EUDYPTES ECOCONSULTING

monthly REPORT

To: **Igor Debski, Conservation Services Program**
From: **Thomas Mattern & Mel Young**
Project: **Hoiho Population and tracking: POP2018-02**
Date: **20 March 2019**

# Monthly report for the period 21 Feb 2019 – 20 Mar 2019

## Quick summary

Due to unpredictability of behaviour of hoiho from the Catlins, the tracking efforts for the pre-moult period were shifted in the second half of February northwards to the Otago Peninsula and Aramoana.

Between 11 February and 17 February 2019, a total of seven adult penguins were fitted with GPS dive loggers. Devices were programmed to record up to 20 days' worth of data in case recovery of the birds proved as difficult as in the Catlins leading to delays.

As birds from the Catlins repeatedly managed to preen off devices, we now secured devices with two cable ties in addition to cloth tape. The cable ties were threaded under the device after it had been fitted using the Tesa-tape method. A cable tie gun that ensured that the cable ties were tightened strongly around device and the underlying feathers and cleanly cut off the part of tie protruding from the head.

This set-up proved to be highly effective. Only one device was lost which was due to the penguin's plumage already being compromised by the onset of moult while still at sea. The device fell off before the bird made landfall. The remaining six devices were recovered successfully and all yielded GPS and dive data sets.

Due to the volume of the dive data resulting from prolonged deployment periods (average 34.4 million data points per deployment) not all dive data has been processed at this stage. This means that, unlike in the previous reports, dive profiles are only included for some of the penguins. This will be rectified in next month's report when all data collected so far will have been fully processed and analysed.

## Daily log

### 19/02/2019

Unsuccessful recovery attempts of the two penguins from Otapahi, 6pm-10pm. Mel Young & two field assistants.

### 20/02/2019

Unsuccessful recovery attempts of the two penguins from Otapahi, 6pm-10pm. Mel Young & two field assistants.

### 21/02/2019

Recovery of the device from 18472 at Otapahi (weight: 5.7 kg). Also, male hoiho 982000365999896 was captured as it appeared to be missing feathers on its back. This bird was breeding at Nugget Point in December 2018 and was fitted with camera and GPS dive loggers. The bird abandoned its nest the day after the device deployment (see December report). Mel Young & two field assistants.

### 22/02/2019

Recovery of device from 982000063605832 at Otapahi. Mel Young & two field assistants.

**26/02/2019**

Recovery attempts of devices from penguins at Aramoana. 6pm-10.30pm. Mel Young & two field assistants.

**27/02/2019**

Recovery attempts of devices from penguins at Aramoana. 6pm-10.30pm. Mel Young & two field assistants.

**28/02/2019**

Recovery of device from 982000365942016 at Aramoana. Mel Young & two field assistants.

**01/03/2019**

No birds seen arriving at Aramoana between 5.30pm and 10pm. Thomas Mattern & Klemens Pütz.

**02/03/2019**

No birds seen at Aramoana between 6pm and 10pm. Thomas Mattern.

**03/03/2019**

Recovery attempts of devices from penguins at Aramoana. One bird without device seen come ashore between 6.30pm and 9.30pm. Thomas Mattern.

**04/03/2019**

No birds landed at Aramoana between 6pm-10.30pm. Mel Young & two field assistants.

**05/03/2019**

No recovery attempts were made due to lack of vehicle. However, a hoiho landing with a device attached was reported by a member of the public.

**07/03/2019**

Search of the breeding area at Aramoana (10am-1pm) found three hoiho and the onset of the moult, none of them carrying devices. Neither of the bird could be identified due to a malfunctioning transponder reader. No recovery attempts in the evening due to vehicle shortage. Thomas Mattern

**08/03/2019**

Recovery of device from 982000365999981 (6.6 kg) at Aramoana. The bird landed at the very far end of the beach and attempted to scale a steep dune presumably to reach a Hebe at the base of the cliffs. Only bird to come in between 6pm and 10pm. Thomas Mattern & two field assistants.

