Seabird-Safe Fishing Toolkit

A resource for high seas pelagic longline fisheries

September 2025

Department of Conservation
Te Papa Atawhai

SOUTHERN SEABIRDS

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Cover image credit: Emma Scheltema

Executive summary

The Seabird-Safe Fishing Toolkit (the Toolkit) is an interactive website[1] for fishing companies who want to make their business more seabird-safe. For the Toolkit, Seabird-safe fishing is defined as when effective practices to avoid catching seabirds are used and monitored.

The Toolkit is designed for large pelagic longline fishing vessels (greater than 24 meters), operating in any ocean. This class of vessel predominantly fishes on the high seas and creates fishery risk to some of the world's most vulnerable seabirds.

The Toolkit is based on the best available science and is intended to be a single, trusted source of information that tuna businesses can use to make decisions. The Toolkit has been endorsed by The Agreement for the Conservation of Albatrosses and Petrels (ACAP), the leading global authority on seabird conservation. ACAP's ongoing input and support will ensure the Toolkit remains grounded in their latest science and advice.

The Toolkit is available in four languages (English, Japanese, Traditional Chinese and Simplified Chinese).

The Toolkit contains three tools:

1. **Seabird Safety Tool**

   An interactive tool that allows a fishing company to assess how seabird safe their fishing is, depending on where their vessels fish and the practices they use.

   A company can set a goal for improvements to their seabird safety and the tool identifies the practices or methods that will enable them to achieve this. A company can export a PDF or CSV seabird-safety report to share to their business networks and valued stakeholders.

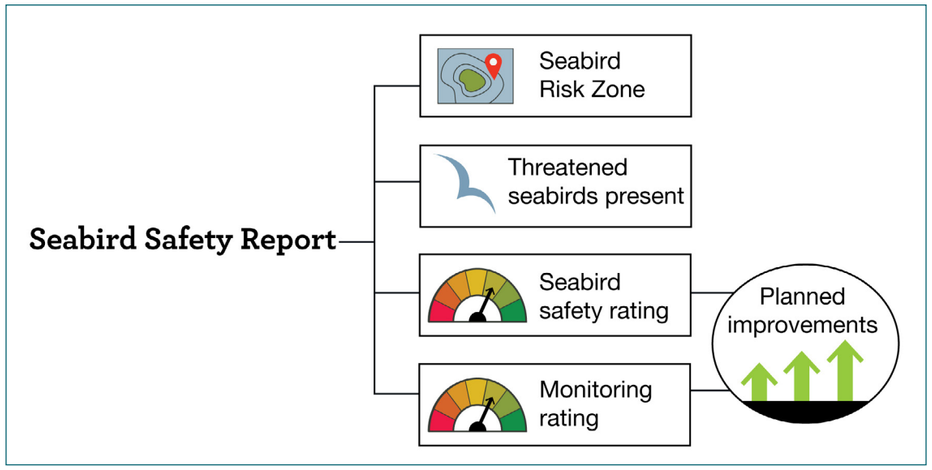

Figure 1: Contents of a seabird-safety report.

2. **Seabird Mapping Tool**

   An interactive map that zones the world's oceans according to threatened seabird distribution and extinction risk (Rowley, et al. 2024). Individual seabird species or combinations of species can be selected to check their distribution and risk. Fishing companies and others in the tuna supply chain can use the map to check the seabird risk of different tuna fishing areas. Other map users are likely to include fisheries stakeholders, Fisheries Improvement Plan (FIP) managers, fisheries currently MSC certified or working towards certification, MSC assessors and governing bodies.

3. **Practical Tools**

   Detailed practical information describing proven seabird-safe measures and monitoring methods applicable to the vessel class the Toolkit is aimed at. This part of the Toolkit is for fishers and others who are wanting advice on how to build, install and use seabird safe practices. It is also for people who want to understand the capabilities of current monitoring practices and technology in detecting appropriate use of seabird safe practices. Information on cost, and impact on target catch is included where this is available.

Fast sinking hooks with added weights help avoid catching seabirds.

1 www.doc.govt.nz/seabird-safe-fishing-toolkit

1. Introduction

1.1 Seabird bycatch in high seas longline fisheries

There is emerging evidence of extinction - level declines of many seabird species across the globe. ACAP has declared a ‘conservation crisis for albatrosses and petrels due to bycatch in fisheries operations, stating that 31 species listed by ACAP are under threat (ACAP, 2025).

