Rotorua Te Arawa Lakes Strategy Group Informal Workshop Pack

DATE: FRIDAY 22 MARCH 2024

COMMENCING AT TIME: 09:30 AM

VENUE: BOPRC Rotorua Office, Waiariki Room, Corner Fenton & Pukaki Street, Rotorua

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Purpose of the Workshop

Workshop facilitated by Te Arawa Lakes Trust following the presentation of the Independent Review Report to the Rotorua Te Arawa Lakes Strategy Group to consider next steps for implementation of recommendations.

Informal Workshop Documents

Letter received from the Lakes Water Quality Society, dated 11 March 2024, will be formally received at the Rotorua Te Arawa Lakes Strategy Group meeting scheduled for 22 March 2024, after conclusion of the workshop.

Rotorua Te Arawa Lakes Strategy Group
Taiao Outcomes Framework (DRAFT)

We can measure the mauri and wairua by measuring the health of the lakes and of our people.

Te Tūāpapa o Ngā Wai o Te Arawa

TE ARAWA LAKES TRUST

Structure	Outcome	Benefits	Measures	Process timeline
Te Arawa Lakes Settlement Act 2006 **Te Arawa Lakes Trust** (14 lakes/56 Hapū) **Rotorua Te Arawa Lakes Strategy Group (RTLSG)** TE ARAWA LAKES TRUST ROTORUA LAKES COUNCIL Te Kaunihera o ngā Roto o Rotorua BAY OF PLENTY REGIONAL COUNCIL TOI MOANA **2023 Review of the RTLSG affirms Te Arawa leadership and direction-setting role**	• Water quality and strategy and implementation • Protection of taonga species • Biosecurity and protection from invasive species • Iwi and Hapū Collective Impact • Lakes recreation and Community	• Wetlands restoration • Reduce aquatic weeds • Catfish Killas • Ngā Tapuwae o Ngā Koura • Sustainability of customary fish • Kaitiakitanga – biosecurity, surveillance, compliance • Te Mana o te Wai • Te Papa Ahurewa, community benefits	• Water quality • Aquatic ecology • Implementation of Interventions and programmes • Wai Ata- cultural identity celebrated • Wai Ora – health and wellbeing improved • Wai Rua – spiritual connections enhanced	**December 2023** – RTLSG Review **22 March 2024** – RTLSG agree outcomes framework **28 March 2024** – Taiao Roundtable with Ministers and Te Arawa Lakes Trust **3 April 2024** – Invitation to Te Arawa Māori Trust Board celebration events **May 2024 – April 2025** – • MoU signed • Work programme and funding roadmap • 2024/25 Budget Announcements • Taiao Roundtable 2025

Toi Moana – Te Arawa Lakes Partnership

Restoration Objectives and Projects - Catchment Summaries

Rotorua

- Target TLI - 4.2
- Current Three-Year Average TLI – 4.3 (currently maintained by alum dosing)

Swimming Water Quality

Lake Rotorua has 'Poor' water quality for swimmability in relation to *e-coli* presence, reflecting the intensive urban and agricultural nature of the catchment. Lake Rotorua also experiences algae blooms and associated health warnings from time to time during summer. However, generally Lake Rotorua remains swimmable year-round.

Aquatic Ecology

Lake Rotorua has catfish and resultant decline in koura population. It has abundant kākahi. Lake Rotorua has large beds of invasive weeds including Lagarosiphon, Elodea and Egeria. The lake has a moderate rating under Lake SPI.

Policy

- *Regional Policy Statement* **–** Requires that the sustainable load of 435 tonnes of nitrogen to Lake Rotorua be achieved by 2032.
- *Natural Resources Plan* – TLI remove target of 4.2 set in Plan and rules in place to reduce nutrient load from farming by 2032 (previously known as Plan Change 10).
- *Integrated Framework* – Adopted in 2014 by Strategy Group and the Regional Council following a long period of collaboration with stakeholders. Provides path to sustainable nitrogen load for Lake Rotorua, replacing need for alum dosing in the long-term to achieve Target TLI.