**09/03/2019**

Recovery of 982000405533836 at Aramoana; device gone but plumage overall very rugged with bare patches all over its back. Bird clearly at onset of moult despite having gone to sea. Only bird to come ashore between 5.30pm and 9.30pm. Thomas Mattern.

**10/03/2019**

Recovery of 982000405533676 (7.7 kg) at Aramoana. The only bird to come ashore between 5pm and 9.30pm. Thomas Mattern.

**11/03/2019**

Recovery attempts of device from last remaining penguin at Aramoana. No bird was seen coming ashore between 6.30pm and 9.30pm. Thomas Mattern.

**12/03/2019**

Recovery attempts of last device at Aramoana. No bird coming ashore between 6.30pm and 9.30pm. Thomas Mattern.

**12/03/2019**

Another unsuccessful recovery attempt of last device at Aramoana with no birds returning between 6.30pm and 9.30pm. Decision was made to try to recover remaining bird when moulting. Thomas Mattern.

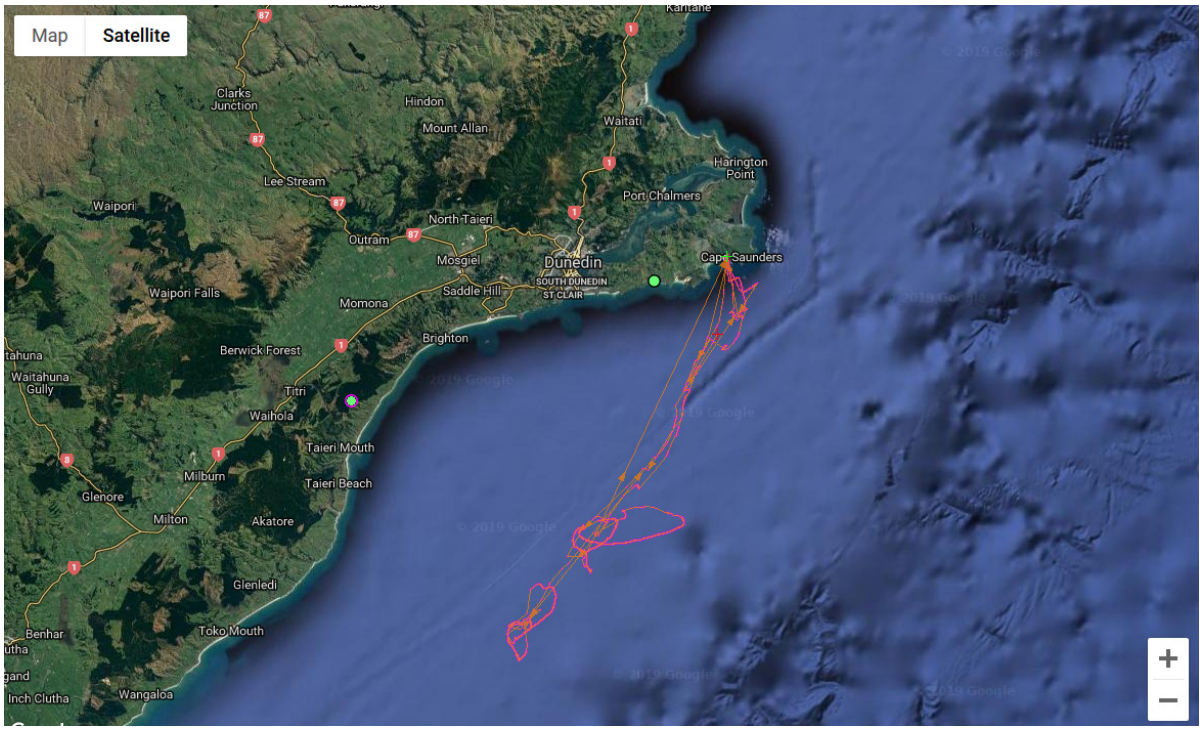
**17/03/2019**

Searched the breeding areas in Aramoana from 1pm. Last remaining device was found in a feather pile under a nettle thicket. Thomas & Hannah Mattern.

