

Environment Bay of Plenty

Rotorua Lakes TAG (No 10)

Date: Wednesday 15 February 2006

File Reference: 3365 04

Venue: Rotorua Office

Attendance: *EBOP:* Paul Dell, Dougall Gordon
RDC: Greg Manzano, Peter Dine
NIWA: Clive Howard-Williams, Julie Hall, Max Gibbs, Kit Rutherford
UoW: David Hamilton, Warwick Silvester, David Burger
GNS: Paul White
SCION: Trevor Stuthridge

Apologies Roku Mihinui (TMTB)

1 **Welcome**

Paul welcomed everyone and introduced Trevor Stuthridge from SCION who would be joining the group.

2 **Action Sheet**

Paul reviewed the action sheet. All actions had been completed or would be further addressed in the meeting.

3 **Update Groundwater Evaluation**

Paul White outlined the work being done. He noted there were perched water tables and connected deeper groundwater systems. The shallow perched systems had higher nitrate concentrations. Environment Bay of Plenty staff were undertaking field data collection on various springs and inputs. There were some major “pressured” up-flows into parts of the Lake.

A site was already set up (paired lysimeters) to measure recharge. At the site there are different levels of recharge being measured, one is showing 50% and the other 25%. This information would be used to help in the modelling.

Modelling the data up until last summer – but phase 3 starting in March will include this data in the write up.

The output of the report would include:

- Calibrated g/w flow model and Geological Model
- All new data

- Nutrient trends over time
- Groundwater catchment boundaries
- Error boundaries

This report to be completed by end of June. Paul White noted he could also comment on land use change impacts. Paul Dell asked that the land use aspects be reported separately.

Kit Rutherford then gave a brief outline of his work and noted the importance of defining sub-catchment boundaries. Kit noted the importance of also getting land use change/intensification data.

Discussion took place on the importance of the shallow and deeper groundwater and nutrient concentrations. It was suggested that more sampling of shallow and deeper groundwater may be required. Paul White, Dougall and Kit to discuss.

Layering of groundwater is clear in the Wainaghe.

ACTION: Paul White, Dougall and Kit to review if further dating of perched groundwater is required. This to be determined once Environment Bay of Plenty's later field data is available. Dougall to follow up.

ACTION: March meeting of Kit, Paul White and Environment Bay of Plenty staff to discuss the details of the phase 3 report.

4 Review and Discussion of Rotorua Catchment Nutrient Reduction Targets

Kit outlined the background to the review of the nutrient reduction target, particularly for the increasing nitrogen load. The 3 components:

- What was the nutrient load 1960's
- What is the current load
- What will the future load be

Kit noted that a small working party had been working on estimating loads. Kit noted that the 1992 – 1995 Environment Bay of Plenty data set was very detailed. The 2002 – 2003 data was less detailed.

From 1976 – 1977 (Moore) to 1992 – 1995 (Environment Bay of Plenty) inorganic nitrogen 15 – 30%. Total nitrogen 25 – 40% increase. The majority of this had good flow information to allow flow weighed means to be done.

Kit then looked at David Burger's work for 2002 – 2003. There appeared to be good correlation: overall Kit felt that the 250 TN was a solid start and the increase could be 100 to 200 tonnes: more detailed assessment of this was required. The appropriate people needed to get together and work through this.

Paul Dell asked John McIntosh and Dougall to ensure Kit had all the up to date nutrient monitoring data.

Meeting to include: Kit, Paul White, John McIntosh, David Burger, Dougall Gordon, Urvey.

John and Dougall to organise a meeting within the next two weeks in the Rotorua Office.

ACTION: John McIntosh and Dougall to organise meeting of various people to review all data, assumptions, modelling and review nutrient reduction targets for Lake Rotorua.

5 **Presentation/Discussion Lake Rotorua – Modelling Scenarios**

David Burger circulated an update on the Lake Rotorua Modelling. It was again noted that the release of nutrients from the sediments was a major issue. It was agreed that David Burger would add some of the scenarios including adding up the total catchment N & P reductions and adjust sediment capping and land use options to assess impacts. This would be presented in a general way at the Working Party meeting.

It was also agreed that quotes would be sought to prepare a digital bathymetry for Lake Rotorua.

