

Poutō Peninsula

Phoebe's Lake (Poutō), NRC No. 346.



Phoebe's Lake. Photo taken from the northeastern edge of the lake. Note the invasive species Manchurian wild rice (*Zizania latifolia*) on the mid right (Photo: Paul Champion 11 August 2022).

Summary	Phoebe
Surveyed:	2005, 2017 and 2022.
Overall ranking:	Moderate: A small lake, with indigenous submerged vegetation and a wetland margin.
Threats:	Reintroduction of invasive weeds. Lagarosiphon has been eradicated, but Manchurian wild rice is expanding within the emergent zone of the lake.
Management recommendations:	Continue Manchurian wild rice eradication. Exclude livestock from the lake margins. No further monitoring required.

Description

A small (1.24 ha of open water) dune lake (1696778E, 5981948N), 4 m deep. The catchment is pasture and regenerating bush. There are no inflows or outflows. Access is via a farm race with easy access into the lake. The lake is fenced but the gate had been removed and cattle grazing and damage to emergent vegetation is evident. Water clarity was assessed as 0.6 m in 2022.

Wetland vegetation

In addition to 1.24 ha of open water, the lake has 0.9 ha of emergent wetland surrounding it. Emergent vegetation was dense with raupō (*Typha orientalis*), kuta (*Eleocharis sphacelata*) and *Machaerina articulata* abundant. The native sprawling emergent swamp willow weed (*Persicaria decipiens*) and swamp millet (*Isachne globosa*) were locally forming floating sudds in 2022.

Manchurian wild rice (*Zizania latifolia*) occupied 50% of the margin in 2001 but was targeted for eradication and only small patches of young re-growth were found in 2017. In 2022, this species had markedly expanded in area and height. Permission to control this plant, under the Ministry for Primary Industries National Interest Response Programme, has only recently been gained from the landowners.

Submerged vegetation




In 2022, low covers of *Nitella* sp. aff. *cristata* and *Potamogeton ochreatus* were reported on the three LakeSPI transects. Survey methods were restricted to rake throws and sonar.

In 2017, *Nitella* sp. aff. *cristata* formed dense charophyte meadows to 4.1 m deep with *Potamogeton ochreatus* in dense patches growing to 1.6 m tall. *Utricularia gibba* was common in shallow areas.

This contrasts markedly with 2005 when lagarosiphon (*Lagarosiphon major*) was the dominant species in shallow water forming dense surface-reaching beds extending to 2.6 m water depth. One treatment of endothall eradicated the lagarosiphon, restoring the lake's native condition.

LakeSPI

Lake Phoebe Submerged Plant Indicators

Survey Date	Status	LakeSPI %	Native Condition %	Invasive Impact %
March 2017	High	67% 	79% 	36% 

Lake Phoebe is categorised as being in moderate ecological condition with a LakeSPI Index of 67%.

Water birds

The dense emergent cover provides good habitat for crakes and other secretive water birds and a spotless crake (*Porzana tabuensis tabuensis*) was heard in 2022. Additionally, nearly 100 South Island pied oystercatcher (*Haematopus ostralegus finschi*) were observed on farmland near the lake margin. In 2017, one pair of dabchick (*Poliiocephalus rufopectus*), with over 100 paradise duck (*Tadorna variegata*) and 10 scaup (*Aythya novaezeelandiae*) were seen.

Fish

NIWA FBIS records shortfin eel (*Anguilla australis*) caught in this lake. Golden bell frogs (*Ranoidea aurea*) were common in 2005.

Aquatic invertebrates

None reported. No mussels or koura were found.

Endangered species

A spotless crane (*Porzana tabuensis tabuensis*), heard at the lake in 2022, is classified as At-Risk Declining. A resident pair of At-Risk Recovering dabchick (*Poliiocephalus rufopectus*) were seen in 2017.

Lake Ecological Value

Lake Phoebe has an improved Lake Ecological Value score of 7 “Moderate”, due to an increased Native Condition Index resulting from lagarosiphon eradication.

There has been less grazing around the lake, it has been fenced off and there has been a notable increase in native vegetation on the hills around the lake. However, evidence of cattle damage to emergent vegetation was seen in 2022.

Threats

Further introductions of invasive species of plants and pest fish are unlikely, due to controlled access on private land behind a locked gate. Manchurian wild rice is an expanding component of the emergent vegetation of the lake.

Livestock access to the lake should be prevented.

Management recommendations

Continue the Manchurian wild rice eradication from Lake Phoebe. No further monitoring required.