

Australian lake untouched by climate change

June 4 2013



A panoramic photo of Blue Lake on North Stradbroke Island. Credit: Ashley Natt

Researchers at the University of Adelaide have found that a lake on an island off the coast of Queensland has been relatively untouched by changes in climate for the past 7000 years, and has so far also resisted the impact of humans.

Blue Lake, one of the largest lakes on North Stradbroke Island, southeast of Brisbane, has been the focus of research examining the lake's response to [environmental change](#) over time.

Researchers studied the lake's water discharge, [water quality](#) and comparisons of historical photos over the past 117 years, as well as [fossil pollen](#) and [algae](#) to better understand its history over the past 7500 years.

The results, published online in the journal *Freshwater Biology*, show

that Blue Lake has remained relatively stable and resilient for [millennia](#).

"Blue Lake is one of those rare, beautiful lakes in Australia. It's unusual because it's more than 10 metres deep but it's so clear you can see to the bottom," says the lead author of the study, Dr Cameron Barr from the University's Discipline of Geography, Environment and Population.

"We didn't realise just how unique and unusual this lake is until we started looking at a wide range of environmental markers.

"We know that there have been variations in climate in the region including North Stradbroke Island over recent decades, but during that time the depth, [shoreline](#) and [water chemistry](#) of Blue Lake has displayed little variation.

"We also know that the region experienced a significant shift towards a drier climate around 4000 years ago. Again, Blue Lake has demonstrated little variation over this period. This is in stark contrast to other changes in the region due to shifts in climate.

"It appears that Blue Lake has been an important climate 'refuge' for the freshwater biota of the region, and is in the same condition now as it was 7500 years ago. With appropriate management, the lake could continue relatively unchanged for hundreds, possibly thousands of years to come," Dr Barr says.

Project leader and co-author Dr John Tibby, also from the University of Adelaide, says the results of this research could affect decision making about utilising the freshwater aquifer of North Stradbroke Island as a source of fresh water for the mainland.

"Our study suggests that increased extraction of ground water represents one of the few obvious threats to the stability of Blue Lake. The threat

this could pose to the lake's status as a stable freshwater refuge needs serious consideration if the regional aquifer of North Stradbroke Island is to be contemplated," Dr Tibby says.

More information: onlinelibrary.wiley.com/doi/10.1111/fwb.12154/abstract

Provided by University of Adelaide

Citation: Australian lake untouched by climate change (2013, June 4) retrieved 26 April 2024 from <https://phys.org/news/2013-06-australian-lake-untouched-climate.html>

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