ROTORUA TE ARAWA LAKES PROGRAMME

Annual Report 2015-2016

Proud Partners

ROTORUA LAKES COUNCIL

BAY OF PLENTY REGIONAL COUNCIL TOI MOANA

TE ARAWA LAKES TRUST

With funding from

Ministry for the Environment
Manatū Mō Te Taiao

Contents

Purpose

The purpose of this document is to report progress against the 2015-2016 Annual Work Programme of the Rotorua Te Arawa Lakes Programme (the Programme), for the year ending 30 June 2016. This report is in accordance with Clause 5.1 and 5.2 of Deed of Funding with the Crown, for the Programme.

In this report, progress made on individual interventions is reported against the Annual Work Programme commitments. The overarching goal of the Deed of Funding Agreement is to meet community aspirations for water quality in the four Deed Funded lakes: Rotoiti, Rotorua, Ōkāreka and Rotoehu. Each of these lakes has a target water quality set by the community in the Bay of Plenty Regional Water and Land Plan. This target water quality is set by Trophic Level Index (TLI) and this report provides an update on the status of water quality across the Rotorua Te Arawa Lakes, against the targets set for all lakes, Deed and non-Deed funded.

While this report focusses on providing all operations and support work undertaken for Deed Funded lakes, an update on work on non-Deed funded lakes is also provided.

Overview

Good progress has been made across a number of interventions within the Rotorua Te Arawa Lakes Programme during the financial year, particularly on Lake Rotorua. However, a significant underspend has resulted, mostly associated with the Lake Rotorua Incentives Scheme.

The Programme is continuing with its short term interventions on Lake Rotoehu and Lake Rotorua, while the long term interventions of land use change in those catchments takes effect. It has previously been reported that all interventions for Lake Ōkāreka have been completed as set out in the action plan for the lake. However, the TLI for the lake remains slightly above its target (although improved this year), so the Programme is commencing a project to secure further land use change in the catchment, to see if this can be shifted further.

Lake Rotorua 2015-2016

RLC or BOPRC Annual Plan Budget ($000)	Actual Year To Date Expenditure ($000)	Approved Crown Funding ($000)	Crown Funding Received ($000)	Crown Funding Applied to Date ($000)
$5,782,000	$1,782,564	$2,891,000 (includes AWP amendment)	$1,466,000	$891,000

Excellent progress has been made with the Advice and Support Service for the Lake Rotorua catchment this financial year. The Advice and Support Service is established to produce and fund Nitrogen Management Plans and provide business decision making support, to those landowners affected by Proposed Plan Change 10. Proposed Plan Change 10 places nitrogen discharge restrictions on properties in the Lake Rotorua Catchment.

The Advice and Support Service is now fully embedded and at the end of the financial year, there were over 80 properties signed up to the Service, most of whom registered during the year. This sign up represents approximately 50% of those properties over 40 hectares in the catchment (require resource consent by 2017) and approximately 11% of those properties between 10-40 hectares in the catchment (require resource consent by 2022).

At the end of the year, there were 11 Nitrogen Management Plans completed, 34 Nitrogen Management Plans under development and a further 32 Current State Assessments in progress (these assess the nitrogen loss of the farming operation to determine contents of Nitrogen Management Plan). Eleven landowners have chosen not to proceed to the next stage of the service, for reasons including:

- the Current State has shown that the landowner complies with the low intensity threshold and therefore does not require a Resource Consent (or a Nitrogen Management Plan),
- the landowner wishes to wait for more certainty around the Plan Change 10 before proceeding,
- the property cannot be modelled in Overseer, and
- the property has been sold during the Advice and Support process.

Staff are also extremely pleased with the progress of the **Lake Rotorua Gorse Conversion Scheme** this financial year, which has secured 2,590 kg of nitrogen from three agreements, covering 74 hectares of gorse. Gorse control has been undertaken on all of these properties and final conversion including planting will occur over the next 12 months. Another four agreements for approximately 1,155 kg of nitrogen across 33 ha have also been negotiated and are currently with landowners for signing. The target set in the Annual Work Programme for the Gorse Scheme (7 tonne) was a stretch target and in hindsight, far too difficult to achieve in one year. Recent estimates from analysis of aerial photography suggest that there is approximately 518 hectares (18,130 kg) of gorse land which is eligible for the Gorse Scheme in the catchment. This area includes gorse that is not currently considered to be managed by succession through an existing environmental agreement, or by plantation forestry. That area of gorse is approximately 303 hectares (10,605 kg), taking the current total in the catchment to 821 hectares (28,735 kg). Gorse cover in the catchment will remain transient and changeable; the overall aim of the Gorse Scheme is to ensure that all gorse in the Lake Rotorua Catchment is managed in to the future.

During the year a Decision Making Framework for first round of decision making for the **Low Nitrogen Land Use Fund** was developed in consultation with stakeholders and adopted for implementation by the Rotorua Te Arawa Lakes Strategy Group. During the year the Programme also sought Expressions of Interest and Full Applications in accordance with that Decision Making Framework. Staff are very pleased with the response to the call for Expressions of Interest, with 27 received for a total of funds well in excess of those available. Full Applications have now been received and are currently being assessed with successful applications to be awarded early in the new financial year.

The **Lake Rotorua Incentives Board** has continued work to secure their first nitrogen purchases. Significant effort has been undertaken and the first agreements are likely to be committed early in the new financial year. The Board has five heads of agreements with landowners to negotiate and has had interest from five others. The Incentives Board is currently finalising negotiations with two landowners that will achieve approximately 11.7 tonne in-lake reduction of Nitrogen loss. No agreements have been entered into this year, although a number of operational documents have been prepared and adopted and are available on the Board's website, these include a Process for Landowner Agreements, a Pricing and Negotiation Strategy and an Annual Work Programme. The Board has also commissioned analysis of land use, soil types and farm system typologies in the catchment, to better understand the potential for securing agreements across the catchment.

During the year, the collaborative process with the Lake Rotorua Stakeholder Advisory Group was completed. In addition a second round of consultation was run with the community to get a further set of feedback from them on proposed **Plan Change 10**, prior to a decision being made by the Regional Council to commence the Schedule 1 Resource Management Act process. Notification of proposed Plan Change 10 occurred at the end of February 2016. Further submissions on those received have now been called for and hearings are tentatively scheduled for November 2016. The notification of Plan Change 10 during the financial year was a significant milestone for the Integrated Framework and progress towards a sustainable solution for water quality in Lake Rotorua. The success of the Integrated Framework is dependent on the success of Plan Change 10 to the Regional Water and Land Plan.

Lake Rotoehu

RLC or BOPRC Annual Plan Budget ($000)	Actual Year To Date Expenditure ($000)	Approved Crown Funding ($000)	Crown Funding Received ($000)	Crown Funding Applied to Date ($000)
$1,360,000	$1,339,393	$679,000	$72,000	$670,000

During the year the conditions of the final land use change agreement for Lake Rotoehu were met and the funds were released. The nutrient discharge allowances under both land use change agreements are now required to be met and the Programme has a monitoring plan established to ensure compliance with these agreements is maintained.

Lake Rotoiti

RLC or BOPRC Annual Plan Budget ($000)	Actual Year To Date Expenditure ($000)	Approved Crown Funding ($000)	Crown Funding Received ($000)	Crown Funding Applied to Date ($000)
$1,064,000	$490,499	$532,000	$266,000 (TBC)	$245,000 (TBC)

During the year, the suitability of the site for the Rotoiti Wastewater Treatment Plant and Land Disposal System was confirmed. This scheme will service the final remaining parts of the lakeside Lake Rotoiti community requiring sewerage reticulation (Gisborne Point and Hinehopu). On the basis of the confirmation of site suitability, a concept design for the proposed treatment and disposal system was developed and planning and resource consent applications prepared. These applications are currently being reviewed with the intention of submitting them early in the new financial year. The resource consent application for the trial of Biolytix systems was also lodged and is being processed. The trial will commence in the new financial year, subject to the resource consent application being successful.

