

 <p>Agreement on the Conservation of Albatrosses and Petrels</p>	<p style="text-align: center;"><b>Tenth Meeting of the Advisory Committee</b> <i>Wellington, New Zealand, 11 – 15 September 2017</i></p> <p style="text-align: center;"><b>Report of the Seabird Bycatch Working Group</b></p> <p style="text-align: center;"><i>Seabird Bycatch Working Group</i></p>
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## **Report of the Eighth Meeting of the Seabird Bycatch Working Group, Wellington, New Zealand, 4 – 6 September 2017**

### **PURPOSE**

This Report documents discussions and recommendations of the Eighth Meeting of the Seabird Bycatch Working Group (SBWG), held in Wellington, New Zealand, from 4 – 6 September 2017.

### **1. INTRODUCTION**

The Seabird Bycatch Working Group Convenor, Anton Wolfaardt, welcomed all Working Group members and observers (**ANNEX 1**) and introduced the Working Group's Vice-convenors, Igor Debski (New Zealand) and Sebastián Jiménez (Uruguay). The Convenor invited all attendees to contribute constructively to the meeting.

### **2. SBWG MEMBERSHIP**

The Convenor reported the addition of two new members to the Working Group since SBWG7: Luis Adasme was nominated by Chile and Oliver Yates (BirdLife International) was nominated by the Convenor as an expert member. The new members were welcomed to the Working Group and encouraged to participate actively in its work. Current membership of the Seabird Bycatch Working Group is included in **ANNEX 1**.

### **3. ADOPTION OF THE AGENDA**

The Convenor introduced the Agenda and thanked those who had offered to serve as rapporteurs.

### **4. UPDATED FORMAT AND PRESENTATION OF ACAP BEST PRACTICE ADVICE DOCUMENTS RELATING TO SEABIRD BYCATCH MITIGATION**

Among the important tasks undertaken at each meeting of the Working Group is the updating of the reviews and best practice (summary) advice relating to bycatch mitigation measures for longline and trawl fisheries. Based on the research presented and reviewed at these meetings, the Working Group ensures that these documents remain up to date, and the updated versions are provided as Annexes to the meeting report. Prior to SBWG6, an intersessional review of ACAP's technical review and best practice advice documents highlighted areas in which the presentation of the information could be improved.

**SBWG8 Doc 06** reported that SBWG6 agreed the presentation of information in ACAP's review and best practice (summary) advice documents on bycatch mitigation for longline and trawl fisheries could be improved, including by ensuring greater consistency of format and terminology between documents, and ensuring references are correct and up-to-date. Based

on discussions at SBWG6, a revised version of the Review and Best Practice Advice documents was prepared using pelagic longline fisheries as a pilot (SBWG7 Doc 16), and presented to SBWG7. The Working Group supported the revised format, and agreed that it should be extended to the remaining Review and Best Practice Advice documents (i.e. for demersal longline and trawl fisheries). **SBWG8 Doc 06** presented the revised 'Best Practice Advice' documents for demersal longline and trawl fisheries using the format agreed to at SBWG7.

The Working Group agreed that the revised format of the ACAP Review and Best Practice Advice documents improved the presentation of information in these documents, and reiterated the advice agreed by AC9 that there should be a greater distinction between the ACAP Review and Best Practice Advice documents and the Mitigation Fact Sheets. The Mitigation Fact Sheets were discussed further under Agenda 23.2. These documents are targeted at captains and crew of fishing vessels to help facilitate proper implementation of the mitigation measures and should be more concise and illustration-focussed than the ACAP Review and Best Practice Advice documents.

The Working Group agreed that it is important to ensure that the ACAP Review and Best Practice Advice documents remain up to date, and noted several examples where SBWG documents had subsequently been published in the peer-reviewed literature, and that these updates should be reflected in the review sections of the document. The Working Group recommended that leads be designated to maintain the ACAP Review and Best Practice Advice documents. The responsibility of the leads will be to ensure the references are kept up to date, and to identify and correct any inconsistencies or redundancies. Minor changes, such as updating references, would not need to be specifically presented to the SBWG at subsequent meetings, but suggested changes that are of a more substantial nature would be presented to the SBWG for their consideration. The updated Review and Best Practice Advice documents would be made available as Working Group documents for each meeting of the SBWG.

The following were designated to lead the process of maintaining the ACAP Review and Best Practice Advice documents:

**Pelagic Longline Fisheries:** Jonathon Barrington and Sebastián Jiménez

**Demersal Longline Fisheries:** Oliver Yates and Anton Wolfaardt

**Trawl Fisheries:** Amanda Kuepfer and Igor Debski

Other SBWG members who wish to assist in the process of keeping the documents up to date should contact the relevant leads.

The Working Group noted the importance of clear communication, on the ACAP website and elsewhere, regarding the purpose of the ACAP Review and Best Practice Advice documents and other ACAP resources, such as the Mitigation Fact Sheets.

### **RECOMMENDATIONS TO THE ADVISORY COMMITTEE**

It is recommended that the Advisory Committee:

1. Endorses the revised format of the ACAP Review and Best Practice Advice documents for demersal longline and trawl fisheries.
2. Endorses the proposal to routinely keep the best practice documents up to date during the intersessional periods, including with respect to citations, and to request the champions listed above to take the lead on this work.
3. Notes the importance of clear communication regarding the purpose of the Best Practice Advice documents and other ACAP resources.

## **5. ACAP SEABIRD BYCATCH MITIGATION BEST PRACTICE ADVICE – DEFINITION AND CRITERIA**

There were no Working Group documents or Information Papers submitted for this agenda item. However, the Convenor presented the ACAP Best Practice Seabird Bycatch Mitigation Criteria and Definition document to remind the Working Group of these criteria and help frame discussions in the following agenda items regarding the development of advice on mitigation measures to reduce seabird bycatch. The Working Group agreed that the text in the document outlining the ACAP criteria and definition of best practice should reflect the fact that the document is intended to provide guidelines, rather than be prescriptive. The Working Group recommended some minor modifications to the text to achieve this aim, specifically replacing the word 'shall' with 'should' in criteria (ii) and (iii). The revised text is provided in **ANNEX 2**, with the changes highlighted in bold text.

### **RECOMMENDATION TO THE ADVISORY COMMITTEE**

It is recommended that the Advisory Committee:

1. Endorses the minor edits to the Best Practice definition and criteria shown in **ANNEX 2**.

## **6. SEABIRD BYCATCH MITIGATION IN TRAWL FISHERIES**

### **6.1 Review of bycatch mitigation measures and best practice advice**

Two Working Group documents and three information papers were considered under this agenda item.

**SBWG8 Inf 17** reported on use of the warp deflector (pinkie buoy system) as an alternative to bird scaring lines to mitigate seabird warp strikes during trawl fishing operations. The paper concluded that these warp deflectors pose numerous practical issues that make the device unsuitable as a stand-alone seabird bycatch mitigation measure, in particular: (a) need for precise positioning of the buoy, (b) risks to seabirds if this does not occur, (c) need for frequent repositioning of buoy (e.g. in varying sea states, trawl depth, and tow speed), (d) impracticality of monitoring for correct deployment by crew, (e) deployment of buoy in rough weather, (f) persistent entanglement, and (g) lack of deterrence to flying seabirds. The paper highlighted consistent findings that the absence of fisheries waste discharge is highly effective at reducing seabird abundance and risk of warp strikes. This finding was consistent with ACAP Best Practice Advice.

The Australian member of the Working Group advised that Australian trials of warp deflectors discussed in **SBWG8 Inf 17** were an initial attempt by the Australian Government to establish a baseline for this kind of device. Further work by industry and the Australian Fisheries Management Authority, supported through an innovation grant had led to development and implementation of additional mitigation technologies including bafflers and sprayers.

The Working Group noted that trials with 'pinkie buoys' in other jurisdictions also highlighted safety issues and that there are inherent dangers in devices that need to be retrieved from the stern of a vessel.

**SBWG8 Inf 16** reported on the latest batch discarding trials undertaken in the Falkland Islands (Islas Malvinas)<sup>1</sup> demersal trawl fisheries. Results showed that retaining discard for as little as 18 minutes on average significantly reduced abundance and associated heavy interactions of high risk seabirds in the danger area by > 80%.

The Working Group complimented the authors and acknowledged their contribution; such reduction in seabird bycatch through offal retention is a positive development. More information was requested regarding the cost to vessel owners, and the design details, for example, how storage tanks can be retrofitted to vessels. The results of a survey among fishers using offal retention was conducted with most companies approached responding. This information is currently being collated and a report detailing costing and design will be made available to the Working Group in the future.

The Working Group discussed whether the findings warranted any change to current Best Practice Advice, which is to retain offal for 2 h to deter large seabirds effectively, compared to the work presented in **SBWG8 Inf 16** which indicated that retention of as little as 18 min can be effective. However, the data presented are preliminary results based on a relatively small sample size. More work is needed to determine the degree of vessel specific adaptations to positioning and fitting storage tanks. The Working Group agreed that this new research broadly aligned to existing advice, and further consideration should be given once more data are available. A research priority was identified in relation to optimal storage periods and discharging periods.

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<sup>1</sup> A dispute exists between the Governments of Argentina and the United Kingdom of Great Britain and Northern Ireland concerning sovereignty over the Falkland Islands (Islas Malvinas), South Georgia and the South Sandwich Islands (Islas Georgias del Sur e Islas Sándwich del Sur) and the surrounding maritime areas.

The Argentine Republic objected to the presentation of documents **SBWG8 Inf 16** and **SBWG8 Inf 17**, in the terms indicated in **ANNEX 7** of this report.

The United Kingdom replied to this as indicated in **ANNEX 8** of this report.

The Working Group member from Chile declared that Chile supports the Argentine Republic's position as outlined in **ANNEX 7** of this report.

The Executive Secretary clarified that Resolution 2.9 on nomenclature in relation to disputed territories has been used only in documents authored by the Secretariat and other organs of the Agreement, following the approach taken since the approval of that Resolution.

**SBWG8 Doc 18** requested comment on research findings concerning the relationship between fishery discards and seabird mortalities in high latitude Chilean fisheries, sought support for ongoing research, and proposed taking account of the research in developing best practice advice. The paper identified several factors affecting seabird bycatch in the relevant high latitude Chilean trawl fisheries, particularly: use of net monitoring cables, discarding, proximity of seabird populations to fishing activities, biological cycle of seabirds, long net hauling times, timing of fishing operations (night vs day), and age range of affected seabirds.

The Working Group recalled that ACAP's Best Practice Advice already provides guidance concerning net monitoring cables in trawl fisheries. The Working Group noted that the resolution of some monitoring systems makes fishing operations more efficient by using video cables to avoid non-target catch. The amount of information sent from the monitoring devices to the ship cannot be transmitted wirelessly. The use of cabled monitoring devices is expected to increase with time.

The Working Group noted the finding that tow length was identified in **SBWG8 Doc 18** as a key explanatory variable in the southern Chilean trawl fisheries, and suggested that other Parties holding trawl bycatch data sets should investigate whether similar results are found elsewhere. The Working Group also encouraged the authors to further investigate the possible mechanism which may be causing this result, including further investigating whether other possible explanatory variables may be conflated.

The Working Group noted that similar discussions are underway in CCAMLR where 100% observer coverage exists and stern cameras are in use to monitor mitigation measures. CCAMLR has not yet obtained results of effectiveness of the applied measures, but has agreed to make results available to ACAP once they are available.

**SBWG8 Doc 10** proposed considering education and seabird handling as a mitigation strategy for the Argentinian side-haul trawl fishery. This paper reported a total of 35 net entanglements recorded in Argentina's demersal trawl fishery where side-haul trawlers are used. There appeared to be no technical way to mitigate this interaction. The paper recommended that education and awareness programs be developed to improve seabird handling by fishers, as this would help increase the proportion of seabirds recovered and released alive after entanglement in nets (presently 26 per cent). The recommendation complements to the decision by AC9 that ACAP develop a Guide to removing entangled seabird from nets.

The Working Group recalled that side trawling was commonly used in the past, for example in the North Sea but as fleets were renewed this technique was largely phased out. However, in some regions this method of fishing is still applied. Since only the cod end is hauled on board, most of the net is left afloat next to the vessel allowing seabirds to become entangled. Options to mitigate seabird entanglement in trawl nets during their remain limited.

The Working Group noted that most birds reported entangled in **SBWG8 Doc 10** appeared to be released alive but those that were pulled underwater died. The Working Group recalled the need to promote and help facilitate the safe release of entangled birds and recommended that efforts should be directed to training local communities how best to release entangled birds, particularly large birds, in the best possible condition.

The Working Group noted that trawl net captures were already a research priority, and while ACAP already has some advice on handling live birds the Working Group agreed that this advice could be modified and improved. This was further discussed under Item 23 Tools and Guidelines.

**SBWG8 Inf 13** highlighted that ~25,000 seabird mortalities occur in the main trawl fleets operating in the southern portion of South America. The paper reported on the outcomes of a 2017 stakeholder workshop — ‘Incidental capture of seabirds: Solutions in the Southern Cone’ and encouraged similar opportunities for establishing links between Range States for albatrosses and petrels. The outcomes included, but were not limited to: improving collection and analyses of bycatch data to allow stratification of spatial/temporal data, updating National Plans of Action to reduce the incidental capture of seabirds in capture fisheries, and pursuing complementary mitigation measures within adjacent fisheries jurisdictions.

The Working Group agreed that this paper presented the results of effective and successful trans-jurisdictional collaboration and highlights the usefulness of sharing experiences in practice. It is hoped that through the positive experiences during the workshop similar initiatives along migratory corridors in other parts of the world will eventuate.

The Working Group concluded that while there were no major changes required to current Best Practice Advice for trawl fisheries, there were several areas of the advice documents that would benefit from revision. Amanda Kuepfer and Igor Debski were identified to lead intersessional work to review the Best Practice Advice, specifically to (a) clarify the priority order of offal and discard management options and include the option of contingency plans for times when the primary option fails (for example, planning to batch if the meal plant fails), (b) align the order and numbering between the summary advice and review document, (c) provide separate advice on mitigation options for trawl warps and monitoring cables, (d) review and update advice around net monitoring cables and (e) update the review document text on warp deflectors to adequately highlight the difficulties encountered during recent trials. Given the likelihood of increased use of net monitoring cables due to developing fishing technology, the Working Group also recommended that a review be undertaken of the range of net monitoring technologies, and their implications to bycatch and possible mitigation options. Both the proposed updated advice and the review on net monitoring cables should be tabled at the next meeting.

## **6.2 Update mitigation fact sheets**

The Working Group noted that there was no requirement to update the mitigation fact sheets in terms of their technical aspects. The new design, layout and wording of the fact sheets were discussed under Agenda Item 23.2: Mitigation Fact Sheets.

## **6.3 Mitigation research priorities**

The Working Group confirmed the following research areas as the highest priorities for reducing seabird bycatch in trawl fisheries:

- i. Options to reduce seabird interactions with cables, in particular net monitoring cables, by manipulating the time, nature and location of offal discharge, recognising size and operational differences between vessels.
- ii. Methods to reduce seabirds becoming entangled in nets during hauling.
- iii. Methods that can be applied to various fisheries/seabird assemblages to determine relationships between seabird abundance, cable interactions and mortality (quantifying the level of undetected or cryptic mortality), including the potential to use electronic monitoring of cable strikes.
- iv. Methods to reduce seabirds becoming entangled in nets during set, including the applicability of net binding in pelagic fisheries.
- v. Methods and designs to improve efficacy of bird-scaring devices in reducing seabird interactions with trawl gear, particularly with net monitoring cables.

#### **RECOMMENDATIONS TO THE ADVISORY COMMITTEE**

It is recommended that the Advisory Committee:

1. Notes the intersessional work planned to improve the clarity and consistency of the best practice mitigation advice for trawl fisheries.
2. Encourages implementation of the identified research priorities for trawl gear mitigation identified in Section 6.3.

## **7. SEABIRD BYCATCH MITIGATION IN DEMERSAL LONGLINE FISHERIES**

### **7.1 Review of bycatch mitigation measures and best practice advice**

**SBWG8 Doc 12** presented results on trials optimizing bird scaring lines for smaller vessels (< 20 m) operating in New Zealand's demersal and pelagic longline fisheries. The focus was to develop bird scaring lines that achieved an aerial extent of 75 m (required in the fishery), while being practical to apply under a wide range of fishing conditions, and that address fishermen's concerns. Accordingly, the work explored options for streamer length, colour and placement, alternatives for the drag section, tension release mechanisms, tori pole design, bird scaring line attachment height, the effect of setting speed and variability among vessels. Based on the results the authors recommend the Working Group consider establishing minimum standards for bird-scaring lines for non-autoline demersal longline vessels < 20 m in length. Specifically, proposed minimum standards address minimum aerial extent, minimum attachment height to the vessel, flexibility of streamer spacing close to the vessel and drag section materials, and incorporating weak-links close to the vessel.

