Agreement on the Conservation of Albatrosses and Petrels

Fifth Meeting of the Seabird Bycatch Working Group

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Bycatch of black petrel in New Zealand fisheries

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SUMMARY

Black petrel has been assessed twice (2011 and 2013) as the seabird most at risk from New Zealand commercial fisheries, with the highest proportion of risk coming from bottom long lining for snapper, bluenose and hapuku/bass in New Zealand waters. Despite this, the fishery does not appear in the list of priority fisheries of the ACAP At-Sea Conservation Priorities tabled at MoP4 in 2012. This paper reviews the information available on black petrel and the relevant fisheries and risk assessments and makes recommendations for reviewing the ACAP At-Sea Conservation Threats to include this (and possibly other) species and fisheries.

RECOMMENDATIONS

1. Bottom longline fishing in NZ is included in the list of fisheries for ACAP At-Sea Conservation Priorities in relation to black petrel
2. ACAP species identified in NZ level II risk assessments as at risk from NZ fisheries be included in the ACAP At-Sea Prioritisation Exercise
3. Fisheries identified in the NZ level II risk assessments as high risk are also included in the ACAP At-Sea Prioritisation Exercise.

Captura accidental de petrel negro en pesquerías de Nueva Zelanda

El petrel negro ha sido evaluado dos veces (en 2011 y en 2013) como el ave marina más amenazada por las pesquerías comerciales de Nueva Zelanda. El mayor riesgo proviene de la pesca con palangre de fondo de pargo, pez nariz azul y hapuku/lubina en las aguas de Nueva Zelanda. Pese a ello, la pesquería no aparece en la lista de pesquerías prioritarias en las Prioridades de Conservación en el Mar del ACAP que se analizaron en la RdP4 en 2012. En el presente documento se analiza la información disponible sobre el

petrel negro y las pesquerías y evaluaciones de riesgo pertinentes, y se realizan recomendaciones para revisar las Amenazas de Conservación en el Mar del ACAP a fin de incluir esta (y posiblemente otras) especies y pesquerías.

RECOMENDACIONES

1. Que la pesca con palangre de fondo en Nueva Zelanda sea incluida en la lista de pesquerías para las Prioridades de Conservación en el Mar del ACAP en relación con el petrel negro.
2. Que las especies del ACAP que, según las evaluaciones de riesgo de nivel II en Nueva Zelanda, se ha identificado que se encuentran en riesgo debido a las pesquerías de Nueva Zelanda se incluyan en el Ejercicio de Priorización en el Mar del ACAP.
3. Que las pesquerías identificadas en las evaluaciones de riesgo de nivel II de Nueva Zelanda como de alto riesgo también sean incluidas en el Ejercicio de Priorización en el Mar del ACAP.

Capture accidentelle de pétrel noirs dans les pêcheries de Nouvelle-Zélande

Par deux fois (en 2011 et 2013), il a été établi que le pétrel noir était l'oiseau marin courant le plus de risques dans les pêcheries commerciales de Nouvelle-Zélande ; la pêche à la palangre de fond pour le rouget, le bluenose et le hapuku/bass dans les eaux néo-zélandaises constituant le principal danger. Malgré cela, ce type de pêche n'apparaît pas dans la liste des pêcheries prioritaires reprise dans le document de l'ACAP (Priorités de conservation en mer) établit lors de la RdP4 en 2012. Le présent document passe en revue les informations disponibles concernant le pétrel noir, les pêcheries présentant un intérêt particulier et l'évaluation des risques. Il adresse également des recommandations destinées à modifier les Menaces de conservation en mer de l'ACAP ainsi qu'à y inclure cette espèce et ce type de pêche (voire d'autres types).