## Results

**Cicely Beach, Otapahi, Otago Peninsula, bird id*: 18472/*982000365999802**

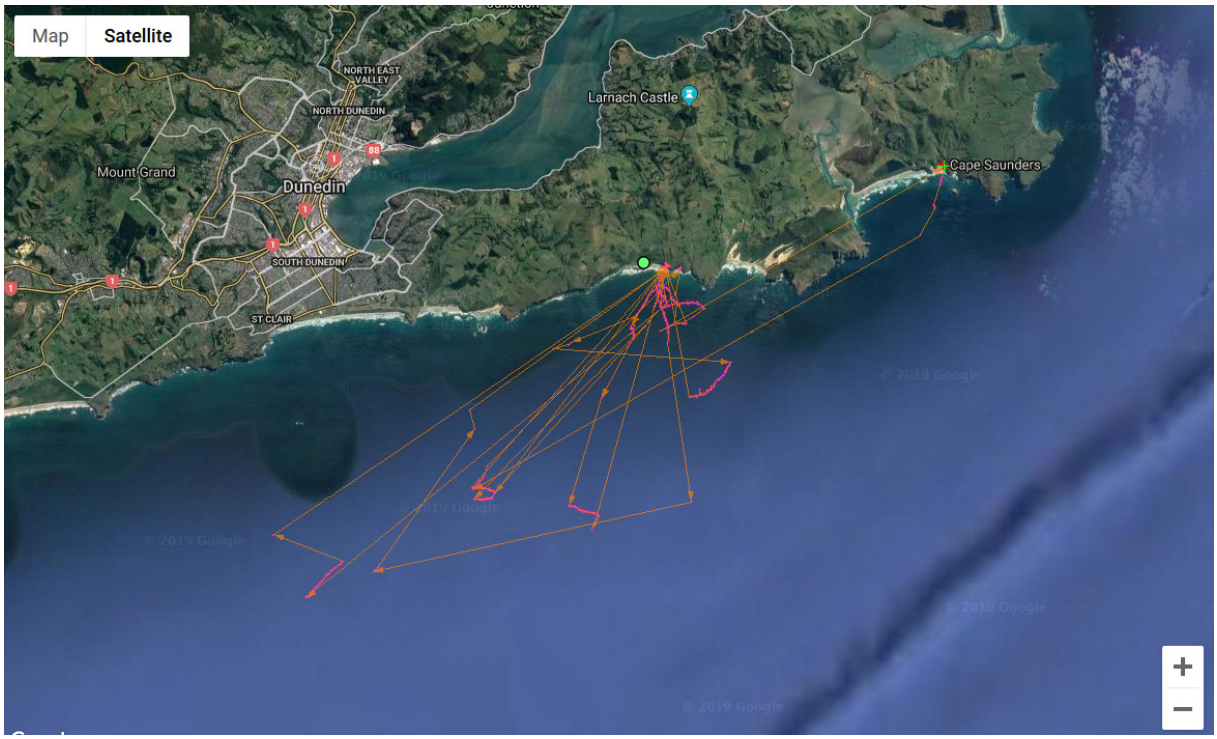
*Fitted with device on 11.02.2019; device recovered on 21.02.2019. The penguin performed four foraging trips while fitted with a GPS dive logger. On two trips she stayed within 25 km of her breeding colony whereas on the other two trips she foraged over the gravel beds some 20km due east of Bull Creek.*




The bird was admitted to the Wildlife Hospital in Dunedin on 12 March 2013 (i.e. 3.5 weeks after the device was recovered) with respiratory problems and subsequently died in the following night.