During the year, a detailed options analysis and condition assessment was undertaken for addressing the corrosion occurring on the Ohau Wall. A programme of monitor, maintain and replace has been adopted in relation to managing the corrosion of the wall, as the most cost effective and appropriate method of ensuring the wall remains effective for its design life. The resource consent for the wall expires shortly, work commenced during the financial year to prepare the application for a new consent, including consultation with stakeholders. It is planned to lodge the new application nine months prior to the expiry of the existing resource consent, to ensure that existing use rights in relation to the wall are maintained.

Lake Ōkāreka

No interventions were planned in the Lake Ōkāreka catchment this year and none have been undertaken, although the Programme continues its non-Deed funded activities in the catchment. These activities support Landcare Ōkāreka to maintain and enhance biodiversity in the catchment. The Ōkāreka community remains active in its interest in water quality and Professor David Hamilton also visited to speak on water quality at the Community Association's Annual General Meeting during the year. The community remains concerned that although all interventions of land use change and sewerage reticulation are complete, the lake remains slightly above its target TLI. Money is available in the Regional Council's Long Term Plan to facilitate further land use chance in the catchment and once a project is scoped a proposal will be made to include this project as a Deed funded activity for the Programme. Staff has commenced a project to get this started in the hope that further land use change will deliver the target TLI for the lake.

Key achievements

The table below sets out key achievements within the Programme as shown against the 2015-2016 Annual Work Programme. Deed Funded activities are shown in bold.

Lake Operations Commitments as shown in 2015/2016 Annual Work Programme	Lake Operations Achievements 2015-2016
Continue Lake Rotoehu weed harvesting	**Weed harvesting was undertaken on Lake Rotoehu for approximately 150 hours. This harvesting returned 1.4 tonne of nitrogen and 0.2 tonne of phosphorus.**
Continue P Locking (Lake Rotoehu and Rotorua)	**Alum dosing on lakes Rotorua and Rotoehu has continued in order to maintain these lakes at or around their target TLI.**
Pursue resource consents and build access way for full-scale Tikitere zeolite plant.	**The Tikitere project has focused on obtaining land use agreements. Geotechnical investigations have also been undertaken to confirm plant location and design detail. The project is scheduled for construction in 2018-2019.**
Continue responsive weed harvesting on other lakes.	Priority was given to weed harvesting on Lake Rotoiti this year, for amenity purposes. As a result, a large amount of weed and nutrient was removed from the lake. Approximately 340 hours was spent removing 2.3 tonne of nitrogen and 0.49 tonne of phosphorous. The weed harvester was hired out while not required on the Rotorua Lakes, returning funds to invest back into the Programme.
Once groundwater information is available, conduct post implementation review of action plans for lakes Okaro and Okareka.	The University of Waikato prepared a preliminary report on impacts in the Lake Okareka Catchment. This will be finalised early in the new financial year. Modelling work on Lake Okaro is on hold until some key projects with the University are completed.
The University of Waikato Chair of Science and the Technical Advisory Group will continue to provide expert advice and scientific rigor for the programme.	The University of Waikato Chair of Science and the Lake Water Quality Technical Advisory Group have continued their role providing expert advice and scientific rigor for the Programme.
Land Technical Advisory Group to provide technical support for land use and land management decisions.	The Land Technical Advisory Group (Land TAG) has provided some specific advice on land use for the Lake Rotorua Catchment. Land TAG members have been involved with ongoing communications with the Lake Rotorua Primary Producers Collective and are assessing applications to the Low Nitrogen Land Use Fund.
Commence koura monitoring programme on all twelve lakes.	A monitoring programme across all lakes has been endorsed by Te Arawa Lakes Trust and the programme has commenced. Each lake will be monitored on a five yearly cycle.

Commence implementation of Tarawera Restoration Plan.	Staff are working with a farmer group which covers the inner and outer catchments of Tarawera to commence the preparation of Nutrient Management Plans for all of those.
Continue work to refine function of Trout Barrier.	Consultation has been undertaken with Ngati Rangiwewehi regarding algae issues and barrier design. A remedial concept has been presented to them and accepted. Staff are now working with a consultant to implement this.

Policy and Planning Commitments as shown in 2015-2016 Annual Work Programme	Policy and Planning Achievements 2015-2016
Notify policy and rules for all lakes not currently protected by Rule 11.	Council has decided to defer this project to 2017-2018 in favor of other priorities, notification is scheduled in occur in 2018.
Run notification and hearing process for Lake Rotorua rules.	It has been a busy year for the Programme in relation to proposed Plan Change 10 for Lake Rotorua. A second consultation round was run prior to making a decision on notification of the Plan Change and feedback was again sought from the community. A decision was made in December 2015 to commence the Schedule 1 Resource Management Act process for the Plan Change and it was notified in February 2016. Submissions have been collated and summarised and now further submissions are being sought. Commissioners have been selected to hear and decide on the applications and hearings are tentatively scheduled for November 2016.
Choose provider and commence development of Nutrient Management System to support implementation of regulatory requirements and potential nutrient trading.	Work has continued on developing requirements and establishing the business case for the Nutrient Discharge Management System. The system is now committed to being built as part of a wider database upgrade at the Regional Council and will be commissioned by July 2017. A final business case and funding still requires consideration and approval before the build commences.
Continue pursuing development of Transferable Development Rights (TDR) through the Proposed Rotorua District Plan Resource Management Act (RMA) process.	The District Plan is now adopted. Transferable Development Rights are not included but there is provision within the Plan for additional development rights for landowners, where that development delivers a nutrient benefit to Lake Rotorua.
Continue working with lake owners to develop action plan for Lake Rotokakahi.	Draft action plan prepared. Waiting on response from Rotokakahi Board of Control.
Develop action plan for Lake Rotomahana.	Rotomahana is not regularly exceeding its target TLI so doesn't need an action plan. A draft 'Current State" report has been prepared ready for development into an action plan if necessary. The lake is part of the Tarawera System and actions may be required as a part of the Tarawera Lakes Restoration Plan. Groundwater work for Lake Tarawera will inform this process and this work is expected to be completed this year.

• Commence implementation of the Te Arawa Values Framework (to be adopted 2014/2105).	• A work programme has been developed for the implementation of Te Tuapapa o Te Arawa. This includes three streams of work: embedding the framework into the business of the Programme and Te Arawa through initiatives such as workshops, amending policies and identifying projects, regular reporting etc. Undertaking cultural mapping and monitoring projects integrated with the Programme's science and developing clear processes, procedures and databases, to deal with pending resource consent applications for lakes structures across all lakes.

