

# Kororā/little penguin mortality

## Penguin deaths: how much is normal?

Kororā are common and widespread around New Zealand's coastline, particularly in places where there is less disturbance from humans, dogs, and introduced predators like cats and stoats. Their population is increasing in areas where predator control is being conducted.

Every year starting around November, DOC starts to receive reports of dead kororā washing up on beaches, and bird rescue centres get an influx of sick, injured, and starving birds to care for. Many of these are young birds struggling to make their way in the world. Larger or abnormal mortality events are more common during autumn and winter and may be due to prey shortages, storm events or occasional toxic algae blooms.

La Niña years bring increased sea-surface temperatures and onshore winds to New Zealand. These conditions can make it more challenging for kororā to nest and feed. The summers of 2020/21 and 2021/22 were strong La Niña years, affecting many marine habitats across the country. Ongoing marine heatwaves and climate change effects will lead to more frequent mass mortality events.

However, some level of mortality among kororā populations is natural and to be expected. You can learn more about penguin deaths and environmental factors below.

### Kororā seasonal cycles

**May–June:** kororā come ashore, find partners, begin to prepare nests for breeding

**July–October:** laying eggs, rearing chicks

**November–April:** fledglings leave nests, adults moult

**April–May:** at sea feeding

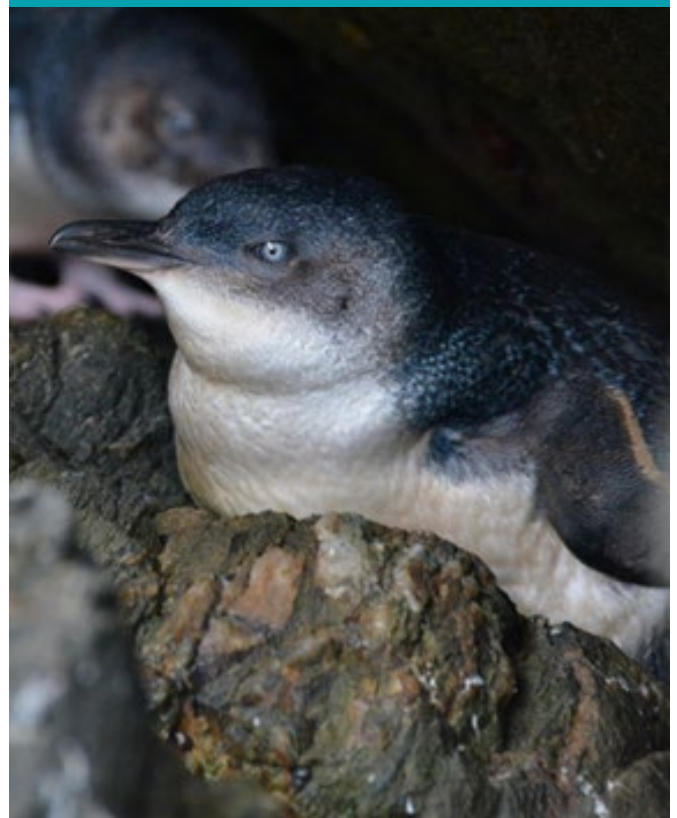
Spring and summer are peak mortality times, as moulting adults cannot swim, making them particularly vulnerable to predators, and juveniles leave the nest.

### Species statistics

New Zealand status: Native

Conservation status: At Risk–Declining

Threats: Dogs, predation, road kills, climate change



Kororā / little penguin nesting on Moturata / Taiera Island.  
Photo © Shellie Evans

Visit [www.doc.govt.nz/korora](http://www.doc.govt.nz/korora) to learn more and find out how to help.



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Conservation  
*Te Papa Atawhai*



Te Kāwanatanga o Aotearoa  
New Zealand Government



## What level of mortality is normal?

Seeing a few individual birds on a beach is not a cause for concern. Seeing 20+ birds on a single beach would indicate that an unusual mortality event is happening.

Breeding season is a very stressful time for adult and juvenile kororā. Juveniles that have left the nest are independent from their parents and need to learn where and how to find food. Not all chicks will make it through to adulthood due to predation and lack of food.

Adult birds find breeding stressful due to the need to find food for themselves and their chicks. This extra stress and exhaustion may make some birds more prone to illness or increase the risk of a predator attack as they dive deeper for food.

A chick's condition at fledging is crucial to their chances of surviving the first difficult month at sea. Body fat reserves give them a chance to learn how to feed. Underweight juveniles may struggle to locate enough food or get caught in stormy seas with low water clarity and die.

