

# Te Waikai Otaota: Tikanga Whakapāpā

## **Spray Notification Protocol for Rotorua Te Arawa Lakes Aquatic Weed Management**

**Koheri ra! Kohera e!**  
**Tutapa mai nuku, tutapa mai whiti**  
**Kia rongo te pō, kia rongo te ao**  
**Kia pā tata mai tō hau manawa**  
**Ki tōku aronga manawa**  
**Hai puta ki te whai ao, ki te ao mārama**  
**Tihē Mauri Ora!**  
**Toitū te wai,**  
**toitū te whenua,**  
**toitū Te Arawa**



## 1. Document Purpose

This protocol outlines the public notification standards for aquatic weed spraying in the Rotorua Te Arawa Lakes, as part of Rotorua Te Arawa Lakes Aquatic Weed control programme. Its purpose is to ensure that all reasonable steps are taken to inform the public and stakeholders of control operations and any associated rāhui (temporary restrictions) or stand-down periods. Public notification is delivered through a range of methods and channels including:

- Warning signs at key public access points
- Radio announcements
- Print advertisements in local newspapers
- Email and letter notifications to interested parties
- Written notifications to owners of consented water takes
- Website updates and social media posts

## 2. Who manages lakeweed control in the Rotorua Te Arawa Lakes

Te Arawa Lakes Trust (TALT) are the vested owners of the lakebeds of the Rotorua Te Arawa Lakes on behalf of Te Arawa hapū and iwi. The Deed of Settlement returned ownership of the lakebeds to Te Arawa but specified that Te Arawa are not responsible or liable for weeds attached to the lakebed.

The Crown owns the stratum (the space above the lakebed) and retained the responsibility for managing aquatic weeds. Toitū Te Whenua Land Information New Zealand (LINZ) manages this work on behalf of the Crown.

LINZ works in partnership with TALT and provides funding to support aquatic weed control in the Rotorua Te Arawa Lakes. Further funding is also provided by Bay of Plenty Regional Council under the Regional Pest Management Plan to ensure total eradication of Hornwort (*Ceratophyllum demersum*) from Lake Ōkataina and Lake Ōkāreka.

## 2.1 Lakes included in the programme

Management of aquatic weeds within the Te Arawa Lakes currently occurs in up to 8 lakes listed below on a biannual basis;

- Lake Rotorua
- Lake Rotoiti
- Lake Rotoehu
- Lake Rotomā
- Lake Ōkataina
- Lake Ōkāreka
- Lake Tarawera
- Lake Rerewhakaaitu

## 2.2 Target aquatic weed species

The Rotorua Te Arawa lakeweed control programme targets four of New Zealand's worst aquatic weed species: *Ceratophyllum demersum* (hornwort), *Egeria densa*, *Lagarosiphon major* and *Elodea canadensis*. Left uncontrolled, these species pose a significant threat to the ecological health, recreational value, and cultural significance of the Te Arawa Lakes. These aquatic weeds can form dense surface reaching weed beds that smother native plant communities, degrade habitats and water quality, inhibit traditional cultural practices and interfere with recreational activities such as swimming, boating, and fishing.



**Figure 1: Invasive weeds (from left) *Elodea canadensis*, *Lagarosiphon major*, *Egeria densa* and *Ceratophyllum demersum* (hornwort).** Photo credit – NIWA.

These aquatic weeds spread primarily through fragmentation, often as a result of human activity. Plant fragments can easily attach to boats, trailers, and fishing gear, and when transported to new waterways, even the smallest pieces of weed are capable of establishing new infestations. Currently these weeds are known to be in:

Lake	Lake size (Hectares)	Weeds present
Rotomā	1100	Lagarosiphon, Elodea
Ōkāreka	340	Lagarosiphon, Elodea
Ōkataina	1080	Lagarosiphon, Elodea
Rotorua	7980	Hornwort, Egeria, Lagarosiphon, Elodea
Tarawera	4130	Hornwort, Egeria, Lagarosiphon, Elodea
Rotoiti	3400	Hornwort, Egeria, Lagarosiphon, Elodea
Rotoehu	800	Hornwort, Lagarosiphon, Elodea
Rerewhakaaitu	530	Lagarosiphon, Elodea, Egeria

