



**SCIENTIFIC COMMITTEE  
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**Conservation concern for Antipodean wandering albatross**

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**WCPFC-SC13-2017/EB-IP-11  
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## **Abstract**

Antipodean wandering albatross (*Diomedea antipodensis antipodensis*) are endemic to the Antipodes Islands. Due to the vulnerability of this long-lived and slow breeding species to fisheries bycatch, their survival, productivity, recruitment and population trends have been monitored during almost annual visits to Antipodes Island since 1994. The risk of fisheries bycatch to this species in the WCPFC area was highlighted by Debski et al in WCPFC-SC12-2016/EB-WP-09, and Baird et al in WCPFC-SC11-2015/EB-WP-09.

Since 2004 this population has declined: males at 6% per annum and females at 12%. The population of breeding females is now only 25% of its 2004 level. Alongside this decline, there has been a reduction in nesting success. At the current rate of decline there will be only 500 pairs of Antipodean wandering albatrosses in 20 years.

The rapid drop in numbers has been caused by high mortality, particularly amongst females. A change in food availability may have led to birds foraging in areas with a higher fisheries bycatch risk than before. A comparison of tracking data prior to and since 2004 indicates a dramatic shift in the foraging range of females. They now often forage to the north-east of New Zealand and as far as the South American coast. Since males only rarely visit these areas and have much higher survivorship it seems possible the high female mortality might be happening in these two areas.

Expansion of the foraging range of Antipodean wandering albatross further north and east into the WCPFC area highlights the importance of actions to minimise bycatch in WCPFC fisheries in order to address this conservation concern. Further understanding the causes of and solutions to the high female mortality is urgently required as the high and sustained rate of decline has put this species into New Zealand's "Nationally Critical" conservation status category.

## 1. BACKGROUND

Antipodean wandering albatross (*Diomedea antipodensis antipodensis*) are endemic to the Antipodes Islands. Due to the vulnerability of this long-lived and slow breeding species to fisheries bycatch, their survival, productivity, recruitment and population trends have been monitored during almost annual visits to Antipodes Island since 1994. The risk of fisheries bycatch to this species in the WCPFC area was highlighted by Debski et al in WCPFC-SC12-2016/EB-WP-09, and Baird et al in WCPFC-SC11-2015/EB-WP-09. This paper provides an update on trends in population size, demographic traits, and tracking studies.

## 2. TRENDS IN POPULATION SIZE AND DEMOGRAPHIC TRAITS

### 2.1. Population size

The Antipodean wandering albatross, *Diomedea antipodensis* is listed as “vulnerable” by the IUCN because the species is in decline, but the population status of both subspecies (*D. a. antipodensis* and *D. a. gibsoni*) has deteriorated since that assessment, and consultation on a proposal to up-list to “endangered” is currently underway. Each subspecies is assessed separately by the New Zealand Threat Classification System and both are now regarded as “nationally critical” (Robertson et al. 2017). *D. a. antipodensis* is declining much more rapidly than *D. a. gibsoni*.

The last full population census of *D. a. antipodensis* was undertaken in 1994-96 when there were 5180 pairs each year nesting on Antipodes Island (Walker & Elliott 2005). Since then three areas on Antipodes Island which support 15% of the nesting birds have been censused 20 times and one area supporting 2.7% of the population has been censused every year but one (Elliott & Walker 2017). The number of nests in the census blocks increased until 2004, declined dramatically between 2005 and 2007, and has continued to decline steadily ever since (Figure 1).

