Rotorua Te Arawa Lakes Programme

Snapshot of Progress 2012-2013

Successes for 2012-2013

- Hamurana sewerage scheme completed with 525 households connected removing nearly six tonnes of nitrogen from the lake annually
- Completed zeolite trial to test best option for removing nitrogen from geothermal sources in Lake Rotorua
- Established the Lake Rotorua Stakeholder Advisory group to provide insight, advice and recommendations for development of rules and incentives for Rotorua catchment
- Launched new programme website www.rotorualakes.co.nz
- Renewed University of Waikato Chair of Lakes Management and Restoration to provide science support and knowledge for programme
- Lakes Rotoiti and Rerewhakaaitu met their water quality targets
- Completed 501 hectares of planting for land use change agreement in Lake Rotoehu catchment removing four tonnes of nitrogen
- Seven detainment bunds installed in Lake Rotorua catchment to trap phosphorus in storm events
- Successful initial trialling of aeration devices in Lake Rotoehu

ROTORUA TE ARAWA LAKES PROGRAMME

The Rotorua Te Arawa Lakes Programme is responsible for meeting water quality targets in 12 Rotorua Lakes. Great achievements were made in the last year to help improve and protect water quality in our lakes.

The targets

Our work is to meet the community's aspirations for water quality in each lake. These have been set with the community based on a point in time when people were happy with the water quality.

Our targets are based on a water quality measure called the Trophic Level Index. An annual average of this index is used to measure progress made towards protecting and improving the Rotorua Te Arawa Lakes and meeting the community's expectations.

Water quality results

Positive water quality results were achieved in the last year. Lake Rotoiti met is water quality target for the first time and had the best water quality since monitoring began. Lake Rerewhakaaitu also met its water quality target. Of the 12 lakes, eight showed water quality improvements from the previous year. This is a fantastic achievement.

While these results are very promising it is important to look at the long-term trend of water quality in each lake. This is because many factors such as climatic conditions all play a part in affecting water quality. The long-term trends also show positive results with six lakes having a long-term trend of improving water quality and three lakes are stable.

All our actions aim to reduce or treat the amount of nutrients in the lakes. In-lake actions, such as weed harvesting, provide short-term and quick improvements on water quality. As soon as we stop these actions we risk allowing water quality to decline again. For long-term sustainable improvements changes are required to reduce the nutrients entering the lake. It is important to understand that these type of actions will not provide an immediate result and their effect on water quality will take time.

Image - Lake Rotorua wetland

Rotorua Te Arawa Lakes water quality trend

Lake Rotorua

Great achievements have been made for Lake Rotorua and the water quality continues to be the best it has been in decades. While the annual water quality index declined slightly over the last year, it is still very close to meeting its water quality target. This is primarily due to successful in-lake interventions, climate conditions and some on-farm changes.

The key to long-term sustainable water quality will be reducing nutrients from land-use. A Stakeholder Advisory Group was formed with representatives from the pastoral, water quality, forestry and iwi sectors. This forum has made significant progress to agree to an approach for rules and incentives for the Lake Rotorua catchment to reduce nitrogen from pastoral land-use.

Lake Okareka

Lake Okareka's water quality improved last year and all actions have been completed including land-use change agreements and sewerage reticulation. Further monitoring will inform if additional interventions are needed.

Lake Tikitapu

All actions in the Action Plan have been completed for Lake Tikitapu. The lake almost reached its target and continued the trend of improving water quality.

Lake Rotokakahi

The long-term trend for water quality in Lake Rotokakahi is declining. An Action Plan will be developed with the lake owners.

Lake Okaro

Water quality in Lake Okaro has fluctuated over the last 10 years. A prolonged algal bloom and health warning has been in place since July 2012. All actions in the action plan have been completed.

Lake modelling will be undertaken during the next year to understand why there has been a decline in water quality since briefly meeting the target in 2010.

Improving | Stable | Declining | Investigation needed

Lake Rotoehu

Water quality in Lake Rotoehu continues to improve and our actions over the last few years including land-use change agreements, phosphorus locking and wetlands have helped contribute to this result. Last year nutrient levels in the lake were the lowest they have been in the last twenty years.

Exciting aeration trials occurred in Lake Rotoehu. Compressed air was pumped into the lower levels of the lake to mix up the lake waters. This will help prevent the lake water losing oxygen which leads to nutrients on the bottom of the lake being released back into the water causing algal blooms. Further testing will be conducted over the next year and information from these trials will be used to determine how this innovative solution may be transferred to Lake Rotorua.

