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Distribution of highly at-risk New Zealand seabirds in the Western Central Pacific Fisheries Commission area

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Abstract

We present a summary of the most relevant and up to date distributional information for New Zealand breeding seabird species identified as at highest risk from fisheries bycatch. The foraging range of these species is overlaid with the spatial application of CMM 2012-07 to mitigate the impact of fishing for highly migratory fish stocks on seabirds. Building on information previously considered by the Science Committee, we assess how fishing impacts can best be mitigated for these most at-risk seabirds, with a particular focus on the spatial application of mitigation in the southern Pacific.

Introduction

Seabirds, particularly albatross and petrels, are recognized as some of the most threatened bird species globally (Croxall et al 2012), and bycatch in pelagic longline fishing poses a major risk (Anderson et al 2011). New Zealand has the highest global diversity of albatross and petrel species, and addressing fisheries bycatch risks to these species is a high priority. Extensive assessments of the risk posed by New Zealand commercial fisheries bycatch to New Zealand breeding seabirds have been conducted (e.g. Richard & Abraham 2015) and further work is underway to assess global fisheries risk to a range of priority seabird species.

CMM 2012-07 requires the use of seabird bycatch mitigation by all longline vessels fishing south of 30^{o} south and by vessels 24 m or more in length fishing North of 23^{o} north, though the measures to be applied vary (and CMM 2015-03 will in future require mitigation to be used by vessels less than 24 m in length north of 23^{o} north). Baird et al (2015) presented data on the overlap of a range of threatened seabirds with reported bycatch in areas between 25^{o} and 30^{o} south (WCPFC-SC11-2015/EB-WP-09). Following this, at the Twelfth Session of the WCPFC a proposal to change the southern boundary to 25^{o} south (WCPFC12-2015-DP11) was considered, but consensus was not reached.

We identify New Zealand breeding seabird species that are known to be at a particularly high risk to fisheries bycatch and that forage north of 30^{o} South in the Convention Area of the Western and Central Pacific Fisheries Commission.

New Zealand seabirds at high risk of bycatch that forage north of 30° S in the WCPFC area

Black petrel

Richard & Abraham (2015) found black petrel to be the species most at risk from commercial fisheries bycatch in New Zealand. Black petrels nest on only two islands in the Hauraki Gulf off northern New Zealand and have a known breeding population of less than 2,000 pairs. The population trend of black petrels is uncertain, though the population growth rate has been estimated at between -2.3% and 2.5% per year, the uncertainty due mainly to uncertainty around juvenile annual survival. Assuming a juvenile annual survival rate of 88%, the population growth rate was estimated to be -1.1% per year (Bell et al. 2011).

Black petrels breed during the austral summer, from October to June, and migrate to waters off tropical South America during the non-breeding season. During incubation and the latter stages of chick rearing breeding black petrels forage widely, and tracking data over three breeding seasons clearly shows their use of waters north of 30° south (Figure 1), where they will face risk of bycatch from any longline fishing activity.

