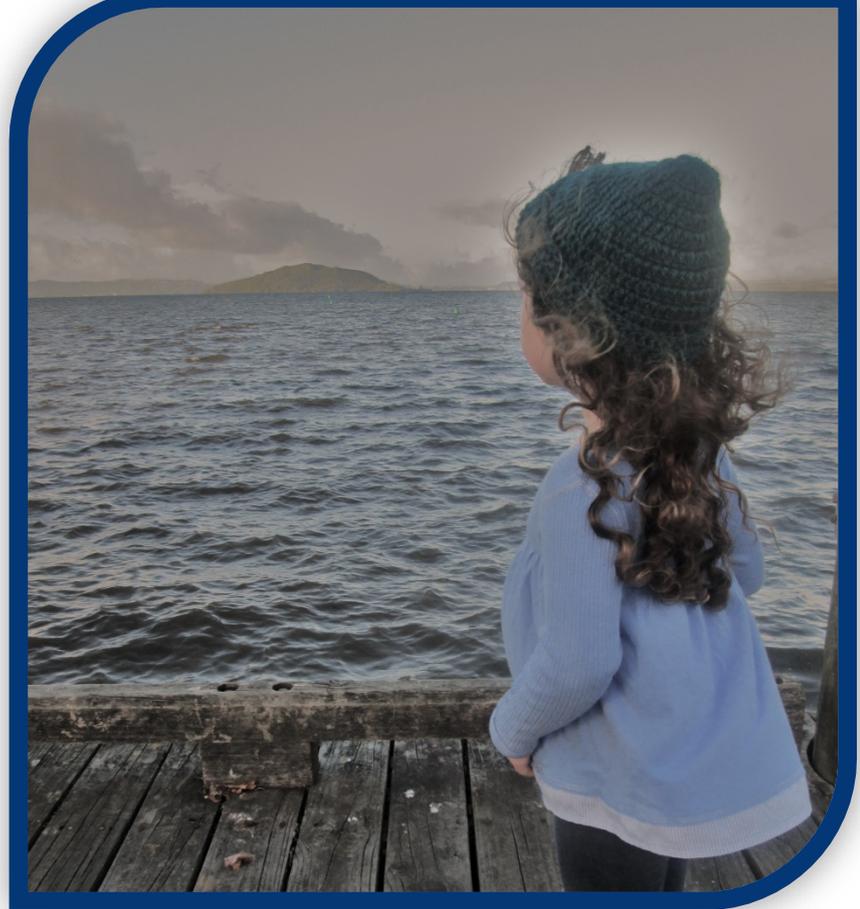




Annual Report 2013-2014



Proud Partners



Bay of Plenty
REGIONAL COUNCIL



TE ARAWA LAKES TRUST

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Purpose

The purpose of the Annual Report is to provide progress and achievements made by the Rotorua Te Arawa Lakes Programme to improve water quality.

Progress is reported against the Annual Work Programme of the Funding Deed for the financial year ending June 2014. Water quality improvement outcomes are tracked by water quality monitoring results.

The over-arching goal of the Deed of Funding Agreement is to meet community aspirations for water quality in four lakes (Rotorua, Ōkāreka and Rotoehu).

The 2013-2014 water quality results were very positive, with all Deed funded lakes showing significant improvements since the commencement of Crown funding in 2006.

The report focusses on providing all operations, policy and support work undertaken for Deed funded lakes. Information on non-deed funded lakes is also included.

Key Achievements

The Rotorua Te Arawa Lakes Programme had another successful year with significant progress being made towards the restoration and protection of the Rotorua Te Arawa Lakes.

Key achievements 2013-2014		
Land based interventions	Lake based interventions	Policy, planning & action plans
<ul style="list-style-type: none"> • Ōkaro detainment dam earthworks and structure completed. • Nutrient reduction agreement secured for Lake Rotoehu (D) • Lake Rotorua Gorse Conversion Fund approved and discussions commenced with interested landowners. (D) • Project Steering Committee established to identify and recommend alternative options for wastewater treatment and disposal at Rotorua. (D) • Project Steering Committee established to help identify the options for reticulation of Gisborne Point and Lake Rotomā. (D) • Rotorua Wastewater Treatment Plant change to consent approved. 	<ul style="list-style-type: none"> • Treated in-lake nutrient releases at Lake Ōkaro and Okawa Bay, Lake Rotoiti with alum dosing (D) • Weed harvester secured for programme. (D) • Weed harvesting for Lake Rotoehu completed. (D) • Rerewhakaaitu Treatment Wall completed. • Alum dosing protocol re-confirmed.(D) • Tikitere diversion trial completed. (D) 	<ul style="list-style-type: none"> • Approval of integrated approach to nutrient reductions for Lake Rotorua rules and incentives. (D) • Approval of draft rules for consultation for Lake Rotorua catchment. • Rules needs analysis commenced for all other Lakes. • Revised Strategy for the Lakes of the Rotorua District approved. • Plan Change 2 of the Onsite Effluent Treatment Plan completed.
Science	Communications	Programme
<ul style="list-style-type: none"> • The University of Waikato Chair of Science and the Technical Advisory Group continue to provide expert advice and scientific rigor for the programme. • Science Plan completed and approved. • New Land Technical Advisory Group approved. • Post implementation review of Action Plans for Ōkaro and Ōkāreka commenced. • Lake Rotorua modelling completed. • Lake Rotorua catchment boundary completed. 	<ul style="list-style-type: none"> • Regular programme updates to stakeholders. • Lakes photo competition with 139 entries. • Increased traffic to lakes website. • Regular media releases to help raise awareness of the programme and interventions. • Rotorua Land Innovations Challenge completed. • 6 monthly surveys showed improvements in programme communication and engagement. • Iwi engagement sessions. 	<ul style="list-style-type: none"> • Risk Management Plan approved. • Programme Management Plan 2013/2014 approved September 2013. • Change Management Plan approved. • Schedules in place for all key projects. • Confirmation of Deed of Funding Transfer confirming Lake Rotorua Incentives programme. (D) • Finance management plan approved.

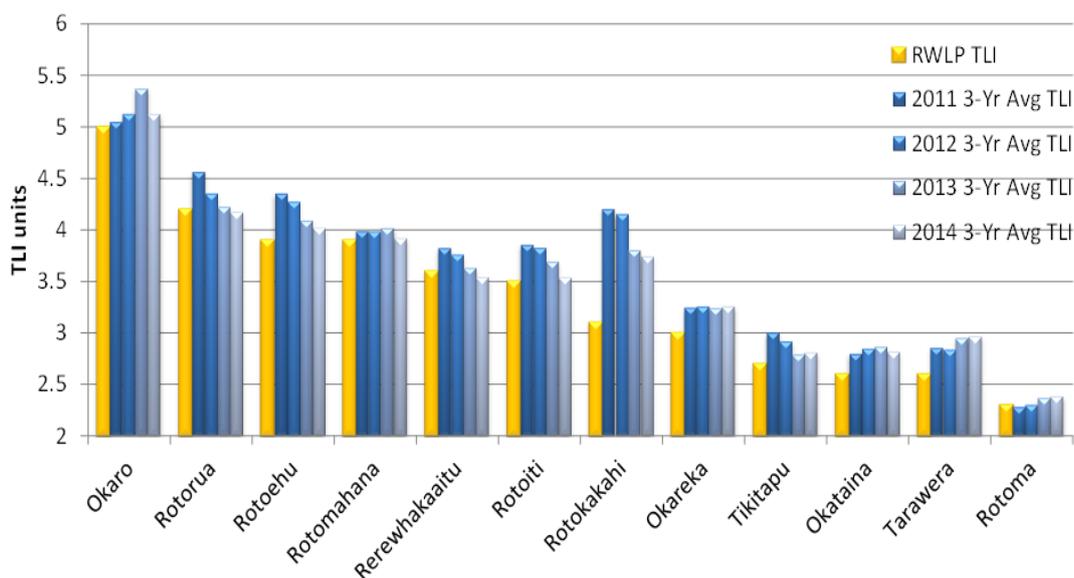
Rotorua Te Arawa Lakes annual water quality results

All work undertaken in the Rotorua Te Arawa Lakes Programme is to achieve water quality targets set in consultation with the community.