## What effects does La Niña have on penguin survival?

La Niña brings warmer waters, which means the fish seabirds feed on stay in cooler, deeper waters as surface temperatures rise.

Penguins and petrels respond to these changes by foraging further away and diving deeper to find food. Starvation is a risk for themselves and their chicks if food is in short supply. Recent reports of starved kororā all points to a lack of small fish on which these species depend.

La Niña also brings onshore winds, meaning dead birds which would have otherwise been carried away by ocean currents end up washed up on beaches. This can appear as a mass mortality event even if the actual rate of death hasn't changed.

## When will we know if this level of mortality is normal?

Most penguin chicks fledge during November and December. If juvenile kororā are struggling, we may begin to see evidence of this in January.

In Aotearoa, most kororā monitoring is done by community groups, and mostly during breeding season (July–October). We rely on these community groups and the public to report dead penguins, particularly after breeding season.

Higher than usual deaths were reported to northern North Island bird rescue centres in the summer of 2017/18, which was also a La Niña year. The summer of 2020/21 was also slightly higher than usual and was a strong La Niña year.

Other historical mass die-off events happened in:

- 1974 (4737 penguins),
- 1985 (5386 penguins), and
- 1998 (3517 penguins).

A mass die-off event (when more than 1000 birds wash up annually) has occurred roughly every 10 years.

If there are no dead kororā found on beaches it does not mean all is well with this species. Sometimes failure occurs within the nest (lost eggs and small chicks, for example) and so very few healthy chicks make it out to sea. In years when the winds blow offshore away from breeding colonies, dead birds simply float further out to sea and are not noticed by the public. And a lack of dead birds on beaches may point to a lack of birds overall, rather than a high survival season.

More work is needed to determine the status of kororā colonies in northern New Zealand.



## How is climate change expected to affect kororā?

The ocean has absorbed 90% of the excess heat we have added to the climate. One way this change shows up is through marine heatwaves. A heatwave may be localised (covering a small area) or nationwide.

Mass die-offs used to be a once in a decade event. Climate change is increasing the frequency of marine heatwaves and we may see these 10-year events instead occurring every two to three years.

These warm water events are likely to increase the number of poor breeding seasons for kororā in northern New Zealand.

Marine heatwaves are a major threat for many other marine species. Localised extinctions following marine heatwaves have occurred in species such as bull kelp and starfish. As climate change effects continue, heat-waves and other adverse weather events such as storms will become stronger and occur more frequently. We may expect to see a corresponding increase in the amount of mass die-offs of penguin and other sea creatures.

## Do climate change and La Niña affect each other?

Normally, a La Niña year would drop kororā populations, but subsequent good breeding years would balance this out.

When La Niña occurs at the same time as marine heatwaves, kororā populations are even more devastated. Climate change effects, marine heatwaves, and La Niña overlay and intensify each other, making the chances of population recovery very slim.

## Are little penguins more vulnerable than other species?

Kororā are a cold water adapted species. Warmer regions, such as northern New Zealand, are already at the limits of their natural range.

In addition, kororā are flightless birds. Although other species may adapt by migrating to new regions, kororā can only travel a limited distance, making adaptation difficult.

Kororā also have limited dive depth. They drive their prey to the surface to feed. As prey move to deeper waters, kororā may not be able to hunt them.

Deeper dives mean kororā need to expend more energy to replace it by feeding. A bird already weakened by lack of food may not have the extra energy to dive deeper. This creates a feedback loop which ultimately results in starvation.

## How can I help?

Kororā breed in the sand dunes, under rock crevices, under houses, or in native bush behind some popular public beaches. These birds mostly come ashore at night but could be nesting or moulting close by during the day in spring and summer.

Give these birds plenty of space. Keep dogs away from kororā - they're one of the biggest threats to these penguins on land. Dogs have caused fatal injuries to penguins and seals and should be kept on a leash if any native wildlife is seen.

- Give penguins space and enjoy them from a distance.
- Drive carefully around coastal areas.
- Put your dog on a leash around penguin areas.
- Keep your dog away from nests and warn others nearby of the location.

With potential food shortages, it is possible people will encounter live penguins that are very weak. These birds are extra vulnerable to dog attacks, making it extremely crucial that people keep their dogs on leashes while in coastal areas. Contact DOC or your local bird rescue for help.

**Call 0800 DOC HOT (362 468) if you find a dead or injured penguin.**