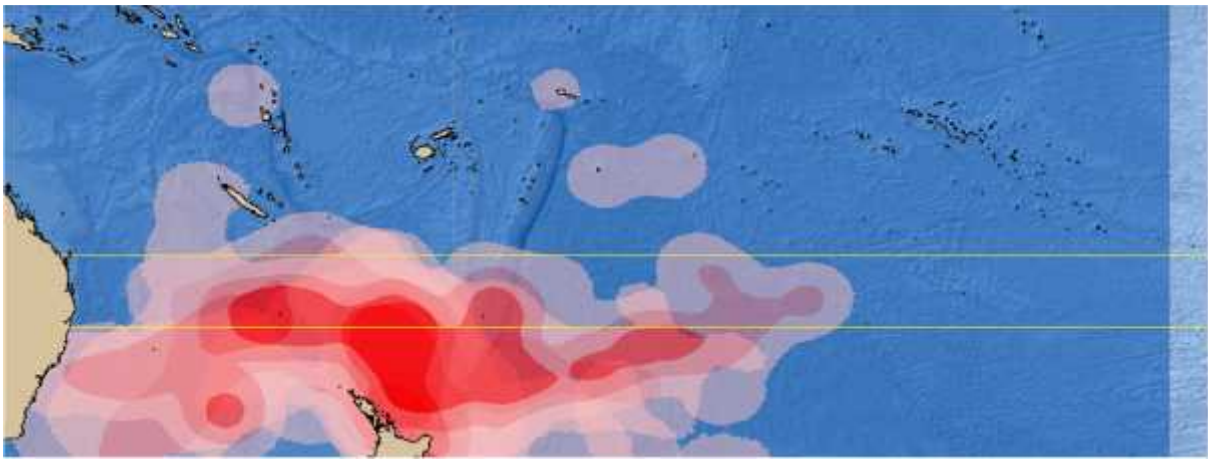

Figure 1. Black petrel tracking distribution during incubation and chick rearing stages 2005-06, 2007-08 and 2008-09. 50%, 75% and 95% distribution densities shown for each year/breeding stage. Dark blue background = WCPFC Area, yellow lines = 25° and 30° south.

Flesh-footed shearwater

Flesh-footed shearwater are also ranked as being at very high risk from commercial fisheries bycatch in New Zealand (Richard & Abraham 2015). They breed on a number of islands off northern and central New Zealand and were previously thought to number 25-50,000 breeding pairs (Taylor 2000). However, recent estimates suggest the population is only 10-15,000 pairs and their population is considered to be in decline (Waugh et al 2013).

Like black petrels, flesh-footed shearwaters breed during the austral summer and their foraging range during this period extends well north of 30° south (Figure 2). During the non-breeding period birds migrate to the Northwest Pacific, foraging primarily north of 23 ° north (Figure 2).

