

 <p data-bbox="231 533 470 571">Agreement on the Conservation of Albatrosses and Petrels</p>	<p data-bbox="587 235 1385 324">Eighth Meeting of the Seabird Bycatch Working Group</p> <p data-bbox="630 340 1390 383"><i>Wellington, New Zealand, 4 – 6 September 2017</i></p> <p data-bbox="518 454 1366 602">Drivers and barriers in the uptake of seabird bycatch mitigation measures and related conservation actions</p> <p data-bbox="577 627 1310 669"><i>Anton Wolfaardt, Marco Favero, Igor Debski</i></p>
---	---

SUMMARY

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 this aim 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 this paper is to initiate this task. We propose an outline of the main issues that should form part of the investigation, the objectives and scope of work, and invite comments on the proposal and participation 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.

RECOMMENDATIONS

That the Seabird Bycatch Working Group:

1. Review the approach proposed to investigate the drivers and barriers in the uptake and proper use of seabird bycatch mitigation measures.
2. Provide inputs and advice on further actions that could be included to refine and improve the investigation.
3. Encourage Parties and others to participate in the investigation by providing case studies and other information.
4. Consider possible mechanisms for advancing this work intersessionally, including through the ACAP secondment process.

Factores que influyen a favor y en contra de la adopción de medidas de mitigación de la captura secundaria de aves marinas y medidas de conservación afines

RESUMEN

Uno de los objetivos principales del Grupo de Trabajo sobre Captura Secundaria de Aves Marinas del Acuerdo es ayudar a facilitar y respaldar los esfuerzos para evaluar, mitigar y reducir la captura secundaria de aves marinas. Algunos mecanismos para llegar a tal fin incluyen la confección y provisión de información, productos y asesoramiento para ayudar a las organizaciones nacionales e internacionales pertinentes que son responsables de la ordenación de las pesquerías (y de la industria pesquera) a alcanzar esos objetivos relativos a la evaluación y la reducción de la captura secundaria. Durante los debates entablados en GdTCS7, el Grupo de Trabajo destacó la importancia de investigar los factores que influyen a favor y en contra de la adopción de medidas de mejores prácticas para mitigar la captura secundaria de aves marinas a efectos de comprender mejor cómo abordar el tema y cómo sacar provecho de las medidas. El propósito de este documento consiste en iniciar esa tarea. Presentamos las cuestiones principales que deberían formar parte de la investigación, así como los objetivos y el alcance del trabajo, y abrimos las puertas a quienes quieran realizar comentarios sobre la propuesta y participar del proceso. El objetivo final de este proceso consiste en ayudar a identificar maneras de mejorar la adopción de medidas de mejores prácticas para mitigar la captura secundaria en aquellas pesquerías que se superponen con albatros y petreles.

RECOMENDACIONES

Se recomienda al Grupo de Trabajo sobre Captura Secundaria de Aves Marinas realizar las siguientes acciones:

1. Revisar el enfoque propuesto para investigar los factores que influyen a favor y en contra de la adopción y el uso adecuado de medidas de mitigación de la captura secundaria de aves marinas.
2. Proporcionar aportes y recomendaciones sobre medidas adicionales que podrían incluirse para refinar y mejorar la investigación.
3. Alentar a las Partes y a otros a participar de la investigación brindando estudios de caso y otro tipo de información.
4. Considerar mecanismos posibles para lograr avances en esta labor durante el período entre sesiones, incluso mediante el proceso de pasantías del ACAP.

Facteurs favorisant ou entravant la mise en œuvre des mesures d'atténuation de la capture accessoire d'oiseaux de mer et des actions de conservations associées

RÉSUMÉ

L'un des objectifs principaux du Groupe de travail sur la capture accessoire des oiseaux de mer est de promouvoir et de soutenir les efforts visant à évaluer, atténuer et réduire les captures accessoires d'oiseaux marins. Les mécanismes mis en place à cet effet incluent le développement et la mise à disposition d'informations, de produits et de conseils pour aider les organisations nationales et internationales pertinentes responsables de la gestion des pêches (et de l'industrie de la pêche) à réaliser ces objectifs d'évaluation et de réduction des captures accessoires. Lors de discussions menées au GTCA7, le Groupe de travail a souligné l'importance d'identifier les facteurs qui favorisent ou entravent la mise en œuvre des mesures d'atténuation des captures accessoires d'oiseaux de mer relatives aux bonnes pratiques afin de mieux comprendre comment y faire face ou comment en tirer profit. Le but de ce document est d'engager cette action. Nous proposons un aperçu des questions majeures qui feront l'objet d'une partie de l'étude, des objectifs et de l'ampleur de la tâche, et nous invitons à fournir des commentaires sur la proposition et à prendre part à la procédure. L'objectif final de la procédure est de permettre d'identifier les moyens d'optimiser la mise en œuvre des mesures d'atténuation des captures accessoires d'oiseaux de mer relatives aux bonnes pratiques dans les pêcheries coïncidant avec des zones fréquentées par des albatros et des pétrels.