The Working Group welcomed this contribution from New Zealand and, following discussion on a range of points raised by the paper, the Working Group drafted and agreed minimum standards for vessels  $\leq 24$  m, while retaining existing minimum standards for vessels  $> 24$  m. The Working Group highlighted the importance of ensuring that modifications to bird scaring line designs do not inadvertently lead to increased entanglements of the streamers with gear

and breakages. The revised Best Practice Advice document for demersal longline fisheries is included in **ANNEX 3**).

**SBWG8 Inf 02** reported information on seabird bycatch from the Namibian demersal longline fishery. Seabird bycatch rates of 0.77 and 0.37 birds/ 1,000 hooks were reported for winter and summer, respectively. Scaling up to the most recent year suggests 20,567 (6,328 – 37,935) birds were killed in this fishery in 2010, confirming that the Namibian longline fishery has among the highest impacts on seabirds globally. Experimental fishing using one or two bird-scaring lines and the replacement of standard concrete weights for 5 kg steel weights significantly reduced seabird bycatch rates. In November 2015, the Ministry of Fisheries and Marine Resources required the use of bird-scaring lines, line weighting and night setting in this fishery. Collaboration among NGOs, industry and government was instrumental in the introduction of required seabird bycatch best practices in this fishery.

The Working Group thanked the authors and their institutions, and applauded their efforts in introducing ACAP best practice seabird bycatch mitigation into this high priority fishery.

Considerable discussion emerged regarding seabird bycatch mitigation measures for demersal longlines in response to a report regarding fishery interactions with the Balearic shearwater off the Mediterranean Iberian coast. This information is described in **PaCSWG4 Inf 25** and confirms significant mortality of these birds. This document reported high seabird bycatch rates, with 685 seabirds (1.88 birds/1000 hooks) reported by 13 vessels in late April - June 2017. Of these, 667 birds were shearwaters, and about half of them were estimated to be Balearic shearwaters. The demersal fishery in this region is artisanal, with two main types of vessels: medium-scale demersal vessels using a “piedra-bola” system (i.e. an alternation of weights and buoys) and small-scale vessels that can alternate gears; when using longlines, they set the lines with few or no weights and no buoys (“palangrillo” system). The small-scale vessels were responsible for most of the bycatch, particularly when using fish bait and setting the line in the early hours of the day and without weights.

The Working Group highlighted the urgency of collecting further information from these fisheries, and developing mitigation strategies to reduce the levels of seabird bycatch.

## **7.2 Update mitigation fact sheets**

This was dealt with under Agenda item 23.2. In light of the revised best practice advice on bird scaring lines. The Working Group recommended that the mitigation fact sheet for bird scaring lines should be updated using the updated (simplified) format, and according to the phased approach proposed in Agenda Item 23.2.

## **7.3 Mitigation research priorities**

The Working Group recognised that work is ongoing to identify mitigation measures that improve the sink rate of baited hooks on floated longlines, and confirmed that this should remain a priority. Parties were encouraged to collaborate on intersessional initiatives to advance this research. Investigation of the effect of using longer buoy lines to increase sink rates, seabird bycatch and fish catch rates, plus the use of line weighting configurations to improve sink rates without jeopardising the fishing gear position at depth were identified as important considerations within the scope of the research priority for this gear type.

## RECOMMENDATIONS TO THE ADVISORY COMMITTEE

It is recommended that the Advisory Committee:

1. Endorses the changes to the best practice advice for demersal longline fisheries regarding bird scaring lines for small vessels ( $\leq 24$  m) and the inclusion of text highlighting the advantages of weighting where it is integral to the fishing gear (included in **ANNEX 3**).
2. Encourages Parties and others to prioritise research to identify mitigation measures that improve the sink rate of baited hooks on floated longlines, and to keep the Working Group informed of developments associated with research on seabird mortality and mitigation in demersal longline fisheries

## 8. SEABIRD BYCATCH MITIGATION IN PELAGIC LONGLINE FISHERIES

### 8.1 Review of bycatch mitigation measures and best practice advice

**SBWG8 Inf 25** reported on a study testing the efficiency of a single tori line (bird scaring line) to reduce seabird bycatch on pelagic longline vessels (25-37m length). The use of a tori line significantly reduced seabird bycatch rates. Following a number of tori line breakages either because of entanglement with the longline gear or by tension, which diminished the tori line effectiveness; a modified design was developed. This reduced entanglements during trials in 2012-2016 to 4% of that during 2009-2011. This work showed that the use of a tori line reduced seabird bycatch in pelagic longline fisheries and was a practice suitable for medium size vessels (~25-40m length). It was clarified that this work was the extension and finalisation of research previously reported to the Working Group.

**SBWG8 Doc 12** provided recommendations for bird scaring lines for small vessels, and had already been presented under agenda item 7.1 (for demersal longline fisheries). The Working Group welcomed the additional information, recognising that deploying effective bird scaring lines on small vessels remained problematic.

The Working Group agreed that the Best Practice Advice should be modified to reflect the recommendations concerning aerial extent, streamer line configuration, attachment height and weak link. While the recommendations in **SBWG8 Doc 12** were targeted at vessels less than approximately 20 m in length, for simplicity it was agreed to maintain the current size delineation between vessels of  $\geq 35$ m and vessels  $< 35$ m in the Best Practice Advice.

**SBWG8 Inf 08** provided an update on trials to assess the performance of Hookpods under commercial fishing conditions in the Brazilian pelagic longline fleet. A total of three trips, 17 sets and 11,380 hooks deployed have been monitored to date. A total of 1,066 fish were caught (93.7 fish / 1,000 hooks), a single Black-browed Albatross (0.1 birds / 1,000 hooks) and 26 marine turtles of two species (2.1 and 0.2 individuals / 1,000 hooks for loggerhead and leatherback turtles respectively). A total of 65 Hookpods were returned damaged equating to 0.57% of Hookpods deployed. It was clarified that the Hookpod used was the same 48 g version termed the "Hookpod-mini" in **SBWG8 Inf 28**.

The Working Group raised concern on the level of turtle bycatch reported, but there was no evidence that this rate was elevated due to the use of Hookpods as pelagic longline fisheries in the area in which the trials were conducted are known to have high turtle bycatch rates. It was suggested that developing a modified Hookpod with a deeper minimum opening depth may help further reduce bycatch of deeper-diving seabirds and possibly also turtle bycatch. It was noted that the rate of damage to Hookpods was substantially improved since earlier trials considered at SBWG7, and were similar to rates reported in **SBWG8 Inf 28**. The positive uptake by crew in both trials despite initial scepticism was also noted.

**SBWG8 Inf 18** reported on trials of the Hookpod-mini in the New Zealand (small vessel) pelagic longline fishery. The trials indicated that Hookpod-minis provided protection to seabirds from hooks to a depth greater than that achieved through the combined use of tori lines and line weighting, with the Hookpod-minis having an advantage of being more consistent in achieving protection. Catch comparison indicated no significant difference in target fish or shark bycatch between Hookpod-minis and the control gear. In addition, a long-term skipper-collected dataset which covered 10 months fishing with Hookpod-minis indicated loss and failure rates well below one percent per set, and seabird bycatch rates to be considerably lower on the Hookpod-mini snoods (branch lines). The findings suggested that Hookpod-minis were an operationally feasible and effective seabird bycatch mitigation measure in a small vessel pelagic longline fishery. It was noted that this paper provided data on sink rates, showing slower sinking compared to lead weights, but this was counter balanced by the Hookpod-minis providing consistent shielding of the hook barb and point to a depth of 10 m.

The Working Group noted the difference in weight between the Hookpod-mini and the Hookpod as defined in current Best Practice Advice, but no change to the advice document was agreed. It was suggested that Hookpods with LEDs could be used simply for their light, risking difficulties in assessing compliance, however the Hookpod-minis did not have a LED. The Working Group recommended that further work be undertaken on Hookpod-minis and the results presented to future meetings so that the efficacy of the use of the device can be assessed against the ACAP Best Practice criteria.

**SBWG8 Inf 27** investigated branch line modification of reducing the distance between the hook and the weight, and assessed the effectiveness of this in reducing seabird bait attack and bycatch rates, as well as the effect on the target and other bycatch species on a research vessel in Uruguay. The results demonstrated that reducing the hook-weight distance in pelagic longline branch lines reduced seabird attacks (including multiple attacks) and bycatch. Furthermore, this modification appeared not to affect the catch of target species, a prerequisite of a mitigation measure. This study provided strong support for one of the existing specifications (60g or greater attached within 1 m of the hook) of ACAP Best Practice Advice on branch line-weighting in pelagic longline fisheries. The relatively high bycatch rates recorded were noted, however it was clarified that sample sizes were small and did not reflect other work with larger sample size which found lower bycatch rates in this fleet.

**SBWG8 Doc 15** highlighted that many Regional Fisheries Management Organisations only require longline fishing vessels to employ at most two out of three of ACAP's Best Practice mitigation measures. The paper recommends that the best practice advice for reducing the impact of pelagic longlines on seabirds be updated to elevate the status of branch line weighting in circumstances where only a limited number of ACAP's best practice measures are employed.

The Working Group noted the risks posed to several high priority populations of ACAP species by fisheries operating in such a framework and supported efforts to increase the effectiveness of mitigation used. However, examples were also considered where the use of other combinations of mitigation options, such as the combined use of bird scaring lines and night setting has resulted in substantial reductions. Difficulties in uptake of line weighting as primary mitigation measure were highlighted in terms of both perceived influences on fish catch and safety considerations. In relation to safety concerns about the fly back of weights, the research reported in **SBWG7 Doc 08** is currently being extended and is due to be reported back at the next meeting. This research can then be used to help inform guidance on safety. The Working Group did recognise that line weighting had some benefits over bird scaring lines and night setting in terms of more consistent implementation and ability to monitor compliance, including possibilities for port-based compliance (although it was also noted that the position or inclusion of fixed weights could be changed during a fishing trip). On balance, the Working Group agreed that the Best Practice Advice be modified to include a sentence in the advice to highlight these advantages of line weighting. The revised Best Practice Advice component of the document is presented in **ANNEX 4**.

The Working Group discussed the potential for ACAP's Best Practice Advice to be used in a number of fora, including on websites of external organisations and commercial companies, and highlighted the importance of trying to ensure ACAP's advice is being presented accurately. This could be most easily done by ensuring clear communication on ACAP's own website.

**SBWG8 Inf 23** presented a study that interviewed Hawaii longline swordfish captains and conducted a demonstration of a method designed to reduce seabird interactions during gear retrieval that was developed from the interviews. The captains suggested that a bird curtain and water jet device held promise to effectively reduce seabird captures during gear haul back without creating issues related to practicality, safety or economically viability. This was demonstrated by observations made during a three-trip to demonstrate the bird curtain.

It was noted that while there was an increased proportion of captures during the haul in this fishery, this was because of a reduction in birds caught on the set. An animal welfare concern was raised related to the use of water spray in a situation where fish oils are present, or simply the force of water.

## **8.2 Update Mitigation Fact Sheets**

The Working Group noted that the proposed changes to Best Practice Advice, if approved by the Advisory Committee, should be reflected in the fact sheets currently under development. The new design, layout and wording of the fact sheets were discussed under Agenda Item 23.2 Mitigation Fact Sheets.

## **8.3 Mitigation research priorities**

**SBWG8 Doc 19** presented two ideas on research priorities or relevance to seabird conservation in tuna fisheries operating on the high seas. These related to the use of bait casting machines and a suggestion that collaborative research be undertaken to develop a novel snood design to increase the sink rate of hooks in the first 2 m of water, to achieve a sink rate of 0.45 m/s.

**SBWG8 Inf 31** provided a detailed account of bait casting machine function and performance, and was made available to assist the Working Group in considering the relevant research recommendation in **SBWG8 Doc 19**.

In respect of bait casting machines, the Working Group agreed that a review of the current extent of usage and the functional characteristics of bait casting machines would be beneficial. It was noted that this could be progressed through port-based visits. In order to help facilitate the collection of relevant information, a proposed data collection form is provided as **ANNEX 5**. The Working Group encouraged Parties and others to consider opportunities to solicit this information.

In respect of line weighting, **SBWG8 Doc 19** proposed that research should be conducted in the high seas tuna fishery on the effects of improved line weighting on the catch rates of target and non-target species. The purpose of the experiment would be to demonstrate improved line weighting does not affect fish catch, to remove a potential obstacle to the adoption of improved line weighting as a safeguard to any non-use of bird scaring lines and night setting. The experiment would compare catch rates associated with branch lines considered 'conventional' (unweighted or using weighting that falls under the threshold of current best practice advice) with catch rates of branch lines configured with ACAP's new best practice line weighting regime, specifically to achieve hook sink rates in the shallow (0–2 m) depth ranges (see 7.3 'Research priorities'). In each set of the longline half the branch lines would be conventional lines and half experimental (fast sinking) lines, with the two branch line types alternated throughout each set. The response variable would be differences between the two branch line types in fish catch (all taxa) as assessed on the haul. The experiment should be conducted in darkness in the presence of a properly configured bird scaring lines to limit the incidental mortality of seabirds.

The Working Group confirmed the following mitigation research priorities for pelagic longline fisheries:

**Weighted branch lines:** carry out further collaborative field research on the relationship between the current ACAP Best Practice Advice concerning line-weighting regimes and resulting seabird mortalities, and/ or seabird attack rates, impacts on catch rates of target species, and safety aspects associated with using line-weighting.

**Improved branch line weighting for high seas fisheries:** Develop an experimental branch line with hook sink rates consistent with ACAPs best practice line weighting advice (e.g., 60 g located  $\leq 1$  m from hooks) in the upper levels of the water column (0–2 m depth). Fast sink rates in the shallow depth ranges are advantageous to seabird conservation and act as a safeguard against any failure to use bird scaring lines or to set by night. An average sink rate of  $\geq 0.4$  m/s to 2 m depth should be used to inform the development of the new weighting regime. A single weight, or an improved version of the existing double weight system, might be the preferred weighting option. A multi-disciplinary approach, potentially involving key members of the fishing industry, marine engineers and others as deemed appropriate, is encouraged.

**Hook-shielding devices:** conduct further field research to evaluate the relative contributions of the sink rate and hook protection components of hook-shielding devices in reducing bycatch, including through entanglements. Research on hook-shielding devices should also investigate their long term durability or failure rates, and the possibility of increasing the depth (or time) of

protection provided. Further research on the effectiveness of the Hookpod-mini, which is lighter than the Hookpod reviewed by ACAP at SBWG7, is encouraged.

**Bird scaring lines:** developing bird-scaring line configuration for smaller vessels and methods that minimize entanglements of the in-water portion of bird scaring lines with longline floats, while creating sufficient drag to maximize aerial extent, remains the highest priority for research on bird-scaring lines. Research activities evaluating the effectiveness of one vs. two bird scaring lines, bird-scaring line design features (streamer lengths, configurations, and materials), and methods for efficient retrieval and stowage of bird scaring lines remain research priorities.

**Time-of-day:** determine effectiveness of bird scaring lines and branch line weighting at night by characterising seabird behaviour at night using thermal or night-vision technologies.

**Combinations of mitigation measures:** evaluate the effectiveness of the simultaneous use of various combination of two best-practice mitigation methods (night setting, branch line weighting and bird-scaring lines) as called for by existing RFMO seabird conservation measures. Continue to evaluate the effectiveness of the simultaneous use of all three ACAP best-practice mitigation measures.

**Novel/Emerging technologies:** continue to develop novel and or emerging technologies. At this time, the working group identify the following technologies as novel/emerging: underwater bait-setting capsule, lasers, sliding weights, and aspects of vessel design.

**Sensory Ecology:** encourage and initiate research to examine the sensory capabilities of seabirds (visual, acoustic, olfactory systems) to inform the development of sensory-based mitigation technologies and measures as an alternative to trial and error approaches. This research priority has application to the development of mitigation options across a broad range of fishing methods.

**Live bird haul capture:** investigate the nature and extent of live bird haul capture in pelagic longline fisheries.

**Haul mitigation technologies:** develop methods that minimise seabird hooking during hook retrieval.

**Time/Area Closures:** update seabird tracking/fishing effort overlap maps to advance options for time/area management.

**Bait-casting machines:** Conduct a survey to characterise the extent of use of bait-casting machines, and their operational attributes that may influence seabird bycatch risk (see **ANNEX 5** for an outline of the information that should be solicited from the survey).

