

Scientists concerned for Dunedin's Yellow-eyed Penguin population

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University of Otago researchers from the Department of Zoology have expressed serious concerns for the future of the Dunedin Yellow-eyed Penguin population.

This comes after the recent high [mortality](#) of Yellow-eyed [Penguins](#) where more than 50 adult penguins were found dead on beaches of the Otago Peninsula. The researchers understand that one more bird was found dead last week.

"Since the mid-1990s the population of Yellow-eyed Penguins on the peninsula has declined by more than 50%," says the Department of Zoology's Dr Ursula Ellenberg.

"We are effectively losing about 12 breeding pairs per year. If this trend continues unabated, the Yellow-eyed Penguin might become a rare sight on the Peninsula in our lifetimes."

Introduced [predators](#) such as stoats, [fisheries](#) by-catch and human disturbance are currently considered the main causes of this overall decline.

"A sudden die-off like the one we just experienced, significantly adds to the tally. With about 180 breeding pairs left on the peninsula, 50 dead adults represent a considerable portion of the remaining breeding stock."

Dr Yolanda van Heezik, also from the Department of Zoology, notes that

some of the birds that have recently died could be "super breeders", those few penguins in any population that are long lived and which produce the most surviving chicks.

She says that this small proportion of super breeders is effectively sustaining the Otago Peninsula Yellow-eyed Penguin population, meaning that recovery following their loss could be very slow.

A similar event occurred in 1990, when nearly 40% of the local breeding population of Yellow-eyed Penguins was found dead on the beaches of the Otago Peninsula. The cause of this event could never be determined but it was suspected that bio-toxins resulting from a [harmful algal bloom](#) played a role.

"There are many similarities between 1990 and the current event; the symptoms, localised occurrence and [weather patterns](#). It all points in the same direction and shows that we are dealing with something that might occur again. Only the next event could occur sooner."

Dr Thomas Mattern, who has been studying the marine ecology of Yellow-eyed penguins since 2003, sees strong links between weather conditions and the penguin die-off.

"Both events were preceded by warm weather which caused unusually high sea surface temperatures. These are ideal conditions for the occurrence of harmful algal blooms and elevated concentrations of toxins. Considering climate projections are forecasting warmer and drier summers for Dunedin, the penguins might have to cope with similar die-offs more frequently in the years to come."

Meanwhile the search for the cause behind the die-off continues.

So far laboratory tests conducted at Massey University for various

potential toxic agents on deceased birds have all come back negative.

"There is such a multitude of potential toxins that could have killed the penguins. Trying to identify the one that killed our penguins is a search for a needle in the haystack.

"However, we are in the fortunate position that this year's die-off happened while we were out studying the foraging behaviour of the penguins with GPS data loggers. So we have data that can help us determine factors and develop contingency plans to manage and mitigate future mortality events. All we need are the financial resources to do it," says Dr Mattern.

In 2007, Australian Economist Clem Tisdell assessed the economic importance of wildlife tourism for Dunedin and concluded that each breeding pair of Yellow-eyed Penguins contributes over \$250,000 to the local economy annually.

"Obviously the economic value of the Yellow-eyed Penguin for our city is significant," says Associate Professor Phil Seddon, Director of Wildlife Management at Otago's Department of Zoology.

"Not to mention the natural and cultural value of the species as part of Dunedin's identity."

The Department of Zoology has drafted a proposal and request for funding for an epidemiological analysis of the event, and the development of management strategies.

Provided by University of Otago

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