RECOMMANDATIONS

Que le Groupe de travail sur la capture accessoire des oiseaux de mer :

1. Révise l'approche proposée pour étudier les facteurs favorisant ou entravant la mise en œuvre et le bon usage des mesures sur l'atténuation des captures accessoires d'oiseaux de mer.
2. Fasse part de ses avis et conseils sur les actions pouvant être entreprises en vue d'affiner et d'améliorer la procédure de l'étude.
3. Encourage les Parties et les autres parties prenantes à participer à l'étude en fournissant des études de cas et d'autres types d'informations.
4. Examine les éventuels mécanismes pour poursuivre ce travail en période intersessions, y compris via la procédure de détachement de l'ACAP.

1. INTRODUCTION

Incidental fisheries mortality, or bycatch, is the primary threat to most ACAP species, and remains one of the main areas of focus for the Agreement. During the last couple of decades there has been a strong international determination to address this threat. This has manifested in a range of policy instruments, including the development and adoption of ACAP, and others, such as the United Nations Food and Agricultural Organisation (FAO) guidelines for the development of International Plan of Action – Seabirds (IPOA-S), a voluntary framework document that guides the development of National Plans of Action for Reducing the Incidental Catch of Seabirds in Capture Fisheries (NPOA-S).

Coincident, and linked, with these policy developments, has been an increasing effort to quantify the extent of seabird bycatch in fisheries, design and test technical and operational mitigation measures to reduce bycatch, and adopt and implement conservation measures to mitigate seabird. These efforts have shown that by properly implementing an appropriate suite of fishery-specific mitigation measures, seabird bycatch can be progressively reduced, and virtually eliminated.

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 this aim 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. The Seabird Bycatch Working Group routinely reviews the scientific literature on seabird bycatch mitigation to develop and update advice regarding best practices for reducing seabird bycatch. This advice has been well developed for [pelagic longline](#), [demersal longline](#) and [trawl fisheries](#), and is reviewed and updated by the Seabird Bycatch Working Group at each of its meetings. Further, a toolbox of guidelines for artisanal fisheries and other small-scale fisheries is under development ([SBWG7 Doc 12](#), **SBWG8 Doc 16**).

During its Ninth Meeting, the Agreement's Advisory Committee indicated that it would be instructive to investigate the extent to which ACAP's best practice advice on reducing seabird bycatch in fisheries is being adopted and effectively implemented, and to investigate factors that help or hinder the adoption and use of these best practice measures. To elaborate these issues and understand the drivers and barriers associated with uptake of best practice seabird bycatch mitigation measures, this task was incorporated into the Advisory Committee Work Programme (see AC Work Programme, task 3.6). The purpose of this paper is to initiate this task, propose an outline of the main issues, objectives and scope of work, and invite comments on the proposal and participation in the process. The ultimate goal of this process is to help identify ways to improve the uptake of best practice mitigation measures in those fisheries overlapping with albatrosses and petrels.

2. REDUCING THE BYCATCH OF SEABIRDS IN FISHERIES: KEY ELEMENTS

Although fisheries around the world vary in their gear and operational attributes and experience a range of environmental conditions, there are some generic steps and actions that constitute important elements of a seabird bycatch reduction or avoidance strategy. These are outlined

broadly below to provide a basis for the investigation of the factors driving or hindering the implementation of seabird bycatch mitigation measures and related conservation actions.

2.1. Robust assessment of incidental mortality of seabirds in fisheries

One of the first steps in addressing seabird bycatch is to determine whether there is indeed a bycatch problem in the fishery and to ascertain the extent and nature of the problem. Such an assessment relies on the collection of reliable data on (1) seabird-fishery interactions to quantify bycatch rates (the number of seabirds killed by species as well as how, where and when they were killed), (2) temporal and spatial distribution of fishing effort including details of the fishing operation (such as method used, start and finish times, number of hooks or trawls per day, mitigation measures in place, offal management) and, ideally, (3) the distribution of important seabird foraging areas. It is important that assessments are conducted regularly to ensure ongoing monitoring of bycatch rates, and compliance with and effectiveness of prescribed mitigation measures (see below), thus enabling an informed and adaptive approach to seabird bycatch mitigation. Ongoing monitoring of seabird bycatch rates, and the effectiveness of bycatch mitigation measures (see below) depend critically on the collection and analysis of data, and the implementation of a formal onboard observer scheme. In order to understand the impacts of fisheries bycatch on vulnerable species and populations, it is necessary to obtain population demographic data from breeding colonies. Given the long-lived nature of albatrosses and petrels, these data should be based on long-term studies. Ideally, these fisheries, bycatch and demographic data should be incorporated into some form of Ecological Risk Assessment of the effects of fishing on seabirds, including (1) the identification of particularly vulnerable species or populations, (2) the identification of key areas and seasons in which bycatch may be occurring, and (3) the highlighting of data gaps and priorities for future monitoring and conservation action (Small et al. 2013).