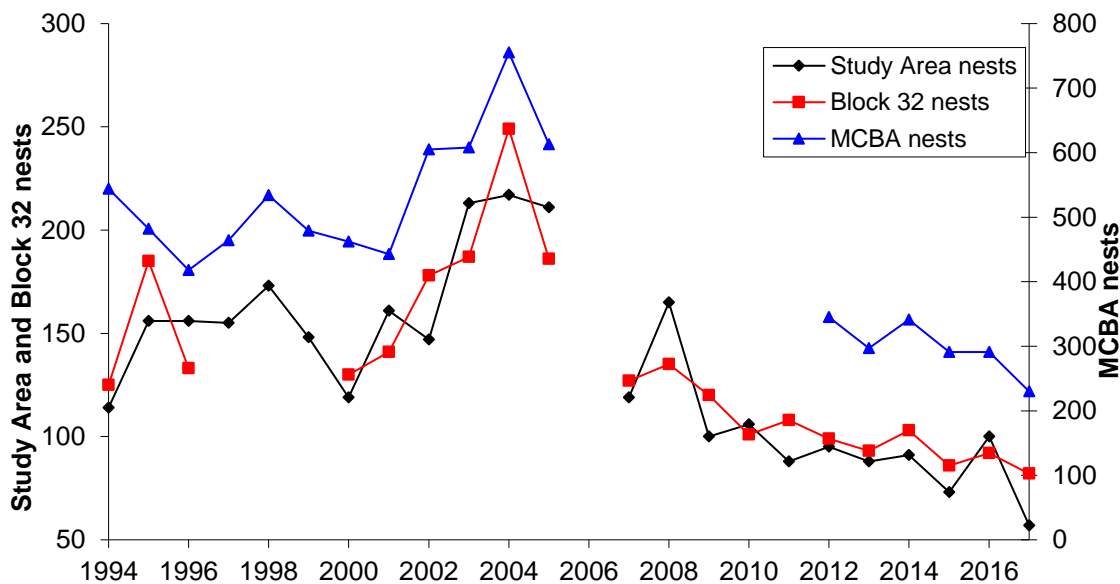


Figure 1. The number of Antipodean wandering albatross nests in three blocks on Antipodes Island since 1994 (from Elliott & Walker 2017).

These counts suggest that the population rose from about 5180 pairs each year breeding in 1994-96 to about 7220 in 2003-05, then declined to about 2900 nesting pairs in 2015-17. At the current rate of decline there will be only 500 pairs of Antipodean wandering albatrosses in 20 years.

## 2.2. Demographic traits

There was a significant and dramatic decline in adult female survivorship in 2005, and significant, but much less dramatic declines in adult male survival and nesting success at the same time (Figures 2 & 3).