The annual monitoring results for the year were very positive with the majority of the lakes in the programme at or close to their water quality target. Deed funded lakes have seen significant improvements in water quality since funding commenced in 2006.

A summary of the 2013-2014 results includes:

- Eight lakes met or were very close to their water quality target:
 - Lakes Rotorua, Rotoiti, Ōkaro, Rerewhakaaitu and Rotomahana met their water quality target
 - Lakes Rotoehu, Tikitapu and Rotomā were just above their water quality target
- Most lakes have stable water quality. However, there is some continued decline in Lakes Tarawera and Rotokakahi
- Of particular note is the marked recorded improvement in Lake Ōkaro, the best ever recorded water quality for that lake. However, further investigations are needed into fluctuations here.



Note: Lake Rotokakahi TLI's are based on Te Wairoa Stream monitoring and a 3-parameter TLI (no secchi disk).

Long-term water quality trends

Annual water quality results can fluctuate due to an array of reasons, including climatic conditions and rainfall. It is important to track the long-term trend in water quality results for each lake to track progress, this can be achieved by considering the three yearly average TLI. Of the 12 Rotorua lakes in the programme, tracking of the long-term water quality trend (three-yearly average TLI) shows:

- Water quality in Lakes Rotorua, Rotoiti, Rotoehu, Rerewhakaaitu, Rotomā and Tikitapu is improving;
- Water quality in Lakes Ōkātina, Ōkareka and Rotomahana is stable;
- Water quality in Lakes Tarawera and Rotokakahi shows deterioration over the long-term data set;
- Water quality in Lake Ōkaro fluctuates and continued investigation is needed.



Lake Rotorua

To meet community expectations for Lake Rotorua, nitrogen inputs need to reduce by a total of 320 tonnes and phosphorus needs to reduce ten tonnes per year. We also need to reduce the impact of nutrients already in the lake.

To achieve water quality targets for Lake Rotorua we are undertaking both short term and long term interventions. Short term interventions have resulted in the lake achieving its TLI target for the last two years. However, the lake will decline again if these interventions are not carried out annually. The solution to sustainable improvements is reducing the amount of nutrients entering the lake.

The graphs below show total nutrient targets and planned versus achieved targets for the financial year ending 30 June 2014.

WATER QUALITY AT A GLANCE:

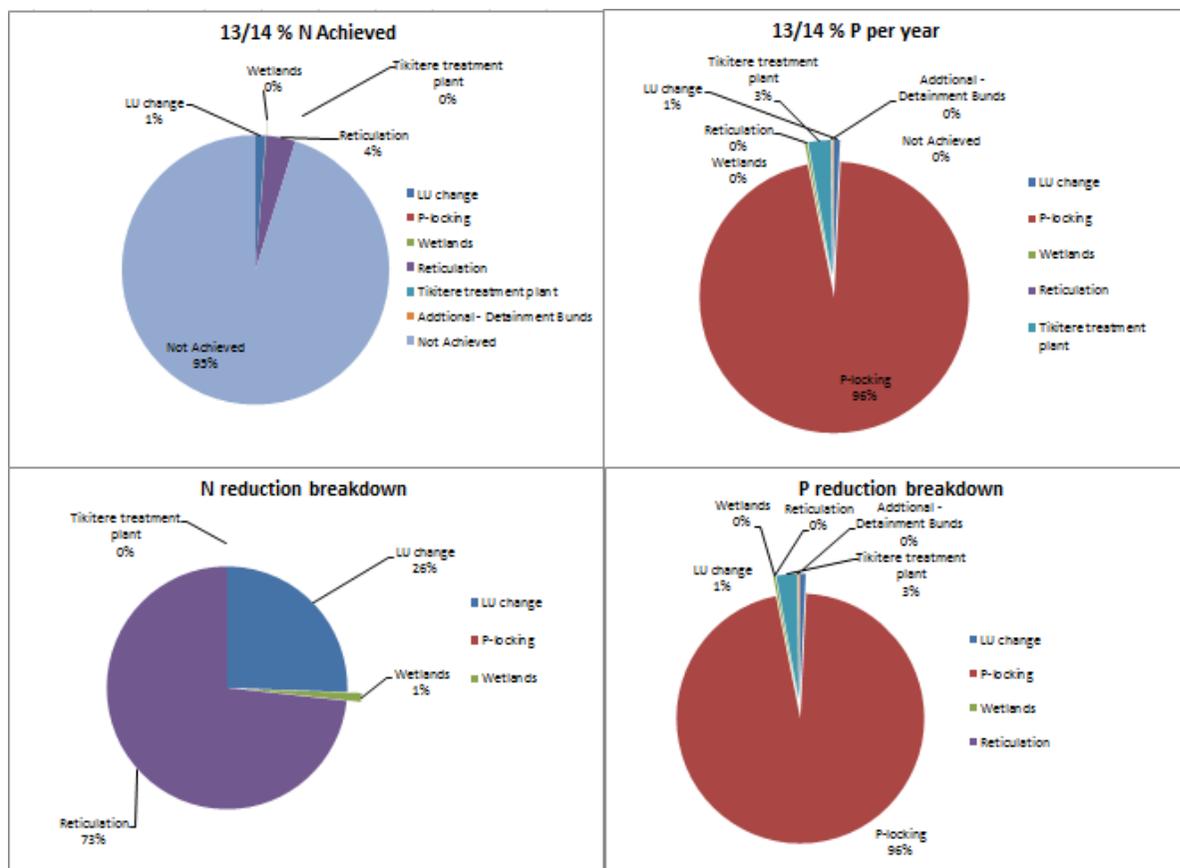
2014 TLI	4.2
2013 TLI	4.2
Target	4.2

Water quality in Lake Rotorua continues to be the best it has been in decades.

2013-2014 is the third consecutive year Lake Rotorua met, or was close to its TLI target.

The improvements are mainly due to the short-term action of alum dosing and to reticulation.

For sustainable long-term water quality nutrient reductions from land-use are required.



