	1	0	2	38
7.18	SUKARRIETA (SPAIN)	16-20/10/2017	46	16	0	1	1	0	1	67
8.1	TEMA (GHANA)	26-27/02/2018	22	30	4	4	10	5	2	77
8.2	MALURO (MARSHALL ISLANDS)	12/04/2018	15	6	0	1	4	1	0	27
8.3	POHNPEI (MICRONESIA)	17/04/2018	7	4	1	0	0	0	0	12
8.4	BINTUNG (INDONESIA)	07/05/2018	32	7	0	0	1	9	2	51
8.5	PISU (INDONESIA)	09/05/2018	19	1	0	0	3	2	0	24
8.6	PEKALONGAN (INDONESIA)	11/05/2018	18	21	0	0	0	4	2	45
8.7	DAKAR (SENEGAL)	11/06/2018	4	3	0	3	3	3	2	18
8.8	WAO (SPAIN)	16/07/2018	29	60	0	0	0	0	0	89
8.9	MANTA (ECUADOR)	14/08/2018	65	58	1	3	6	0	2	135
8.10	PANAMA CITY (PANAMA)	14/08/2018	6	0	0	0	2	3	1	12
8.11	SAN DIEGO (USA)	20/08/2018	9	0	3	0	3	0	0	15
8.12	YASU (JAPAN)	29/08/2018	1	0	0	0	17	0	11	29
8.13	UMU (PERU)	01/10/2018	17	5	0	1	9	7	15	54
TOTAL			1947	745	60	121	394	159	225	3597

With Support From:

