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|  <p>Agreement on the Conservation of Albatrosses and Petrels</p> | <p style="text-align: center;">Fourth Meeting of the Population and Conservation Status Working Group <i>Wellington, New Zealand, 7 – 8 September 2017</i></p> <p style="text-align: center;">ACAP priority population assessment: Antipodean albatross at Antipodes Island <i>Kath Walker and Graeme Elliott</i></p> |
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SUMMARY

Antipodean albatrosses, (*Diomedea antipodensis*) consists of two New Zealand endemic subspecies. *Diomedea a. antipodensis* breed almost exclusively on Antipodes Island (New Zealand subantarctic), and following a dramatic population crash in 2005, adult males have been declining at 6% per annum and females at 12% per annum. The decline appears to be driven in large part by very high female mortality, in some years up to 20%, though reduced breeding success and increased recruitment age have exacerbated the problem. Since 2005 most females when not breeding have been regularly visiting the coast off Chile, waters which they rarely visited in the past. Considering the absence of land-based threats, the main cause of high female mortality appears to be fisheries bycatch north of New Zealand and in the central and eastern Pacific between 20-30 degrees south. If this steep and rapid decline continues at the current rate, it has been predicted that *D. a. antipodensis* will be functionally extinct in 20 years. We believe it is now one of the great albatrosses most threatened by bycatch and warrants consideration as an ACAP priority population for conservation management.

RECOMMENDATIONS

That the PaCSWG requests the Advisory Committee to:

1. Include Antipodean albatrosses (*Diomedea antipodensis antipodensis*) breeding on Antipodes Island as an ACAP priority population for conservation management.

Evaluación de poblaciones prioritarias del ACAP: albatros de las Antípodas en las islas Antípodas

RESUMEN

Los albatros de las Antípodas (*Diomedea antipodensis*) están conformados por dos subespecies endémicas de Nueva Zelanda. La especie *Diomedea a. antipodensis* se reproduce casi exclusivamente en las islas Antípodas (subantárticas de Nueva Zelanda). A partir de una disminución drástica de la población en 2005, la población de machos adultos se ha reducido un 6 % por año y la de hembras, un 12 % por año. Aparentemente, esta disminución se debe, en gran medida, a una tasa de mortalidad muy elevada de las hembras

—de hasta un 20 % en algunos años—, aunque el problema se vio exacerbado por un menor éxito reproductivo y una mayor edad de reclutamiento. Desde 2005, la mayoría de las hembras que no se encuentran en época de apareamiento visitan la costa de Chile con regularidad, a cuyas aguas rara vez se acercaban en el pasado. Si se considera la ausencia de amenazas terrestres, la causa principal de la alta mortalidad de las hembras aparentemente sería la captura secundaria en pesquerías al norte de Nueva Zelandia y en el Pacífico central y oriental entre los 20 y los 30 grados sur. Si esta pronunciada y veloz disminución continúa al ritmo actual, se predijo que la especie *D. a. antipodensis* quedará funcionalmente extinguida en 20 años. Creemos que ahora esta es una de las especies de grandes albatros más amenazadas por la captura secundaria, lo que justifica que se la considere como una población prioritaria del ACAP para su conservación.

RECOMENDACIONES

Que el Grupo de Trabajo sobre Población y Estado de Conservación solicite al Comité Asesor que:

1. Incluya los albatros de las Antípodas (*Diomedea antipodensis antipodensis*) que se reproducen en las islas Antípodas como una población prioritaria del ACAP para su conservación.

Évaluation prioritaire de la population de l'ACAP : Albatros des Antipodes de l'île des Antipodes

RÉSUMÉ

Les albatros des Antipodes, (*Diomedea antipodensis*) sont deux sous-espèces endémiques de Nouvelle-Zélande. Les *Diomedea a. antipodensis* se reproduisent presque exclusivement sur l'île des Antipodes (subantarctique de la Nouvelle-Zélande), et suite à un effondrement dramatique de la population en 2005, les mâles adultes ont décliné de 6% par an et les femelles de 12% par an. Le déclin semble être entraîné en grande partie par la mortalité très élevée des femelles, pour certaines années, jusqu'à 20%, quoique le taux de reproduction réduit et un âge de recrutement plus élevé aient exacerbé le problème. Depuis 2005, la plupart des femelles lorsqu'elles ne sont pas en reproduction visitent régulièrement la côte au large du Chili, des eaux qu'elles avaient rarement visitées par le passé. Compte tenu de l'absence de menaces terrestres, la principale cause de mortalité élevée des femelles semble être celle de capture accessoire par la pêche au nord de la Nouvelle-Zélande et dans le Pacifique central et oriental entre le 20^e-30^e degré sud. Si cette forte régression se poursuit au rythme actuel, l'extinction fonctionnelle de *D. a. antipodensis* pourrait se produire dans 20 ans. Nous pensons que ces grands albatros sont maintenant les plus menacés par la capture accessoire et méritent d'être traités comme une population prioritaire de l'ACAP pour la gestion de leur conservation.