Land Management Commitments as shown in 2015-2016 Annual Work Programme	Land Management Achievements 2015-2016
Implement the Lake Rotorua Gorse Programme.	**The scheme is well and truly underway, securing 2,590 kg of nitrogen from three agreements covering 74 ha of gorse. Gorse control has been undertaken on all of these properties and final conversion including planting will occur over the next 12 months. Another four agreements for approximately 1,155 kg of nitrogen across 33 ha have also been negotiated and are currently with landowners for signing.**
Commence implementation of an agreed Decision Making Framework for $3.3 million budget to support 'above the line' land use change and management.	**During the year, a Decision Making Framework for the first round of decision making for the Low Nitrogen Land Use Fund was developed in consultation with stakeholders and adopted for implementation by the Rotorua Te Arawa Lakes Strategy Group. During the year, the Programme also sought Expressions of Interest and Full Applications in accordance with that Decision Making Framework. Twenty seven Expressions of Interest were received in total, for total funds well in excess of those available. Full Applications have now also been received and are currently being assessed with successful applications to be awarded early in the new financial year.**
Incentives Board to make first nitrogen purchases.	**Although the Board has not made its first nitrogen purchases, it has spent significant time during the year negotiating those and forming the policies to support its operation. It is expected that the first nitrogen purchases will be secured early in the new financial year.**
Build phosphorous detainment bunds as suitable sites are identified.	One new detainment bund was built in the Rerewhakaiitu Catchment and new bunds have been scoped in the Rotorua Catchment.
Implement farm management plans in Lake Rerewhakaiitu Catchment.	Staff have worked with a new committee formed to cover properties in the Lake Tarawera Catchment (including Lake Rerewhakaiitu) to establish a process and preferences for the development of farm management plans. This group have opted to adopt industry plans and a project will roll out in the new financial year to establish these voluntarily for each property enrolled.
Refine operation of Land TAG and ensure contribution to Programme (the purpose of Land TAG is to provide technical science and economics advice on catchment land uses, associated contaminant losses to water and land-based methods of mitigating those losses).	The activities of the Land TAG have contributed to land use advice for the Programme. Specific Land TAG members have been including in Programme business around Lake Rotorua to provide better connection with TAG and stakeholder issues.

• Engage Land TAG to assist with development of land use research strategy (as part of science strategy).	• The Programme's Science Plan was reviewed and updated in 2015. Land use science and economic research gaps have been identified. Research opportunities to fill those gaps are being discussed with Land TAG as some national ongoing projects are available. Some specific projects have commenced including local calibration of Overseer, research into the impact of forest harvesting around Lake Rotoma, economic analysis of forestry on farms and estimating phosphorous concentrations according to land use in the Lake Rotorua Catchment.

Communication and Engagement Commitments as shown in 2015/2016 Annual Work Programme	Communication and Engagement Annual Progress
Implement Communications Plan approved by Programme, with focus on Integrated Framework.	The Programme continues to implement its Communication Plan, further information on communications activity is provided later in this report.

Sewerage Commitments shown in 2015/2016 Annual Work Programme	Sewerage Annual Progress
Preliminary design and resource consent application investigations of Rotoiti and Rotoma sewerage schemes.	**The hydrogeological investigation of the proposed Wastewater Treatment Plan and Land Disposal System site confirmed its suitability. A resource consent application is now being finalised for submission in late August 2016.**
Finalise connections at Brunswick, Lake Rotorua.	**This work will be implemented in the 2016/2017 financial year.**
Work with Rotoehu community to establish whether reticulation to proceed.	Initial consultation confirmed a high level of community support for a sewerage scheme.

Rotorua Te Arawa Lakes Annual Water Quality Results

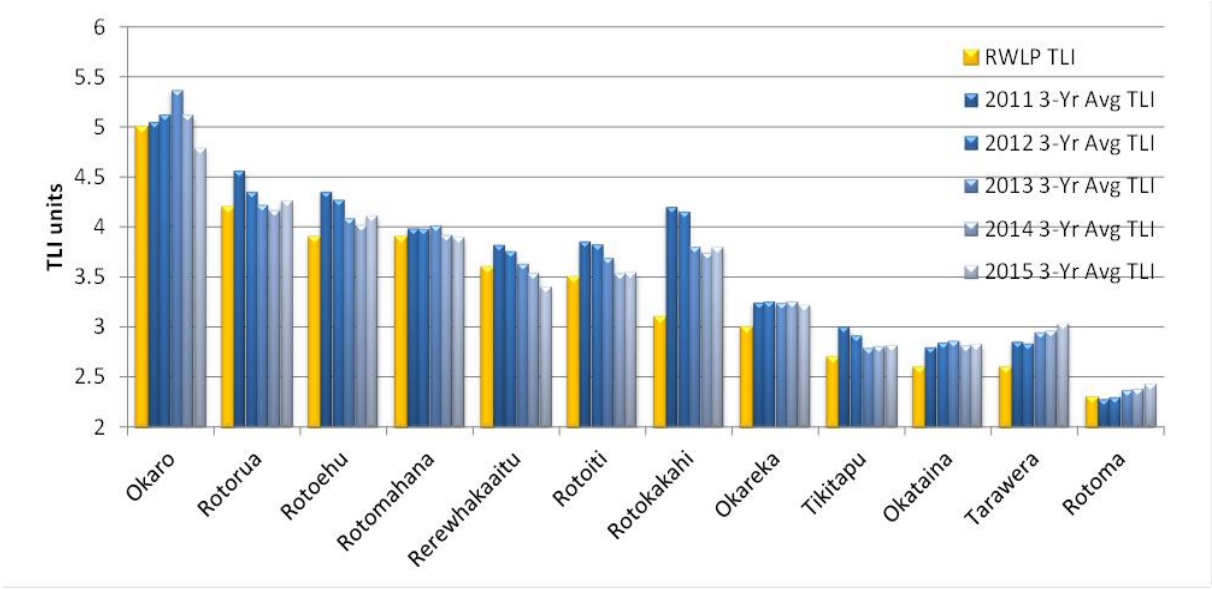
Phosphorus concentrations have increased in several of the oligotrophic Rotorua Te Arawa Lakes. Based on ratios of total nitrogen to total phosphorus, it is likely that phytoplankton biomass in these lakes is phosphorus limited. Therefore, any increases in phosphorus are a concern. Climatic conditions may be the major influence on phosphorus increases for some of these lakes and the extent of this influence needs to be more fully understood. Blue-green (cyanobacteria) blooms were less prevalent in eutrophic lakes over the 2015-2016 summer. Orange alert levels occurred in Lakes Rotorua, Rotoiti, Ōkaro, and Rotoehu, but the only lake to reach red alert levels and have a health warning was Lake Rotoehu.

Of the 12 Rotorua lakes in the Programme, tracking of the water quality shows:

- Improving water quality in Lakes Rotorua and Rotoehu over recent years, but vulnerability to climatic conditions and a possible decline in water quality in response to longer duration of stratification in both lakes.
- Lake Rotoiti had shown a long-term improving state in water quality since the installation of the Ōhau Wall, however, water quality has declined in the last two years.
- Improved water quality in Lakes Ōkaro and Rerewhakaaitu.
- Tikitapu showed some initial improvement in water quality after reticulation, but shows a recent decline in water quality.
- Stable water quality in Lakes Ōkataina, Ōkareka, Rotomā and Rotomahana.
- Deteriorating water quality in Lake Tarawera.
- After a rapid decline until 2010, Lake Rotokakahi has shown improvement but remains vulnerable.

Currently, ten of the twelve Rotorua Te Arawa Lakes are above the target TLI. Recent improvements in the TLI of lakes Okaro and Rerewhakaaitu have resulted in these lakes meeting community objectives for lake water quality, as stated in Objective 11 of the Regional Water and Land Plan.

Note: Lake Rotokakahi TLI's are based on Te Wairoa Stream monitoring and a three-parameter TLI (no Secchi).



The table below summarises the TLI data for the Rotorua Lakes for the period July 2015 to June 2016.

Three-yearly average TLI values, 2015/2016 annual TLI, trophic status and LakeSPI condition for the Rotorua Lakes.