Table 1: Summary of Lake Sizes and Invasive Weed Species Present

### 3. How lakeweed control priorities are set

Decisions about which lakes, and which specific areas within the lakes, are treated for aquatic weed control are determined by Aquatic Pest Coordination Group (APCG). This group includes representatives from Te Arawa Lakes Trust, Toitū Te Whenua Land Information New Zealand, Toi Moana Bay of Plenty Regional Council, Rotorua Lakes Council, Eastern Region Fish & Game, and the Department of Conservation. Scientific and technical advice is provided by specialist organisations, including universities and Earth Sciences New Zealand.

Pre-spray surveys are carried out by an independent dive contractor, who maps the location, density, and condition of invasive weeds. Using these survey results, draft control plans are prepared and then reviewed by the APCG before the final spray programme is approved.

Because funding for lakeweed control is limited, priority is given to areas with high cultural, recreational, or environmental value. This includes boat ramps, sites of cultural importance, high-use swimming and boating areas, and locations where conditions increase the likelihood of weed fragments washing up onto shorelines. Additional areas may be included when resources allow.

Aquatic weed control is typically undertaken twice per year: the first spray round in November, ahead of the busy summer season, and a second round in March.

## 4. Aquatic herbicides

Diquat dibromide, more commonly known as diquat, is one of only two herbicides approved for use in New Zealand. It has been used in the Rotorua Te Arawa lakes since 1960 though both boat-based and aerial applications. Diquat is a selective herbicide that controls invasive weeds when it comes into contact with the leaves and stems of plants. At approved rates, most native plants and fish are unaffected by diquat in the rates at which they are applied. Diquat has been used in freshwater systems for more than 60 years, with no identified negative impacts on native aquatic plants and animals.

At the concentrations applied during aquatic weed control operations, diquat poses no risk to human health. However, as a precautionary measure, it is recommended that lake users avoid swimming, fishing, or consuming water in treated areas for 24 hours following application.

For further information on diquat, including safety and environmental guidance, please refer to the attached NIWA fact sheet: [Diquat FAQs A4.indd](#)

Endothall-dipotassium (commonly known as endothall or under the product name Aquathol K) is the second herbicide approved for aquatic use in New Zealand. Although it has not historically been used in the Rotorua Te Arawa Lakes, it is effective against several key invasive weed species, particularly Lagarosiphon and Hornwort, and may be considered for use where appropriate under existing resource consent conditions

## 5. Resource consents

Consent for the use of diquat to control aquatic weeds within the Te Arawa Lakes has been granted by the Bay of Plenty Regional Consent Number: 68367-AP.

Consent for the use of endothall to control aquatic weeds within the Te Arawa Lakes has been granted by the Bay of Plenty Regional Consent Number: RM16-0520-AP.

Consent conditions are regularly reviewed and checked by BOPRC consent officers.

Te Arawa Lakes Trust holds the supply contracts for the chemicals used and with the contractors who deliver the programme.

## 6. Notifications

Prior to any boat-based or aerial aquatic weed spraying, a range of public notification channels will be used to inform lake users of the planned herbicide treatment.

Notifications will be provided to mana moana who are the traditional custodians of each water body, owners of nearby consented water takes, neighbouring landowners, district and regional councils, advocacy groups, and the wider local community.

### 6.1 Warning signage

Warning signs will be installed at key public access points adjacent to planned treatment sites, including boat ramps, swimming areas, and popular recreational bays. These signs will clearly identify the treatment area, provide information on the herbicide, and outline relevant safety guidance.

