Poutō Peninsula

Lake Humuhumu (Poutō), NRC Lake No. 350.

Lake Humuhumu: A pastoral catchment (foreground) and pine plantation (background) (Mary de Winton 2025).

Summary	Lake Humuhumu
Surveyed:	2001, 2005, 2007, 2012, 2014, 2017, 2021 and 2025.
Overall ranking:	**Outstanding**: A large, relatively deep, clear lake with diverse biota including nationally rare biota, with no major pest species.
Threats:	High risk of introduction and establishment of invasive pests. High risk of nutrient enrichment from pine plantation activities (harvesting and fertilisers) and nutrient run-off from farmland.
Management recommendations:	Survey for populations of the Nationally Critical *Trithuria inconspicua,* and At-Risk Naturally Uncommon *Stuckenia pectinata*. Ecological condition monitoring every five years.

Description

Lake Humuhumu is a large (139.4 ha) dune lake (1700789E, 5979177N) with a maximum depth of 15.2 m. The lake has a predominantly pastoral catchment with scattered pockets of mānuka and kānuka scrub, except for the western shore, which is comprised of sand dunes with pine forest. A large island with indigenous vegetation divides the lake into two basins. There are no inlet or outlet streams. The lake is easily accessed from the roadway across firm grassed ground, but the previous boat launch site has been closed off by raupō growth. Alternative access is possible on private property to the north of the pump shed.

Wetland vegetation

About 70% of the shoreline had a narrow (< 5 m) band of emergent species, although more

extensive emergent beds were found on the eastern shoreline, extending into 1.4 m depth of water. *Schoenoplectus tabernaemontani* and *Eleocharis acuta* were the most common species, with raupō (*Typha orientalis*)*, Apodasmia similis, Bolboschoenus fluviatilis, Cyperus ustulatus,* kuta (*E. sphacelata*)*, Juncus pallidus, Machaerina articulata, M. arthrophylla,* and *M. juncea* also present. The invasive exotic, alligator weed (*Alternanthera philoxeroides*) was present in the marginal vegetation on the south-east shore and a large royal fern (*Osmunda regalis*) plant was located and controlled on the western shore of the lake.

Submerged vegetation

In 2025, a diver survey of five LakeSPI sites was undertaken to maximum depths between 7.2 and 8.7 m. Vegetation was commonly covered by thick cyanobacteria films although deeper plants were cleaner from 5 m depth and below. Charophyte meadows (≥75% cover) were found at all sites with a maximum depth of between 4.1 and 7.1 m, with 10% cover of plants to between 4.1 to 7.2 m, and the deepest plants to 7.6 m. *Chara australis* dominated the deep water charophyte meadows, with *C. globularis* also common in shallower water. Other submerged species recorded were *Nitella hyalina, Myriophyllum triphyllum, Potamogeton cheesemanii* and *P. ochreatus* (some as deep as 6.3 m).

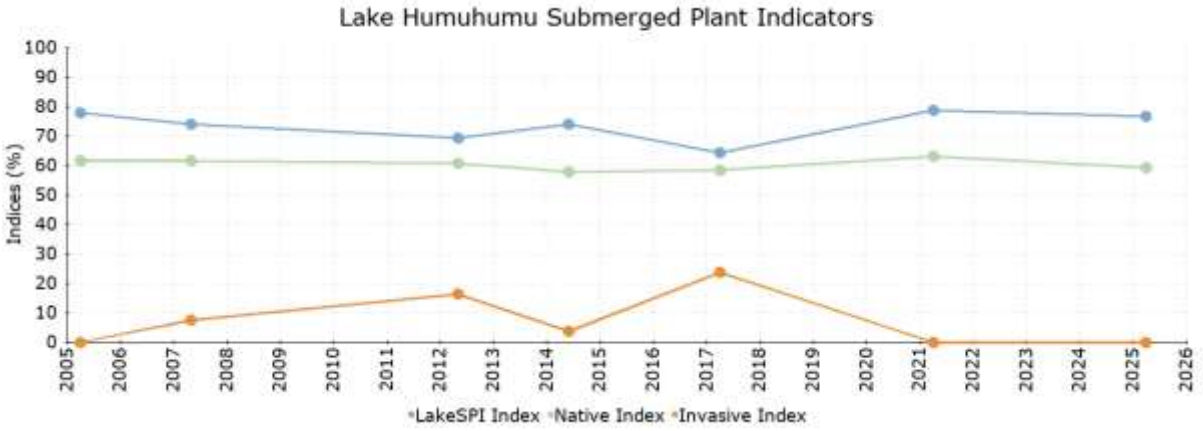
Lake Humuhumu: Shallow water *Potamogeton cheesemanii*, noting the oxygen bubbles on the cyanobacteria mat (left); mostly defoliated *Myriophyllum triphyllum* (right) (Mary de Winton, 2025).

Turf plants were not recorded at the LakeSPI sites, due to competition from tall emergents, although tall (>10 cm) spongy *Lilaeopsis novae-zelandiae* plants were found at the island site.

None of the invasive species *Utricularia gibba, Potamogeton crispus* or *Ottelia ovalifolia* previously recorded in Lake Humuhumu were recorded in 2025.

Similar vegetation has been described on previous surveys, with additional plants including *Stuckenia pectinata, Myriophyllum propinquum, M. votschii, Glossostigma elatinoides* and *Trithuria inconspicua,* the latter species not seen since the 2012 survey.

