

LakesWater Quality Society Incorporated
Minutes of the Annual General Meeting held at Pikiaro Rugby League Club Rooms,
Mourea, at 10.00 am on Monday 28 January 2013

Karakia: Tai Eru

Welcome:

The Chair welcomed dignitaries - Todd McClay (MP for Rotorua), Mayor Kevin Winters, Chairman John Cronin and Crs Tai Eru, Lyall Thurston, Neil Oppatt, Tipene Marr and Ian Noble from Bay of Plenty Regional Council; Crs Trevor Maxwell, Dave Donaldson, Karen Hunt, Mike McVicker and Glenys Searancke from Rotorua District Council; Brentleigh Bond, Neil Callaghan and Leo Meharry from the Rotorua Lakes Community Board; Willie Emery, Deputy Chair, Rotorua Te Arawa Lakes Trust, Warwick Murray and Anna Grayling from Bay of Plenty Regional Council; Life members Nick and Liz Miller, Brentleigh Bond and Warren Webber; Professor David Hamilton, Rt. Hon Paul East and Hon Steve Chadwick and about fifty two members.

Apologies:

Hilary Prior, Ian McLean, Maureen Waaka, Paula Thompson, Tony Lewis, Bill Fowler, Marjorie de Lange, Simon Moore, Buzz and Patsy Rathbone
John Green/Marcus Wilkins

Minutes of Previous Meeting:

It was moved that the minutes were a true and fair record of the meeting. *John Green/Don Atkinson*

Chairman's Annual Report:

The Chairman talked to his Annual Report saying that this was the 52nd meeting of LWQS and, although he was not there at the beginning, in the many years he has been involved in the lakes, he has never seen them in such good condition. There are only four on a negative trend. This tells us that the strategies and programmes for lakes restoration are working.

Okaro was always going to take time, it is not easy as it is surrounded by farm land, but it has been the lake for trials and experiments. Okataina is more of a worry as it has only 15% in farming. The issue is pests which are destroying the understory and causing erosion of phosphorus. Tarawera is an eight lake system and is disadvantaged by the other lakes and has no lakeside sewerage. They are now developing a new action plan and looking at the sewerage options. Rotoma has no sewerage but if plans proceed accordingly, it will.

The trends are extremely positive and we congratulate RDC and BOPRC for working extremely well to achieve these outcomes. The sewerage schemes have been under cost and under time. The councils now have a good understanding of the lakes and we believe that public money is being wisely applied to solutions for management and restoration. The support is also there from central government and it is hoped that the money put aside for projects in the programme will now be used to precipitate change of management and land use especially for Lake Rotorua.

Todd McLay has been active in working with the farmers to support the Regional Policy Statement and is impressive in his knowledge and understanding of the issues. He facilitated the Waiora Agreement between the Lake Rotorua Primary Producers' Collective and LWQS to look for solutions and incentives going forward. The farmers now understand that they are part of the problem and the solution. A strategic group of stake holders is meeting regularly to establish the incentives and rules for land use change.

The government has not proceeded with an ETS scheme which is a disappointment as it was another tool in the box and opportunity to incentivise farmers to change land use to exotic trees.

The recent news that Fonterra has found DCDs in the milk is a warning that the chemical use of fertiliser is not the long term answer to reducing nitrogen and biological methods must be a strong option going forward.

The Chairman concluded by thanking his committee and the team of excellent workers in the kitchen and out preparing the BBQ pork and producing delicious smells. LWQS is in very good heart, well sported by both councils and it is great to see what is happening to the lakes.

Questions:

Steve Chadwick - Could LWQS move to promoting education of the water quality issues to our schools as encouraging an understanding of clean water is important?

Geoff Rice - It must be remembered that we are not only lakes but a much bigger catchment including the Maketu Estuary which is in trouble. There is a strong need to collaborate and work together.

Prof David Hamilton - If the lakes had not improved, Maketu would be far worse.

Taru White - As representative of a large local trust who also want to improve the water, we are farmers. Much of the land around Rotorua is Maori and multi-million dollar businesses. The question is do we want to be in this business? It returns millions to the community. We want to be part of the conversation. We are not always here, but we want to be. How robust are the solutions and the science? He also said that in his childhood there was a large rubbish dump at Sulphur Point. Has there been any research on what effect to the lake this has had?

