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Review of Conservation and Management Measure to mitigate the impact of fishing for highly migratory fish stocks on seabirds (CMM 2018-03): an update of WCPFC-SC20-EB-WP06.

WCPFC-SC21-2025/EB-WP-07

New Zealand

Contents

1 Summary and recommendations

Over 2024 and 2025, New Zealand led a review of CMM 2018-03 *Conservation and Management Measure to mitigate the impact of fishing for highly migratory fish stocks on seabirds*.

In 2024, the process included 1) the collation of all relevant scientific papers; 2) two informal virtual meetings with WCPFC Members and Participating Territories, their industry representatives, and WCPFC Observers; 3) bilateral meetings with Members; and 4) discussions at SC20, TCC20, and WCPFC21.

WCPFC21 tasked New Zealand to continue to lead the review of the seabird measure in 2025.[1] In May 2025, New Zealand set out the process for the review of CMM 2018-03, consistent with the tasking in paragraph 552 (a) of the WCPFC21 Summary Report.[2] This included an invitation for CCMs to provide: further comments on the science reviewed in 2024; any new science and supporting information; and further comments on the New Zealand proposal for CMM 2018-03 tabled in 2024 (WCPFC21-2024-21). New Zealand arranged further bilateral meetings with CCMs that wished to discuss the science or 2024 proposals.

This paper takes account of discussions in 2024, and further feedback in 2025, on New Zealand's proposals to strengthen CMM 2018-03. As a result, New Zealand has revised the scope of proposed amendments to CMM 2018-03 and proposes that amendments to CMM 2018-03 be presented in stages. The priority is to focus on areas where the most benefit can be realised while minimising impacts on fishing.

For the **first stage** in 2025, New Zealand proposes to focus efforts to improve the Southern Hemisphere measures to address bycatch risk to the most endangered species. A **second stage** would focus on improving other measures, such as those used in the Northern Hemisphere. This prioritisation is supported by the evidence presented in this paper, which highlights that:

- The conservation status of WCPFC seabirds is poor and worsening.
- Southern Hemisphere species are at greater risk and some, such as the Antipodean Albatross, may face extinction within 50 years.
- Longline bycatch is a top threat for seabirds in the Convention Area and is likely the main driver of extinction risk for several Southern Hemisphere species.
- The most important habitat for endangered Southern Hemisphere species is the high seas South of 25°S.
- The endangered Antipodean and Gibsons albatrosses are at particular risk when they are in the high seas area between 25°S to 30°S due to their overlap with

[1] WCPFC21 Summary Report | WCPFC Meetings, paragraph 552.

[2] Circular No. 2025/24: New Zealand's process for reviewing the Conservation and Management Measure to mitigate the impact of fishing for highly migratory fish stocks on seabirds (CMM 2018-03)

fishing effort, and because vessels are required to use only one mitigation method in this area under CMM 2018-03.
- There is high probability of seabird bycatch by longline fishing vessels South of 30°S due to the high numbers of seabirds.

This paper sets out the evidence and rationale for three priority recommendations:

1. In the area 25°S to 30°S, *require* the combined use of two measures from the following: tori lines, branch line weighting, and night setting. Or use hook shielding devices as a standalone option.

2. In the area south of 30°S, *require* the combined use of three measures: tori lines, branch line weighting, and night setting. Or use hook shielding devices as a standalone option.

3. *Require* the following branch line weighting specifications for Southern Hemispheres:
    - ≥40 g within 0.5 m of the hook
    - ≥60 g within 1 m of the hook
    - ≥80 g within 2 m of the hook, and
    - *specify* that all branch lines must be weighted when applying this method.

2 Background

2.1 Decision to review CMM 2018-03

WCPFC19 (2022) agreed that CMM 2018-03 would be reviewed over 2023 and 2024 and evaluated with respect to new studies and the current ACAP Best Practices.[3] The review was led by New Zealand.

2.2 Policy and legal framework for the review

The Convention on the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean (the Convention) provides the legal framework for improving CMM 2018-03. Of particular relevance are Article 5 'Principles and measures for conservation and management', Article 6 'Application of the precautionary approach', and Article 30 'Recognition of the special requirements of developing States'.[4]

2.3 New Zealand's review process

WCPFC20 (2023) noted that New Zealand would lead informal intersessional meetings with interested CCMs to review the latest scientific evidence on seabird bycatch mitigation and gather views on the review of CMM 2018-03 with an aim to draft a revision of CMM 2018-03 for submission to SC20, TCC20, and WCPFC21[5].

During 2024, New Zealand:

- Collated relevant scientific papers on seabird bycatch mitigation methods and shared these with members via a link to a SharePoint folder.[6]
- Coordinated two online informal meetings for the review – on 20 February 2024 and 7 May 2024. These meetings involved experts and industry representatives as part of CCM's delegations, enabling exchanges of new scientific evidence and practical considerations from industry. The agenda, presentations, and summary documents from these meetings can be found on the WCPFC website.[7]
- Held additional bilateral meetings with some CCMs, including those unable to attend the meetings due to time zone differences.

[3] WCPFC19 Summary Report: Paragraph 328 states: "WCPFC19 noted a global decline in specific Agreement on the Conservation of Albatrosses and Petrels (ACAP) seabird population trends, which are vulnerable to threats posed by longline fisheries in the WCPO and the importance of seabird bycatch mitigation measures. "Paragraph 329 states: "WCPFC19 agreed to conduct review of the current seabird mitigation measure (CMM 2018-03 Conservation and Management Measure to mitigate the impact of fishing for highly migratory fish stocks on seabirds) in 2023 or 2024 whereby new bycatch mitigation studies would be evaluated with respect to bycatch mitigation effectiveness and compared against current ACAP Best Practices.

[4] Convention Text | WCPFC

[5] WCPFC20 Summary Report: Paragraph 727.

[6] Access to this SharePoint folder can be requested from Johannes Fischer (jfischer@doc.govt.nz)

[7] Informal Intersessional Meetings on the Review of WCPFC's Seabird Measure Led by New Zealand

To facilitate discussion on the review of CMM 2018-03 at SC20, New Zealand compiled the scientific evidence presented during these informal intersessional meetings into a working paper: SC20-EB-WP-06. Additional evidence was provided in other SC20 working papers and information papers: SC20-EB-IP30, SC20-EB-IP-29, SC20-EB-IP27, SC20-EB-WP10, SC20-EB-WP11, SC20-EB-IP26; SC20-EB-IP28).