PROGRAMME UPDATE – LAKE ROTORUA						
Project	Deed funded	Total target	Annual target	Annual result	Comments	Project status
Land use change	Yes	270 T N	4.6 T N	3.94 T N	Current result achieved in prior years.	
		10 T P	0.24 T P	0.08 T P		
Rules		140 T N	0	0	The rules to reduce nitrogen losses are on track for notification in 2015.	
Incentives		100 T N	0	0	The incentives scheme has been delayed and is planned to become operative in 2015.	
Gorse		30 T N	0	0	Gorse Conversion Fund approved in March 2014 and discussions have commenced with landowners.	
Waste Water Treatment Plant Options Analysis	Yes	15 T N	0	0	Agreed to have options completed by June 2014. Delayed due to increased consultation with community.	
Tikitere treatment plant	Yes	30 T N	0	0.28 T P	Additional trials carried out, construction delays based on clarifying design, Plan to complete in 14/15 at risk - go/no go planned Oct 14.	
P-locking	Yes	0	20T P	10 T P	Lowered dosing rates still enabled TLI to be achieved.	
Detainment Bunds	No	0	0	0.02 T P	Completed in prior years.	
Mamaku sewerage reticulation	No	0	0			

PROGRAMME UPDATE – LAKE ROTORUA						
Project	Deed funded	Total target	Annual target	Annual result	Comments	Project status
Sewerage Reticulation		11.3 T N	11.3 T N	11.3 T N	Completed in prior years.	
Hamurana/		2.5 T P	2.5 T P			
Brunswick	Yes					
Rotokawa	Yes					
Hinemoa Point	Yes					
Tarawera Road	Yes					
Paradise Valley	Yes					
	No					
Wetlands	No	0	0	0.18 T N 0.03 T P	Completed in prior years	
Total		315 T N 10 T P	15.9 T N 22.74 T P	15.42 T N 10.41 T P		

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

Annual Programme Report 2013-2014



Comments On Behind Schedule Projects – Rotorua

Land Use Change

The Annual Work Programme had the Incentives scheme scheduled to commence in February 2014. The Regional Council integrated the Deed of Funding incentives project with the development of regional rules to control discharges. This integration recognised the independencies between the two projects. The Regional Council requested that the funds and the associated nutrient reduction targets be allocated to future years. Additional information was required from the Crown to support the cabinet paper seeking approval to the transfer of funding. Change request 004 which enabled the transfer of funds and targets was approved on the 19 March 2014.

Tikitere Treatment Plant

Analysis and reporting was completed on the two different trials of removing geothermal nutrients, zeolite and de-nitrification. Zeolite was identified as the more effective method for geothermal nutrient removal.

Construction of a full scale treatment plant at Tikitere did not occur in 2013-2014 to allow further testing to a greater scale (Change Request 003). A 5% scale zeolite trial was completed to confirm confidence in the performance of the plant.

Once results from the larger trial are finalised, design and pricing of the full scale plant can be confirmed. Early indications are that while the Plant is still an economic option for nitrogen removal, original construction costs have been underestimated. It is likely a further change request will be required in 2014/2015.

Lake Rotoehu

To meet community expectations for water quality Lake Rotoehu needs a reduction of 8.9 tonnes of nitrogen and 708 kg of phosphorus. The main long term intervention in Lake Rotoehu is land management change (completed this year), which is complemented by some short term interventions.

All activities (except ongoing weed harvesting and p-locking) are completed for this lake, monitoring will continue.

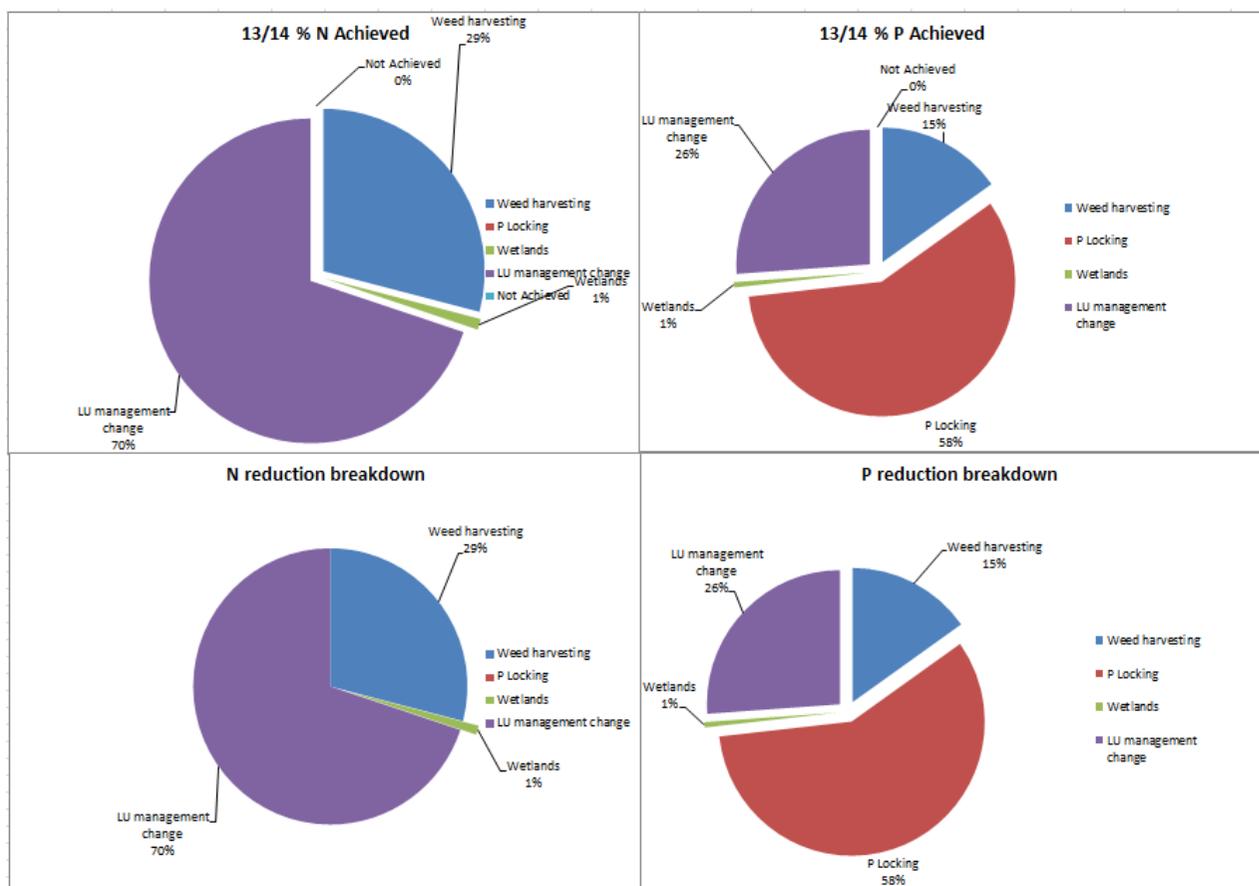
The graphs below show total nutrient targets and planned versus achieved for the financial year ending 30 June 2014.

WATER QUALITY AT A GLANCE:

2014 TLI	4.0
2013 TLI	4.0
Target	3.9

For the second consecutive year Lake Rotoehu was very close to meeting its water quality target.

Water clarity was the best it has been since the early 1990s, although there was a month long algal bloom in late summer, early autumn.



PROGRAMME UPDATE – LAKE ROTOEHU							
Project	Deed funded	Total target	Annual target	Annual result	Variance	Comments	Project status
Land use and land management change rules and incentives	Yes	6.6 T N .460 T P	1.7 T N	8.45 T N 0.81 T P		Complete - Land use change agreement secured in 2013/2014.	
Weed harvesting	Yes	3.5 T N	3.5 T N	3.51 T N 0.47 T P		Weed Harvester procured in 2013/2014 to secure this intervention.	
Phosphorus locking	Yes	.700 T P	.700 T P	1.80 T P		Ongoing	
Aeration trial	Yes	0	0	0		Trials continue as planned until 2017.	
Floating wetland	Yes	0.132 T N 0.021 T P (Tanner <i>et al</i> 2010)	0.132 T N 0.021 T P	0.13 T N 0.02 T P		Completed in prior years.	
Total		10.232 T N 1.181 P N	5.332 T N .721 T P	12.09 T N 3.1 T P			

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

Lake Rotoiti

To meet community expectations for water quality, Lake Rotoiti needs a reduction of 130 tonnes of nitrogen and 19 tonnes of phosphorus.

The Ohau Diversion Wall is established and protecting the lakes water quality while nutrient reductions to Lake Rotorua are achieved. Lake Rotorua improved water quality, having a positive impact to Lake Rotoiti. Repairs will be required to the Diversion wall in 2014/2015 as a result of degradation of the wall evident this year.

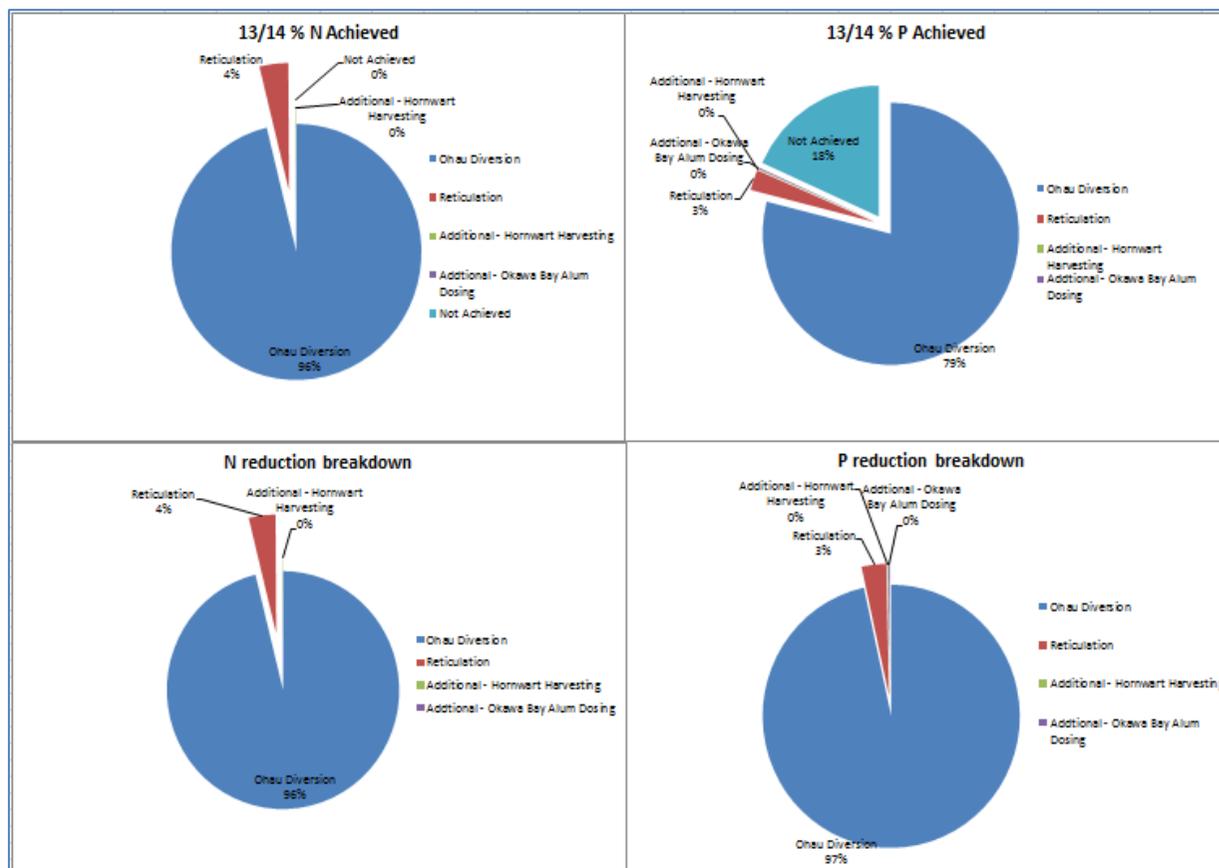
The graphs below show total nutrient targets and planned versus achieved for the financial year ending 30 June 2014.

WATER QUALITY AT A GLANCE:

2014 TLI	3.4
2013 TLI	3.44
Target	3.5

Lake Rotoiti continues to improve and was at its target for the second year in a row. The lake was at its clearest since 1990 when monitoring began.

There was an algal bloom in Okawa during summer 2013/14. It developed to a level that triggered a health warning during February and March 2014. Staff undertook alum dosing to address the bloom on 16 February. The bloom subsided by the end of March when the health warning was removed.



PROGRAMME UPDATE – LAKE ROTOITI							
Project	Deed funded	Total target	Annual target	Annual result	Variance	Comments	Project status
Sewerage Scheme – Curtis Road to Hinehopu	Yes	4.9 T N 1.1 T P	0	0		Project Steering Committee formed to identify options with the community to complete reticulation. Sewerage Scheme at Gisborne point is delayed until 2017 (Change Request Approved CR001).	
Ohau Diversion Wall	Yes	130 T N 15 T P	150 T N 15 T P	150 T N 15 T P		Project complete – Wall has shown signs of deterioration, this deterioration and cost of remedy is being investigated, options to be confirmed October 2014.	
Sewerage schemes Okere/Otatamarae/ Whangamarino/Mourea/ Okawa Bay	Yes	8.5 T N 1.9 T P	5.90 T N .21 T P	5.82 T N 0.48 T P		62% completed for Rotoiti. RDC in consultation with community to work on finishing reticulation.	
Hornwart harvesting	No	0	0	0.13 T N 0.02 T P		Unplanned work -Weed harvesting was undertaken for amenity reasons and not set out in the annual work programme.	
Okawa Bay Alum Dosing	No	0	0	0.03 T P		Unplanned work - Rapid response initiated as per resource consent to halt an algal bloom.	
Total		143.40 T N 18 T P	155.90 T N 15.21 T P	155.95 T N 15.53 T P			

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

Lake Ōkareka

To meet community expectations for water quality Lake Ōkareka needs a reduction of 2.5 tonnes of nitrogen and .08 tonnes of phosphorus.