RECOMMANDATIONS

1. Il est recommandé que la pêche à la palangre de fond en Nouvelle-Zélande soit intégrée à la liste des pêches des Priorités de conservation en mer de l'ACAP par rapport au pétrel noir.
2. Il est recommandé que les espèces de l'ACAP identifiées, lors de l'évaluation de risques de niveau II, comme étant à risque dans les pêcheries néo-zélandaises soient intégrées à l'Exercice d'établissement des priorités en mer de l'ACAP.
3. Il est recommandé que les pêcheries identifiées, lors de l'évaluation de risques de niveau II en Nouvelle-Zélande, comme étant à haut risque soient également intégrées à l'Exercice d'établissement des priorités en mer de l'ACAP.

1. PURPOSE

The purpose of this paper is to assess the risks to the black petrel population from fisheries and determine if these are adequately considered in the preliminary At-Sea Prioritisation for Conservation Action exercise developed for the Agreement on the Conservation of Albatrosses and Petrels (see ACAP MoP4 Doc 17).

2. BACKGROUND

Black (Parkinson's) Petrel (*Procellaria parkinsoni*) is endemic to New Zealand, breeding only on two islands in the Hauraki Gulf, near Auckland, North Island. The most recent estimate suggests a population of around 1059 breeding pairs on Great Barrier Island (Bell *et al* 2011). Its global conservation status is Vulnerable, based on restricted breeding range and vulnerability to introduced predators (BirdLife International 2013). The species has been studied, mainly at its principal breeding site, Great Barrier Island, for around 17 years by Elizabeth (Biz) Bell. Population trends are still uncertain; the assessment of global conservation status assumes stability but notes that, were the population declining, the species should be uplisted to Endangered (BirdLife International 2013). Recent risk analyses in New Zealand suggest the species is the most at risk of any NZ seabird from interactions with commercial fisheries.

In addition to the risk posed by commercial and recreational fisheries in New Zealand, there is known risk of bycatch in commercial and artisanal fisheries in western South America where black petrel migrates after breeding, as well as potential bycatch in longline fisheries on the high seas during its migration.

3. BYCATCH OF BLACK PETREL IN NEW ZEALAND FISHERIES

The primary sources of information for bycatch in New Zealand fisheries for this paper are the Conservation Services Programme (CSP) annual observer reports (Ramm 2009, 2010, 2011) and a database of bycatch data recorded by government observers on fishing vessels maintained by the Ministry of Primary Industries (MPI) of New Zealand and presented in summary form on a web site (http://data.dragonfly.co.nz/psc/). There are some minor discrepancies between these two main sources of information in that the CSP data are reported from July-June, whereas the MPI reports are for the fishing year, which is Sept-Oct. Although both live and dead birds should be recorded, it appears that another source of difference may be that some caught and released birds are not recorded on the bycatch forms, but appear in the comments section of the report and may or may not be added to the total later.

The MPI database (as summarised on the above web site) shows that between 2002-03 and 2010-11, there were 65 observed captures of black petrel in bottom longline (BLL) fisheries in New Zealand. All captures are concentrated in the north-east region of the North Island by vessels targeting mostly snapper (*Pagrus auratus*) but also bluenose (*Hyperoglyphe antarctica*) and hapuku/bass (*Polyprion oxygeneios/ P. americanus*). These data do not include BLL vessels operating beyond the NZ Exclusive Economic Zone (EEZ). Observer coverage of vessels operating beyond the EEZ (just 2 vessels in recent years) suggests no bycatch of black petrels is occurring there (Baird *et al* 2012). There were 12 observed

