BlueGreen

Waiheke Marina

Year 2 (2024/25) Operational Phase Kororā Monitoring

Prepared for Waiheke Marina
19 February 2025

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Prepared by:	Dr Leigh Bull Senior Ecologist / Director BlueGreen Ecology Ltd	
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Cover photograph: Kororā chicks in burrow 5 (October 2024).

Contents

1.0 Introduction

Kennedy Point Boatharbour Limited (KPBL) obtained Resource Consent (CST60082321-B) to construct, maintain and operate the Waiheke Marina (formerly known as Kennedy Point Marina) within the Coastal Marine Area (CMA) at Kennedy Point on Waiheke Island (refer to Map 1). The marina was constructed between July 2021 to October 2023. During that time, monthly kororā monitoring (Ongoing Breakwater Monitoring; OBM) was undertaken in accordance with the methods outlined in Section 6.2.3 of the KCMMP. That monitoring confirmed that kororā continued to inhabit the revetment, including breeding and moulting over the construction period.

A Little Penguin / Kororā Predator Control & Monitoring Plan (KPCMP) (4Sight Consulting Ltd, 2023) was prepared for the operational phase of the marina (consent condition 118). That plan sets out the nature and frequency of kororā operational monitoring that will be undertaken. As was the case with the construction phase monitoring, the objective of the operational phase monitoring is to confirm the ongoing habitation of the breakwater by kororā and to take appropriate steps to investigate and identify, as far as is reasonably possible, the cause of any cessation of use of the breakwater by kororā during the breeding and moulting season.

Year 1 of the operational monitoring was undertaken over the 2023/24 breeding season, during which kororā were confirmed to inhabit the breakwater for both breeding and moulting activities (Bull, 2024). While all breeding attempts failed, these results were consistent with those recorded and observed at other kororā colonies around the Hauraki Gulf (Stewart, 2023). Thus, the chick deaths and failed breeding attempts of the kororā on the Kennedy Point Breakwater were not attributed to the operation of the Waiheke marina.

This current report presents the results of the Year 2 operational monitoring at Waiheke Marina during the 2024/25 breeding seasons.

2.0 Methods

Section 3 of the Little Penguin / Kororā Predator Control & Monitoring Plan (4Sight Consulting Ltd, 2023) outlines the methods for monitoring kororā during the operational phase, and is summarised in the following sections.

2.1 Monitoring site

The monitoring area for the operational monitoring remains the same as it was for the construction monitoring; that being the marina side of the breakwater and an area of the foreshore up to the first Pohutukawa tree (refer to Map 2). The extent of this monitoring was clarified by the Environment Court in July 2021 and is referred to as the penguin monitoring area (PMA).

2.2 Onsite monitoring

Monthly monitoring was conducted within the kororā monitoring area (refer to Map 2) by Dr Leigh Bull (BlueGreen Ecology, penguin expert). During the 2024/25 season, monitoring was

undertaken on the following dates: 12 August, 9 September, 7 October, 11 November, 17 December, 14 January and 10 February.

During each monitoring session, all locations of previous kororā detections were inspected first by way of a visual check for the presence of any penguins or their sign (e.g., feathers or guano (excrement)), and then using a burrowscope and/or video camera on a mobile device if possible. Any new burrows that were detected were also inspected in the same manner. By the end of the 2024/25 season, a total of 71 locations were monitored (refer to Map 3).

At each monitoring location the following information was recorded:

- Any sign observed (e.g. feathers and / guano);
- Burrow contents if possible to see (e.g. birds, eggs, chicks).

2.3 Data capture

Monitoring data was captured using ArcGIS Fieldmaps whereby all burrows were kororā activity was observed were recorded and given individual identifier labels. While on site for monitoring, a device was used to view these points in ArcGIS Fieldmaps, record all observations and capture any new locations not previously detected.

3.0 Results

Kororā continued to inhabit the Kennedy Point Breakwater PMA through the 2024/25 season, with kororā sign detected during every monitoring session (refer to Figure 1). A heat map showing the frequency of sign recorded at a monitored burrow during the 2024/25 breeding and moulting season (August 2024 to February 2025) is shown in Map 4; kororā sign was most frequently recorded in the central section of the PMA.

