

11th MEETING OF THE SCIENTIFIC COMMITTEE

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SC11 – Obs04

**Review of the SPRFMO Seabird Bycatch and Data Standards CMMs Against
ACAP Advice**

ACAP

REVIEW OF SPRFMO SEABIRD BYCATCH AND DATA STANDARDS CMMS AGAINST ACAP ADVICE

Delegation of the Agreement on the Conservation of Albatrosses and Petrels (ACAP)

ABSTRACT

The Eleventh Meeting of the SPRFMO Commission (COMM11) tasked the Scientific Committee (SC) with reviewing the seabird bycatch mitigation measures in CMM 09-2017 and the seabird related data collection requirements in CMM 02-2022 against the Agreement on the Conservation of Albatrosses and Petrels (ACAP) best practices. This paper provides such a review and identifies a number of proposed amendments to the relevant SPRFMO CMMS to achieve more complete alignment to ACAP advice. A brief update on the activities of ACAP since COMM11, including updates to ACAP advice made at its Thirteenth Advisory Committee Meeting (AC13) is also provided.

Sections of CMM 09-2017 and CMM 02-2022 do already align closely with ACAP advice; however, based on a review of both CMMS, the following amendments would achieve more complete alignment and help enable SPRFMO to achieve its objective outlined in Article 3(1) whereby the conservation and management of fishery resources shall take into account best international practices, that fishing shall take into account the impacts on non-target and associated or dependent species, and shall apply the Precautionary Approach:

- Amendments to paragraphs 1-3 and 6, plus the addition of details of new guidelines to the General Provisions of CMM 09-2017 regarding seabird bycatch mitigation measures, as detailed in Section 3.1.1 of this paper.
- Amendments to Annex 1 paragraph 1, 2, 7, and 8 of CMM 09-2017 regarding seabird bycatch mitigation specification for demersal longline fishing, as detailed in Section 3.1.2 of this paper.
- Amendments to Annex 2 paragraph 1, 2, and 3 of CMM 09-2017, and include details on additional mitigation measures regarding seabird bycatch mitigation specification for trawl fishing, as detailed in Section 3.1.3 of this paper.
- Inclusion of a section on purse seine fishing in CMM 09-2017, and provision of specifications on mitigation measures to reduce incidental mortality of seabirds based on the toolbox being developed by ACAP, as detailed in Section 3.1.4 of this paper.
- Amend Annex 7 of CMM 02-2022 to include those variables recommended by ACAP, with a priority focus on those variables identified as critical for assessing seabird bycatch, as well as a reference to the ACAP Seabird Bycatch Identification Guide as detailed in Section 4 of this paper.

Further the SC is encouraged to urge Members to continue supporting research into assessing risk of fishing to seabirds in the Convention Area, provide information or feedback on the use and effectiveness of a number of mitigation measures and monitoring tools to further their development, and consider development of mitigation measures for SPRFMO fisheries where these are currently lacking.

Given the number of technical amendments identified, the SC may wish to convene a workshop to draft proposed amendments to CMM 09-2017 and CMM 02-2022 to ensure the effectiveness of SPRFMO's management measures to reduce the impact of relevant fisheries on seabirds.

1 BACKGROUND

At the Eleventh Annual Meeting of the SPRFMO Commission (COMM11), the Executive Secretary of the Agreement on the Conservation of Albatrosses and Petrels (ACAP) presented [COMM11-Obs04](#) noting that the ACAP Secretariat has a MOU with SPRFMO which aims to facilitate cooperation and information-sharing, especially in relation to seabird bycatch mitigation, and that ACAP is committed to keeping SPRFMO up to date with ACAP Best Practice Advice. COMM11-Obs04 described the most recent updates of ACAP advice relevant to pelagic and demersal longline and trawl fisheries. It also outlined newly endorsed guidelines on data collection for observers and on electronic monitoring systems. ACAP further noted that it could be useful for SPRFMO to consider revisions to SPRFMO [CMM 09-2017](#) (minimising seabird bycatch) and [CMM 02-2022](#) (data standards) against ACAP Best Practice Advice. New Zealand supported the suggestion to review the SPRFMO CMMs and welcomed the participation of ACAP. Subsequently, a review of seabird bycatch mitigation measures in CMM 09-2017 and the seabird related data collection requirements in CMM 02-2022 was included in the Scientific Committee's 2023 workplan as adopted by the Commission ([COMM11-WP17_rev1](#)).