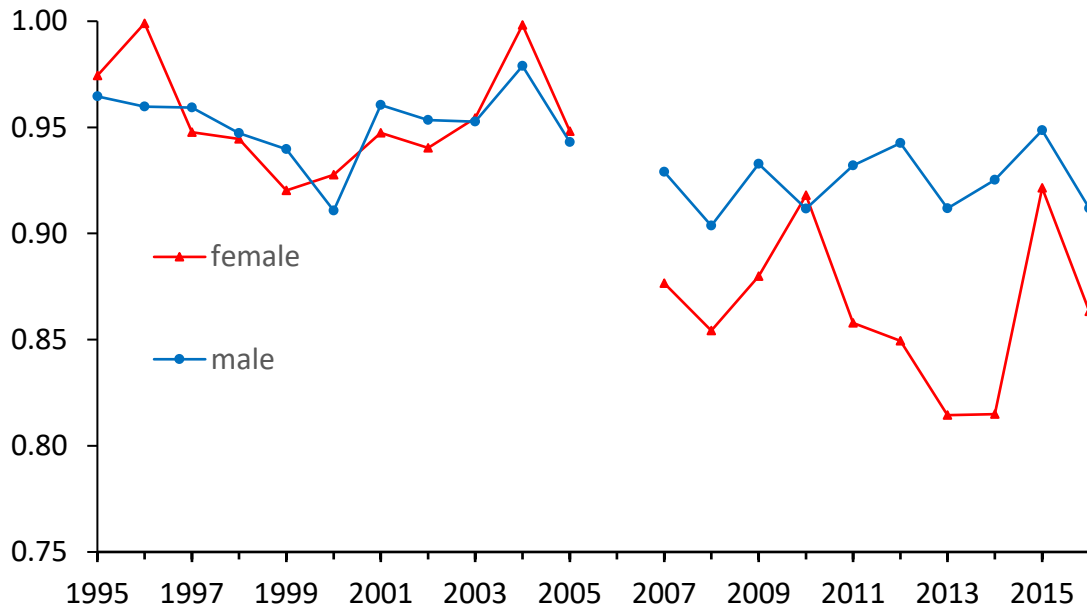


Figure 2: Adult survivorship of Antipodean wandering albatrosses nesting in a study area on Antipodes Island estimated by mark-recapture (from Elliott & Walker 2017).

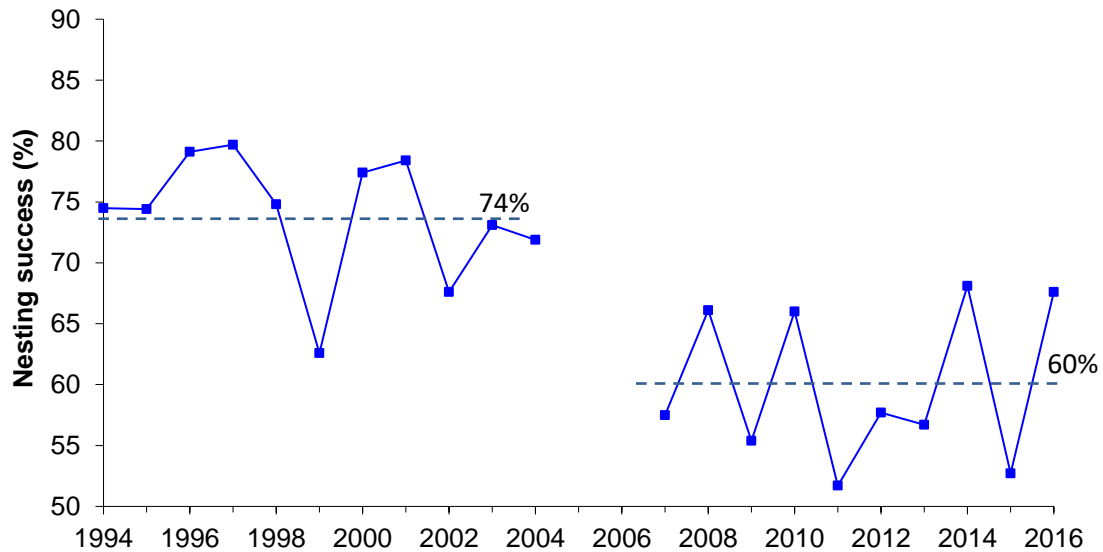


Figure 3: Nesting success of Antipodean wandering albatrosses nesting in a study area on Antipodes Island (from Elliott & Walker 2017).

Mark-recapture estimates of the population size indicate that the breeding population was increasing at about 6% per annum before 2004, but since then it has been declining at 12% per year. The decline has been much greater in females than males, with males declining at about 6% per annum while females have declined at 12% per annum (Figure 4). Whereas the number of males and females in the breeding population before 2004 was approximately equal, there are now more than two adult males for every adult female.