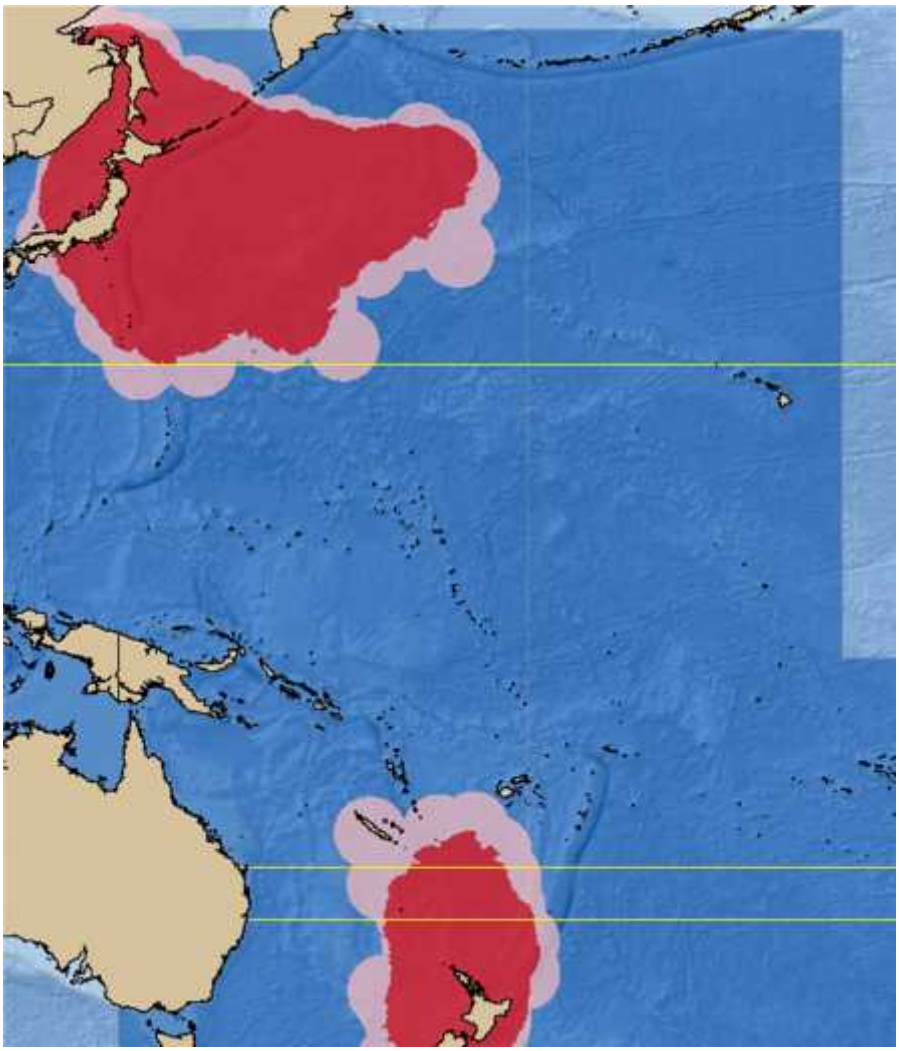

Figure 2. Flesh-footed shearwater tracking distribution (year round) 2010-2011. 95% and 99% distribution densities shown. Dark blue background = WCPFC Area, yellow lines = 25° and 30° south and 23 ° north.

Antipodean albatross

Antipodean albatross (*Diomedea antipodensis antipodensis*) is one of two taxa of wandering albatross that breed in New Zealand, together with Gibson's albatross (*Diomedea antipodensis gibsoni*). Both taxa are highly susceptible to fisheries bycatch in longline fisheries, with Gibson's albatross ranked as being at very high risk and Antipodean albatross at high risk (Richard & Abraham 2015). Both taxa are classified in the New Zealand Threat Classification System as Nationally Critical, the highest level of conservation concern (Robertson et al 2012).

Antipodean albatross breed almost exclusively on Antipodes Island in the New Zealand subantarctic. Since 2004 the population has been steadily declining, breeding females at a rate of 10% per annum, and males at 5%, leading to a sex imbalance (Elliott & Walker 2015). Tracking data collected in more recent years (2011 and later) show birds travelling longer distances, and moving into more northern waters (Elliott & Walker 2014). Figure 3 shows the tracking distribution of non-breeding female birds, which are the component of the adult population exhibiting widest foraging distributions in northern waters, as well as band recoveries from northerly waters. These female birds regularly forage north of 30° south, and this is supported by band recoveries, with multiple recoveries, from fisheries bycatch, north to 25° south. Limited tracking of juvenile birds also found the foraging are of that component of the population ranged north of 30° south (Walker & Elliott 2006).

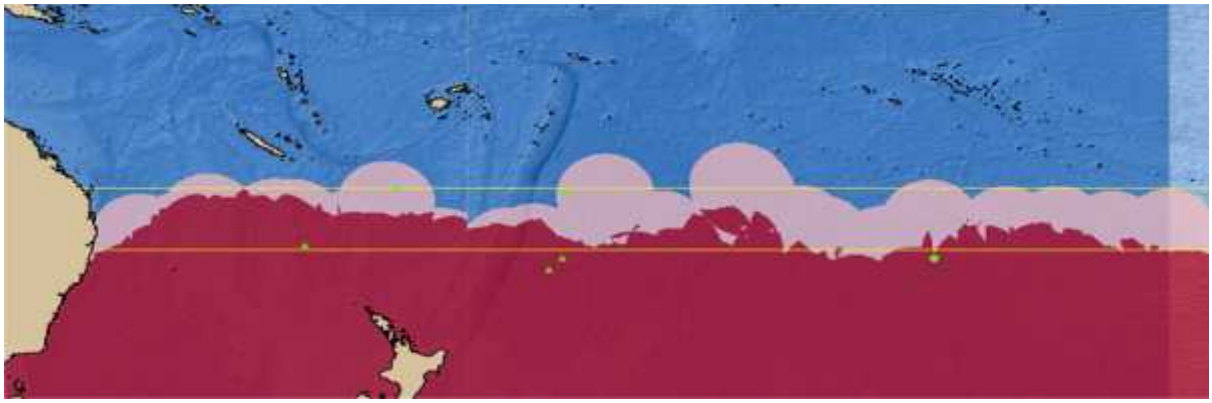

Figure 3. Antiopodean albatross tracking distribution of non-breeding female birds 2011-2015, and band recoveries (triangle = fisheries bycatch, circle = other/unknown). 95% and 99% distribution densities shown. Dark blue background = WCPFC Area, yellow lines = 25° and 30° south.