This paper reports on such a review of relevant SPRFMO CMMs against ACAP Best Practice Advice as well as providing a brief update on the activities of ACAP since COMM11, including updates to ACAP advice at its Thirteenth Advisory Committee Meeting (AC13).

2 UPDATE ON ACAP ACTIVITIES AND ADVICE

Much of the work of ACAP's Seabird Bycatch Working Group (SBWG) focuses on routinely reviewing and updating best practice mitigation advice for industrial fishing gear types (principally pelagic and demersal longline, and trawl gear). The most recent review took place in May 2023, at the 11th meeting of the Seabird Bycatch Working Group (SBWG11), with updates endorsed by the 13th meeting of ACAP's Advisory Committee (AC13). The ACAP review process recognises that factors such as safety, practicality and the characteristics of the fishery should also be taken into account when considering the efficacy of seabird bycatch mitigation measures and consequently in the development of advice and guidelines on best practice. SBWG11 reviewed a range of studies that reiterated and further endorsed current best practice advice for trawl and demersal longline fisheries. A number of minor improvements to these best practice documents were made to provide improved consistency of advice and reference the latest scientific evidence.

For trawl fisheries the Tamini Tabla was added into the section on Bird Scaring Line minimum standards as this device has now moved from its development stage to being readily available. A new mitigation measure for net captures in trawls, minimising the pooling area, was also considered and added to the review section of the advice document although there was insufficient evidence to recommend it as a best practice measure at this time.

SBWG11 reviewed new research relevant to lasers as a mitigation measure in trawl and longline fisheries, specifically, research to determine if lasers cause eye injury in birds. Available evidence shows that high-energy lasers are ineffective at deterring seabirds from danger areas around fishing

vessels and likely damage seabird visual systems with negative effects on foraging behaviour of laser exposed seabirds. The use of high-energy laser technologies for seabird bycatch mitigation is strongly discouraged by ACAP, since there is currently no evidence of effectiveness, and serious concerns remain regarding the potential impacts on the health of individual birds.

Other advice and guideline documents as highlighted in COMM11-Obs 4 remain current.

ACAP-BirdLife [bycatch mitigation factsheets](#) are also currently being updated into a new more concise format. Updates are already in progress for key longline mitigation options, with updates for trawl mitigation options prioritised for the period before the next Working Group Meeting.

3 REVIEW OF SPRFMO CMMS AGAINST ACAP ADVICE

We first assess the specifications of seabird bycatch mitigation outlined in CMM 09-2017 against current ACAP Best Practice Advice for reducing the impact of demersal longline and trawl fisheries on seabirds, and make a number of recommendations on how CMM 09-2017 could be amended to align with this advice more closely. We then identify other relevant ACAP advice for best practice mitigation in fishing methods not currently included in CMM 09-2017. Finally, we review the specification of data collection requirements related to seabird bycatch in CMM 02-2022 against ACAP data collection guidelines for observer programmes.

The key ACAP advice documents used in this review can be downloaded from the ACAP website through the following links:

- [ACAP 2023 DEMERSAL Longlines mitigation review & best practice advice](#)
- [ACAP 2023 TRAWL mitigation review and best practice advice](#)
- [ACAP 2021 Data collection guidelines for observer programmes](#)

3.1 Review of current provisions of CMM 09-2017 (Conservation and Management Measure for minimising bycatch of seabirds in the SPRFMO Convention Area)

3.1.1 General Provisions

Paragraphs 1 – 3 of CMM 09-2017 provide general provisions, with specific mitigation measures to be implemented for demersal longline and trawl fishing gears detailed in Annexes 1 and 2, respectively. We note that there are other types of fishing methods managed by SPRFMO, notably purse seine, jigging, potting and hand/drop/dahn lining fishing, which are not clearly stated to be covered by the general provisions. Given the potential for overlap and interaction between seabirds and these fisheries in the SPRFMO Convention Area (e.g. as reported for squid jigging in [SC6-Doc31](#)), these fisheries may also pose a substantial risk to seabirds. It could therefore be considered appropriate to clearly stipulate that all relevant fishing methods are included under the general provisions, and further that consideration be given to developing specific seabird mitigation measures for all fishing methods managed by SPRFMO for inclusion in CMM 09-2017.