RECOMMANDATION

Que le GTSPC demande au Comité consultatif :

1. D'inclure la reproduction des albatros des Antipodes (*Diomedea antipodensis*) sur l'île des Antipodes en tant que population prioritaire de l'ACAP pour la gestion de leur conservation.

1. BACKGROUND

Five breeding populations of ACAP species were identified at AC6 as priority populations for conservation management, to which particular attention should be paid. These populations were selected because they represented sizeable proportions (>10%) of the global total, were in rapid decline (>3% a year), and for which a major underlying cause was incidental mortality in fisheries, requiring concerted international action. Several other breeding populations of ACAP species were identified at AC8 that might meet these criteria because they had been declining at >3% per year over a 20-year period. An additional population which appears to meet these criteria, the Antipodean albatross (*D. antipodensis*) at Antipodes Island, has subsequently been identified. It represents 47% of the global total for the species and the breeding population has been declining at 12% per year for 13 years.

2. TRENDS IN POPULATION SIZE AND DEMOGRAPHIC TRAITS

2.1. Population size

The Antipodean 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 which supports more than 99% of the subspecies, and 47% of the total *D. antipodensis* species (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).

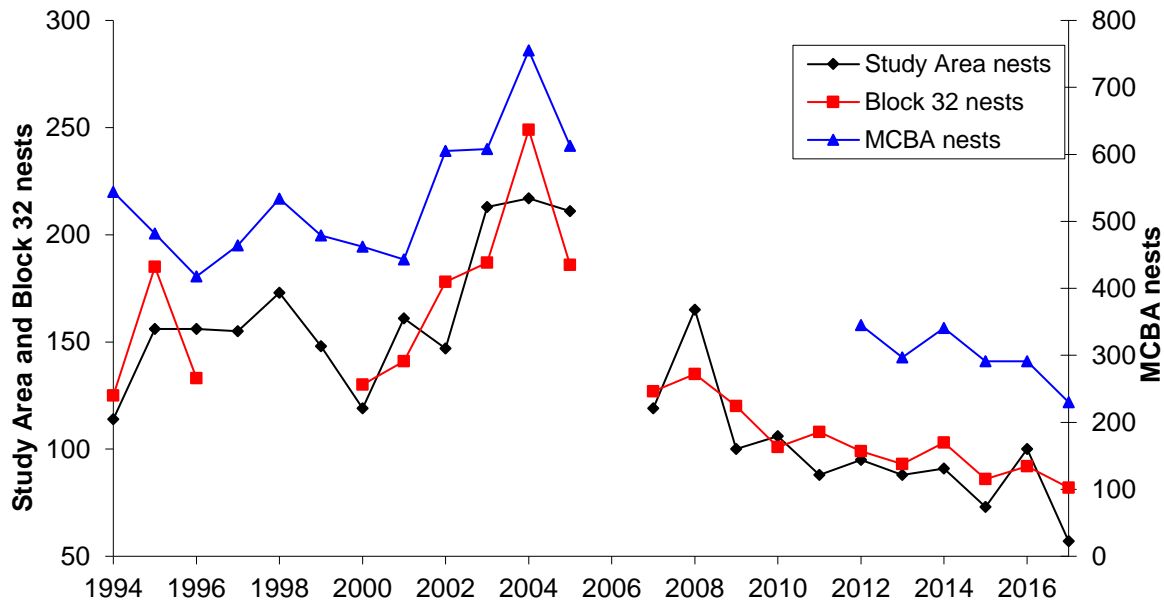


Figure 1. The number of Antipodean albatross nests in three blocks on Antipodes Island since 1994 (from Elliott & Walker 2017).

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.

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).

