

Poutō Peninsula

Lake Wainui (Poutō), NRC Lake No. 305.



Lake Wainui viewed from the north. Note the steep sided pasture catchment. Photo Lisa Forester, NRC (2010).

Summary	Wainui
Surveyed:	2001, 2005, 2007, 2014 and 2021.
Overall ranking:	High to Moderate: A small lake with native submerged vegetation, prone to nutrient enrichment, but showing the benefits of stock exclusion with an increase of lake ecological condition from High-Moderate to High in 2014.
Threats:	Risk of pest introduction is low but should these be introduced there would be major impacts on the lake. Nutrient enrichment and nutrient release from anoxic bottom sediments from stratification turnover.
Management recommendations:	Lake ecological assessment monitoring every 5 years.

Description

A small (4.8 ha) dune lake (1679414E, 6004475N) with a maximum depth of 11.8 m and situated in a pastoral catchment with cattle fenced from the lake edge. No surface inflow or outflow. Access across 1 km private farmland by 4-WD with launching areas either end.

Wetland vegetation

Narrow (2 to 5 m) marginal fringe on almost all the shoreline dominated by *Schoenoplectus tabernaemontani* with some areas of *Typha orientalis*, *Machaerina articulata*, *Eleocharis acuta* and *E. sphacelata* growing to a maximum depth of about 1 m.

The pest plant primrose willow, (*Ludwigia peploides*) formed floating mats in parts of the lake.

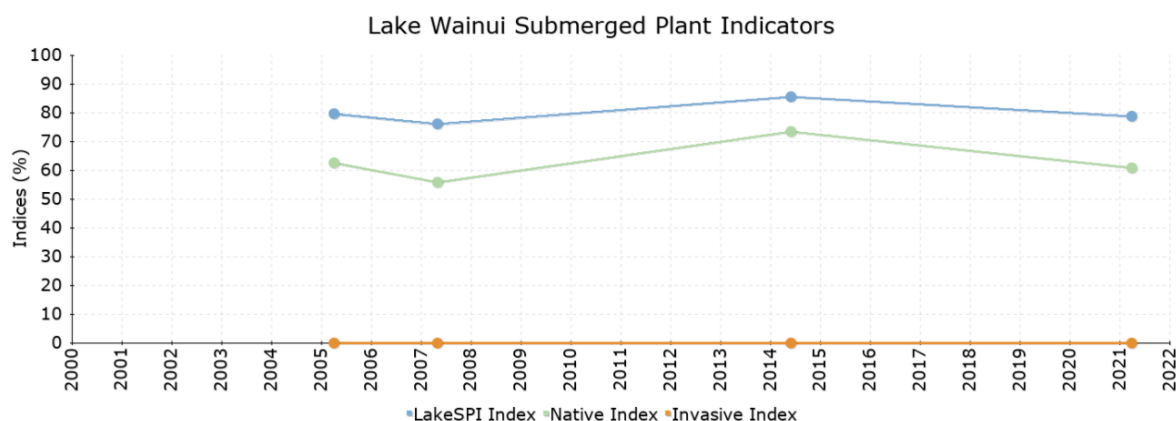
Submerged vegetation

In 2021, charophyte meadows comprised of *Chara australis* grew to 6.7 m deep. Tall-growing native species mostly *Potamogeton ochreatus* (to 5.2 m) and *P. cheesemanii* (to 2.6 m) were present. In 2021 no exotic submerged species were recorded; however thick cyanobacterial mats were seen on every profile.

In 2014, *Chara australis* grew to 7.9 m deep with some *Chara globularis* and *Nitella* sp. aff. *cristata*. *Potamogeton ochreatus*, *P. cheesemanii* and *Myriophyllum triphyllum* were also present.

Bottom limits have been 2.6 m, 5.9 m, 5 m, 7.9 m and 6.7 m deep in 2001, 2005, 2007 2014 and 2021 respectively. The dominant charophyte has shifted from *Nitella* sp. aff. *cristata* in 2005 to *Chara australis* in 2021 with no other charophytes recorded.

LakeSPI



Survey Date	Status	LakeSPI %	Native Condition %	Invasive Impact %
March 2021	Excellent	78.6%	60.8%	0.0%
May 2014	Excellent	85.5%	73.3%	0.0%
April 2007	Excellent	75.9%	55.8%	0.0%
March 2005	Excellent	79.5%	62.5%	0.0%

LakeSPI for Wainui. Four LakeSPI surveys are recorded between 2005 and 2021.

An excellent LakeSPI score of 79% was calculated in 2021, with a totally native vegetation. Both LakeSPI and Native Condition Index have declined between 2014 and 2021, probably due to recent poor water quality.

Water birds

Fencing of the lake has increased the marginal emergent habitat. Four regionally rare dabchick (*Poliiocephalus rufopectus*) and black swan (*Cygnus atrata*) and paradise shelduck (*Tadorna variegata*) were seen during the 2007 field visit. Earlier reports include the Nationally Endangered bittern (*Botaurus poiciloptilus*) and regionally significant scaup (*Aythya novaezeelandiae*).

Fish

No species were recorded.

Aquatic invertebrates

Leeches (*Richardsonianus mauianus*), backswimmers (*Sigara arguta*), dragonfly nymphs, freshwater sponges and *Physa acuta* snails were common.

Endangered species

The At Risk Naturally Uncommon sedge *Fimbristylis velata* was recorded in the past on bare lake margins. However, since exclusion of cattle in 2010, the open habitat required by this species no longer exists.

Lake Ecological Value

Lake Wainui bottom limits were at their deepest in 2014, with a slight decline in 2021. Water quality was reported as improving in 2019, with a mesotrophic status (10-year median of 3.71). The improvement in bottom limits and water quality was likely due to the recent fencing of the margins excluding cattle access to the lake and subsequent increase in emergent vegetation that now almost encircles the lake. However, it appears that a recent decline had occurred, with possible algal blooms over the past summer. Its ecological value rating remains at 8 (High to Moderate).

Threats

An indigenous submerged vegetation with tall-growing natives, is very susceptible to invasion by tall-growing exotic species. However, due to isolation and difficult access, the risk of introduction is low. The catchment is grazed pasture, although fencing and current land management practices have permitted an improvement in the lake, the lake is still impacted by episodes of poor water quality.

Management recommendations

Lake ecological assessment monitoring every 5 years.