- **Recommendation:** Include a paragraph under General Provisions that clearly states General Provisions 4-13 apply to all fishing methods managed by SPRFMO.

- **Recommendation:** Specifications for mitigating seabird bycatch by all fishing methods managed by SPRFMO are developed – based on available best practice advice – and are considered for inclusion in CMM 09-2017.

Paragraph 6 of CMM 09-2017 refers to the safe handling and release of live-caught seabirds. ACAP has developed bird handling advice targeted for longline fishing methods ([Hook Removal from Seabirds](#)) and is developing advice regarding entanglement of seabirds in trawl and purse seine nets. These guidelines provide practical and detailed advice to maximise survival of live caught seabirds.

- **Recommendation:** Amend paragraph 6 of CMM 09-2017 to require vessel crew follow ACAP seabird handling advice as relevant to the fishing method used.

Lights on vessels are known to attract seabirds, which can result in them striking the deck or super-structure, resulting in injury or death. The General Provisions do not currently contain any advice on light minimisation which may help reduce bird-strike. ACAP bycatch mitigation advice is focussed on bycatch in fishing gear, and ACAP does not currently provide its own advice on mitigating the risks associated with vessel lighting. However, at the Twelfth ACAP Advisory Committee meeting (AC12), the [National Light Pollution Guidelines for Wildlife, including Marine Turtles, Seabirds and Migratory Shorebirds](#) developed by Australia were endorsed. The guidelines provide comprehensive information about how to manage the effects of artificial light while ensuring human activities may be carried out safely at night. The guidelines provide a seabird mitigation toolbox that offers light management options for seabirds, both for land-based facilities and at-sea operations. The full guidelines would provide comprehensive advice on light minimisation by SPRFMO fishing vessels to minimise impacts on seabirds and other fauna.

- **Recommendation:** Add a paragraph to the General Provisions of CMM 09-2017 to require vessels to follow the National Light Pollution Guidelines for Wildlife, including Marine Turtles, Seabirds and Migratory Shorebirds developed by Australia.

3.1.2 Demersal longline

ACAP Best Practice Advice to reduce incidental catch of seabirds in demersal longline fisheries is the combination of:

- Use of an appropriate line weighting regime to sink baited hooks as close to the vessel as possible to reduce their availability to seabirds;
- Actively deterring birds from baited hooks by means of bird scaring lines; and
- Setting longlines at night.

All three recommended measures are demonstrated to be effective; however, each has limitations when used alone. There is a period of time when hooks are accessible to birds even when branch lines are weighted. Night setting used alone is less effective at reducing seabird bycatch for nocturnally active birds and during bright moon light conditions. Bird scaring lines used alone can rarely protect baited hooks beyond the aerial extent of the line. Consequently, the simultaneous use of the three ACAP recommended seabird bycatch mitigation measures compensates for these limitations.

ACAP Best Practice Advice also notes that:

- 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.
- Seabirds are highly attracted to offal discharged from vessels. To prevent large numbers of seabirds attending line setting operations, offal and discards should be retained onboard prior to and during line setting.
- The use of Bird Exclusion Devices and offal and discard management are best practice measures during hauling.