The Chairman - said it was important for all the community to be engaged. But on the 80/20 Rule, 80% of the issues have been focused on with 20% of the effort. The hard yards are still to come.

It was moved that the Chairman's Report be accepted.

Don Atkinson/Brian Stamp

Financial Report:

The Treasurer gave his report to the Society.

It was moved that the financial report for LakesWater Quality Society Inc., for the year ending 30 September 2012, be received and approved.

Gerald Plested/Paul East

It was moved that Stefan Bennett be appointed as auditor for the next financial year.

Gerald Plested/Don Atkinson

Election of Officers and Executive Committee:

The Chair stood down while the vote of the office of Chair was conducted by Rt. Hon Paul East.

Chair	John Green	<i>Don Atkinson/Nick Miller</i>
Secretary	Ann Green	<i>Phill Thomass/Jim Koller</i>
Treasurer	Gerald Plested	<i>Jim Howland/Liz Miller</i>

Committee	Don Atkinson	(Rotorua)
	Tai Eru	(Rotorua) (BOPRC)
	Jim Howland	(Rotorua)
	Jim Koller	(Rotorua)
	Ian McLean	(Rotorua)
	Leo Meharry	(Rotoma Rate Payers) (CB)
	Hilary Prior	(Chair, LRCA, Rotorua)
	Geoff Rice	(Lower Maketu) Tapu-ika Iwi Authority
	Brian Stamp	(Rotorua)
	Phill Thomass	(Rotorua)
	Marcel van Leeuwen	(Okareka LORRA)
	Tom Walters	(Okataina) FOMA
	Warren Webber	(Rotorua)
	Sandra Goodwin	(Okareka LORRA) (Alt)
	Tony Lapanovic	(Rotorua) (Alt)

There were no resignations and Tony Lapanovic was nominated as an alternative for Jim Koller for Lake Rotoehu.

It was moved that the above nominees be accepted as the committee.

Liz Miller/Bob Armstrong

Presentations:

Professor David Hamilton, Waikato University

Prof Hamilton started by acknowledging the support of Kevin Winters in his roles as Mayor of Rotorua and Chair of the Rotorua Te Arawa Lakes Strategy Group and Todd McLay and what his government is doing to help clean up the lakes.

Prof Hamilton reminded us all that some complacency has slipped in and that the engineering interventions carry huge risks. We have had good results but the challenges still remain. In some lakes RDC has brought us up to modern society's standards in the way we deal with sewage but they still have the problem of the increased load to the main sewerage treatment system. Lake Rotoiti has significant improvement but the nutrients now go down to the Maketu Estuary.

Weed harvesting has had an incredible result for Lake Rotoehu, removing 7-8 tonnes of nitrogen per year. This lake has had a lot of interventions and been used as a practice ground for understanding the issues. Floating wetlands have not been hugely effective for removing nitrogen but have other potential values. Artificial destratification trials at Rotoehu are using a large air pump to mix the top and bottom waters and stop the release of nutrients from the lake bed.

Okaro has improved with a further application of zeolite which locks up the phosphorus, but it is still not enough and best management practice and land use change are going to have the most effect.

The problems we have were highlighted by regional changes in land use between 1940 and 2010 which show the huge expansion of dairy units and urbanisation of the Rotorua catchment and reduction of dry stock farms and forestry. Even in 1969 a study by Geoff Fish recognised that though sewage was contributing a large amount of nutrients to Lake Rotorua, the run-off from agricultural land, he considered, was a greater source of 'plant-fertilising salts such as nitrate and phosphate'.

A more recent study on storm flow pollution by one of Prof Hamilton's students showed that most sediment containing nitrogen and phosphorus is transported to the lakes during short periods after heavy rain. He found that detainment bunds, which are soft engineering as opposed to the higher-cost of constructed wetlands, are designed to treat storm flow pollution from farmland with minimum reduction in productivity. They are ponds with a controlled release and allow sediments to settle. This method not only has the benefit of flood risk management but also conserves the soil and has increased economic sustainability. They are being trialled in the Lake Rotorua catchment.