#### **RECOMMENDATIONS TO THE ADVISORY COMMITTEE**

It is recommended that the Advisory Committee:

1. Endorses the changes to the Best Practice Advice regarding bird-scaring lines for pelagic longline vessels less than 35 m in total length (included in **ANNEX 4**)
2. Notes the reiteration of text in the Best Practice Advice for mitigating seabird bycatch in pelagic longline fisheries highlighting that 'line weighting is integral to the fishing gear and, compared to bird scaring lines and night setting, has the

advantage of being more consistently implemented, hence facilitating compliance and port monitoring' (included in **ANNEX 4**)

3. Considers the implications of ACAP Best Practice Advice being cited or used on commercial websites or other platforms.
4. Encourages implementation of the identified research priorities for pelagic longline gear mitigation identified in Section 8.3

## **9. SEABIRD BYCATCH MITIGATION IN GILLNET FISHERIES**

### **9.1 Recent developments in mitigation research and priorities for future research**

There were no Working Group documents or Information Papers considered under this agenda item.

It was verbally reported that the Pacific Seabird Group had a workshop on this issue in its last (44<sup>th</sup>) annual meeting (February 2017). The group met with the purpose of advancing the state of knowledge, sharing best practice advice, sharing new information and potential new ideas for collaboration and funding opportunities. Of particular interest is a publicly-available mapping tool for seabird distributions and fisheries risk, which is held by ABC (<http://www.fisheryandseabird.info/>). No specific outcomes were provided to ACAP for the current meeting, but it was reported that the group is active and will inform ACAP on any relevant progress.

BirdLife International reported that it is also active in assessing seabird bycatch and options for mitigation in gillnet fisheries in several regions across the world, and would continue to report any information that is relevant to ACAP-listed species to the SBWG.

The Working Group recalled the research priorities outlined at SBWG7:

- i. Undertake more research with black and white contrasting panels as a potential mitigation measure for gillnet fisheries;
- ii. Investigate the effect of net lights as a measure to reduce seabird interactions
- iii. Investigate effect of net colours in reducing seabird interactions in at-sea fishery operations in varied light conditions and setting depths; and
- iv. Understand the effect of gillnet colour on catch efficiency of target species within an active working fishery.

### **RECOMMENDATION TO THE ADVISORY COMMITTEE**

It is recommended that the Advisory Committee:

1. Encourages Parties and others to keep the Working Group informed of developments in research on seabird mortality and mitigation in gillnet fisheries

## 10. RISKS POSED TO ACAP SPECIES FROM NET FISHING METHODS OTHER THAN GILLNET AND TRAWL

### 10.1 Assessment of risks and development of ACAP advice, particularly for purse-seine fisheries

**SBWG8 Doc 21** reviewed the effectiveness of a 'modified purse seine' against ACAP's criteria for best practice to mitigate seabird bycatch, and invited consideration of the modification of fishing gear as best practice. High levels of bycatch of *Ardenna creatopus* (Pink-footed Shearwater), *Ardenna grisea* (Sooty Shearwater), *Pelecanus thagus* (Peruvian pelican), and *Sula variegata* (Peruvian Booby) have been found during purse seine fishing in waters adjacent to northern and south-central Chile (~18° and ~37° South).. This bycatch has been linked to an excess upper hanging ratio (where birds become trapped and drown under a floating net ceiling), zipper mesh size, and buoy line (where birds become entangled). Experiments compared the existing net configuration with a modified purse seine that reduced the upper hanging ratio, reduced the mesh size in the zipper section linking the body of the net to the buoy line, and removed any excess rope along the zipper line. The experimental configuration reduced seabird bycatch significantly (~98%), did not adversely affect target species catch, and provided savings to fishers associated with using a more efficient net design.

**SBWG8 Inf 26** reported on seabird bycatch in purse seine fisheries, as well as potential mitigation measures. The paper highlighted a lack of systematic documentation of seabird bycatch in purse seine fisheries globally. The authors identified potential mitigation technologies and techniques including: water sprays, sound deterrents, physical barriers to prevent seabird contact with cables and the power block during hauling, using fish oil to attract birds away from the purse seine, night fishing, and altering the net design to reduce folds in the top section of the purse seine.

The Working Group welcomed the development of the 'modified purse seine'. The Working Group discussed the merits of recommending the modified purse seine as best practice mitigation option for purse seine fisheries. The Working Group recommended that the modified purse seine be incorporated into a 'toolbox' concerning seabird bycatch mitigation in purse seine fisheries.

The Working Group recommended development of a bycatch mitigation fact sheet explaining the design and effectiveness the Modified Purse Seine.

The Working Group noted that further work concerning developing seabird bycatch mitigation advice about purse seining will be led by Cristián G. Suazo and Barry Baker.

The Working Group encouraged further work into other technologies and techniques for reducing seabird bycatch during purse seine fishing particularly research examining the effectiveness of options including: deterrents, physical barriers, night setting, and modifications to net design.

#### RECOMMENDATIONS TO THE ADVISORY COMMITTEE

It is recommended that the Advisory Committee:

1. Endorses incorporation of advice into a purse seine 'toolbox' about reducing the impact of purse seine nets on seabirds through use of the Modified Purse Seine.
2. Endorses the development of a bycatch mitigation fact sheet explaining the design and effectiveness the Modified Purse Seine.
3. Encourages further data collection and analysis of other technologies and techniques for mitigating seabird bycatch in purse seine fisheries concerning the mitigation options identified in Section 10.1.

## 11. ARTISANAL AND SMALL-SCALE FISHERIES

### 11.1 The development of a 'toolbox' template for mitigation advice for artisanal and small-scale fisheries

**SBWG8 Inf 12** presented results of seabird bycatch work undertaken by the Albatross Task Force in the Santa Rosa artisanal demersal hake longline fishery in Ecuador (2010–2013). The study observed 415,070 hooks and recorded the highest bycatch rates in 2010. Bycatch rates were much lower in subsequent years, and the average was 0.11 birds/1000 hooks. Experimental line weighting trials demonstrated increased sink rates of 900 g concrete weights compared to 450 g stone weights. However, the study was unable to link the different line weighting regimes with differences in bycatch rates, and recommended that further work is needed to determine optimum line weighting specifications for this fishery.

The Working Group commended the authors for the pragmatic approach taken in this artisanal fishery, and encourage the collection of additional data to ascertain the optimal line weighting specifications for the fishery. It was noted that the high variability in bycatch rates may be related to the high variability in ocean conditions in the Humboldt Current from 2010–2016. There was general support for the value of the toolbox approach to address this sort of bycatch problems, given the multiple high risk ACAP species (Waved Albatross, Black Petrel, Pink-footed Shearwater), and a defined mitigation option (line weighting).

**SBWG8 Doc 16** reported on further work undertaken to develop a 'toolbox' of effective mitigation methods for artisanal and small-scale fisheries. It was agreed at SBWG6 to work towards a model of advice that involves the development of a 'toolbox' of effective mitigation methods for artisanal and small-scale fisheries, rather than a more prescriptive list. The first step of this process was presented and discussed at SBWG7, by providing two templates which included some examples to 'populate' the toolbox to illustrate how it could work in practice. For industrial trawl and longline fisheries, ACAP distils clearly defined best practice advice. A major challenge with the 'toolbox' approach is how advice on the adequacy of each mitigation method included can be clearly and simply communicated. Following discussion and recommendations from SBWG7, **SBWG8 Doc 16** presents an update on this work. This includes the further development of the toolbox template, refining the categorisation, and populating the template more widely with relevant mitigation techniques.

There was general support for developing outreach of this information. The Working Group discussed that there is a need to first identify target audiences of this information prior to developing materials and also consider how this information is presented on the website to

make products more approachable. There was support for the format and categories proposed, with some minor changes in attributes, including the effect on target catch and safety of the mitigation measures. Other mitigation measures to populate the toolbox were discussed, including the type of bait and night setting for demersal longline. It was noted that although mitigation measures fixed into fishing gear can more easily be monitored, some behavioural changes (night setting, depth or area of set, soak time, net watching) may be effective and should be considered as additional low-tech solutions. Listing of all potential options was considered to be a valuable approach, but when these tools become publicly available, the current state of knowledge regarding each of the measures should be clearly stated.

The Working Group agreed that would be better to develop separate toolboxes for each fishing method and that these should be developed further in the intersessional period. This should also include the addition of a toolbox for purse seine fisheries (see Agenda Item 10).

### **RECOMMENDATIONS TO THE ADVISORY COMMITTEE**

It is recommended that the Advisory Committee:

1. Endorse the general format of the mitigation toolbox and further develop separate toolboxes for each fishing method
2. Encourage further intersessional work to populate the toolboxes with available information and report back to future meetings.

## **12. LASER TECHNOLOGY TO MITIGATE SEABIRD BYCATCH**

### **12.1 Consider recent research and use of laser technology**

The Working Group reaffirmed the ongoing need to obtain an improved understanding of the safety of laser technologies both to humans and birds before further at-sea testing or industry uptake can be supported.

The Working Group noted that **SBWG8 Inf 20** provided, among other things, updated information about the efficacy of and current research concerning using lasers to deter seabirds. Based on of the information contained in **SBWG8 Inf 20**, and discussions by the Working Group, the following points were noted:

- That trials in trawl fisheries in Alaska had compared a commercially available SeaBird Saver laser (1.26W optical power output) to a prototype (1.01W optical power output) (**SBWG7 Inf 12**). These Class 4 lasers emitted a beam at 532 nm (green), with a Nominal Optical Hazard Distance of 102 m and 192 m, respectively. The devices were not effective during daylight, but showed varying levels of effectiveness at night for seabirds. The lasers were less effective at deterring Northern fulmars compared to gulls. The authors concluded that laser beam detection by birds may be difficult to achieve at high light levels.
- Advice from the commercial manufacturer indicated that approximately 12 SeaBird Saver units were in use globally. Most were used in the North Atlantic, but also in

Australia, Chile, and the United States. The manufacturer has recently reduced the optical power output of the SeaBird Saver to < 500mW (Class 3B laser).

- Research into the efficacy of using laser technology for seabird bycatch mitigation is underway at Purdue University in the United States. This work involves characterizing the visual systems of seabirds in order to help determine the risk that lasers pose to seabirds.
- The Working Group looked forward to receiving further information on the research being conducted in the United States, and again noted the preliminary research findings suggesting lasers were ineffective in fishing operations as a seabird bycatch mitigation measure. The Working Group agreed to bring the current research activities to the attention of the Advisory Committee, and indicate that the Working Group's previous concerns about seabird welfare issues remain.
- The Working Group was informed that Humane Society International are in the process of seeking legal opinion regarding the use of lasers as a seabird bycatch mitigation approach in fisheries in respect of the nature conservation and fisheries legislation in Australia.

#### **RECOMMENDATION TO THE ADVISORY COMMITTEE**

It is recommended that the Advisory Committee:

1. Encourages Parties and others to keep the Working Group informed of developments in research and information on the safety to seabirds and humans of using laser technology as a tool for seabird bycatch mitigation
2. Notes the Working Group's previous concerns regarding bird welfare issues remain.

### **13. DRIVERS AND BARRIERS IN THE UPTAKE OF BEST PRACTICE SEABIRD BYCATCH MITIGATION MEASURES**

**SBWG8 Inf 19** reported on a programme of engagement with fishermen from one fishing fleet posing particular bycatch risk to seabirds in New Zealand. Similar approaches are also being taken in other fisheries. A seabird liaison officer has been allocated to the north eastern New Zealand demersal longline fishery since 2010. Fishers have been contacted during summer months, when at risk birds are breeding in New Zealand. The role has worked largely outside of a regulatory framework and focussed on engaging with fishers directly to support improvements in mitigation measures. Documenting individual vessels' approaches to reducing interactions in 'Seabird Management Plans' has provided detailed information for fisheries managers and encouraged the use of mitigation measures. Over the course of the project mitigation measures and their uptake have improved, and observed capture rates have declined. This model of engaging with a disparate fleet on a vessel by vessel basis may provide a useful example when considering approaches to implement in similar fisheries.

**SBWG8 Inf 20** presented a review of measures for mitigating the incidental capture of seabirds in New Zealand commercial fisheries. The review collated key information about

methods developed to mitigate incidental seabird mortality, with a particular focus on the development and testing undertaken for each. The purpose was to allow government and stakeholders to plan the type of support each mitigation measure may need and prioritise amongst them where needed. The review assessed the extent to which each mitigation measure has been developed and tested against the ACAP criteria that defines best practice mitigation to reduce or eliminate the incidental mortality of seabirds in commercial fisheries. The review further aimed to inform fishers of the status of each of these mitigation measures.

**SBWG8 Inf 11** reported that following discussions with experts of the ACAP SBWG, BirdLife International and the RSPB launched the Albatross Task Force (ATF) in 2006 to tackle seabird bycatch in targeted fisheries. The ATF subsequently expanded to work in eight countries in southern Africa and South America. The role of the ATF has been to support the development and demonstration of effective mitigation measures in longline and trawl fisheries that overlap with the distribution of vulnerable seabirds. The collaboration with governments, industry, local organisations and institutions of ACAP parties has been critical in achieving advances in mitigation research and the transition from practical demonstrations to the adoption of fishery regulations. Recognising the present challenges of fleet-wide implementation and monitoring of mitigation measures, BirdLife International invited the Working Group to provide input into the role of the ATF ahead of a strategic workshop that will be held in March 2018 to define future priorities and objectives.

**SBWG8 Doc 14** reported that one of the main objectives of the Agreement's Seabird Bycatch Working Group is to help facilitate and support efforts to assess, mitigate and reduce seabird bycatch. Mechanisms to achieve these aims include the development and provision of information, products and advice to assist relevant national and international organisations responsible for fisheries management (and the fisheries industry) in achieving these bycatch assessment and reduction objectives. During discussions at SBWG7, the Working Group highlighted the importance of investigating the barriers and drivers in the uptake of best practice seabird bycatch mitigation measures so as to better understand how to address or take advantage of these. The purpose of **SBWG8 Doc 14** is to initiate this task. An outline of the main issues that should form part of the investigation and the objectives and scope of work are proposed, and the Working Group was invited to comment on the proposal and encouraged to participate in the process. The ultimate goal of this process is to help identify ways to improve the uptake of best practice bycatch mitigation measures in those fisheries overlapping with albatrosses and petrels.

The documents associated with this Agenda item resulted in considerable discussion among the Working Group. It was noted that the main focus of the Working Group has been on research and the development of advice regarding technical bycatch mitigation measures. This research has been critical in providing evidence based solutions for mitigating seabird bycatch. However, there remains a gap between the research and effective implementation of bycatch mitigation strategies – the 'knowing-doing' gap between research and real-world action. Further technical research is unlikely to bridge this gap, and efforts are urgently needed to understand better how best to link 'knowing' and 'doing'. Much more is required than merely publishing research in high-impact journals and presenting research and advice at relevant fora in the hope that outcomes will trickle down to policy makers, managers and fishers.

The Working Group strongly supported the need for urgent work in this area, and agreed broadly with the approach outlined in **SBWG8 Doc 14**. It was recommended that the proposed initiative should be more targeted than was outlined in the document, and should focus

greatest attention at the level of the vessel. The Working Group agreed more work was needed to understand what mitigation measures are being used in priority fisheries, how they conform with ACAP Best Practice Advice, and if not the reasons for not conforming. The investigation could usefully solicit this information from ACAP Party fisheries in the first instance. The Working Group highlighted the importance of including case studies of successes. There is a need to understand what incentives have worked so that we can work towards developing further incentives and help remove barriers that limit the proper use of seabird bycatch mitigation. Table 1 of **SBWG8 Doc 19** provides a list of incentives (and disincentives) that have positively influenced the use of bycatch mitigation measures, and should be considered, with others, in the investigation. The Working Group also noted the importance of expanding the social dimension of work on seabird bycatch mitigation, and adopting a transdisciplinary approach. This will require skills and experts from outside of the Working Group, such as social scientists, educators and even psychologists. Given the full agenda and the limited time, the discussion had to be cut short, and the general feeling amongst the Working Group is that more time should be allocated to this important issue in the future. There was strong support for progressing the work on drivers and barriers as a fundamental component of the Work Programme, and many of the meeting participants offered to participate in the process. The Convenor will email all Working Group members and meeting participants after the meeting to initiate the intersessional process and confirm who wishes to participate, the intention being to provide feedback on progress and specific recommendations for discussion and consideration at SBWG9.