Campbell Island mollymawk

Campbell Island mollymawk (*Thalassarche impavida*) is also classified as being at high risk from New Zealand commercial fisheries bycatch (Richard & Abraham 2015). This species breeds only on Campbell Island in the New Zealand subantarctic. Population surveys have historically found fluctuations in population trend, with the most recent survey finding uncertain results, with a non-significant decline up to 2006-2012 (Sagar 2014).

Figure 4 shows the year round distribution of Campbell Island mollymawk, together with band recoveries. Many of the most northerly band recoveries are from juvenile birds, a component of the population for which no tracking information has been collected. Clearly this species does forage north of 30° south, with band recoveries, including recoveries from fisheries bycatch, in areas north of 25° south.

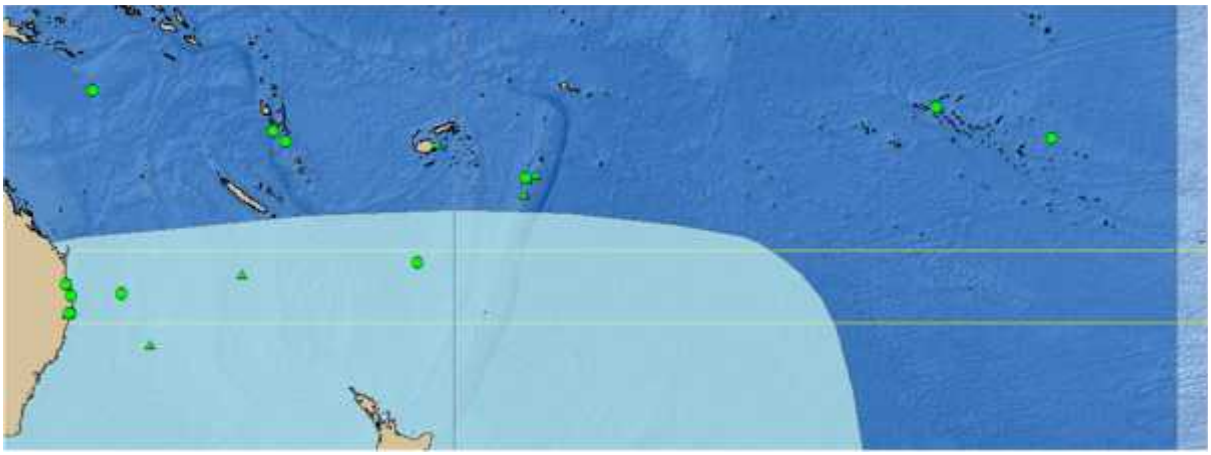

Figure 4. Campbell albatross distribution (BirdLife & NatureServe 2015), and band recoveries (triangle = fisheries bycatch, circle = other/unknown). Dark blue background = WCPFC Area, yellow lines = 25° and 30° south.

Discussion

We have presented spatial information on the foraging range of four New Zealand breeding seabirds known to be at high risk of bycatch in fisheries, and at high or very high risk from commercial fisheries bycatch in New Zealand. A number of these species have very small population sizes and are known to be in significant decline. Due to this high risk it is important that all fisheries bycatch risks are mitigated to the greatest extent practicable across the range of these species. In all cases, we have provided evidence these species utilize waters north of 30° south within the Convention Area of the Western and Central Pacific Fisheries Commission, where seabird bycatch mitigation is not currently required. Clearly, these species, and others not considered here, are at risk from bycatch in these waters. Most of the South Pacific foraging range for the species considered here falls south of 25° south. The use of effective mitigation measures on fishing methods known to pose a bycatch risk to seabirds, particularly pelagic longline, south of approximately 25° south would enhance protection of these seabirds.

Recommendations

We recommend that:

- the SC note the spatial distributional data presented here on a range of threatened New Zealand breeding seabirds highly susceptible to, and at risk from, fisheries bycatch extends north of 30° south within the Convention Area of the Western and Central Pacific Fisheries Commission.
- the SC further note that the South Pacific distribution ranges of the seabirds considered here lie mainly south of 25° south.
- the SC recognize that the use of effective seabird bycatch measures in relevant fisheries across the full distribution range of at-risk seabirds will enhance the conservation of those seabirds.

Acknowledgements

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