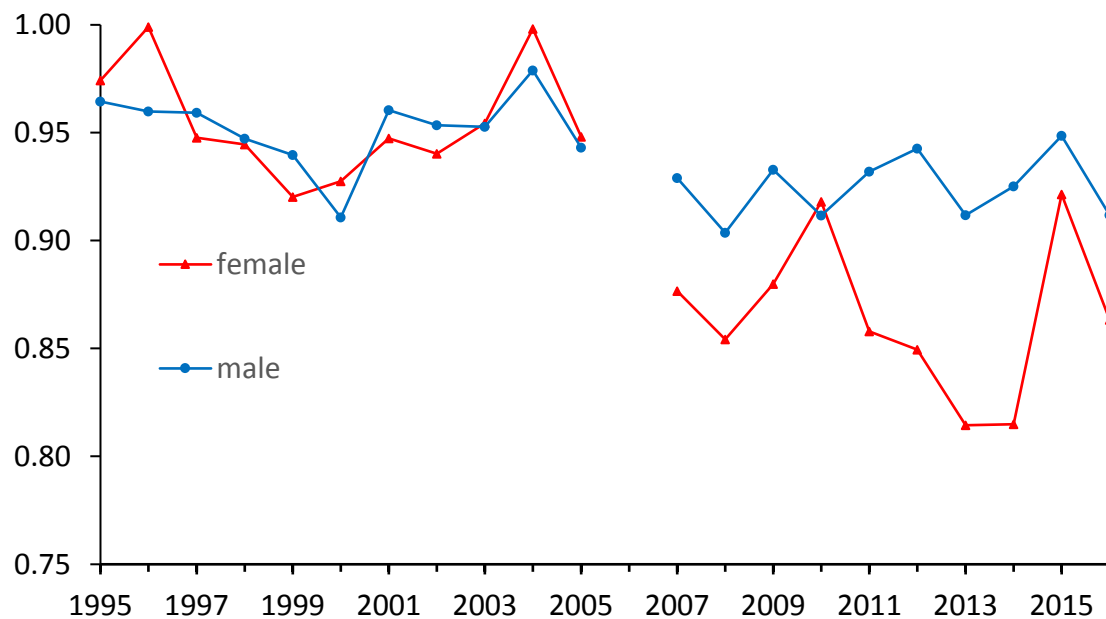


Figure 2: Adult survivorship of Antipodean albatrosses nesting in a study area on Antipodes Island estimated by mark-recapture (from Elliott & Walker 2017).

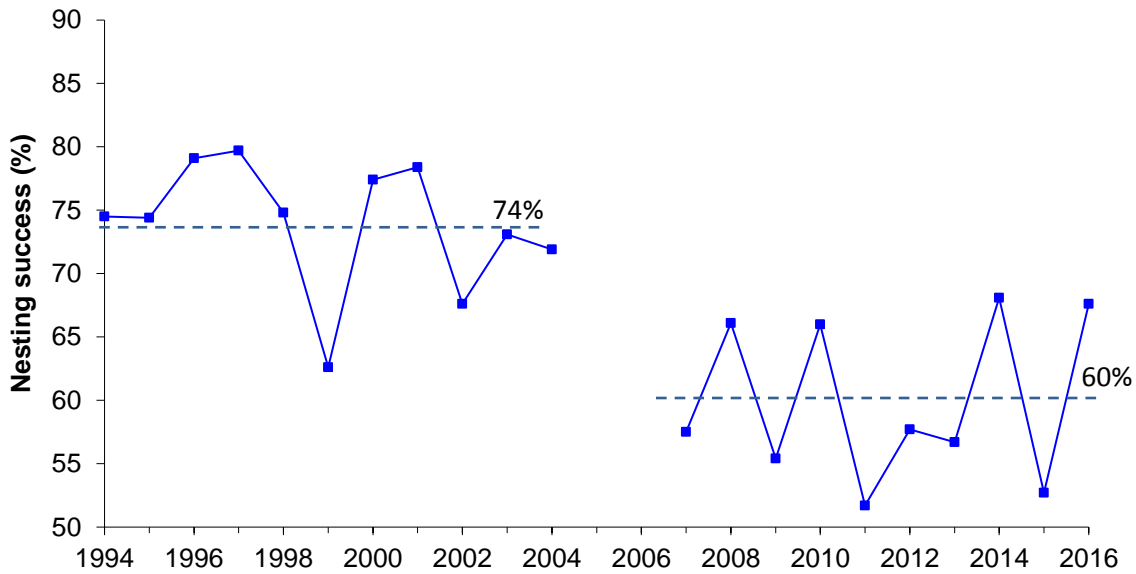


Figure 3: Nesting success of Antipodean albatrosses nesting in a study area on Antipodes Island (from Elliott & Walker 2017).

