

SHORT NOTE

An opportunistic sighting of a flock of black petrels (*Procellaria parkinsoni*) at Galápagos Islands, Ecuador

CHRIS P. GASKIN*

Kiwi Wildlife/Natural Lines Consultancy, 400 Leigh Road, RD5, Warkworth, Auckland 0985, New Zealand

PETER HARRISON

PO Box 1171, Port Townsend, WA 98368 USA

KAREN A. BAIRD

Forest & Bird/BirdLife International, PO Box 631, Wellington, New Zealand

FRANCESCA CUNNINGHAME

Charles Darwin Foundation, Puerto Ayora, Isla Santa Cruz Galápagos, Ecuador

STEFANIE M. H. ISMAR

Experimental Ecology – Food Webs, GEOMAR Helmholtz Centre for Ocean Research Kiel, Germany, and School of Biological Sciences, University of Auckland, New Zealand

ELIZABETH A. BELL

Wildlife Management International Limited, PO Box 607, Blenheim 7240, New Zealand

The black or Parkinson's petrel (*Procellaria parkinsoni*) is endemic to New Zealand, breeding only on 2 Hauraki Gulf islands, Aotea (Great Barrier Island) and Te Hauturu-o-Toi (Little Barrier Island) (Marchant & Higgins 1990; Imber 1987; Heather & Robertson 1996; Bell *et al.* 2011). They are known to migrate during non-breeding period (June-September) to the eastern Pacific Ocean. Historically, at sea sightings have shown they can occur from California, USA (Pitman & Ballance 1992; Spear *et al.* 2005) to Chile (Pitman & Ballance 1992; Spear *et al.* 2005), however, recent tracking has shown that they favour an area off Ecuador (Bellet *et al.* 2011).

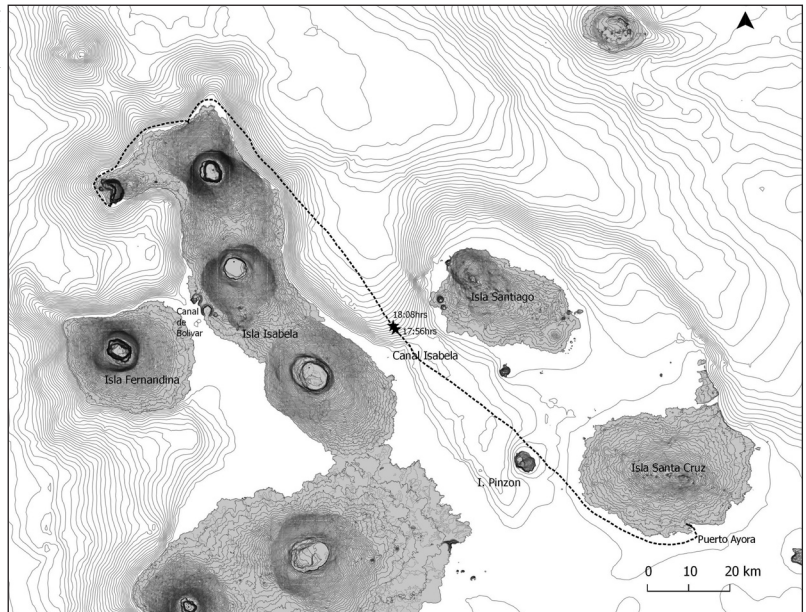
Black petrels have been assessed as the most at-risk seabird species from commercial fishing in New Zealand waters (Richard *et al.* 2011; Abraham *et al.* 2013). By-catch has also been recorded in South America (northern Peru and Ecuador) through band return information (J. Mangel, *pers. comm.*).

On 12 July 2014, 4 of the authors (CG, KB, PH and FC) were on board MV *Pirata*, a Galápagos-based vessel (Puerto Ayora, Isla Santa Cruz) authorised for research within Galápagos waters, cruising through the Canal Isabela, between Isla Isabela and Isla Santiago, en route to Canal Bolivar. The purpose of the expedition was part of a 3 month project to research and search for the breeding grounds of the white-vented storm petrel (*Oceanites gracilis galapagoensis*).

