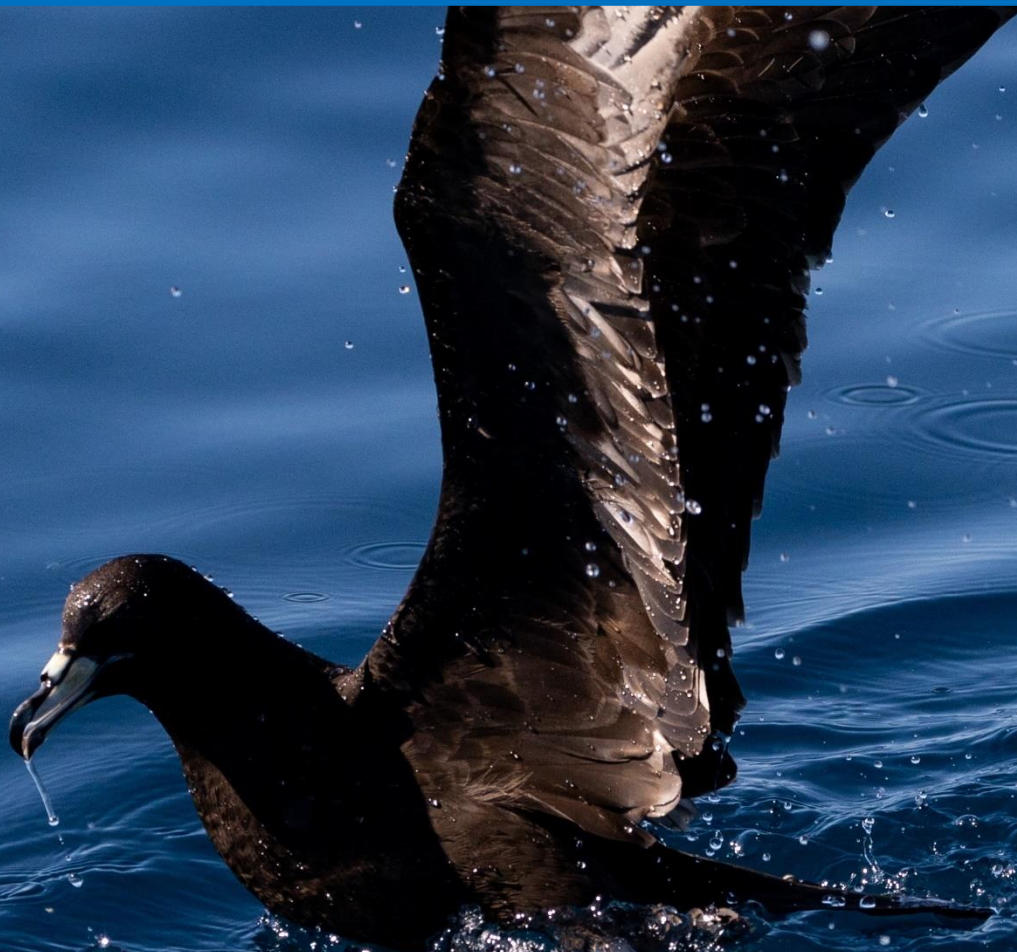


# TĀKOKETAI/BLACK PETRELS



*Preliminary report for at-sea capture work for tākoketai/black petrels  
2023*

## Preliminary report for at-sea capture work for tākoketai/black petrels 2023

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This preliminary report was prepared by Wildlife Management International Limited for the Department of Conservation as partial fulfilment of the contract (POP2022-01 Black petrel population monitoring – at sea component) dated 25 October 2022.

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**Cover image:** *Tākoketai/black petrel (Procellaria parkinsoni) at sea* © Dan Burgin

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## KEY OBJECTIVES & OUTPUTS

This research was carried out as part of the Department of Conservation (DOC) Conservation Services Program (CSP), black petrel population monitoring (POP2022-01).