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.

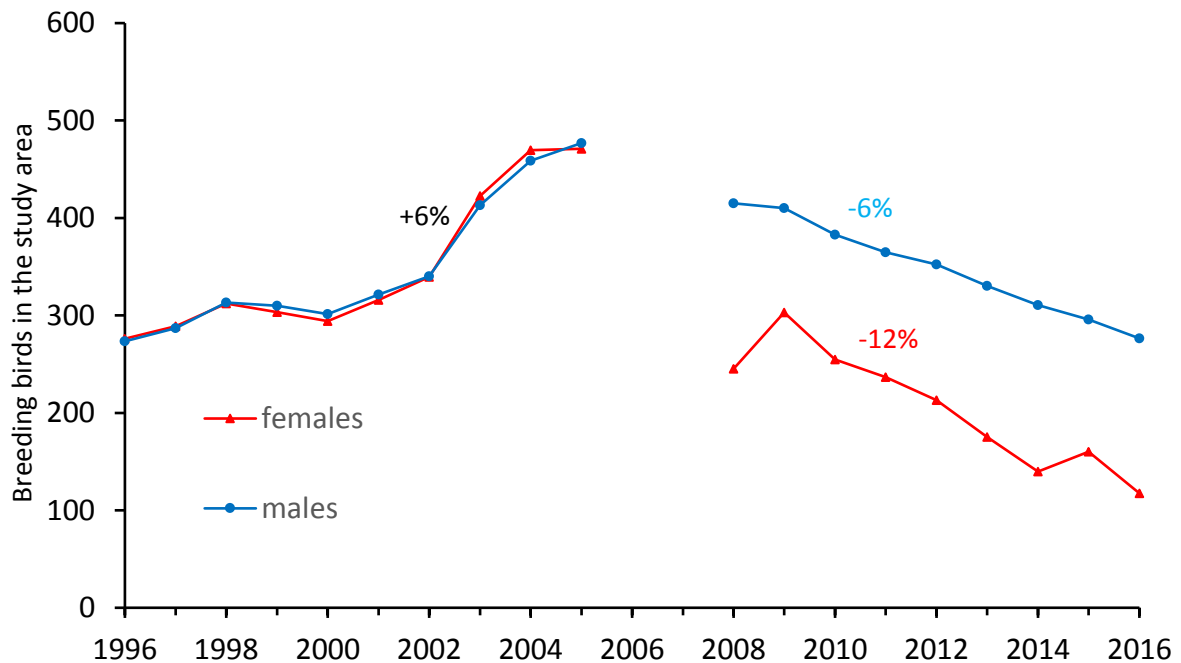


Figure 4: Mark-recapture estimates of the number of breeding adult Antipodean wandering albatrosses in the study area on Antipodes Island (from Elliott & Walker 2017).

2.3. Land-based threats

There is no evidence of any substantial land-based threats to Antipodean 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 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).