Received 17 February 2015; accepted 21 March 2016

*Correspondence: chris.gaskin@xtra.co.nz

Fig. 1. Galapagos Islands showing route taken on 12 and 13 July 2014. Stars are locations where the black petrels were seen.



At 17:56 h local time and at a location of $0^{\circ} 10.212' S$ and $90^{\circ} 56.838' W$, we saw at a distance (c. 500 m) a raft of large black birds on the water and speculated they might be brown noddy (*Anous stolidus*) which are common in the area, or possibly Galápagos petrels (*Pterodroma phaeopygia*), given the lighting and distance. Both these species had been seen in the stretch of water along with Galápagos shearwater (*Puffinus subalaris*), white-vented storm petrel, wedge-rumped storm petrel (*Oceanodroma tethys*) and band-rumped storm petrel (*O. castro*). As we discussed identification possibilities, the birds lifted off the water and came towards us. In doing so we were able to identify them as black petrels. Twenty-seven were counted. Some circled the boat allowing for photographs and good views before dispersing. Then at 18:08 h and at a location of $0^{\circ} 18.962' S$ and $90^{\circ} 57.004' W$, a total of 23 birds were seen rafting with 1 Galápagos petrel and a number of white-vented storm petrels (<10) flitting about them (Fig. 2).

Previous (historical) records of black petrels in the Galápagos area are rare, but are summarised here. Harris (1973) reported on specimens collected off San Cristóbal on 14 October 1905, off Floreana on 4 May 1906, and “well south” of Isabela on 18 June 1906, which until recently were the only records for this area of the Pacific. On 26 August 1997, 15 individuals were seen off Redonda Rock by crew of MV *Polaris* (record in archives of Charles Darwin Research Station), and one was seen not far from that site, near Cape Berkeley, Isabela, on 13 April 2001 by Paul Coopmans (Wiendenfeld 2006). One black petrel was seen by Derek Scott while voyag-

ing between Genovesa and Fernandina on 28 August 2004 (Wiendenfeld 2006), and in 2006, a ‘party’ of black petrels were seen between Floreana and Isabela (E. Meek, *pers. comm.*, Charles Darwin Foundation Checklist 2015). There are no other recent records we could locate, including in eBird, except the historical records noted above.

Canal Isabela appears to be a highly productive zone with strong current flow caused by a significant change in seabed topography (see Fig. 1). Large numbers of the species listed above were seen feeding over a c.25 km route through the Canal, and a number of sightings of manta rays and cetaceans appeared to reinforce the productivity of the area. Plankton samples were taken as part of the white-vented storm-petrel project due to the high numbers of the storm petrels present. These showed many krill larvae (Euphausiacea), which we did not typically find in many of our other samples taken in the Galápagos area. Krill is an attractive food resource to many higher level predators, including black petrels. The samples also contained a high number of large-sized calanoid copepods, which are a main food target for planktivorous schooling fish, which are in turn also of interest to the birds.

Generally, Galápagos cruise vessels pass through the Canal Isabela at night, as most inter-island voyaging is done overnight, thus, daytime records by observers skilled at identifying seabird taxa in this area are relatively few. However, part of the reason for travelling this route was due to a daytime observation by Tui de Roy aboard the Galápagos National Park vessel MV *Sierra Negra* in June 2014, when she observed large numbers of

Fig. 2. Raft of black petrels with 1 Galapagos petrel and 5 white-vented storm-petrels. Photo: Karen Baird



white-vented storm petrels and other taxa actively foraging in this area.