Argentina informed the Working Group about two projects of relevance that are currently being implemented: a GEF/FAO project, co-managed by the Ministry of Environment and the Fisheries Federal Council: “Governance Strengthening for the Management and Protection of Coastal- Marine Biodiversity in key ecological areas and the implementation of the Ecosystem Approach to Fisheries (EAF)”, which includes several activities oriented to the implementation of particular actions of Argentine Action Plans. Regarding seabirds, the project is focused on the effective implementation of streamer lines on trawl vessels. A second project, completely related to this agenda item, will be carried out by the Institute of Marine of Coastal Research (University of Mar del Plata and CONICET): “Ecosystem Approach to Fisheries: difficulties and barriers for the implementation of conservation actions to reduce seabird bycatch”. Different approaches will be used to the traditional field and biological research, by the inclusion of sociologists and anthropologists in the research team, with a view to analyse and improve communication, training and outreach programmes, to build capacities of key stakeholders and improve the effectiveness of conservation measures in place.

#### **RECOMMENDATIONS TO THE ADVISORY COMMITTEE**

It is recommended that the Advisory Committee:

1. Recognises the importance of addressing drivers and barriers in the uptake of mitigation to reduce seabird bycatch in fisheries.
2. Note and support the proposed intersessional work to understand and address barriers and drivers in the effective use of seabird bycatch mitigation strategies, and encourage all Parties to actively participate in this work.

3. Discuss further the value and scope of this work, and provide recommendations about how it can be improved.

## 14. ACAP PERFORMANCE INDICATORS: SEABIRD BYCATCH

### 14.1 Review of intersessional work to further develop bycatch indicators and a reporting framework for ACAP, and a review the information submitted to trial the reporting framework

**SBWG8 Doc 05** provided an update on intersessional progress towards the further development of ACAP seabird bycatch indicators and a reporting framework. Following the approach agreed at SBWG7 (**SBWG7 Doc 05**), a reporting template was developed where Parties could provide estimates of bycatch that they themselves have derived. This option was introduced alongside the forms used to capture raw data in previous reporting rounds. Although some trial data was received from several Parties, only one Party (New Zealand) fully populated the new format. This bycatch information was used to illustrate a number of different ways in which reporting against ACAP indicators could be presented. Some suggestions to further refine the template as part of future national reporting were also provided.

The Working Group reiterated the difficulties presented by varying levels of data availability in different fisheries which would preclude reporting of bycatch information by all Parties at the standard submitted by New Zealand. It was, however, acknowledged that the reporting platform was designed to be sufficiently flexible to capture a broad range of information, allowing the option of contributing what is currently possible, with a view to work towards the standards achieved by New Zealand.

The Working Group welcomed the progress made on the reporting framework, and agreed that this was the right direction to take. However, the Working Group also agreed that it would be useful for more Parties to provide data before the format and recommendations could be finalised. Several Parties expressed keen interest in contributing data to fine tune the reporting forms. It was noted that the example of the New Zealand data presented in **SBWG8 Doc 05** would be beneficial to other Parties in exploring their own situation. The Working Group recommended that all Parties should be requested to provide bycatch information as part of the next round of annual reporting, so that further discussions to finalise the reporting template can take place at SBWG9.

**SBWG8 Inf 14** describes an implication of the general concept of catch per unit effort (CPUE) and the nature of birds per unit effort (BPUE) data as it stands, and examines the reliability of two indicators based on BPUE: a) standard indicator to measure the effectiveness of seabird bycatch mitigation measures, and b) an indicator representing the “average” status, or central tendency, of seabird bycatch occurring in longline operations. The mean BPUE of observed trip could provide a good measure of effectiveness of seabird bycatch mitigation measures, though it is essential to integrate local seabird abundance information in the assessment. The wide variety among vessel capacities in suppressing seabird bycatch and their distribution pattern does not suit a treatment with arithmetic mean. Alternative types of indicators, such as a proportion of vessels which achieved a given threshold of mitigation effectiveness target, might be more valuable for management than an indicator seeking for central tendency.

The Working Group acknowledged the statistical challenges and problems associated with interpreting rare occurrence events such as seabird bycatch, and agreed that the challenges associated with using BPUE to estimate total mortality should be further investigated. The Working Group concurred that different vessels, masters and crew have different outcomes when it comes to bycatch and bycatch mitigation, and the challenge is how to identify those operators and what to do about this issue. Once anomalous behaviour is detected a range of approaches could be used to address this problems including targeted education, individual accountability via hierarchical decision rules where an operator moves to a harsher set of rules in the event of any breaches, and where good behaviour is rewarded with higher flexibility afforded to individual operators, as well as industry self-policing, fishery wide caps, and random placement of observers modelled to find individual outliers. The Working Group noted that this topic could be incorporated into the work planned on drivers and barriers (see Agenda item 13).

#### **RECOMMENDATION TO THE ADVISORY COMMITTEE**

It is recommended that the Advisory Committee:

1. Requests all Parties and collaborating Range States to use the revised bycatch reporting template to provide bycatch information as part of the next round of annual reporting, so that further discussions to finalise the reporting template may take place at SBWG9.

## **15. COORDINATION OF ACTIVITIES RELATING TO RFMOS**

**SBWG8 Doc 22** highlighted the importance of expanding the sources of data on implementation of seabird bycatch mitigation measures via port inspection. The planned review of the effectiveness of ICCAT Rec. 11-09 on seabird bycatch has been severely hampered by a lack of data, and the requirement to conduct an update assessment of the effectiveness of the mitigation measures by 2015 has not been met. Recognising that ICCAT has a scheme for minimum standards for inspection in port, the addition of elements relevant to seabird bycatch to this scheme would provide a valuable supplementary data source on the nature and extent of the use of various measures mandated under Rec. 11-09, through limited additional effort. Such an approach would be complementary to existing data sources. Data fields that could be used in ICCAT port inspection forms are suggested.

The Working Group discussed possible mechanisms to implement this approach in RFMOs and CCAMLR. Options mentioned included the modification of port inspection or trans-shipment inspection reports to include information on seabird bycatch mitigation measures.

Argentina recalled its general position regarding RFMOs, bearing in mind that there had been several references to RFMOs during some of the previous agenda items, which is that these organisations are not the only means of dealing with conservation in the high seas, and are conceivable in areas where the political and legal situations allow. Regarding some references made in the introductory part of **SBWG8 Doc 22**, Argentina recalled that it is not a Party to the 1995 New York Agreement on Straddling Fish Stocks and Highly Migratory Fish Stocks. In addition, Argentina indicated that it denied the Agreement the scope of customary law.

Furthermore, Argentina stated that it is not yet a party to the Agreement on Port State Measures to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing, also mentioned in the introduction to the document. Regarding the measures referred to by the International Commission for the Conservation of Atlantic Tunas made in **SBWG8 Doc 22**, the Working Group were informed that Argentina is considering accession to ICCAT.

**SBWG8 Inf 03** reports on activities by BirdLife International (through BirdLife South Africa) in implementing the seabird bycatch component of the Common Oceans Tuna Project since SBWG7. The paper also reports on planned activities of the project for 2017-2019. The overall aims of this component are (1) to ensure that the use of best practice seabird bycatch mitigation measures is enhanced and accelerated, and (2) to strengthen the capacity of national institutions to manage and conduct analyses of bycatch data and the effectiveness of bycatch mitigation measures, and facilitate a joint tuna RFMO assessment of the current bycatch mitigation measures.

**SBWG8 Inf 07** reports on a collaboration to assess seabird bycatch in the pelagic longline fleets operating in the South Atlantic and Indian Oceans. The project was conceived by researchers from several national fleets during the intersessional Meeting of the ICCAT Subcommittee on Ecosystems in 2016. The objectives of this process are (1) to determine the spatio-temporal patterns of seabird bycatch, (2) to estimate the seabird bycatch at the lowest possible taxonomic level, and (3) to gain knowledge on the performance of mitigation measures. A first workshop was conducted in June of 2017 in Montevideo, Uruguay, with the objective to better understand the data available in each country, and to define the levels, and spatial and temporal scales at which the analyses could be conducted.

**SBWG8 Doc 13** provided an update on the progress achieved since SBWG7 against the 2016-2017 framework for ACAP's engagement strategy with RFMOs and CCAMLR, subsequent to that reported in **SBWG7 Doc 15 Rev 1**. The strategy comprises three key areas in which ACAP should aim to engage RFMOs and CCAMLR to better understand the nature and extent of seabird bycatch and improve efforts to reduce bycatch to the lowest possible levels: (1) engage in RFMO and CCAMLR reviews of seabird bycatch levels and the effectiveness of conservation and management measures, (2) strengthen the seabird bycatch mitigation measures adopted by RFMOs and CCAMLR, and (3) strengthen RFMO and CCAMLR bycatch data collection and reporting requirements and the inclusion of appropriate seabird bycatch mitigation elements within RFMO and CCAMLR compliance monitoring, with inputs being focused on the development and presentation of ACAP-specific products. Progress was presented, together with an updated list of actions for the period 2017–2019, for discussion and endorsement by the Working Group and subsequent adoption by the Advisory Committee.

The Working Group supported the engagement strategy in general, providing some specific inputs to improve and update it. BirdLife International recommended that the proposed strategy would benefit from (1) a clearer description of the ACAP actions in the strategy, (2) the consideration of additional mechanisms to collect information on the use of seabird bycatch mitigation measures, such as through port inspections, and (3) inclusion of efforts to encourage data collection and reporting to include information on the percentage of vessels using different combinations of mitigation measures. The Working Group recommended that the scope of the engagement strategy should be expanded to also include other countries and organisations (in addition to ACAP Parties and the organisations listed SBWG8 Doc 13).

One of the proposals in **SBWG8 Doc 13** is to identify a mechanism to make available to RFMO and CCAMLR meetings relevant papers on bycatch mitigation research that have been submitted to ACAP as password protected papers. The Working Group agreed that this would be useful, and noted that the main reason for the use of password protected documents within ACAP is to ensure there are no copyright infringements in relation to published papers, or problems with the papers being considered for subsequent publication in journals. The Working Group agreed that the approach to be followed should include clarification in the ACAP document template for the authors to confirm that they would be satisfied with making the documents available in password protected sections of other websites with equivalent confidentiality rules, or for meeting participants to be provided with the passwords to access them from the ACAP website.

The Working Group Convenor recalled **SBWG4 Doc 26 Rev 1** (*Data collection requirements for RFMOs to improve knowledge of fishery impacts on ACAP-listed species*), and recommended that the document be updated and converted into a formal ACAP guideline document. The Working Group supported this recommendation, and further suggested that the updated guidelines should not be specifically focussed on RFMOs but aimed at observer programmes in general.

With respect to **SBWG8 Doc 13**, Argentina emphasized that CCAMLR is not an RFMO, in line with what was reflected in the final report of CCAMLR XXXI held in Hobart (Australia) from 23 October to 1 November 2012. Argentina indicated that CCAMLR is a very different conservation organization from an RFMO, and this important distinction in its mandate should be made more explicit in the ACAP documents as well as on the ACAP website. In that regard, Argentina suggested the amendment of the ACAP website in its Data Portal section, where CCAMLR is listed as an RFMO.

The Working Group noted the value of ACAP engaging with RFMOs and CCAMLR, but also emphasised the importance of engaging with ACAP Parties regarding fisheries in national jurisdictional waters. Indeed, the ACAP RFMO and CCAMLR engagement strategy would benefit if the ACAP Parties could be seen to be setting the example that we wish RFMOs and CCAMLR to follow. The Working Group also recommended that the Advisory Committee should discuss mechanisms to facilitate productive collaborations and coordination between ACAP Parties and collaborating Range States that are members of a particular RFMO and CCAMLR in the work of that RFMO or CCAMLR.

Noting the list of future potential activities in Table 1 of **SBWG8 Doc 13**, and the discussions reported above, the SBWG agreed that the key areas for engagement with RFMOs remain the following:

1. Engage in RFMO and CCAMLR reviews of seabird measures (including the ongoing reviews by ICCAT, IOTC, WCPFC, and the joint tuna seabird bycatch assessments).
2. Strengthen RFMO and CCAMLR measures (including the promotion of the ACAP best practice guidance).
3. Strengthen RFMO and CCAMLR bycatch data collection and reporting requirements, and the inclusion of appropriate seabird bycatch mitigation elements within RFMO and CCAMLR compliance monitoring. Focus ACAP inputs through the development of specific ACAP products (for example, advice on seabird bycatch indicators, seabird elements of electronic monitoring).

The proposed actions from Table 1 of **SBWG8 Doc 13** have been grouped according to these three areas and are presented in **ANNEX 6**.

### **RECOMMENDATIONS TO THE ADVISORY COMMITTEE**

It is recommended that the Advisory Committee:

1. Supports the implementation of the prioritised key areas for engagement with RFMOs and CCAMLR, as identified in **ANNEX 6**, and provide the resources necessary to achieve this.
2. Supports the updating of **SBWG4 Doc 26 Rev 1** and the conversion of this document into an ACAP guideline document outlining best practice data collection and reporting approaches for observer programmes.
3. Discuss approaches for ACAP Parties and collaborating Range States to collaborate and coordinate efforts at RFMOs and CCAMLR and between RFMOs and CCAMLR.

## **16. ELECTRONIC MONITORING**

**SBWG8 Inf 04** reported on an assessment of the ability of cameras to identify and quantify catch in Peru's small scale elasmobranch gillnet fishery by comparing its performance to observer reports. Cameras were installed across five boats with a total of 139 fishing sets monitored. The cameras were shown to be an effective tool for identifying catch, with > 90% detection rates for 9 of 11 species of elasmobranch caught. Detection rates of incidental catch were much lower (sea turtle = 73%; cetacean = 67%). The camera's ability to quantify target catch degraded with quantity and smaller species. They showed cameras can provide a time- and cost-effective method to monitor small-scale fisheries and can be used to overcome deficiencies in observer reports. However, cameras were not yet considered to be sufficient to effectively monitor bycatch.

**SBWG8 Inf 09** reported on the implementation of Electronic Monitoring (EM) by the Australian Fisheries Management Authority in three Australian Commonwealth fisheries in 2015. EM was introduced in the demersal longline and gillnet fisheries (which target shark and scalfish species), and pelagic longline fisheries (which target tuna and billfish species). The paper briefly outlined the objectives and operating principles Australia applies when using EM, and highlighted that EM technology is one component of the suite of fishery monitoring tools used in Commonwealth fisheries. Australia's experiences of logbook verification following the introduction of EM was presented, along with a brief discussion about how a review of EM footage helped to improve bycatch handling practices.

**SBWG8 Inf 22** reported on a collaborative electronic monitoring (EM) trial undertaken in a New Zealand demersal longline fishery. This approach is supported by government, commercial fishers, quota owners, and the Black Petrel Working Group (BPWG) who have undertaken to further develop electronic monitoring (EM) of seabird captures in this 'proof of concept' project in 2016–2017. This project follows on the results from a previous trial presented at SBWG7–(**SBWG7 Inf 18**). The overall purpose of the 2016–17 project is: 'to

assess the effectiveness of EM relative to human observation in detecting and recording seabird bycatch to species level.' Specifically, this project aims to improve the accuracy of the estimates of total captures, and capture rates, of seabirds (particularly Black Petrel and Flesh-footed Shearwater) in a demersal longline fishery.

**SBWG8 Inf 29** reported that the New Zealand government is developing a new commercial fisheries' reporting and monitoring system to provide verifiable, accurate, integrated and timely data on commercial fishing activity for fishery managers. The components comprise: a) Electronic fisheries catch and effort reporting by fishers, b) automated position reporting from fishing operations, and, c) electronic monitoring using cameras on fishing vessels. Electronic catch and effort reporting will be phased in from 1 October 2017 –1 April 2018, with electronic monitoring introduced from 1 October 2018–1 April 2020. This new system will provide an unprecedented understanding of the extent of seabird bycatch in New Zealand commercial fisheries, and significantly improved information to support the characterisation of bycatch risks. Over time, the larger and more robust information base emerging from the new reporting and monitoring system will enable better decision-making and more targeted management actions relating to seabird interactions with commercial fisheries.

**SBWG8 Inf 24** reports on the electronic monitoring (EM) projects underway in Alaskan fisheries including the development of protocols or systems which improve species identification. A trial in longline fisheries to identify the species of incidentally caught birds involved vessel crew voluntarily holding bycaught birds up to an EM camera for several seconds. To date, there is only one instance of this request having been carried out, indicating that this type of procedure involving crew would not be preferable. Progress has been made on automated image processing algorithms for species identification and length measurement, through the use of training image datasets. Machine learning algorithms, which can identify 43 groundfish species with 94% accuracy and collect length measurement within 1 cm of actual length, is being extended to seabird species. The use of EM to monitor compliance with deployment of streamer lines is also being studied, on large and small vessels. The initial results indicate that the use of EM to monitor compliance with streamer line performance standards is less successful on small vessels than large vessels, but these success rates should also be compared to rates reported by observers.

