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**Project:** Hoiho Population and tracking: POP2018-02  
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## Monthly report for the period 21 Jan 2019 – 20 Feb 2019

### Quick summary

Another push to deploy GPS dive loggers on Yellow-eyed penguins from the Catlins was made in late January.

The dire situation of breeding birds in the region turned out to be a major stumbling block for this endeavour as many of the nests intended for deployment at Hinahina Cove had failed so that only a single deployment was made on one of the last two remaining breeding females on 22 January 2019. Recovery of the device was attempted between 6pm and 11pm each day from 29 January and 5 February 2019. However, the penguin did not return on any of these days. On 30 January the two remaining nests at Hinahina Cove dissolved when all chicks – grossly underweight – were transferred to Dunedin for rehab. There is still hope that the device can be recovered when the bird returns to Hinahina Cove to moult.

At Te Rere, on the 22 January 2019 a GPS dive logger and camera logger were deployed on the penguin that had exhibited linear foraging in December. Both its chicks are in good conditions and belong to the very small group of chicks not transferred to rehab. Recovery attempts began on 23 January 2019; the bird was recaptured, and devices were recovered on 25 January 2019. The bird had spent three days out at sea foraging in a region some 25 km from Te Rere consistently diving to 90-100m depths. The camera logger only yielded poor video data as the device's lens cap leaked water which compromised image quality and destroyed the image sensor 35 minutes after recording had started.

After these deployments it was decided to cease activities in the Catlins for the time being and instead focus on hoiho from the Otago Peninsula and Aramoana. On 11 and 12 February, two female hoiho were captured and fitted with a GPS dive logger at Cicely Beach (Otapahi). On 16 and 17 February, a total of five penguins were fitted with devices at Aramoana.

### Daily log

#### 22/01/2019

Two teams operated simultaneously at Hinahina Cove and Te Rere.

At Hinahina Cove, female hoiho from nest MY2 (bird id: 982 000405532549) was caught at the nest and fitted with GPS dive logger. No adult was seen at the other remaining active nest RH4. Mel Young & field assistant.

At Te Rere, female hoiho from nest LT5 (982 000405533506) was fitted with camera logger & GPS dive logger after feeding two healthy chicks some 100m from original nest site. Thomas Mattern, Fergus Sutherland & field assistant.

#### 23/01/2019

Recovery attempt of the Te Rere logger bird. Monitored main access path from 6pm and 10pm. Logger bird did not arrive. Thomas Mattern, Fergus Sutherland & field assistant.

**24/01/2019**

Another recovery attempt of the Te Rere logger bird. Monitored main access path from 6pm and 10pm. Logger bird did not arrive. Thomas Mattern, Fergus Sutherland & field assistant.

**25/01/2019**

Third recovery attempt at Te Rere. Besides monitoring the access path, we also intended to install an automated transponder gate that would monitor penguin traffic during our absence to ensure that the logger bird did not return while we were away. However, while installing the gate, the logger bird returned and was caught weighing 5.2 kg. Both devices successfully recovered. See <https://youtu.be/00VP8IMg4ZQ>. Thomas Mattern, Fergus Sutherland & two field assistants.

**29/01/2019**

Recovery attempts at Hinahina cove. Observed penguin landing from 6pm to 10.30pm. Seven birds arrived, none carrying a device. Mel Young & field assistant.

**30/01/2019**

Observed penguin landing at Hinahina Cove from 6pm to 10pm. Seven birds arrived, no logger bird. Mel Young & field assistant. All remaining chicks uplifted and transferred to rehab.

**31/01/2019**

Observed penguin landing at Hinahina Cove from 7pm to 11pm. Six birds arrived, no logger bird. Thomas Mattern & two field assistants.

**01/02/2019**

Observed penguin landing at Hinahina Cove from 6pm to 10pm. Seven birds arrived, no logger bird. Behaviour of all birds similar to the previous night. Likely the same birds. Thomas Mattern & field assistant.

**02/02/2019**

Observed penguin landing at Hinahina Cove from 6.30pm to 10pm. Seven birds arrived, no logger bird. Again, very obvious behavioural patterns on birds that arrived. Most of them spending extensive time on the rock platform with no obvious desire to move into the breeding areas. Thomas Mattern & field assistant.

**03/02/2019**

Observed penguin landing at Hinahina Cove from 6pm to 10pm. Seven birds arrived, no logger bird. Thomas Mattern & field assistant.

**04/02/2019**

Observed penguin landing at Hinahina Cove from 6pm to 10pm. Seven birds arrived, no logger bird. The decision was made to stop daily observations. Mel Young & field assistant.

**11/02/2019**

Deployment of a GPS dive logger on a female hoiho (band number 18472, weight 5.5 kg) from Cicely Beach (Otapahi). Mel Young & two field assistants.

**12/02/2019**

A second GPS dive logger was fitted to a female hoiho (982000063605832, weight 5.7 kg) from Cicely Beach (Otapahi). Mel Young & two field assistants.

**16/02/2019**

Deployment of GPS dive loggers on three hoiho at Aramoana (bird id: 982 000365942048, nest: KAB1, 6.3 kg; 982 000365999981, 6.6 kg; 982 000365942016; 6.5 kg). Mel Young & two field assistants.

