

# Five years of Port Based outreach to improve implementation of seabird bycatch mitigation measures in Fiji

## BACKGROUND

BirdLife International has been leading a Port Based Outreach (PBO) program in Fiji since 2017. The PBO is targeted at the longline fisheries sector focusing on best practices to mitigate the impact of fishing on seabirds and addressing relevant Conservation and Management Measures (CMM) of Regional Fisheries Management Organisations (RFMOs), specifically in the convention area of the Western and Central Pacific Fisheries Commission (WCPFC). The initial objective of the study was to raise awareness of the requirements for utilising seabird mitigation measures by vessels fishing in the high seas (areas beyond national jurisdiction; ABNJ) south of 30°S, and to introduce the agreed measures that applied to vessels fishing in the high seas south of 25°S that came into force January 1<sup>st</sup>, 2020. Spatial overlap studies using seabird tracking and fisheries vessel location data had indicated that a high proportion of vessels fishing in this area<sup>1</sup>, and potentially interacting with highly threatened seabird species, notably the endangered Antipodean Albatross<sup>2</sup> (*Diomedea antipodensis*) were using the Port of Suva to offload catch and restock supplies.

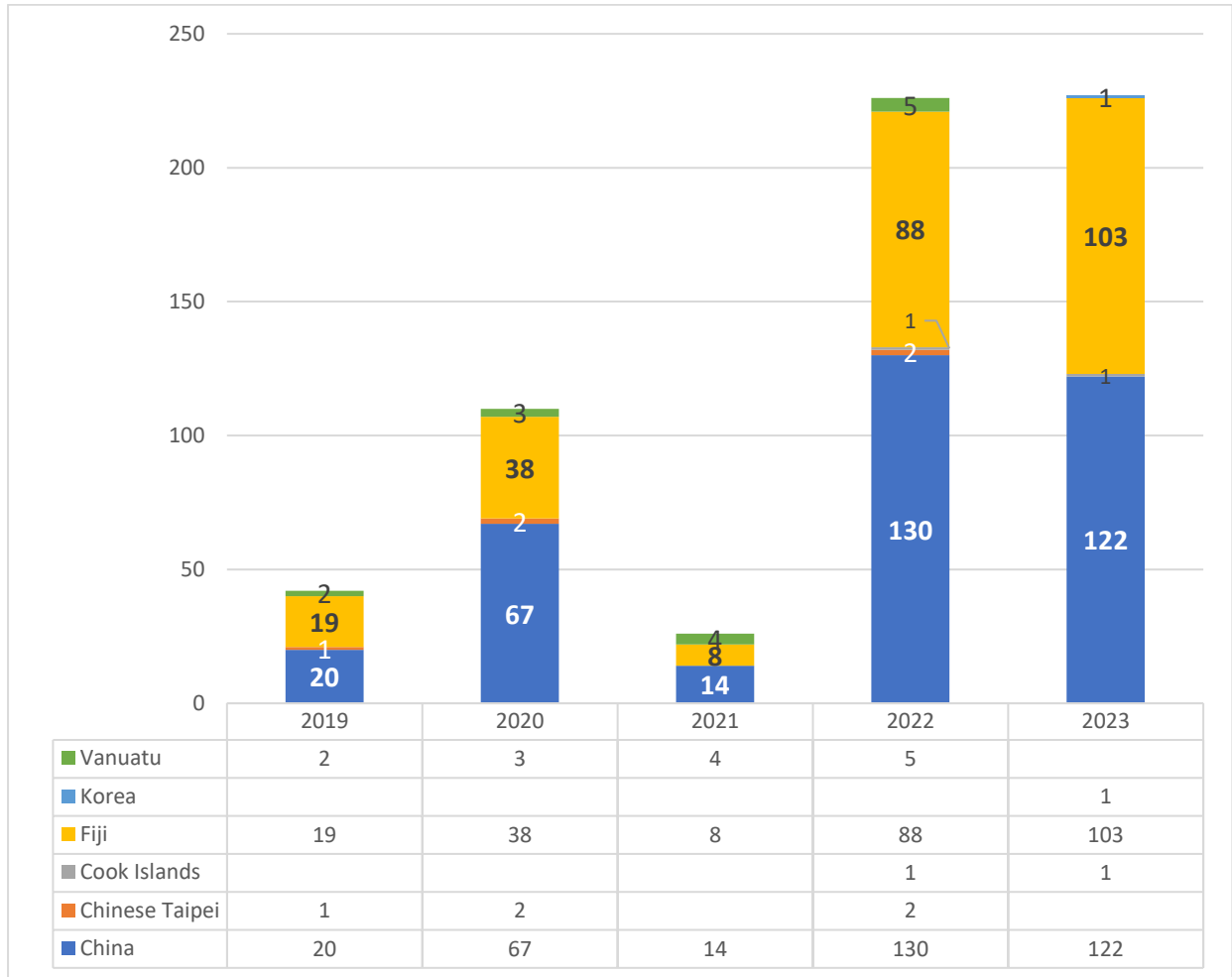
Data collection protocols changed in 2019, therefore this paper present the results from 2019, covering 5 years of engagement including 256 vessels that were visited. Disruption of port-based activities limited engagement with vessels during 2021, due to Fijian government lockdowns because of COVID-19. However, BirdLife International staff worked virtually to improve their contacts/liasons with the locally based fishing industry and were able to restart vessel engagement in early 2022, with a significantly enhanced network of contacts.