Interventions and Progress

- Phosphorous Locking (Alum Dosing) – Currently undertaken on Puarenga and Utuhina streams at a cost of approximately $1 million annually to maintain TLI at around target of 4.2 (BOPRC Funded).
- Integrated Framework:
  - *Lake Rotorua Nutrient Management Rules* (BOPRC, Crown and landowner funded)
  - *Gorse* (BOPRC and Crown Funded) - 75% of catchment gorse (in benchmarking period) now controlled through Programme initiatives equating to approximately 745 ha of gorse controlled or being managed.
  - *Lake Rotorua Incentives Scheme* (BOPRC and Crown Funded) – has changed land use on 20% of the total farming area in the catchment in the last 6 years. Represented by a ~35.6 tonne reduction of its 100-tonne target, and more than 4400 hectares of land use change.
  - Engineering Solutions (BOPRC and Crown Funded) – ~8 tonne achieved by sewerage reticulation in early years of Programme. Now constructed wetlands being built and sites secured, with the aim of attaining the remainder of the 50-tonne target by 2032.
- Environmental Programmes (BOPRC and landowner funded) between 2017 and 2023 have achieved:
  - 55.5 kilometres of waterway fencing (stock exclusion)
  - 290,871 natives planted.
  - 175 hectares of land retirement.
  - 29 hectares of wetland restoration.
  - 134 hectares of biodiversity protection.
- According to the findings of the Lake Rotorua Science review completed in 2023 (in accordance with the Lake Rotorua nutrient rules), the nitrogen load to Lake Rotorua from rural land use in the catchment has reduced from 982 tonnes annually to 761 tonnes annually between 2017 and 2022.
- Business Case for Lake Weed Investment – Partners currently working with Lakes Water Quality Society to develop a business case to make the case to the Crown for more investment in lake weed management across the Te Arawa Lakes.

Rotoiti

- Target TLI – 3.5
- Current Three-Year Average TLI – 3.7 (currently maintained by Ōhau Wall/alum dosing on Lake Rotorua)

Swimming Water Quality

Lake Rotoiti has 'Good' water quality for swimmability in relation to *e-coli* presence. The lake does experience algae blooms and associated health warnings from time to time during summer, mainly in isolated parts of the lake such as Okawa Bay and downstream of the Ōhau Wall.

Aquatic Ecology

Lake Rotoiti has catfish and resultant decline in koura population. It has abundant kākahi. Lake Rotoiti has a number of invasive aquatic weeds including Hornwort, Egeria, Elodea, Lagarosiphon and Potamogeton crispus. The lake has a moderate rating under Lake SPI.

Policy

- The Lake Rotoiti catchment is covered by rules in the Regional Natural Resources Plan (previously known as Rule 11) which require no intensification of land use since the 2001-2004 benchmarking period, that affects nutrient export to the lake.
- Natural Resources Plan – TLI target of 3.5 set in Plan.

Interventions and Progress

- The Ōhau Wall (Regional Council and Crown Funded)
- Sewerage Reticulation (Rotorua Lakes Council, Crown, BOPRC and Landowner Funded)
- Environmental Programmes (Regional Council and landowner funded) since 2017 have achieved 43 hectares of land retirement or wetland restoration and more than 4,000 native plants have been planted.
- Business Case for Lake Weed Investment – Partners currently working with Lakes Water Quality Society to develop a business case to make the case to the Crown for more investment in lake weed management across the Te Arawa Lakes.

Rotomā

- Target TLI – 2.3
- Current Three-Year Average TLI – 2.5

Swimming Water Quality

Lake Rotomā has 'Excellent' water quality for swimmability in relation to e-coli presence and does not experience algae blooms.

Aquatic Ecology

Lake Rotomā does not have catfish present and has abundant kākahi and koura. It does have the aquatic weed lagarosiphon present. The lake has a High rating under Lake SPI.

Policy

- Natural Resources Plan – TLI target of 2.3 set in Plan.
- This lake is subject to the National Environmental Standard for Freshwater Provisions regarding land use intensification.

Interventions and Progress

- Sewerage reticulation (RLC, BOPRC, Crown and landowner funded) has been implemented at Lake Rotomā.
- In the last 2 years the lake has experienced record high levels, and this has affected a dwellings and infrastructure around the lake.

Tarawera Catchments

Lake Tarawera receives all of the water from the lakes within the Ōkataina Caldera, they are connected variously by surface and groundwater flows.

Target TLI:

Ōkāreka 3.0, Ōkaro 5.0, Ōkataina 2.6, Rerewhakaiitu 3.6, Rotokākahi 3.1, Rotomahana 3.9, Tikitapu 2.7, Tarawera 2.6.

Three Year Average TLI

Ōkāreka 3.1, Ōkaro 4.6, Ōkataina 2.7, Rerewhakaiitu 3.3, Rotokākahi 3.5, Rotomahana 3.7, Tikitapu 2.9, Tarawera 2.8.

Swimming Water Quality

The Tarawera complex of lakes generally have good to excellent swimmability in terms of e-coli and the only lake to have regular algae blooms and associated Health Warnings is Lake Ōkaro which is dosed with aluminium sulphate twice annually to manage these by restricting availability of phosphorus.

Aquatic Ecology

The Tarawera complex of lakes are free from Catfish. Koura and kākahi are present in all lakes other than Ōkaro and Rotomahana which have neither and Tikitapu which does not have kākahi. All lakes in the Tarawera complex have at least one invasive weed species present, mainly Elodea and Lagorosiphon, and Lake Tarawera itself has most invasive aquatic weeds present. The Lake SPI rating for the lakes in the Tarawera Complex range from moderate to high.

Policy

Some lakes in this catchment are covered by rules in the Regional Natural Resources Plan (previously known as Rule 11) which requires no intensification of land use since the 2001-2004 benchmarking period, that affects nutrient export to the lake. Other lakes are currently covered by intensification restrictions in the National Environmental Standard for Freshwater. All lakes have their target TLI set in the Natural Resources Plan.

Interventions and Progress

- Lake Ōkāreka has had 230 hectares of land use change completed and funded by the Lakes Programme through land use change agreements (funded by BOPRC and Crown).
- Lake Ōkāreka has had sewerage reticulation installed by the Programme (funded by RLC, BOPRC, Crown and landowners).
- Alum Dosing occurs twice annually on Lake Ōkaro (BOPRC funded).
- The Lake Tarawera Restoration Plan was Adopted by Strategy Group in 2015 – all actions are implemented: farm plans, acacia control, catchment modelling, cultural indicators and sewerage reticulation currently underway. These actions have been variously funded by BOPRC, RLC, Crown and Fonterra.
- TALT Tarawera Collective Impact Project (next steps for Tarawera Catchments beyond Restoration Plan) – supported by BORPC with funding and in-kind resourcing.
- Since 2017 in the Tarawera Catchments Regional Council, through Environmental Programmes, has funded:
    - 62,252 native plants
    - 26 hectares of land use change
    - 16 kilometres of waterway fencing

A major upgrade of the Ōkāreka outlet has recently been completed by Regional Council to manage lake levels and prevent flooding and outlets are also maintained at Rotomāhana and Rerewakaiitu.

Rotoehu

- Target TLI - 3.9
- Current Three-Year Av TLI – 4.3

Swimming Water Quality

Lake Rotoehu has ‘Fair’ water quality for swimmability in relation to e-coli presence it does experience regular algae blooms and associated health warnings during summer, although this summer it has been swimmable all summer which may be attributed to record high lake levels.

Aquatic Ecology

Lake Rotoehu has population of koura and kākahi and does not have catfish. Lake Rotoehu has invasive weeds including Hornwort, Elodea and Potamogeton crispus. The lake has a poor rating under Lake SPI.

Policy

- The Lake Rotoehu catchment is covered by rules in the Regional Natural Resources Plan (previously known as Rule 11) which requires no intensification of land use since the 2001-2004 benchmarking period, that affects nutrient export to the lake.
- Natural Resources Plan – TLI target of 3.9 set in Plan.

Interventions and Progress

- The key achievements related to land use change in the Lake Rotoehu catchment since the benchmarking period of 2001-2004 are as below, this has largely been achieved by land use change agreements (funded by Crown and Regional Council):
    1. The pastoral area in the catchment has reduced from 1790 ha to 1175 ha (48% to 32% of the catchment).
    2. The area in native bush (including riparian works) increased from 1152 ha to 1390 ha (31% to 38% of the catchment).
    3. The area in plantation trees has increased from 737 ha to 1123 ha (20% to 30% of the catchment).
- Alum Dosing & Weed Harvesting (Regional Council Funded) – currently on hold in this catchment due to high lake levels making them unviable, but previously undertaken for around 10 years.
- Sewerage Reticulation (Crown funded) mains are in the ground but funding needs to be secured for onsite connections.
- In the last 2 years Lake Rotoehu has experienced record high levels, and this has affected a dwellings and infrastructure around the lake.

Key

TLI *= Trophic Level Index, is a number used to calculate the health of a lake in terms of water quality based on four separate water quality measurements. The Lakes Water Quality Technical Advisory Group has advised that a 3-year average TLI within 0.2 should be considered on-target. This is also the approach used in Rule 13 of the Natural Resources Plan when determining whether a lake is at risk.*

Lake SPI *= Submerged Plant Index. This characterises the ecological status of the Lake, synthesising native and invasive components and providing a rating on the basis of that.*

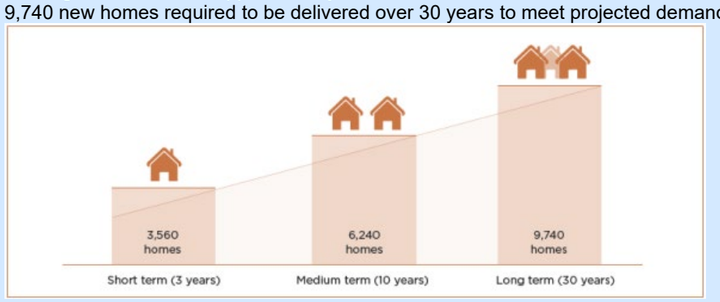
RLC – Te Arawa Lakes Partnership

Objectives and Challenges

Rotorua Housing

Housing Outcomes

- Existing house deficit of approximately 1,500 homes
- 9,740 new homes required to be delivered over 30 years to meet projected demand



- Includes 3,086 houses to be delivered for IAF funding agreement
- As at 31 December 2023 there were 800 dwellings in BC process
- 410 dwellings completed in the 2023 calendar year

Actions to deliver housing outcomes

- Future development strategy delivered
- PC9 (including MDRS) adopted
- Government funding secured for stormwater upgrades works - $85 million from IAF and $35 million from CIF
- Dedicated development support function

Challenges

- Stormwater management constraints
- Other physical development constraints including natural hazards, geotechnical
- Significant proportion of whenua Māori
- Capacity within the construction sector

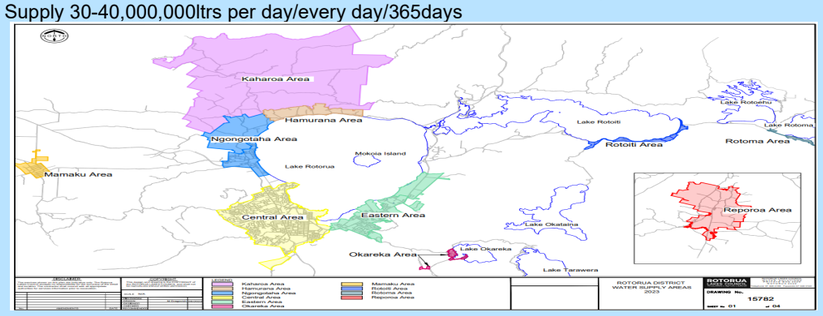
Water Supplies

Key Objectives

- Supporting our community's health, protecting the environment and enable economic development and housing needs (FDS)
- Operate a balanced approach (supply/demand/stewardship/affordability)
- NPS require hierarchy of use (environment/municipal/commercial)
- Based on balance and use hierarchy – search for optimum points
- Factors influencing current and future planning (Safety, Reliability, Stability)