Lake *Regional Water and Land Plan Objective* *TLI units*	3-yearly average TLI to 2013 *TLI units*	3-yearly average TLI to 2014 *TLI units*	3-yearly average TLI to 2015 *TLI units*	**3-yearly average TLI to 2016** ***TLI units***	2014/15 Annual TLI *TLI units*	**2015/16 Annual TLI** ***TLI units***	Lake Type *based on Trophic Status*	LakeSPI Condition 2014/2015[1]
Ōkaro **5.0**	5.4	5.1	4.8	**4.6**	4.6	**4.6**	Eutrophic	Moderate
Rotorua **4.2**	4.2	4.2	4.3	**4.3**	4.4	**4.4**	Eutrophic	Moderate
Rotoehu **3.9**	4.1	4.0	4.1	**4.3**	4.5	**4.6**	Eutrophic	Poor
Rotomahana **3.9**	4.0	3.9	3.9	**3.9**	4.0	**4.0**	Mesotrophic	High
Rotoiti **3.5**	3.7	3.5	3.5	**3.6**	3.7	**3.8**	Mesotrophic	Poor
Rerewhakaaitu **3.6**	3.6	3.5	3.4	**3.4**	3.3	**3.4**	Mesotrophic	Moderate
Okareka **3.0**	3.2	3.3	3.2	**3.2**	3.3	**3.2**	Mesotrophic	High
Tikitapu **2.7**	2.8	2.8	2.8	**2.9**	2.9	**2.9**	Oligotrophic	Moderate
Ōkataina **2.6**	2.9	2.8	2.8	**2.8**	2.8	**2.8**	Oligotrophic	Moderate
Tarawera **2.6**	3.0	3.0	3.0	**3.0**	3.1	**3.0**	Oligotrophic	Moderate
Rotoma **2.3**	2.4	2.4	2.4	**2.4**	2.5	**2.4**	Oligotrophic	High
*Rotokakahi** ***3.1***	*3.8*	*3.7*	*3.8*	***3.8***	*4.0*	***3.7***	Mesotrophic	Moderate

*Italicised figures are based on Te Wairoa Stream monitoring and a three-parameter TLI (no Secchi disk).

[1] NIWA (2015). Assessment of the Rotorua Te Arawa lakes using LakeSPI – 2015.

Lake Rotorua

To meet community expectations for Lake Rotorua, nitrogen inputs to Lake Rotorua need to reduce to 435 tonne of nitrogen and approximately 30 tonne of phosphorous annually. We also need to reduce the impact of nutrients already in the lake, i.e. phosphorous in lake sediments.

To achieve water quality targets for Lake Rotorua, we are undertaking both short-term and long term interventions. The short term intervention of phosphorous locking (alum dosing) has resulted in the lake achieving its TLI target in the past. It is undertaken annually, as necessary, to maintain the lake at or around its target TLI, which means that the dosing rate does vary. The solution to sustainable improvements (which will eventually mean alum dosing can cease) is reducing the amount of nutrients entering the lake and this is the aim of the Integrated Framework + Engineering Interventions. The graphs below show the nitrogen targets for each element of the Integrated Framework + Engineering Interventions and progress towards those targets.

Water quality at a glance:

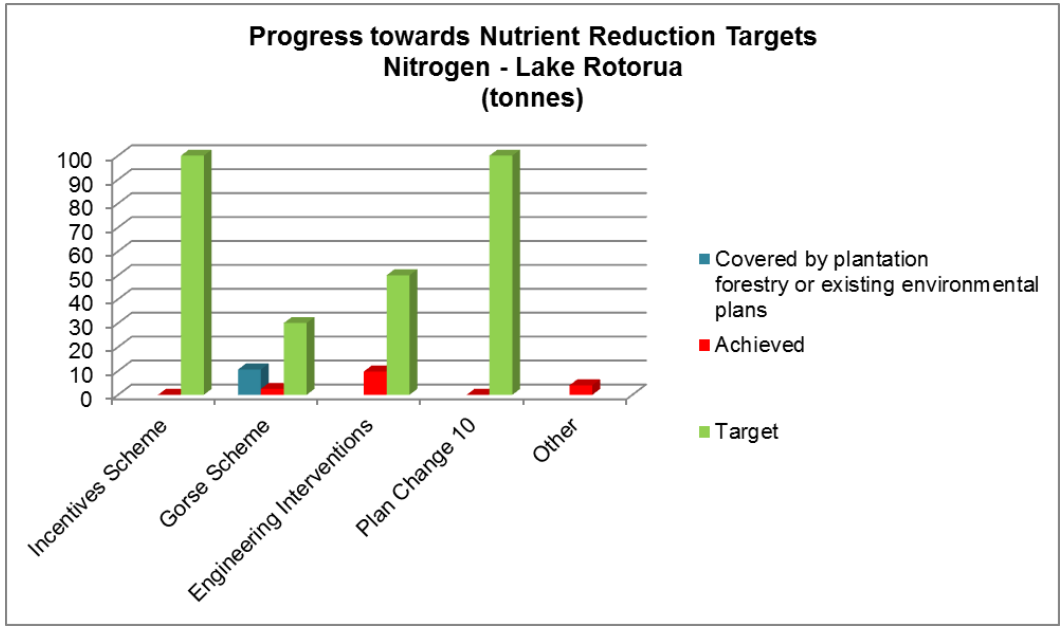
2016 TLI **4.4**

2015 TLI **4.4**

Target **4.2**

The three-year average TLI for Lake Rotorua remains above the target TLI of 4.2 at 4.32 TLI units.

A stratification event in February 2016 may have triggered an increase in algal concentrations, peaking in April 2016. Stratification lasted around two weeks, shorter than the month long stratification last summer. Hence, the strength of nutrient release from the bottom sediments due to stratification appears to have been less. However, the impact of strong stratification events still affects the lake.



Programme Update – Lake Rotorua						
Project	**Deed Funded**	**Total Target**	**Annual Target**	**Annual Result**	**Update**	**Project Status**
LAND USE CHANGE	Yes	270 T N		6.58 T N 0.08 T P		
Proposed Plan Change 10	Yes	140 T N	0 T N	0 T N	Significant progress was made during the financial year with the notification of Plan Change 10 in February. The first reductions under the Proposed Plan Change will need to be made in 2022.	
Incentives	Yes	100 T N	TBA	0 T N	No agreements were entered into by the Incentives Board during the year, however good progress was made on several agreements which are now pending finalisation.	
Gorse	Yes	30 T N	7 T N	2.64 T N	2,590 kg of nitrogen covering 74 ha of gorse was secured during the year. Several other agreements are also with landowners for signing. The target set was unrealistic (refer above).	
Land Use Change Agreements (non-incentives)	No			3.94 T N 0.08 T P	Secured in previous years. Subject to monitoring to ensure compliance.	
ENGINEERING SOLUTIONS	Yes	50 T N	0 T N	9.74 T N 0.80 T P		
Sewerage Reticulation (including Brunswick Connections)	Yes	10.41 T N 0.86 T P	10.41 T N 0.86 T P	9.74 T N 0.80 T P	Most reticulation was completed in prior years with the exception of around 70 connections which are still required at Brunswick Park. These connections were scheduled to be made this financial year (and Deed Funding was allocated), however, due to	

Programme Update – Lake Rotorua						
Project	**Deed Funded**	**Total Target**	**Annual Target**	**Annual Result**	**Update**	**Project Status**
Tikitere Zeolite Plant	Yes	20-25 T N	0 T N	0 T N	Rotorua Lakes Council funding restraints, the connections have been deferred until 2016-2017 and will deliver the final nutrient gains here. Construction of the Tikitere Zeolite Plant is scheduled to occur in 2018-2019. A project plan is in place to deliver the remaining 15-20 tonne of Nitrogen by 2022 from engineering solutions.	
P-locking Utuhina and Puarenga (Alum Dosing)	Yes	As required	As required	10.19 T P + 17.14 T P	Alum dosing reduces phosphorous input to the lake by locking it in stream sediments (10.19 tonne P) and also by preventing releases from lake bed sediments by it being locked by alum in those (17.74 tonne P).	
Floating Wetlands	No	0 T N 0 T P	0 T N 0 T P	0.18 T N 0.03 T P	Completed in prior years.	
Detainment Bunds	No	0 T P	0 T P	0.02 T P	Completed in prior years.	
Rotorua Wastewater Treatment Plant Alternative Disposal	Yes	0 T N 0 T P	0 T N 0T P	0 T N 0 T P	A preferred alternative disposal option to the current disposal has been nominated by Rotorua Lakes Council. Work is required to determine the impact of this on the lake.	
Total		**320 T N**	**17.41 T N** **0.86 T P**	**16.5 T N** **28.3 T P**		

Project status: **Green** = on track, **Amber** = some delays, **Red** = major delays.