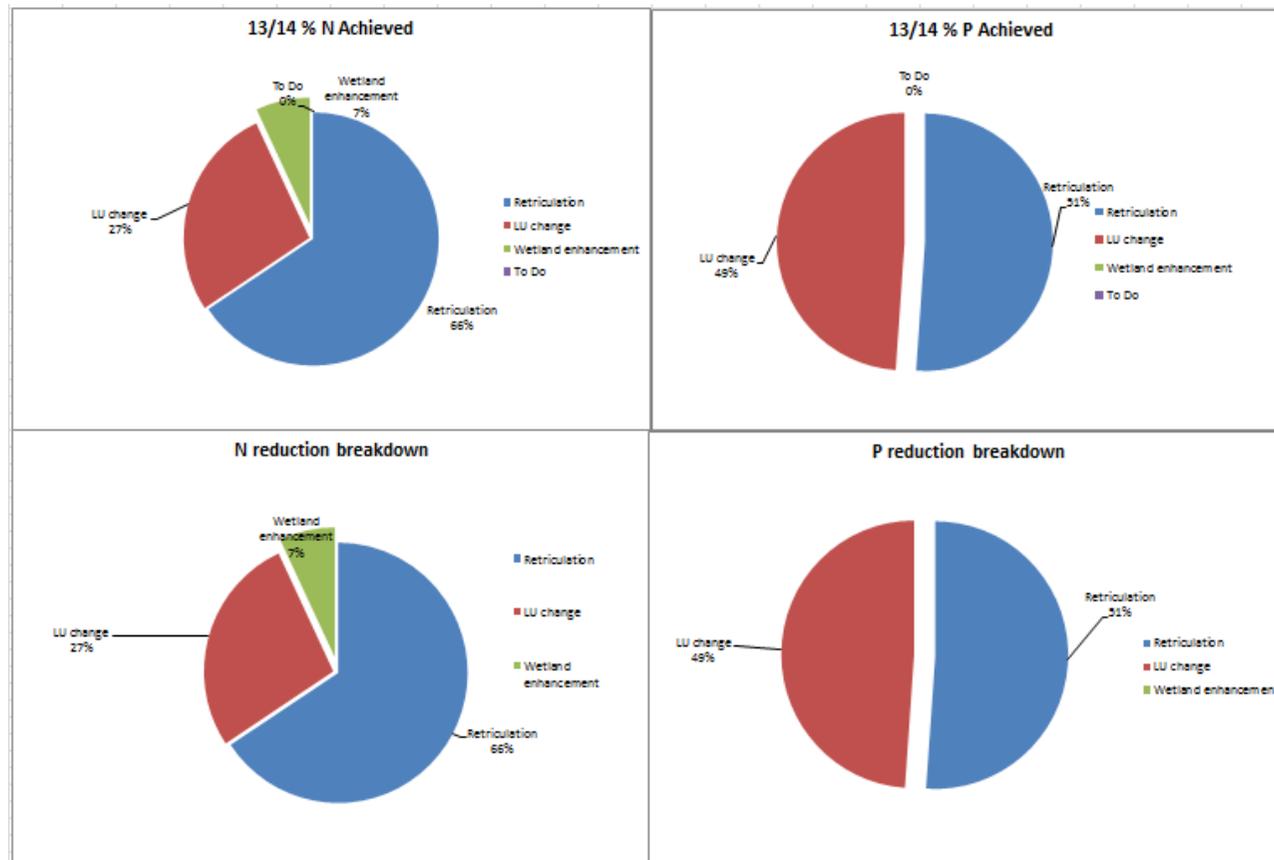
No actions were planned for Lake Ōkareka this financial year. Nitrogen and phosphorus targets have been met as per agreed action plan. On-going monitoring of existing interventions will inform if further actions are required in later years of the programme.

WATER QUALITY AT A GLANCE:

2014 TLI	3.3
2013 TLI	3.1
Target	3.0

Annual monitoring results saw a slight decrease in water quality over the last year.

The long-term water quality trend in Ōkareka is stable.



PROGRAMME UPDATE – LAKE ŌKAREKA								
Project	Deed funded	Total target	Annual target	Annual result	Variance	Comments	Project status	Budget status
Sewerage reticulation	Yes	2.4 T N .02 T P	2.4 T N .02 T P	2.83 T N 0.23 T P		Project complete		
Land use change	Yes	.9 T N .06 T P	.9 T N .06 T P	1.18 T N 0.22 T P		Project complete		
Wetland enhancement	Yes	0.30 T N	0.30 T N	0.30 T N		Completed in prior years.		
Total		3.6 T N 0.19 T P	3.6 T N 0.19 T P	4.31 T N 0.45 T P				

Actions and outcomes for all other lakes

<p>Lake Tikitapu</p> <p>2014 TLI 2.82</p> <p>2013 TLI 2.75</p> <p>Target 2.7</p>	<p>No actions were undertaken for Lake Tikitapu in the 2013-2014 year. The main action of sewerage reticulation was completed in October 2010.</p> <p>There was a slight decrease in the water quality result for Tikitapu, but the long-term water quality is stable.</p> <p>Lake Tikitapu stormwater upgrade was delayed till 2014/2015, as approved through change request 008 on April 16 2014.</p>
<p>Lake Ōkātina</p> <p>2014 TLI 2.69</p> <p>2013 TLI 2.8</p> <p>Target 2.6</p>	<p>Water quality continued to improve in Ōkātina and is close to the lake target.</p> <p>Implementation of the Action Plan has begun. A PhD study has commenced to understand the long-term and short-term changes in water quality of Lake Ōkātina and the underlying causes, particularly in relation to exotic species.</p> <p>No Land use change achieved in Ōkātina in 2013/2014.</p>
<p>Lake Ōkaro</p> <p>2014 TLI 4.49</p> <p>2013 TLI 5.4</p> <p>Target 5.0</p>	<p>Water quality significantly improved over the last year and recorded the lowest TLI observed for the lake, meeting its TLI target.</p> <p>This year the lake has recorded much lower dissolved phosphorous concentration, probably due to alum dosing and the construction of a detention dam to reduce peak storm flows bypassing the wetland.</p> <p>Water quality fluctuates in this lake and further investigation is needed. Land use and lake modelling is underway and once completed the post implementation review of the action plan will commence.</p> <p>All actions in this action plan have been completed.</p>
<p>Lake Rotomā</p> <p>2014 TLI 2.38</p> <p>2013 TLI 2.4</p> <p>Target 2.3</p>	<p>Water quality at Lake Rotomā remains stable, slightly above the target TLI of 2.3.</p> <p>The key action at Lake Rotomā is sewerage reticulation. This has been delayed while options for wastewater disposal are developed in consultation with the community.</p>
<p>Lake Rerewhakaaitu</p> <p>2014 TLI 3.43</p> <p>2013 TLI 3.5</p> <p>Target 3.6</p>	<p>Lake Rerewhakaaitu continues to improve and was below its water quality target for the last two years.</p> <p>Rerewhakaaitu farmers have taken the lead to develop their own catchment plan to improve lake water quality, with support from the Programme. The primary focus is to prepare and implement a nutrient management plan for each farm, which is well underway. This is considered to be the key reason for the lake reaching its TLI.</p> <p>A de-nitrification treatment wall was installed in the main stream leading to the lake.</p> <p>Nitrogen levels in the lake have decreased over the last six years and Secchi depth has improved by over half a metre.</p>
<p>Lake Tarawera</p> <p>2014 TLI 3.0</p> <p>2013 TLI 2.9</p> <p>Target 2.6</p>	<p>Tarawera's annual water quality result was similar to last year, but is still significantly above its target.</p> <p>The Action Plan was not completed as planned in 2013/2014 due to the challenges around quantifying nutrient inputs and therefore determining the actions needed to reach the water quality target. The action is plan is now planned to be completed in 2014/2015.</p>

Lake Rotokakahi		Water quality has improved since the severe algal blooms of 2009, but is still significantly above its target.
2014 TLI	3.6	Work continues with the Tuhourangi Tribal Authority to progress the draft Action Plan. The Trust has now directed a team to prepare an action plan, BOPRC are supporting this.
2013 TLI	3.7	
Target	3.1	
Lake Rotomahana		Water quality in Lake Rotomahana remains very stable, with a slightly improved TLI this year.
2014 TLI	3.8	No actions were undertaken as Lake Rotomahana has not yet reached the trigger point to need an action plan.
2013 TLI	3.9	
Target	3.9	

Programme Management

Programme management principles continue to be used to manage the programme and have resulted in improved project planning, increased collaboration between partners and better programme reporting.