2.3.1 Results from the review in 2024

SC20-EB-WP-06 provided 16 recommendations for SC20 to consider (also copied to Annex 1 of this paper). Subsequently, SC20 noted[8]:

- At least eight albatross species that breed in New Zealand show significant, long term and ongoing population declines, which, for some, are most likely caused by bycatch in commercial pelagic longline fisheries.
- Key areas of importance for albatrosses and petrels vulnerable to bycatch in the Southern Hemisphere, including areas with reduced (25-30°S) or no bycatch mitigation requirements (20°-25°S).
- Substantial spatio-temporal overlap of Antipodean and Gibson's albatross with pelagic longline fishing effort and that overlap probability increases at lower latitudes.
- Studies (SC20-EB-IP-26) suggest that the Antipodean albatross are at risk of extinction if the current rate of decline continues and is predicted to become extinct around 2070.
- The summary of the informal intersessional review process of CMM 2018-03 inSc20-EB-WP-06, highlighting:
  - The relatively high effectiveness of combining tori lines, branch line weighting, and night setting.
  - The high effectiveness of hook-shielding devices as a stand-alone seabird bycatch mitigation option.
  - The effectiveness of underwater bait setters (which set hooks at a predetermined depth) as a stand-alone seabird bycatch mitigation option.
  - The limited evidence for the effectiveness of deep-setting line shooters, blue-dyed bait, and offal discharge management.
  - The effectiveness of branch line weighting may be improved through modification of the current specifications in CMM 2018-03.

There was no agreement from CCMs at SC20 on the 16 recommendations in SC20-EB-WP-06. Highlighting the importance of technical, practical and human safety considerations for the implementation of bycatch mitigation methods, SC20 recommended that TCC20 further consider the recommendations in these terms and provide advice on improving the effectiveness of CMM 2018-03 to WCPFC21.

[8] SC20 Outcome Document: paragraphs 142 – 150.

TCC20 also considered the 16 recommendations in SC20-EB-WP-06 and a draft revision of CMM 2018-03.

There was further discussion of the draft revision of CMM 2018-03 at WCPFC21. WCPFC21 tasked:

1. New Zealand to lead the review of the seabird measure.
2. SC21 and TCC21 to provide advice on the supporting material provided by CCMs and the SSP.
3. WCPFC22 to consider the proposal provided by New Zealand as well as advice from SC21 and TCC21.[9]

2.4 New Zealand's review process over 2025

In 2025, the review process was set out in a circular[10] and included an invitation for CCMs to provide further comments on the science reviewed in 2024; any new science and supporting information;, and further comments on the New Zealand proposal for CMM 2018-03 tabled in 2024 (WCPFC21-2024-21). New Zealand arranged further bilateral meetings with CCMs that wished to discuss the science or 2024 proposals.

2.4.1 Results to date from the review in 2025

The key findings from the review over 2025 build on the outcomes of the 2023-2024 review process. Several CCMs provided comments on the scientific evidence presented in SC20-EB-WP-06 and the proposals presented in WCPFC21-2024-21. CCMs asked questions and raised a number of concerns, including on the threat status of WCPFC seabirds, species specific bycatch rates, and the practicality of some measures, and the potential impacts of the proposals on fishing operations. New Zealand is working with CCMs to respond to the questions and concerns, and this paper aims to provide further information on key issues.

While New Zealand proposes to focus on the Southern Hemisphere measures in 2025, the full set of recommendations in SC20-EB-WP-06 (Annex 1) draw directly from available scientific evidence and therefore remain relevant for the review in New Zealand's view.

2.4.2 Recommendation for a phased approach for the review in 2025

Reflecting on the feedback from CCMs in 2024 and 2025 on the extensive scope of the proposed improvements in SC20-EB-WP-06 and WCPFC21-2024-21, New Zealand now proposes a phased approach to ensure progress on the highest conservation priorities first.

[9] WCPFC21 Summary Report | WCPFC Meetings, paragraph 552.
[10] Circular No. 2025/24.

Discussions at SC21 will therefore focus on proposed improvements to the Southern Hemisphere measures as a first stage. Improvements to the Northern Hemisphere will follow as a second stage.

3 Southern Hemisphere measures

3.1 Many WCPFC seabirds are in significant decline

The Food and Agriculture Organization of the United Nations (FAO) recognises the Agreement on Conservation of Albatrosses and Petrels (ACAP) as a global leader in generating scientific understanding about albatrosses and petrels and the threats they face.[11] In May 2025, ACAP "declare[d] that, based on new evidence on the continued decline in population status, a conservation crisis continues to face the species listed on Annex 1 of the [ACAP] Agreement with hundreds of thousands of albatrosses and petrels dying every year as a result of fisheries operations" (ACAP, 2025, Resolution 8.5).

Many of these ACAP listed species are found in the WCPFC Convention Area. In fact, the Convention Area is a critical habitat for the majority of the world's seabirds. At least 134 species (64%) of the world's 210 pelagic seabird species spend time in the Convention Area.[12] These "WCPFC seabirds" include 17 of the world's 22 albatross species (77%). See Annex 3 for a list of WCPFC seabirds.

The conservation status of WCPFC seabirds is poor and worsening. Of the 134 seabirds found in the Convention Area, 17 (13%) are both threatened (Critically Endangered, Endangered, or Vulnerable) and susceptible to bycatch in commercial pelagic longline fisheries (based on threat classifications in IUCN (2025)[13], Table 1 shows that 11 (65%) of these threatened and susceptible species are declining.

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[11] FAO (2009), Fishing operations. 2. Best practices to reduce incidental catch of seabirds in capture fisheries. (P12)

[12] "Pelagic seabirds" are those that primarily use marine deep water (typically >200 m in depth), or neritic, continental shelf water (Dias et al. 2019). The threatened and declining seabirds in the WCPFC area are pelagic seabirds. Two species Rapa Shearwater (*Puffinus myrtae*) and Whenua Hou diving petrel (*Pelecanoides whenuahouensis*) have been added to the Dias et al. (2019) list in recent years to make a total of 210.

[13] Billerman et al. (2025); Bycatch risk assessments (CCSBT Ecologically Related Species Working Group, 2024; Abraham et al. 2019; Peatman et al. 2019).

Table. 1. Threatened seabird species dependent on the WCPFC Convention Area susceptible to bycatch in commercial pelagic longline fisheries (extracted from Annex 3). SH refers to Southern Hemisphere, NH refers to Northern Hemisphere.