The Working Group recalled that AC9 endorsed advice developed at SBWG7 for Electronic Monitoring (EM) in relation to seabirds, and encouraged the further development of this advice into a guideline document for use by ACAP Parties and others in order to encourage the inclusion of seabird bycatch objectives within EM initiatives. The Working Group recommended that this approach should build on the recommendations (i–vii) agreed at SBWG7:

- i. The design of EM systems, and procedures governing the deployment of these systems, should ensure imagery is collected and stored in a manner that avoids external tampering and provides safe storage for subsequent review, and that analysis of the imagery is undertaken by independent reviewers.
- ii. EM systems should collect fine scale data about the day, time, and location of deployment and retrieval of fishing gear.

- iii. EM systems should provide imagery of a clear view of the fishing gear as it is set and retrieved and all setting and hauling events should be recorded by the system.
- iv. Imagery gathered by EM systems should be independently reviewed so that the programme and all aspects being monitored can be considered transparent and robust.
- v. EM systems should provide imagery that results in a clear and unobstructed view of any mitigation measures required by regulatory bodies and footage should be independently reviewed to verify that the mitigation is being deployed in accordance with specifications.
- vi. Seabirds brought onboard the vessel alive should be handled in accordance with ACAP's 'Hook Removal from Seabirds' advice.
- vii. Protocols for the identification of seabirds to species level should be developed and applied, where practicable. Such protocols may include, but should not be limited to, retaining the carcass or a sample of the feather or muscle for post-trip analysis. The protocol should incorporate those detailed in ACAP's 'Seabird Bycatch Identification Guide' where relevant.
- viii. Ideally, development of EM systems should include a pre-implementation phase in which stakeholders work together to address challenges for implementation, as well as a process for providing feedback on implementation

The Working Group also recalled that SBWG7 identified the following issues that should be included in the development of the EM guideline document:

- citations of the studies on which the best practice advice is based,
- advice on how data might be stored when distant water fleets remain at sea for long periods, and on protocols for data transfer back to the flag state for auditing (for example via transshipment and ports),
- advice on the role of vessel operators and crew in equipment maintenance, and advice on contingency planning for when faults in EM systems occur.

#### **RECOMMENDATION TO THE ADVISORY COMMITTEE**

It is recommended that the Advisory Committee:

1. Notes the planned intersessional work to further develop best practice guidelines for using electronic monitoring in relation to seabird bycatch, and encourages Parties and others to participate in this work.

## 17. RISK ASSESSMENT

### 17.1 New bycatch information for species/fisheries, including overlap of seabirds and fishing effort

**SBWG8 Inf 05** reported on a study that made use of extensive tracking data for Wandering Albatrosses (1990–2012) from breeding birds at South Georgia (Islas Georgias del Sur)<sup>1</sup> to investigate overlap with longline fishing effort reported to ICCAT. Using data from multiple years, the authors concluded that breeding females are at higher risk than males from all the main pelagic longline fleets in the south-west Atlantic. An overlap index (based on fishing effort and bird distributions) correlated positively with numbers of banded birds reported dead on longliners, indicating that the metric was a good proxy of bycatch risk. The consistent sex bias in overlap across years, and the likely resulting sex-biased mortality, could account for lower adult female survival rate at the colony. The risk from fisheries changed seasonally; both sexes overlapped with pelagic longline effort during incubation (January–March), and particularly during post-brood chick-rearing (May–December), whereas overlap was negligible during brooding (April). The highest percentage of overlap was with the Taiwanese fleet, then vessels flagged to Brazil, Uruguay, Spain, Japan and Portugal. Females were consistently at greatest risk in the Brazil-Falklands (Malvinas)<sup>1</sup> Confluence (BFC) region, whereas males showed lower and more variable levels of overlap with fisheries from 35 to 45°S. The results have important implications for management of ICCAT longline fisheries and conservation of this highly threatened albatross population.

Sexual segregation at sea often leads to unequal overlap with different fisheries, resulting in sex-biased bycatch, exacerbating the impact on a population level. In great albatrosses (*Diomedea* spp.), males (the larger sex) tend to spend more time at higher latitudes than females. As a consequence, larger numbers of females are caught in pelagic longline fisheries in subtropical and temperate areas. Although this has been shown for *Diomedea exulans*, it has not been confirmed for all great albatross species. **SBWG8 Inf 06** reported on the degree of sexual size dimorphism (SSD) in Royal Albatrosses (*D. epomophora* and *D. sanfordi*). Discriminant functions developed to determine species and sex showed substantial SSD in both species. Based on all birds identified (n = 128), bycatch in the Uruguayan pelagic longline fishery was female-biased, indicating sexual segregation at sea. The discriminant functions presented enable species and sex to be identified, providing critical data for future bycatch assessments.

**SBWG8 Doc 17** presented the first global assessment of seabird bycatch by sex and age, investigating the effects of region and fishing method. Bycatch was highly biased by sex (65% of 123 samples) and age (92% of 114 samples), with the majority of samples skewed toward males and adults. Bycatch of adults and males was higher in subpolar regions, whereas there was a tendency for more immatures and females to be killed in subtropical waters. Fishing method influenced sex- and age-ratios only in subpolar regions. Sex- and age-biases are therefore common features of seabird bycatch in global fisheries that appear to be associated largely with differences in at-sea distributions. This unbalanced mortality influences the extent to which populations are impacted by fisheries, which is a key consideration for at-risk species. The paper recommends further tracking studies to improve knowledge of the relative overlap of different sex and age classes of species, and hence susceptibility to bycatch, collecting data on sex, age and provenance of bycaught birds by fisheries observers, and including sex-

specific effects when investigating the influence of fisheries on life history traits of albatrosses and petrels to improve understanding on the impact of fisheries on population dynamics.

The Working Group noted the relevance of these papers (**SBWG8 Inf 05**, **SBWG8 Inf 06**, **SBWG8 Doc 17**) to improving knowledge of the impact of sex and age-specific bycatch on populations of ACAP species. The Working Group encouraged Parties and others to account for age and sex class differences by ensuring tracking studies include individuals of different age and sex classes, that age and sex class information is collected from bycaught birds in observer programmes, and that sex-specific effects are included in seabird risk and impact assessments.

**SBWG8 Inf 10** compiled distributional records obtained from non-systematic (pelagic birdwatching) and systematic (fishery monitoring) records to describe the occurrence of, and threats to, Waved Albatrosses (*Phoebastria irrorata*) off Chile and in the Southeast Pacific. Sightings were related to a variety of factors such as season and El Niño proxies such as the Southern Oscillation Index (SOI). A total of 13 sightings of Waved Albatrosses are described, of which 10 were made in the non-breeding period (December to April). Waved Albatrosses were seen 4,391 km south of the Galapagos Islands (38° S) and 920 km west of the South American coast (79° W), and were associated with industrial pelagic longline and demersal trawl fisheries. Although there were no records of bycatch, the observation of individuals feeding on discards and offal suggests a potential risk of mortality for this species.

The Working Group welcomed this paper and the new approaches used to improve knowledge on the at-sea distribution of ACAP-listed species, and encouraged Parties to consider the approach outlined in the paper, or other novel approaches, to assist in refining the risk to albatrosses and petrels in fishing operations.

South Georgia (Islas Georgias del Sur)<sup>1</sup> is an important breeding site for four ACAP species, yet these populations have undergone major declines, largely due to bycatch in pelagic and demersal longline and trawl fisheries. **PaCSWG4 Doc 10** presents an analysis of tracking data for four populations of ACAP species (Wandering, Black-browed and Grey-headed Albatrosses and White-chinned Petrels) and calculates overlap with pelagic and demersal longline and trawl fisheries in the Southern Ocean for the period 1990-2009. Using an unusually comprehensive tracking dataset from all major life-history stages (including juvenile stages), weighted according to the proportion of the population they represented (based on demographic models), the authors were able to generate population-level distributions by month. Hotspots of overlap with pelagic longline fisheries were in the southwest Atlantic (Brazil-Falklands (Malvinas)<sup>1</sup> Confluence region, southeast Atlantic (Tristan da Cunha eastwards to the Benguela Upwelling) and the southwest Indian (north of the Prince Edward Islands) oceans, and with demersal longline and trawl fisheries in the southwest Atlantic, and Patagonian Shelf) and southeast Atlantic Ocean (Benguela Upwelling). The areas identified largely match areas where high rates of bycatch have been recorded, emphasizing the need for use of bycatch mitigation measures. The paper supported the recommendations of **SBWG8 Doc 17** for further tracking studies and collection of age-class information from bycatch individuals.

In order to strengthen and co-ordinate efforts to improve the conservation status of Wandering, Black-browed and Grey-headed Albatross populations, the UK has recently developed, and is in the process of implementing, species-specific Conservation Action Plans for the populations of these species breeding at South Georgia (Islas Georgias del Sur)<sup>1</sup> (**PaCSWG4**

**Inf 30**). These plans serve as a framework to guide actions required to improve the conservation status of these populations. The plans recognise that due to their wide-ranging nature, the conservation status of these species and populations will only be achieved through a co-ordinated international approach to mitigate the threats. Consequently, the Plans have been developed with a range of stakeholders and serve to facilitate a collaborative process of implementation. The implementation period for the Plans is 2016-2020, which has been set to coincide with the time frame for the Biodiversity Action Plan for South Georgia & the South Sandwich Islands (Islas Georgias del Sur e Islas Sándwich del Sur)<sup>1</sup>. However, given the long-term nature of the overall goal (to achieve and maintain a favourable conservation status of all three populations), it is anticipated that the plans will need to be extended beyond this five-year period.

The Working Group thanked the authors of **PaCSWG4 Doc 10** and **PaCSWG4 Inf 30** on the analyses presented and the Conservation Action Plans developed for these ACAP High Priority Populations, which were considered to be valuable contributions towards understanding and prioritising their conservation needs. The Working Group encouraged other Parties to develop conservation plans for their ACAP High Priority Populations.

Regarding document **PaCSWG4 Doc 10**, the Argentine delegation acknowledged the effort of scientists to use the double nomenclature and the footnote, in line with Resolution 2.9, in parts of the presented document. On the other hand, Argentina expressed objections regarding part of the information presented in the terms indicated in **ANNEX 7** of this report.

The Argentine Republic objected to the presentation of document **PaCSWG4 Inf 30**, in the terms indicated in **ANNEX 7** of this report.

The United Kingdom replied to these points as indicated in **ANNEX 8** of this report.

**PaCSWG4 Inf 24** reports on the use of distribution data for all globally threatened seabirds breeding in Tristan da Cunha to provide guidance on where Marine Protected Areas (MPAs) could be established in the South Atlantic Ocean. This was achieved by combining year-round tracking data from six species using the systematic conservation-planning tool, 'Zonation', to delineate areas that would protect the largest proportion of each population. The areas used most intensively varied among species and seasons. Combining the sites used by all six species suggested that the most important areas of the South Atlantic are located south of South Africa, around the central South Atlantic between 30°S and 55°S, and near South America. The longline fishing effort in these intensively used areas is around 11 million hooks on average each year, highlighting the need for improved monitoring of seabird bycatch rates and the enforcement of compliance with bird bycatch mitigation requirements by fisheries. There was no overlap between the identified areas and any of the existing MPAs in the South Atlantic.

The Working Group noted that Papers **PaCSWG4 Doc 10**, **PaCSWG4 Inf 30** and **PaCSWG4 Inf 24** all showed high levels of overlap between commercial fisheries and high-priority ACAP populations. The degree of overlap with Asian pelagic distant water fleets was noted and considered useful information in updating the RFMO engagement strategy. It was also noted that there was a high degree of overlap shown between the species of interest and the fisheries of some ACAP Parties.

**SBWG8 Inf 30** provided an update to the time series of New Zealand's estimates of total seabird bycatch to include the 2015–16 fishing year. The most recent set of extrapolations have utilised a simplified extrapolation (strata-based ratio) method that is consistent across all

seabird species. This approach is stratified by areas and allows for a random year effect for larger vessels (as these have been observed at a higher rate). These in general compared reasonably well with previous estimates and the quantitative seabird risk assessment. New Zealand's quantitative risk assessment which underpins New Zealand's NPOA-Seabirds was also rerun in 2016, and the changes in the methodology applied and the resulting risk scores are discussed.

Brazil reported on the outcome of an ecological risk assessment for six albatross and petrel species prone to incidental mortality in fishing operations of the Itaipava fleet, Espírito Santo, Brazil (**SBWG8 Inf 28**). This approach was needed to take into account spatial distribution of this fleet and its overlap with endangered albatrosses and petrels, the use of a variety of fishing gear and previous records of seabird bycatch, the lack of at-sea observer data, and poor compliance with the current regulations mandating the use of seabird mitigation measures below 20° S. Five of the six studied species were assigned levels of vulnerability "intermediate-high" or "high" to pelagic longline and handline fishing methods. This is of concern, taking into account that 600 vessels compose the Itaipava fleet and that endangered species were the most vulnerable, such as the *Diomedea dabennena*, *D exulans*, *Thalassarche chlororhynchos*, *Procellaria conspicillata* and *P. aequinoctialis*.

**SBWG8 Doc 07** presented an update on a project that aimed to extend the risk assessment framework applied to main fishing methods within the New Zealand Exclusive Economic Zone (EEZ) to a broader set of fisheries. The methodology has been applied to public tuna RFMO fishing data throughout the southern hemisphere for the 26 ACAP listed seabird species that breed in the southern hemisphere. This version of the risk assessment is updated from that presented to CCSBT ERS Working Group in March 2017 due to the inclusion of effort data from north of 25° S from WCPFC. The paper is a report on progress, and the data used in this initial iteration contain some deficiencies. In particular, the vulnerability of seabirds to capture was estimated using New Zealand data only; the seabird distributions were simplistic, and effort data not reported to RFMOs could not be included. The analysis will be updated as improved data becomes available. New Zealand is seeking collaborators to work with to improve this risk assessment and is encouraged by the offers from Japan and Australia to do so.

The Working Group thanked the authors of documents **SBWG8 Inf 30**, **SBWG8 Inf 28** and **SBWG8 Doc 07**, which provide a valuable contribution to the development of approaches for assessing the risk to seabirds of bycatch in fisheries. It was noted that for these studies, collaboration between Parties with respect to the provision of data will greatly improve the estimates and hence the usefulness of the risk assessments. This was particularly the case for the southern hemisphere risk assessment project (**SBWG8 Doc 07**) which is being led by New Zealand, and all Parties were encouraged to support this initiative. In addition to fishery data, access to tracking datasets will be invaluable. Other suggestions to assist in refining estimates included weighting the density of seabirds by seasons, which has been used successfully by the South Pacific Commission and the WCPFC recently for the evaluation of bycatch mitigation for marine turtles (see <https://www.wcpfc.int/node/29568>).

The Working Group noted that many of the risk assessments often relied upon very limited data, and the use of complex statistical modelling to derive estimates of annual potential fatalities (bycatch) may lead to greater confidence being placed in the estimate than was warranted. The Working Group noted that caution needed to be applied in interpreting the results of such analyses, and the real value of the assessments was in permitting evaluation

of comparative risks of fisheries to ACAP species, and highlighting high-risk fishing areas and management zones.

#### **RECOMMENDATIONS TO THE ADVISORY COMMITTEE**

It is recommended that the Advisory Committee:

1. Encourages Parties to collaborate in regional and global assessments of the impact of fisheries on seabirds.
2. Encourages the collection of data on sex, age and provenance of bycaught birds by fisheries observers to identify regions and fleets where bycatch is more likely to result in population-level impacts, and to improve targeting of bycatch mitigation and monitoring of compliance. This objective should be included in the proposed ACAP guideline document on best practice data collection and reporting approaches for observer programmes (see Agenda item 15)
3. Encourages the inclusion of sex-specific effects when investigating the influence of fisheries on life history traits of albatrosses and petrels to improve our understanding on the impact of fisheries on their population dynamics
4. Continues to emphasize the need for use of bycatch mitigation measures by fisheries in national and international waters within the distributions of ACAP species, and especially high priority populations

#### **18. DELIBERATE TAKE OF ACAP SPECIES**

There were no Working Group documents or Information Papers submitted for this agenda item. However, the Convenor noted that the SBWG has previously been tasked with reviewing the knowledge of the extent of intentional take of ACAP species at sea, and that this remains an action on the Work Programme. The Working Group recognised the difficulty in obtaining estimates of intentional take of seabirds at sea, and in addressing this threat, but agreed that this work should be progressed. It was reported that BirdLife is currently collating photographs, taken by fisheries observers and others, of birds that have been mutilated. The Working Group noted that although this is a useful exercise, it is separate from intentional take, and that the ACAP review should focus on the latter. Several Parties offered to work on a review of available knowledge of intentional take and report this information to SBWG9.