However, the current dairy farming management systems are really only tweaking at the edges. Most mitigations such as effluent ponds, nitrogen inhibitors and wintering pads are all a net cost in terms of return on investment to the farmers. The costs for nitrogen control in dollar terms can be very high. Net costs on farmers are because there is no cost attached to environmental degradation under conventional economic systems, therefore any environmental improvement is seen as a net cost to the person trying to make a change.

On a recent trip to Canada Prof Hamilton visited a farm which re-engineered dairy farming, closing the loop with value-added waste streams. In a system where they house the cows, manure and urine are captured to create methane for heating and energy, and manure used as fertiliser for crops and food production for high-value food markets and restaurants. The crops are used for feed for the cows. The cost to control nitrogen is very low to the farmer.

Prof Hamilton also believes that in New Zealand we need to have the debate about housing cows, not necessarily all year round.

At Lake Rotokakahi exotics are being removed and replaced by natives, which is good around lakes, but in the short-term there are water quality problems which arise from deforestation. Low fences can prevent wallabies damaging the understory in Okataina and deer-proof fencing is also effective as shown by long-term exclusion plots.

All these mitigations clearly have a positive effect, but what can be done downstream for the lakes? The current regime of actions not only encompasses high costs, but long-term use of chemicals can cause toxicity issues and there is an extensive consenting process. The Ohau channel diverts the nutrient-rich lake inflows downstream and while having immediate benefits, it adversely affects downstream. Weed harvesting, which removes nutrients locked up in the excess weed growth, has proved effective but it has ongoing operational costs. Large operational costs also apply to artificial destratification.

They are all expensive engineering interventions. In the long term we must find other solutions that take care of our land.

Whatungarongaro te Tangata toi tu Whenua As Man disappears from sight, the land remains

Te Taru White: It has been significant re-engineering and cost of capital. Understanding the comparable benefits is difficult for me. What is the data underpinning the work carried out?

Don Atkinson: What is the progress with the destratification at Lake Rotoehu?

David Hamilton: I would like to reserve my answer until we have some more results. Lake Rotoehu has had a lot of interventions so we need to draw out how effective each is.

Nick Miller: What is the cost effectiveness of weed harvesting? A report some 10 years ago was rather pessimistic.

David Hamilton: Hornwort is so prolific and weed harvesting is helping.

Stewart Edwards: What conversations do scientists have with corporates and government?

David Hamilton: Most are with Dairy NZ. It is clear that policy alone as an incentive does not appear to be working but we do need to incentivise and offer rewards so that conserving on land the phosphorus purchased at 25c/kg does not necessitate pulling it out at the bottom of the catchment for \$250/kg.

Steve Chadwick: The riparian strips which have been put in by many community groups, are they working?

David Hamilton: Yes and there continues to be more opportunities to work in such groups farm by farm to help plant up around streams.

Angus de Lange: Professor Anne Salmon in Auckland has also had the idea to do what you suggest.

Mary Stanton: We are harvesting huge amounts of weed. Can we make gold out of it to help with the solutions?

David Hamilton: Good point. Weed being harvested is used for compost. However, in areas such as the Waikato River, hornwort is 7 metres high in the water column and holds massive amounts of sediment. It also contains high levels of arsenic and therefore in that case has to go to landfill.

Mary Stanton: Mary's sister has developed a programme of sustainability for water quality for education but not all schools have been ready to use it. It needs government funding to help.

Ian Noble: 1) Wallabies - do we need more study and action? The wallaby area keeps expanding.
2) There is a lack of enthusiasm for wetlands. Why?

David Hamilton: Wallabies - We need to stop the advance which at the moment is towards Mt Ngongotaha and into the Waikato also. There is joint co-operation between BOPRC, EW and DOC. In the case of wetlands, we know that they are effective for nitrogen removal as they process nitrogen in water and produce nitrogen gas but we probably need to understand more about their longevity for phosphorus removal. If there is not good catchment management then wetlands implemented at considerable expense can quickly sediment up and lose their effectiveness.