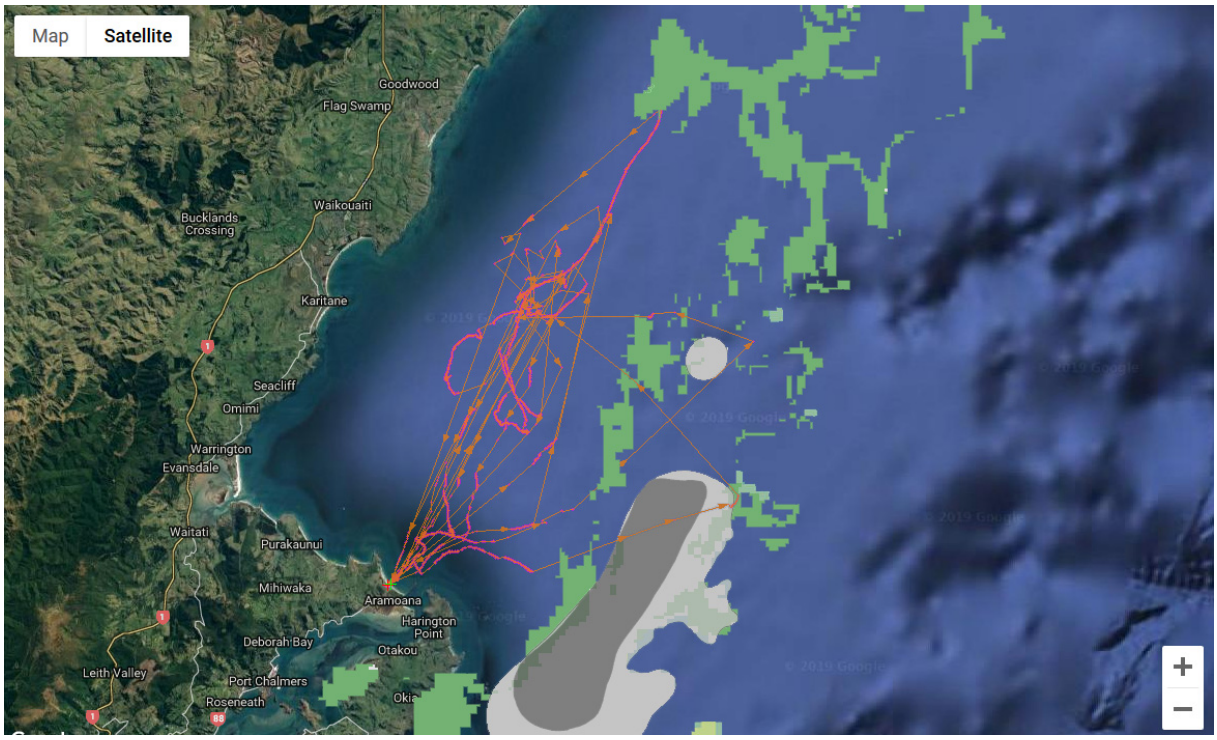
**Cicely Beach, Otapahi, Otago Peninsula, bird id*:* 982000063605832**

*Fitted with device on 12.02.2019; device recovered on 22.02.2019. GPS data recorded on this bird is very sketchy, this is due to relatively short surface intervals between dives. Mainly periods during which the bird drifted at the surface yielded GPS data. From these data is appears as if the penguin mainly foraged relatively close to the coast (<5 km) travelling no further east than Green Island located 25 km from Otapahi. The bird returned to the shore every night. However, for eight nights following the deployment at Otapahi, the penguin made landfall in the Boulder Beach complex, spending one night in Double Bay and the remaining nights in Midsection. In this light, that the bird could be recovered at Otapahi can be considered very fortunate.*