The key objectives for the 2022-2023 were:

- 1. To monitor key demographic parameters at the breeding colony on Hirakimata/Mt Hobson summit Aotea/Great Barrier Island of the threatened tākoketai/black petrel to reduce the uncertainty or bias in estimates of risk from commercial fishing.**
- 2. Capture black petrels at sea to determine the proportions of unbanded versus banded birds. This information will be used to assess if apparent low juvenile survival is biased by dispersal away from study colonies.**
- 3. Conduct nocturnal searches of the Hirakimata/Mt Hobson colony for recruits (i.e., birds banded as chicks returning to the colony to breed).**

In addition to this work covered by the DOC CSP contract, Objective 3 was funded by Hauraki Gulf Conservation Trust, Hauraki Gulf Forum, Ministry of Primary Industries (Fisheries NZ) and the Department of Conservation.

**Objective 2 is reported here only. Objectives 1 and 3 are reported separately.**

Here we report the results of the expeditions to capture black petrels at sea.

## EXECUTIVE SUMMARY

This report presents the preliminary results from the at sea capture work targeting tākoketai/black petrels (*Procellaria parkinsoni*) (Threat Classification: Nationally Vulnerable) at sea for research under the Department of Conservation's Conservation Services Programme, project *POP2022-01-Black petrel research – at-sea component*. Here we report on the catching trip undertaken in March 2023. We will present the results in relation to future and previous work undertaken by WMIL in the future final report. Key results are presented, as well as a brief discussion of the findings. Key recommendations will be provided for future work in the final summary report.

In March 2023 WMIL staff were able to undertake a three-day catching trip out in the waters north-east of the Marotere (Chicken) Islands group, and north of Aotea/Great Barrier Island. A total of 80 black petrels were caught from the back of the boat using a hand cast net. This total included six already banded birds from WMIL study colonies on Aotea/Great Barrier Island, or banded previously at sea. Additional species caught were 78 toanui/flesh-footed shearwater (*Ardenna carneipes*) (Threat Status - At Risk: Relict), 3, takahikare/white-faced storm petrel (*Pelagodroma marina*) (Threat Classification - At Risk: Relict), 1 takahikare-raro/New Zealand storm petrel (*Fregetta maoriana*) (Threat Classification: Nationally Vulnerable), 2 rako/Buller's shearwater (*Ardenna bulleri*) (Threat Classification - At Risk: Declining) and 1 tarāpunga/red-billed gull (*Chroicocephalus novaehollandiae*) (Threat Classification - At Risk: Declining).