2.2. Data collection and the implementation of an onboard observer scheme

The implementation of an onboard observer scheme is a crucial element of any seabird bycatch reduction strategy. In the context of seabird bycatch mitigation, the purpose of observer schemes is to collect reliable data on seabird bycatch and to assist fishers in the proper use of mitigation measures. Monitoring of compliance with prescribed mitigation measures is another important component in achieving successful bycatch reduction outcomes, and it is useful to note that in many fisheries, compliance monitoring does not form part of the scientific observers' responsibilities.

It is important that observers are properly trained, and that data collection protocols are clearly defined, standardised and form part of a robust mechanism that allows for the efficient assessment and reporting of seabird bycatch. In many fisheries, the observer programmes (or lack thereof) and the quality and quantity of data collected have been inadequate to obtain reliable estimates of seabird mortality. One of the problems has been insufficient coverage of fishing activities by observers, especially observers who are trained and tasked to observe and monitor seabird-fisheries interactions. It is essential to determine the level of seabird observer coverage required to obtain reliable estimates of seabird mortality, and incorporate this into the data collection protocols. Ideally observer schemes should include dedicated seabird observers, especially in areas and fisheries that have been identified as hot spots for seabird mortality. However, the reality is that the observers in many schemes are tasked primarily with

a range of other duties relating to stock assessment and other fisheries management functions. In these cases it is crucial that sufficient time is dedicated to seabird-fishery interaction observations, and that this is specified explicitly in the observer protocols.

2.3. Prescription, adoption and implementation of effective seabird bycatch mitigation measures

Whilst research is still continuing on a number of emerging mitigation measures, there are already a range of proven methods available for minimising seabird bycatch that are cost-effective and practical to use. It is generally recognised that although some mitigation measures are more effective than others a suite of mitigation measures is required to address adequately the problem of seabird bycatch, and this need to be tailored for use in a specific fishery. ACAP's best practice advice is developed and routinely updated to identify the most effective measures to reduce seabird bycatch. Given that such advice is prepared based on the best knowledge available in the literature at the time, and compiled by a large body of experts, mitigation measures adopted by fisheries management bodies should ideally be based on this best practice advice. It is important that the mitigation methods adopted, especially those prescribed in permit conditions and resolutions, are described unambiguously. Compliance, including the proper use of mitigation measures, is a critical issue affecting the success of these measures, and in many fisheries is the main downfall of seabird bycatch reduction strategies.

The reasons for poor compliance are many. Dealing with poor compliance generally requires a two-pronged approach that includes education, awareness and training efforts on the one hand, and effective compliance monitoring and enforcement on the other. Clearly, one of the key barriers in the uptake of seabird bycatch mitigation measures relates to operational feasibility. Several years ago, ACAP adopted a [definition of best practice seabird bycatch mitigation, and criteria for assessing whether a measure represents best practice](#), which includes operational feasibility. Specifically, criteria (iii) considers that seabird bycatch reduction measures should be practical, safe and cost-effective. Much of the ongoing research into seabird bycatch mitigation measures is directed towards improving designs of existing measures, thus contributing to continual improvements in the efficacy and practical use of these measures. This highlights an important point when considering barriers and drivers in the uptake of best practice seabird bycatch mitigation measures: that our knowledge and advice regarding best practice is not static. Communicating the (evolving) best practice advice to target audiences needs to be mindful of the length of time it takes for the adoption and established use of a particular suite of recommended bycatch mitigation measures, which may be slower than the time it takes for the advice to be updated, creating a potential mismatch between these two processes.