Annex 1, Paragraphs 1(a) and 1(b)(i) of CMM 09-2017 provides a number of requirements regarding seabird bycatch mitigation for demersal longline vessels. These do align closely to ACAP Best Practice Advice, however could be strengthened by:

- Annex 1 Paragraph 1(a): noting that all hooks should be removed from biological waste and retained onboard before it is discharged. Hooks discharged with biological waste can be consumed by seabirds (and other taxa), causing serious or lethal external or internal injuries.
 - Annex 1 Paragraph 1(a): providing additional advice on which side biological waste should be discharged in those circumstances when this is necessary during operations. To minimise birds being attracted to the vessel, waste should be discharged on the opposite side of the hauling bay.
 - Annex 1 Paragraph 1(b)(i): emphasising that, given there is no single solution to reduce or avoid incidental mortality of seabirds in demersal longline fisheries, the most effective approach is to use the measures listed in Paragraph 1(b)(i) in combination.
- **Recommendation:** Amend Annex 1 Paragraph 1(a) to include requirement to remove all hooks from any biological waste before it is discharged.
 - **Recommendation:** Amend Footnote 1 of Annex 1 Paragraph 1(a) to include advice on which side biological waste should be discharged if this is necessary during operations.
 - **Recommendation:** Amend Annex 1 Paragraph 1(b)(i) of CMM 09-2017 to very clearly state that all three of the listed measures (line weighting, bird scaring lines, setting at night) should be used in combination to have the greatest chance of effectively mitigating seabird bycatch.

Annex 1 Paragraph 1(b)(ii) details circumstances where flagged vessels can relax the number of mitigation measures listed in Annex 1 Paragraph 1(b)¹ which it applies, from three to one; and Annex 1 Paragraph 2 outlines that when flagged vessels which are applying Paragraph 1(b)² and have exceeded a specified seabird mortality rate, they must apply at least one additional measure detailed in Paragraph 1³. This does not align with the precautionary approach of ACAP Best Practice Advice for reducing incidental mortality of seabirds in demersal longline fisheries. ACAP continues to recommend that the most effective way to reduce seabird bycatch in demersal longline fisheries is to use the three

¹ Although not clearly specified in the text of CMM 09-2017, we have assumed the reference here is to Annex 1 Paragraph 1(b)(i).

² Although not clearly specified in the text of CMM 09-2017, we have assumed the reference here is to Paragraph 1(b)(ii).

³ Although not clearly specified in the text of CMM 09-2017, we have assumed the reference here is to Paragraph 1(b)(i).

best practice measures listed in Annex 1 Paragraph 1(b)(i) simultaneously: i.e. (1) branch line weighting, (2) night setting and (3) bird scaring lines. All three recommended measures are demonstrated to be effective; however, each has limitations when used alone. There is a period of time when hooks are accessible to birds even when branch lines are weighted. Night setting used alone is less effective at reducing seabird bycatch for nocturnally active birds and during bright moon light conditions. Bird scaring lines used alone can rarely protect baited hooks beyond the aerial extent of the line. Consequently, the simultaneous use of the three ACAP recommended seabird bycatch mitigation measures compensates for these limitations.

- **Recommendation:** Revise or remove Annex 1 Paragraph (b)(ii) to maintain consistency with ACAP Best Practice Advice which recommends using all three best practice measures (line weighting, bird scaring lines, setting at night) simultaneously, even if low seabird bycatch rates have been recorded.
- **Recommendation:** Revise or remove Annex 1 Paragraph 2(a) to maintain consistency with ACAP Best Practice Advice which recommends using all three best practice measures (line weighting, bird scaring lines, setting at night) simultaneously.

Annex 1 Paragraph 4 of CMM 09-2017 details additional measures which can be implemented, including bird deterrent curtains, responsible offal management and avoiding fishing at peak areas and periods of seabird foraging activity, and any other experimental measure to reduce seabird bycatch.

With regard to the temporary closure of important seabird foraging areas, this has proven to be a very effective mechanism to reduce incidental mortality of seabirds in fisheries in some areas. Given the potential for high levels of interactions between seabirds and fishing activities in the SPRFMO Convention Area at certain times and locations, further research is warranted into better understanding these interactions. Subsequently, the potential effectiveness of implementing spatial and/or temporal closures as a seabird mitigation measure in the SPRFMO Convention Area could be assessed.