Anna Grayling, Rotorua Lakes Business Manager

Anna introduced her presentation with a graph of the TLIs of the 12 Rotorua Lakes which showed significant results particularly for the four lakes that the Rotorua Te Arawa Lakes Strategy Group has had funding for - Rotorua, Rotoehu, Rotoiti and Okareka.

Okareka is a little slow to respond because there are still nutrients coming through from septic tanks. Rotoehu is the best it has been in forty years. It has been the small testing pond for trials of the various engineering devices: P-locking, land use change with 600 hectares of farm land being returned to forest, weed harvesting, aeration and floating wetlands.

The aeration pump, costing \$500,000, has enabled the design and modelling work for the bigger lake of Rotorua and it may save \$15m cost of sediment capping that could be an alternative for that lake.

The target for Lake Okaro is modest and it will have blooms. To improve it needs considerable land use change. More Aqual P has been used recently and they are awaiting results. Detainment bunds costing \$80,000 have been installed but BOPRC are fiscally conscious and it is a matter of how much money to invest for the best results.

At Okareka there has been modest land use change. There is still \$500,000 in the budget for that but because the target TLI has been achieved with half the original calculated expenditure there is a pause to see the results of all the modelling.

Tikitapu now has reticulated toilets and should show improvement. David Hamilton and his team are looking at what effect jet skis and boats have on the sediment. Rotoma are working through their sewerage options and still have funding available. The choice is either to send the sewage to Kawerau or back into the main Rotorua system.

Farmers at Rerewhakaaitu are very engaged and want to ensure they do not impact their lake. All have been benchmarked for nutrients and are undertaking actions such as de-nitrification strips. They are writing their own action plan and have measured their successes through Overseer showing a 16% reduction so far.

The draft Okataina action plan is ready. There will be some land use change but the problem of pests is still being investigated e.g. gorse, wallabies and other pests. The research is being done and once well informed the actions will be lined up before spending any money.

The draft action plan for Tarawera and Rotokakahi are being developed. An extensive groundwater investigation is underway which will show the direction of groundwater flows for the greater Lake Tarawera catchment which includes Rerewhakaaitu, Rotokakahi and Tarawera. At this stage only Rotokakahi shows an elevation of nitrogen levels.

In Lake Rotorua the engineering has cost \$51 million. The community through government funding and local rates is paying for reticulation and engineering interventions which will take out about 50 tonnes of nitrogen per year. However we need to remove a total of 320 tonnes of nitrogen per year so a further 270 tonnes reduction is required. This reduction is equivalent to half of the current discharge allocation and will have to come from best management practice and land use change in the Rotorua catchment. It is achievable. We are seeking \$45.5 million dollars from the Crown for incentives and rules are being developed to give effect to the policy in the RPS. The major cost is to the farmers. The timeframe to achieve this is 10 years in the RPS, but this is currently under appeal.

This year removal of 20 tons of phosphorus by P-locking has helped meet the TLI and offered some good results in our lifetime but engineering is not the sustainable long term solution going forward. Tikitere de-nitrification is progressing, BOPRC are also trialling zeolite absorption at Tikitere as this is now a viable option as a fertilizer company can take the end product. A decision on using this method will be made in April. . The sustainable target for the lake is 435 tonnes of Nitrogen per year.

Other significant happenings to help with rural land use change are:

- The Hamurana wall, which was an original expensive option, is not going ahead which means BOPRC can make a case to transfer funding to land use change.
- Transit has contributed to help with P retention ponds through detainment bunds which cost \$10,000.
- A group of major land owners and stakeholders has been mandated as the STAG group to work together to establish the rules and incentives for land use change in the Rotorua catchment.
- BOPRC has funded a Farmer Lead Solutions Project and the results of this project will be reported back to the StAG group.

\$9.5 million has been available for several years for farmers to improve their farms to reduce nutrients into the Lake Rotorua catchment but so far there has been little response.

Analysis on the strategy for the lakes, and what further rules should be considered, is going to be out by June and BOPRC are going back over the action plans to see whether they are a job well done, or need further review. The importance of improving communication within the community and raising awareness is now a focus and a website combining all agencies, Te Arawa Lakes Trust, RDC and BOPRC, is underway.