The following plans and processes have been approved in 2013-2014:

- Programme Management Plan
- Financial Management Plan
- Change Management Plan
- Risk Management Plan
- Schedules in place for all key projects

An updated Deed was agreed to in October 2013, between the Crown and all partners.

A finance audit was carried out in 2013 specific actions were noted and have been completed. This included updating the Deed, additional financial oversight and additional reporting.

Communications and Stakeholder Engagement

Implementation of the Communications and Engagement Plan continued throughout the year. In March 2014 a review of the Plan was completed and approved. The overall goal of the plan remained the same to create awareness and understanding of the programme and collaborate for a solution when required.

The following activity occurred:

- Regular programme updates to stakeholders, staff and the general community.
- Partner Agency Roadshow for staff.
- Rotorua Land Innovation Challenge.
- Our Lakes photo competition with 139 entries. A photo wall of the best entries was displayed at the Rotorua District Library.
- Two rural professionals seminars to update on Lake Rotorua rules and incentive development.

- Science presentation on Lake Rotorua modelling results with more than 100 attendees.
- Activity for Lake Rotorua rules development including public meetings, open days and mailings.
- A series of iwi engagement sessions.
- Development of collateral including published strategy, waste water treatment plant brochure and snapshot of progress report.
- Recognition evening held for winning a NZ Rivers Award attended by more than 50 people.

Website

Web traffic to the rotorualakes.co.nz website continues to increase and averages close to 1,000 visits per month, with 37 percent of visitors returning to the site more than once.

Number of visits	Unique Visits	Pages viewed	Average time spent per visit
15,473	9,786	57,703	3.33

The most viewed pages throughout the year have been:

Page	Number of visits
Home page	8,209
Rotorua Land Innovation Challenge	2,519
Lake events	1,771
Lake Rotorua	1,230
Lakes	1,029
Lake Rotoiti	925
Water quality	774
Strategy	702
Lake Tarawera	678

Surveys

The effectiveness of the Communication and Engagement Plan is measured through surveys of the community, key stakeholders and partner agency staff.

Surveys were conducted in November 2013 and measured against the benchmark surveys conducted in March 2013.

Community survey

The second wave of community research showed people have a more favourable view of the water quality in the lakes and seem to be broadly more aware of pollution causes relating to farm run-off, nutrients and algae. There was less blame on historical sewage for Lake Rotorua's water quality issues. This shows that information from the Programme has filtered through to the local population.

Key stakeholder survey summary

The targeted communications to stakeholders has had an impact on the perceptions of communication and engagement. All benchmarks from the March 2013 surveys showed improvement.

The biggest improvement was a 21% increase in the view that communications were of high quality and an 11% improvement on the stakeholders being happy with the quantity of communications.

Engagement scores improved by 11% in people's agreeing that engagement is of high quality and there was a 7% improvement on satisfaction with the amount of engagement.

Programme Staff Survey

The programme staff views on communication have improved significantly since the initial survey. The increased staff and external communications have improved staff's knowledge and confidence in talking about the Rotorua Te Arawa Lakes Programme.

Key areas of improvement include:

- 33% improvement on staff thinking information they received was relevant to their role.
- 29% improvement in staff being satisfied with communications on programme.
- 20% improvement in staff confidence talking about the programme.
- 18% improvement in staff receiving the right information to do their jobs.
- 15% improvement in staff knowledge of programme actions.
- 7% improvement in staff agreeing that programme recognises and celebrates success.

There were some areas that declined or saw minimal improvement:

- 4% reduction in staff being proud to work in lakes programme.
- 10% more staff are neutral to thinking their role relates to the lakes programme.
- 2% reduction in staff being an advocate for the lakes programme.

Policy and Planning

Lake Rotorua Rules and Incentives

Major milestones have been achieved for the Lake Rotorua rules and incentives project.

The Crown approved to reallocate funds for a \$45.5 million incentives scheme to help landowners with the cost of land management and land-use change needed to reduce nitrogen losses from pastoral land.

Staff continued the collaborative approach to develop the rules and incentives and worked with the Lake Rotorua Catchment Stakeholder Advisory Group (StAG). The following progress was achieved:

StAG proposed an integrated programme of property nitrogen limits and incentives to achieve the required reductions from land use. This approach was approved by Partners and the Strategy Group in September 2013.

StAG endorsed with the draft rules outlined for consultation, which was approved by Council in June 2014.

StAG recommended using \$2.2 million of the incentives fund to develop advice and support to help landowners make informed decision on their properties.

Strategy for the Lakes of the Rotorua District

A refreshed Strategy for the Lakes of the Rotorua District was approved in September 2013.

The original Strategy adopted in 2000 provided an overall management strategy for the Rotorua Lakes. It is an overarching strategy document that gives a vision for the future, with some practical steps to achieve that vision.

The vision is:

“The lakes of the Rotorua district and their catchments are preserved and protected for the use and enjoyment of present and future generations, while recognising and providing for the traditional relationship of Te Arawa with their ancestral lakes.”

The refreshed strategy retained the original vision for the Lakes but builds on the commitment of partner organisations to provide an integrated approach to managing the lakes and their catchments.

Transferable Development Rights

The proposed Rotorua District Plan includes Transferable Development Rights (TDRs) to reduce nutrients entering the Rotorua Te Arawa Lakes. The intent of TDRs is to encourage land use change from high nutrient intensive practices such as dairy farming to lower nutrient activities such as residential living.

Rotorua District Council has completed hearings on the District Plan. Decisions will be released later in the year following deliberations.

The RDC staff recommendation regarding TDR provisions to the hearings committee was to delay the process to enable robust analysis of the application of TDR, their economic viability and quantify the recipient areas. It is anticipated that the matter will be dealt with via a Hearing to be held in March 2015. Regional Council supported this position to ensure the best outcomes for water quality and the community.

Other Policy Development

Work on reviewing the regulatory framework for all Rotorua Te Arawa lakes (excluding Lake Rotorua) is underway.

The nutrient management in all other Rotorua Te Arawa Lakes. The regulatory framework review is being split into two projects which will run alongside each other. The first project involves a regulatory approach to consider new rules to cap land use change (intensification) in the Rotorua Te Arawa Lakes catchments which are not currently protected by Rule 11 of the Regional Water and Land Plan.

The second project involves a wider scope considering the existing provisions of the Regional Water and Land Plan and giving effect to the intent of the water quality policies of the Regional Policy Statement as well as the National Policy Statement for Freshwater Management.

Science

A Science Plan was approved that 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 advice in that area to support management decisions and council policy formulation for Rule development.

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 approved.