captures in the same period for surface longline fisheries, again concentrated in the north-east region of the North Island, by vessels targeting mostly bigeye tuna (*Thunnus obesus*). Scampi (*Ibacus alticrenatus*) and Inshore trawlers have also been known to catch black petrels (1 observed in each fishery). The high risk period is from December to May when birds are breeding in the Hauraki Gulf. Observer coverage in the BLL fishery varied from 4.2-28.6% in this period and in the surface longline fishery from 19.1-30.1%. The highest capture rate of black petrel in the BLL fishery in the last 5 years was in 2009-2010, deriving from relatively low observer coverage of 5.6%, when 43 birds were observed caught, producing a rate of 0.019 birds/1000 hooks. Of these 43, the snapper BLL fishery caught 15 black petrel that year, with 4.4% observer coverage giving a capture rate of 0.031 birds/1000 hooks. The bluenose BLL fishery also caught 15 that year (0.4% hooks observed, 0.594 birds/1000 hooks) and the hapuku longline 13 (0.4% hooks observed, 1.561 birds/1000 hooks). An issue with observer coverage in the BLL fishery is that it tends to be biased towards the larger vessels which, since 2004-05, sometimes have integrated weighted line, which has been shown to reduce bycatch of the congeneric white-chinned petrel (*Procellaria aequinoctialis*), for example by 98% (Abraham and Thompson 2011).

2009-2010 also coincided with the highest capture rate in the surface longline fishery (SLL), with 6 birds observed caught (with 22.3 % observer coverage) giving a rate of 0.009 birds/1000 hooks.

4. BYCATCH OF BLACK PETREL IN OTHER FISHERIES

Black petrels migrate to Ecuador and northern Peru (Bell *et al.*2012, Cabezas *et al. 2012*). Mangel *et al.* (2011) have previously presented work on seabird bycatch in small-scale fisheries in Ecuador and Peru to the ACAP Seabird Bycatch Working Group (SBWG). They estimated 15,000 and 10,000 small-scale vessels in operation in Ecuador and Peru respectively. Black petrels are caught in demersal long lining for hake and surface longlining for tuna in Ecuador, along with capture of the Critically Endangered waved albatross (*Phoebastria irrorata*) (Mangel *e al.* 2011). The Albatross Task Force (ATF) also presented the first data for bycatch rates of black petrel in the Ecuadorian demersal longline fleet at the ACAP SBWG meeting (ATF 2011). Black petrels were the third most abundant species observed around the fishing boats after waved albatross and magnificent frigatebird (*Fregata magnificens*). From total observed effort of 79 trips (252 sets), 27 seabirds were caught, of which 15 were waved albatrosses and 8 were black petrels (3 dead, corresponding to 0.03 dead black petrels per 1000 hooks). Bycatch rates were calculated for dead birds, whereas the NZ rates are calculated for both dead and alive captures (as survival after capture and live release is unknown).The comparable rate for the Ecuadorian black petrel captures would thus be 0.08 birds/1000 hooks.

Participation in recreational fishing in NZ is very high especially in the Hauraki Gulf. Potential bycatch of seabirds in recreational fisheries was investigated using boat ramp questionnaires. (Abraham *et al* 2010). Using capture rates determined from the interviews an estimated 11,500 (95% c.i. 6600 to 17,200) birds are estimated caught in the north-east region of New Zealand alone. Of these, 77% of birds are reported unharmed. The most frequently caught species were petrels, followed by gulls. Richard and Abraham (2013) concluded that some of these captures may result in black petrel fatalities (Richard and Abraham 2013).

5. RISK ASSESSMENTS

Two 'level II' risk assessments have been carried out in New Zealand on the risk to seabird populations from New Zealand commercial fisheries. (Richard *et al.* 2011, Richard & Abraham 2013). There have also been attempts to develop quantitative models of the population (Bell *et al.* 2011) however uncertainty over juvenile survival rates results in uncertainty in the estimated population trend. Both the level II risk assessments identify black petrel as the seabird most at risk from commercial fishing in New Zealand waters.