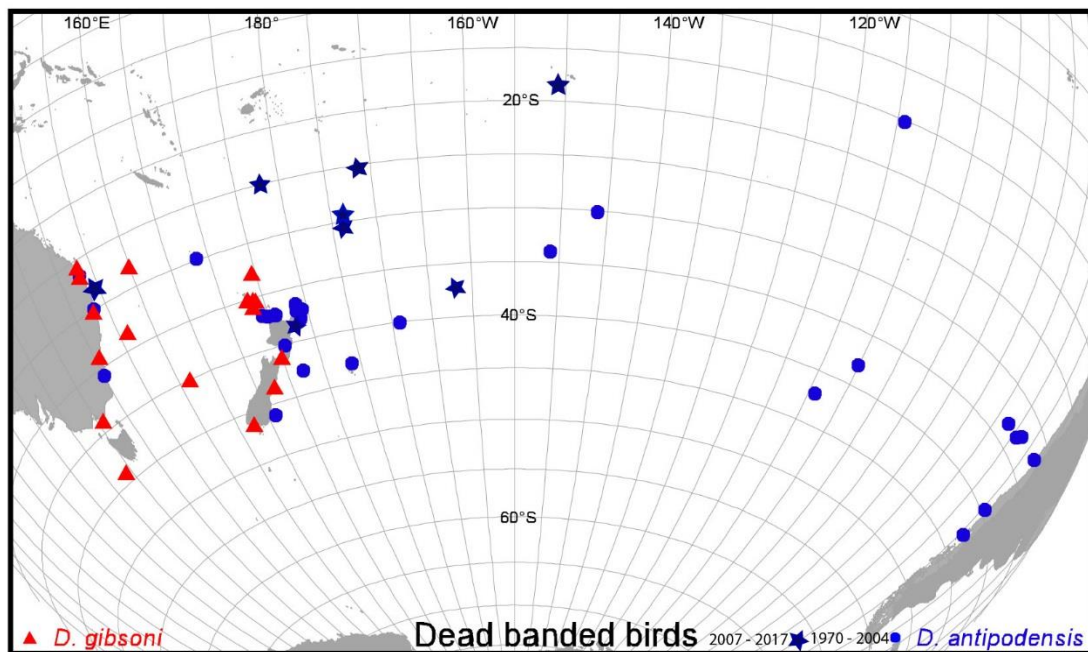


Figure 5: Distribution of recoveries between 1970 and 2017 of 41 *D. a. antipodensis* banded on Antipodes Island (48°S, 178°E), and between 1970 and 2004 of 18 *D. a. gibsoni* banded on Adams Island (50°S, 166°E).

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 most of

the non-breeding females that were tracked have been visiting the South American coast, which they rarely visited in the past.