Albatrosses and petrels spent a high proportion of their lives foraging on the high seas, in the same ocean areas as tuna longline fleets (Beal et al, 2021). Most tuna longline fishing effort takes place on the high seas, beyond national jurisdictions (FAO, 2014). This spatial overlap is a primary reason why high seas longline fishing poses such a significant bycatch threat to these seabirds.

Royal albatrosses’ foraging ranges intersect with tuna fisheries in the South Pacific, South Atlantic, and South Indian Oceans. Photo: Peter Moore

1.2 Mitigation that makes fishing safe for seabirds

Highly effective practices have been developed to mitigate the bycatch of seabirds in fisheries, most particularly in pelagic longline fisheries.

ACAP regularly reviews scientific research and maintains a recommended list of best practice measures. Evidence shows that using ACAP best practice mitigation can significantly reduce seabird bycatch even in high risk areas (ACAP, 2025). Despite this, the measures have not been widely adopted in many fleets.

1.3 How the toolkit will help

Although seafood consumers may be unaware of the seabird crisis, parts of the tuna supply chain recognise the need to improve their sustainability credentials, and this includes marine wildlife conservation issues. Extinctions are not good for business.

In discerning markets, large retailers will only sell tuna with sustainability credentials such as Marine Stewardship Council certification (MSC). The v3.1 MSC Fisheries Standard for Endangered, Threatened and Protected species (ETP species) sets a higher bar than previous versions. It includes reviewing and implementing best practice mitigation measures or a strategy, and demonstrating that they are working.

Until now, there has not been a simple tool that helps guide tuna companies with objective setting, planning and monitoring in relation to seabird bycatch. With growing pressure on companies to address their ETP impacts, the Toolkit will help fishing companies make the transition to seabird-safe fishing easily and swiftly.

The Toolkit is for tuna longline vessels more than 24m in length. Photo: Fransisco Blaha

2. The seabird-safe fishing toolkit

The Toolkit makes evidence-based information available to assist tuna companies and those supporting them to:

- make informed decisions that support reductions in seabird captures
- transparently demonstrate the use of seabird-safe practices.

The Toolkit has three main parts:

Seabird Safety Tool: An interactive seabird-safe assessment and improvement tool for fishing companies

Seabird Mapping Tool: a global map showing seabird distributions and risk zones for fishing companies and fisheries stakeholders

Practical Tools: information on seabird-safe measures and monitoring methods for fishers

Each of the tools is described in the following sections.

2.1 Seabird safety tool

This part of the Toolkit is for fishing companies and allows them to carry out a self- assessment of how seabird-safe their vessels are, and plan how they will improve. The tool guides the user through a series of steps.

2.1.1 Which vessels and when

Before commencing their assessment, the company decides which vessels they wish to assess, and over what period (i.e. the past 6 or 12 months; or, if the company is yet to commence fishing, they can select 'future fishing').

2.1.2 Seabird Risk Zone

The user is presented with a map that shows seabird risk zones (High/Medium/Low). The risk level is determined by the number and diversity of threatened seabirds present in the area and the vulnerability of the species assemblage to bycatch (i.e. the degree to which the species dive on hooks) (Rowley et al. 2024). The map shows seabird risk zones for all ocean areas throughout the world.[2]

The user is asked to draw the bounds of their fishing operations onto a map for the assessment period they have selected. Up to three areas can be selected. The vessels within each area need to be using the same seabird-safe measures and monitoring practices. If no measures or monitoring are being used, a single area can be drawn. The map shows the user the level of seabird risk for each operational area that they are fishing. See Figure 2.

2.1.3 Seabird Safety Rating

In the next step the user is presented with a list of seabird-safe measures and they select those that are being used on the vessels, and that meet the recommended minimum specifications. The user repeats this for each operational area. The tool only includes scientifically proven seabird- safe practices. Even if other practices are favoured by fishers, they are not included unless there is scientific evidence endorsed by ACAP showing they are effective.

The practices included are: bird-scaring lines, night setting, line weighting, hook shielding devices, and underwater bait setters. Combinations of practices can be selected.

