

Little penguin behaviour and ecosystem health



Photo: © Shellee Evans

Little penguins monitored by tiny electronic dataloggers made up to 98 dives per hour on fish hunting trips. In this field study, DOC marine scientists tracked the diving behaviour of eight little penguins and found differences related to the environments where they live.

Little penguins (*Eudyptula minor*, also known as kororā, blue and little blue penguins) are found all around the coast of New Zealand. Penguins return to the same location each night so they are easy for scientists to find and track. Also, during the breeding season when little penguins are incubating eggs or feeding chicks, they forage in the sea close to their burrows.

The negative effects of coastal land development, increased shipping, fishing and other factors on coastal ecosystems can be difficult to track, especially at an early stage. Because little penguins depend on the sea for food, they provide a convenient way to study these changes and assess the health of marine ecosystems around the country.

Study sites



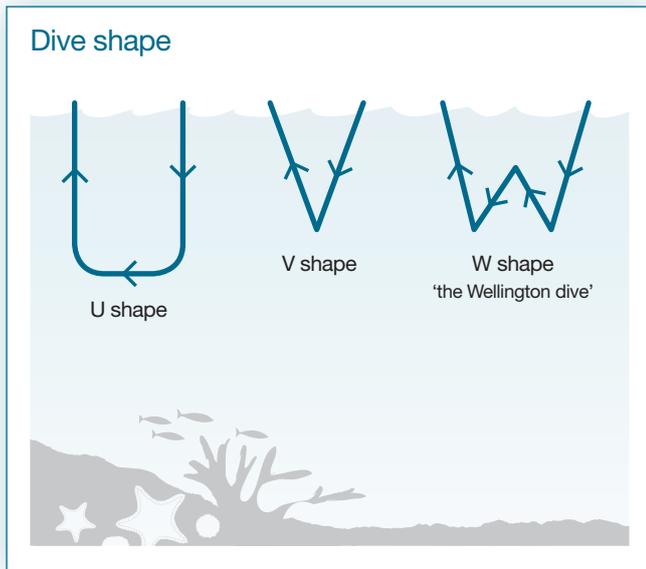
Motuareronui/Adele Island, Abel Tasman National Park, Pearl Island, Stewart Island/Rakiura and Matiu/Somes Island, Wellington Harbour.



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Different diving styles

In ecosystems with plenty of prey, little penguins make short, shallow, 'V-shaped' dives. If the penguins have to work harder to find food they make longer, deeper, 'U-shaped' dives (we would also expect to see fewer chicks being raised, adult birds in poorer condition and a population decline). Little penguins living around Matiu/Somes Island were recorded making 'W-shaped' dives approximately a quarter of the time.



	Pearl Island penguins*	Adele Island penguins*
Dive time	20 seconds	25 seconds
Mean dive depth	5.2 metres	6.4 metres
Deepest dive	15 metres	22 metres
Number of dives	81/hour	98/hour
Length of foraging trip	15.7 hours	14.8 hours
Time spend diving below 1 metre while at sea	58%	63%
Dive shape	V	U and V

*Average results based on data from four penguins tagged at each site.

Most dives were made during the day. The penguins from Pearl Island spent less time looking for food, making fewer, shallower dives than those from Adele Island. This may be because food is more plentiful at the more remote southern location.

Facts about little penguins

- world's smallest penguins, height 25 centimetres, weight 1 kilogramme
- live in New Zealand and southern Australia (where they are known as fairy penguins)
- superb swimmers, deepest dive recorded in New Zealand is 35 metres
- hunt visually, eating mostly squid and small fish
- 1–2 eggs laid in spring and incubated for 36 days
- one parent incubates the eggs while the other feeds at sea



Dataloggers

These small devices record the length and depth of each dive. They are attached to penguins' tail feathers for 2–4 days and are easily removed without damaging the feathers. The dataloggers turn off when they are dry (when penguins are on land) to save battery power.

What's next?

This research showed variations in how little penguins dive for food, depending on their location. Simultaneously monitoring the birds' diving behaviour and breeding success could therefore be a useful indicator of the health of marine ecosystems around New Zealand's coastline.

Find out more

Please email us at enquiries@doc.govt.nz for more information about this study.

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