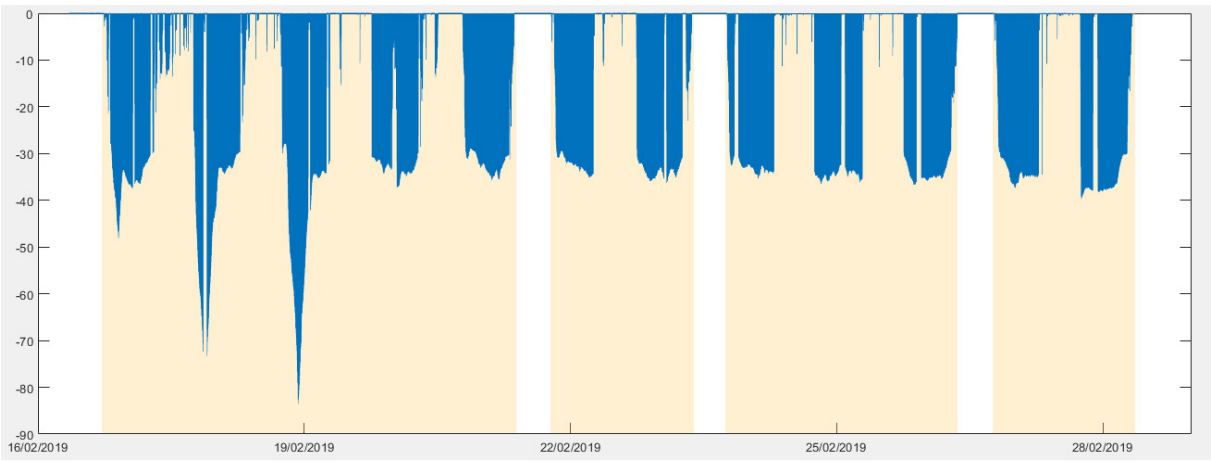


**Aramoana, bird id*:* 982000365942016**

*Fitted with device on 21.02.2019; device recovered on 28.02.2019. The bird performed a total of four foraging trips during the deployment period. During all these trips the penguin foraged off North Otago in an area approximately 20 km due east of Karitane.*



