8. Weed surveillance programme 2009

8.1 Introduction

The 2005 Northland Lakes Assessment (Champion et al. 2005) developed a surveillance strategy for invasive weeds in prioritised water bodies. Lakes identified for annual surveillance were Lakes Ngatu, Wahakari, Waiporohita, Kai-iwi, Taharoa, Waikere, Humuhumu, and Rotokawau. These lakes were monitored for weed incursions in 2006, 2007, and again in 2008 with the exception of Lake Wahakari in 2007 to which access was not obtained from the owners at that time. As boat access to Lake Wahakari is now effectively prevented, this lake is no longer a high-risk and lake ecological condition monitoring every 5 years is recommended as the only monitoring required.

8.2 Methods

Annual surveillance was undertaken for seven high-risk lakes (Table 1).

Lakes were surveyed using scuba and snorkel, targeting sites where introductions would be most likely, such as known access points and popular anchoring spots. The areas were inspected thoroughly throughout the vegetation profile at depths where colonisation was likely to occur. Where large areas required surveillance, a diver was towed behind a boat to cover all likely sites of colonisation.

The lake margins were also walked and checked for drift of weed fragments on shore and marginal vegetation also checked for emergent and sprawling wetland weeds both from the landward edge (where possible) and by boat.

Table 1: Submerged weed surveillance programme for Northland lakes (Champion et al. 2005).

Lake and No.	Surveillance programme	Frequency
Ngatu (120)	Survey boat ramp area and access points on eastern and southern margins	Annually
Waiporohita (99)	Survey roadside access point on eastern margin to north end by the road	Annually
Kai-iwi (236)	Survey access point at NE end	Annually
Taharoa (229)	Survey access points at camp grounds, jetty, and Sin Bin.	Annually
Waikere (227)	Survey boat ramp area and roadside access points on western margin	Annually
Humuhumu (350)	Survey access point (NE side)	Annually

8.3 Results and discussion

Lake Ngatu (2009)

The shallow bay out from the main access point for Lake Ngatu, at the north end of the lake off West Coast Road (2529000E 6683000N), had changed from 2007 to 2008 with most of the bay (estimated at 2-3 ha) with about a 70% cover of lagarosiphon up to about 1 m tall. This area of lagarosiphon extended >200 m from the ramp and was mostly less than 2.5 m deep. In 2009 there was less lagarosiphon, with a cover of about 40% estimated for the same area.

In the Southwest of the lake where waka ama are launched, the lagarosiphon grew from 0.3 m to 2.5 m deep in clumps with up to 100% cover but overall with a low cover (<5%) for the area. This area extended south to the sandy beach.

The beach at the south end of the lake was also re-checked. At the eastern end of the beach (2528960E 6684870N) lagarosiphon formed a bed with a 100% cover from the edge of the *Eleocharis sphacelata* bed to a depth of 2.5 m and extended into the *E. sphacelata* with a 50% cover.

It was evident that the lagarosiphon had not increased in abundance to any significant extent since surveyed in 2006. In fact it has reduced in abundance possibly due to smothering from *Utricularia gibba* which forms extensive smothering growths on the lagarosiphon. Eradication of lagarosiphon in Lake Ngatu would be a major undertaking and would require a concerted programme of diquat herbicide use, suction dredging and hand weeding and has a low chance of success. However recent trials

with endothall near Invercargill, have shown it can kill lagarosiphon, including the root crowns. Preliminary results suggest it may be a tool that could achieve eradication of lagarosiphon.

Currently the lagarosiphon present in the lake is not causing a nuisance to recreation but it is a well used lake and could potentially provide a source of weed fragments for dispersal to other weed-free lakes. Information displayed on signage for boaters would be a useful way to inform users that any weed fragments could pose a significant risk to the next water body they visit. Advice on cleaning boats, boating equipment and trailers should be included on the signage. The lake currently still has no elodea, egeria or hornwort present, and all are potential weeds (particularly hornwort) that could markedly impact on the ecological and recreational values lake.

The pest fish, perch (*Perca fluviatilis*), was noted in Lake Ngatu during surveillance and this fish being piscivourous threatens the land-locked inanga.

Lake Waiporohita (2009)

The eastern shore of the lake was checked for submerged weed drift fragments and marginal weeds including monitoring the spread of alligator weed. A newly recognised rush *Juncus polyanthemos* was collected in the marginal vegetation. It is likely to be a new naturally introduced species from Australia similar to *Gratiola pedunculata* and *Alternanthera denticulata*, both also present at this lake.

No new weeds were found in 2009 (including *U. gibba* not seen here), and alligator weed was still confined to the old boat launching site (north corner by the road) and adjacent areas amongst raupo at the north eastern edge of the lake.

Access to the lake has been facilitated by removal of a fence along the eastern side enabling trailer boat access from the road. Water clarity was reasonable (~1.5 m) for this lake and submerged vegetation was checked by snorkel and SCUBA. No submerged invasive weeds were detected.

Lake Kai-iwi (2009)

The boat access point useable by 4-wheel drive in 2005 (25701100E 6598580N) was inaccessible in 2006 with a low pole fence in place. In 2007 this restriction had been relaxed and access was again possible but restricted by a locked gate from 2008. Scuba divers and snorkelers made two passes of the shoreline up to 150 m either side of the old access to cover the depth range to 5 m. One further dive was made out from the old boat launching site to beyond 6 m water depth. No invasive species were found. *Utricularia gibba* was found amongst emergent vegetation on the north eastern shore, also located in a wetland opposite the access to Lake Taharoa and in pools near

that lake. The first record of this species in the Kai Iwi Lakes was in 2008 and it had increased in abundance in 2009.

Lake Taharoa (2009)

At the beach launching site for boats (2568960E 6598645N) near the beginning of Domain Rd, about 400 m of the shoreline was searched for invasive weed with towed scuba divers and snorkelers covering the 0 - 10 m depth range. No invasive weed was found except for a small amount of *U. gibba* in the shallows nearby (while doing the shoreline search).

The camping ground beach at the eastern end of the lake (2570410E 6599045N), which is used for boat launching and mooring, was checked. About 500 m of the shore was checked and was mostly bare sand on the shallow shelving beach with suitable habitat at about 7 to 9 m deep. Scuba divers were towed along this upper vegetated depth limit. Visibility was good and native vegetation low growing, enabling large areas to be effectively searched rapidly. No invasive species were found.

At the Peninsula boat launching area (2568375E 6599495N), a section of shoreline about 250 m long, was checked by towing scuba divers. Also the other side of the Peninsula, in the Sin Bin area (the most southern part of the northwest bay), was searched. No invasive species were found.

Lake Waikere (2009)

The shoreline 200 m either side of the concrete boat ramp (2567290E 6600270N) was searched by a scuba divers and two towed snorkelers. The water was very clear so snorkelers could see well into 8 m of water. No invasive weed species were found except for a small amount of *U. gibba* by the marginal rushes.

In the southeast bay of the lake (2567725E 6599910N), about 400 m of shoreline was checked by towing two snorkelers. Conditions were very still and water clarity very good so rapid inspection was possible. No invasive weed species were found.

Lake Humuhumu (2009)

The access at the eastern side of the lake was checked by 3 scuba divers and 3 snorkelers covering about 300 m of shoreline and out to the 6 m depth contour. Alligator weed was still present amongst the marginal vegetation, and it had spread a little. No invasive submerged weedy species were found apart from small amounts of *U. gibba* found in very shallow water at the landward margin of emergent plants.