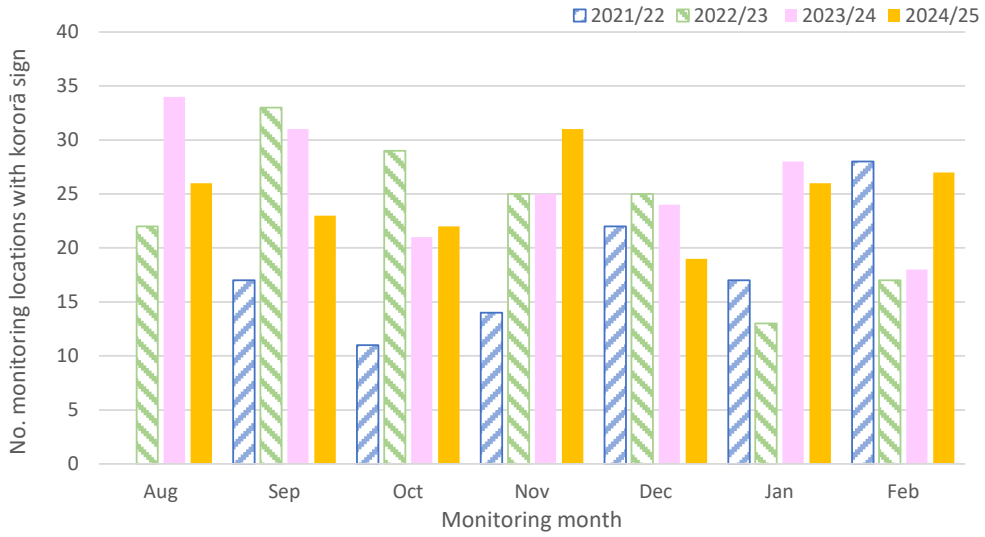


Figure 1: Number of monitoring locations at which kororā sign was observed during each monthly monitoring session (Patterned and solid bars indicate construction and operational phase monitoring respectively).

Active burrows[1] were recorded along the revetment during the 2024/25 seasons (refer to Map 5 and Figure 2). Breeding activity was recorded in 10 burrows (4, 5, 50, 10, 13, 65, 18, 20, 26, 30) during the months August through to December. Moulting activity was recorded in 16 burrows during January and February (refer to Map 5 and Figure 2).

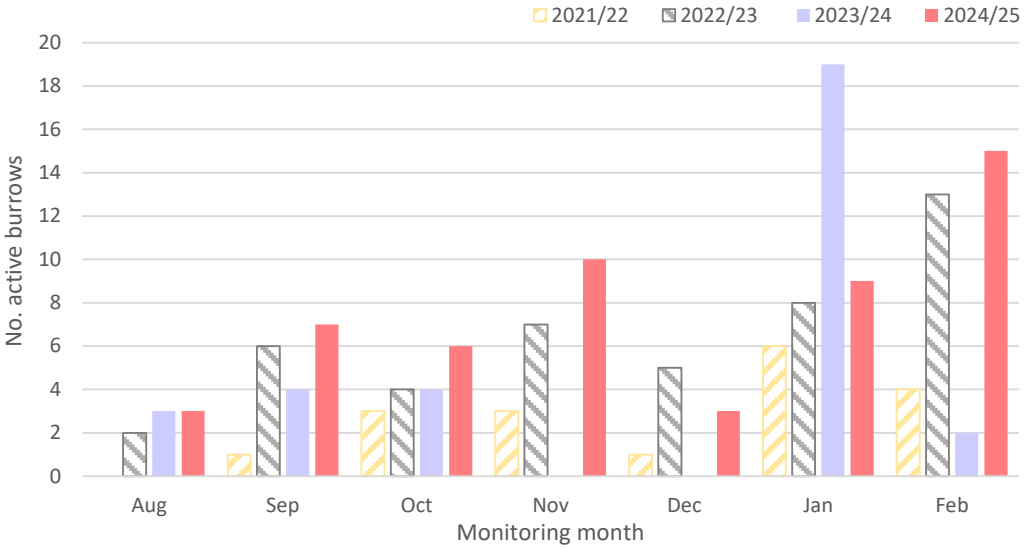


Figure 2: Number of active burrows[1] recorded during each monthly session (Patterned and solid bars indicate construction and operational phase monitoring respectively).

4.0 Discussion

The objective of the Waiheke Marina operational phase monitoring is "*to confirm the ongoing habitation of the breakwater by kororā during the operational phase of the marina and to take appropriate steps to investigate and identify, as far as is reasonably possible, the cause of any cessation of use of the breakwater by kororā during the breeding and moulting season*" (4Sight Consulting Ltd, 2023). As was the case in the Year 1 monitoring (2023/24), the ongoing habitation of the breakwater for both breeding and moulting activities was confirmed in Year 2 (2024/25; refer to Maps 4 and 5). Furthermore, the highest number of breeding (n=10) burrows to date were recorded in 2024/25. Unlike the 2023/24 breeding season when no chicks fledged due to a mass die-off event in Hauraki Gulf colonies (Bull, 2024; Stewart, 2023), large chicks were observed in a number of burrows during the 2024/25 season and assumed to have fledged successfully. Therefore, on the basis that the current season is considered to be more of a typical season in regard to environmental conditions, Year 2 monitoring results are similar, if not better, than the pre- and during construction phases of the marina (refer to Figure 1 and Figure 2).