Species	**IUCN status 2025** [A]	**CMS & ACAP listed** [B]	**Breeds WCPFC CA** [C]	**Forages in WCPFC CA** [C]	**Susceptible to PLL bycatch** [D]	**Annual bycatch estimates** [E]	**Population size within WCPFC CA** [G]	**Trend (% change p/a)** [H]
Fiji Petrel	CR	-	100% (SH)	100%? (SH?)	?	-	<20	↓
Antipodean Albatross [I] *	EN	✓	100% (SH)	89% (SH)	✓	185-334	7,565	↓ (-5%)
Amsterdam Albatross	EN	✓	-	<1% (SH)	✓	-	?	↑
Northern Royal Albatross*	EN	✓	100% (SH)	27% (SH)	✓	0-11	4,005	↓ (-2%)
Sooty Albatross	EN	✓	-	<1% (SH)	✓	-	?	↓
Indian Yellow-nosed Albatross	EN	✓	-	10% (SH)	✓	0-19	?	↓
Grey-headed Albatross*	EN	✓	8% (SH)	7% (SH)	✓	4-42	3,762	↓ (-3%)
Westland Petrel*	EN	✓	100% (SH)	45% (SH)	✓	37-96	6,332	↑ (+4%)
Bannerman's Shearwater	EN	-	100% (NH)	100%? (NH)	?	-	?	?
Wandering Albatross	VU	✓	<1% (SH)	13% (SH)	✓	12-33	?	↓
Southern Royal Albatross*	VU	✓	100% (SH)	41% (SH)	✓	1-18	6,006	↓ (-1%)
Short-tailed Albatross	VU	✓	100% (NH)	89% (NH)	✓	-	1,137	↑
Salvin's Albatross*	VU	✓	100% (SH)	46% (SH)	✓	1-30	49,953	↓ (-1%)
Chatham Albatross	VU	✓	100% (SH)	21% (SH)	✓	0-13	5,296	↔
Campbell Albatross*	VU	✓	100% (SH)	68% (SH)	✓	174-276	11,853	↓ (-1%)
White-chinned Petrel	VU	✓	18% (SH)	5% (SH)	✓	504-732	232,400	↓
Black Petrel*	VU	✓	100% (SH)	56% (SH)	✓	76-273	6,970	↔

[A]IUCN (2025). CR = Critically Endangered, EN = Endangered, VU = Vulnerable. [B] Appendix I or II of CMS (CMS 2024)https://data.acap.aq/acap_species.cfm. [C] Based on ACAP database (ACAP 2024a), range maps in Billerman et al. (2025), EBird sighting data (Sullivan et al. 2009), Edwards et al. (2025), and additional tracking data. Percentage foraging within the WCPFC CA based on the 75% UD as per Fischer et al. (2024a) and additional ACAP data. SH = Southern Hemisphere, NH = Northern Hemisphere. [D] Based on threat classifications in IUCN (2025), Billerman et al. (2025), and published bycatch risk assessments (CCSBT ERSWG 2024, Peatman et al. 2019, Abraham et al. 2019) and AR-pt1 as submitted by CCMs. [E] WCPFC specific estimates based on Peatman et al. 2019 which should be caveated as they are subject to limited or lacking and unrepresentative observer coverage.[G] Population size expressed in annual breeding pairs, based on ACAP (2024a) and additional updates from the New Zealand monitoring programme (SC20-EB-WP10.[H] Direction (arrows) based on ACAP (2024a), magnitude of change (%) WCPFC specific values based on modelling as summarised in Fischer et al.

(2024a) and SC20-EB-IP26). I Considered on species level (i.e., both Antipodean and Gibson's Albatross). * Indicates species included in Figure 2.

3.2 Southern Hemisphere species are at greater risk and some face extinction

All the declining populations in Table 1 are Southern Hemisphere seabirds. New Zealand's long-term seabird monitoring programme has studied 11 Southern Hemisphere albatross and large petrel populations in depth and found that eight (73%) have declined over recent decades and are continuing to fall year-on-year (SC20-EB-WP10)

3.2.1 Two seabirds of particular concern are the Antipodean and Gibson's albatrosses

These albatrosses have shown alarming rates of decline since the mid-2000s, and population modelling shows that the Antipodean albatross faces extinction within as few as 50 years if the decline is not abated.

Antipodean Albatross

Antipodean albatross is classified 'Endangered' on the IUCN Red List of Threatened Species (IUCN 2025). The Antipodean albatross has declined 62% since 2004 and continues to decline at 6% each year, which will result in global extinction by 2070 unless current threats are addressed (Figure 1; SC20-EB-IP26).

Antipodean Albatross © Oscar Thomas

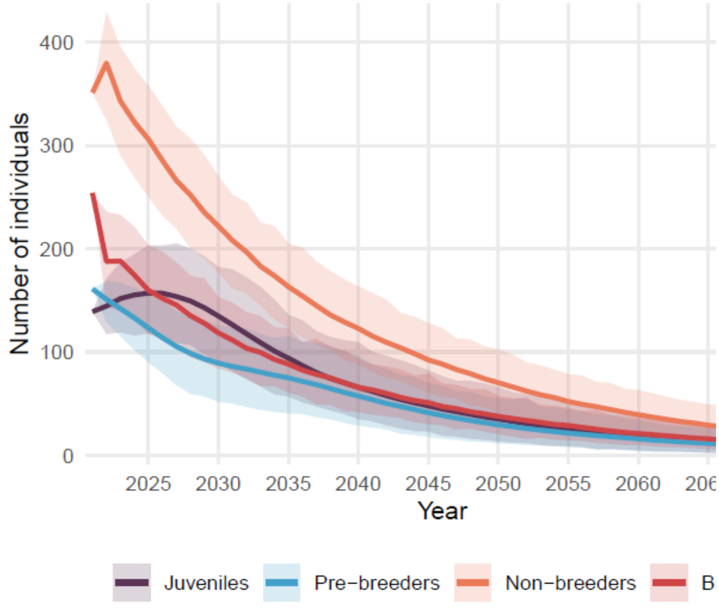

Figure 1. Projected population trend for Antipodean Albatross based on analyses detailed in SC20-EB-IP26.

Gibson's Albatross

The Gibson's albatross is also highly threatened, and its population has declined by 58% since 2004, and continues to decline at 4% each year (SC20-EB-WP10). The work of the Commission for the Conservation of Southern Bluefin Tuna (CCSBT) Ecologically Related Species Working Group (ERSWG) indicates that Gibson's albatross is the seabird species with the highest relative bycatch (compared with other species) and is at risk of population level effects from pelagic longline bycatch in the Southern Hemisphere.[14]

Gibsons Albatross (Wikipedia)

3.3 Bycatch is a top threat for seabirds and is likely the main driver of extinction risk for several Southern Hemisphere species

Bycatch in pelagic longline fisheries is a significant threat to seabirds in the Convention Area, particularly albatrosses and petrels. The available evidence includes:

- Bycatch estimates which, while limited and uncertain, are in line with observed population declines.
- Fisheries and seabird overlap analyses and a multi-threat risk assessment shows that bycatch is the most likely cause of the decline of the endangered Antipodean albatross and Gibsons albatross.
- The effective management of non-fisheries threats for Southern Hemisphere species means fisheries bycatch is likely the main threat.

[14] See figure 11 in CSBT ERSWG, (2024)

3.3.1 Tens of thousands of seabirds are estimated to be bycaught in the WCPFC Convention Area every year

Available bycatch estimates indicate that 39,000-43,000 albatrosses and petrels (including cryptic mortality) are killed annually in pelagic longline fisheries across the Southern Hemisphere[15]. CCSBT ERSWG has done preliminary work to update the bycatch estimate, which indicates that between 10,500-12,000 albatrosses and petrels are captured by pelagic longline fleets within the Southern Hemisphere[16].

Peatman et al. (2019) estimate that, within the WCPFC Convention Area, 11,000-25,000 seabirds were killed annually during 2015-2018 (excluding cryptic mortality). Of these seabirds, 4,000-4,600 were albatrosses and petrels caught south of 25°S. More than 50% of these albatrosses and petrels (approximately 2,300 annually) were caught in the South Tasman Sea. Species-specific estimates derived from this work are listed in Table 1.

