
57th LAKES WATER QUALITY SOCIETY ANNUAL REPORT – 2018

It is my pleasure to present my third annual report. For us it has been a busy but rewarding year with strong progress made on several fronts. Against this there has been an explosion in catfish numbers and their spread into Lake Rotorua. Additionally, we have several red flags emerging in the overall programme, more on this below.

Catfish:

This has been our main focus throughout the year. Last season some 34,000 were caught in Rotoiti, up from 15,000 the previous year. They have now spread throughout the lake with catches down as far as Gisborne Point. Unfortunately, but perhaps not surprisingly, they have now been caught around Mokoia Island.

BOPRC's containment programme run by TALT, William Anaru, has made good progress and on Rotoiti is ably supported by Grant Wallace and his team. They are out there daily setting nets and catching lots of catfish. Running beside this is a stoat and rat trapping programme to support the dabchick. Signage has been improved and there is a big media campaign running with supporting collateral, lookout for it and ensure your visitors are aware.

During the year we ran a workshop, "Stop the Troublemakers". John Gifford did a great job in organising this. Unfortunately we failed to attract large numbers of people who were prepared to support the catfish awareness programme. Recognising this we regrouped and have taken the opportunity to submit to the Regional Pest Management Plan the concept of certifying "Clean Boats".

We continue to promote the requirements for a natural predator fish to ensure catfish are suppressed and don't overrun Lakes Rotoiti and Rotorua. Lindsay Chadderton, a New Zealand scientist with Nature Conservatory who was our key note speaker at our last symposium, advocated the use of brown trout and long fin eel. Waikato University are undertaking an Environmental Impact Report on these prospects and are due to report early in the new year. It is essential that we find a sustainable control before they become dominant.

Clean Boats Certification:

This is aimed at preventing the spread of all pest fish and aquatic weeds in our lakes. From the pristine lakes of the 1950/60s there has been a steady decline, to arrest this we have to do things differently. We have requested an additional clause in the rules requiring the following -

"That every boat entering any of the Rotorua lakes be required to certify that the skipper has checked, flushed, drained and cleaned his boat, trailer and associated gear".

We expect this will be done through a cell phone App or web page, just prior to launching. This will cover the boat for the day it is on the lake, or its nominated period. Failure to self-certify will attract fines.

In New Zealand there is precedence for this type of procedure in the Fiordland Marine Park where clean hull standards are required and similarly in Northland and Tauranga. In Lake Tahoe, USA, they have an

independent certification “token” process. Whilst this has been effective in preventing incursions over the last 10 years it is very expensive for boat users, requires an army to police it and impractical for the number of lakes involved here. We have elected to promote a simpler process that should only hold up clean boats for about a minute, a small price to pay to keep our lakes from further pest incursions. We are pleased with support we have gained from Fish and Game, Ratepayer Associations and Council staff. Your support to our submissions has been much appreciated. We are hopeful that the submission will be accepted.

Endothall and Diaquat:

Both submissions were heard jointly by Independent Commissioners and we are hopeful that there will be a positive decision in January. We requested member support of our submissions and I am grateful for the large number of members and Associations that did so, it demonstrated the breadth of support to the Commissioners - Thank You. It is likely that a Cultural Impact Report will be a condition of the consent.

Aquatic Lake Weeds

During the year LWQS formalised its position on aquatic weeds.

Our Vision is –

“The restoration of native flora in the Rotorua lakes by the eradication or substantial suppression of aquatic lake weeds”

Our reasons are summarised below:

1. We anticipate we now have the chemical tools.
2. Aquatic Lake Weeds overshadow our native flora suppressing growth and then replacing it.
3. Seed beds allowing the regeneration of native flora will be diminished over time.
4. Lake weeds can recycle nutrients from the sediments.
5. Oxygen is depleted by the demand of weed breaking down.
6. The decay of washed up weed on shorelines creates an intolerable stench which is unacceptable.
7. In lakes where hornwort is established it dominates all other flora, restricting recreational use and making trout fishing in the littoral zone very difficult.
8. The degradation of the lakes has a direct impact on our tourist industry
9. We have a duty of care; our Rotorua Lakes are of **national significance** and the native flora should be restored.
10. So far, the lakes restoration committed cost is in excess of \$240m. At a cost of say \$12m, the price for the substantial suppression or eradication of aquatic weeds is small.