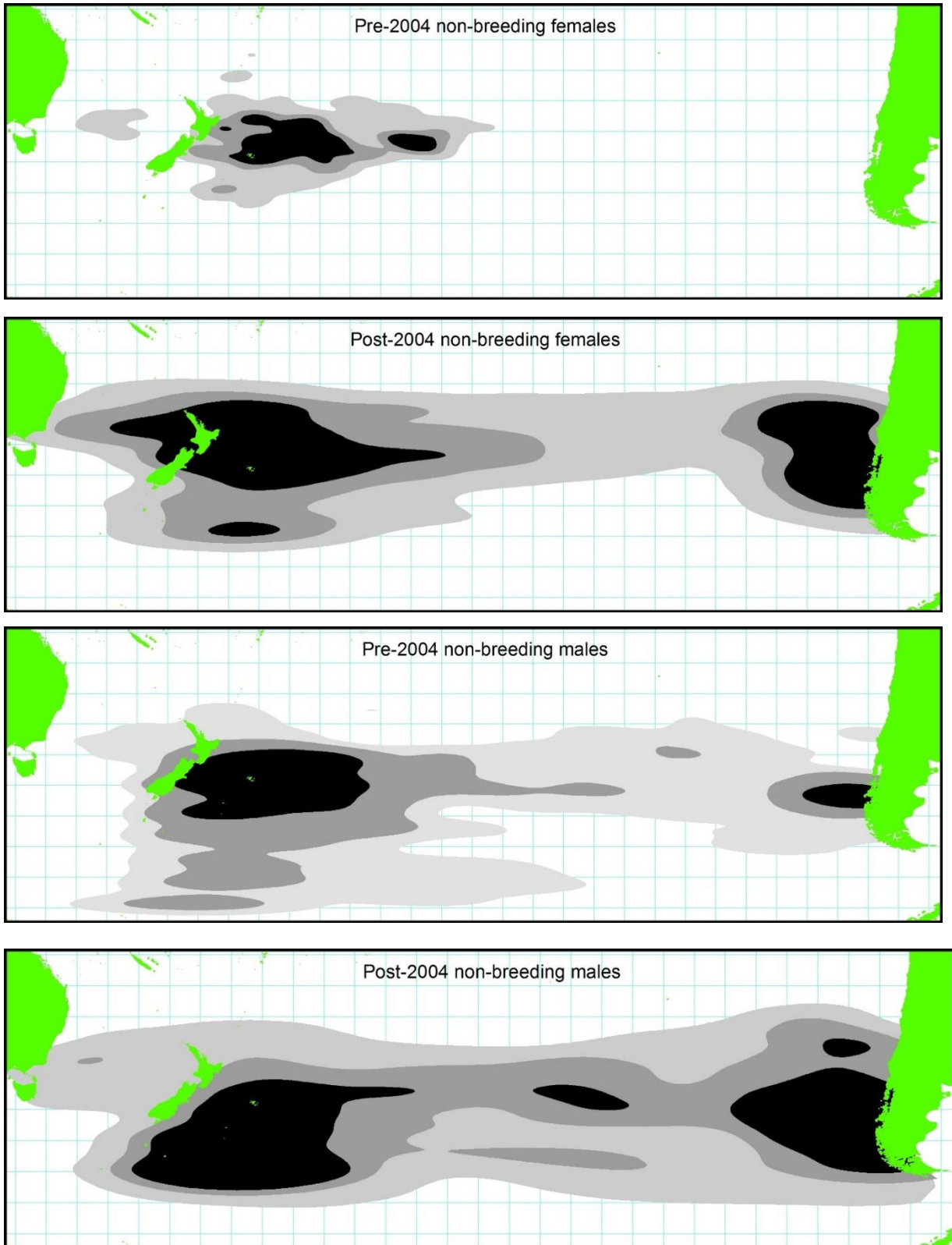


Figure 6: Kernel density plots of breeding and non-breeding *D. a. antipodensis* tracked in 1996–01 and in 2011–17. Black indicates the 50% contour, dark grey the 75% contour, and light grey the 90% contour.

Since female *D. a. antipodensis* have suffered higher rates of mortality than male *D. a. antipodensis* and either male or female *D. a. gibsoni* (Walker et al. 2017) it follows that the ocean areas where female *D. a. antipodensis* go but the other *D. antipodensis* albatrosses do not might be the places where they are suffering higher mortality. Those places have been identified by subtracting the rasterized versions of kernel density plots of the range of male *D. a. antipodensis* and male and female *D. a. gibsoni* from that of female *D. a. antipodensis* (Figure 7). Rasters were normalised so that they each added to one before subtraction.

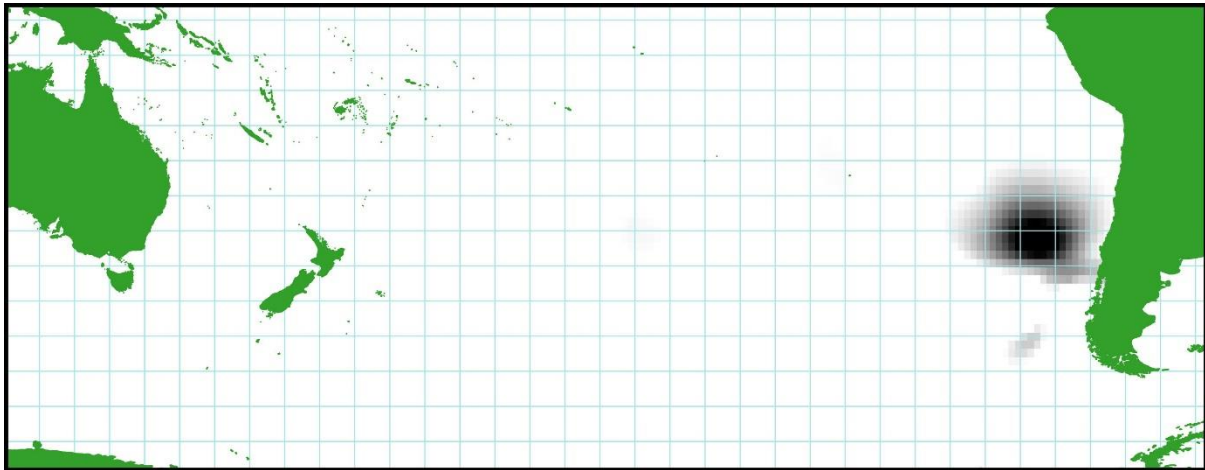


Figure 7: Places where female *D. a. antipodensis* go, but males and *D. a. gibsoni* do not go.

2.5. Assessment against criteria for high priority populations

We believe the data presented here meet the criteria for identifying priority populations of concern identified at AC6, namely:

- the population represent 47% of the total species population (ie >10% of the global total)
- the breeding population is declining rapidly at a rate of 12% per year (>3% per year)
- due to the lack of land-based threats to this population we identify the major human-induced cause as incidental mortality in fisheries.

3. REFERENCES

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