Recent work from the Inter-American Tropical Tuna Commission (IATTC) reports high observed bycatch rates in the area where WCPFC-IATTC Convention Areas overlap in the Southern Hemisphere (150°W-130°W, south of 30°S). Observers reported bycatch rates of up to four birds per 1000 hooks (excluding cryptic mortality) in this area (Crear et al. 2025). The IATTC work did not provide estimates of total bycaught seabirds; however, the high bycatch rate is concerning.

Bycatch estimates are limited by low levels and poor representativeness of observer data. During 2019-2023, observer coverage in the WCPFC Convention Area was 1.6% South of 30°S, and 4.6% for the area 25°S-30°S; (SC20-ST-IP-03). Other limitations include challenges with species identification, and limited tracking data for some seabird populations. These limitations create considerable uncertainty in the available bycatch rates and estimates. However, despite this uncertainty, the estimates are in line with the observed declines at the seabird colonies in New Zealand (e.g., SC20-EB-WP10).

CCSBT is working to address these challenges and develop more robust seabird bycatch estimates for the Southern Hemisphere. This is a collaborative science process that has been underway since 2023 and involves five WCPFC CCMs. Final results from the CCSBT Southern Hemisphere Risk Assessment may be available later in 2025 or early 2026 – and will be relevant to further review of CMM 2018-03.

3.3.2 Available analyses show that bycatch is likely driving the population declines of Antipodean and Gibson's albatross

Fine-scale fisheries overlap analyses have shown that 77% of tracked Antipodean albatross and 80% of tracked Gibson's albatross overlapped with high seas pelagic longline fishing vessels (SC21-EB-IP09, SC20-EB-WP10).

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[15] Abraham et al. (2019)

[16] (CCSBT ERSWG, 2024).

A multi-threat risk assessment for the Antipodean albatross showed that bycatch in high seas pelagic longline fisheries within the WCPFC Convention Area were significant enough to explain the observed population declines (SC20-EB-IP26).

3.3.3 Non-fisheries threats are not the problem

Non-fisheries threats to Southern Hemisphere seabirds in the WCPFC Convention Area have largely been addressed. After huge efforts and investment across decades, invasive species at Southern Hemisphere breeding sites have been eradicated or are being controlled successfully (ACAP 2024a). There is no direct evidence for climate change driving population declines (SC20-EB-IP26). Plastic pollution is not a significant threat for the studied Southern Hemisphere taxa susceptible to pelagic longline bycatch (Clark et al. 2023). Highly pathogenic avian influenza (HPAI) has not reached New Zealand colonies, as proven by extensive surveillance sampling (Waller et al. 2025).

This evidence points to bycatch in pelagic longline fisheries as likely the most prominent driver of the declining populations of albatrosses and petrels in the Southern Hemisphere. Should HPAI, or any other novel threat, impact Southern Hemisphere seabirds in the WCPFC Convention Area, their threat status may worsen and their susceptibility to fisheries bycatch increase.

3.4 The most important area for endangered Southern Hemisphere species is the high seas South of 25°S

Many Southern Hemisphere seabird species spend most of their time foraging south of 30°S. However, seabird species that are both threatened and susceptible to pelagic longline fisheries bycatch range into the lower latitudes of the Southern Hemisphere – including up to 25°S (SC21-EB-IP09, SC20-EB-IP30, SC20-EB-WP10).

Figure 2 shows that the core habitat for eight endangered or vulnerable seabird species is the area south of 25°S. Waters within the WCPFC Convention Area around New Zealand, the Tasman Sea, and the South Pacific east of New Zealand are of particular importance to these species.

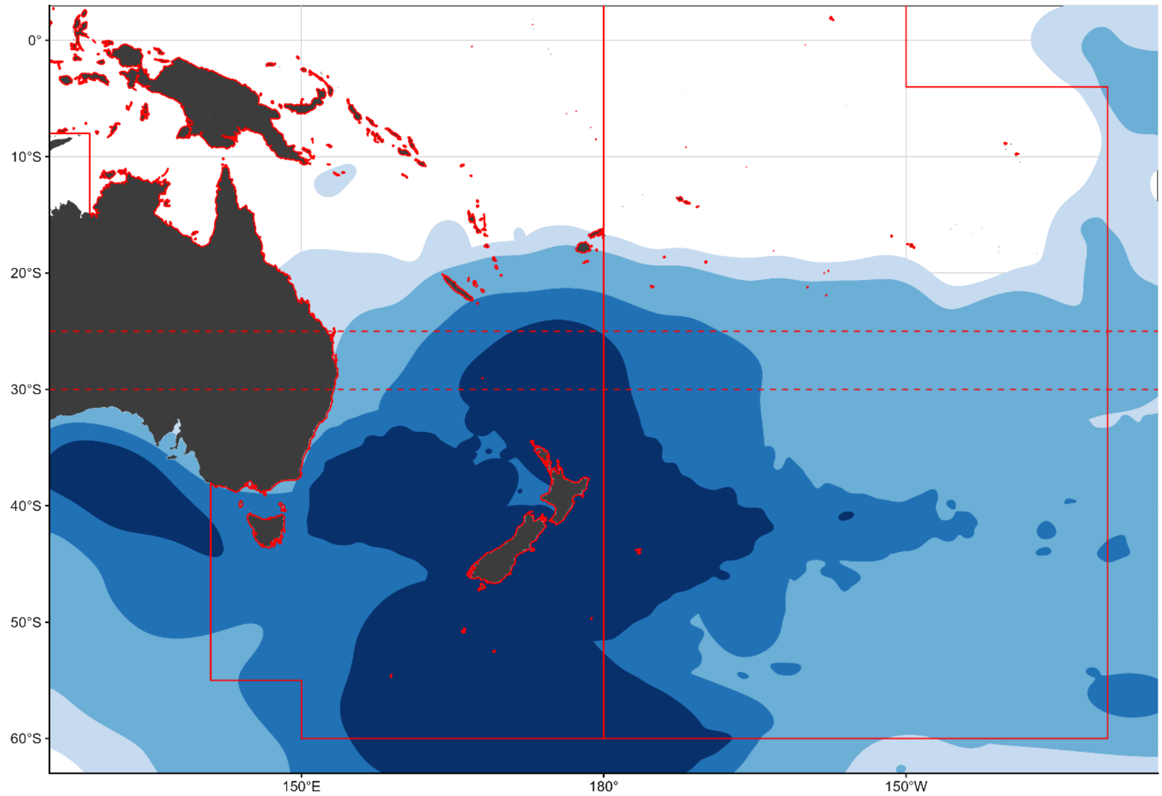

Figure 2. Distribution of eight Southern Hemisphere seabird species that are listed as endangered and vulnerable in the IUCN Red List and are susceptible to bycatch in pelagic longline fisheries in relation to the WCPFC Convention Area and relevant latitudinal zones (dashed lines, representing 25°S and 30°S). Generation of utilisation distributions followed steps outlined in Fischer et al. (2024a). Refer to Table 1 for details of the eight endangered and vulnerable species.