Signs will be erected one day prior to scheduled aquatic weed control operations and will remain in place for a minimum of 24 hours following treatment. Once the stand-down period for swimming, fishing, and water collection has lapsed, signs will be removed.

Figure 2 provides an example of the signage that will be used. Each sign will include:

- Proposed treatment dates and locations
- Herbicide label recommendations for rāhui or stand-down times
- Target weed species, application method, and hazard classification of herbicide
- Contact methods for public enquiries during business hours



**Figure 2.** An example of a warning sign that will be erected at key access points to high risk and high amenity areas near application areas.

A signage register is maintained to record the location of each sign, along with the dates of installation and removal.

A full list of treatment sites and corresponding signage locations will be detailed in the Annual Operational Plan, including a map of sign placements. These operational plans are publicly available and can be accessed via <https://www.linz.govt.nz/our-work/crown-property-management/biosecurity-and-biodiversity/biosecurity-control-work/current-and-upcoming-control-work> .

## 6.2 Radio announcements

Radio announcements will be broadcast on Te Arawa FM at least one week prior to the scheduled aquatic weed control operations. These notifications will inform the public of:

- Proposed treatment dates and locations
- Herbicide label recommendations for rāhui or stand-down times
- Contact methods for public enquiries during business hours

## 6.3 Print advertisements in local newspapers

Public notices will be placed in the *Rotorua Daily Post* at least one week prior to the scheduled aquatic weed control operations. These advertisements will include:

- Proposed treatment dates and locations
- Herbicide label recommendations for rāhui or stand-down times
- Target weed species, application method, and hazard classification of herbicide
- Contact methods for public enquiries during business hours

## 6.4 Email and letter notifications to interested parties

Email and/or letter notifications are sent to key stakeholders, including district and regional councils, community groups, relevant businesses, schools, and affected individuals, at least one week prior to the proposed aquatic weed control dates. Updates on timing are also provided throughout the control operations and upon completion of the application.

Each notification includes:

Description of the control area?

- Proposed treatment date (range)
- Herbicide label recommendations for rāhui or stand-down times

- Target weed species, application method, and hazard classification of herbicide
- A contact number for public enquiries during business hours

Members of the public who wish to receive email notifications about future spray operations can request to be added to the distribution list by contacting the programme team via [aquaticweed@tearawa.iwi.nz](mailto:aquaticweed@tearawa.iwi.nz)

## 6.5 Notifications to owners of consented water takes

Consented water takes within 200 metres of control works will be identified using the Bay of Plenty Regional Council's consent database. All landowners adjacent to treatment sites will be notified at least seven days in advance to ensure those with permitted water takes can take appropriate precautions.

Notifications include:

- Proposed treatment dates and location
- Herbicide label recommendations for rāhui or stand-down times
- Target weed species, application method, and hazard classification of herbicide
- An option to discuss how spraying can be managed to avoid contamination of water supplies. Mitigation options may include temporarily disabling the water take or choosing not to treat the proposed control site

## 6.6 Website updated and social media posts

Updates will be shared via Te Arawa Lakes social media platforms at least three days prior to scheduled aquatic weed control operations, with daily updates provided throughout the treatment period. Written and video content is developed by Te Arawa Lakes Trust and once published, links are distributed to stakeholders for wider sharing.

Spray notifications are also published on the Land Information New Zealand website at <https://www.linz.govt.nz/our-work/crown-property-management/biosecurity-and-biodiversity/biosecurity-control-work/current-and-upcoming-control-work>, providing up-to-date information on current and upcoming control activities across lakes and specific sites. This includes:

- Scheduled date of control
- Actual date of treatment
- Status of the site regarding swimming, food gathering, and water collection for irrigation or domestic use

## 6.7 Public enquiries

Members of the public who have concerns or questions about aquatic weed management operations are encouraged to contact the programme team via email at [aquaticweed@tearawa.iwi.nz](mailto:aquaticweed@tearawa.iwi.nz)

Feedback may also be submitted using the Te Arawa Lakes Trust Weed Spray Feedback Form (see Appendix 2). Completed forms can be returned in person to Toi Ohomai Institute of Technology, Mokoia Campus, 1 Mokoia Drive, Rotorua, or emailed to the address above.