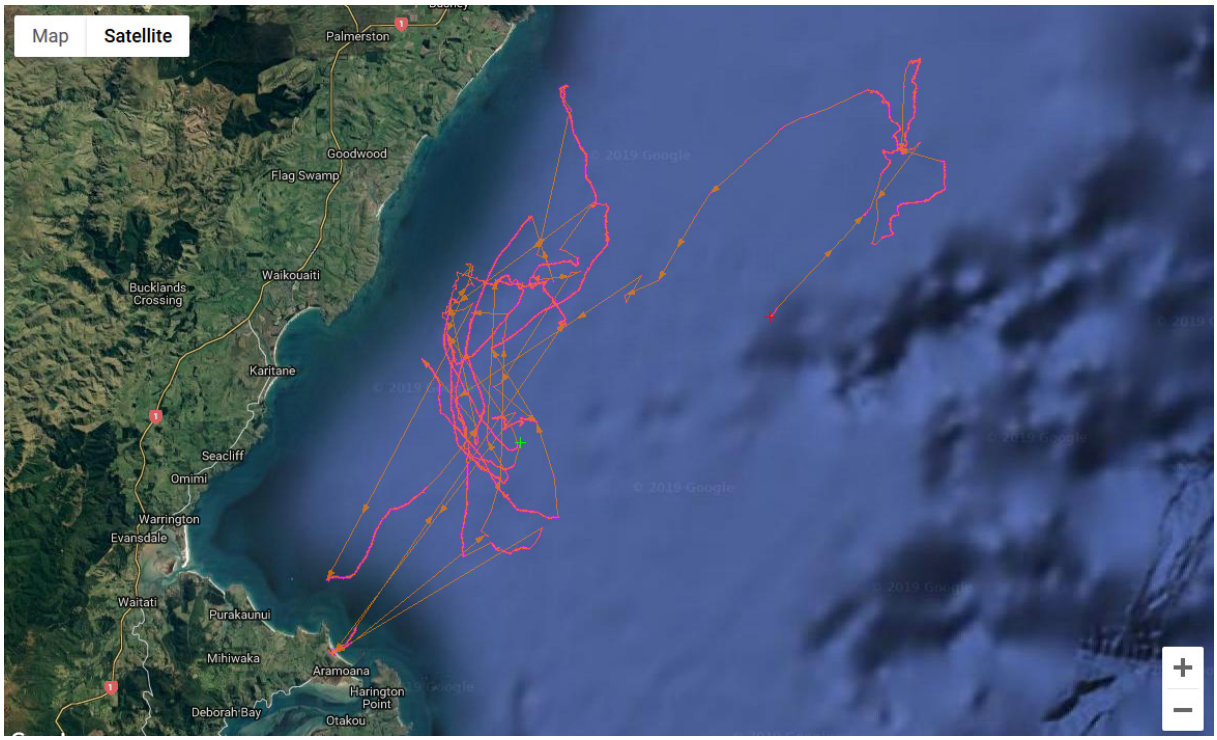

The bird exhibited primarily a benthic foraging strategy and on its first long trip foraged in regions of greater depths. However, its main foraging activity occurred at water depths of 30-40m over largely sandy bottom. This could indicate that the bird targeted horse mussel fields which increase local biodiversity. Alternatively, the penguin may have foraged for sand fish, which seem to be an important prey source for hoiho in the Catlins foraging over comparable sediment. Interestingly, neither predicted locations of biogenic reefs (green) nor bryozoan thickets (grey) seemed to be of interest to the bird.




**AUTHOR:** THOMAS MATTERN T.MATTERN@EUDYPTES:NET +64-27-6003036

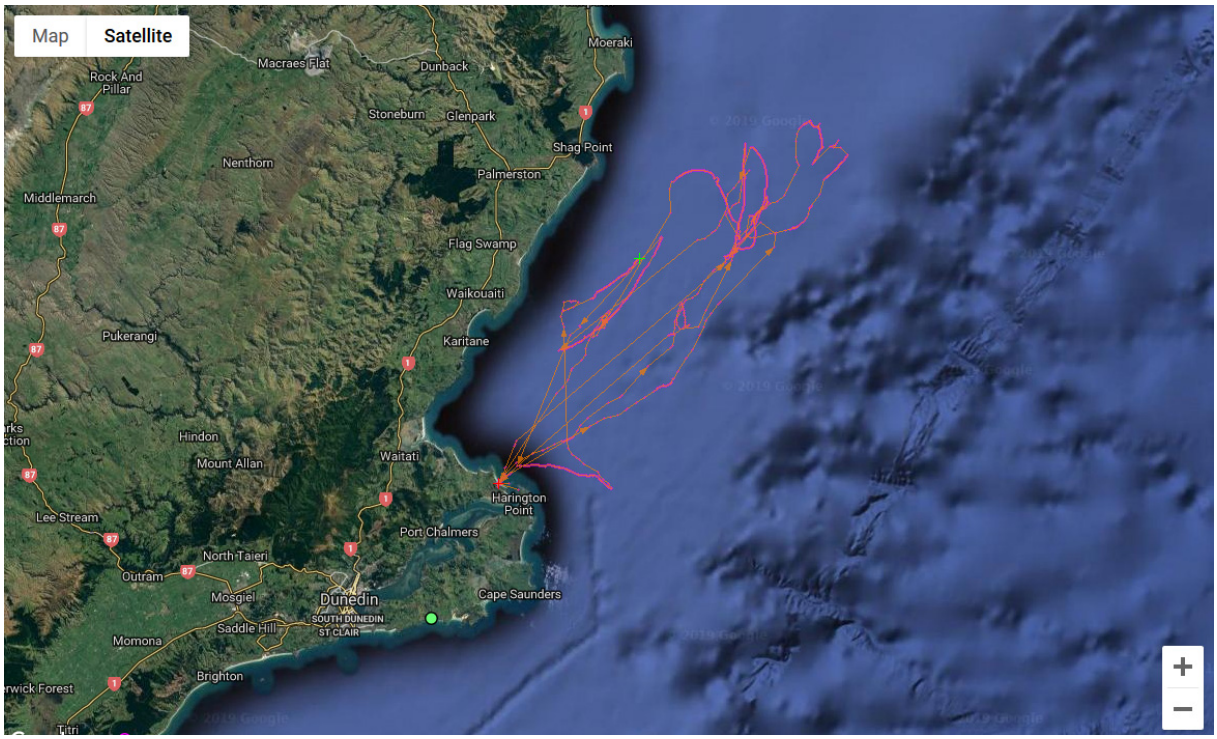
**Aramoana, bird id*:* 982000365999981**