The New Zealand EEZ is a major hotspot for seabirds in the Southern Hemisphere and a large number of seabird species breed within the EEZ. However, since 2024, New Zealand has regulated bycatch mitigation requirements to a higher standard than CMM 2018-03. Specifically, within the New Zealand EEZ it is required to use night setting, tori lines, and branch line weighting in combination, or hook-shielding devices as a stand-alone measure, in line with ACAP Best Practice Advice. Consequently, despite the high abundance of seabird species that are susceptible to seabird bycatch in pelagic longlines within the New Zealand EEZ, bycatch risk is lower than in the surrounding high seas areas.

3.5 Bycatch risk is high for threatened seabirds on the high seas between 25°S - 30°S

Threatened birds overlapping in the high seas between 25°S and 30°S encounter intensive fishing effort. The probability of bycatch is relatively high because CMM 2018-03 requires vessels to use only one out of three mitigation methods in this area.

This means that, while many birds spend most of their time South of 30°S, there is a greater probability of birds overlapping with pelagic longline fishing when they fly north between 25°S and 30°S. For example:

- 20% of the time Gibson’s albatross spend in this area overlaps with fishing vessels (SC21-EB-IP09).
- 12% of the time Antipodean albatross spend in this area overlaps with fishing vessels (Rowley et al. 2024).

Figure 3 highlights the bird vessel overlap in this area in red.

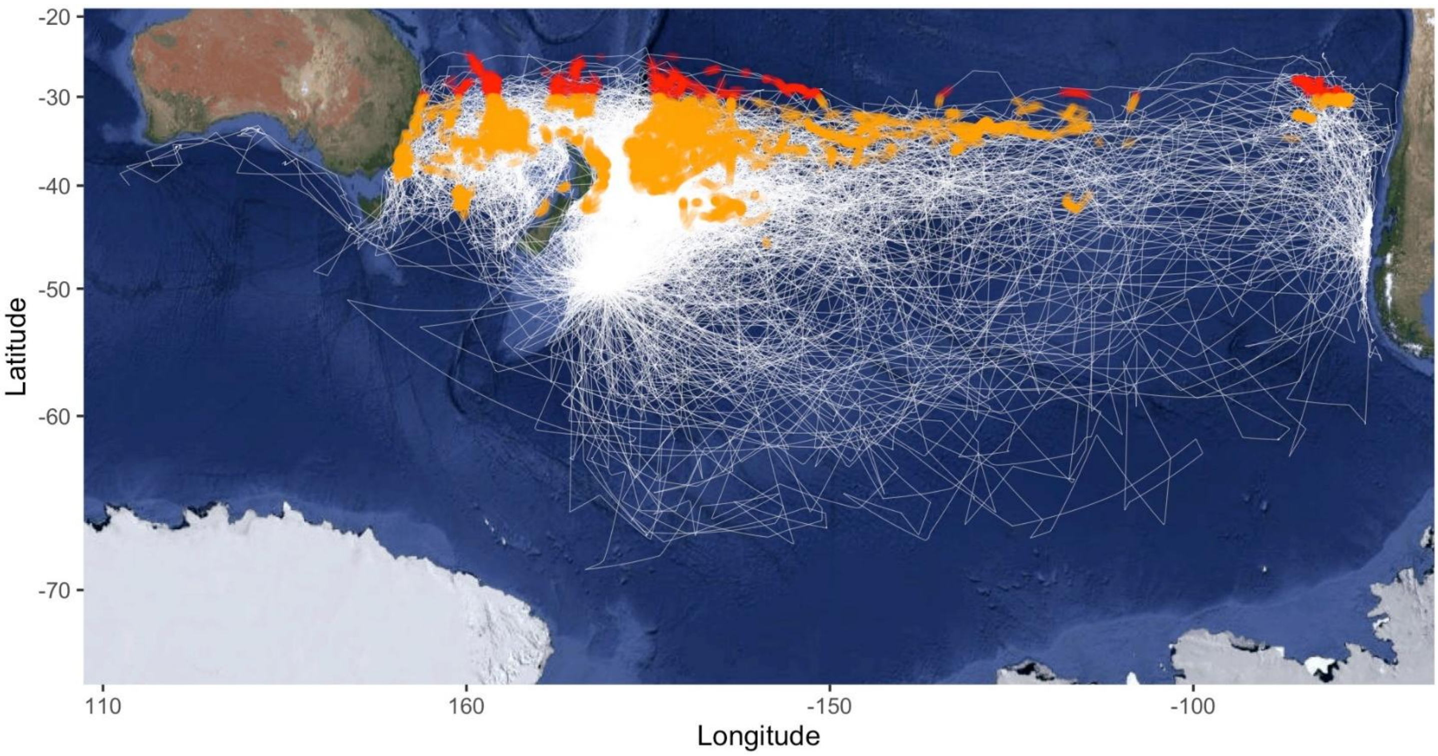

Figure 3. Tracks of 153 Antipodean Albatross (white lines) and spatiotemporal overlap with pelagic longline fishing effort South of 30°S (orange circles) and in the area between 30°S and 25°S (red circles). Analyses followed steps outlined in Fischer et al. (2024a).

Species that are threatened and susceptible to pelagic longline bycatch in the area between 25°S and 30°S include Antipodean albatross, Gibson’s albatross, Black petrel, and White-Chinned petrel (SC21-EB-IP09, SC20-EB-WP10, Rexer-Huber et al. 2025, SC20-EB-IP30).

3.5.1 **Bycatch risk is highest south of 30°S** The South Tasman Sea south of 30°S has the highest bycatch estimates of any area within the WCPFC Convention Area (Peatman et al. 2019, Abraham et al. 2019). The fine-scale overlap analyses of Antipodean, Gibson’s and Southern Buller’s albatross also highlights ongoing high fisheries overlap in the South Tasman Sea (SC21-EB-IP09, SC20-EB-WP10).

3.5.1 Bycatch risk is also high in the high seas

The probability of bycatch for Antipodean and Gibson's albatross is greatest on the high seas, and bycatch happens in both WCPFC and CCSBT convention areas, and where they overlap.

4 Recommendations and rationale

Recommendation 1: improve mitigation in the area 25°S - 30°S

The area between 25°S - 30°S is within the core habitat of four threatened seabirds including the Antipodean albatross that faces risk of extinction. Bycatch risk is high for threatened seabirds between 25°S - 30°S on the high seas due to high fishing effort and minimal bycatch mitigation requirements in this area. To reduce bycatch in this important seabird habitat area New Zealand makes the following recommendation:

1) In the area 25°S to 30°S, *require* the combined use of two measures from the following: tori lines, branch line weighting, and night setting. Or use hook shielding devices as a standalone option.

Currently under CMM 2018-03 vessels fishing in the area 25°-30°S are required to use only one measure: tori lines, branch line weighting, or hook-shielding devices.