### **Metric 1. The number of vessels visited in each year since 2019 to 2023.**

Since 2019, the PBO officer has visited 256 individual vessels 631 times at Port Suva. The number of vessels visited has followed an increasing trend annually, apart from an anomalous year in 2021 (Figure 1). Vessel visits in 2021 were difficult due to government lockdowns in Fiji because of the COVID-19 pandemic. Most vessels visited over the project period were flagged to China, with 66% (170 of 256) of all vessels visited. This proportion has remained consistent over the four years of the study, with a minimum of 53% and maximum of 74% of all vessels flagged to China visited per year. The Chinese flagged vessels visited through the PBO work over the project period represents more than half of the total 383 Chinese flagged vessels registered to fish in the high seas of the Western and Central Pacific Fisheries Commission (WCPFC) convention area.

<sup>1</sup> Bose & Debski 2022, <https://meetings.wcpfc.int/node/16338>

<sup>2</sup> <http://datazone.birdlife.org/species/factsheet/antipodean-albatross-diomedea-antipodensis>



**Figure 1: Number of vessels visited by flag state and year.**

Twenty-eight percent of vessels visited (74 of 256) were operating under the Fiji flag, with a minimum of 31% and a maximum of 42% of all vessels visited each year. The Fiji national longline fleet comprises of 95 vessels according to 2018 data, which suggests that more than 78% of Fiji-flagged longline vessels have been visited over the project period. Approximately 70% of this fleet operates in the Fijian exclusive economic zone (EEZ) and 30% on the high seas<sup>3</sup>. Of these, 50 have been visited through the PBO project for which there is, or has been, information on the WCPFC. Forty-two (84%) of these vessels also held a licence to fish in the High Seas. The 2022 WCPFC dataset identifies 22 Fiji-flagged vessels with licences that have not yet been visited. Another 8 Fiji-flagged vessels were visited that are not on the current WCPFC dataset (as of December 2022). This may be because the WCPFC list is not updated regularly.

There are 22 Fiji flagged vessels on the WCPFC Vessel Registry, that we have not visited. Four (18%) of these have Fijian government licences to fish in the high seas, that means most vessels that have not been able to be visited likely are fishing in the Fijian EEZ rather than the high seas. The average length of these 22 vessels that are listed on WCPFC that haven't been visited during the project period was 28.7m (range 14.9-39.6m, Std Dev=5.6m). Of the 8 vessels with licences to fish only within the Fiji EEZ, three were visited in 2020 for the first time, the remaining 5 were visited in 2022. The number of vessels visited