#### **RECOMMENDATION TO THE ADVISORY COMMITTEE**

It is recommended that the Advisory Committee:

1. Notes the planned intersessional work to collate current knowledge of the nature and extent of deliberate take of ACAP species at sea, and encourages Parties and others to participate in this process by providing relevant information for the review.

## 19. FAO IPOA/NPOA-SEABIRDS

### 19.1 Review and status of implementation of NPOA-Seabirds

Two papers were provided to the meeting, **SBWG8 Doc 11**: Follow-up on the implementation of the NPOA-Birds of the Argentine Republic and **SBWG8 Inf 21**: Implementation and review of New Zealand's 2013 NPOA-Seabirds.

Argentina introduced **SBWG8 Doc 11** which describes the participative process used to implement their NPOA Seabirds. This process has been used to establish rules to ensure the use of streamer lines on the freezer trawl fleet from 2018.

Argentina also mentioned two further papers on the implementation of their NPOA-Seabirds, which Argentina will present at SBWG9 in 2019. One paper describes long-term changes in Black-browed Albatross diet following an expansion of fisheries. There was a shift in the diet of the birds, primarily due the emergence of discards as an abundant and predictable food source. The second paper characterises seabird assemblages attending pelagic trawlers and analyses interactions with fishing activities from 2011 to 2013. Both documents can be made available upon request to any member of SBWG.

New Zealand's review of its NPOA (see **SBWG8 Inf 21**) will be completed in 2018. Brazil indicated that their NPOAs is currently being reviewed, and Australia advised that a NPOA-Seabirds is under development..

In response to Action 3.1 in the 2016–2018 work programme, a paper was presented to SBWG7 (**SBWG7 Doc 13**) that provided a global review of the implementation of the IPOA by nations. This paper has been partly updated following comments at SBWG7. It was also noted that there was little evidence that the few NPOAs that had been drawn up had led to a reduction in bycatch. The authors of the paper are in the process of preparing an updated version of the paper for submission to a forthcoming meeting of FAO COFI, and therefore invited any updates that should be included in the review, especially in relation to the effectiveness of existing NPOAs in reducing bycatch of seabirds.

#### RECOMMENDATIONS TO THE ADVISORY COMMITTEE

It is recommended that the Advisory Committee:

1. Encourages ACAP Parties that do not have a National Plan of Action – Seabirds (NPOA-Seabirds) to prepare and adopt a plan that fully complies with FAO's Technical Guidelines.
2. Encourages Parties with an existing NPOA-Seabirds to review and strengthen them, as applicable, to ensure full compliance with FAO's Technical Guidelines.
3. Encourages Parties to provide case studies to the Working Group demonstrating successes and highlighting challenging areas, where additional work is required and where collaboration or advice would be welcome.
4. Encourages Parties to participate in the process underway to conduct a global review of the effectiveness of NPOA-Seabirds to reduce seabird bycatch.

## 20. LISTING OF SPECIES ON ANNEX 1 OF THE AGREEMENT

There were no Working Group documents or Information Papers submitted for this agenda item. The Working Group recalled that a couple of issues were identified during the review of the sea-based listing criteria and discussed at SBWG7, and recommended that it would be useful to investigate these further in the intersessional period leading up to AC11. These include the need for clarification of the definition and scoring of at-sea threats, and the overlap between some of the categories.

### RECOMMENDATION TO THE ADVISORY COMMITTEE

It is recommended that the Advisory Committee:

1. Endorses further review work on the listing criteria for ACAP species by all the Working Groups.

## 21. PRIORITY POPULATIONS FOR CONSERVATION MEASURES

The Secretariat presented an update of work in progress to update the priorities for at-sea threats to ACAP-listed species. The purpose of, and approach used in, this process was described in **MOP4 Inf 06 Rev 1**. The tables considered were updates to those tables provided as Annex 2 of **AC8 Doc 14 Rev 2** and subsequently in **MoP5 Doc 15 Rev 1**. It was noted that while some records had been updated or added, relevant fishery experts within the Working Group were encouraged to review the remaining inputs ahead of finalising these tables for consideration at MoP6 to ensure the database entries are complete and accurate.

It was noted that there were very few records of artisanal or small-scale fisheries in the prioritisation table. This was due to the lack of data to quantify many of these fisheries, and the focus of the prioritisation had been on larger industrial fisheries. It was hoped that over time, as more data are obtained, this prioritisation approach could be expanded to include more artisanal and small-scale fisheries.

### RECOMMENDATION TO THE ADVISORY COMMITTEE

It is recommended that the Advisory Committee:

1. Encourages relevant fishery experts from Parties and other organisations to review the fisheries in the prioritisation table and provide any inputs to the Secretariat by 30 November 2017, so that these can be included in the prioritisation exercise undertaken for MoP6.

## 22. ACAP FUNDED PROGRAMMES

There were no Working Group documents or Information Papers submitted for this agenda item. The Advisory Committee Chair reported briefly that the matter of the suspension since 2015 of the ACAP Small Grants and Secondment Programmes, and possible alternative approaches to resolve the obstacles and resume a funding mechanism (**AC10 Doc 20**), will be discussed at AC10.

## 23. TOOLS AND GUIDELINES

### 23.1 Updates and new guidelines

**SBWG8 Inf 15** addressed the potential impacts of bycatch on ACAP populations, particularly identifying seabirds to species level. Within the wandering albatross species group, *Diomedea exulans*, *D. dabbenena*, *D. antipodensis gibsoni* and *D. antipodensis antipodensis* overlap in their at-sea distributions. This study determined species of bycaught birds in this group from bill length measurements in the laboratory and compared the findings with molecular methods (DNA analysis). Results suggested that the bill length method has the potential for application in Japan's and, by inference, other observer programmes. This method has now been introduced as standard in Japan's Observer Programme.

The Working Group agreed that the study provided a valuable tool to help improve the quality of seabird bycatch data, and commended Japan for its efforts to address this issue, and for including the tool into its observer programme. The Working Group encouraged further work in this area, and collaborations among researchers working at colonies to help develop tools for the improved identification of species of bycaught birds. New Zealand reported it has an extensive database of bill length and other morphometric measurements from colonies that could be used for such purposes, and would be happy to collaborate in further developing identification guidance based on these data.

**PaCSWG Inf 23** reported efforts to monitor the impact of fisheries through on-board observers (OBO) is common practice but that the opportunity to better measure impacts and gain meaningful knowledge from seabird carcasses recovered from fisheries bycatch is currently under-utilized. The study suggests proper sample collection protocols and minimum training would mean carcasses from bycatch events could not only provide valuable information on the overall health condition, pollution loads, and disease exposure for many species, but also on population-level demographics, distribution patterns, genetics, and feeding habits, among others.

The Working Group considered that as progress is made in developing materials for observer programs that Parties should draw on these guidelines to improve consistency across observer programs.

The Secretariat provided an update on the seabird bycatch identification guide for use by observers produced with the collaboration of the Japanese National Research Institute of Far Seas Fisheries (NRIFSF) in **SBWG8 Doc 09**. The most recent version, updated in August 2015, is available in English, French, Spanish, Portuguese, Traditional Chinese and Simplified Chinese. Korean and Japanese versions are still in the editing process. The identification guide has been very well received in the RFMO, CCAMLR and seabird conservation communities, and for the Guide to remain relevant and useful it now needs revision and re-issue. This was

originally proposed as a suitable secondment project but has not proceeded due to the suspension of the Secondments Programme. An alternative model of progressing this important task is now sought.

The Working Group considered that all processes linked to the Agreement rely on the correct identification of bycaught birds and so recognised the importance of the ID guide as recommended by the document. How this may be taken forward would be discussed in the Advisory Committee, but it was suggested that it should be supported by core funding. In addition to the human resources required, this would require financial resources, including for the translation of the updates into other languages. The guide is considered a priority but the Working Group also noted the need to recognise the considerable number of other priorities.

The expectation of the Working Group was that at some point minimal further additions / editions will be needed to the identification guide and highlighted the importance of making sure that all corrections and necessary updates are included in the revision, to avoid the need for extensive further reviews. Working Group members who were interested in being involved with this task were encouraged to contact the Secretariat.

Guidelines for mitigating bird strikes associated with artificial lights was discussed in **PaCSWG Inf 26**. The Working Group were not aware of interactions with artificial lights being a major problem for ACAP species. However, it was noted Antarctic tour ships had experience with mitigating the impacts associated with ship lights, and that some general reviews and guideline information has been developed. Links to other (external) sources of information could be included on the ACAP website. The Working Group noted that this matter is also due to be discussed by PaCSWG4, and that based on feedback from both Working Groups, the Advisory Committee should consider how best to proceed: to provide links to available external resources, or to develop ACAP-specific guidelines.

## 23.2 Mitigation Fact Sheets

**SBWG8 Doc 08** reported that SBWG7 noted that there is considerable duplication in the content of the ACAP Review and Best Practice Advice documents on the one hand and the Mitigation Fact Sheets on the other. Rather than integrating these two documents, AC9 decided that they should be retained as separate documents with appropriate links between them. The AC further decided that when the Mitigation Fact Sheets are next reviewed, they should be simplified to better support practical implementation of bycatch mitigation measures. Updates to the recommended specifications for line weighting agreed at SBWG7 and AC9, and the new factsheet required for hook shielding devices provided an opportunity to trial new, simplified designs to improve the utility of the fact sheets for stakeholder outreach. Three proposed new designs were presented for consideration and the Working Group agreed the A4 design (SBWG8 Doc 08, Annex 1) was the most suitable of the different design proposals with the following observations:

- it would be good to include more colour;
- the use of bullet points to simplify presentation of information for fishers' i and aid translation
- the design should focus exclusively on albatrosses and petrels, and refrain from using other species, such as terns
- the diagram of weights would be improved by more realistic impression of distance between the weight and hook

- gender free language should be used (e.g. amend motherline mainline)
- Hook shielding devices should exclude the problems and troubleshooting section until any of these problems have been demonstrated.
- The minimum of 10 m should be used, rather than 10-15 m.

Comments on the text for the new hook shielding devices led to a discussion on the relative degree of certainty of mitigation devices using empirical data. However, the agenda item on fact sheets was not considered the appropriate place to discuss the issue, which will be discussed further under the agenda item dealing with Best Practice mitigation for pelagic longline fisheries at SBWG9.

The Working Group agreed that subject to the availability of funding, the full suite of Mitigation Fact Sheets should be converted into the new simplified format, accounting for the suggestions provided above and informed by feedback from outreach testing with fishing crews. The Working Group recommended that the update to the new format could be done in a phased manner, starting with the modifications to the two sheets that have already been developed (line weighting and hook-shielding devices for pelagic longline fisheries), followed by the bird scaring line fact sheets for pelagic and demersal longline fisheries, other fact sheets of ACAP Best Practice Measures, and the remainder. The Working Group thanked Rory Crawford for his work in facilitating the development of the new designs.

The Convenor requested that any detailed inputs on the Fact Sheets should be forwarded to him as soon as possible so that these can be passed on to BirdLife International and the design team.

#### **RECOMMENDATIONS TO THE ADVISORY COMMITTEE**

It is recommended that the Advisory Committee:

1. Endorses updating the ACAP Seabird Bycatch Identification guide, and allocates core funding to undertake the work.
2. Supports the process to update the Mitigation Fact Sheets to the new simplified format, and allocates funding to achieve this aim.
3. Considers how best to make available recommendations and guidelines for mitigating bird strikes associated with artificial lights: to provide links to available external resources, or to develop ACAP-specific guidelines.

## **24. SBWG WORK PROGRAMME**

### **24.1 Work Programme 2016-2018**

Tasks relevant to Seabird Bycatch in the 2016-2018 Advisory Committee Work Programme approved by MoP5 and updated at AC9 (**AC10 Doc 16**) were reviewed following discussions at SBWG8 for consideration by the Advisory Committee.

## **24.2 Work Programme 2019-2021**

The Seabird Bycatch component of the 2019-2021 Advisory Committee Work Programme (**AC10 Doc 17**) was developed based on the Advisory Committee Work Programme for 2016-2018 and following discussions at SBWG8. The relevant tasks were presented for consideration by the Advisory Committee.

## **25. ADOPTION OF THE REPORT**

This report has been prepared for the consideration of the Advisory Committee.

## **26. CLOSING REMARKS**

The Convenor thanked the Vice-convenors for their assistance, Members and Observers for their valuable contributions to the meeting and in developing the report, and the authors of the papers submitted for consideration. The Convenor also thanked the hosts, New Zealand, and the ACAP Secretariat for providing an excellent venue and facilities for the meeting. The Convenor thanked the ACAP Science Officer, Wiesława Misiak, and the Executive Secretary, Marco Favero, for their valuable work in support of the Working Group, both intersessionally and during the meeting. Sandra Hale and Cecilia Alal were gratefully acknowledged for their interpretation services during the meeting.

## ANNEX 1. LIST OF SBWG8 MEETING PARTICIPANTS

<b>SBWG Members</b>	
Anton Wolfaardt	SBWG Convenor, United Kingdom
Igor Debski	Department of Conservation, New Zealand (Vice-convenor)
Sebastián Jiménez	Dirección Nacional de Recursos Acuáticos, Uruguay (Vice-convenor)
Luis Adasme	Instituto de Fomento Pesquero, Chile
Barry Baker	Institute of Marine and Antarctic Studies, Australia
Jonathon Barrington	Department of the Environment and Energy, Australian Antarctic Division, Australia
Nigel Brothers	Humane Society International
Johannes de Goede	Department of Agriculture, Forestry and Fisheries, South Africa
Andrés Domingo	Dirección Nacional de Recursos Acuáticos, Uruguay
Eric Gilman	Hawaii Pacific University, USA
Elisa Goya	Instituto del Mar del Peru (IMARPE), Peru
Gabriela Navarro	Subsecretaría de Pesca y Acuicultura - Ministerio de Agroindustria, Argentina
Tatiana Neves	Projeto Albatroz, Brazil
Ed Melvin	Washington Sea Grant, USA
Graham Robertson	Australia
Mark Tasker	United Kingdom
Barbara Wienecke	Department of the Environment and Energy, Australian Antarctic Division, Australia
Oliver Yates	BirdLife International
<b>Advisory Committee Representatives and Advisors</b>	
Edward Abraham	Advisor, New Zealand
Mariana Alvarez Rodriguez	Representative, Argentina
James Andrew	Advisor, New Zealand
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Dave Goad	Advisor, New Zealand
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Jo Lambie	Advisor, New Zealand
Verónica López	Advisor, Chile
Jennifer Matthews	Advisor, New Zealand
Janice Molloy	Advisor, New Zealand
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Richard Phillips	Advisor, United Kingdom/ PaCSWG Co-convenor
Kris Ramm	Advisor, New Zealand
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Cristián Suazo	BirdLife International
Claire Wallis	Advisor, Australia
Nathan Walker	Advisor, New Zealand/ AC Chair
Richard Wells	Advisor, New Zealand
Oliver Wilson	Advisor, New Zealand
<b>Observers</b>	
Karen Baird	BirdLife International
Beth Flint	U.S. Fish and Wildlife Service, USA
Hannes Holtzhausen	MFMR, Namibia
Yukiko Inoue	National Institute of Far Seas Fisheries, Japan
Mi Ae Kim	NOAA Fisheries, USA
Hannahrose Nevins	American Bird Conservancy
Sachiko Tsuji	National Institute of Far Seas Fisheries, Japan
<b>ACAP Secretariat</b>	
Marco Favero	Executive Secretary
Wiesława Misiak	Science Officer
John Cooper	Information Officer
<b>Interpreters</b>	
Sandra Hale	OnCall Latam
Cecilia Alal	OnCall Latam
<b>Non-attending SBWG members</b>	
Joanna Alfaro-Shigueto	Pro-Delphinus, Peru
Jorge Azócar	Instituto de Fomento Pesquero, Chile
Paul Brickle	University of Aberdeen, United Kingdom
Svein Løkkeborg	Institute of Marine Research, Norway
Jeffrey Mangel	Pro-Delphinus, Peru
Ken Morgan	Environment and Climate Change Canada, Canada
Alexandre Marques	Instituto Brasileiro do Meio Ambiente e dos Recursos Naturais Renováveis
Juan Pablo Seco Pon	Instituto de Investigaciones Marinas y Costeras, CONICET-UNMDP, Argentina
Cleo Small	BirdLife International
Roberto Sarralde	Instituto Español de Oceanografía, Spain

## ANNEX 2. REVISED ACAP BEST PRACTICE SEABIRD BYCATCH MITIGATION CRITERIA AND DEFINITION

 <p>Agreement on the Conservation of Albatrosses and Petrels</p>	<h3>Best Practice Seabird Bycatch Mitigation Criteria and Definition</h3> <p><i>Reviewed at the Tenth Meeting of the Advisory Committee Wellington, New Zealand, 11 -15 September 2017</i></p>
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### BEST PRACTICE SEABIRD BYCATCH MITIGATION CRITERIA AND DEFINITION

ACAP's Advisory Committee endorsed the following definition of Best Practice to be used when developing advice on mitigation measures to reduce seabird bycatch:

- i. Individual fishing technologies and techniques should be selected from those shown by experimental research to significantly<sup>2</sup> reduce the rate of seabird incidental mortality<sup>3</sup> to the lowest achievable levels.* Experience has shown that experimental research comparing the performance of candidate mitigation technologies to a control of no deterrent, where possible, or to status quo in the fishery, yields definitive results. Analysis of fishery observer data after it has been collected on the relative performance of mitigation approaches are plagued with a myriad of confounding factors. Where a significant relationship is demonstrated between seabird behaviour and seabird mortality in a particular system or seabird assemblage, significant reductions in seabird behaviours, such as the rate of seabirds attacking baited hooks, can serve as a proxy for reduced seabird mortality. Ideally, when simultaneous use of fishing technologies and practices is recommended as best practice, research should demonstrate significantly improved performance of the combined measures.
- ii. Fishing technologies and techniques, or a combination thereof, **should** have clear and proven specifications and minimum performance standards for their deployment and use.* Examples would include: specific bird scaring line designs (lengths, streamer length and materials; etc.), number (one vs. two) and deployment specifications (such as aerial extent and timing of deployment), night fishing defined by the time between the end of nautical dusk and start of nautical dawn, and line weighting configurations specifying mass and placement of weights or weighted sections.
- iii. Fishing technologies and techniques **should** be demonstrated to be practical, cost effective and widely available.* Commercial fishing operators are likely to select for seabird bycatch

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<sup>2</sup> Any use of the word 'significant' in this document is meant in the statistical context

<sup>3</sup> This may be determined by either a direct reduction in seabird mortality or by reduction in seabird attack rates, as a proxy

reduction measures and devices that meet these criteria including practical aspects concerning safe fishing practices at sea.