The proposed change in Recommendation 1 would align the requirements in this area with the measures required South of 30°S. This would substantially improve bycatch mitigation for the endangered Antipodean albatross and Gibson's albatross, and simplify and improve consistency of operation for vessels fishing in the area 25°-30°S and further South.

Practicalities and implementation

The average annual pelagic longline fishing effort in the area between 25°S and 30°S during 2019-2023 equated to 22,531,300 hooks, which is 3% of the average annual total hooks set in the WCPFC Convention Area over that period (TCC20-2024/IP-04).

Most vessels operating in the 25°S - 30°S area already report using two or three mitigation methods. Over 2019-2023, approximately 69% of observed fishing effort in the area 25°S-30°S reported the use of two or three mitigation methods, albeit not simultaneously (i.e., weighted branch lines, tori lines, or night setting) (Fischer & Debski 2024).

Effect on target catch from mitigation use

Peer reviewed studies show that implementing these three mitigation methods does not have any significant impact on target catch rate (SC19-EB-IP15).

Tori lines effect on target catch

Using tori lines has been reported to increase catch rates of target and other fish species. Mancini et al. (2009) reported catch rates increased by 10 fish per 1,000 hooks when tori lines were used in the peak period of seabird bycatch, including a 32% increase on swordfish catch. Increases in catch rates were attributed to increased bait retention due to the tori lines restricting seabird access to baits. Further, the reduction in seabird captures meant that more hooks remained available to catch fish.

Based on information collected from a southern bluefin tuna fishing operations in the Southern Ocean, Brothers (1991) estimated that albatross stealing bait off hooks caused an 0.8% decrease in target catch. Using tori lines reduced the attempts to take bait from 62% to 1.4%.

Branchline weighting effect on target catch

In most reported cases, branchline weighting had no effect on catch rates of tuna (including albacore, bigeye, yellowfin, southern bluefin, Pacific bluefin) and billfish, including swordfish (WCPFC-SC19-EB-IP15 Table 5). In one study, weighting to reduce seabird bycatch risk resulted in increased yellowfin tuna catch rates, compared to the conventional gear configuration used by fishers (Gianuca et al. 2013). In all others, there were no effects on tuna or swordfish catch.

Night setting effect on target catch

Few studies have investigated the effect of night setting on fish catch, in the absence of any other seabird bycatch mitigation measure (WCPFC-SC19-EB-IP15). Gilman et al. (2023) investigated albacore tuna catch rates using information collected using electronic monitoring. While median albacore catch rates were higher for day sets compared to night sets, the difference was not statistically significant. By contrast, when night setting was used in combination with tori lines, Melvin et al. (2013) reported increased catch rates, or no effects on catch rates. Catch rates of swordfish in New Zealand has increased when night setting due to the longer soak time when lines are set at night (Finucci et al. 2021).

Hook shielding devices effect on target catch

In two studies, catch rates of tuna and swordfish did not differ significantly between branchlines carrying hook shielding devices, and weighted branchlines, and one study showed no effect on tuna or swordfish but a reduction in non-target fish catch. WCPFC-SC19-EB-IP15; Sullivan et al. (2018).

SIDS exemption should remain

New Zealand proposes to retain Paragraph 4 of CMM 2018-03, indicating that bycatch mitigation requirements in the area between 25°S and 30°S do not apply to the EEZs of the Small Island Developing States and territories (SIDS): French Polynesia, New Caledonia, Tonga, Cook Islands, and Fiji.

The Commission's 2018 decision to exempt these SIDS from the seabird measures was based on analysis by the Secretariat of the Pacific Community (SPC), which showed the fishing effort within these SIDS' EEZs posed a minimal risk to seabirds. Relative fishing effort within these SIDS' EEZs was **0.25% of total effort within the area of 30°-25°S**. The decision reflects that the cost of implementing the measures for the five SIDS would be a disproportionate burden for minimal conservation benefit.

The scientific rationale for the SIDS exemption remains unchanged. In 2024, New Zealand re-ran the assessment with fishing effort data between 2019-2023. The assessment showed that the risk to seabirds is now slightly smaller, with only 0.2% of fishing effort happening within the EEZs of exempt SIDs (SC20-EB-IP27[17]).

Recommendation 2: improve mitigation requirements south of 30°S by requiring effective combinations of mitigation methods

New Zealand recommends:

2) In the area south of 30°S, *require* the combined use of tori lines, branch line weighting, and night setting. Or use hook shielding devices as a standalone option.

Requiring effective combinations of mitigation methods

Currently, CMM 2018-03 requires vessels fishing South of 30°S to use two out of three measures: night setting, tori lines, and branch line weighting, or the standalone use of hook shielding devices.

Extensive review of mitigation studies shows that a combination of three methods: night setting, tori lines, and branch line weighting in combination, or the standalone use of hook shielding devices, is most effective way to reduce seabird bycatch (SC19-EB-IP-21; SC20-EB-WP-06 , SC20-EB-WP11, Bell et al. 2025; Hutchinson et al. 2025). These mitigations are focused on addressing bycatch during the **setting** period, which is when most seabird bycatch and mortality occurs (SC19-EB-IP-15).

Combining the three effective mitigation methods addresses the limitations of each individual method (SC19-EB-IP-21). For example, the limitation of using branch line weighting alone is that the hooks are still accessible to seabirds until they sink. Night setting does not prevent bycatch of some nocturnally active birds or during bright moon-lit conditions. Tori lines alone do not protect baited hooks beyond the aerial extent of the line (SC20-EB-WP-06 , SC19-EB-IP-15). Hook shielding devices are designed to overcome the limitations of the other three methods and can therefore be used as standalone method.

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[17] **WCPFC-SC20-2024/EB-IP-27**. Distribution and trends of reported observed seabird bycatch mitigation use in the WCPFC Convention Area | WCPFC Meetings

Implementing the combined three mitigation methods South 30°S could provide relative improvements of seabird bycatch mitigation performance of 61% (SC20-EB-WP11).

Practicalities and implementation

The average annual pelagic longline fishing effort South of 30°S is 53,303,400 hooks, which is in the area 6.6% of the total effort (806,588,000) (TCC20-2024/IP-04).

A quarter of the observed pelagic longline fishing effort in the area south of 30°S within the WCPFC Convention Area already reported the combined use of the three mitigation methods (i.e., weighted branch lines, tori lines, or night setting) during 2019-2023 (Fischer & Debski 2024).

Peer reviewed studies show that implementing these three mitigation methods does not have any significant impact on target catch rate (SC19-EB-IP-15). See details above (under recommendation 1).

Recommendation 3: improve mitigation requirements south of 30°S by improving the branch line weighting specifications

New Zealand recommends:

3) *Require* the following branch line weighting specifications for the Southern Hemisphere:
   - ≥40 g within 0.5 m of the hook
   - ≥60 g within 1 m of the hook
   - ≥80 g within 2 m of the hook, and

   specify that all branch lines must be weighted when applying this method.

