

Te Hiku

Lake Ngā Keketo (formerly Ngakeketa), NRC Lake No. 14.



Lake Ngā Keketo, (Tracey Burton 2020).

Summary	Lake Ngā Keketo
Surveyed:	2004, 2017, 2020 and 2025
Overall ranking:	Moderate: This lake is dominated by the submerged pest plant egeria with some hornwort. Much of the lake is inaccessible to humans and provides good habitat for aquatic birds.
Threats:	The worst invasive submerged pest plants hornwort and egeria are both present. Nutrient enrichment from pastoral land is evident.
Management recommendations:	The pasture margin has been fenced to exclude livestock but aeolian (wind-blown) nutrient and sediment inputs are not manageable. There are currently no suitable methods to eradicate egeria from this lake. Regular ecological monitoring is recommended.

Description

The lake is situated (1578964E, 6180322N) in sand dunes, it is an impounded stream system and occupies 11.5 ha with a maximum depth of 15.2 m. The catchment is vegetated with manuka (70%), pasture (20%) and mobile dune (10%) near the outlet. Pines had been removed from the pasture area prior to 2020. The lake is comprised of two arms: the western arm fed by a stream flowing from the north, with the outflow obstructed by beds of emergent raupō (*Typha orientalis*), flowing into the Kauaeaparaoa Stream. Access is through privately owned pasture off the Te Paki Stream Road. There are no formed tracks leading to the lake edge and no easy trailer boat access.

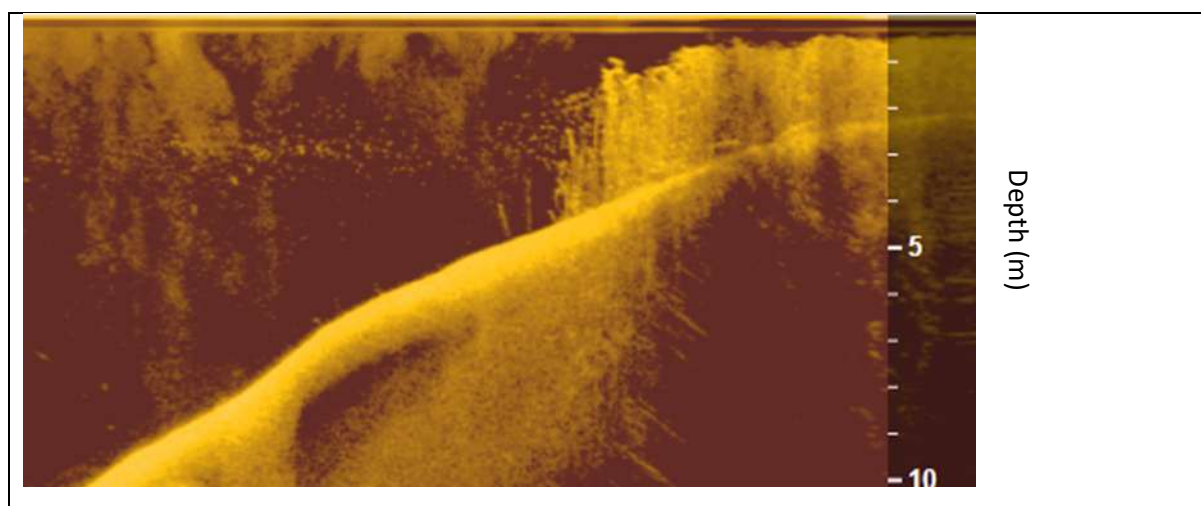
Wetland vegetation

There was an almost complete (except the mobile dune face) but narrow fringe of emergent vegetation, mostly narrow, < 5 m wide due to the steep slope around much of the lake. Emergent vegetation was dominated by raupō (*Typha orientalis*), with lesser amounts of kuta (*Eleocharis sphacelata*) and *Machaerina articulata* which grew to maximum depths of up to 2 m. In 2025, a large floating island of raupō had partially blocked the entrance to the northwestern arm at its narrowest point adjacent to the dune face.