- iv. *Fishing technologies and techniques should, to the extent practicable, maintain catch rates of target species.* This approach should increase the likelihood of acceptance and compliance by fishers.
- v. *Fishing technologies and techniques should, to the extent practicable not increase the bycatch of other taxa.* For example, measures that increase the likelihood of catching other protected species such as sea turtles, sharks and marine mammals, should not be considered best practice (or only so in exceptional circumstances).
- vi. *Minimum performance standards and methods of ensuring compliance should be provided for fishing technologies and techniques, and should be clearly specified in fishery regulations.* Relatively simple methods to check compliance should include, but not be limited to, port inspections of branch lines to determine compliance with branch line weighting, determination of the presence of davits (tori poles) to support bird scaring lines, and inspections of bird scaring lines for conformance with design requirements. Compliance monitoring and reporting should be a high priority for enforcement authorities.

### ANNEX 3. REVISED ACAP SUMMARY ADVICE FOR REDUCING THE IMPACT OF DEMERSAL LONGLINE FISHERIES ON SEABIRDS<sup>4</sup>

 <p>Agreement on the Conservation of Albatrosses and Petrels</p>	<h2>ACAP SUMMARY ADVICE FOR REDUCING THE IMPACT OF DEMERSAL LONGLINE FISHERIES ON SEABIRDS</h2> <p><i>Reviewed at the tenth Meeting of the Advisory Committee Wellington, New Zealand, 11 – 15 September 2017</i></p>
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#### BEST PRACTICE MEASURES

The most effective measures to reduce incidental catch of seabirds in demersal longline fisheries are:

- use of an appropriate **line weighting regime** to maximise hook sink rates close to vessel sterns to reduce the availability of baits to seabirds.
- actively deterring birds from baited hooks by means of **bird scaring lines**, and
- setting at **night**.

Where line weighting is integral to the fishing gear, compared to bird scaring lines and night setting, has the advantage of being more consistently implemented, hence facilitating compliance and port monitoring. Further measures include bird deterrent curtains at the hauling bay, responsible offal management and avoiding peak areas and periods of seabird foraging activity. Current knowledge indicates that the Chilean, or trotline, system with appropriate line weighting and branch line length, will prevent albatross and petrel mortality and is considered best practice mitigation for demersal longline fishing.

It is important to note that there is no single solution to reduce or avoid incidental mortality of seabirds, and that the most effective approach is to use the measures listed above in combination.

Best practice mitigation measures for demersal longline fisheries are listed individually below; The recommendations are categorised into general best practice measures (1), followed by best practice measures for line setting (2) and line hauling (3) operations.

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<sup>4</sup> Note, only the summary advice component of the document is presented here, and not the review section.

## **1. BEST PRACTICE MEASURES - GENERAL**

### **1.1 Area and seasonal closures**

The temporary closure of important foraging areas (e.g. areas adjacent to important seabird colonies during the breeding season when large numbers of aggressively feeding seabirds are present) has been a very effective mechanism to reduce incidental mortality of seabirds in fisheries in those areas.

## **2. BEST PRACTICE MEASURES - LINE SETTING**

### **2.1 Line weighting**

Lines should be weighted to get the baited hooks rapidly out of the range of feeding seabirds. Weights should be deployed before line tension occurs to ensure that the line sinks rapidly out of reach of seabirds.

### **2.2 Weighted lines for Spanish gear**

The use of steel weights are considered best practice. The mass should be a minimum of 5kg at 40m intervals.

Where steel weights are not used, longlines should be set with a minimum of 8.5kg at 40m intervals when using rocks, and a minimum of 6kg at 20m intervals when using concrete weights.

### **2.3 Weighted lines for Chilean (trotline with nets) system gear**

Line weights should conform to those for the Spanish system (see above).

### **2.4 Weighted lines for autoline gear**

Integrated weight longlines (IWL) are designed with a lead core of 50g/m. Their key characteristic is that they sink with a near-linear profile from the surface (minimal lofting in propeller turbulence) and are effective at sinking quickly out of reach of foraging seabirds. IWL should average  $\geq 0.24$  to 10 m depth.

Where it is practical to use IWL gear in a fishery, IWL is preferred over externally weighted alternatives because of its linear sink profile from the surface and consistent ability to achieve the minimum sink rate.

When using external weights on non-IWL autoline gear, the minimum average sink rate should be 0.3 m/s to 10 m depth. A faster sink rate is necessary with this configuration to minimise the lofting of sections of line between line weights in propeller turbulence. The sink rate can be achieved with a minimum of 5kg at no more than 40m intervals.

### **2.5 Night setting**

Setting longlines at night (between the end of nautical twilight and before nautical dawn) is effective at reducing incidental mortality of seabirds because the majority of vulnerable seabirds are diurnal foragers.

## 2.6 Bird scaring lines

Bird scaring lines are designed to provide a physical deterrent over the area where baited hooks are sinking.

It is recommended to use a weak link to allow the bird scaring line to break-away from the vessel in the event of a tangle with the main line, and, a secondary attachment between the bird scaring line and the vessel to allow the tangled bird scaring line to be subsequently attached to mainline and recovered during the haul.

### Large vessels ( $\geq 24$ m in length)

Two (paired) bird scaring lines should be used simultaneously.

The design of the bird scaring lines should include the following specifications:

- The attachment height should be at least 7m above sea level.
- The lines should be at least 150m long to ensure the maximum possible aerial extent.
- Streamers should be brightly coloured and reach the sea-surface in calm conditions, and placed at intervals of no more than 5m.
- A suitable towed device should be used to provide drag, maximise aerial extent and maintain the line directly behind the vessel during crosswinds.

### Small vessels ( $< 24$ m in length)

One or two (paired) bird scaring lines should be used.

The design of the bird scaring lines should include the following specifications:

- The attachment height should be at least 6m above sea level.
- The lines should achieve an aerial extent of at least 75 m when setting at  $\geq 4$  knots, or 50 m if setting at speeds  $< 4$  knots.
- Streamers should be brightly coloured and reach the sea-surface in calm conditions, and placed at intervals of no more than 5m. Streamers may be modified over the first 15 m to avoid tangling.

Sufficient drag must be created to maximise aerial extent and maintain the line directly behind the vessel during crosswinds. This may be achieved using either towed devices or longer in-water sections.

## 2.7 Offal and discard discharge management

Seabirds are attracted to offal that is discharged from vessels. Ideally offal should be retained onboard but if that is not possible, offal and discards should not be discharged while setting lines.

### 3. BEST PRACTICE MEASURES - LINE HAULING

#### 3.1. Bird Exclusion Device (BED)/Brickle curtain

During hauling operations birds can accidentally become hooked as gear is retrieved. A Bird Exclusion Device (BED) consists of a horizontal support several metres above the water that encircles the entire line hauling bay. Vertical streamers are positioned between the support and water surface. The seabird deterrent effectiveness of this streamer line configuration can be increased by deploying a line of floats on the water surface and connecting this line of floats to the support with downlines. This configuration is the most effective method to prevent birds entering the area around the hauling bay, either by swimming or by flying.

#### 3.2. Offal and discard discharge management

Ideally offal should be retained onboard, but if that is not possible offal and discards should preferably be retained on board during hauling (and definitely during setting) or released on the opposite side of the vessel to the hauling bay.

All hooks should be removed and retained on board before discards are discharged from the vessel.

### 4. OTHER RECOMMENDATIONS

#### 4.1. Chilean method

The Chilean method of longline fishing was designed to prevent toothed whale depredations of fish. Because weights are deployed directly below the hooks, and because hook-bearing lines sink with a vertical profile in the seabird foraging depths (not horizontally, as in the traditional Spanish method), lines sink rapidly, making it an effective method for avoiding bycatch of foraging seabirds.

To eliminate the ingestion of hooks by seabirds during line hauling operations, care must be taken to retain all hooks onboard and not discard them overboard, either as unwanted hooks or as hooks embedded in discarded fish.

### 5. MITIGATION MEASURES THAT ARE NOT RECOMMENDED

ACAP considers that the following measures lack scientific substantiation as technologies or procedures for reducing the impact of demersal longline fisheries on seabirds.

**Hook design** – insufficiently researched

**Olfactory deterrents** – insufficiently researched

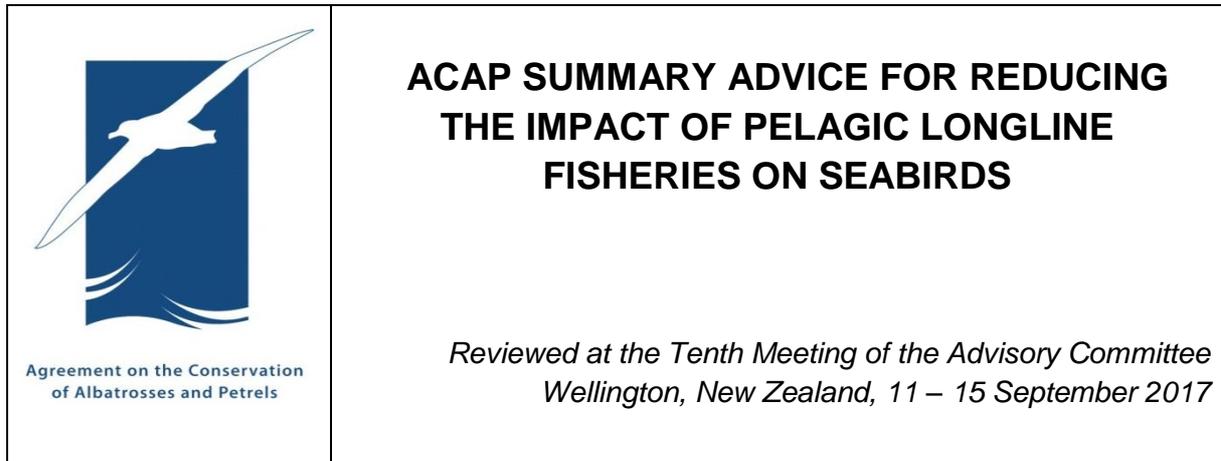
**Underwater setting chutes** - insufficiently researched.

**Side setting** - insufficiently researched and operational difficulties.

**Blue-dyed bait, thawed bait** - not relevant in demersal longline gear

**Use of a line setter** - not relevant in demersal longline gear.

## ANNEX 4. REVISED ACAP SUMMARY ADVICE FOR REDUCING THE IMPACT OF PELAGIC LONGLINE FISHERIES ON SEABIRDS<sup>5</sup>



### BEST PRACTICE MEASURES

ACAP recommends that the most effective way to reduce seabird bycatch in pelagic longline fisheries is to use the following three best practice measures simultaneously: **branch line weighting, night setting and bird scaring lines**. Line weighting is integral to the fishing gear and, compared to bird scaring lines and night setting, has the advantage of being more consistently implemented, hence facilitating compliance and port monitoring.

#### 1. Branch line weighting

Branch lines should be weighted to sink the baited hooks rapidly out of the diving range of feeding seabirds. Studies have demonstrated that branch line weighting where there is more mass closer to the hooks, sink most rapidly and consistently; thereby, dramatically reducing seabird attacks on baits and most likely reducing mortalities. Studies of a range of weighting regimes, including placing weights at the hook, have shown no negative effect on target catch rates. Continued refinement of line weighting configurations (mass, number and position of weights and materials) with regard to effectively reducing seabird bycatch and safety concerns through controlled research and application in fisheries, is encouraged.

Increased weighting will shorten but not eliminate the distance behind the vessel in which birds can be caught. Line weighting has been shown to improve the effectiveness of other mitigation methods such as night setting and bird scaring lines, in reducing seabird bycatch. Line weighting is integral to the fishing gear and, compared to bird scaring lines and night setting, has the advantage of being more consistently implemented, hence facilitating compliance and port monitoring. On this basis it is important to enhance the priority accorded to line weighting, providing certain pre-conditions can be met, among other things: (a)

<sup>5</sup> Note, only the summary advice component of the document is presented here, and not the review section.

weighting regime adequately specified; (b) safety issues adequately addressed; and (c) issues concerning application to artisanal fisheries being taken into account.

Current recommended minimum standards for branch line weighting configurations include the following:

- (a) 40 g or greater attached within 0.5 m of the hook; or
- (b) 60 g or greater attached within 1 m of the hook; or
- (c) 80 g or greater attached within 2 m of the hook.

## 2. Night setting

Setting longlines at night (defined as the time between the end of nautical twilight and before nautical dawn as set out in the Nautical Almanac tables for relevant latitude, local time and date.) is highly effective at reducing incidental mortality of seabirds because the majority of vulnerable seabirds are inactive at night. However, night setting is not as effective for crepuscular/ nocturnal foragers (e.g. White-chinned Petrels, *Procellaria aequinoctialis*). The effectiveness of this measure may be reduced during bright moonlight and when using intense deck lights, and is less practical in high latitudes during summer, when the time between nautical dusk and dawn is limited.

## 3. Bird scaring lines

Properly designed and deployed bird scaring lines (BSLs) deter birds from sinking baits, dramatically reducing seabird attacks and related mortalities. A bird scaring line runs from a high point at the stern to a device or mechanism that creates drag at its terminus. Brightly coloured streamers hanging from the aerial extent of the line scare birds from flying to and under the line, preventing them from reaching the baited hooks.

Bird scaring lines should be the lightest practical strong fine line. Lines should be attached to the vessel with a barrel swivel to minimise rotation of the line from torque created as it is dragged behind the vessel. Long streamers should be attached with a swivel to prevent them from rolling up onto the BSL. Towed objects should be attached at the terminus of the BSL to increase drag. BSLs are at risk of tangling with float lines leading to lost bird scaring lines, interruptions in vessel operations and in some cases lost fishing gear. Alternatives, such as adding short streamers to the in-water portion of the line, can enhance drag while minimising tangles with float lines. Weak links (breakaways) should be incorporated into the in-water portion of the line for safety reasons and to minimize operational problems associated with lines becoming tangled.

It is recommended to use a weak link to allow the bird scaring line to break-away from the vessel in the event of a tangle with the main line, and, a secondary attachment between the bird scaring line and the vessel to allow the tangled bird scaring line to be subsequently attached to mainline and recovered during the haul.

Sufficient drag must be created to maximise aerial extent and maintain the line directly behind the vessel during crosswinds. To avoid tangling, this is best achieved using a long in-water

section of rope or monofilament.

Given operational differences in pelagic longline fisheries due to vessel size and gear type, bird scaring lines specifications have been divided into recommendations for vessels greater than 35 metres and those less than 35 metres in length.