The Land TAG will provide 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 will provide advice to Landowners and farmers in Rotorua catchments that are facing major and complex decisions on land use change and land management investment.

Modelling

Modelling is an important part of the science support the programme. During 2013-2014 the following modelling projects progressed:

- Lake Rotorua model to determine the reasons behind the significant improvement in Lake Rotorua's water quality with a focus on identifying the role of alum dosing and short term climate effects was completed.
- Long-term impact modelling for planning future interventions and land use requirements in Lake Rotorua.
- Advanced lake models for Rotokakahi and Tikitapu for prediction of lake water quality changes as catchment and in-lake changes occur.
- Modelled the effects of the Ohau Channel diversion wall to examine whether rafting could potentially compromise the efficacy of the diversion wall.

Research and Reviews

Several research projects were completed during the last year, including;

- GNS completed Lake Rotorua Catchment boundary for planning needs.
- On-going fisheries studies of Ohau diversion wall demonstrated no adverse impact.
- Alum dosing protocol for three dosing plants on Lakes Rotorua and Rotoehu reconfirmed by Water Quality Technical Advisory Group.
- Staff and University of Waikato advice to the Rotorua and Rotomā/Rotoiti Sewage Technical Advisory Group.
- Masters study of Ōkaro catchment land use, using the INCA model and connection to the lake model to assess the effects of land use.
- Development of nutrient accounting record and confirmation from Water Quality Technical Advisory Group that assessment estimates are reasonable.
- Continued progress on Ōkātina PhD looking into the impact of exotic species introductions and catchment activities on lake water quality.
- Continued support for the Parekarangi project researching nutrient leaching with Dairy NZ and catchment farmers.
- Rerewhakaaitu sediment analyses for phosphorus concentration.
- Application of SWAT catchment model to the Puarenga catchment to identify the relative impact of the sewage irrigation.
- The monitoring of Lake Rotoehu aeration has continued over summer 2013/14 testing the effectiveness of aeration at preventing lake stratification.
- Detainment bunds for mitigating diffuse-source losses of phosphorus and sediment from pastoral farmland (MSc research by Dylan Clarke).

Financials

Rotorua Te Arawa Lakes Programme - Actual Year to Date
Full Year Financial Statement - for year ended 30 June 2014

Interventions	Funding deed clause 5.4.1			(B/A) Progress to date	Financial progress indicator (\$)	Intervention progress indicator	5.4.2 (a) Note 1		5.4.2 (b)		5.4.2 (c)		5.4.2 (d) Note 2		Additional information
	(A) Annual Work Programme 2013/14	(B) Actual year to date expenditure 2013/14	(B - A) Variance (under) over 2013/14				(D) Council Funding excluding Crown grants	(E) Crown funding received	(F) Crown funding applied	(G) = (E - F) Crown funding not spent surplus (deficit)	(H) Reserve interest accrued to date	(I) Other funding sources to date	(D + E + H + I) Total funding received to date		
	\$000	\$000	\$000	%			\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	
Lake Rotoehu															
Weed Harvesting	100	391	291	391%	🟡	🟢	195	0	195	(195)	0	0	195	CR002 approved (Sept 2013) - Purchase weed harvester. Value \$375k. CR011 - Delays in Trailer procurement & subsequent delay of trailer purchase into 2014/15. Value \$50k. Overall impact of Change requests approved. Additional \$325k. Variance of +\$291k, NOT +\$325k, due to weed harvester coming in under budget - due to exchange rate variations. ISSUE: Deal was completed with landowners & signed off by council in Jun 2013. However payment to landowners will not be completed in 2013/14. It was originally anticipated that these costs were committed & no change request was required.	
Land Management Change	1,298	8	(1,290)	1%	🟡	🟢	4	0	4	(4)	0	0	4		
Phosphorus Locking Soda Springs	100	148	48	148%	🟢	🟢	74	0	74	(74)	0	0	74	Sept 2013 - Based on actuals in 12/13, expected to spend an increased \$27k in 13/14, due to materials being under estimated. This forecast has been reported to PSG since Oct 2013. Additional staff charges were not allocated properly (\$15k) - identified in May 2014. During 13/14 work programme it was identified that the trial for Aeration would not provide the benefits required for Lake Rotorua, due to the number of aeration machines required.	
Aeration	130	119	(11)	92%	🟢	🟢	60	0	60	(60)	0	0	60		
Sediment capping	0	0	0	0%	🟢	🟢	0	0	0	0	0	0	0		
Wetlands	0	9	9	0%	🟢	🟢	5	0	5	(5)	0	0	5		
Total Lake Rotoehu	1,628	674	(954)				337	0	337	(337)	0	0	337		
Lake Okareka															
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	Note: May be a requirement to do more LUC, however we are looking at sub-division potentials to get increased gains.	
Total Lake Okareka	0	0	0				0	0	0	0	0	0	0		
Lake Rotorua															
Land Management Change	6,573	10	(6,563)	0%	🔴	🔴	5	0	5	(5)	0	0	5	CR004 approved Mar 2014. Transferred \$181k to Gorse project & Delayed other spend against LUC until future years. Note: This \$181k was not used in 2013/14 & not reforecast in 14/15. ACTION: Will need to raise a CR to address this.	
Phosphorus Locking	525	641	116	122%	🟢	🟢	321	0	321	(321)	0	0	321	*Sept 2013 - Based on actuals in 12/13, expected to spend an increased \$175k in 13/14, due to materials being under estimated (Total spend \$700k). This forecast has been reported to PSG since Oct 2013. During the year - we reviewed the amount of alum being dozed to try and minimise this dozing as much as possible, whilst managing the TL, this resulted in a reduced material spend from the \$700k. In 14/15 we have budget of \$700k allocated. Note: Should probably have been a CR for this, however the change was identified prior to the change management plan being approved.	
Tikere Diversions	2,687	504	(2,184)	19%	🔴	🔴	252	0	252	(252)	0	0	252	CR003 approved in Mar 2014, delaying build from 13/14 to 15/16 to enable RDC to work through options with the community on preferred sewerage solution. Reduce budget from \$3.17M to \$0.12M. Note: Additional community engagement required during 13/14, which resulted in an increase in budget for the year. A CR should have been prepared to support this, this has been forecast since Jan 2014. Need to ensure tighter control around CR approvals & amounts in monthly finance reporting.	
Wetlands	0	1	1	0%	🟢	🟢	0	0	0	(0)	0	0	0		
Sewerage Reticulation	322	263	(59)	82%	🟢	🟢	132	0	132	(132)	0	0	132		
Total Lake Rotorua	10,107	1,418	(8,688)				709	0	709	(709)	0	0	709		
Lake Rotoiti															
Sewerage Reticulation	3,178	266	(2,912)	8%	🔴	🔴	133	0	133	(133)	0	0	133	CR001 approved in Aug 2013, delaying build from 13/14 to 15/16 to enable RDC to work through options with the community on preferred sewerage solution. Reduce budget from \$3.17M to \$0.12M. Note: Additional community engagement required during 13/14, which resulted in an increase in budget for the year. A CR should have been prepared to support this, this has been forecast since Jan 2014. Need to ensure tighter control around CR approvals & amounts in monthly finance reporting.	
Total Lake Rotoiti	3,178	266	(2,912)				133	0	133	(133)	0	0	133		
Rotorua District															
Treatment and Disposal	0	209	209	0%	🔴	🔴	105	0	105	(105)	0	0	105	CR006 approved in Jun 14 for \$250k, to allow funding for RDC to work with the community on options for WWTP in Rotorua.	
Total Lake Rotoiti	0	209	209				105	0	105	(105)	0	0	105		
Programme reserve account interest accrued															
Rotorua District Council	0	0	0		🟢		0	0	0	0	116	0	116	Money market average deposit rate 2.51%	
Bay of Plenty Regional Council	0	0	0		🟢		0	0	0	0	41	0	41		
Total Programme	14,913	2,567	(12,345)				1,284	0	1,284	(1,284)	157	0	1,441		