No NRC shore-based vegetation survey was undertaken in 2025. On previous visits, sprawling emergent native swamp millet (*Isachne globosa*) and swamp willow weed (*Persicaria decipiens*) were locally common along with the introduced water purslane (*Ludwigia palustris*). Turf species including *Myriophyllum votschii*, *Limosella australis* and sand sedge (*Carex pumila*) were common on the dune margin.

Submerged vegetation

In 2025, a diver survey of five LakeSPI sites was undertaken despite poor water clarity (estimated to be 0.4 to 0.5 m underwater visibility) with very fine suspended sediment noted. The lake was generally steep-sided with a narrow band of submerged vegetation.



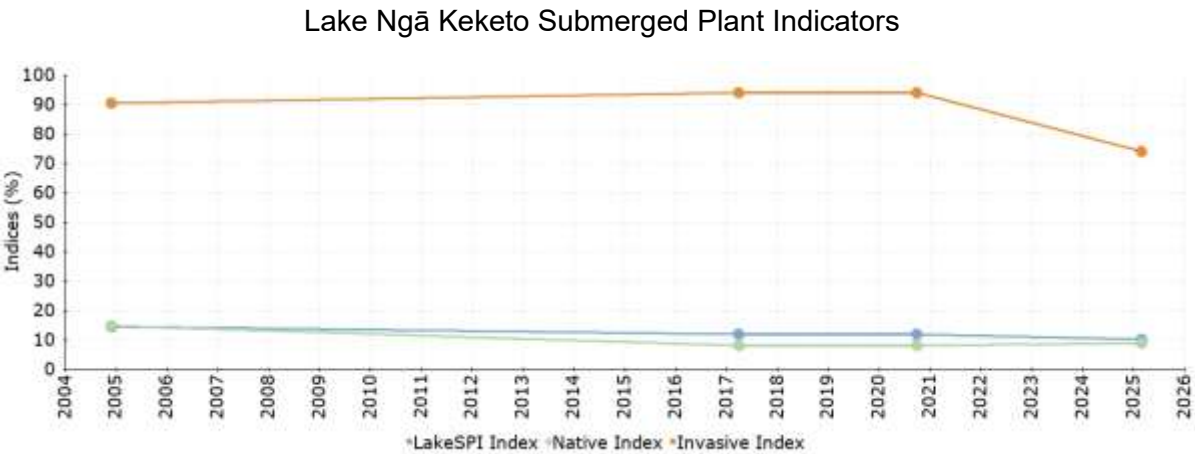
Lake Ngā Keketo: Sonar trace of submerged vegetation dominated by *Egeria densa*.

Vegetation was dominated by invasive non-native species, with egeria (*Egeria densa*) commonest in the lake extending from 1.1 to 4.8 m, with lesser amounts of hornwort (*Ceratophyllum demersum*). The indigenous *Potamogeton ochreatus* was present at low covers at all surveyed sites between 1.1 and 3.1 m depth. The invasive bladderwort (*Utricularia gibba*) was noted amongst emergent plants at one site. Detached plants of the native species *Chara australis* and *Myriophyllum propinquum*

were noted in shallow water, near the deepest emergent vegetation.

Similar submerged vegetation species and extent was reported in 2020 and 2017. In 2005, hornwort was the dominant species and egeria was not present. Egeria had likely been introduced by fragments spread from Lake Wairaupō via the Kauaeaparaoa Stream after 2005.

LakeSPI



Survey Date	Status	LakeSPI %	Native Condition %	Invasive Impact %
February 2025	Poor	10.2% <div></div>	8.9% <div></div>	74.1% <div></div>
September 2020	Poor	11.9% <div></div>	8.1% <div></div>	94.1% <div></div>
March 2017	Poor	11.9% <div></div>	8.1% <div></div>	94.1% <div></div>
November 2004	Poor	14.5% <div></div>	14.8% <div></div>	90.4% <div></div>

In 2025, the **poor** LakeSPI Index of 10.2% reflects the major impact of poor water clarity and dominance of the alien invasive plants egeria and hornwort in the submerged vegetation of the lake. Invasive Impact Index has declined from >90% to 74% in 2025. In 2025, overall plant depths were reduced, native diversity increased, but at one site plants did not exceed 10% cover (on the dune face).