Lake Weed Plans:

Lake Weed Plans have been prepared for all of the lakes and it is expected that these will be presented to and approved by the Rotorua Te Arawa Lakes Strategy Group at their first meeting of the year in March. These plans will provide the basis upon which aquatic weeds are either substantially suppressed or eradicated. LINZ have the principal responsibility to do this. The commencement of this programme will be a major milestone for these lakes.

Rotorua Te Arawa Lakes Annual Water Quality Results.

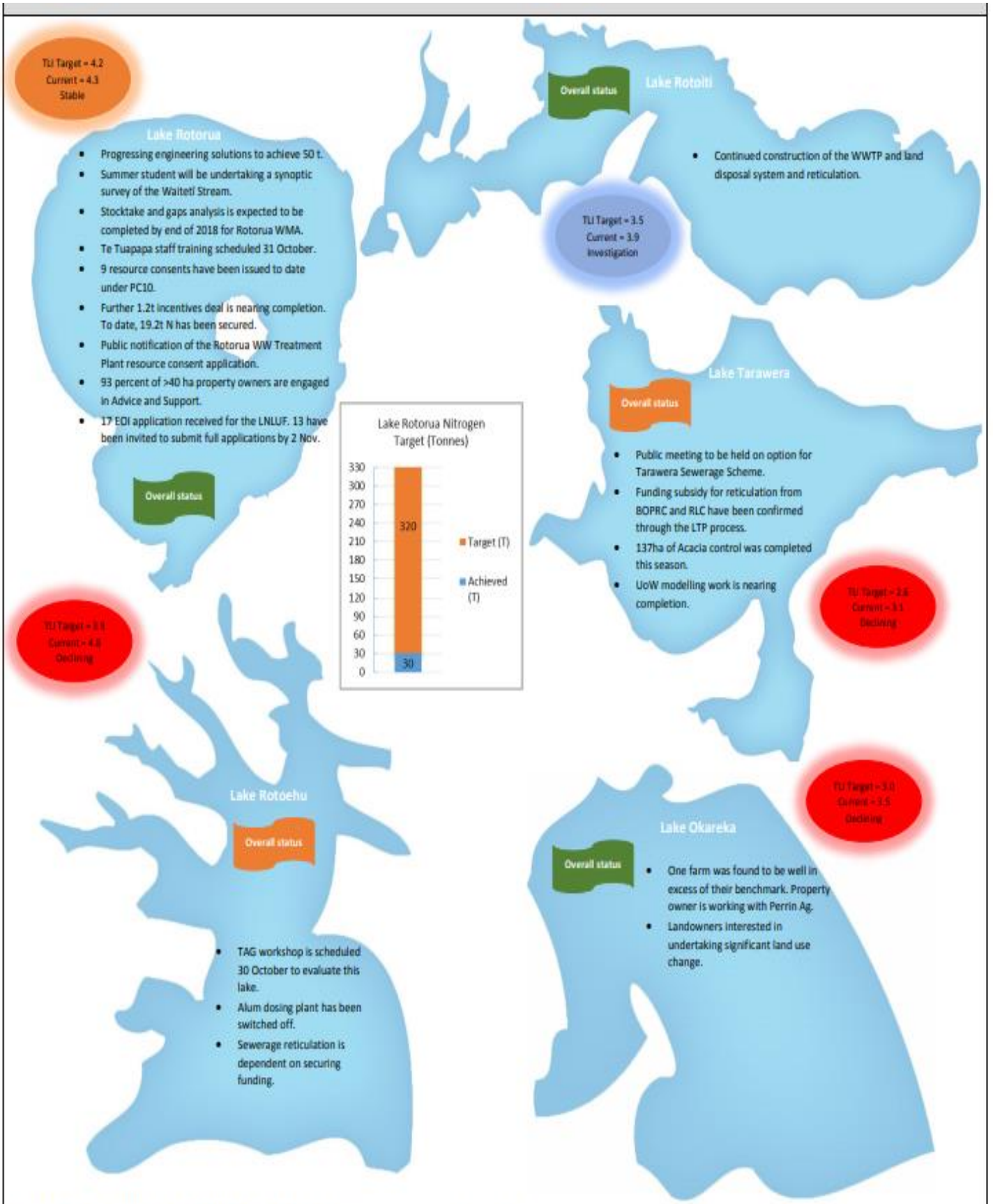
The following Table, Highlight Points and Project Snapshot have been extracted from the Rotorua Te Arawa Lakes annual water quality results for the 2017/18 year.