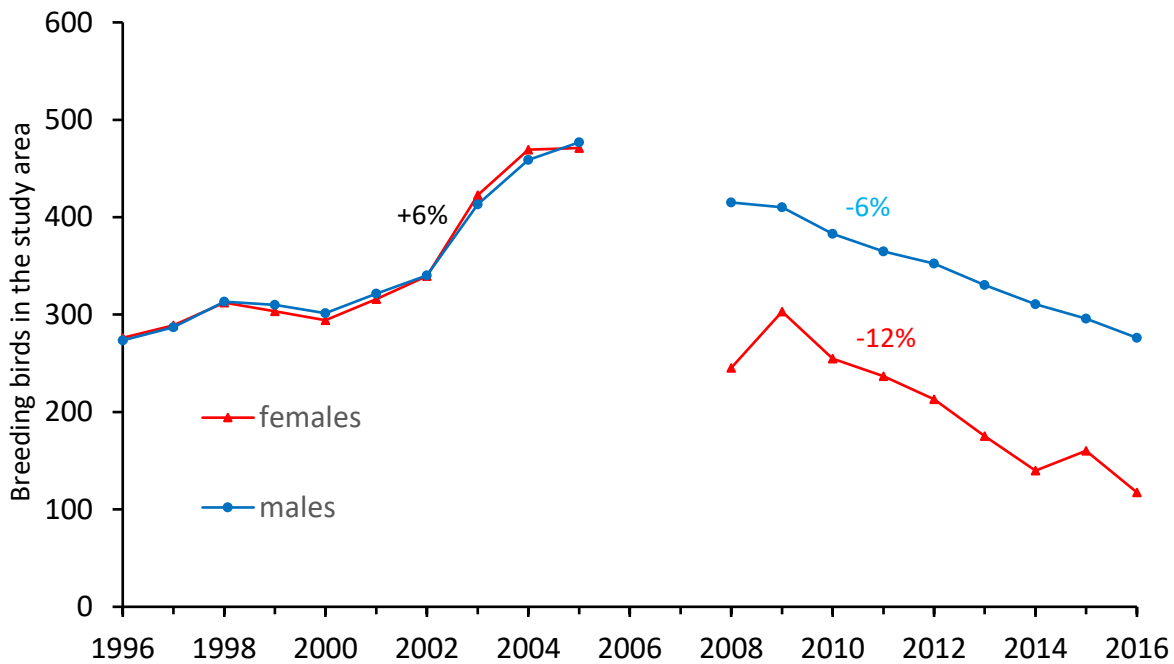


Figure 4: Mark-recapture estimates of the number of breeding adult Antipodean wandering albatrosses in the study area on Antipodes Island (from Elliott & Walker 2017).

### 2.3. Land-based threats

There is no evidence of any substantial land-based threats to Antipodean wandering albatrosses at Antipodes Island such as human disturbance, introduced species or disease. Mice were present until mid-2016 but despite intensive monitoring, there is no evidence they were having an impact on Antipodean wandering albatross nesting success or adult survival. The recent programme to eradicate mice from the island has reduced the possibility of future land-based threats.

### 2.4. Threats from fisheries

Wandering albatrosses are a regular bycatch in observed surface longlining fisheries in New Zealand waters (Abraham et al 2015). Not all bycaught birds are identified to subspecies level, but at least some are identified as *D. a. antipodensis*. As they spend much of their time foraging in international waters, the bycatch estimates from within the New Zealand EEZ are likely to be significantly underestimating total fisheries bycatch. In the decade 1988-98, 90 *D. a. antipodensis* were recovered dead from observed

fisheries in New Zealand waters (Walker & Elliott 2006). Between 2004 and 2014, 29 *D. a. antipodensis* were reported caught on observed fisheries vessels in New Zealand waters (Abraham & Thompson 2015). Over the same period there were 41 fisheries related band recoveries of *D. a. antipodensis*, many of which came from international waters in the central and eastern Pacific (Walker & Elliott 2006), six of them since 2007 (Figure 5). This included bycatch of banded birds in WCPFC area.