2 The Southern Hemisphere is live as of August 2025, and Northern Hemisphere will be completed later in 2025.

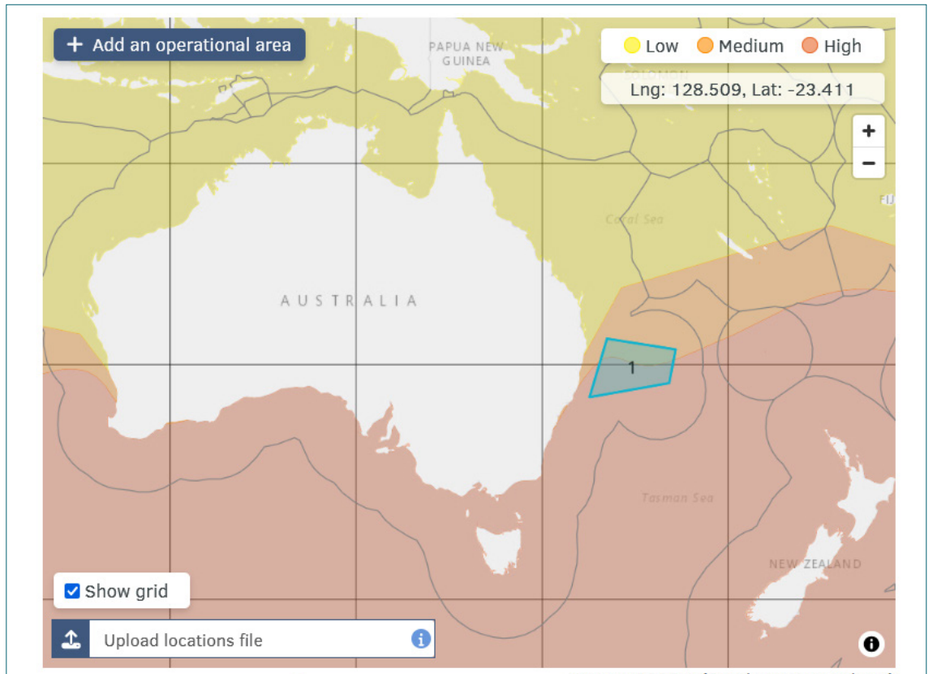

Figure 2. An example operational area (blue shape above).

Hook shielding devices are included in the tool. Photo: Tamzin Henderson

Once the user selects the practices they use, they can see their seabird safety rating on a dial.

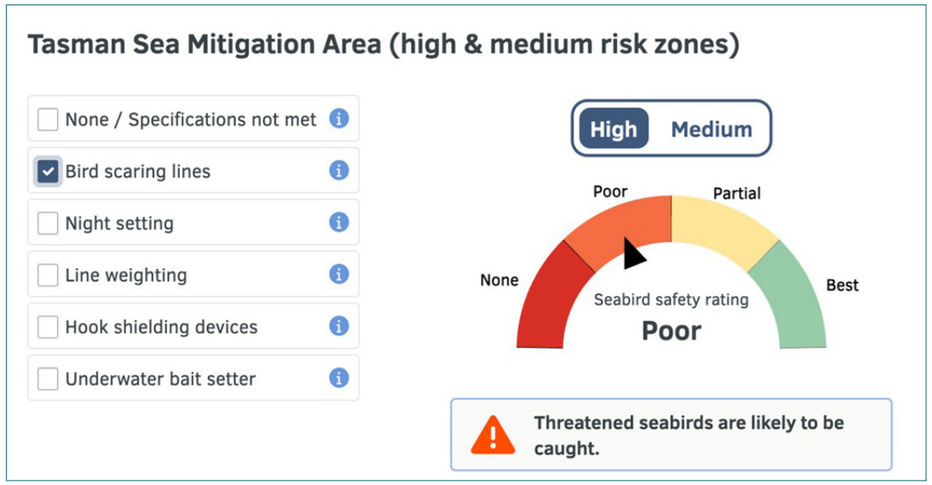

Figure 3: Using only bird scaring lines in a high risk zone gives a ‘poor’ rating.

The rating takes account of the effectiveness of the measure as well as the seabird risk zone the vessels are operating in. For instance, a practice may be less effective in a high risk zone where there are higher densities of species which aggressively dive on hooks, compared to a medium risk zone. If an operational area encompasses more than one risk zone, the seabird safety rating of the measure(s) are shown for each zone.