Improving branch line weighting specifications for south of 30°S

Branch line weighting helps to rapidly sink hooks beyond the reach of seabirds. A faster sink rate reduces the time that baited hooks are available to seabirds, which reduces bait loss and bycatch. Branch line weighting is highly effective at reducing seabird bycatch as lines are being set and it is one of the only mitigation methods that can reduce bycatch during the period when hooks are soaking. Weights help to keep the hooks below the depth of diving birds.

The FAO recommends the work of the ACAP Seabird Bycatch Working Group as an appropriate means of remaining current with ongoing research into emerging mitigation measures and the refinement of best practice suites of mitigation measures.[18] The ACAP recommended line weighting specifications are based on peer reviewed trials and are designed to achieve a sink rate of 0.5 m per second during the set (Barrington 2016). This sink rate, in combination with tori lines and night setting, provides protection to deep- and fast-diving petrels such as the White-

[18] FAO (2009), Fishing operations. 2. Best practices to reduce incidental catch of seabirds in capture fisheries. (P12)

Chinned petrel and the Black petrel (which are classified as threatened by the IUCN) and range in the Southern Hemisphere south of 25°S (New Zealand, 2024a).

The relative effectiveness of branch line weighting at reducing bycatch is a 69-89% improvement over no mitigation (Bell et al. 2025, Gillman et al. 2025, SC20-EB-WP11). However, to achieve the highest level of effectiveness all branch lines must be weighted to certain specifications.

Improving the branch line weighting specifications in line with ACAP Best Practice Advice as set out in Table 2 could result in a 52% improvement in relative bycatch reduction (SC20-EB-WP11), with no or little effect on target catch (SC19-EB-IP-15). Across all ACAP Best Practice Advice configuration options (Table 2), option c) was determined to be the best performing option by a collaborative meta-analysis (in which >50% of the included studies were on WCPFC fisheries; Gillman et al. 2025)

Table 2. Weighted branch line specifications under CMM 2018-03 and ACAP Best Practice Advice.

CMM 2018-03 options	ACAP Best Practice Advice options
a) One weight great than or equal to 40g within 50 cm of the hook	a) One weight great than or equal to 40g within 50 cm of the hook
b) Greater than or equal to a total of 45g attached to within 1 m of the hook	b) Greater than or equal to a total of 60g attached to within 1 m of the hook
c) Greater than or equal to a total of 60g attached to within 3.5 m of the hook	c) Greater than or equal to a total of 80g attached to within 2 m of the hook
d) Greater than or equal to a total of 98g attached to within 4 m of the hook	

Practicalities and implementation

Branch line weighting is already the most widely implemented seabird mitigation method in WCPFC pelagic longline fisheries in the Southern Hemisphere. 52-71% of all observed effort South of 25°S during 2019-2023 reported using line weighting (Fischer & Debski 2024). This suggests that crews are already managing the safety risks associated with this mitigation method.

Safety risks are a serious concern associated with branch line weighting implementation. Weights can increase the risk of flybacks (i.e., when hooks and/or weights on the line fly back to the vessel due to a shark biting off the hook, or a hook tearing out of the mouth of a fish), creating a safety hazard for crew.

However, these challenges can be overcome by certain weight designs and additional crew training. For example, sliding weights are much safer than weighted swivels (Sullivan et al. 2012, Robertson et al. 2013, Santos et al. 2019). Sliding weights almost always slide off the branch line during a bite-off or tear-out. In addition, the collision between recoiling hook and sliding weight often shears the hook from the line, resulting in both the hook and the weight being lost rather than flying back towards the vessel (Rawlinson et al. 2018).

Further comprehensive safety advice has been developed to provide information on safety concerns (ACAP, 2021).

Branch line weighting is usually integrated into the vessel's gear, which makes it easy to verify during port or on-board inspections.

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Annex 1: Full list of Recommendations proposed to the Twentieth Regular Session of the Scientific Committee (WCPFC-SC20-EB-WP6)

Tori line specifications:

1. *Require* the same aerial extent in Southern Hemisphere and Northern Hemisphere:
   - 75 m for small vessels (<24m)
   - 100 m for large vessels (>24m).

2. *Require* streamers on both large and small vessel tori lines.

3. *Amend* the current requirement for the use of swivels to attach streamers to be *option* in the Southern Hemisphere.

4. *Amend* the current requirement for a minimum 200m length (i.e. 100m in-water section) to a requirement to have an in-water section which creates sufficient drag.

5. *Encourage* targeted capacity support and design innovation to address challenges of achieving aerial extent where tori poles are difficult to use due to hull material.

6. *Encourage* the use of paired tori lines for large vessels.

Night setting specifications:

7. *Clarify* vessel log reporting and observer reporting requirements for night setting.

Branch line weighting specifications:

8. *Require* the following branch line weighting specifications for both Hemispheres:
   - ≥40 g within 0.5 m of the hook
   - ≥60 g within 1 m of the hook
   - ≥80 g within 2 m of the hook

9. *Specify* that all branch lines must be weighted when applying this method.

Mitigation method options:

10. *Include* approved underwater bait setters as a standalone mitigation method in addition to the standalone option of using hook-shielding devices.

11. *Remove* blue-dyed bait, deep setting line shooters, and management of offal discharge as primary mitigation methods.

12. *Encourage* all vessels to adopt effective offal management, such that 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.

Effective combinations of mitigation methods:

13. In the area 25°S to 30°S, *require* the combined use of tori lines, branch line weighting, and night setting or hook shielding devices or underwater bait setters as standalone options.

14. In the area south of 30°S, *require* the combined use of tori lines, branch line weighting, and night setting or hook shielding devices or underwater bait setters as standalone options.

15. In the area 23°N - 25°S, in particular the area 20°S - 25°S – *encourage* use of effective mitigation options, and targeted capacity building to support the implementation of mitigation methods.

16. Strengthen mitigation requirements for the area north of 23°N by improving the specifications of current options and removing ineffective options.

Annex 3: List of seabird species in the WCPFC Convention Area.