Lake Rotoehu

To meet community expectations for water quality in Lake Rotoehu, nitrogen inputs to the lake need to reduce by 8.8 tonne of nitrogen and 0.7 tonne of phosphorus annually. The main long-term intervention in Lake Rotoehu is land management change which has now been implemented through two land use change agreements. Because the nutrient effects of land use change take time to reach the lake, short term interventions including weed harvesting and phosphorus locking (alum dosing) continue to be undertaken on the lake, to maintain water quality at or around target TLI until the effects of land use change are seen in the lake.

The graphs below show the nutrient targets for each intervention on Lake Rotoehu and progress towards those targets.

Water quality at a glance:

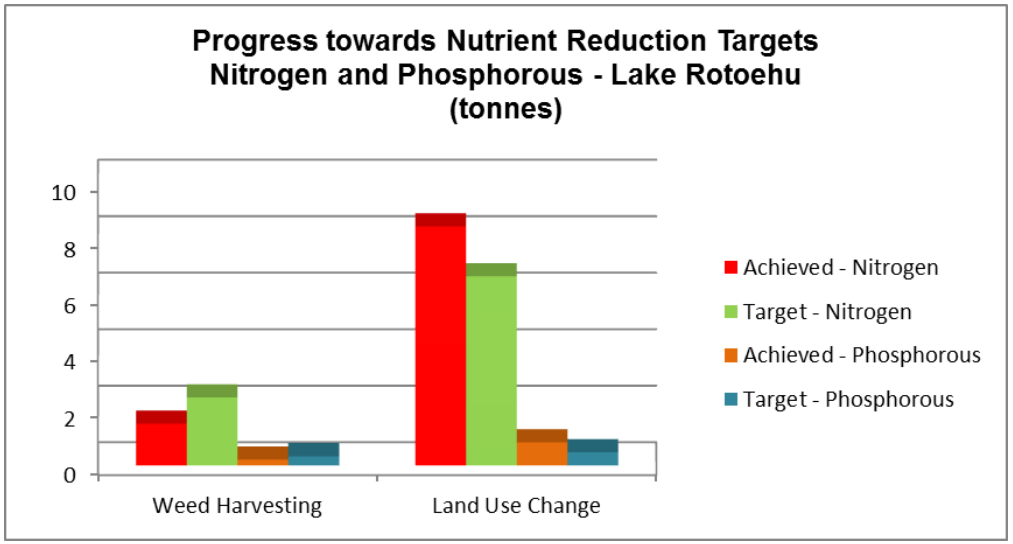
2016 TLI **4.6**

2015 TLI **4.5**

Target **3.9**

Lake Rotoehu's TLI has increased for the second year running, also slightly increasing the average annual TLI slightly. The average annual phosphorus concentration remained similar to last year as did water clarity, however, total nitrogen and chlorophyll-a concentrations increased.

Three stratification events where dissolved oxygen levels reached near anoxic levels were captured by the monitoring buoy. Both dissolved nitrogen and phosphorus appear to have been released from sediments at these times, resulting in increased chlorophyll-a concentrations.



Project	Deed funded	Total target	Annual Target	Annual Result	Update	Project Status
Land use and land management change	Yes	6.69 T N 0.46 T P	6.69T N 0.46 T P	8.45 T N 0.81 T P	Both land use change agreements are now implement to deliver total nutrient targets for land use change. Monitoring plans are in place to ensure compliance with those agreements.	
Weed harvesting	Yes	3.5 T N 0 T P	3.5 T N 0 T P	1.47 T N 0.20 T P	A decision was made to retain the harvester at Lake Rototiti for a longer period this season. This, combined with weed availability at Lake Rotoehu, has meant less nutrient removal this season from weed harvesting.	
P-locking Soda Springs (Alum Dosing)	Yes	0.7 T P	0.7 T P	3.13 T P	Ongoing to maintain water quality at or around target TLI.	
Aeration trial	Yes	0 T N 0 T P	0 T N 0 T P	0 T N 0 T P	Trials complete and aerators were removed during year.	
Floating wetland	Yes	0 T N 0T P	0 T N 0 T P	0.05 T N 0.01 T P	Completed in prior years.	
Total		**10.15 T N 1.16 T N**	**10.15 T N 1.16 T P**	**9.97 T N 4.15 T P**		

Project status: **Green** = on track, **Amber** = some delays, **Red** = major delays.

Lake Rotoiti

To meet community expectations for water quality, nitrogen inputs to Lake Rotoiti need to reduce by 130 tonne annually and phosphorous inputs by 19 tonne annually. The Ohau Diversion Wall is established and protecting the lake water quality while nutrient reductions to Lake Rotorua are achieved.

The graphs below show the nutrient targets for each intervention on Lake Rotoehu and progress towards those targets.

Water quality at a glance:

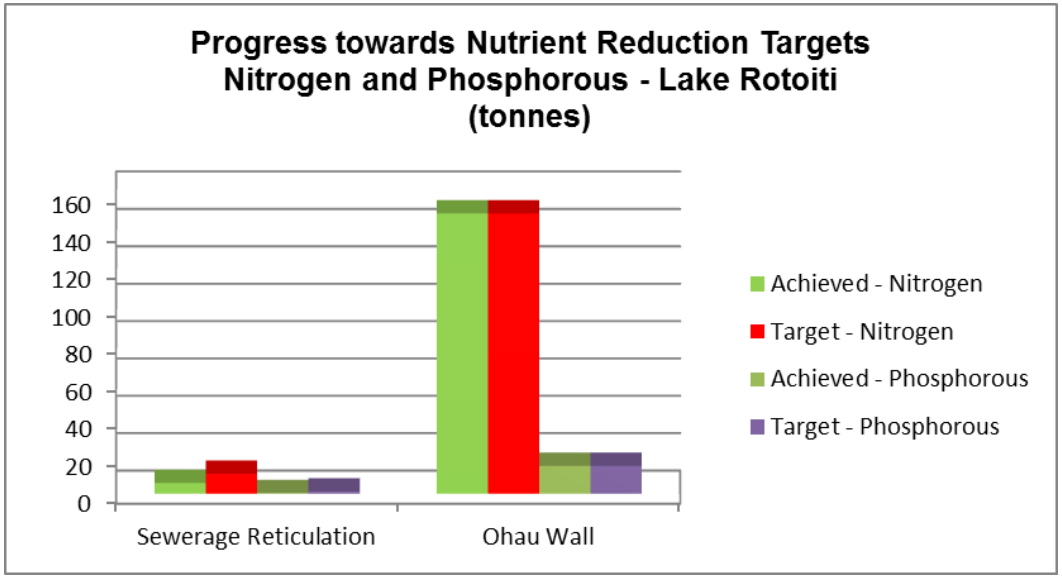
2016 TLI	**3.8**
2015 TLI	**3.8**
Target	**3.5**

Lake Rotoiti has failed to recover to its target TLI of 3.5. The three-year average TLI is 3.62.

Annual average nitrogen and phosphorus concentrations remain at similar levels to last year. Dissolved reactive phosphorous and ammonium levels increased following stratification.