5.4.2 (a) Note 1: Funding detail - Council
 RDC capital funding including Council debt funding and development contributions? 369
 BoPRC reserves 492
 Targeted rates 210
 General funding 214
Total funding detail - Council 1,284

5.4.2 (b) Note 2: Funding detail - any other source
 Miscellaneous income 0
Total funding from any other source 0

Key to progress indicators
 Progress to date on track 🟢
 Progress to date moderate risk 🟡
 Progress to date at risk 🔴

Annual Programme Report 2013-2014



Rotorua Te Arawa Lakes Programme - Forecast of Programme Reserve Funding Full Year 2014

	2012/13		2013/14		2014/15 Onwards		Forecast of Programme Funding		5.4.2/5.4.3		Additional Information	
	5.22 (b)	5.22 (e)	5.22 (f) (ii)	5.22 (i) (ii)	9.3.2	Forecast of Programme Funding		5.4.2/5.4.3				
	A) Project to Date Expenditure to 30 June 2013	B) Project to Date Crown Funding to 30 June 2013	C) Project to Date Application of MFE Funding	D) Programme Reserve Interest (not required)	E) MFE Funding contributions - Other Sources	(B + D + E - C) Project to Date Closing Balance Surplus (Deficit)	F) Actual Application of Programme Funding	G) Commitment to Deferred Works	H) Commitment to Future Interventions	I) Amount available for Reinvestment	(F + G + H + I) Total Forecast	
	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	
Lake Rotoehu												
Weed Harvesting	596	200	298	0	0	(98)	195	0	0	0	195	Reset deficit to zero. Programme reserve funding for 2013/14 in lieu of grants
Land Management Change	1,061	250	531	0	0	(281)	4	0	0	0	4	Reset deficit to zero. Programme reserve funding for 2013/14 in lieu of grants
Phosphorus Locking Soda Springs	873	425	436	0	0	(11)	74	0	0	0	74	Reset deficit to zero. Programme reserve funding for 2013/14 in lieu of grants
Aeration	526	0	263	0	0	(263)	60	0	0	0	60	Reset deficit to zero. Programme reserve funding for 2013/14 in lieu of grants
Sediment capping	10	0	5	0	0	(5)	0	0	0	0	0	Reset deficit to zero. The annual report 12/13 excluded this as not in work programme budgets. Part of outcome based interventions so included in project to date
Wetlands	720	300	360	0	0	(60)	5	0	5	0	9	Reset deficit to zero.
						0	0			0	0	Reset deficit to zero.
Total Lake Rotoehu	3,786	1,175	1,893	0	0	(718)	337	0	5	0	342	
Lake Okareka												
Sewerage Reticulation	7,889	4,850	3,944	0	0	906	0	0	0	0	0	Reset to zero. Request to transfer to Rotorua Treatment and Disposal. RDC to confirm
Land Management Change	449	500	224	0	0	276	0	0	0	0	0	All project to date expenditure included; not capped to annual work programmes. Rebudgeted in 2014/15. Funding available reduced as programme reserves applied to other interventions in lieu of grants. This needs to be actioned in final annual plan as excluded in draft
Total Lake Okareka	8,338	5,350	4,169	0	0	1,181	0	0	0	0	0	
Lake Rotorua												
Land Management Change	1,230	1,000	615	0	111	496	5	318	0	0	323	Rebudgeted in 2014/15. Funding available reduced as programme reserves applied to other interventions in lieu of grants
Phosphorus Locking	3,564	2,475	1,782	0	0	693	321	0	0	0	321	Funding for 2013/14 in lieu of grants
Tikitere Diversions	1,059	1,775	529	0	0	1,246	252	0	0	0	252	Funding for 2013/14 in lieu of grants. Funding for deferred works reduced by reallocating funding to other interventions in lieu of grants for 2013/14, and 2012/13.
Wetlands	455	0	227	0	0	(227)	0	0	0	0	1	
Sewerage Reticulation	22,641	9,675	11,320	0	0	(1,645)	132	0	0	0	132	Overspend - no grants received 2012/13. Off-set deficit to grants received for Rototi
Total Lake Rotorua	28,947	14,925	14,474	0	111	562	709	318	0	0	1,028	
Lake Rototi												
Sewerage Reticulation	12,068	11,075	6,034	0	0	5,041	133	3,135	0	0	3,268	Project delayed because of resource consents. Balance reduced by Rotorua scheme deficits.
	12,068	11,075	6,034	0	0	5,041	133	3,135	0	0	3,268	
Total Lake Rototi	12,068	11,075	6,034	0	0	5,041	133	3,135	0	0	3,268	
Rotorua District												
Treatment and Disposal	203	0	102	0	0	(102)	105	0	700	0	805	RDC to confirm. Approval sought for transfer of funds of \$906k from Lake Okareka sewerage reticulation as project complete.
	203	0	102	0	0	(102)	105	0	700	0	805	
Total Rotorua District	203	0	102	0	0	(102)	105	0	700	0	805	
Total Programme	53,341	32,525	26,671	0	111	5,965	1,284	3,453	705	0	5,442	
Programme reserve interest accrued												
Interest accrued - RDC	0	0	0	0	0	0	0	0	0	116	116	
Interest accrued - BoPRC	0	0	0	0	0	0	0	0	0	41	41	
Total Programme Reserve Interest	0	0	0	0	0	0	0	0	0	157	157	
MFE Programme Reserves held by:												
Rotorua District Council	42,800	25,600	21,400	0	0	4,200	369	3,135	700	116	4,320	
Bay of Plenty Regional Council	10,541	6,925	5,271	0	111	1,765	915	318	5	41	1,279	
Total Programme Funding Reserves	53,341	32,525	26,671	0	111	5,965	1,284	3,453	705	157	5,599	
Forecast Opening Balance by Year												
	Opening Balance 13/14	Movement 13/14	Opening Balance 14/15	Forecast Movement 14/15	Opening Balance 15/16	Forecast Movement 15/16	Opening Balance 16/17	Forecast Movement 16/17	Opening Balance 17/18			
Rotorua District Council	4,200	253	3,947	396	3,551	2,812	740	3,351	0			Based on current forecast RDC will hold programme reserves until 2016/17. Total forecast expenditure in 2016/17 is \$6.7m of which \$3.35 Crown funding required
Bay of Plenty Regional Council (9270)	1,765	874	891	318	573	0	0	0	0			Based on current forecast BoPRC will hold programme reserves until 2015/16 for one intervention only draw down request June 2015/16
Total Programme Funding Reserves	5,965	1,127	4,839	714	4,125	2,812	740	3,351	0			

APPENDIX ONE

Water Quality TLI Graphs by Lake