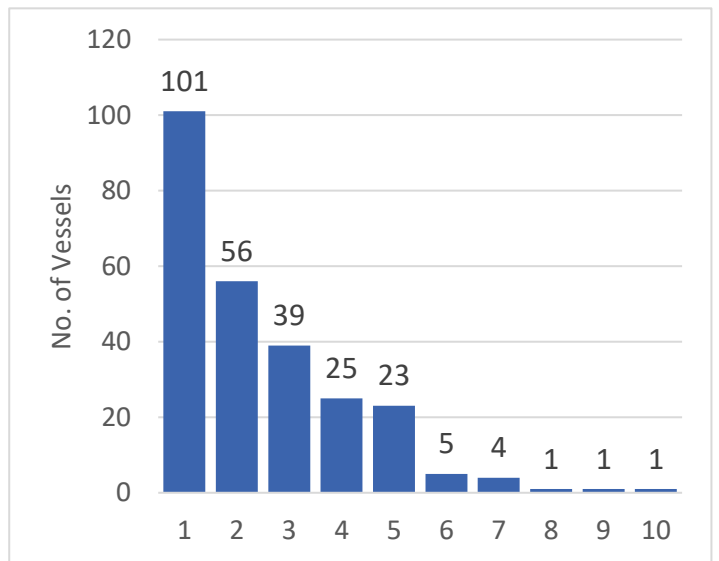
through the PBO provides a good representation of the Fijian fleet, with a focus on the larger vessels that travel south of 25°S.

There are 61 licenced vessels that are flagged to Vanuatu in the WCPFC dataset, of which 13% (8) have been visited as they offload elsewhere. An additional three vessels flagged to Vanuatu were visited through the Vanuatu based PBO<sup>3</sup>. Opportunistic visits to vessels docked at Port Suva included Chinese Taipei and Cook Islands flagged vessels. This included two WCPFC licenced long line vessels with a Cook Islands flag and one vessel flagged to the Republic of Korea. Only a few Chinese Taipei (5 of 256) vessels have been able to be visited, representing a fraction of the fleet licenced to fish in the WCPFC-controlled waters. This is because they return to Taiwanese ports to offload and resupply.

Three vessels were visited by the Vanuatu PBO officer, all flagged to Vanuatu. None of the vessels were fishing south of 25°S, therefore seabird bycatch mitigation measures are not required. None of the captains were aware of the seabird mitigation requirements. All three vessels use circle hooks to reduce turtle captures and had knives and bolt cutters available to free any caught animals. None of the vessels use offal management practices, it is unclear what discussions were had with the crew about best practice offal management. The captains stated that when there are cetaceans around the vessel they stop operating because they impact catch rates by preying on caught fish.

**Metric 2. The number of visits per vessel.**

Nearly 60% of all the vessels have been visited by the PBO officer more than once in the project period (155 out of 256). More than one third have been visited twice (38%, 98 of 256), and one quarter of vessels have been visited three or more times during the project period (Figure 2).