Lake <i>Regional Water & Land Plan Objective</i> <i>TLI units</i>	3-yearly average TLI to 2018 <i>TLI units</i>	2013/14 Annual TLI <i>TLI units</i>	2014/15 Annual TLI <i>TLI units</i>	2015/16 Annual TLI <i>TLI units</i>	2016/17 Annual TLI <i>TLI units</i>	2017/18 Annual TLI	Lake Type <i>based on Trophic Status</i>	LakeSPI Condition 2016/2017 ¹
Ōkaro 5.0	4.9	4.5	4.6	4.6	4.9	5.2	Eutrophic	Moderate
Rotorua 4.2	4.2	4.2	4.4	4.4	4.1	4.3	Eutrophic	Moderate
Rotoehu 3.9	4.7	4.0	4.5	4.6	4.6	4.8	Eutrophic	Poor
Rotomahana 3.9	4.1	3.8	4.0	4.0	4.0	4.2	Mesotrophic	High
Rotoiti 3.5	3.6	3.4	3.7	3.8	3.8	3.9	Mesotrophic	Poor
Rerewhakaaitu 3.6	3.8	3.4	3.3	3.4	3.5	4.0	Mesotrophic	Moderate
Okareka 3.0	3.4	3.3	3.3	3.2	3.4	3.5	Mesotrophic	Moderate

Tikitapu 2.7	2.8	2.8	2.9	2.9	2.6	2.9	Oligotrophic	Moderate
Ōkātina 2.6	2.9	2.7	2.8	2.8	2.9	3.0	Oligotrophic	Moderate
Tarawera 2.6	3.1	3.0	3.1	3.0	3.1	3.1	Oligotrophic	Moderate
Rotoma 2.3	2.4	2.3	2.5	2.4	2.3	2.5	Oligotrophic	High
Rotokakahi* 3.1	3.7	3.6	4.0	3.7	3.8	3.7	Mesotrophic	Moderate

Monitoring of the of the 12 Rotorua lakes shows that:

- Lake Ōkaro exceeded its target TLI for first time in five years, most probably due to climatic influences.
- The TLI for Lake Rotorua moved to just above its RNRP objective, however cyanobacteria activity remained at a low level.
- Lake Rotoehu water quality continues to decline after almost reaching its TLI target in 2014. Severe cyanobacteria blooms were experienced for a prolonged period. Like Rotorua, Lake Rotoehu is vulnerable to climatic conditions and longer stratification events which were experienced throughout the summer.
- Lake Rotoiti TLI continued to increase since exceeding its target TLI in 2014. However, other indicators such as cyanobacteria biovolumes and oxygen depletion rate continue to show the lake has remained resilient to further degradation since the installation of the Ohau Channel diversion wall.
- In Lake Ōkāreka, increased phosphorus levels as a result of multiple rain events and rising lake levels are the biggest contributors to a further increase in the TLI. Despite this the oxygen depletion rate in the hypolimnion has improved.
- After a large improvement last year, the TLI in Lake Tikitapu increased back to 2015/2016 levels. Increased rainfall and a short stratification season influence this result.
- Lakes Ōkātina, Rerewhakaaitu, and Rotomahana all displayed an increase in annual average TLI. While these lakes have had stable TLI results over the previous decade, this year's increase is climate influenced.
- Lake Tarawera's TLI has been stable over the last four years, but has increased relative to TLI results prior to 2014. This is due to an increase in phosphorus levels.
- After a rapid decline until 2010, Lake Rotokakahi has shown improvement but continues to exceed its TLI target.