Concentrations of these dissolved nutrients were similar to those experienced last summer.

Cyanobacteria concentrations were similar to the previous season, also with orange alert levels being reached at the height of summer, but no red alert levels were recorded.



Project	Deed Funded	Total Target	Annual Target	Annual Result	Update	Project Status
Sewerage Scheme (including Curtis Road to Hinehopu)	Yes	10.8 T N 1.31 T P	5.9 T N .21 T P	5.82 T N 0.48 T P	Approximately 62% of reticulation at Lake Rotoiti was completed in previous years. The Curtis Road to Hinehopu reticulation still requires completion and this is scheduled for 2018-2019. This will deliver the final nutrient reductions required from sewerage reticulation.	
Weed Harvesting	No	0 T N 0 T P	0 T N 0 T P	2.3 T N 0.49 T P	Substantial weed harvesting was undertaken this season for amenity purposes but also delivered nutrient reductions.	
Ohau Diversion Wall	Yes	150 T N 15 T P	150 T N 15 T P	150 T N 15 T P	Ohau Wall fully effective, corrosion being managed.	
Total		**160.8 T N** **16.31 T N**	**155.9 T N** **15.21 T P**	**158.12 T N** **15.97 T P**		

Project status: **Green** = on track, **Amber** = some delays, **Red** = major delays.

Lake Ōkareka

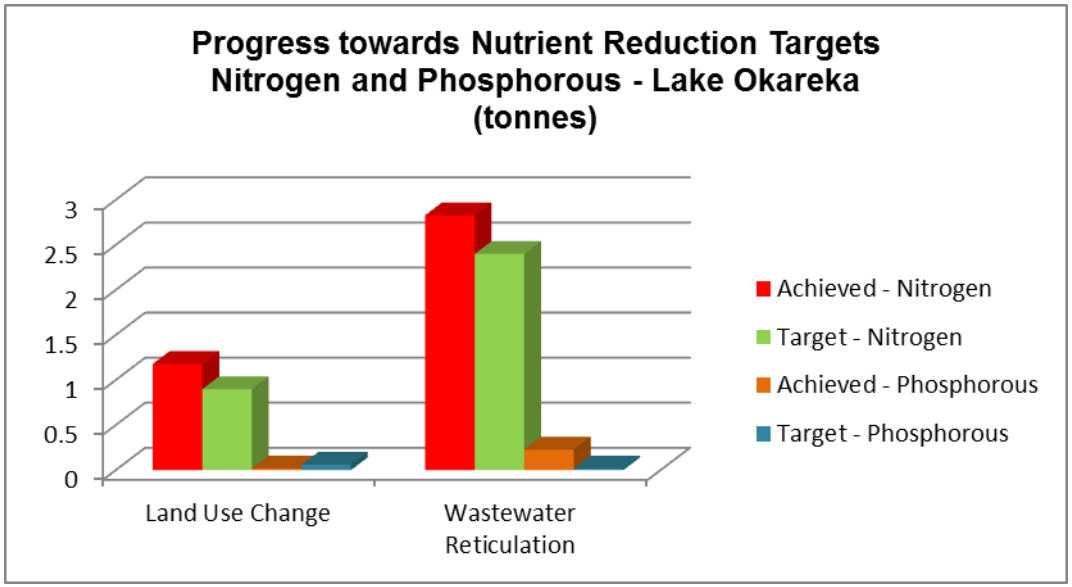
The reductions of nutrient input required to Lake Ōkāreka are relatively small compared to the reductions required in the other lake catchments. To meet community expectations for water quality, nitrogen input to Lake Ōkāreka needs to reduce by approximately 2,500 kilograms and phosphorous input by approximately 80 kilograms. However, despite these being achieved, the lake has remained slightly above its target TLI, although it did improve slightly this year. Therefore, a project has commenced and budget allocated, to secure further land use change in the catchment if viable options are available.

Water quality at a glance:

2016 TLI	**3.2**
2015 TLI	**3.3**
Target	**3.0**

Annual average TLI for Lake Ōkāreka of 3.15, an improvement on last year's value of 3.25. The three-year average TLI for Lake Okareka remains stable at approximately 0.2 units above the objective TLI of 3.0.

The faster decline in oxygen levels over summer stratification period observed over the past two summers has again been observed this summer. Water clarity also improved compared to last summer. Chlorophyll-a concentrations did increase marginally compared to the previous year, although total phosphorus and total nitrogen concentrations were lower.



Project	Deed Funded	Total Target	Annual Target	Annual Result	Comments	Project status
Sewerage Reticulation	Yes	2,400 Kg N 20 Kg P	2,400 Kg N 20 Kg P	2,830 Kg N 230 Kg P	Project complete.	
Land Use Change	Yes	900 Kg N 60 Kg P	900 Kg N 60 Kg P	1,180 Kg N 220 Kg P	Project complete.	
Total		**3.300 Kg N 80 Kg P**	**3.300 Kg N 80 Kg P**	**4,010 Kg N 450 Kg P**		

Actions and Outcomes for Non Deed Lakes

Lake Tikitapu	
2016 TLI 2.9 2015 TLI 2.9 Target 2.7	The main action of sewerage reticulation was completed in October 2010. Lake Tikitapu's TLI continues to display a slightly increasing annual average, moving from 2.89 in 2014-15 to 2.94 in 2015-2016; 0.24 TLI units above the target TLI. The three-year average TLI also shows an increase, moving to 2.88 TLI units. The variations are small and a watching brief will be kept on Tikitapu.
Lake Ōkataina	
2016 TLI 2.8 2015 TLI 2.8 Target 2.6	Lake Ōkataina's annual average TLI remains stable at 2.83 with little change from last annual TLI result of 2.81. Water clarity (Secchi depth) did show an average annual increase over one metre, but this was offset in the TLI by an increase in phosphorus and the annual average chlorophyll-a concentration. A PhD study is continuing with the aim of understanding the long-term and short-term changes in water quality of Lake Ōkataina and the underlying causes, particularly in relation to the introduction of exotic fauna and their impact on the local environment.
Lake Ōkaro	
2016 TLI 4.6 2015 TLI 4.5 Target 5.0	For the third year in succession, the annual average TLI in Lake Ōkaro has remained below the target TLI of 5.0. The three-year average TLI also remains below the TLI objective at 4.8, indicating restoration actions undertaken for this lake are having an impact. Chlorophyll-a concentrations were slightly lower this year than last year, although nutrient concentrations are slightly higher and water clarity (Secchi depth) lower. Seasonal alum dosing has contributed to water quality gains. Cyanobacteria were present at amber alert levels for around two months over the 2015-2016 summer. No health warnings due to cyanobacteria were issued in the last year.