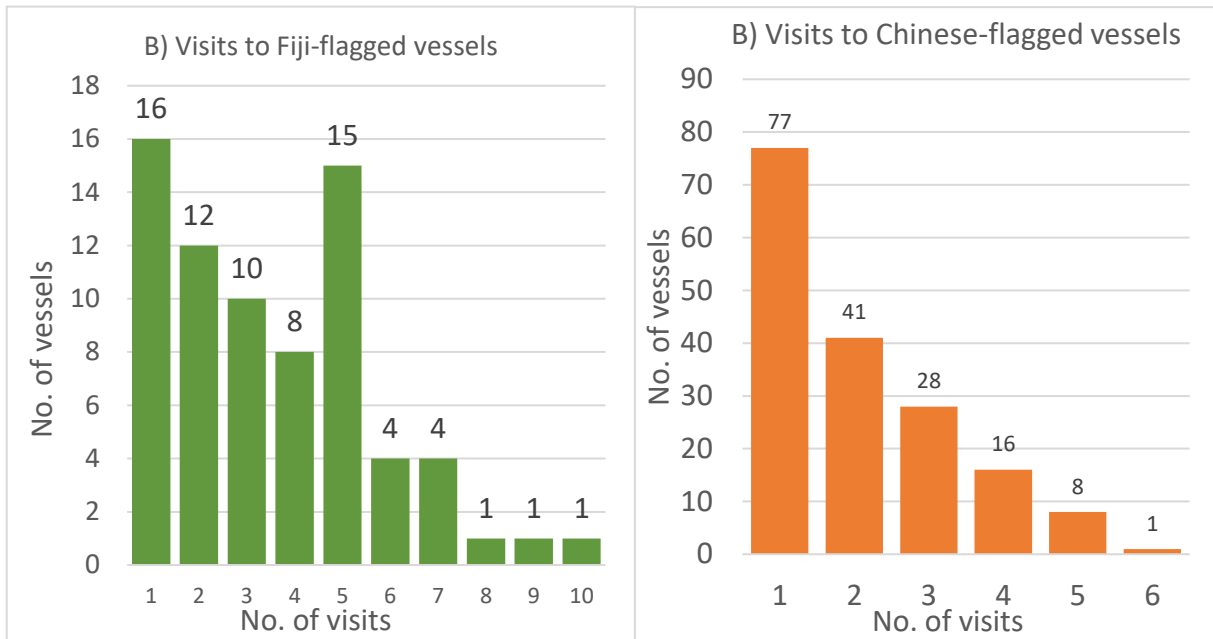


**Figure 2: Variation in number of visits to vessels.**

**Metric 3. Variation in number of visits to vessels, by flag state**

Fijian flagged vessels have a higher rate of repeat visits than Chinese flagged vessels (Figure 3a and 3b). Generally, Chinese-flagged vessels return to Port of Suva less frequently than the Fijian-flagged vessels due to the length of trips, latitude of fishing efforts, and whether the vessels visit ports other than Suva.

<sup>3</sup> The three Vanuatu flagged vessels visited by the Vanuatu based PBO were carried out in Port Suva because Port Vila was not being used due to damage from tow cyclones that hit the country in March of 2023.

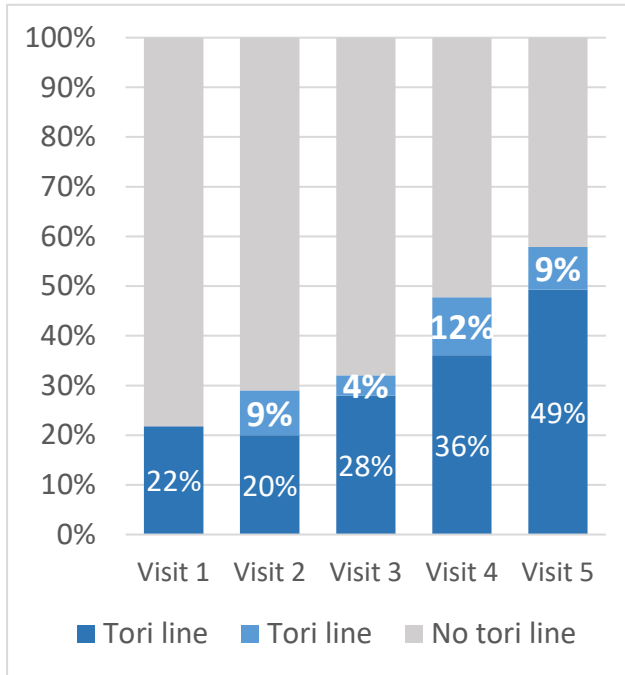


**Figure 3: Number of vessels and visits for the (A) Fiji and (B) Chinese flagged fleets for the project period.**

**Metric 4. Use of bird-scaring lines (Tori lines).**

Since prior to 2019, we have collected information on the presence of mitigation measures for seabirds on all vessels visited. Seabird bycatch mitigation measures are required only for vessels fishing south of 25°S since January 1<sup>st</sup>, 2020, and only for vessels fishing 30°S prior to this. The mitigation measures are the simultaneous use of two of the following: bird scaring lines or tori lines, weighted branch lines, and setting at night, or the stand-alone measure of hook shielding devices. In the years between 2019 and 2021 we targeted vessels travelling 25°S – to raise awareness regarding the change in regulations in 2020 and to assess the extent to which vessels had adequate mitigation measures on board. The masters’ and crew are shown where the best place to attach the tori pole on their vessel is, and when and ways to deploy and haul are discussed. Future work plans include at-sea practical engagement to troubleshoot deployment and configurations of tori lines on different vessels.

