

Aupouri Peninsula

Lake Morehurehu South 2 (Aupouri), NRC Lake No. 36.



Plate 1: Morehurehu South, a coastal dune lake set in sand dunes, scrub and recently harvested plantation pine forest, 2016

Summary

Survey dates 2004, 2006, 2013, 2014 and 2016.

Overall rating

Moderate: with no submerged vegetation and heavily stained water recorded in 2016.

Threats

Pine plantation forestry in a catchment with poor filtering / buffering in the silica sand means this lake is very susceptible to the effects of forestry activities.

Management recommendations

This lake has lost all of its submerged vegetation for the second time in recent years. Kuta is still common on the margins. It requires monitoring to see if the previous species diversity returns.

Description

The lake (1600485E, 6165737N) is small (0.44 ha), and 3.6m deep, with no inflows or outflows. The catchment is 50% mobile sand (southern end) and scrub, with harvested plantation forestry further to the north. Access is through a well-formed track.

Wetland vegetation

Emergent species encircled most of the lake in a band 5 to 10 m wide and were dominated by *Eleocharis sphacelata* growing to a depth of 2.0 m. Oioi (*Apodasmia similis*), *Machaerina teretifolia* and the regionally significant wire rush *Empodisma robustum* were all common marginal species. A population of the sundew *Drosera pygmaea* was observed growing in a lake-side turf.

Submerged vegetation

In 2006, no turf species were recorded but the regionally significant *Triglochin striata* was recorded and charophytes meadows dominated by *Nitella* sp. aff. *cristata* and *Chara australis* were recorded to the lake's maximum depth of 3.6 m. The tall-growing native *Potamogeton cheesemanii* was also abundant (to 1.5 m tall). *U. gibba* was present at high covers to 2.5 m covering indigenous vegetation on the relatively steep sides of the lake. *Utricularia australis* was found in small amounts amongst emergent vegetation.

No significant submerged vegetation was found in 2013, but improved water clarity and corresponding increase in submerged macrophytes were noted in July 2013 (L. Forester pers. com.). *U. gibba* was present at high covers to 2.5 m with *P. cheesemanii* plants extending to 3 m deep.

In 2014, the lake was vegetated to 3.6 m (deepest point) comprised of *Nitella leonhardii*, *P. cheesemanii* and *U. gibba*. No other submerged species were recorded.

In 2016 water clarity was very low and no submerged species were recorded.



Plate 2: Morehurehu South, showing low clarity due to very dark coloured water, 2016. No submerged plants were recorded.

LakeSPI

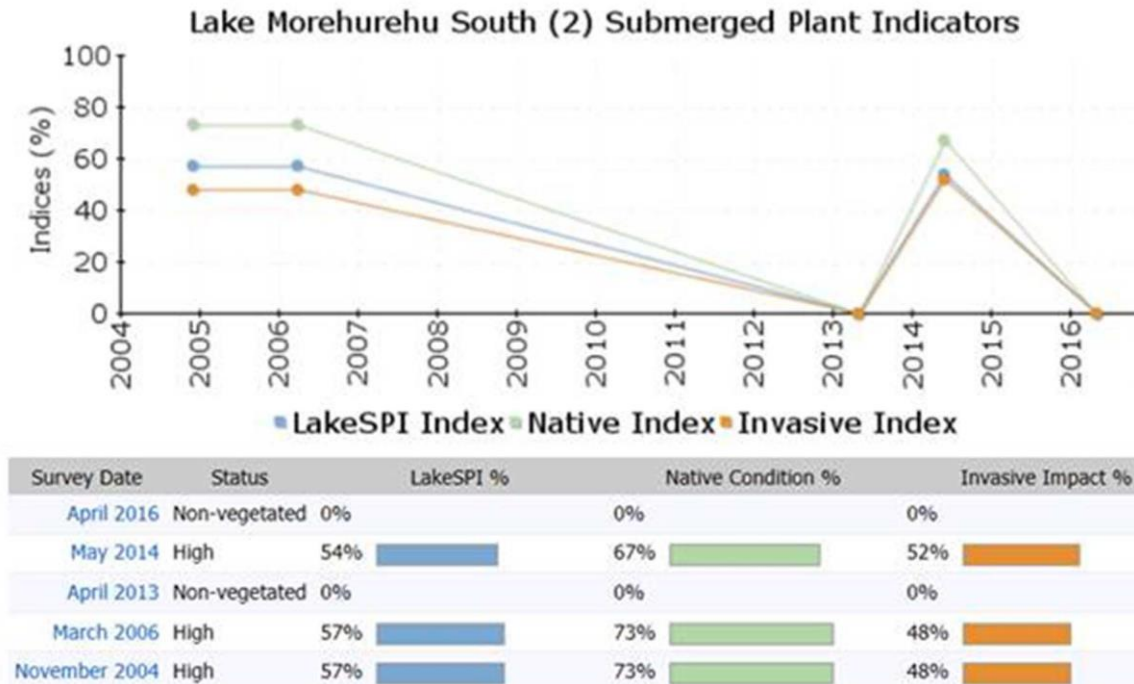


Figure 1: LakeSPI for Lake Morehurehu South 2. Five LakeSPI surveys are recorded. 2013 and 2016 scored 0% due to very low abundance of submerged vegetation.

A decline in water quality occurred around 2013. Since that time, Lake Morehurehu South 2 has fluctuated between a devegetated condition (as was the case in 2016) and re-establishment of submerged vegetation.

Water birds

No birds were seen or heard, but DOC SSBI reported fernbird (*Bowdleria punctata vealeae*).

Fish

Schools of inanga (*Galaxias maculatus*) were observed amongst the emergent vegetation in 2004 and also noted during the July 2013 visit (I. Middleton, NRC, pers. comm.).

Aquatic invertebrates

No mussels or koura were seen.

Endangered species

A population of the Nationally Vulnerable sundew *Drosera pygmaea* was noted in a lake-shore turf. This does not appear to be threatened by current land use. The Nationally Critical *Utricularia australis* is apparently extinct, not being recorded after 2006.

The At-Risk Declining inanga were observed in 2013 and 2014. Connection to Parengarenga Harbour is maintained through the outlet to the north of the lake, allowing migrations of this species.

Lake Ecological Value

Based on the 2006 survey a Lake Ecological Value rating of 10 (High) was calculated. A deterioration in the rating of the following parameters: aquatic vegetation diversity and integrity (essentially a loss of submerged vegetation, with a decline of diversity from 1 to 0 and integrity from 3 to 0) and endangered species (loss of *U. australis*) has resulted in a revised score of 6 (Moderate). Water quality was not measured at this lake but water transparency had declined (Plate 2).

Threats

Water quality impacts from catchment activities of foresters.

The improvement of the access road to facilitate logging has opened up this area increasing the risk of pest introductions.

Management recommendations

Management recommendations are the same as those for Lake Morehurehu. Lake monitoring every three to five years will enable impacts to be documented and potential recovery rates tracked.