LakeSPI



Survey Date	Status	LakeSPI %	Native Condition %	Invasive Impact %
March 2025	Excellent	76.6%	59.3%	0.0%
March 2021	Excellent	78.7%	63.0%	0.0%
March 2017	High	64.3%	58.5%	23.7%
May 2014	High	74.0%	57.8%	3.7%
April 2012	High	69.4%	60.7%	16.3%
April 2007	High	74.0%	61.5%	7.4%
March 2005	Excellent	77.9%	61.5%	0.0%

In 2025, an **excellent** LakeSPI Index of 76.6% was calculated. Native Condition Index scores have been similar throughout the monitoring period, with lower LakeSPI scores between 2007 and 2017 associated with a higher Invasive Impact Index due to abundant *Utricularia gibba* on those occasions.

Water birds

The lake provides significant bird habitat with abundant water birds noted on the lake in 2025 including seven black swan (*Cygnus atratus*), 23 Canada geese (*Branta canadensis*), 140 paradise shelduck (*Tadorna variegata*), 25+ mallard duck (*Anas p. platyrhnchos*), two grey duck (*Anas superciliosa*), two New Zealand dabchick (*Poliocephalus rufopectus*), one Australian little grebe (*Tachybaptus n. novaehollandiae*), 2 red-billed gull (*Chroicocephalus novaehollandiae scopulinus*) and nine Caspian tern (*Hydroprogne caspia*). New Zealand Ornithological Society also recorded North Island fernbird (*Poodytes punctata vealeae*) and spotless crake (*Porzana t. tabuensis*).

Fish

A fish survey undertaken in 2025 recorded 1085 common bully (*Gobiomorphus cotidianus*) ranging in length between 20-110 mm and five īnanga (*Galaxias maculatus*), ranging in length between 75-95 mm. No introduced fish species were recorded.

Aquatic invertebrates

In 2025, hydra (*Hydra* sp.) were described as abundant on deeper submerged vegetation, with the invasive ear pond snail (*Radix auriculata*) reported in the lake for the first time, with pea mussels (*Sphaerium novaezelandicum*) and torewai (*Echyridella menziesii*) reported from all

dive sites, most commonly deeper than the submerged vegetation. The fish survey also captured 68 diving beetles (*Onychohydrus hookeri*) and one kēwai (*Paranephrops planifrons*).

Lake Humuhumu: *Hydra* sp. on *Chara australis* (Mary de Winton, 2025)

Lake Humuhumu: Kēwai (*Paranephrops planifrons*) captured on the fish survey (Jacki Byrd, 2025)

A sample of a reef substrate was collected by divers from one site at depth (>7 m). It very light and spongy. This has yet to be identified.

Previous records include the native snail *Glyptophysa variabilis* and leech *Richardsonianus mauianus* and non-native freshwater jellyfish (*Craspedacusta sowerbyi*) medusae.

Endangered species

In 2012, the uncommon fern *Thelypteris confluens* (At-Risk Declining) was found on the lake margin in two localities. The Poutō Peninsula is the national stronghold for this species.

The Nationally Critical *Trithuria inconspicua* has not been found since 2012. A survey to ascertain the status of this plant in Lake Humuhumu is recommended.

A lake-locked (non-diadromous) population of the At Risk Declining īnanga (*Galaxias maculatus*), formerly recognised as a different species (*G. gracilis*) restricted to the Poutō lakes, remains abundant in Lake Humuhumu with large schools of this fish commonly seen during dive surveys.

The At Risk Declining torewai (freshwater mussels) were abundant in the lake.

Three nationally threatened species were seen: Nationally Vulnerable grey duck (*Anas superciliosa*) and Caspian tern (*Hydroprogyne caspia*) and Nationally Increasing New Zealand dabchick (*Poliocephalus rufopectus*). At-Risk Declining red-billed gulls (*Chroicocephalus novaehollandiae scopulinus*) and the Coloniser Australian little grebe (*Tachybaptus n. novaehollandiae*) were also seen.

Lake Ecological Value

In 2025, an Ecological Value rating of **Outstanding** was calculated for Lake Humuhumu, with a score of 16, also reported as such in 2021. Lake Humuhumu is currently mesotrophic, with a median TLI of 3.1 over the past 5 years, an improvement from eutrophic status in 2015. The Nationally Critical *Trithuria inconspicua* may have disappeared from this lake, with Lake Rotokawau the only remaining Poutō location of this plant**.**

Threats

Maximum vegetation depth limits were 9 – 10 m in the 1980's and a maximum vegetation depth of 9.7 m (with charophyte meadows present to 9.1 m) was reported in 2021. On all other surveys (including 2025), depth limits have reduced to 7.6 m with increased benthic cyanobacterial mat cover also noted from 2014 onwards, also smothering shallow water plants, which indicates probable nutrient enrichment of groundwater.

This lake has no pest fish, with *Gambusia affinis* found in Lake Rototuna being the closest known source of this pest. No invasive submerged plants of any consequence were present but invasive species would do well in this lake. Introductions of the two most problematic weeds hornwort (*Ceratophyllum demersum*) and egeria (*Egeria densa*), previously both present in the adjacent Lake Roto-otuauru, had presented the most immediate threat as a source of invasive weeds, but the introduction of grass carp for weed control in that lake, has effectively mitigated this threat. Other Poutō lakes are currently impacted by those species although all are under active management.

Management recommendations

Lake ecological monitoring every five years is recommended.

A survey to ascertain the status of the Nationally Critical *Trithuria inconspicua* and the At-Risk Naturally Uncommon *Stuckenia pectinata* is recommended in Lake Humuhumu.