Lake Rotomā	
2016 TLI 2.4 2015 TLI 2.6 Target 2.3	The Lake Rotomā annual average TLI decreased slightly on last year's TLI to 2.41 TLI units, remaining just above the target TLI of 2.3. The three-year average TLI was to 2.42. Increasing phosphorus levels have been the main driver for a marked increase in the annual average TLI for Lake Rotomā. Annual average phosphorus concentrations continue to increase, with highest annual averages for total phosphorus observed in both surface and bottom waters. Chlorophyll-a concentrations were muted compared to last year. Water clarity improved over one and half metres compared to the previous year, potentially a result of the reduced phytoplankton levels. Ammonium concentrations increased in bottom waters just before mixing, but dissolved reactive phosphorus concentrations were stable over the stratification period. The key action at Lake Rotomā is sewerage reticulation. An approval to extend the funding deadline was granted this year by the Ministry of Health and construction will occur in 2018-2019.
Lake Rerewhakaaitu	
2016 TLI 3.4 2015 TLI 3.3 Target 3.6	Lake Rerewhakaaitu's annual average and three year average TLI remains below the target TLI. The annual average TLI for Lake Rerewhakaaitu was 3.44 for 2015-2016. Nitrogen levels have showed a continued reduction, a trend that has occurred over the past eight years. Water clarity was marginally less than last year, probably due to the higher phytoplankton concentrations experienced over the summer and into autumn, but remains substantially better than seven years prior to last year. Phosphorus levels remain relatively stable. Stratification was observed on a daily basis by the new monitoring buoy in mid February 2016, with dissolved oxygen concentrations coming close to anoxic levels. Temperature and phytoplankton are likely to be the main drivers of these diurnal swings in dissolved oxygen. Rerewhakaaitu farmers have taken the lead in farm management plan development across all farmers in the Lake Tarawera Catchment (of which Lake Rerewhakaiitu is part). The primary focus of the farmer group is to prepare and implement a farm nutrient management plan for each farm in the inner and outer catchments of Lake Tarawera. The group have adopted industry standard plans as the mechanism for doing this. A project will roll out in the new financial year, funding landowners to prepare these plans on a voluntary basis. Staff have been working with landowners to develop phosphorous detainment bunds in the catchment also and one was developed, part funded by the Regional Council, this year.

Lake Tarawera	
2016 TLI 3.0 2015 TLI 3.1 Target 2.6	Lake Tarawera annual average TLI decreased slightly from 3.09 in 2014-15 to 3.04 in 2015-2016. The lake's TLI remains almost 0.5 TLI units above the target of 2.6 TLI units, with the three year average at 3.04. Phosphorous concentrations continue to climb, particularly in the bottom waters. Annual average nitrogen concentrations have reduced slightly over the past three years, but remain relatively stable over the last seven years. The annual average water clarity has shown a slight improvement compared to the previous two years, although the observation made in March 2016 was the lowest recorded in Regional Council history (less than four metres Secchi depth). Unlike the previous year, where cyanobacteria blooms were prevalent for a period, no cyanobacteria blooms were observed over the 2015-2016 season. The Tarawera Restoration Plan was adopted by the Rotorua Te Arawa Lakes Strategy Group in December 2015. Implementation of actions has commenced with Acacia removal, an ongoing activity in the catchment (0.7 tonne of Nitrogen was removed during the year from this) and the roll out of farm nutrient management plans scheduled to commence next financial year (refer above). The next consideration for the community in respect of the plan is wastewater reticulation.
Lake Rotokakahi	
2016 TLI 3.7 2015 TLI 4.0 Target 3.1	Lake Rotokakahi (as measured at the outflow) showed an improvement in trophic status compared to 2014-2015. The annual average TLI for 2015-16 was 3.65, and three year annual average was 3.8. Like Lake Tarawera, no cyanobacteria blooms were observed over the 2015-2016 summer, explaining the improvements in all TLI parameters, compared with last year's TLI results, which were impacted by cyanobacteria blooms. Water clarity also improved this year reaching clarity not observed since 2006-2007. A draft action plan for Lake Rotokakahi has been prepared and is with the Lake's Board of Control.
Lake Rotomahana	
2016 TLI 4.0 2015 TLI 4.0 Target 3.9	Lake Rotomahana's annual average TLI remains stable at 3.99, hovering very slightly above the target TLI of 3.9. The annual total phosphorus concentration is slightly less than last year, as is the dissolved reactive phosphorus annual average concentration. Phosphorus continues to display an increasing trend in the bottom waters over the last decade.

Communications and stakeholder engagement update

The Integrated Framework and Proposed Plan Change 10 has been a key focus for the 2015-2016 year. However, other projects within the Programme have also required communications support in order to engage with the community and stakeholders.

Highlights of activity that occurred:

- Development of materials, preparation of media releases, media briefings and promotion of the second round of consultation for Plan Change 10 (August to October).
- Development of materials, preparation of media releases, media briefings, radio and print adverts, guide on the rules and promotion of the second round of consultation (August to October) and notification (March) for Plan Change 10.
- Two science evenings were held (November and April) to present some of the research and monitoring completed, to guide what we do for the restoration and protection of our lakes.
- Summer Awareness Campaign to engage with wider community about the importance of our lakes and to set a foundation for showing what the Rotorua Te Arawa Lakes Programme does.
- The Lake Tarawera Field Trip where key stakeholders went on a tour of Lake Tarawera and Highland Stations.
- Ongoing activity on Rotorua Te Arawa Lakes Programme Facebook page. The page grew from 170 likes to 1,290 likes. For the month of December, the Rotorua Te Arawa Lakes Programme Facebook page was the most engaged page by people living in Rotorua. Posts were reaching over 10,000 people.
- Relationships were established and maintained with media to enable a presence across a wide range of local and national media (Daily Post, Bay of Plenty Times, New Zealand Herald, Mangai Nui, Steam n Mud, Rotorua Review, community newsletters, radio).
- Giveaways made to promote Rotorua Te Arawa Lakes Programme and insert in to delegate bags or have at events such as the Tarawera Field Trip, Hill Country Symposium, Science Evenings, Drop in sessions, Dairy Industry Awards, stakeholder meetings.
- Communications and engagement advice provided for the re-consenting of Ohau Wall.
- Early stages of developing a guide for lifestyle block owners on nutrient management best practices.

Website

A major upgrade of the website was completed. As with any new websites, there has been a couple of teething issues which have now been addressed. Stakeholder feedback has led to changes since the launch of the new site and changes will continue to be made to ensure it meets the users' needs.

Statistics for 2015-16

Sessions	Users	Pages viewed	Average time spent per visit
18,936	10,506	57,188	3.06 minutes

The most viewed pages throughout the year have been:

Page	Number of visits
Home page	10,499
Lake events	2,213
Draft Rules	1,990
Rotorua	1,460
Lake Rotorua Stakeholder Advisory Group	1,183
Water Quality	944
Tarawera	931
Science	541
Land Use	522
Rotoiti	516

Science update

The Rotorua Lakes Science Plan outlines the existing Science Programme, identifies information gaps and provides a clearer picture of the future research needs.

The Science Plan has a foundation of long-term monitoring managed by BOPRC staff as part of the NERMN Monitoring Programme. The University of Waikato along with other Crown Research Institutes and consultants are key service providers within the plan. They provide strategic direction for science research as well as undertaking the research needs.

The plan outlines current research, a method for identifying new restoration solutions and the direction for new research as our restoration work on the lakes progresses. One of the most significant changes signalled in the plan is the increased focus on long-term catchment land use and the need for science and economic advice in that area to support management decisions and Council policy formulation for rule development.

With the formation of the Land Technical Advisory Group, information gaps and research needs for land use to support policy and incentives have been developed.

Land Technical Advisory Group

To provide strategic and technical advice on land-based nutrient management solutions for water quality, a Land Technical Advisory Group (Land TAG) has been established.

The Land TAG provides independent technical science and economics advice on existing and new catchment land uses, their effects on water quality and how to mitigate them.

The direction, support and advice provided by the Land TAG will be instrumental for the implementation of the Lake Rotorua Incentives Scheme. They are available to provide advice to landowners and farmers in Rotorua catchments that are facing major and complex decisions on land use change and land management investment.

Environmental modelling

Environmental modelling is an important part of the science supporting the programme. During 2015-2016, the following modelling projects progressed:

- Modelling the impact of Rotorua sewage scenarios for Rotorua Lakes Council,
- Completed lake model for Tikitapu,
- Draft groundwater model report for the greater Tarawera Catchment,
- Commenced catchment and lake modelling of Lake Ōkāreka,
- Progressed the ROTAN land catchment model for Lake Rotorua Catchment,
- Updated the Lake Rotorua nutrient budget based on updated OVERSEER files,
- Completed forest-farm integration modelling project with SCION to establish economics and practical implications of farm forestry.