2.4. Education, training and publicity

Low levels of compliance with seabird bycatch mitigation measures are often due a lack of understanding of the severity of the seabird bycatch problem, and insufficient technical experience and knowledge of the proper use of mitigation measures. Education, training and general awareness programmes are therefore critical elements of any seabird bycatch reduction strategy. Education and outreach programmes should be properly targeted (fishers, observers, compliance officers and policy makers), and tailored for the specific fishery. There

are a number of relevant initiatives underway in different parts of the world (and a number of networks that work in the field of seabird bycatch mitigation), and there is great scope for the transfer and exchange of knowledge and expertise. However, there is no single correct approach, and any initiative dealing with education, training and awareness needs to be properly placed in, and informed by, the relevant cultural and socio-economic context. In general, initiatives where fishers are seen as partners in the process of finding solutions to bycatch problems result in more successful uptake of these measures

2.5. Research and development

It is important that research efforts continue to assess the effectiveness of current mitigation measures (both experimentally and operationally) so that these methods and their implementation can be further improved, as well as developing and testing novel measures that are practicable and cost-effective. There is also a need to integrate more effectively the human and institutional aspects of seabird-bycatch reduction into research programmes (Campbell & Cornwell 2008), and to continue studies (and initiate further studies where necessary and feasible) into the relevant aspects of the foraging ecology, demography and conservation management of the affected species. Opportunities to collaborate, and share expertise, knowledge and data, should be maximised, and ACAP could allocate further resources to promote such collaboration. The small grants scheme and secondment programme could serve as useful mechanisms in this regard.

2.6. Setting explicit targets (limits) and timelines

The ultimate objective of any seabird bycatch reduction or avoidance strategy is to reduce the number of seabirds impacted by fishing activities to negligible levels and thus contribute towards improving the conservation status of the affected species. Realistically, this objective is normally achieved in a step-wise, progressive manner. In order to ensure progress towards stated objectives, it is important that explicit bycatch targets, or limits, are set together with timelines. These targets and timelines provide transparent criteria by which to measure objectively the success of the strategy and the stated objectives and actions, thus ensuring an informed and adaptive approach to bycatch mitigation. The approach often used in NPOA-S is to set as a limit the number of birds caught or hooked per 1000 hooks set (for longline operations). These targets (e.g. 0.05 birds per 1000 hooks) tend not to be based on any biological thresholds, but rather based on reductions of current levels of bycatch that are achievable. As with bycatch targets, it is also important to determine and stipulate clearly the level and distribution of observer coverage required to obtain robust estimates of seabird bycatch.

To be effective, seabird bycatch reduction or avoidance strategies need to address all of these issues. Broadly they need to be scientifically based (making use of mitigation measures that have proven to be effective), influence the development and adoption of appropriate policy instruments (legal environment), and contribute towards effective compliance with and enforcement of the regulations and guidelines. Although there have been advances in many of these aspects, there remain significant barriers to the uptake of best practice bycatch mitigation measures in many fisheries. Indeed, one of the major challenges associated with reducing seabird bycatch is to translate relevant research outputs into national and

international policy instruments, and especially into concerted action on the decks of fishing vessels.

3. SUPPORTING EFFORTS TO REDUCE OR AVOID SEABIRD BYCATCH

The Seabird Bycatch Working Group was established to work with ACAP Parties and Range States to develop recommendations and advice on technical and policy matters relating to bycatch mitigation in fisheries that interact with ACAP listed species. This includes identifying actions (including research needs and priorities) that will support efforts to assess, mitigate and reduce incidental seabird mortality in fisheries, and develop technical information and products to assist Parties, RFMOs and other relevant bodies to reduce seabird bycatch. A key component of these efforts has been the development and ongoing review and updating of advice on best practices to mitigate seabird bycatch in fisheries. ACAP has also developed guidance and products relating to the other elements of an effective seabird bycatch reduction strategy outlined in section 2.

There are a number of related initiatives and international networks that work to promote the reduction of seabird mortality in fisheries. Many ACAP Parties and Range States have made considerable efforts that have been successful in reducing bycatch in their fisheries. The Albatross Task Force (ATF) of BirdLife International's Global Seabird Programme is one of the main initiatives operating in the field of seabird bycatch reduction in the southern hemisphere. The ATF was established in 2006 and comprises an international team of mitigation practitioners and instructors working with fishers and government organisations in seabird bycatch hotspots. The focus of the ATF is to work collaboratively with fishers, fishery managers and government officials to demonstrate the efficacy of seabird mitigation measures, to promote compliance with these measures, and to encourage the adoption of appropriate fishery-specific mitigation measures into the regulatory framework of the various countries in which they are operating.