*Note: The stability of Lake Rotorua's TLi is due to artificial means.

LWQS say

Lake Rotorua:

The alum dosing continues to allow this lake to nearly meet its TLI. The long-term sustainability is dependent upon big nitrogen reductions being achieved within the catchment. We await the determination of the Environment Court on Rule 10. We have concerns that the 100 tonnes of nitrogen to be extracted through the Incentive Programme will not meet its target by 2022, so far only 20 tonne has been achieved. Council have called for a review of this programme, it is critical to get this programme back on track. Another 30 tonnes of nitrogen was targeted through the Tikitere Diversion Scheme. This programme has been cancelled because of cost, alternative savings are sought. The gorse programme has yielded only 12.8t from an anticipated 30t and alternatives are being sought. Maori land owners are reluctant to participate because Te Tumu Paeroa is not prepared to support the required 999 year encumbrance.

Much work is needed and funding may be inadequate.

Lake Rotoehu:

This is our "Problem Child" In spite of all the Action Plan being completed and the effort gone into this lake the TLI has increased steadily over the last 4 years and is now back to the bad old days. A recent Lake TAG workshop identified 25 actions needed prior to confirming a revised path forward. Dr Stuart Corson has represented us and much is to be done. Within the community there is an understandable level of frustration. Sewerage reticulation is still subject to funding.

Lake Rotoiti:

This lake appears to be relatively stable, the main action point this year will be the completion of the sewerage at the eastern end.

Lake Okareka:

Much work is being undertaken to stabilize the stream outflow.

Further land use change is being sought to support the TLI.

Lake Tarawera:

Libby Fletcher continues to maintain momentum with the sewerage and full reticulation is committed. Work is still awaited in the modelling of the Greater Catchment. TALT have stepped up and are taking a lead role in the Restoration Plan, we await their action plan with interest.

Subscriptions:

Most members signed up electronically and you will be invoiced automatically after one year. For those wishing to join, please visit our web site, it is simple and it does capture your email making communication easy. We do want your membership so bring \$20 along to our meeting if that suits you.

Corporate membership is \$100 and we are starting to gain support for this.

Thanks:

I do wish to recognise all of the work that has been done by both Councils in restoring our lakes. The financial commitment has been significant but this has been critical to the reinvigoration of Rotorua. We know you are committed to the completion of the restoration task, **thank you**.

My thanks to my hardworking committee. Their contribution has enabled the Society to function. Marcel van Leeuwen our Treasurer; Warren Webber, John Gifford, Stuart Corson and Stewart Edward form the strategic thinking group and Phill Thomass, Libby Fletcher, Hilary Prior, Colin Jackson, Paul Hammond add to that strategic process and provide valuable linkages and feedback to our Ratepayer Associations and Community Council. Ken Kennedy provides the very important Te Arawa input and linkage. A special thanks to Nick Roxburgh who continues to undertake the electronic communication work we depend upon. My thanks also to Dianne for her administrative work behind the scenes. I am still looking for a Secretary – anybody interested please come forward.

We look forward to seeing you at the AGM, notice attached.

A Very Happy Festive Season to you all.

Don Atkinson

LWQS CHAIRMAN