Synopsis of water supply assets

- 9 water supply areas including three urban and 9 treatment plants
- 11 water sources and 22 storage reservoirs
- About 800kms of pipes and 11 main pumping stations plus boosters
- Around 25,000 connections/5800 metered
- About $300mil of assets replacement value
- About 50% remaining asset life – Renewals at around $3.0 – 4.5 mil p.a.
- Supply 30-40,000,000ltrs per day/every day/365days



Challenges

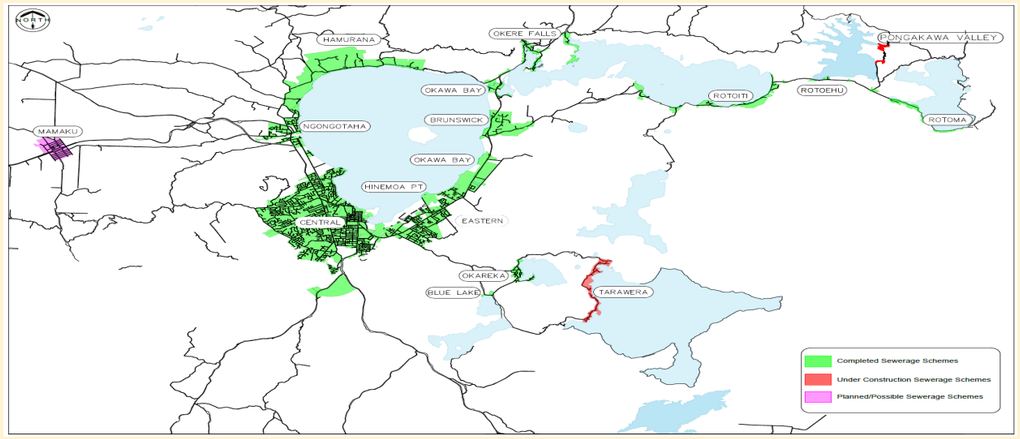
- Security of water sources – Joint consents with mana whenua
- Ensuring kaitiaki flows
- Meeting DWS for all current supplies since 2018
- Around 2,000 properties unreticulated (health risks and Drinking water standards compliance) - $40 million
- Sufficient supplies for anticipated housing growth- additional water sources

Waste Water Services

Key Objectives

- Community health
- Lakes and freshwater quality protection and restoration
- Future growth demand
- Destination reputation protection

Networks Synopsis



Networks composition

- Pipelines 600kms
- Treatment Plants 2
- Pump stations 87
- Manholes 8,000
- Connections 27,000

Network replacement value $600 mil

Operations $19.0 mil p.a.

Renewals $7.0 mil p.a.

The total projected expenditure for operations, maintenance and capital for the wastewater activity over the next ten years is $414 million. Approximately 40% of this projected expenditure is capital expenditure, which equates to $167 million. Expansion projects make up most of the capital expenditure followed by renewals. The projected ten-year renewal expenditure is $70 million.

Challenges

- Freshwater regulations and compliance /ageing networks
- Alignment with cultural values/ point of discharge agreements/conveyance system
- Affordability of new reticulation schemes
- Full containment and climate change effects
- Private networks effects I&I (50% of all conveyance system)
- Rotoehu, Mamaku reticulations

Stormwater

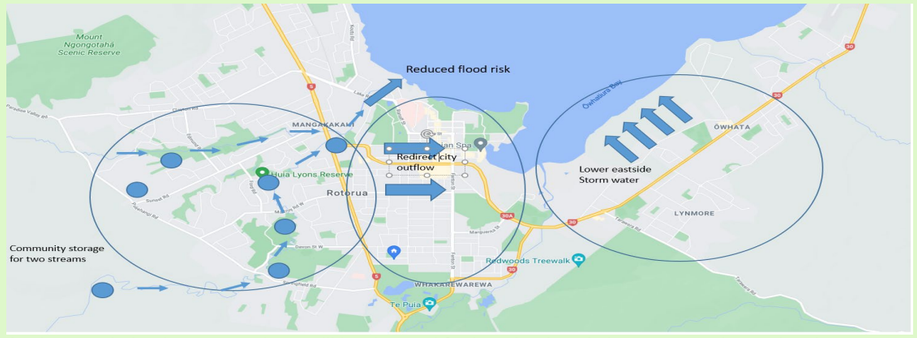
Key Objectives

- Flood risk reduction
- Water quality protection
- Safe Future Growth
- Climate resiliency adaptation