- **Recommendation:** Encourage SPRFMO Members to support research into assessing the overlap of seabirds and fishing effort in the SPRMFO Convention Area in order to provide accurate information and guidance on effective spatial and/or temporal closures that could be implemented to help reduce incidental seabird mortality.

ACAP Best Practice Advice does not currently have specific guidance on bird deterrent 'curtains', but does recognise 'Bird Exclusion Devices' (BED) as an additional best practice measure for minimising seabird bycatch during hauling of longlines. Annex 1 Paragraph 8 (referred to in Annex 1 Paragraph 4), would benefit from including more specific guidance on how bird deterrent curtains (or similar BEDs) can be constructed and implemented. Provisionally, guidance from the ACAP Best Practice Advice for Demersal Longline Fisheries could be used, with future amendments based upon feedback from Members which implement curtains or BEDs.

- **Recommendation:** Amend Annex 1, Paragraph 8 to include more specific guidance on the construction and implementation of bird deterrent curtains or other Bird Exclusion Devices.

- **Recommendation:** Encourage SPRFMO Members to provide information to ACAP on construction and effectiveness of bird deterrent curtains so as to enhance ACAP Best Practice Advice.

Annex 1, Paragraph 5 notes that the use of cachalotera nets on trot lines is considered to be best practice mitigation but that global minimum standards are not yet developed.

- **Recommendation:** Encourage Members to continue reporting details of gear configuration to the Scientific Committee so that effectiveness can be assessed, and Minimum Standards developed.

Annex 1, Paragraph 7 describes the specifications of Bird Scaring Lines (BSL) that are deployed in accordance with Annex 1 Paragraph 1(b)(i)(b). If it is assumed that all vessels operating in the SPRFMO Convention area are $\geq 24\text{m}$ in length, then all but one of the BSL specifications in Annex 1 Paragraph 7 align closely with ACAP Best Practice Advice. Where they differ is that for vessels $\geq 24\text{m}$, ACAP recommends that two (paired) BSLs should be used simultaneously to effectively reduce seabird interactions with hooked lines. In contrast, CMM 09-2017 Annex 1 Paragraph 7(a) currently specifies that only 'one or more bird scaring lines must be carried'. If vessels are $< 24\text{m}$ in length, ACAP recommends that one or two (paired) BSLs should be used. Annex 1, Paragraph 7 would be strengthened by clarifying which size vessels the BSL specifications refer to (i.e. $\geq 24\text{m}$ or $< 24\text{m}$), and if $\geq 24\text{m}$, amending Annex 1 Paragraph 7(a) to specify that two (paired) BSLs must be deployed whenever fishing gear is being set. If vessels $< 24\text{m}$ in length do operate in the SPRFMO area, ACAP can provide further best practice advice and guidance on BSL specifications for vessels of that length.

- **Recommendation:** Amend Annex 1 Paragraph 7 to clearly state what size vessel the BSL specifications are for – e.g. $\geq 24\text{m}$.
- **Recommendation:** If applying to vessels $\geq 24\text{m}$ Amend Annex 1 Paragraph 7(a) to specify that two (paired) BSLs must be carried at all times and must be deployed whenever fishing gear is being set from the vessel.
- **Recommendation:** Consider if additional specifications for different size vessels (e.g. $< 24\text{m}$) should be included in Annex 1, Paragraph 7.

3.1.3 Trawl

ACAP Best Practice Advice to reduce incidental catch of seabirds in trawl fisheries includes:

- Measures to reduce general attractiveness to seabirds, through management of offal and discards,
- Measures to reduce cable strikes through deployment of bird scaring lines and not using net monitoring cables, and
- Measures to reduce net entanglement through cleaning nets and minimising the time the net is on the water surface during hauling.

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

Annex 2, Paragraphs 1(c) and 1(d) outline two measures (cleaning nets after every shot, and minimising the amount of time the net is on the water during hauling) which are encouraged to be used in addition to those in Paragraph 1(a) and 1(b). These measures align closely with ACAP Best Practice Advice for reducing the risk of net entanglements. A third measure, which can be applied for pelagic trawl gear in particular, is to apply net binding to, together with weights incorporated into the net belly prior to setting. Specific guidance on net binding is provided in ACAP's Best Practice Advice document for reducing the impact of pelagic and demersal trawl fisheries on seabirds.