Water birds

There was limited emergent and wetland vegetation habitat, but much of the lake is inaccessible to humans and would provide good habitat for aquatic birds. No birds were recorded in 2025. On previous occasions, paradise shelduck (*Tardorna variegata*) black swan (*Cygnus atratus*) and little black shag (*Phalacrocorax sulcirostris*) were recorded. A bittern (*Botaurus poiciloptilus*) was reported by the Department of Conservation in 1991.

Fish

Schools of juvenile and adult mullet (*Mugil cephalus*) (reflecting a direct connection to the sea) and bullies (*Gobiomorphus cotidianus*) were recorded as abundant in the lake in 2005 and 2017. The pest fish *Gambusia affinis* and goldfish (*Carassius auratus*) are recorded from this lake (NRC lake survey summary information 2025).

Aquatic invertebrates

Ball et al. (2015) record a total of 21 invertebrate taxa, with four different Hemiptera (bugs), Diptera (flies) and gastropods (snails); the most numerous taxon was the mud snail (*Potamopyrgus antipodarum*). No kēwai (freshwater crayfish) or torewai (freshwater mussels) had been recorded in Lake Ngā Keketo. However, torewai (*Echyridella menziesii*) shell fragments and eDNA were recovered from deeper parts of sediment cores taken in this lake as part of the Lakes380 project (Thomson-Laing et al. 2025) signifying their historical presence in the lake.

Endangered species

No threatened fish, aquatic invertebrates or plants were seen. The diving beetle *Antiporus femoralis* and the gastropod *Glyptophysa variabilis* recorded from this lake by Ball et al. (2015) are both classed as Data Deficient by Grainger et al. (2018).

Lake Ecological Value

The ecological value rating of Lake Ngā Keketo has remained **Moderate**, with a score of 6 from 2017 to 2025. It is a moderate sized lake in pasture/regenerating forest catchment, with poor water clarity, and heavily impacted by the invasive submerged weeds egeria and hornwort.

Threats

The submerged vegetation of this lake is dominated by egeria, with hornwort and alien bladderwort also present. The pest fish *Gambusia affinis* and goldfish are recorded from this lake (NRC summary information 2025). High numbers of *G. affinis* have been associated with negative effects on a range of fish, invertebrate and amphibian species and goldfish have been associated with adverse impacts on water quality through resuspension of sediment and nutrients during feeding (Collier and Grainger (2015). Nutrient run-off from farmland could lead to planktonic algal blooms and benthic anoxia.

Management recommendations

The pasture margin of the lake has been fenced to exclude livestock, which should mitigate nutrient inputs and turbidity arising from farmland. However, aeolian (wind-blown) nutrient and sediment inputs are unable to be managed in this way.

There are limited eradication tools for the pest plant egeria. Grass carp have been successfully used in other Northland water bodies (e.g., Lake Roto otuauaru) but these fish could not be contained in Lake Ngā Keketo. Ongoing research is focused on the development of new tools for egeria management.

Regular lake ecological monitoring is advocated for this lake.

References

- Ball, O.J.P., Pohe, S.R., Winterbourn, M.J. (2015) Littoral macroinvertebrate communities of dune lakes in the far north of New Zealand. *New Zealand Journal of Marine and Freshwater Research* 49: 192–204
- Botting, S. (2023) Northland's pest wars - turtles, wilding pines, wallabies and weeds. Northern Advocate, 27 September 2023. (<https://www.nzherald.co.nz/northern->

advocate/news/northlands-pest-wars-turtles-wilding-pines-wallabies-and-weeds/5RNTTS5RVZAPBIOSS6K63UD4Y4/#google_vignette)

Thomson-Laing, J., Steiner, K., Thomson-Laing, G., Thoms, C., Howarth, J.D., Vandergoes, M.J., Wood, S.A. (2025) Exploring the historical presence of kākahi (freshwater mussel) in lakes using sedimentary ancient DNA. *Inland Waters* 1–42.
<https://doi.org/10.1080/20442041.2025.2475685>