All feedback is reviewed by the Te Arawa Lakes Trust Health and Safety Officer. Enquiries are responded to during business hours as promptly as possible and are logged to support future reference and continuous improvement of the programme.

## Appendix 1: Priority sites by lake

The following table outlines priority sites and target species for control within each lake under the Te Arawa Lakes Aquatic Weed Management Programme. A full list of planned activities is published each financial year in the Annual Operational Plan.

Lake	Species Present	Priority Control Sites
<b>Lake Ōkāreka</b>	- Lagarosiphon - Elodea	- Southern Outlet - Bird Walkway Bay - Acacia Bay - DOC Camp - Little Boyes Beach - Horseshoe Bay Jumping Rock -
<b>Lake Ōkataina</b>	- Lagarosiphon - Elodea	- Log Pool Stream / Waipungapunga - Otangimoana Bay - Dogger Bank/Ōruaroa Bay - Kaikākahi Bay - Tauranganui Bay / Boat Ramp - Motuwhetere - Motuwhetere previous weed cordon area - Haumingi Bay - Paremata Bay
<b>Lake Rerewhakaaitu</b>	- Lagarosiphon - Elodea - Egeria	- Homestead Arm
<b>Lake Rotoehu</b>	- Hornwort - Lagarosiphon - Elodea	- Ōtautū Bay - Kennedy Bay
<b>Lake Rotoiti</b>	- Hornwort - Egeria - Lagarosiphon - Elodea	- Gisborne Point / Punawhakareia Bay - Te Ruatō Bay - Hauparu Bay - Ōkahutoroa Bay / Cherry Bay - Ōkawa Bay - Te Weta Bay - Te Tī Bay - Ōtaramarae Boat Ramp - Ōkere Inlet - Kakaho Bay

		<ul style="list-style-type: none"> <li>- Tapuaekura Bay</li> <li>- Te Waiiti Stream</li> <li>- Wairau Bay</li> <li>- Tokerau Bay</li> <li>- Wairau Bay</li> <li>- Te Ārero Bay east</li> <li>- Teal Bay</li> <li>- Te Akau Peninsula</li> <li>- Hinehopu</li> </ul>
<b>Lake Rotomā</b>	<ul style="list-style-type: none"> <li>- Lagarosiphon</li> <li>- Elodea</li> </ul>	<ul style="list-style-type: none"> <li>- Whangaroa Inlet</li> <li>- Merge Lodge Boat Ramp</li> <li>- Mātahi Spit Boat Ramp</li> </ul>
<b>Lake Rotorua</b>	<ul style="list-style-type: none"> <li>- Hornwort</li> <li>- Egeria</li> <li>- Lagarosiphon</li> <li>- Elodea</li> </ul>	<ul style="list-style-type: none"> <li>- Kawaha Point</li> <li>- Lakefront</li> </ul>
<b>Lake Tarawera</b>	<ul style="list-style-type: none"> <li>- Hornwort</li> <li>- Egeria</li> <li>- Lagarosiphon</li> <li>- Elodea</li> </ul>	<ul style="list-style-type: none"> <li>- Otumutu Lagoon</li> <li>- Te Rātā Bay / Hot Water Beach</li> <li>- Wairua Hotpool</li> <li>- Boatshed Bay / Kāriri Point</li> <li>- Kōtukutuku Bay / The Landing</li> <li>- Stoney Point</li> <li>- Rāpatu Bay</li> </ul>

## Appendix 2: Feedback form

### **Contact details**

Name:	
Contact Number:	
Email address:	
Postal address: (optional)	
Signature: Date:	

### **Location of interest:**

Method of application:	Yes/No
Boat	
Helicopter	
Manual (knapsack)	

### **Feedback:**