Key District Metrics

- District area 2500 kms/sq
- Annual average rainfall 1400 mm
- Recent rainfall 2500 to 3000mm
- Average rainfall p.a. = 3.5 B Cub/mecs
- Lakes storage capacity. 5.0 B cub/mecs
- Runoff to lake Rotorua 1% AEP – 1.5M cub/mcs/hr
- Climate change forecasts upwards

Master Plan



As the population increases, there will be demand for housing in existing areas and new development areas. The two main urban growth areas are located in the city's eastern, central and western parts.

Investment in stormwater management is underway and over he next 10 years approximately $200 mil will needed.

LAKES WATER QUALITY
Lakes Water Quality Society Te Kahui Kounga Wai

11/03/2024

Chair, Rotorua Te Arawa Lakes Strategy Group

Kai ora Arapeta

The LakesWater Quality Society is aware of the work currently underway related to the review for the Rotorua Te Arawa Lakes Strategy Group. As we indicated to the Strategy Group back in April 2022 (see attached paper) there is a need for this review process to occur and to consider the terms of reference, the structure of the Strategy Group, the strategy, and the scientific and technical aspects of the entire Rotorua Lakes Programme.

After being involved in the Rotorua lakes restoration programme over the last 20 years, the LWQS has the view that there are some critical elements that are needed for our ongoing lake restoration journey. These are:

- The Rotorua Lakes restoration process requires the buy in from the whole Rotorua Community as everyone in the catchments has a role to play and a valuable perspective to contribute.
- Successful requests for funding to any potential funding agency (Central Government, Local Government, or philanthropic groups) is most likely going to require strong community support. It is our observation that strong political activism and community wide pressure was key to getting the previous central government funding for the start of the Lakes restoration programme back in 2008. Furthermore, it was a factor in the establishment of an appropriate settlement with Te Arawa and a shared governance group.
- Any strategy development process for the sustainable management of the lakes will require and open and transparent approach with equitable opportunity for input from all stakeholders.
- All parties need to come to the table with a “sustainable management of the lakes” focus and as the central kaupapa.
- There needs to be a high-level strategy which sets the direction of travel, but underneath this there needs to a suite of sub-strategies that guide the actions required to address specific issues. This is required because most of the water quality and lake management issues are complex, interlinked, multidimensional and require integrated solutions. Such sub-strategies may include invasive pest management, lakeweed management, nutrient removal, management of the quantity of water which flows into the lakes and lake levels, climate change, urban development, increased pressure from recreational use and mahinga kai, as examples.

As part of the review process, we would like you to consider a proposal from the LWQS.

The LWQS proposes that the Strategy Group develops a two-tiered structure where there is an overall ‘leadership group’ (as required in the Settlement agreement and which remains as the voting parties), but then there is a second group that advises and contributes to the effective functioning of the Strategy Group. This second group would consist of experts and community stakeholders (such as LWQS, Fish and Game, Community Associations, Lakes Community Board, Waikato University, hapu groups, NIWA and there may be others). This second-tier group would

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directly contribute to strategy development, collective review, and input into the technical and scientific aspects of the lakes programme, input into funding priorities and allocations, and provide a conduit for information flow back to the community.

Lake restoration and sustainable management of the Rotorua lakes requires a political, social and technical/scientific approach. To succeed we need a good relationship with central and local government, and a robust interface with all community stakeholders including iwi, as well as a solid technical base. In reshaping the RTALSG, we need to adjust the value structure that directs the kaupapa, confirm the high-level strategy based on the science, consider what sub-strategies are needed, look at the funding required and where this may come from, considering the politics, and then develop the structure fit for delivering these outcomes.

The LWQS looks forward to working with Te Arawa Lakes Trust, Rotorua Lakes Council and Bay of Plenty Regional Council and the future Strategy Group to restore the mana and develop a more robust science programme for the Rotorua Lakes, so that the whole Rotorua community can enjoy our lake environments now and into the future.