[1] Active burrows are defined as a location that contains, or is suspected to contain, adult kororā with viable nest contents (egg(s) or chick(s) alone or with adult(s) or a moulting bird based on the time of year or any signs that indicate moulting.

The heat maps of kororā activity in Year 1 and Year 2 of operational monitoring show very similar patterns of use of the breakwater, with highest levels of activity in the central area (Figure 3); however, there is continued use of the full extent of the breakwater.

Figure 3: Kororā sign heat maps during Year 1(left) and Year 2 (right) operational monitoring

5.0 Summary & Recommendation

- Two years of operational monitoring have confirmed the ongoing habitation of the breakwater by kororā for both breeding and moulting activities.
- The highest levels of kororā activity have been recorded in the central area, however there is continued use of the full extent of the breakwater
- Breeding activity was recorded in 10 burrows and moulting activity was recorded in 16 burrows in 2024/25 breeding season.
- On the basis that the current season is considered to be a typical season in regard to environmental conditions, the monitoring results are similar, if not better, than the pre- and during construction phases of the marina.
- Thus the results of the operational monitoring to date show that there has been no impact on kororā habitation, breeding and moulting activity on the breakwater.
- Consent condition 118 specifies that KPCMP shall be implemented and reviewed every 5 years in consultation with the Royal Forest & Bird Protection Society. Any revisions to the plan shall be submitted for approval to the Team Leader. However, given the data to date

indicates that there has been no impact on kororā habitation, breeding and moulting activity on the breakwater, I recommend that if the results of Year 3 (2025/26) show similar levels of activity, the consent holder should seek a variation to consent condition 118 to reduce the frequency or duration of monitoring.

6.0 References

4Sight Consulting Ltd. (2023). *Kororā Predator Control and Monitoring Plan* [Report prepared for Kennedy BoatHarbour Ltd].

Bull, L. (2024). *Waiheke Marina: Year 1 (2023/24) Operational Phase Kororā Monitoring*. Report prepared by BlueGreen Ecology Ltd for Kennedy Point Boatharbour Ltd.

Stewart, J. (2023). *Summary report on kororā/little penguin chick deaths in October 2023 on Tiritiri Matangi and Motuora*.

BlueGreen

About BlueGreen

Over the last 20 years we have gathered a high level of knowledge and expertise working on a number of large scale projects of national significance, right from pre-consenting investigations through to Environment Court and Board of Inquiry Hearings. As such we are able to offer our clients proven expertise to assist with a range of ecological challenges, both simple and complex, across various ecosystems.