*Fitted with device on 16.02.2019; device recovered on 08.03.2019. It appears as if the bird stayed at sea for the entirety of the deployment; the device battery was drained on 06.03.2019. The penguin foraged in the similar area as* 982000365942016, i.e. east of Karitane, although it ranged further North nearly reaching Shag Point.

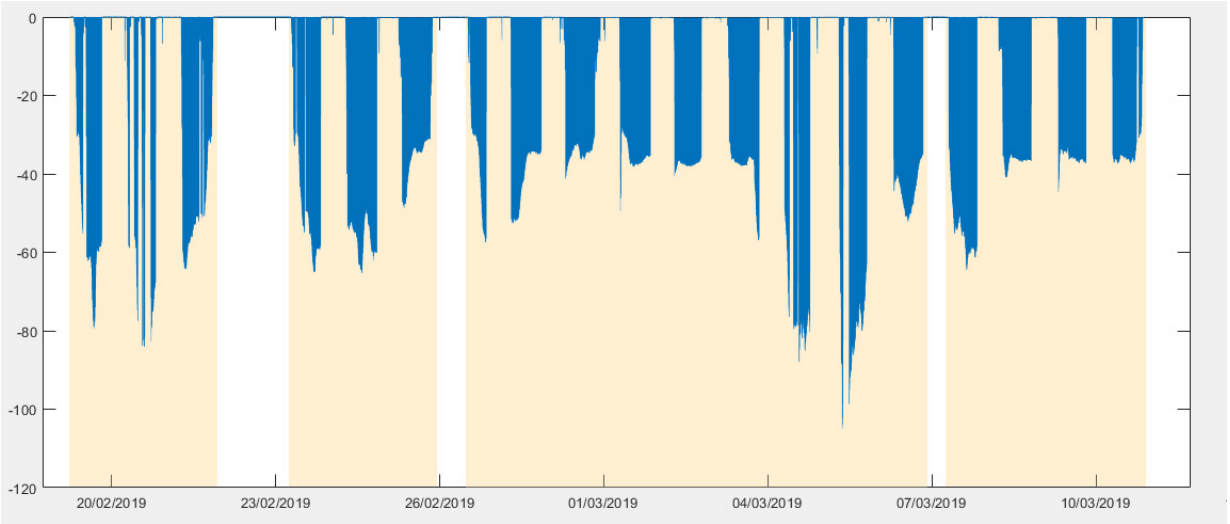


**Aramoana, bird id*:* 982000405533676**

*Fitted with device on 17.02.2019; device recovered on 10.03.2019. The bird performed three long-term trips until the GPS logger's battery was drained in the early hours of 02.03.2019. On two of these trips it also spent some time off Karitane just like the previous two penguins. However, this penguin ranged further north foraging in an area some 20 km off Shag Point.*