### **3. a) Recommendations for vessels $\geq 35$ m total length**

Simultaneous use of two BSLs, one on each side of the sinking longline, provides maximum protection from bird attacks under different wind conditions. The setup for BSLs should be as follows:

- BSLs should be deployed to maximise the aerial extent, which is a function of vessel speed, height of the attachment point to the vessel, drag, and weight of bird scaring line materials.
- To achieve a minimum recommended aerial extent of 100 m, BSLs should be attached to the vessel such that they are suspended from a point a minimum of 8 m above the water at the stern.
- BSLs should contain a mix of brightly coloured long and short streamers placed at intervals of no more than 5 m. Long streamers should be attached to the line with swivels to prevent streamers from wrapping around the line. All long streamers should reach the sea-surface in calm conditions.
- Baited hooks should be deployed within the area bounded by the two BSLs. If using bait-casting machines, they should be adjusted so as to land baited hooks within the area bounded by the BSLs.

If large vessels use only one BSL, it should be deployed windward of the sinking baits. If baited hooks are set outboard of the wake, the BSL attachment point to the vessel should be positioned several metres outboard of the side of the vessel that baits are deployed.

### **3. b) Recommendations for vessels $< 35$ m total length**

Two designs have been shown to be effective:

1. a design with a mix of long and short streamers, that includes long streamers placed at 5 m intervals over at least the first 55 m of the BSL. Streamers may be modified over the first 15 m to avoid tangling, and
2. a design that does not include long streamers. Short streamers (no less than 1 m in length) should be placed at 1 m intervals along the length of the aerial extent.

In all cases, streamers should be brightly coloured. To achieve a minimum recommended aerial extent of 75 m, BSLs should be attached to the vessel such that they are suspended from a point a minimum of 6 m above the water at the stern.

## ACAP ALSO REGARDS THE FOLLOWING TWO MEASURES AS BEST PRACTICE:

### 4. Hook-shielding devices

Hook-shielding devices encase the point and barb of baited hooks to prevent seabird attacks during line setting until a prescribed depth is reached (a minimum of 10 meters), or until after a minimum period of immersion has occurred (a minimum of 10 minutes) that ensures that baited hooks are released beyond the foraging depth of most seabirds. The following performance requirements are used by ACAP to assess the efficacy of hook-shielding devices in reducing seabird bycatch:

- (a) the device shields the hook until a prescribed depth of 10 m or immersion time of 10 minutes is reached;
- (b) the device meets current recommended minimum standards for branch line weighting described in Section 1;
- (c) experimental research has been undertaken to allow assessment of the effectiveness, efficiency and practicality of the technology against the ACAP best practice seabird bycatch mitigation criteria developed for assessing and recommending best practice advice on seabird bycatch mitigation measures.

Devices assessed as having met the performance requirements listed above will be considered best practice. At this time, the following devices have been assessed as meeting these performance requirements and are therefore considered to represent best practice:

- 1. 'Hook Pod' – 68 g minimum weight that is positioned at the hook, encapsulating the barb and point of the hook during setting, and remains attached until it reaches 10 m in depth, when the hook is released (Sullivan *et al.* 2016, Barrington 2016a).
- 2. 'Smart Tuna Hook' – 40 g minimum weight that is positioned at the hook, encapsulating the barb and point of the hook during setting, and remains attached for a minimum period of 10 minutes after setting, when the hook is released (Baker *et al.* 2016, Barrington 2016b)

The assessment of these devices as best practice is conditional on continuing to meet the above performance requirements.

### 5. Time-Area fishery closures

The temporary closure of important seabird foraging areas (e.g. areas adjacent to important seabird colonies during the breeding season or highly productive waters when large numbers of aggressively feeding seabirds are present) to fishing will eliminate incidental mortality of seabirds in that area.

## OTHER RECOMMENDATIONS

**Side-setting with line weighting and bird curtain (North Pacific):** Research conducted in the North Pacific indicates that side-setting was more effective than other simultaneously trialled mitigation measures, including setting chutes and blue-dyed bait Gilman *et al.*, 2003b). It should be noted that these tests were conducted in a single pilot scale trial of 14 days in the Hawaiian pelagic longline fishery for tuna and swordfish with an assemblage of surface-feeding seabirds (Gilman *et al.*, 2003b). This method requires testing in the Southern Ocean with deeper-diving species and at a larger spatial scale, before it can be considered as a recommended approach beyond the pilot fishery.

Side-setting **must** be used in combination with ACAP best practice recommendations for line weighting in order to increase sink rates forward of the vessel's stern, and hooks should be cast well forward of the setting position, but close to the hull of the vessel, to allow hooks time to sink as far as possible before they reach the stern. Bird curtains, a horizontal pole with vertical streamers, positioned aft of the setting station, may deter birds from flying close to the side of the vessel. The combined use of side-setting, line weighting and a bird curtain should be considered as a single measure.

**Mainline tension:** Setting longlines into propeller turbulence (wake) should be avoided because it slows the sink rates of baited hooks.

**Live vs. dead bait:** Use of live bait should be avoided. Individual live baits can remain near the water surface for extended periods, thus increasing the likelihood of seabird captures.

**Bait hooking position:** Baits hooked in either the head (fish), or tail (fish and squid) are recommended because they sink significantly faster than baits hooked in the mid-back (fish) or upper mantle (squid).

**Offal and discard discharge management:** Offal and discards should not be discharged during line setting. During line hauling, offal and used baits should preferably be retained or discharged on the opposite side of the vessel from that on which the line is hauled. All hooks should be removed and retained on board before discards are discharged from the vessel.

## MEASURES UNDER DEVELOPMENT

**Technologies that control depth of release of baited hooks:** New technologies that set or release baited hooks at depth (underwater setting device) or disarm hooks to specific depths, thus preventing seabird access to baits, are currently under development and undergoing sea trials.

## MITIGATION MEASURES THAT ARE NOT RECOMMENDED

ACAP considers that the following measures lack scientific substantiation as technologies or procedures for reducing the impact of pelagic longlines on seabirds.

**Line shooters:** No experimental evidence of effectiveness in pelagic longline fisheries.

**Olfactory deterrents:** No evidence of effectiveness in pelagic longline fisheries.

**Hook size and design:** Changes to hook size and design may reduce the chance of seabird mortality in longline fisheries, but have not been adequately studied.

**Blue dyed bait:** No experimental evidence of effectiveness in pelagic longline fisheries. Insufficiently researched.

**Bait thaw status:** No evidence that the thaw status of baits has any effect on the sink rate of baited hooks set on weighted lines.

The ACAP review of seabird bycatch mitigation measures for pelagic longline fisheries is presented in the following section.

## **ANNEX 5. USEFUL INFORMATION TO SOLICIT TO UNDERSTAND THE EXTENT AND NATURE OF USE OF BAIT CASTING MACHINES AND THEIR POTENTIAL IMPACT ON SEABIRD BYCATCH MITIGATION**

### **Bait Casting Machines (BCM) and the Far Seas Tuna Fishery**

Compiled by Graham Robertson and Nigel Brothers

Please provide information on the following questions about the design and operational characteristics of bait casting machines used in the far seas fishery:

#### **Design features and reasons for use:**

- The number of types (makes) of BCMs available?
- The proportion of vessels using BCMs? If possible, the proportion by BCM type/make in use and the proportion of each type/make in use?
- The numbers of each type of BCMs supplied to other high seas fishing nations?
- Are BCMs used on a daily basis (for each set of the longline) by vessel crews or on an intermittently basis only?
- Please comment on the reasons for the use of BCMs. Easier for crew to deploy baits?; reduced labour?; reduced bait loss?; reduced line tangles?; other reasons?

#### **Operational characteristics:**

- What are the maximum and minimum distances each type of BCM is capable of throwing baits?
- Can the throwing capability be adjusted? If 'yes' please comment.
- Is each type of BCM capable of throwing baits to both sides of the vessel or to the port side only?
- Is each type of BCM capable of deploying branch lines configured with different weighting regimes? For example, branch lines with no added weight (e.g., lead sinker), added weight (lead sinker) and with the double weight system.

#### **Most important:**

- What is the relationship between the bait landing position(s) and the streaming position of the tori line? Please provide information on *tori pole length* (indicates streaming position of tori line outboard of vessels) and the *bait landing positions* outboard of the vessel.

## **ANNEX 6. PROPOSED ACTIVITIES FOR ENGAGING WITH RFMOS AND CCAMLR**

- 1. Engage in RFMO and CCAMLR reviews of seabird conservation measures (including the ongoing reviews by ICCAT, IOTC, WCPFC, and the joint tuna seabird bycatch assessments)**
  - a. IOTC - Continue to work with IOTC, ACAP Party CPCs, other CPCs, BirdLife and other organisations, towards a revision of Res 12/06 that is informed by the current ACAP best practice advice. IOTC's WPEB and the SC have recommended that the latest ACAP advice be used to update Res 12/06 when it is next reviewed. Now that the IOTC scientific bodies have recommended Res 12/06 be updated in accordance with the latest best practice advice from ACAP, the next step would be for a CPC, or CPCs, to develop a revised resolution and submit it to the ICCAT Commission for their consideration and endorsement. A revised (track changed) version of Res 12/06, which is based on the current (2016) ACAP advice, has already been developed, and could form the basis of further engagement with key stakeholders.
  - b. ICCAT - Continue to work with ICCAT, ACAP Party CPCs, other CPCs, BirdLife and other organisations, towards a revision of Rec 11-09 that is informed by the current ACAP best practice advice. Facilitate the submission and presentation of the results of studies on hook pods and smart-tuna hooks to the ICCAT SC-ECO. The papers submitted to the ACAP SBWG7 meeting are currently under peer-review. It would be important to have these papers presented to the SC-ECO once they are available. Help facilitate harmonisation between the Common Oceans Tuna project work on seabird bycatch assessment and the work being undertaken by ICCAT CPC scientists.
  - c. WCPFC - Continue to participate in relevant meetings including Scientific Committee, Technical and Compliance Committee and Commission to ensure that data relevant to seabird bycatch is collected and appropriately analysed and effectiveness of the current CMM is assessed.
  - d. Initiatives applicable to multiple RFMOs and CCAMLR – help support and facilitate collaboration between the various initiatives underway investigating the impacts of tuna fisheries on seabirds. These include the FAO Common Oceans Tuna project seabird bycatch assessment work, initiatives being undertaken by RFMO CPC scientists, and the New Zealand risk assessment currently underway. This should be done through the development and provision of relevant ACAP advice and guidelines, and by helping facilitate the active engagement of ACAP Parties in the projects. ACAP should also help encourage and facilitate efficient linkages between the initiatives being undertaken simultaneously to review the efficacy of seabird conservation measures in tuna RFMOs.

**2. Strengthen the seabird bycatch mitigation measures adopted by RFMOs and CCAMLR**

- a. WCPFC - Continue to advocate for the southern boundary of CMM 2015-03 to be moved north of 30°S. Seek amendment of CMM 2015-03 to have North Pacific fisheries following ACAP BPA within the revised ACAP best practice advice for pelagic longline fisheries. Engage in the process to consider BSL designs, providing information relating to our updated best practice advice for bird scaring lines for small vessels, and further highlight the relevance of using line weighting in combination with bird scaring lines.
- b. CCSBT - Encourage and support further efforts to implement and improve mitigations measures used in SBT fisheries to reflect ACAP best practice advice, and continue to advocate for the adoption of a binding seabird CMM by the CCSBT.
- c. IATTC - Further work with ACAP Parties, other countries, specifically the US, and BirdLife, on a new proposal to strengthen IATTC's seabird bycatch mitigation requirements for the next Commission meeting in 2018. Encourage the IATTC Commission to improve data collection and reporting following the advice endorsed in the latest Scientific Advisory Committee Meeting (SAC7). Present PaCSWG4 Doc 03 highlighting the distribution of Antipodean Albatrosses and potential overlap with fisheries in the central and eastern Pacific (New Zealand will be presenting similar papers to WCPFC and SPRFMO).
- d. All RFMOs and CCAMLR - Continue to work through the RFMO and CCAMLR mechanisms to strengthen the bycatch mitigation measures in place for each of them. In most cases, the current RFMO seabird conservation measures reflect (have been informed by) the previous (2011-2016). ACAP best practice advice. Ongoing efforts are required to encourage the RFMOs to update these measures to account for the recent (updates) in ACAP's advice. It is also important that ACAP continues to work through RFMO and CCAMLR mechanisms to encourage better implementation of the seabird conservation measures currently in place. Although there are elements that will be similar, engagement approaches should be RFMO- and CCAMLR-specific, and should be strategic (by, for example, making use of opportunities such as formal reviews of seabird conservation measures, and avoiding a 'tinkering' approach in which proposals to make small changes are frequently presented).
- e. CCAMLR - Attendance of the CCAMLR Scientific Committee and Commission meetings to monitor the application of the seabird conservation measure and to strengthen it where necessary. Further work with CCAMLR Secretariat in monitoring the seabird bycatch events occurred during the last years, and the results of the one-season trial for the use of net-monitoring cable in the krill trawl fishery.

**3. Strengthen RFMO and CCAMLR bycatch data collection and reporting requirements, and the inclusion of appropriate seabird bycatch mitigation elements within RFMO and CCAMLR compliance monitoring. Focus ACAP inputs through the development of specific ACAP products (for example advice on seabird bycatch indicators, and seabird elements of electronic monitoring)**

- a. Continue to develop and update specific ACAP products that serve to focus ACAP inputs and efforts to strengthen bycatch data collection requirements, and the inclusion of appropriate seabird bycatch mitigation elements within RFMO compliance monitoring. These products should include:
  - i. ACAP review and best practice advice documents on seabird bycatch mitigation (ensuring updated versions are made available)
  - ii. Guidelines for seabird bycatch estimation
  - iii. ACAP seabird bycatch ID guide (ensuring updated versions are made available).
  - iv. ACAP-BirdLife bycatch mitigation fact sheets
  - v. ACAP best practice guidelines on data collection requirements for observer programmes (an update of SBWG4 Doc 26 Rev 1, and converting the document into a formal ACAP conservation guideline document, which should include guidelines for counting seabirds around vessels).
- b. Investigation and encourage the use of additional data collection opportunities to understand the extent of use of mitigation measures, such as through port and transshipment inspection procedures.

**4. Other Actions**

- a. SPRFMO - Continue engagement to help strengthen bycatch data collection and reporting requirements, and the inclusion of seabird bycatch mitigation elements within RFMO compliance monitoring. Focus ACAP inputs through the development and dissemination of specific ACAP products (see above), which could include the ACAP seabird bycatch identification guide, advice on data collection and reporting requirements, seabird bycatch estimation and how best to include seabird components in electronic monitoring initiatives.
- b. SIOFA – The level of fishing activity in the SIOFA Agreement Area is relatively low compared with other RFMOs and areas, and so is not considered a high priority RFMO. However, given that SIOFA is in the process of developing mechanisms for issues that concern seabird monitoring and seabird bycatch including requirements for scientific observer programmes, and the collection of information on seabird abundance, bycatch and the use of bycatch mitigation measures, it might be appropriate for ACAP to provide some formal inputs to SIOFA regarding seabird conservation and management measures.

**ANNEX 7. DECLARATION OF THE REPUBLIC OF ARGENTINA CONCERNING  
THE QUESTION OF THE MALVINAS ISLANDS**

“In relation with documents SBWG8 Inf 16 and SBWG8 Inf 17, and documents PaCSWG4 Doc 10 y PaCSWG4 Inf 30, addressed at the Eighth Meeting of the Seabird Bycatch Working Group, the Argentine Republic recalled the validity of ACAP Resolution 2.9, which establishes the use of the double nomenclature and a footnote with respect to the sovereignty dispute over the Islas Malvinas Georgias del Sur y Sándwich del Sur in the documentation issued by the Secretariat or other bodies of the Agreement.

The Argentine Republic also recalled that the Islas Malvinas, Georgias del Sur y Sándwich del Sur and the surrounding maritime areas are an integral part of the Argentine national territory and, illegally occupied by the United Kingdom of Great Britain and Northern Ireland, are the subject of a sovereignty dispute between the two countries, which has been recognized by the United Nations.”

## **ANNEX 8. UNITED KINGDOM RESPONSE TO NOTE FROM ARGENTINA CONCERNING VARIOUS DOCUMENTS**

“The United Kingdom notes that the documents SBWG8 Inf 16, SBWG8 Inf 17, PaCSWG4 Doc 10 and PaCSWG4 Inf 30 are not covered by Resolution 2.9 as that resolution applies solely to “*documents authored by the Secretariat or other organs of the Agreement.*” None of these documents was authored by the Secretariat or another organ of the Agreement.

The United Kingdom has no doubt about its sovereignty over the Falkland Islands and South Georgia & South Sandwich Islands (SGSSI) and surrounding maritime areas of both territories, nor about the principle and the right of the Falkland Islanders to self-determination as enshrined in the UN Charter and in article one of the two UN Covenants on human rights. The UN General Assembly has not issued any Resolution making reference to any claimed sovereignty dispute over SGSSI.”