Research and reviews

A range of research projects were progressed during the year, including:

- Completed report on anthropogenic phosphorus sources to Lake Rotorua, identifying sources that may be managed.
- Held the ongoing science presentations of research to the Rotorua community.
- Completed ecotoxilogical review of the effects of alum dosing on our lakes.
- Prepared annual review of the impact of the Ohau Diversion Wall.
- Completed two reports on the Lake Rotoehu aeration project.
- Completed bathymetric surveys for lakes Rotokakahi and Tikitapu, necessary to support lake models.

- Support for Ohau Wall resource consent, including identifying monitoring needs for the Kaituna River with downstream iwi.
- Completed PhD study on the impact of species introductions on water quality of Lake Ōkataina.
- Effects of alum dosing on the fauna of Lake Rotorua.
- Report on corrosion of the Ohau Diversion Wall.
- Contributions to the assessment of environmental effects report for the Ohau Diversion Wall consent application.
- Waikato University lead items for the Water Quality TAG meetings.
- Maintained lake monitoring buoys for the programme.
- Commenced high rainfall trial on two dairy farms in the catchment in a joint project with AgResearch and Dairy NZ.
- Commenced long term koura monitoring programme for the 12 lakes with the support of the Te Arawa Lakes Trust.
- Continued ecotoxicological monitoring around the Puarenga and Utuhina Streams in Lake Rotorua to support the Alum Dosing Programme.
- Completed project to evaluate the impact of acacia tree removal on nitrogen leaching in the Tarawera Catchment.
- Completed and reported on the Parekarangi Farm Nutrient Research Project, investigating land use and fertiliser options on the Lake Rotorua Catchment.
- Completed the three-year aeration trial work on Lake Rotoehu.
- Ongoing fisheries studies of Ohau Diversion Wall to evaluate impact.
- Alum dosing protocol for three dosing plants on Lakes Rotorua and Rotoehu reviewed by Water Quality Technical Advisory Group.
- Staff and University of Waikato advice to the Rotorua and Rotomā/Rotoiti Sewage Technical Advisory Group.

Financials

Rotorua Te Arawa Lakes Programme - Report B

CFO Actual Year to Date Detailed Financial Progress Statement - Year Ended 30 June 2016

	Funding deed clause 5.4.1						5.4.2 (a) Note 1	5.4.2 (b) / 5.2.2 (d)			5.4.2 (c)	5.4.2 (d) Note 2	
Interventions	**(A) Council Annual Plan Budget**	**(B) Actual year to date expenditure**	**(B - A) Variance to date over/(under) spend**	**(B / A) Progress to date**	**Financial progress indicator ($)**	**Intervention progress indicator**	**(D) Council Funding excluding Crown grants (50% of B)**	**(E) Approved Crown funding 2015/16**	**(F) Crown funding received 2015/16**	**(G) = (B - D) 50% Crown funding applied to date**	**(H) Reserve interest accrued**	**(I) Other funding sources**	**(E - F) Total funding pending 2015/16**
Lake Rotoehu	**$000**	**$000**	**$000**	**%**			**$000**	**$000**	**$000**	**$000**	**$000**	**$000**	**$000**
Weed Harvesting	104	71	(33)	69%	✓	✓	36	50	25	36	0	0	25
Land Management Change	1,068	948	(120)	89%	✓	✓	474	0	0	474	0	0	0
Phosphorus Locking Soda Springs	136	243	106	178%	!	✓	121	69	34	121	0	0	35
Aeration	52	78	26	150%	✓	✓	39	26	13	39	0	0	13
Sediment capping	0	0	0	0%	✓	✓	0	0	0	0	0	0	0
Wetlands	0	0	0	0%	✓	✓	0	0	0	0	0	0	0
Total Lake Rotoehu	**1,360**	**1,339**	**(21)**				**670**	**145**	**72**	**670**	**0**	**0**	**73**
Lake Ōkāreka													
Sewerage Reticulation	0	0	0	0%	✓	✓	0	0	0	0	0	0	0
Land Management Change	0	0	0	0%	✓	✓	0	0	0	0	0	0	0
Outlet Structure	0	0	0	0%	✓	✓	0	0	0	0	0	0	0
Total Lake Ōkāreka	**0**	**0**	**0**				**0**	**0**	**0**	**0**	**0**	**0**	**0**

Rotorua Te Arawa Lakes Programme - Report B

CFO Actual Year to Date Detailed Financial Progress Statement - Year Ended 30 June 2016

	Funding deed clause 5.4.1						5.4.2 (a) Note 1	5.4.2 (b) / 5.2.2 (d)			5.4.2 (c)	5.4.2 (d) Note 2	
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Lake Rotorua													
Advice and Support	573	321	(252)	56%			160	285	125	160	0	0	160
Rotorua Lakes Phosphorus Locking	750	763	13	102%			382	375	187	382	0	0	188
Tikitere Diversions	162	133	(28)	83%			67	75	38	67	0	0	37
Gorse	562	99	(463)	18%			50	281	141	50	0	0	140
Wetlands	0	0	0	0%			0	0	0	0	0	0	0
Land Incentive Payments	3,000	0	(3,000)	0%			0	1,500	750	0	0	0	750
Land Incentive Board Administration	500	430	(69)	86%			215	250	125	215	0	0	125
Sewerage Reticulation	320	36	(284)	11%			18	160	80	18	0	0	80
Total Lake Rotorua	**5,866**	**1,783**	**(4,083)**				**891**	**2,926**	**1,446**	**891**	**0**	**0**	**1,480**
Lake Rotoiti													
Sewerage Reticulation	800	394	(406)	49%			197	400	200	197	0	0	200
Ohau Wall Reconsenting	264	96	(168)	37%			48	132	66	48	0	0	66
Total Lake Rotoiti	**1,064**	**490**	**(574)**				**245**	**532**	**266**	**245**	**0**	**0**	**266**
Rotorua District													
Treatment and Disposal	0	0	0	0%			0	0	0	0	0	0	0
Total Lake Rotoiti	**0**	**0**	**0**				**0**	**0**	**0**	**0**	**0**	**0**	**0**
Total Programme by Council													
Rotorua Lakes Council	1,120	430	(690)				215	560	280	215	0	0	280
Bay of Plenty Regional Council	7,170	3,182	(3,988)				1,591	3,043	1,504	1,591	0	0	1,539
	8,290	**3,612**	**(4,678)**				**1,806**	**3,603**	**1,784**	**1,806**	**0**	**0**	**1,819**
Total Programme Expenditure	**8,290**	**3,612**	**(4,678)**				**1,806**	**3,603**	**1,784**	**1,806**	**0**	**0**	**1,819**

Rotorua Te Arawa Lakes Programme - Report B

CFO Actual Year to Date Detailed Financial Progress Statement - Year Ended 30 June 2016

	Funding deed clause 5.4.1						5.4.2 (a) Note 1	5.4.2 (b) / 5.2.2 (d)			5.4.2 (c)	5.4.2 (d) Note 2	
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Programme reserve account interest accrued													
Rotorua Lakes Council	0	0	0				0	0	0	0	(87)	0	(87)
Bay of Plenty Regional Council	0	0	0				0	0	0	0	(53)	0	(53)
	0	**0**	**0**				**0**	**0**	**0**	**0**	**(140)**	**0**	**(140)**
Total Programme	**8,290**	**3,612**	**(4,678)**				**1,806**	**3,603**	**1,784**	**1,806**	**(140)**	**0**	**1,679**

Key to financial progress indicators

Progress to date on track

Progress to date moderate risk

Progress to date at risk