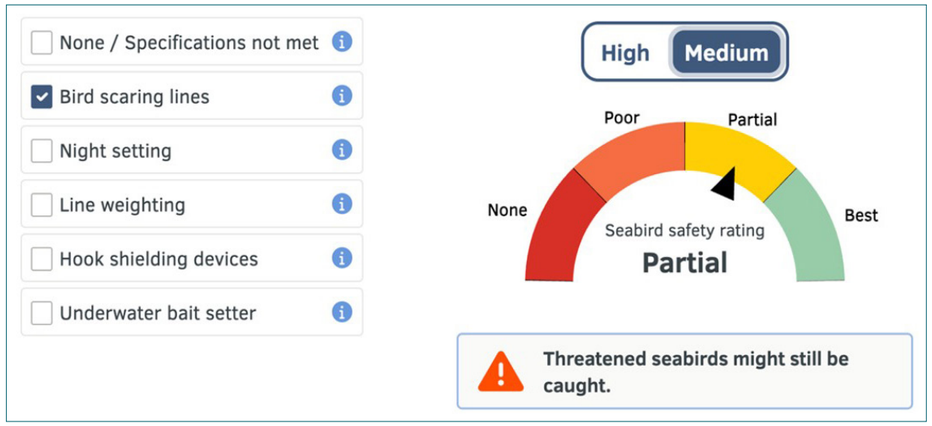

Figure 4: When an operational area has more than one risk zone, the user can toggle between risk zones to see how this affects their rating.

The seabird-safe ratings are:

- **None:** Threatened seabirds are highly likely to be caught.
- **Poor:** Threatened seabirds are likely to be caught.
- **Partial:** Threatened seabirds might still be caught.
- **Best:** Threatened seabirds are unlikely to be caught.

The rating is expressed as ‘likelihood of catching seabirds’ rather than the usual ‘seabird capture rate’ metric which is not meaningful without robust fishery-specific bycatch data.

The specifications of seabird-safe practices influence how effective they are. The Toolkit guides users to only select practices that meet listed recommended minimum specifications.

2.1.4 Monitoring Rating

The user then selects the monitoring method(s) in use on the vessels. The list includes human observers, electronic monitoring, dockside inspections, remote monitoring systems (VMS/AIS), bird-scaring line tension devices, and underwater bait setter sensors. If a company is using a combination of monitoring methods, they can select multiple methods.

Once a selection is made the user can see their monitoring rating on a dial, and this rating takes account of the seabird-safe practice(s) selected in the previous step.

With the exception of human observers, monitoring methods can only verify some seabird-safe practices. As well, some monitoring methods can only check whether a practice is in use, and not whether it has the recommended minimum specifications, or vice versa. For instance electronic monitoring can confirm whether a bird scaring line is being used, but cannot confirm the spacing and length of the streamers. However, when electronic monitoring is used in combination with dockside inspections, a ‘best’ rating for monitoring is achieved.

Electronic monitoring can detect if a bird scaring line is in use, but not check it meets recommended minimum specifications. Photo: CSIRO

The ratings are:

- **Best:** can check if seabird-safe practices are used and if all specifications are met.
- **Partial:** can check if seabird-safe practices are used, and if some but not all specifications are met.
- **Poor:** cannot check if seabird-safe practices are used but can check if some specifications are met.
- **None:** cannot check if seabird-safe practices are used or if specifications are met.

2.1.5 Improvement Step

The user is taken through a checking step where they are asked to confirm that the seabird-safe practices and monitoring methods they have selected meet the recommended minimum specifications. They then move on to a summary report stage.

Here a new element is introduced, which is the opportunity to set a goal for an improved rating for their seabird-safe practices and/or their monitoring. For instance if a user has a ‘partial’ rating for their seabird-safe practices, and selects ‘best’ as their goal, the tool will take account of the fishing zone they operate in, and give them the options that will achieve ‘best’ in that zone. They can also select a timeline for the improvement if they wish to set one.

2.1.6 Exportable Seabird Safety Report

The user can download a seabird-safety report in either CSV or PDF format (or both) so they can communicate their seabird risk zones, overlap with threatened species, assessment ratings and improvement goal to their business networks and valued stakeholders. They have the option of adding their name, company, vessel name(s), and IMO number(s). No information is stored within the Toolkit.