**17/02/2019**

Deployment of GPS dive loggers on a further two hoiho at Aramoana. Young (probably) male non-breeding hoiho, bird id 982 000405533836 (weight: 6.0 kg) and a failed breeder, male, bird id: 982 000405533676, nest: BA1. Thomas Mattern, Mel Young & two field assistants.

**19/02/2019**

Unsuccessful recovery attempt at Cicely Beach 6pm to 10pm. Mel Young & two field assistants.

## Results

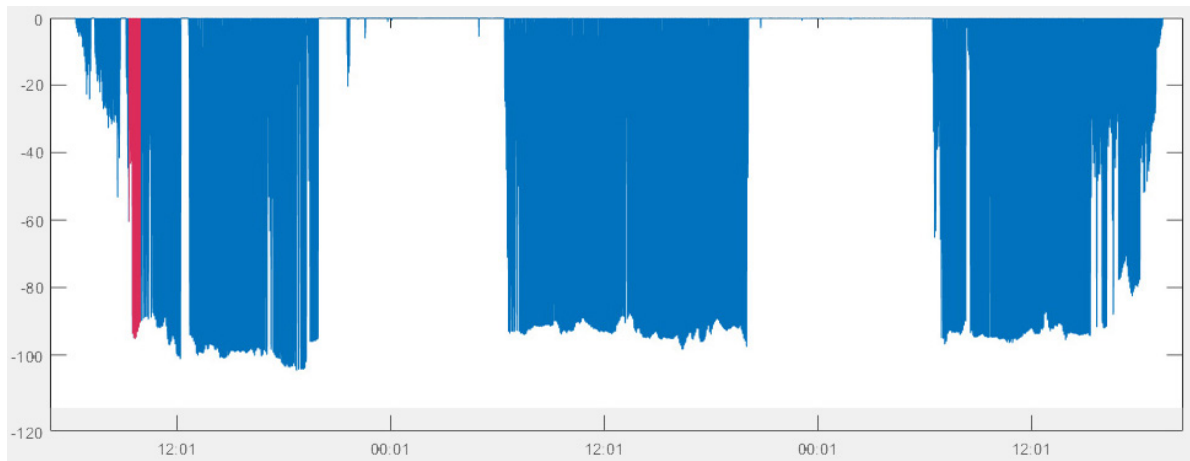
With the logger bird from Hinahina Cove still MIA, only data from the short-term camera logger deployment at Te Rere are available.

### **Te Rere, bird id: 982 000405533506**

*The bird performed a single, three-day long trip leaving the colony at 6.50am on 23 January and returning at 7.50pm on 25 January 2019. The bird spent most of its time in a region some 20-25 m south of Te Rere without any signs of linear foraging that was apparent while it was carrying a device in December. Note that in the graph below, linear sections of the track result from drifting at the surface as well as linear extrapolation between GPS fixes that were taken immediately before and after the device would switch into sleep mode between 10pm and 4am every day.*

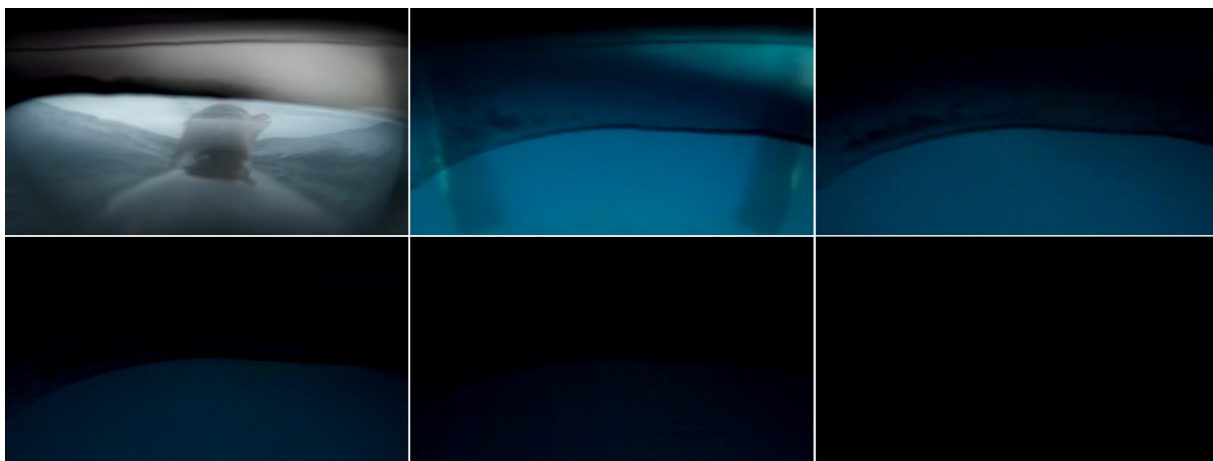


With the exception of the travel periods from and back to the mainland the bird consistently foraged at the sea floor between 90 and 100m.



The camera footage indicates that light levels close to the seafloor were poor as the video turns black whenever the bird gets to depths >80m. To which extent this is reflective of low visibility close to the seafloor or a result of the water leakage is difficult to say. But considering that the penguin continued to forage at great depths throughout its entire trip it can be assumed that the light levels were enough for it to not change its benthic foraging strategy.

The full video can be viewed here: <https://youtu.be/ZpjBrsICtzk>



### Next steps

Until the moulting period commences in March/April, we will focus our field work on the Otago Peninsula and Aramoana. First device recoveries are expected towards the end of February.