Port based outreach found that 56 of the 256 vessels (22%) were carrying tori lines on the first visit to the vessel (Figure 4). Of the 155 vessels that had no tori lines on the first visit, 14 (9%) had obtained tori lines prior to the second visit. Of the 99 vessels that had no tori lines on the second visit, 4 (4%) had obtained tori lines prior to the third visit. Of the 60 vessels that had no tori line on previous visits, 7 (12%) had gained a tori line. Of the 37 vessels that had no tori line on the 4<sup>th</sup> visit, 3 (9%) had obtained a tori line (Figure 7).



**Figure 4: Change in the presence of tori lines over multiple visits. The blue sections of the bars combined are vessels that have tori lines present. The light blue sections of the bars represent the vessels that gained a tori line following a visit from the PBO officer. These include vessels that the PBO program provided tori lines to.**

The proportion of Fiji-flagged vessels where we recorded tori lines on board was 29%, this is similar to the proportion of Chinese-flagged vessels, 27%. Not all vessels require tori lines – these are only required when fishing 25°S or below. Some vessels offload their tori lines to other vessels if they are not going south for their next trip, however, this leads to loss of tori lines and is an issue the PBO officer will discuss with crew in the future. We do not yet have precise information on the proportion of vessels that require tori lines – a rough guide would suggest that around 20% of all vessels that use Port of Suva travel below 25°S.

**Metric 5. Construction and Distribution of Tori Lines**

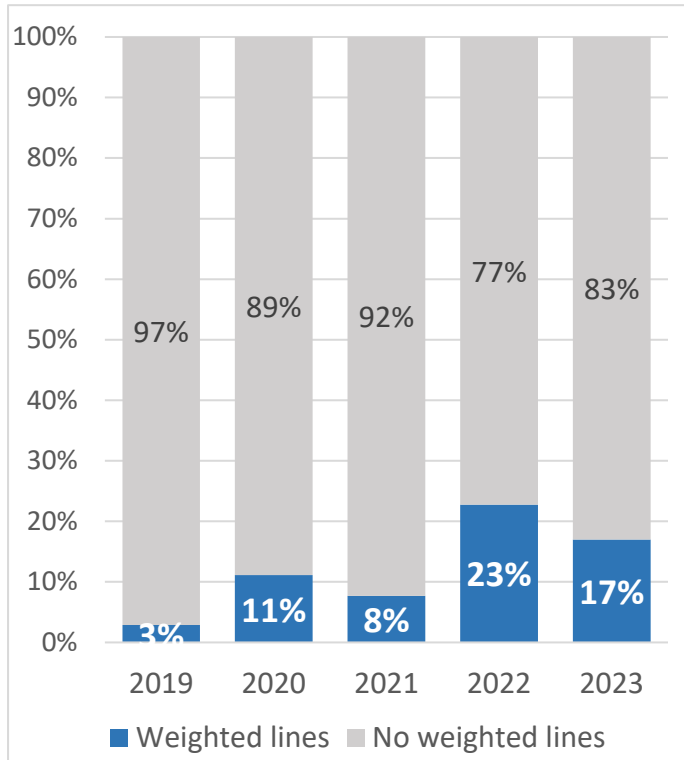
In 2018, BirdLife established a women’s group in Makoi, Nasinu to construct tori lines for the PBO project at Port Suva. BirdLife and then later New Zealand Government staff provided funding, training, equipment. To-date, 62 tori lines have been constructed, between 2018 and September 2022. To-date, 55 tori lines have been distributed to companies.

Initial attempts to charge the companies to purchase the tori lines meant that very few were purchased because the cost was cited as a prohibitive factor. To address this resistance, we were able to raise funds to cover the costs of the lines and the construction, and so, from 2020 the lines have been freely available to captains of vessels who indicated that they were planning to fish south of 25°S. While it is a requirement for vessels to use seabird bycatch mitigation when fishing south of 25°S in the high seas of WCPO, vessel operators often cite cost as being a prohibitive factor in obtaining tori-lines. Further, there are no easily accessible sources of pre-made tori lines and fashioning a tori line from available materials on the vessel generally does not result in a compliant tori line. Materials to make compliant tori lines are not always available in Fiji, therefore this is a barrier for vessels to repair or make their own tori lines. Currently BirdLife is importing materials for the women’s group from Aotearoa New Zealand.