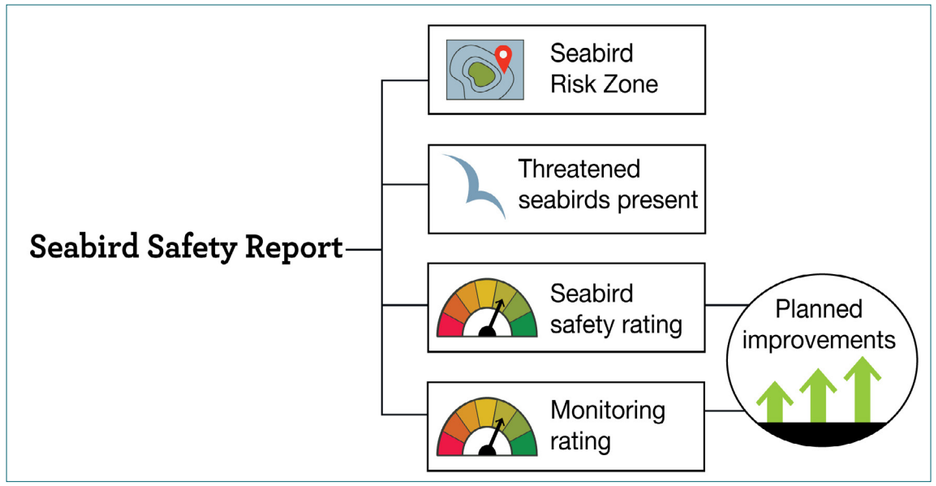

Figure 5: Contents of a seabird-safety report.

2.2 Seabird mapping tool

This second part of the Toolkit is an interactive map that allows a user to view the seabird risk zones of the world's oceans. The Toolkit 'seabird risk zones' delineate ocean areas into zones of high, medium and low risk of bycatch of threatened seabird species by pelagic longline vessels. Noting that 'risk' has multiple meanings in fisheries management, for the Toolkit, 'risk' is related to areas where i) threatened species that interact with pelagic longliners occur ii) high species diversity occurs and, iii) where Procellaria petrels are present. Procellaria petrels have aggressive feeding and diving capabilities, and increase the availability of baited hooks to other seabirds such as albatross species, which makes them more susceptible to being caught.

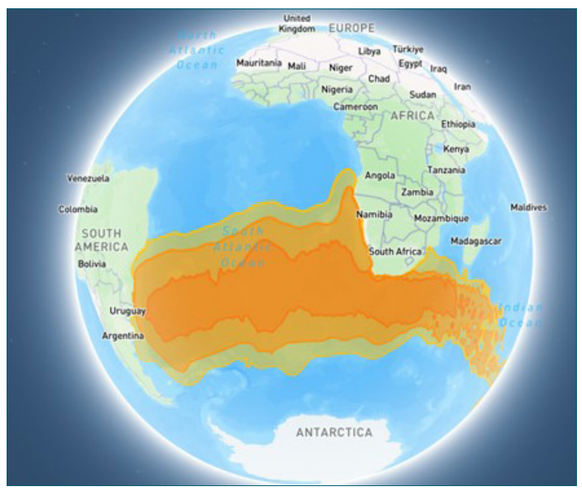

Figure 6: Seabird mapping tool showing risk zones for Tristan albatross

In addition, the map allows a user to select the distribution of specific threatened seabirds of interest and see where they occur. The user can also choose to display Exclusive Economic Zones (EEZs) and Regional Fisheries Management Organisation (RFMO) boundaries.

We expect that a wide group of people may find the map useful including fishing companies, fisheries currently MSC certified or working towards it, MSC assessors, Fishery Improvement Project providers, environmental NGOs, governments, and academics.

2.3 Practical tools

This section of the Toolkit describes each seabird-safe measure in detail and provides indicative costings, impacts on target catch and the recommended minimum specifications to be effective. This section is likely to be useful for fishing captains, and anyone else seeking advice on how to build, install and use these practices. Diagrams, photos and videos support the information.

The preparatory work carried out prior to developing this section included a literature search on effects of seabird safe practices on target catch and other Endangered, Threatened and Protected (ETP) species. Information on these effects was patchy, but where reliable scientific evidence was available, this was included.

This section also describes each monitoring method, and includes details on frequency of checks, review and reporting recommendations. This section is likely to be useful for fleet managers and others wishing to ensure the practices are used.