There has also been progress in how RFMOs have addressed seabird bycatch mitigation. These improvements have taken a long time to achieve, and although not perfect, most of the RFMOs have in the last decade established Bycatch Working Groups, and formally adopted seabird conservation and management measures that are informed by ACAP's best practice advice. In spite of these successes, it is evident that the proper uptake of best practice seabird bycatch mitigation measures remains limited, even for many fisheries which legally require their fleets to use them. In order to promote the more widespread use of best practice seabird bycatch mitigation measures, it would be useful to investigate the factors that promote the proper use of these measures, and importantly the factors that serve as barriers to uptake. A better understanding of these factors is required to help minimise the 'knowing-doing' gap – the gap between research and real-world action (Knight et al. 2008). In relation to ACAP, it will help ensure an adaptive approach to the development and communication of advice and associated products on seabird bycatch mitigation.

4. PROPOSED APPROACH TO INVESTIGATE THE DRIVERS AND BARRIERS IN THE UPTAKE OF BEST PRACTICE SEABIRD BYCATCH MITIGATION MEASURES

A similar exercise was undertaken in 1999, when the Pacific Seabird Group held a symposium titled '*Seabird Bycatch: Trends, Roadblocks and Solutions*' (Melvin and Parrish, 2001). Some of the issues identified in that exercise, such as the rarity of bycatch events and the consequent perception of (some) fishers that these do not represent an urgent conservation problem, as well as the limited implementation of ecosystem and precautionary approaches in fisheries management (although frequently referred in conservation measures), are still not fully resolved almost two decades ago. The intention of our proposed review is to re-consider this issue (i.e. drivers and barriers in the uptake of effective seabird bycatch mitigation strategies), especially in relation to ACAP, which has been in force since 2004. BirdLife International and the Royal Society for the Protection of Birds (RSPB) have recently published a very useful booklet that presents real-world bycatch success stories (Royal Society for the Protection of Birds & BirdLife International 2017). It is hoped that some of these, and other, case studies and reviews (such as Hall et al. 2017) can be used in the proposed review to help elucidate the drivers and barriers influencing the uptake of best practice seabird bycatch mitigation.

The ultimate objective of the review is to gain a better understanding of these drivers and barriers, and use this to refine the Agreement's strategy to assist Parties, Range States, fisheries administrations and other organisations in improving the adoption and proper use of effective ('best practice') seabird bycatch mitigation measures across all fisheries overlapping with albatrosses and petrels. We propose that the scope of work encompasses the entire ACAP approach, from the development and updating of best practice advice to facilitating its uptake/implementation. Regarding the development of advice, the review could cover the process that ACAP follows to assess the efficacy of bycatch mitigation measures, including the criteria for assessment. This section of the review could also deal with some issues that come up from time to time relating to the specificity of the advice. Generally, the ACAP advice is quite broad, as it is designed to cater for a wide range of fleets, which often differ markedly in their gear configurations and operational and environmental conditions. It is intended that Parties, RFMOs and other organisations tailor this advice to their particular fleets.

The review would then move on to the translation of the ACAP advice into policy, and finally from policy to implementation. These different stages operate in a step-wise process, each of which are connected, but often with slightly different target audiences, and which may experience drivers and barriers that are different in nature. It is intended that the review would be geared towards ACAP in the first instance, but it is anticipated that the outcomes are likely to be of broader relevance. Outcomes should include identification and characterisation of the key barriers and drivers (some of them already referred in this document) and how best to take address or take advantage of these. Issues to consider through this process include (1) how we might consider modifying the process of developing and communicating our advice and products to lead to more effective and widespread use of bycatch mitigation on the decks of vessels, (2) what mechanisms are already in place that we could better utilise (such as market incentives), and (3) the possible use of new mechanisms to achieve these objectives. It is critical that the proposed review be undertaken as a collaborative effort, and we would value comments and offers to participate from experts and practitioners across a wide range of fisheries.

5. REFERENCES

Royal Society for the Protection of Birds (RSPB) and BirdLife International. 2017. Towards seabird-safe fisheries: global efforts & solutions. Available [here](#)

Hall M, Gilman E, Minami H, Mituhasi T, Carruthers E (2017) Mitigating bycatch in tuna fisheries. *Reviews in Fish Biology and Fisheries* doi 10.1007/s11160-017-9478-x

Knight AT, RM Cowling, M Rouget, A Balmford, AT Lombard & BM Campbell. 2008. Knowing but not doing: Selecting Priority Conservation Areas and the Research–Implementation Gap. *Conservation Biology* 22: 610–617.

Melvin EF & Parrish JK (Eds). 2001. *Seabird Bycatch: Trends, Roadblocks, and Solutions*. University of Alaska Sea Grant, AK-SG-01-01, Fairbanks. Available [here](#)

Small C, Waugh SM, Phillips RA (2013) The justification, design and implementation of Ecological Risk Assessments of the effects of fishing on seabirds. *Marine Policy* 37: 192-199