Lake Rotoma

Water quality improved in Lake Rotoma in the last year. An Action Plan is being implemented with the key action of sewerage reticulation. This is on hold until the options for upgrading the Waste Water Treatment Plant are resolved.

Lake Rotoiti

In 2013 Lake Rotoiti had the best water quality in decades and met its water quality target for the first time. Our actions of the Ohau Diversion Wall and sewerage reticulation have improved water quality. The only outstanding item is the Gisborne Point sewerage reticulation.

Lake Okataina

Lake Okataina's water quality improved over the last year. The Action Plan was adopted in April 2013 and has three main actions, including land-use change, looking into pest control options for the catchment and the investigation of the impact that the native bush understory may have on water quality.

Lake Tarawera

Over the last year important work was completed to progress the Action Plan for Lake Tarawera. The lakes nutrient budget and geological model were completed, both of which will help determine the interventions needed to improve water quality.

While water quality improved over the last year, the long-term trend of water quality for Lake Tarawera is declining.

Lake Rotomahana

The long-term water quality trend for Lake Rotomahana is stable. No actions were undertaken as Lake Rotomahana has not triggered the need for an Action Plan. We will continue to monitor the lake and if this changes an Action Plan will be developed in consultation with the community.

Lake Rerewhakaaitu

Lake Rerewhakaaitu was below its water quality target in 2013. Nitrogen levels in the lake have decreased over the last six years.

The Rerewhakaaitu Farmers are developing their own catchment plan, with our support to improve lake water quality. A lot of work has already been undertaken which has contributed to the improved water quality. The primary focus of the catchment plan is to prepare and implement nutrient management plans for each farm. Farmers have committed to undertake all actions by 2015.

Proud Partners

DESTINATION ROTORUA
ROTORUA DISTRICT COUNCIL

TE ARAWA LAKES TRUST

Bay of Plenty REGIONAL COUNCIL

ROTORUA TE ARAWA LAKES PROGRAMME

For more information call 0800 884 880 or rotorualakes.co.nz

Innovative solutions and research for water quality

University of Waikato research funding

Science and research are critical for the protection and restoration of our lakes. Through innovation, science and technology we are leading the way in lakes water quality management.

The agreement with the University of Waikato for the Chair in Lakes Management and Restoration was renewed to 2017. This will provide crucial science support and knowledge to determine the best interventions to use on each lake and to confirm the effect each intervention is contributing to improving water quality.

Helping to protect our native fish

Promising progress has been made in protecting Koaro, a native freshwater whitebait species. Koaro were once abundant in the Rotorua Te Arawa Lakes but their numbers have declined due to a variety of reasons including the introduction of trout, reduced water quality and habitat disruption.

A collaborative effort between Ngati Rangiwewehi, Te Arawa Lakes Trust, Bay of Plenty Regional Council, Fish & Game, Department of Conservation, NIWA and the Hamurana Springs Incorporated Society has implemented a restoration plan to prevent further decline of this whitebait species.

A trout barrier installed in Hamurana Springs prevents trout from entering an area of the stream to provide a safe breeding area. Monitoring has indicated some promising results with the numbers of koaro increasing providing hope that the koaro population will continue to breed and grow in size.

Innovation contest for land use

We are renowned for our innovative in-lake interventions. But the focus for some of our lakes needs to shift from short-term in-lake interventions to changes on land to reduce the nutrients entering the lakes. This will help ensure sustainable improvements to water quality.

Lake Rotorua needs significant nutrient reductions (320 tonnes of nitrogen) to improve water quality in the long-term. To achieve this, pastoral landowners need to reduce their nitrogen exports by around half. This is a substantial reduction and we will need all the tools possible in our toolbox to ensure the outcome is a thriving rural economy and a clean lake.

To provide landowners with economically viable options we are looking for some kiwi ingenuity and innovation. In partnership with Grow Rotorua we will be running a 'Rotorua Land Innovation Challenge' from October 2013. This will help source alternative and practical land uses for Rotorua landowners to help achieve the nitrogen reductions needed for water quality.

What's next?

The focus for the next 12 months includes:

- Continue work with the Stakeholder Advisory Group to develop rules and incentives to reduce nutrients from the Lake Rotorua catchment
- Construct a retention dam for Lake Okaro to reduce peak storm flows to the lake
- Progress Action Plans for Tarawera and Rotokakahi
- Develop options for the Waste Water Treatment Plant upgrade in consultation with the community
- Complete Tikitere De-nitification Plant trials and determine best option for nitrogen removal from geothermal sources
- Continue aeration trials on Lake Rotoehu
- Negotiate land-use change agreements in Lake Rotoehu catchment.