- **Recommendation:** Amend Annex 2 Paragraph 1 by adding a third additional measure ('net binding') which is also encouraged to be applied by pelagic trawlers.

Annex 2 Paragraph 2 details circumstances where flagged vessels can relax the number of mitigation measures listed in Annex 2 Paragraph 1 to zero; or, if a seabird mortality is recorded after use of mitigation measures is relaxed, that the flagged vessel must apply the mitigation measures outlined in Annex 2, Paragraph 1 for at least one year. This does not align with ACAP Best Practice Advice for reducing incidental mortality of seabirds in trawl fisheries. ACAP continues to recommend the application of a precautionary approach whereby effective mitigation measures are simultaneously and consistently applied, even if low seabird bycatch rates are recorded.

- **Recommendation:** Remove Annex 2 Paragraph 2 to maintain consistency with ACAP Best Practice Advice which recommends the precautionary approach of always using mitigation measures which have proved effective at reducing incidental mortality of seabirds in trawl fisheries. As no one measure can reduce or avoid incidental mortality of seabirds, then the most effective approach is to use the measures listed in Annex 2 Paragraph 1 in combination.

Annex 2 Paragraph 3 describes the specifications of Bird Scaring Lines (BSL) that are deployed in accordance with Annex 2 Paragraph 1(a)(i). Annex 2 Paragraph 3(c) specifies that, to avoid deflection of BSLs away from cables in strong cross winds, the BSLs must tow a buoy or cone attached to the end of the line to create tension and keep the line straight. For trawl fisheries the Tamini Tabla⁴ was added into the section on BSL minimum standards of the ACAP Best Practice Advice document for trawl fisheries as this device has now been demonstrated to improve BSL performance and is readily available. The Tamini Tabla is an off-setting towed device attached to the terminal end of the BSL and has a buoyant upper board with three 45° vertical keels, which are weighted for stability. Under forward motion of the vessel, the keels cause the device to move outward of the trawl cables and therefore maintain the BSL from entangling with trawl cables.

- **Recommendation:** Amend Annex 2 Paragraph 3(c) by adding the Tamini Tabla as an option for vessels deploying BSLs to create tension and keep the line straight.

Annex 2 Paragraph 4 describes the specifications of Bird Baffles that are deployed in accordance with Annex 2 Paragraph 1(a)(ii). Due to insufficient evidence, ACAP does not currently recommend Bird

⁴ Tamini, L. L.; Braun, S.; Chavez, L. N.; Dellacasa, R. F. & E. Frere. 2023. La Tamini Tabla: desarrollo y diseño final. Agreement on the Conservation of Albatrosses and Petrels, Eleventh Meeting of the Seabird Bycatch Working Group, Edinburgh, UK, 15 - 17 May 2023. SBWG11 Inf 20 Rev 1.

Bafflers as a mitigation measure, however recognises the need for further research and testing to demonstrate and assess efficacy.

- **Recommendation:** Encourage Members to report details of bird baffler configurations and performance to the Scientific Committee so that effectiveness can be fully assessed.

In trawl fisheries, seabirds can be injured or killed upon collision with net monitoring cables. CMM 09-2017 Annex 2 does not currently provide any mitigation measures for reducing or avoiding seabird interactions with net monitoring cables when they are in use. Current ACAP Best Practice Advice for trawl fisheries is that net monitoring cables should not be used (wireless systems can be used instead). However, where this is impracticable, it is recommended that both of the following are implemented: (1) BSLs are deployed, and are specifically positioned to deter birds away from the net monitoring cable; and (2) a snatch block is installed at the stern of the vessel to draw the net monitoring cable close to the water and thus reduce its aerial extent. These should also be used in conjunction with responsible offal/discard management.

- **Recommendation:** Include a section on Net Monitoring Cables in CMM 09-2017 Annex 2, and provide specifications on mitigation measures to reduce incidental mortality of seabirds based on ACAP Best Practice Advice.