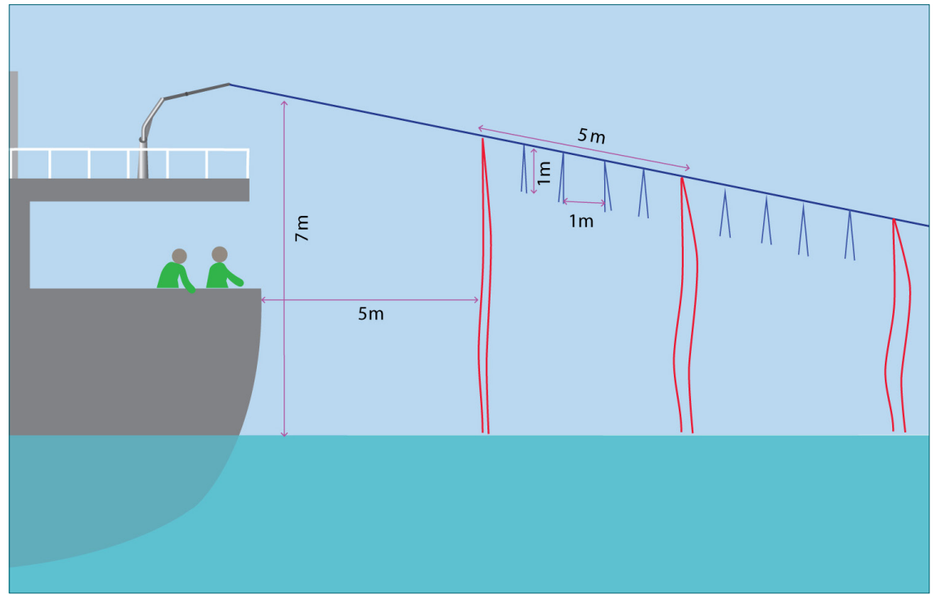

Figure 7: The practical tool section provides detailed instructions on each practice such as bird scaring lines shown here.

3. How the Toolkit was developed

The Toolkit is based on the latest science and technical information, and was developed by leading global experts on seabird-safe practices and monitoring methods. A full description of the science underpinning the Toolkit and the methodology used is available on the Toolkit website.[3]

In addition, a group of potential end users (called The Ground Truthing Group) provided feedback on each draft of the Toolkit and influenced the final design and function of the Toolkit. Members included fishing companies, fish buyers, industry representatives, environmental NGOs, and organisations supporting the tuna industry achieve their sustainability goals.

We developed the Toolkit over the period from 2022 to 2025 with the support of the Asia Pacific Economic Cooperation (APEC) Ocean and Fisheries Working Group. In addition, ACAP have endorsed the Toolkit, and updates will draw on any new advice ACAP provides.

3 https://www.doc.govt.nz/globalassets/documents/about-doc/role/international/seabird-safe-toolkit/seabird-safe-toolkit-methodology.pdf

4. RFMO measures and MSC certification

The conservation and management measures adopted by RFMOs are legally binding and apply to the vessels the Toolkit is designed for when they are fishing in RFMO areas. While the negotiation process leading up to adoption of RFMO measures includes discussion of scientific evidence, the final decision is based on what can be agreed amongst all parties. This means that a fishing company meeting RFMO requirements may still not be fishing in a very seabird-safe way, and if they use the Seabird Safety Tool to assess their operations, their rating may show they are likely to be catching threatened seabirds.

Similarly, Fisheries certified as meeting the MSC Fisheries Standard using the v2.01 standard may also find their seabird safety rating shows they are likely to be catching threatened seabirds. This is because, while MSC standards help to improve seabird safety, there may still be a way to go to achieve ‘best’ seabird safety. MSC v3.1, which came into effect in October 2022, requires fisheries to manage their impacts on Endangered, Threatened, and Protected (ETP) species, including seabirds, to a degree that does not hinder their recovery to a favourable conservation status (MSC, 2022). This requires the application of global best practice methods or a demonstration that the fishery’s impacts are negligible. The Seabird Safety Tool will be useful for users wanting to know what best practice is, as it is based on ACAP best practice science and advice.

5. Future improvements

The Toolkit will be updated to keep current with new information. The seabird safe practices are likely to be fairly stable, while seabird distribution and risk zones may change due to the continued collection of new information from seabird tracking studies. Monitoring methods are also likely to improve over time, particularly through technological improvements of electronic, or other remote monitoring systems.

The PDF and CSV reports produced from the seabird safety tool will state which version (and methodology) they used so that companies and others wishing to track changes over time can take this into consideration.

In future we hope to add two additional types of information into the Toolkit:

- **The economic implications of seabird-fishing.** Fleet managers and vessel captains often consider the direct cost of purchasing and implementing seabird-safe measures but rarely the full ledger of costs and benefits. In an exploratory analysis, Pierre et al (2021) illustrated that economic benefits can result from using seabird safe measures. This is from such things as less wasted bait eaten by seabirds, and more hooks available to catch tuna, as well as less gear needing to be replaced following seabird entanglements.
- **The number of seabirds that can be saved using seabird-safe fishing practices.** We plan to develop a model that calculates the number of threatened seabirds that would be prevented from being hooked, depending on the location of fishing, fishing effort and the seabird-safety practices being used.

Contacts

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