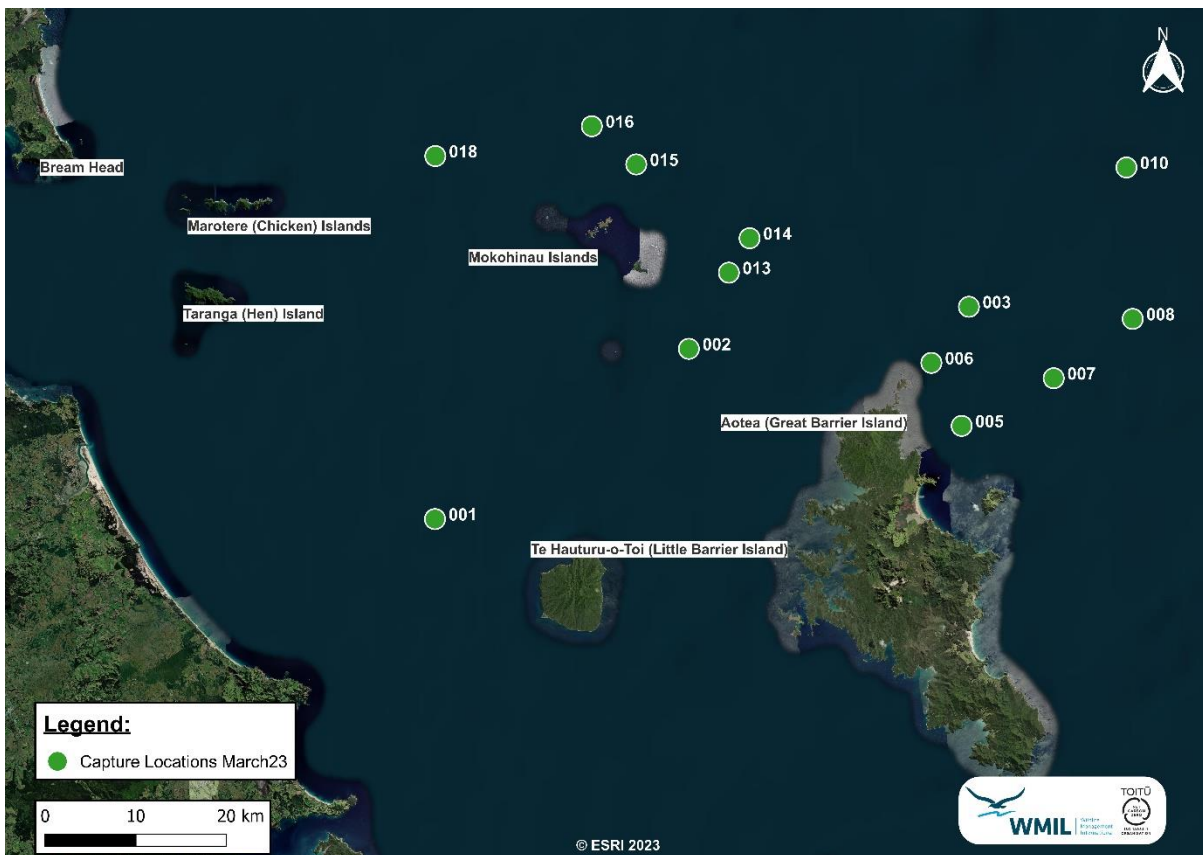
Future at sea trips will be held in 2023 and reported on in the summary report.

Detailed discussions and key recommendations for future work will be reported on in the final summary version of this report.

# At-Sea Capture work for tākoketai/black petrels 2023

## 1. INTRODUCTION

In 2023 Wildlife Management International Ltd. (WMIL) staff undertook a single at-sea catching trip targeting tākoketai/black petrels (*Procellaria parkinsoni*) in the waters north-east of the Marotere (Chicken) Islands group, and north of Great Barrier Island (Figure 1). Black petrels have a Threat Classification of Nationally Vulnerable (Robertson et al. 2021) and have been monitored continuously by WMIL since 1995/1996 at their primary breeding colony on Aotea/Great Barrier Island (Bell et al. 2022).



**Figure 1:** At-sea catching locations for March 2023 within the waters surrounding the known breeding sites of tākoketai/black petrels on Te Hauturu-o-Toi/Little Barrier Island and Aotea/Great Barrier Island.

### 1.1 Trip Dates

#### 1.1.1 February/March 2023

A catching trip was undertaken over three days from the 28 February to 2 March 2023. Personnel involved; Dan Burgin (WMIL), Campbell Maclean (WMIL), Mike Bell (Toroa Consulting) and Trevor Jackson (El Pescador Charters).

## 2. METHODS

Seabirds were lured in initially using a mixture of fish burley which was sealed in a netted bag or plastic case and placed in the water off the back of the boat once the engine had been turned off. It was connected by a rope and left to create a 'slick' of fish oil as an attractant to seabirds in the area. This attracted not just black petrels, but other species (threat status from Robertson et al. 2021 and taxonomy from Checklist Committee OSNZ 2022) including:

- Toanui/flesh-footed shearwater (*Ardenna carneipes*) (Threat Classification - At Risk: Relict),
- Takahikare-raro/New Zealand storm petrel (*Fregetta maoriana*) (Threat Classification: Nationally Vulnerable),
- Rako/Buller's shearwater (*Ardenna bulleri*) (Threat Classification - At Risk: Declining),
- Takahikare/white-faced storm petrel (*Pelagodroma marina*) (Threat Classification - At Risk: Relict),
- Titi/Cook's petrel (*Pterodroma cookii*) (Threat Classification - At Risk: Relict),
- Toroa/white-capped mollymawk (*Thalassarche cauta*) (Threat Classification - At Risk: Declining).