3.1.4 Other Fishing Methods

CMM 09-2017 provides specific mitigation measures to be implemented for demersal longlines and trawl fishing gears (Annex 1 and 2, respectively), and we have outlined in Section 3.1.2 and 3.1.3 how those mitigation measures could be more closely aligned with ACAP Best Practice Advice. We note, however, that there are other types of fishing methods also managed by SPRFMO, notably purse seine, jigging, potting and hand/drop/dahn lining fishing. ACAP does not currently have established guidance for reducing incidental mortality of seabirds for all these fisheries but is currently researching and developing mitigation measures specifically for purse seine fisheries. A toolbox of mitigation measures for purse seine fisheries ([SBWG10 Doc 19](#)) was endorsed by AC12, and could be incorporated into CMM 09-2017. Given the potential risk of jigging fisheries on seabirds ([SC6-Doc31](#)), assessing bycatch rates and development of effective mitigation measures should be prioritised.

- **Recommendation:** Include a section on purse seine fishing in CMM 09-2017, and provide specifications on mitigation measures to reduce incidental mortality of seabirds based on the toolbox being developed by ACAP.
- **Recommendation:** Encourage Members to report seabird bycatch in all fisheries where mitigation measures are not yet established, but particularly the jigging fishery, and support development of effective bycatch mitigation measures.

4 REVIEW OF CURRENT PROVISIONS OF CMM 02-2022 (CONSERVATION AND MANAGEMENT MEASURE ON STANDARDS FOR THE COLLATION, REPORTING, VERIFICATION AND EXCHANGE OF DATA)

The management of seabird-fisheries interactions, particularly the reduction of incidental mortality, relies on the effective collection, analysis and reporting of seabird bycatch and associated data. It is

well recognised that the implementation of observer programmes that include the collection and management of seabird bycatch and associated data, is a highly effective means of monitoring fisheries performance with respect to seabird bycatch and use of mitigation measures. ACAP recently formalised [data collection guidelines for observer programmes](#), drawing on a number of reviews, workshops and other initiatives. These guidelines aim to inform the establishment and implementation of effective and standardised data collection and reporting protocols for fishery observer programmes.

This review of CMM 02-2022 focuses on comparing the standards in Annex 7 (Standard for Observer Data), to the recommended data collection variables for longline and trawl fisheries outlined in Tables 1a and 1b, respectively, of the ACAP guidelines. The following variables are recommended by ACAP but are not included in CMM 02-2022. Those variables in bold have been identified by ACAP as critical for assessing seabird bycatch.

General/all methods

- **Sea state (Beaufort Scale)**
- Moon phase
- Wind strength and direction
- Cloud cover (important for night setting)
- Depth fished (average/target depth) (although it is noted that for longlines, bottom depth at start of set is already included)
- Seabird abundance counts

Longline

- **Date gear deployed** (although note, recording Start and End time of gear deployment is specified in CMM 02-2022 Annex 7 Section D)
- Date gear retrieved
- Start time of gear retrieval
- End time of gear retrieval
- Latitude at end of gear retrieval (although note, recording Set end position (lat/lon) is specified in CMM 02-2022 Annex 7 Section D)
- Longitude at end of gear retrieval (although note, recording Set end position (lat/lon) specified in CMM 02-2022 Annex 7 Section D)
- Setting speed
- Composition (%) of bait used (although note, recording bait type – e.g. fish/squid/mixed 0 is specified in specified in CMM 02-2022 Annex 7 Section D)
- Distance between branchlines
- Line setter used (yes/no)
- Line setter speed
- Hook size
- Hook type
- Average horizontal distance between bait entry point and tori line
- **Dumping of bait/offal (yes/no)**. Also describe if dumping of offal took place during setting and hauling and whether offal was dumped on the opposite side of the hauling bay. (Note however,

while recording offal management is specified in specified in CMM 02-2022 Annex 7 Section D, there is no specification to record when offal dumping takes place (setting or hauling) or if dumped on the opposite side of hauling bay).