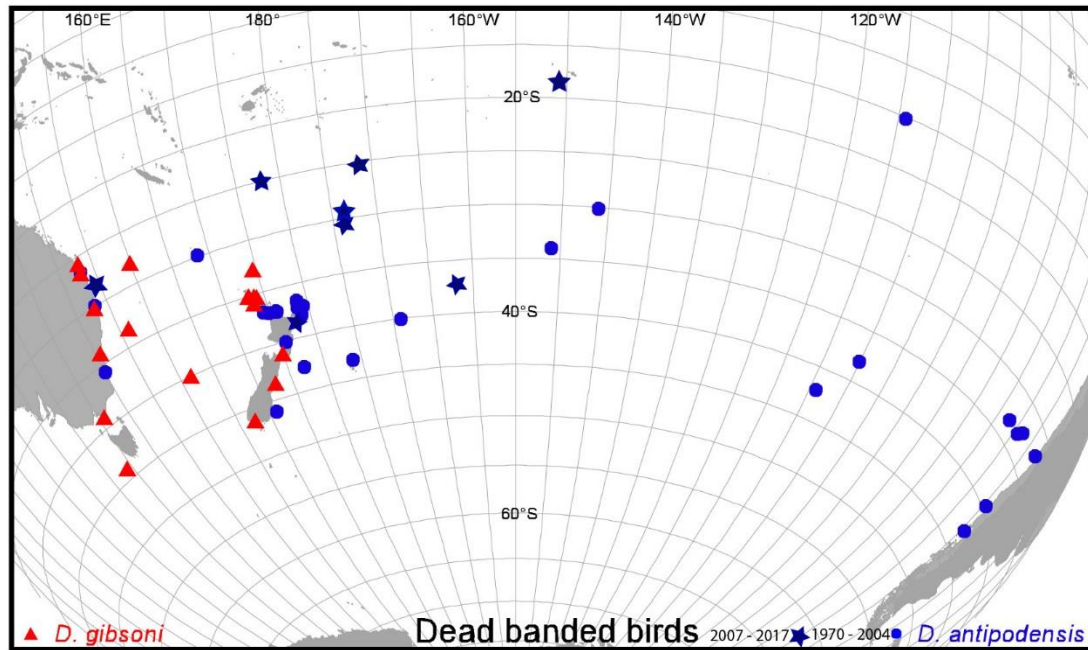


Figure 5: Distribution of recoveries between 1970 and 2017 of 41 *D. a. antipodensis* banded on Antipodes Island (48°S, 178°E), and between 1970 and 2004 of 18 *D. a. gibsoni* banded on Adams Island (50°S, 166°E).

The foraging range of *D. a. antipodensis* was investigated using satellite tags in 1996-04 and GLS loggers in 2011-17 (Elliott & Walker 2017). Spatial distributions of non-breeding birds (breeding birds have much more restricted ranges) from tracking before and after the population decline began are summarised in Figure 6. The distributions of both males and females have extended since 2004, and that of females dramatically so. After 2011 ranges have extended north and east extending further into the WCPFC area, particularly for non-breeding females. Most of the non-breeding females that were tracked have also been visiting areas as far away as the South American coast, which they rarely visited in the past.