Te Taru White: There are serious levels of decision-making at the farm level. Educating our trusts is vital. I hope STAG will introduce the issues to these people and ensure that they are socially, environmentally, economically and culturally clear.

Peter Carr-Smith: Rotoiti is not mentioned at all!

Anna Grayling: Apart from Rotokakahi the actions are all complete. That action plan will be reviewed and reforestation will be looked at. Benchmarking is still to be done.

Nick Miller: The trial of de-nitrification - how has it performed?

Anna Grayling: Still trialling and we will then compare the results of the two operations.

General Business:

Nick Miller: It appears that RDC may abandon sewerage reticulation around some of the lakes!

Dave Donaldson, RDC: Some areas may be OSET which is BOPRC.

Warwick Murray: Where sewerage reticulation is not feasible or economic, OSET is the option.

Mary Stanton: Flushing Ohau Channel - all the sand has been pushed down to the bottom. At times of very heavy rain the water flow is huge and a concern to those living on the channel. Could there be a blockage between the channel and Okawa Bay? When the forests are removed from Mourea Hill will there be any problems?

Anna Grayling: There is a sedimentation problem caused by the wall and flushing, and BOPRC are awaiting a dredging report. It will be around \$40,000 and could be done once every five years. At present they are going through a costings process.

Te Taru White: The old rubbish dump at Sulphur Point was like a nuclear waste dump and must be leaching out. How much would it be contributing to the problem and has there been any work done?

Glenys Searancke: There has been no discussion on that side of the lake shore.

Nick Miller: Suggested that there was a report done in the 1960s and would look into it.

Ian Noble: Do we understand the problems of discharge from deforestation?

John Green: From the 2008 Symposium Prof Geoff Kaine from Melbourne said there was an impact but it is a 3-5 year problem.

Prof David Hamilton: There is a sediment and phosphorus loss into the catchments around lakes after deforestation.

Ian Noble: Perhaps greater stringency around forest harvesting is needed.

Anna Grayling: This is another issue arising from land use change to forestry which could then cause problems in deforestation. It may need further work but it is better to have the elevated short pulse of deforestation compared to the long term problems of high intensive land use.

John Green: Forestry companies like P F Olsens do dig significant trenches but with Rotorua's rainfall in the Rotorua district runoff is a big issue.

Kevin Winters: Congratulated LWQS on a good AGM and said they should be proud of their achievements and happy to hear that they are pleased with the improvements. The Rotorua Te Arawa Lakes Strategy Group has overseen it all and it is a good news story, not only for the lakes, but also for Rotorua and New Zealand. Many are looking at Rotorua and the programmes of lakes restoration and the terrific community input. He acknowledged also Todd McLay and his government for the big part they have played and Amy Adams who is well up to speed on the issues.

RDC are going through the district plan process and have included transferable development rights (TDRs) which allow a block of land somewhere else in exchange for a change in land use. This is another tool in the box to help farmers.

He noted the concern regarding the Maketu Estuary but it was always important to fix the headwaters first. He will look into the old dump. He also noted that we are not always good at selling ourselves on good news stories and the new website which combined all the agencies was a good news story.

Regarding the Rotoma sewerage scheme - Glenys Searancke chairs the infrastructure committee and there is a meeting on 19 February regarding this scheme. There are two options:

- Bringing the pipeline into Rotorua
- Taking the pipeline to Kawerau

The preference is into town and RDC are looking at the costings. There is a lot to do this year including costings of Tarawera and the Mamakus. But results speak for themselves, there are runs on the board and the Government has been very supportive so far.

Todd McLay: stated that for the first time there is a real sense of optimism on the lakes. He looked at how he could help and noted the frustration in the various groups. He worked to get the farmers and LWQS together in the Waiora Agreement in order to focus on solutions to the problems. It has been many hours of work by Don Atkinson, Ian McLean, Warren Webber and John Green. The rural economy and clean lakes are both needed and it is important to find the way to make it sustainable.

John Cronin: The lakes people are so positive. The RPS is very important to the lakes and it takes co-operation by all stakeholders to achieve sustainable outcomes.

The Chairman thanked everyone for coming and the meeting closed at 12.30 pm.