The 2011 risk assessment (Richard *et al.* 2011) assessed risk for 64 seabird species by comparing the total number of birds potentially killed while fishing against a Potential Biological Removal Index (PBR). This index represents the amount of human-induced mortality a species can sustain without compromising the species persistence. Data were used from the fishing years 2003-04 to 2008-09. In this assessment black petrel clearly stood out as the species the most at risk from commercial fishing activities within the New Zealand EEZ. The average number of annual potential fishing-related fatalities was estimated to be 10 times higher than the PBR index. The risky fisheries are bottom longline snapper and bluenose fisheries and small inshore trawl fisheries and flatfish trawl. Some of the risk may be due to lack of observations (low observer coverage) in these fisheries; however Richard *et al.* (2011) also suggests that large bottom longliners that do not use integrated lines have been poorly observed, so potential fatalities may be underestimated.

The 2013 level II risk assessment (Richard *& Abraham* 2013) assessed fishing related mortalities for 70 seabird species that breed in New Zealand. The risk is again defined as the ratio of the estimated annual number of fatalities of birds due to bycatch in fisheries, to the PBR. Bycatch data were used for the fishing years 2006-07 to 2010-11. As for the previous risk assessment black petrel was the species with the highest risk ratio. Indeed, black petrel, together with Salvin's albatross (*Thalassarche salvini*), flesh-footed shearwater (*Puffinus carneipes*), southern Buller's albatross (*T. Bulleri bulleri),* Chatham Island albatross (*T. eremita*) and New Zealand white-capped albatross (*T.cauta steadi*) are categorised as at "very high risk" (Richard & Abraham 2013). Black petrel risk is higher in this second risk assessment due to a combination of a higher number of estimated potential fatalities (1,440, 95% c.i. 1,080-1,900), and a relatively low PBR (74, 95% c.i. 47-117) (Richard *&* Abraham, 2013). Neither risk assessment includes birds caught in recreational fisheries in New Zealand or in any fisheries outside the NZ EEZ.

6. ACAP AT SEA PRIORITISATION EXERCISE

It has been agreed that priority setting is necessary for addressing threats to albatrosses and petrels as there are limited resources available to ACAP and its parties. The Advisory Committee has recently completed and approved a systematic framework to prioritise conservation actions for both land-based and at-sea threats. The framework and process for at-sea priorities is described in MoP4 Inf 06 (rev1) by Spencer Clubb and Michael Double and the preliminary results for at-sea priorities were presented in MoP4 Doc 17.

It is unclear why the fisheries that pose the most threat to black petrel are not included in the outcomes of this prioritisation exercise. The complete list of fishery/seabird interactions within the framework (about 1200) is not included in MoP4 Doc 17, so we could not readily check whether they were considered and eliminated.

Only one New Zealand fishery is listed in the list of fisheries in MoP4 Doc17, Annex 2; this is "New Zealand pelagic trawl" (although the WCPFC Pelagic LL and CCSBT LL categories do also cover the NZ inzone surface longline fishery, as well as the high seas). Black petrel is listed within these categories, although the risk to black petrel is much greater in the NZ demersal LL, which is not listed at all. An additional concern is that the two species with the highest bycatch rates in the surface longline fishery in New Zealand are the Buller's albatross (*Thalassarche bulleri*) and white-capped albatross (*T. steadi*), neither of which appears in the WCPFC LL or CCSBT LL list of species prioritised.

Reviewing MoP4 Doc 17, Annex 2 by species population, black petrel is listed but the fisheries identified are WCPFC Pelagic LL and CCSBT Pelagic LL, not the NZ demersal LL fishery (BLL). Both Buller's albatross and white-capped albatross are considered at risk in the two risk assessments discussed above, but are not listed against either CCSBT LL or WCPFC LL. The BLL fishery also contributes significant risk to Salvin's and Chatham albatrosses (Richard & Abraham 2013) but is not listed against those species in Annex 2.

6.1 The prioritisation exercise in relation to black petrel

Turning to the assessment criteria, we make comments below on the three semi-quantitative criteria used in the prioritisation exercise:

Vulnerability of population. Black petrel is currently assessed as Vulnerable by the IUCN. The population trend is uncertain though evidence suggests it is more likely to be declining, based on both the risk assessments undertaken (Richard *et al.* 2011, Richard & Abraham 2013), and the modelling (Bell *et al.* 2011). The modelling undertaken so far suggests the population trend could range from decreasing at -2.5% (if juvenile survival = 0.67) to increasing at +1.6% (if juvenile survival =0.91). Given that juvenile survival is most unlikely to be close to adult survival (0.92) (Bell *et al.* 2011), it is highly probable that the population is declining.