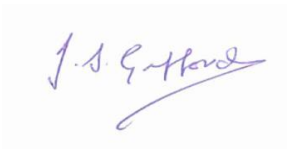
I am going to be away on the 22 March, when it is scheduled to have the next workshop on the review process for the Strategy Group. Though I am hoping to have representatives of the LWQS attend this hui.

Thank you for considering our proposal and we look forward to advancing this kaupapa with you.

Yours sincerely

John Gifford

Chair, LWQS



Attachment:

LakesWater Quality Society Submission to the Rotorua Te Arawa Lakes Strategy Group – April 2022.

LAKES WATER QUALITY
Lakes Water Quality Society Te Kahui Kounga Wai

20 April 2022

MEMORANDUM TO
ROTORUA TE ARAWA LAKES STRATEGY GROUP

Background
The LWQS is concerned that restoration of the Rotorua Lakes is stalling and that ongoing progress in improving water quality, effective management of aquatic pest weeds, management of pest incursions and ongoing catchment management needs to be reviewed and refreshed for all Rotorua Te Arawa Lakes.

Indicators of our restoration activities may not be on course to achieve the outcome we were expecting are:

- Increasing incidence of algae blooms in Lake Rotorua
- Increasing algae blooms in Lake Rotoiti
- Persistence of algae blooms in Lake Rotoehu
- TLIs values across many lakes stubbornly remaining above the target TLI
- Significant weed issues at the Lake front area for Lake Rotorua and in Lake Rotoiti (particularly in Okawa Bay)
- Seven of the lakes indicating "very likely worsening" total phosphorus levels in the 10 year trend and 4 Lakes indicating similar trends for total nitrogen.

The issues above indicate that we may not know quite what is happening in the lakes and raises the question as to whether our current actions alone are sufficient to ensure the long-term sustainable management of the Lakes.

In addition to these trends, there have been several recent changes to freshwater management which also now need to be considered as part of the long-term restoration efforts for the Rotorua Lakes. These include:

- Revision and updating of the Land and Water plan in the context of the NPS-FW
- The implementation of Mana o te Wai
- The three waters changes and its relationship to the long-term management of potable water resources, stormwater management and wastewater.
- The impacts of climate change
- Changing public perceptions and values related to freshwater resources and their sustainable management
- Increasing urban development

Actions
To address these issues, two recommendations were presented at the LWQS AGM related to the ongoing activities of the Rotorua Te Arawa Lakes Strategy Group:

1. The Terms of Reference of the Rotorua Te Arawa Lakes Strategy Group are formally reviewed to consider regulation changes (such as Three Waters, the implementation of Te Mana o te Wai, and revisions to the Land and Water plan due to the NPS-FW). In addition, there are significant changes in public awareness of freshwater values and how these are

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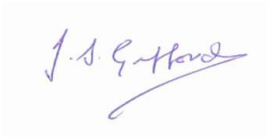
affecting and influencing attitudes. Such changes need to be considered for implementing future management options for the long-term sustainable management, use and enjoyment of the Rotorua Lakes for present and future generations.

2. A technical and scientific review is undertaken for the whole Rotorua Te Arawa Lakes programme and to consider the pathway ahead for the next 10 years for all the Rotorua Te Arawa lakes (accepting that some changes such as groundwater inputs will be long term, particularly for Lake Rotorua). The need for this review is driven by events that are occurring in the Lakes that are unexpected such as the recent reoccurrence of algae blooms in Lake Rotorua and Rotoiti, and TLIs not reducing (i.e., improving) as fast as was originally considered possible or likely. This situation most likely reflects that we do not know quite what is happening in the Lakes. In addition to these changes, we are seeing increasing influences from climate change, greater pressures raising from urban development, and other land use changes all of which now need to be more formally recognised in the context of the technical and scientific programme for the lakes. The focus of this review needs to address if there are additional pragmatic measures that can be undertaken in the short to medium term to support the overall objective of sustainable management of the Lakes.

The LWQS recommends that the Strategy Group actions the two recommendations.

Nga mihi maioha



John Gifford
Chair, LWQS