Using geo-locator loggers, the east and west migration pathways of black petrels across the Pacific Ocean were found to cover an area between 175°E to 95°W and 13°N to 50°S; this suggests that black petrels migrate east in a more southerly route and migrate back west toward New Zealand in a more northerly route (Bell *et al.* 2011). The distribution of birds during the non-breeding phase was concentrated off the coast of Ecuador with little variation by gender, indicating that black petrels concentrate their foraging effort during the non-breeding season in a relatively small area, even though the birds are not restricted by central place foraging as during breeding phases. The area of highest activity of black petrels was centred over the Ecuadorian coast (Bell *et al.* 2011) where oceanographic conditions, determined by the Equatorial Front and Humboldt Current, generate strong upwelling with subsequent increased primary production and secondary consumers such as forage fish for seabird predators (Cucalon 1989). Ironically, the size of the group we observed was larger than most groups of black petrels that can be seen during seabird birding trips in the Hauraki Gulf, New Zealand, particularly when not attracted to chum or seen around a fishing boat.

ACKNOWLEDGEMENTS

All research was conducted under permit (permiso de investigación científica) PC-26-14 issued by the Ministerio del Ambiente and Dirección del Parque Nacional Galápagos, Ecuador. Thank you to Christian Sevilla and Danny Rueda (Parque Nacional Galápagos), Tui de Roy, Margie Luby, Friends of Galapagos New Zealand, and Lenin Cruz and the crew of the MV *Pirata*. Funding for the charter costs to the western islands of Galápagos was generously provided by PH and Shirley Metz.

LITERATURE CITED

- Abraham, E.R.; Thompson, F.N.; Berkenbusch, K. 2013. Estimated capture of seabirds in New Zealand trawl and longline fisheries, 2002–03 to 2010–11. Final Research Report for project PRO2010/01 (Unpublished report held by Ministry for Primary Industries, Wellington).
- Bell, E.A.; Sim, J.L.; Abraham, E.; Torres, L.; Schaffer, S. 2011. At-sea distribution of the black petrels (*Procellaria parkinsoni*) on Great Barrier Island (Aotea Island), 2009/10: Part 1 – Environmental variables. Unpublished Project Report prepared for Conservation Services Programme. Department of Conservation, Wellington.
- Cucalon, E. 1989. Oceanographic characteristics off the coast of Ecuador. In: Olsen, S. and Arriaga, L. (eds). *A sustainable shrimp mariculture industry for Ecuador*. Narragansett, RI: Coastal Resources Center, University of Rhode Island.
- Harris, M.P. 1973. The Galápagos avifauna. *Condor* 75: 265-278.
- Heather, B.A., Robertson, H.A. 1996. *The field guide to the birds of New Zealand*. Auckland: Viking, 440 pp.
- Imber, M.J. 1987. Breeding ecology and conservation of the black petrel *Procellaria parkinsoni*. *Notornis* 34: 19-39
- Marchant, S.; Higgins, P.J. 1990. *Handbook of Australasian, Antarctic and New Zealand birds. Volume 1 ratites to ducks*. Melbourne: Oxford University Press. 736 pp.
- Pitman, R.L.; Ballance, L.T. 1992. Parkinson's petrel distribution and foraging ecology in the eastern Pacific: aspects of an exclusive feeding relationship with dolphins. *Condor* 92: 825-835
- Richard, Y.; Abraham, E.R.; Filippi, D. 2011. *Assessment of the risk to seabird populations from New Zealand commercial fisheries*. Final Research Report for research projects IPA2009-19 and IPA2009-20. Unpublished report held by Ministry of Fisheries, Wellington. 66 pp.
- Spear, L.B.; Ainley, D.G.; Webb, S.W. 2005. Distribution, abundance, habitat use and behaviour of three *Procellaria* petrels off South America. *Notornis* 52: 88-105.
- Wiendenfeld, D.A. 2006. Aves, the Galápagos Islands, Ecuador. *Check List* 2: 1-27.

Keywords black petrel; at-sea distribution; Galápagos Islands; Ecuador