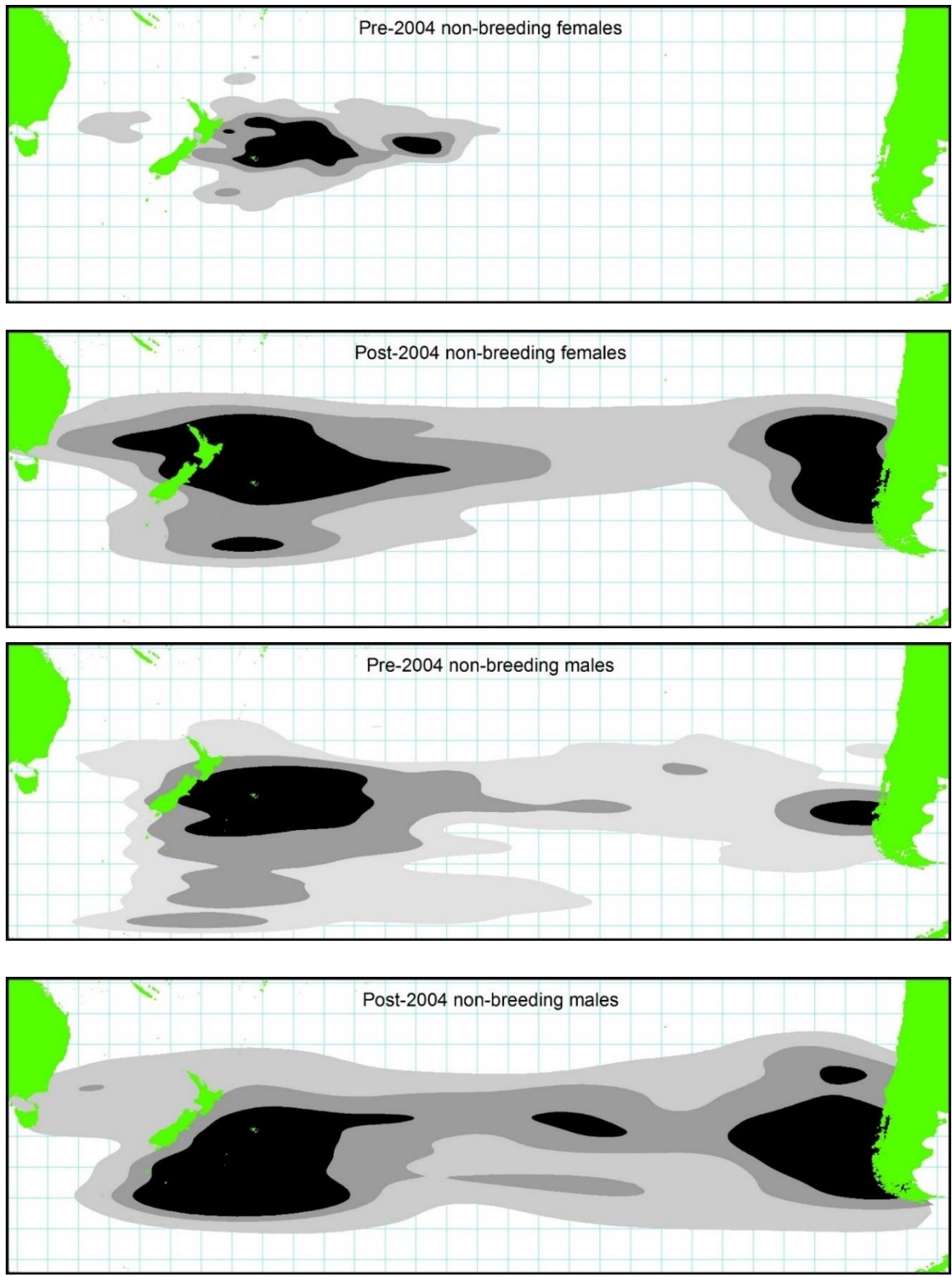


Figure 6: Kernel density plots of breeding and non-breeding *D. a. antipodensis* tracked in 1996–01 and in 2011–17. Black indicates the 50% contour, dark grey the 75% contour, and light grey the 90% contour.

## 2.5. Conclusion

The population trends of Antipodean wandering albatross observed since 2008 raises particular concern for this taxon. Due to the lack of land-based threats to this population we identify the major human-induced cause of decline as incidental mortality in fisheries.

Antipodean wandering albatross can be difficult to identify at-sea, but genetic techniques are available for determine the source population using samples from bycaught birds. We encourage not only the collection and reporting of data on bycatch, through representative observer coverage, but also the implementation of methods to ensure correct identification of bycaught birds to the lowest possible taxonomic level.

Expansion of the foraging range of Antipodean wandering albatross further north and east into the WCPFC area highlights the importance of actions to minimise bycatch in WCPFC fisheries in order to address this conservation concern.

## 3. RECOMMENDATIONS

We recommend that the SC:

- note the increased conservation concern for Antipodean wandering albatross based on the most recent demographic available.
- recognise, due to the expansion of the foraging range of Antipodean wandering albatross further north and east into the WCPFC area, the importance of reviewing actions to better understand and minimise bycatch in WCPFC fisheries in order to address this conservation concern. This includes ensuring observer programmes identify bycaught wandering albatross to the lowest possible taxonomic level, reporting this information to allow better identification of high risk areas, and reviewing the specifications and spatial extent of the seabird bycatch CMM to minimise bycatch.

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