**Metric 6. Use of weighted lines**

Another of the mitigation measures recommended by the WCPFC to minimise the risk of catching a seabird on the line is to use weighted lines, to increase the speed with which the hooks descend below

where they are available to foraging seabirds. During the PBO visits, we asked vessel captains about the use of weighted lines – and inspected the lines to identify which vessels were supplied with weighted lines.



**Figure 5: Proportion of visits where weighted lines were present from 2019-2023. Note that these may include data from repeat visits to vessels and also there are discrepancies among years for vessels primarily fishing north of 25°S that do not have to use any mitigation measures.**

Of the 256 vessels, only 1 (3%) was equipped with weighted lines in 2019. In 2020, the new regulations for seabird bycatch mitigation in the WCPFC came into force, and we saw an increase to 11% of vessels being equipped with weighted lines. The proportion of vessels with weighted lines decreased in 2021, however, that is likely due to the small sample size because of restrictions due to COVID-19. In 2022 and 2023, 23% and 17% respectively had line weighting on board. All vessels visited with line weighting were flagged to China. Crew are informed about the specifications for weighted lines to meet sink rates outlined in ACAP best practice, including fact sheet posters to place on the vessel.

### Discussion & Future activities

Between 2019 and November 31<sup>st</sup>, 2023, port-based engagement visits to 256 vessels that use the Port of Suva were conducted. These vessels are either unloading catch or picking up supplies prior to the next fishing expedition. Most vessels visited were either Chinese-flagged or Fiji-flagged vessels. We believe that this is an accurate estimate of the proportion of vessels of different flags that use the Port of Suva. We are aware that some vessels off-load catch at Levuka in Ovalau. However, our understanding is that these vessels spend just 24 hours or less at Levuka and then travel to Suva to pick up supplies, thereby are included in the visit prioritisation lists.

We have limited information on 20 of the vessels that we have visited – 12 of these are Chinese-flagged and 8 Fiji-flagged vessels. The vessel name appears not to correlate with vessel names on the WCPFC vessel licence registry. All but 4 of the vessels were visited, for the first time, in 2022, so it could be that the vessels haven't yet been added to the publicly accessible database by the WCPFC Secretariat. The misalignment between the WCPFC vessel registry, GFW tracking data, and call sign of the vessel is not

something that we can resolve easily. However, we make best efforts to reconcile the information sources of where vessels are operating. As we are collaborating more closely with the Fijian Ministry of Fisheries in 2024, further opportunities exist to formally reconcile the discrepancies.

Several Fiji flagged vessels, which are only licenced to fish only in Fiji's EEZ according to WCPFC, were de-activated during the Covid pandemic and have yet to be brought back into service, and with an updated Maritime Safety Certificate. When these vessels are back in operation, we will aim to visit them and bring them into future assessments. These vessels were low priority during the pre-covid period of work – as the objective at that time was to target vessels fishing in the high seas south of 25°S.

At the outset of the 2022 portion of this project period funded through the SPREP BIEM Initiative, we found that fewer captains of vessels were aware of the seabird bycatch mitigation measures compared with turtle, shark, and cetacean bycatch mitigation, as set out in relevant WCPFC Conservation and Management Measures (CMMs). Awareness-raising has been a key objective of the PBO officers' role. Clarity for understanding the requirements that vessels are obligated to follow is impeded by the fact that the seabird bycatch mitigation measures only apply to vessels operating 30°S – or 25°S (in the high seas) from 2020. Between 2019 and 2021 vessels were targeted that we knew were fishing 25°S or below, although we couldn't be sure whether they had fished in this area in the immediate trip.

We have previously 'eye-balled' Global Fishing Watch (GFW) to view the movement of vessels that we have identified and/or visited – but have not captured this information in a standard manner. As the program continues into 2024 and beyond, work will be done to capture the spatial movements and analyse whether the vessels needed to deploy seabird bycatch mitigation measures around the time that we visited the vessel. Fijian flagged vessels are required to have cameras on board, while our efforts to date have been unsuccessful in obtaining footage from fishing activities, we are working towards accessing that information through collaboration with the Fijian Ministry of Fisheries that will serve to verify the deployment of some mitigation measures, particularly tori lines.