E: Leigh@BlueGreenEcology.nz
BlueGreenEcology.nz
BlueGreen Ecology Ltd

Site Context

KENNEDY POINT AVIFAUNA MONITORING 2024-25

Plan prepared for BlueGreen Ecology | 11 February 2025

BlueGreen MapHouse

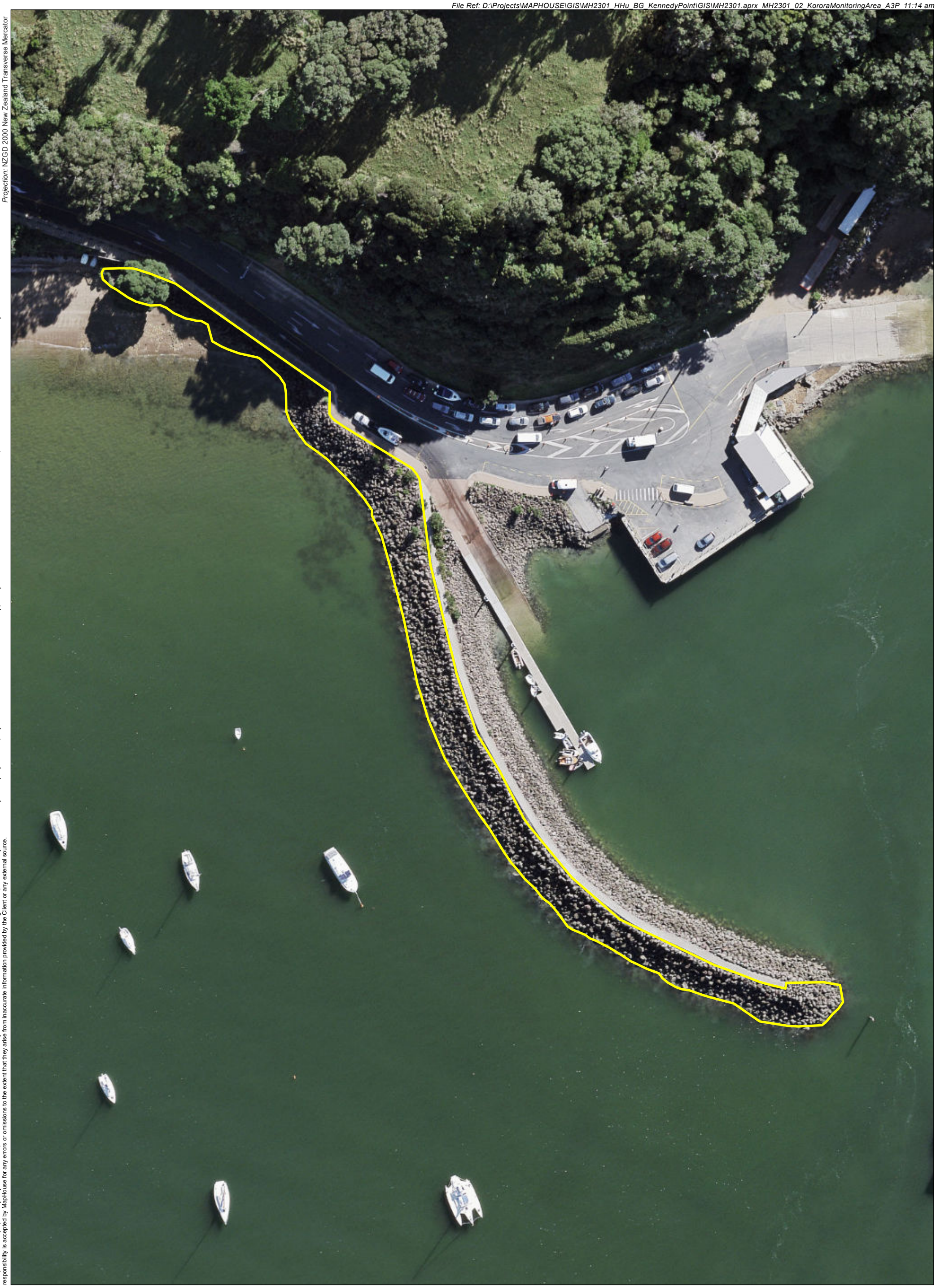
Data Sources: BlueGreen Ecology, Eagle Technology, LINZ, StatsNZ, NIWA, Natural Earth, © OpenStreetMap contributors., Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community, Eagle Technology, Land Information New Zealand, GEBCO, Community maps contributors, Eagle Technology, LINZ

0 250 m

1:15,000 @ A3

Map 1

Projection: NZGD 2000 New Zealand Transverse Mercator



Kororā Monitoring Area

KENNEDY POINT AVIFAUNA MONITORING 2024-25

Plan prepared for BlueGreen Ecology | 12 February 2025

BlueGreen MapHouse

LEGEND

Penguin construction monitoring area (PCMA) for purposes of Resource Consent condition 24A

0 15 m

1:750 @ A3

Data Sources: BlueGreen Ecology, Eagle Technology, Land Information New Zealand, GEBCO, Community maps contributors

Map 2

Projection: NZGD 2000 New Zealand Transverse Mercator

Kororā Monitoring Locations

KENNEDY POINT AVIFAUNA MONITORING 2024-25

Plan prepared for BlueGreen Ecology | 12 February 2025

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LEGEND

Penguin burrows
- Existing
- Destroyed

0 10 m
1:600 @ A3

Data Sources: BlueGreen Ecology, Eagle Technology, Land Information New Zealand, GEBCO, Community maps contributors

Map 3

Projection: NZGD 2000 New Zealand Transverse Mercator

Kororā signs of habitation

KENNEDY POINT AVIFAUNA MONITORING 2024-25

Plan prepared for BlueGreen Ecology | 12 February 2025

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LEGEND

Signs of habitation (penguin, feathers or guano)

- Sparse
- Regular

0 10 m

1:600 @ A3

Data Sources: BlueGreen Ecology, Eagle Technology, Land Information New Zealand, GEBCO, Community maps contributors

Map 4

Kororā breeding and / or moulting activity

KENNEDY POINT AVIFAUNA MONITORING 2024-25

Plan prepared for BlueGreen Ecology | 12 February 2025

BlueGreen MapHouse

LEGEND

- Breeding burrows
- Moulting burrows

0 10 m

1:600 @ A3

Data Sources: BlueGreen Ecology, Eagle Technology, Land Information New Zealand, GEBCO, Community maps contributors

Map 5