Species	IUCN status 2025 [A]	CMS & ACAP listed [B]	Breeds WCPFC CA [C]	Forages in WCPFC CA [C]	Hemisphere [C]	Susceptible to PLL bycatch [D]
Beck's Petrel	CR		1	1	SH	
Fiji Petrel	CR		1	1	SH	?
Magenta Petrel	CR		1	1	SH	
Bryan's Shearwater	CR		1	1	NH	
Rapa Shearwater	CR		1	1	SH	
Newell's Shearwater	CR		1	1	NH	
MacGillivray's Prion	CR			1	SH	
Whenua Hou Diving Petrel	CR		1	1	SH	
New Zealand Storm Petrel	CR		1	1	SH	
Marbled Murrelet	EN		1	1	NH	
Amsterdam Albatross	EN	1		1	SH	1
Antipodean Albatross	EN	1	1	1	SH	1
Northern Royal Albatross	EN	1	1	1	SH	1
Sooty Albatross	EN	1	0	1	SH	1
Indian Yellow-nosed Albatross	EN	1	0	1	SH	1
Grey-headed Albatross	EN	1	1	1	SH	1
Henderson Petrel	EN		1	1	SH	
Hawaiian Petrel	EN		1	1	NH	
Westland Petrel	EN	1	1	1	SH	1
Bannerman's Shearwater	EN		1	1	NH	?
Hutton's Shearwater	EN		1	1	SH	
Polynesian Storm Petrel	EN		1	1	Both	
Erect-crested Penguin	EN		1	1	SH	

Yellow-eyed Penguin	EN		1	1	SH	
Abbott's Booby	EN		0	1	Both	
Japanese Murrelet	VU		1	1	NH	
Wandering Albatross	VU	1	1	1	SH	1
Southern Royal Albatross	VU	1	1	1	SH	1
Short-tailed Albatross	VU	1	1	1	NH	1
Salvin's Albatross	VU	1	1	1	SH	1
Chatham Albatross	VU	1	1	1	SH	1
Campbell Albatross	VU	1	1	1	SH	1
Phoenix Petrel	VU		1	1	Both	
Chatham Petrel	VU		1	1	SH	
Collared Petrel	VU		1	1	Both	
White-necked Petrel	VU		1	1	Both	
Cook's Petrel	VU		1	1	Both	
Juan Fernandez Petrel	VU		0	1	Both	
White-winged Petrel	VU		1	1	Both	
Stejneger's Petrel	VU		1	1	Both	
Pycroft's Petrel	VU		1	1	Both	
Buller's Shearwater	VU		1	1	Both	
Black Petrel	VU	1	1	1	SH	1
White-chinned Petrel	VU	1	1	1	SH	1
Heinroth's Shearwater	VU		1	1	SH	
Leach's Storm Petrel	VU		1	1	Both	
Matsudaira's Storm Petrel	VU		1	1	Both	
Southern Rockhopper Penguin	VU		1	1	SH	
Macaroni Penguin	VU		1	1	SH	
Snares Penguin	VU		1	1	SH	
Kittlitz's Murrelet	NT		1	1	NH	
Long-billed Murrelet	NT		1	1	NH	

Cassin's Auklet	NT		1	1	NH	
Laysan Albatross	NT	1	1	1	NH	1
Black-footed Albatross	NT	1	1	1	NH	1
Light-mantled Sooty Albatross	NT	1	1	1	SH	1
Buller's Albatross	NT	1	1	1	SH	1
Shy Albatross	NT	1	1	1	SH	1
White-capped Albatross	NT	1	1	1	SH	1
Tahiti Petrel	NT		1	1	Both	1
Mottled Petrel	NT		1	1	Both	
Flesh-footed Shearwater	NT		1	1	Both	1
Sooty Shearwater	NT		1	1	Both	1
Streaked Shearwater	NT		1	1	Both	1
Grey Petrel	NT	1	1	1	SH	1
Swinhoe's Storm Petrel	NT		1	1	NH	
Fiordland Penguin	NT		1	1	SH	
Crested Auklet	LC		1	1	NH	
Parakeet Auklet	LC		1	1	NH	
Least Auklet	LC		1	1	NH	
Whiskered Auklet	LC		1	1	NH	
Spectacled Guillemot	LC		1	1	NH	
Pigeon Guillemot	LC		1	1	NH	
Rhinoceros Auklet	LC		1	1	NH	
Tufted Puffin	LC		1	1	NH	
Horned Puffin	LC		1	1	NH	
Ancient Murrelet	LC		1	1	NH	
Common Murre	LC		1	1	NH	
Thick-billed Murre	LC		1	1	NH	
Brown Skua	LC		1	1	SH	
South Polar Skua	LC			1	Both	
Long-tailed Jaeger	LC			1	Both	
Arctic Jaeger	LC			1	Both	
Pomerine Jaeger	LC			1	Both	

Black-browed Albatross	LC	1	1	1	SH	1
Grey-faced Petrel	LC		1	1	SH	1
Herald Petrel	LC		1	1	Both	
Bonin Petrel	LC		1	1	NH	
White-headed Petrel	LC		1	1	SH	
Great-winged Petrel	LC			1	SH	1
Soft-plumaged Petrel	LC		1	1	SH	
Kermadec Petrel	LC		1	1	Both	
Black-winged Petrel	LC		1	1	Both	
Providence Petrel	LC		1	1	Both	1
Murphy's Petrel	LC		1	1	Both	
Wedge-tailed Shearwater	LC		1	1	Both	1
Short-tailed Shearwater	LC		1	1	Both	1
Northern Fulmar	LC		1	1	NH	1
Southern Fulmar	LC			1	SH	?
Southern Giant Petrel	LC	1	1	1	SH	1
Northern Giant Petrel	LC	1	1	1	SH	1
Little Shearwater	LC		1	1	SH	
Tropical Shearwater	LC		1	1	Both	
Subantarctic Shearwater	LC		1	1	SH	1
Fluttering Shearwater	LC		1	1	SH	1
Christmas Shearwater	LC		1	1	Both	1
Bulwer's Petrel	LC		1	1	Both	1
Cape Petrel	LC		1	1	SH	1
Blue Petrel	LC		1	1	SH	
Slender-billed Prion	LC			1	SH	
Fulmar Prion	LC		1	1	SH	
Antarctic Prion	LC		1	1	SH	
Broad-billed Prion	LC		1	1	SH	
Salvin's Prion	LC			1	SH	

Fairy Prion	LC	1	1	SH	
Common Diving Petrel	LC	1	1	SH	
White-bellied Storm Petrel	LC	1	1	SH	
Black-bellied Storm Petrel	LC	1	1	SH	
Grey-backed Storm Petrel	LC	1	1	SH	
Band-rumped Storm Petrel	LC	1	1	Both	
Tristram's Storm Petrel	LC	1	1	NH	
Wilson's Storm Petrel	LC		1	Both	
White-faced Storm Petrel	LC	1	1	SH	
King Penguin	LC	1	1	SH	
Royal Penguin	LC	1	1	SH	
Little Penguin	LC	1	1	SH	
Gentoo Penguin	LC	1	1	SH	
Lesser Frigatebird	LC	1	1	Both	1
Great Frigatebird	LC	1	1	Both	1
Australasian gannet	LC	1	1	SH	1
Masked Booby	LC	1	1	Both	1
Nazca Booby	LC	1	1	Both	
Brown Booby	LC	1	1	Both	1
Red-footed Booby	LC	1	1	Both	1

[A] IUCN Red List of Threatened Species (Version 2025-1). [B] Appendices I or II of CMS and Annex I of ACAP. [C] Based on ACAP database, range maps in Billerman et al. 2025, EBird sighting data, and additional tracking data. [D] Based on threat classifications in the IUCN Red List, Billerman et al. 2025, and published bycatch risk assessments (e.g., Anon. 2024, Peatman et al. 2019 and Abraham et al. 2019 as well as AR-pt1 submitted by CCMs).