Once the birds were flying around the back of the boat chopped up pilchards, and small pieces of fish burley were then thrown on to the surface of the ocean. This allowed targeted throws to lure black petrels in closer to the back of the boat to ensure they were within range of the cast net thrower.

A hand cast net (6ft) was used as the primary method of catching birds. Two nets were available and each was thrown by one person (Dan Burgin or Campbell Maclean) from the back of the boat over the top of a black petrel, whilst the other team members threw bait and/or helped with processing the birds. Each bird was targeted by luring it in with bait until it was close enough and in range of the cast net thrower. The cast net was pulled tight once over the bird(s) to seal them inside and pulled back on to the boat carefully. The bird(s) was then carefully retrieved from the net by hand (Figure 2), and then each bird placed into an individual drawstring bag for processing later. Each bird was given a unique metal band if not already banded, marked with correction fluid to help distinguish it as a captured bird, and then carefully released over the side of the boat. Any banded birds had their unique band number taken, were marked with correction fluid, and released as above.



**Figure 2:** Tākoketai/black petrel in hand after retrieval from the cast net.

Accurate counts were taken of all bird species seen at all locations and uploaded to eBird (Sullivan et al. 2009) as part of complete checklists via the eBird app. These were all uploaded to the [New Zealand Bird Atlas eBird portal online](#) to support wider ornithological datasets and research.

### 3. PRELIMINARY RESULTS

Key results are presented below for both trips with all bird checklists summarised online and in separate eBird Trip Reports.

#### 3.1 Capture Locations

Capture locations are summarised below in Table 1 with coordinates for each point for reference (WGS84 projection).

**Table 1:** Capture location ID and coordinates for the March 2023 trip.

Location ID	Latitude	Longitude	Date Utilised
001	-36.142	174.945	March 2023
002	-36.005	175.196	March 2023

<b>003</b>	-35.972	175.474	March 2023
<b>005</b>	-36.067	175.467	March 2023
<b>006</b>	-35.972	175.474	March 2023
<b>007</b>	-36.029	175.558	March 2023
<b>008</b>	-35.981	175.637	March 2023
<b>010</b>	-35.860	175.630	March 2023
<b>013</b>	-35.944	175.236	March 2023
<b>014</b>	-35.917	175.257	March 2023
<b>015</b>	-35.857	175.144	March 2023
<b>016</b>	-35.827	175.100	March 2023
<b>018</b>	-35.851	174.945	March 2023

### 3.2 March 2023

Catch totals are summarised in Table 2 below for black petrels, including totals for previously banded birds captured on this trip. Total black petrel captures are presented in Figure 3, which shows the labelled locations overlaid on a map of the surrounding area. Note that locations '018', '006', and '010' are merged locations from other points as they were so close together.

An eBird Trip report for all at-sea sightings can be viewed [here](#).

**Table 2:** Capture totals for tākoketai/black petrels in March 2023.

Location ID	Total number of tākoketai/black petrels caught (including recaptures)	Total number of previously banded tākoketai/black petrels caught (not including those banded on this at-sea trip)
001	0	0
002	5	0
003	6	1
005	0	0
006	5	0
007	6	0
008	2	0
010	21	3
013	14	0
014	0	0
015	4	0
016	3	1
018	14	1
<b>TOTAL</b>	<b>80</b>	<b>6</b>

As part of the total capture value for black petrels, six birds were already banded previously at WMIL study colonies or at sea, meaning 74 new birds were banded. Black petrel recaptures are summarised below:



- **H-34779** – This is an over 24-year-old individual from Aotea/Great Barrier Island (banded in December 2004 as an adult). It was last seen in study burrow 243 on an egg.
- **H-39587** – This is an 8-year-old individual from Aotea/Great Barrier Island (banded in April 2015 as a chick). This is the first recapture of this individual since fledging.
- **H-33671** – This is an over 26-year-old adult from Aotea/Great Barrier Island (banded in December 2002 as an adult). It was last seen in study burrow 288 on an egg.
- **H-44140** – This is an over 8-year-old adult from Aotea/Great Barrier Island (banded January 2020 as an adult). It was last seen in study burrow 184.
- **H-46046** – This is an over 4-year-old adult from an unknown colony having been banded at sea in April 2021. This is the first resighting of this individual.
- **H-41673** – This is a 7-year-old adult from Aotea/Great Barrier Island (banded in May 2016 as a chick). This is the first recapture of this individual since fledging.



**Figure 4:** Tākoketai/black Petrel capture totals for March 2023 trip.

### 3.2.1 Additional Species

In addition, 78 flesh-footed shearwaters, a single red-billed gull, 2 Buller’s shearwaters, 3 white-faced storm-petrels, and a single New Zealand storm-petrel were also caught during this trip. Capture of species other than black petrels was often unavoidable due to their associations with feeding black petrels behind the back of the boat. Two flesh-footed shearwaters were previously banded, and the details are below:

- **Z-63124** – This is an over 3-year-old adult from an unknown colony having been banded at sea in March 2022. This is the first resighting of this individual.
- **Z-57491** – This is an over 5-year-old adult from Lady Alice Island (banded as an adult on the surface during night work in January 2020). This is the first resighting of this individual.

### 3.3 Further Summary Statistics

Further trip details and summary statistics will be reported on later in year after further work is undertaken.

## 4. DISCUSSION

A total of 74 black petrels were newly banded, and 6 black petrels were previously banded during the March 2023 trip. This represents 8% of all black petrels caught being already banded over that period. The most successful location for capturing black petrels was location '010' in March 2023, which was north-east of Aotea/Great Barrier Island, where 21 black petrels were caught. More black petrels were caught in the close vicinity at other locations nearby at locations '006', '007', '008' and '003'. These areas were targeted during this trip in order to target new areas around the known primary breeding colony of black petrels, Aotea/Great Barrier Island. These areas had not previously been explored during previous work (Crowe & Burgin 2021; Burgin 2022) and proved to be successful locations that will be targeted during future work.

The second most frequently caught species were flesh-footed shearwaters ( $n=78$ ), with 76 of those receiving a new band. It is important to note that the capture of species other than black petrels was often unavoidable due to their associations with feeding black petrels behind the back of the boat. This will always be a factor of any at-sea work and should be taken into account. We do feel the capture of other species helped provide support for other research and are pleased to see the applicability of this capture method for other species of seabird, notably flesh-footed shearwaters, which could help further understanding about these species at sea ecology.

Further discussions regarding summary statistics will be discussed in the final version of this report once further work has been undertaken at sea.

## 5. RECOMMENDATIONS

Key recommendations will be summarised in the final version of this report.

## 6. ACKNOWLEDGEMENTS

This project was funded by the Conservation Services Programme, Department of Conservation (partially funded through a levy on the quota owners of relevant commercial fish stocks). Auckland Council also provided funds to support this project.

A huge thanks to Trevor Jackson (El Pescador Charters) for taking us out to these areas and anchoring us safely within the bays of Aotea each night, as well as tirelessly assisting with bait preparation and bird processing. Thank you to Mike Bell (Torora Consulting), and Campbell Maclean (WMIL) for their involvement with this fieldwork and braving some rough sea conditions at times. Many thanks to Elizabeth (Biz) Bell (WMIL) for reviewing and providing helpful comments on a previous draft. Finally, thanks to Graeme Taylor (DOC) for his support of this project.

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