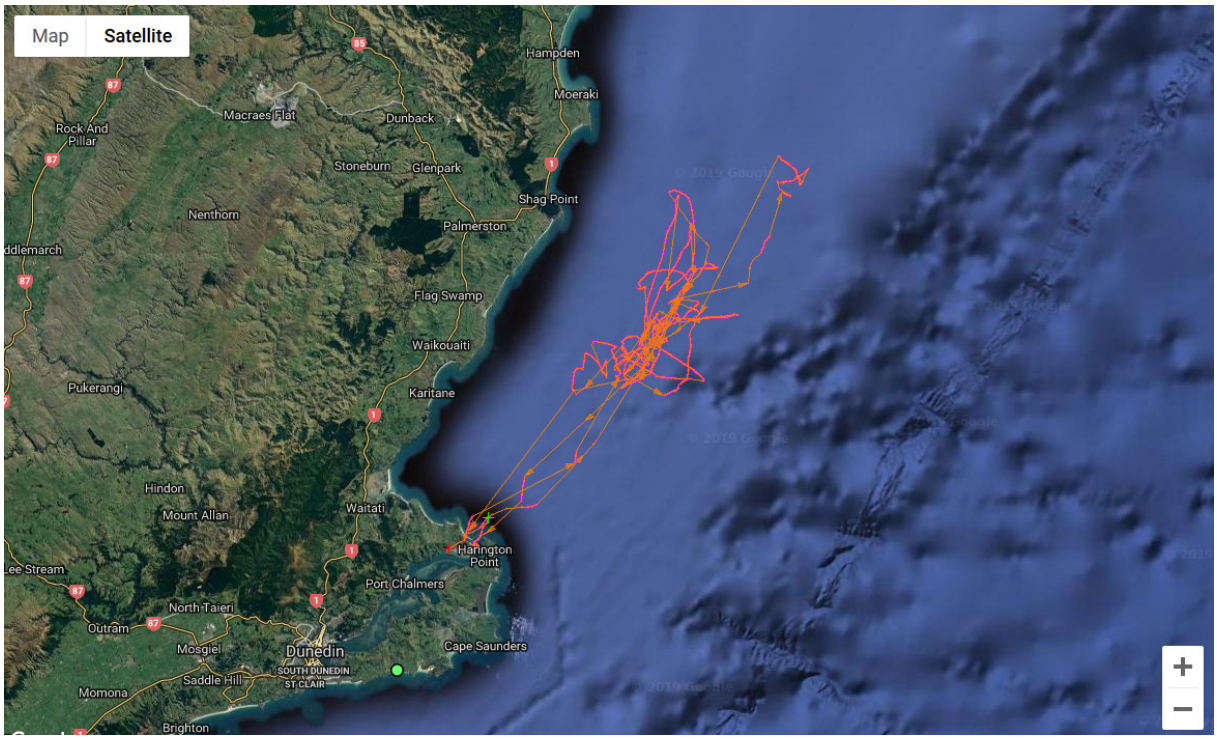



Dive data shows that the bird performed four separate trips over the three-week deployment period (shaded areas in dive profile graph), with the first two trips lasting three days, followed by a long 9-day trip and another 4-day trip before the bird was recaptured. Dive profile suggest a predominant benthic foraging strategy. As with the previous birds, the penguin foraged predominantly over sandy seafloors



**Aramoana, bird id*:* 982000365942048**

*Fitted with device on 16.02.2019; device recovered on 17.03.2019. The bird performed two long-term trips until the GPS logger's battery was drained in the late afternoon of 06.03.2019. It foraged mainly in a region 15-20km off the coast between Karitane and Shag Point. Curiously, it returned to Aramoana on 06.03.2019 but swam into Otago harbour and spent several hours on the eastern side of the Aramoana mole before swimming out of the harbour again.*




## Next steps

The penguins have now entered the moult and will be confined to land for the next three to four weeks. This means that no further device deployments will occur before the second half of April. In the interim we will perform a detailed analysis of the data recorded so far and monitor moulting birds. We also hope to recover the device from the last missing penguin fitted with a device at Hina Hina Cove and have made regular trips to re-sight this individual.