- Deck lighting astern of the vessel (yes/no)
- Bait caster used (yes/no)

Trawl

- **Start and end time of trawl turns**
- **Start time of haul**
- **End time of haul**
- Latitude at trawl turns
- Longitude at trawl turns
- Tow speed
- **Total number of trawl hours/tows (ideally both)**
- **Total number of trawl hours/tows (ideally both) observed (crucial for calculating seabird bycatch levels)**
- Main discard species
- **Net monitoring cable** (yes/no). If used, where does the cable enter the water in relation to warps
- Door type and area
- Lengthener mesh
- Sweep length
- Deck lighting astern of vessel (yes/no)
- **Warp strike observations**

- **Recommendation:** Amend Annex 7, Sections B and D in CMM 02-2022 as relevant to include those variables listed above that are recommended by ACAP, with a priority focus on those variables listed in bold as critical for assessing seabird bycatch.

A basic understanding of the variety and abundance of seabird species present around a vessel during fishing activity can inform estimates of the bycatch risk posed by that fishing vessel. When in close attendance to trawl vessels, seabirds, particularly albatrosses and larger petrels, risk injury or mortality through collision with warp cables or monitoring cables. Detecting such normally unobserved mortality requires specialised data collection. At the third meeting of the Scientific Committee (SC03), protocols and data collection templates for seabird abundance counts and warp strike observations presented in document [SC-03-25](#) were endorsed. Members were encouraged to collect data on seabird observations and warp strikes using these templates, and to report results to the SC. The protocols and data collection templates have also been included in the ACAP data collection guidelines for observer programmes (Annex 2 and 3, respectively). However, as noted above, SPRFMO CMM 02-2022 does not currently specify that seabird abundance counts (for any SPRFMO fishery) be recorded, or that warp strike observations be recorded in trawl fisheries.

- **Recommendation:** Encourage the SC to provide a report on any seabird abundance or warp strike observation data that has been submitted by Members since the data templates were endorsed.

4.1 Other relevant ACAP resources on seabird bycatch monitoring

In addition to the data collection guidelines for observer programmes, ACAP has developed the following complimentary guidelines for monitoring seabird bycatch in fisheries, and which could be applied in SPRFMO fisheries. These include:

- **Guidelines on electronic monitoring.** Electronic monitoring has been used in a range of fisheries to monitor target and non-target catch, and could provide a cost-effective means of increasing ‘observer’ coverage and monitoring and improving compliance with mitigation measures, thus contributing towards the assessment of bycatch levels. SPRFMO [CMM 16-2023](#) (Observer Programme) acknowledges that electronic monitoring systems have been successfully tested in some fisheries, and includes a provision that if required by a SPRFMO CMM, vessel operators may need to install and maintain electronic monitoring systems as a complimentary monitoring tool. The ACAP guidelines on electronic monitoring may provide a useful tool for establishing minimum standards for their implementation in SPRFMO fisheries where practical and appropriate.
 - **Seabird Bycatch Identification Guide.** All seabirds caught should be identified to species level as far as possible to derive an estimate of the seabird catch per unit effort for each species. The Seabird Bycatch Identification Guide produced by ACAP in collaboration with the Japan Fisheries Research Agency provides a useful tool to help identify bycaught seabirds. However, it may not always be possible to identify a bycaught bird to species level. In these cases, the identification of a bycaught bird at a coarser level (e.g. large/great albatross), or even unidentified birds, still contribute to the estimate of the total number of birds caught. A recommended standard set of nested groupings for unidentified (ACAP) species level is provided in Annex 1 of the Seabird Bycatch Identification Guide, the use of which would allow estimates to be summed at different taxonomic levels.
- **Recommendation:** Encourage the SC to develop minimum standards for electronic monitoring systems for inclusion in CMM 02-2022.
 - **Recommendation:** Include a reference to the ACAP Seabird Bycatch Identification Guide in CMM 02-2022 Annex 7, Section H to assist Observers with the identification and recording of bycaught seabird species to the lowest taxonomic group possible.