We noted that vessels offload their tori Lines if they plan not to go 25°S on a fishing trip. Tori lines can be passed from vessel to vessel within the company, which may result in tangling, damage, or loss. We also note that many of the vessels had not fished below 25°S immediately prior to visit and didn't plan to fish below 25°S immediately after the visit. In such cases, there is no requirement to use seabird bycatch mitigation measures during this time. Most captains were happy to take tori lines if they were freely available. However, we do not yet know whether the tori lines are being used because some of these vessels have not been revisited yet. We requested photographs of the lines in action but, to date, have only received images of 'self-made' and not industry standard, tori lines. One company indicated that they felt that the tori lines, as constructed by the women's group, are too bulky and declined to take any sets. Subject to funding, next steps are to:

- Survey masters' and crew on the challenges of using the tori lines and work with them to find solutions to operational challenges of deploying mitigation measures– this work will be funded through the BirdLife International Marine Programme, working closely with experts from the Albatross Task Force (based in African and South American fleets).
- Continue to request photographs of tori lines in operation from the masters' and crew.

The women's group, tasked with constructing the tori Lines, has proved to be an effective way of ensuring that Seabird Mitigation Measures are available, at no cost, to ship captains – thus removing one



of the reasons for not using these measures. Continuing to construct tori lines and make them freely available to protect albatrosses and other seabirds, would appear to be an effective way forward.

We are aware that trials on tori lines that do not include the streamers have been undertaken in the North Pacific. We are somewhat sceptical of the effectiveness of streamerless Tori Lines – and would be surprised if the lines, being less visible, were not hazardous to birds flying past. However, we would be open to trials of this type of line, or alternative designs for mitigating seabird interactions that are specifically tailored for the Pacific long line fishing fleet – if the trials could be monitored effectively.

Weighted lines are not transferable among vessels. The time taken, and cost, of switching to and from weighted lines would preclude their removal – and reduce the ease with which they can be taken up. To date c20% of vessels visited were using full sets of weighted lines. There is evidence that vessels are slowly switching to weighted lines – whenever sets get lost then the replacements are weighted lines. Many lines used by vessels that fish south of 25°S are now hybrid lines. This means, that part of the set includes weighted lines, and part does not have weighted lines. While this is non-compliant with the measures, the stepwise adoption of weighted lines is considered progress, and the PBO officer reminds vessels of the full requirements for line weighting during their visits.

There are some safety issues with the use of weighted lines and flybacks, which can injure and, in some cases, cause fatalities of crew depending on the set up of the gear. Methods to mitigate flyback is using swivel weights and hauling modifications that utilise the vessel structure to create a shield for where the flyback is likely to occur. During PBO, the officer discusses these safety concerns with the crew where possible, and how to minimise safety risks. Addressing the concerns about weighted lines is a key priority for future PBO in Suva, and in other ports when programs are established.

The issue of time spent in port affixing the weighted lines would also be a factor if the use of hook shielding devices/Hookpods was promoted. Several vessel captains did express interest in using one or the other of these devices at some stage in the future – dependent on the support of the ships company. We hope that the long-awaited Hook Pod trial will be undertaken soon – as, while this will require some considerable time in port, in addition to reducing seabird bycatch, it will provide another effective bycatch mitigation measure to protect turtles from being hooked.

Priority actions for future PBO include but are not limited to:

- Summarise the responses from ship captains to capture their understanding of, experience, of, efficacy of and application of the range of mitigation measures, as captured in the Visit reports.
- Developing a method for determining where vessels are fishing in the immediate period around when visits are made – to determine the proportion of vessels that fish south of 25°S. This may include asking to see logbooks.
- Record the presence of posters/booklets highlighting key mitigation methods on vessels during PBO activities.
- Generate short videos about implementing best practice mitigation and handling techniques to show crew during visits.
- Investigate whether it is realistic to use 'selfie images' to confirm conversations with ships captains, crew, etc regarding the deployment of seabird bycatch mitigation.