Severity of threat. The risk of fishing to the species within New Zealand has been identified as the highest risk out of 64 and 70 species assessed in 2 separate level II risk assessments. The most recent risk assessment suggests a PBR level of just 74 black petrels is possible (Richard & Abraham 2013). This presents an extreme risk, as the estimated number of observable captures (not including cryptic mortality) is 522-884 (95% c.i.) (Richard & Abraham, 2013). Whereas pelagic longlining in the WCPFC and CCSBT areas are listed in the Conservation Priorities list in MoP4 Doc 17, Appendix 2, the greatest contributor to this risk is bottom longlining for snapper, bluenose and hapuku/bass.

Additional mitigation options. Currently, vessels in the demersal fishery in NZ are required to use two of tori lines, night fishing and line weighting as well as apply offal management. However it is known that black petrels feed at night (on squid), substantially reducing the potential efficacy of this. In addition, tori lines may be less effective with diving foragers (like black petrel) than with surface seizing foragers (Melvin 2004). Furthermore, although some of the large autoliners do have integrated weighted lines to assist with rapid sinking of the lines, this is not mandatory and many do not have it, and none of the smaller boats can, due to their light gear configuration. We therefore assert that the current mitigation requirements are inadequate, and that further mitigation could significantly assist in reducing mortalities. There is also an issue with compliance as a review of the CSP reports suggests that some boats are not always using even the required mitigation and offal management is variable between boats. Recent research on bottom longline vessels fishing for snapper showed that

adding more weight or more closely spacing smaller weights can dramatically reduce the availability of baited hooks to seabirds (Goad 2010). Results from experiments such as this need to be transformed into best practice guidelines and changes made to regulations to reflect this.

Inshore trawl fisheries also have a high risk as there is high effort, low levels of observation and there are currently no regulated mitigation methods, although some voluntary mitigation, such as warp strike mitigation (tori lines), is used.

The prioritisation exercise also specifically excluded artisanal fisheries due to the large number of vessels and poor information. However, while there is relatively little information on many artisanal fisheries, information has been previously presented at ACAP on the risks of bycatch in the demersal fisheries in Ecuador and should be included in this exercise in the future.

6.2 Effectiveness of prioritisation

The weighting and scoring regime is briefly described in MoP4 06 Rev1. In addition to this, criteria were developed to assess whether the proposed regime was effectively determining priorities. These were:

- Results correlate well with expert opinion
- Fisheries that use strong effective mitigation are not prioritised; and
- Scoring and weighting regimes are logically consistent and defensible

Three additional criteria were also considered to be useful and appropriate during the final testing phase:

- Fisheries that are a low threat to seabird populations are not prioritised
- Seabird populations that are known to be increasing are not prioritised; and
- Fisheries where no effective conservation action is possible are not prioritised (though they may be subsequently identified as a research priority)

We suggest that the criterion of increasing population should be applied with extreme care and not applied to any species or population deemed to be recovering from previous population declines, especially globally threatened species where such declines were amongst the criteria qualifying them for such status.

We also suggest that an additional criterion, complementary to the first one, be included, to ensure that fisheries already identified as posing a high threat to seabird populations (e.g. based on the risk assessments undertaken in New Zealand) are prioritised. This would include a number of fisheries in New Zealand, such as the demersal fishery, pelagic trawl and currently unregulated inshore trawl fisheries. In addition, where risk assessments are available, as for the NZ situation, species that are identified as at risk should be included in the prioritisation exercise. This would then include species not currently included such as southern Buller's albatross, white-capped albatross and possibly others.

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