ACTION: David Hamilton to seek quotes from UOW and NIWA to do digital bathymetry.

ACTION: David Burger to rework scenarios for presentation to the Working Party on Wednesday 22 February 2006.

6 **Review Tikitere Options**

6.1 **Tikitere Geothermal Diversion Modelling**

Peter Dine referred to the NIWA report "Water Quality Impacts of a point-source discharge of Tikitere geothermal water in Lake Rotoiti".

The group noted the various exceedances of a number of water quality guidelines if the geothermal discharge was diverted into the Ohau Channel area. It was also noted that there were a number of errors in Table 1 and also a check was required to ensure the flows were consistent with earlier work. It was agreed that comments would be sent to Peter Dine within a week for collation. Once NIWA had finished the report it would be presented to a focus group. A map also needed to be included.

It was agreed that the TAG considered the diversion not to be an option that was likely to get community support.

ACTION: TAG members to send any comments on NIWA report to Peter Dine (Peter.Dine@rdc.govt.nz) by Friday 24 February 2006. Peter to finalise report with NIWA.

ACTION: Completed report to be discussed with the appropriate focus group.

6.2 Evaluation of Geothermal Water Treatability (Sewage Plant)

Kevin Brian of AWT Consultants gave a presentation on his report. It was noted that the flows were 3 times the actual value due to the culvert flows being added together and therefore the costings would be higher than required.

Paul asked Greg how long the flow could go into the sewage. Greg noted it would depend on growth but would be 5 – 10 years.

Detailed discussion took place. Paul White agreed to have one of GNS's geothermal look at the report regarding Silica build up and sulphide. The group would try to get comments to Greg Manzano within two weeks. Greg would liaise with Kevin to finalise his report.

ACTION: TAG members to give any feedback on the report to Greg Manzano (Greg.Manzano@rdc.govt.nz).

ACTION: Paul White to have a GNS person review the Silica and Sulphide aspects.

7 Update Hamurana Diversion

Paul noted that a meeting needed to be organised with Beca's to discuss scoping of the AEE for the Hamurana Diversion. The main issues identified were fishery impacts, impacts of the plume on Lake Water Quality, aesthetics and impacts on Kaituna Water Quality. Paul asked Clive to update Kit on the importance of the Kaituna Modelling.

ACTION: Paul and Peter to organise a meeting with relevant consultants and staff.

8 Lake Capping

Discussion took place on the future work required to address the ability to achieve sediment capping. The consensus was that trials using cores should be undertaken in the laboratory using capping material. David Hamilton would coordinate a proposal with NIWA and SCION. The products tested would be Phoslock and Z₂. Aerating the sediments (ploughing) would also be considered. It was also agreed that a timeline would be developed for this work.

ACTION: David to coordinate a proposal to assess sediment capping/modification with NIWA/SCION for Environment Bay of Plenty's approval.

ACTION: David with others to prepare a draft timeline for capping, research and trials.

9 Flocculant Update/Mesocosm Trials

David noted that 2 Mesocosm trials had been conducted in Lake Okaro using various products. Stream channel trials had also been undertaken using iron slag.

David presented some early findings from the second set of trials. It showed alum to have reduced phosphorus levels. Iron slag was of little benefit.

David then showed the results of using iron slag in a flowing stream. From the results very large areas of iron slag would be required to remove a reasonable level of phosphorus.

He also showed the results of the alum dosing in Lake Okaro. The alum did appear to take out some of the suspended sediment and phosphorus.

John McIntosh gave an update on the Phoslock trial in Lake Okareka, the Utahina alum treatments, Puarenga proposals and various melter-slag trials.

Discussion took place on the next proposed Phoslock trial in Okareka and whether the further dosing with 40 tonnes should take place.

It was noted that a number of reports would be available over the next 2 – 3 months. It was also agreed that the Mesocosms would be removed, cleaned and stored. It was also suggested that the Mesocosms might be able to be used to assess dredging options.

Paul reinforced the need for an overall programme timeline to be developed so consent issues could be appropriately addressed.

ACTION: Reporting on flocculant trials to be completed over the next 2 – 3 months.

ACTION: UOW & SCION to coordinate removal of Mesocosms for storage.

ACTION: Paul to coordinate development of an overall programme timeline.

Meeting closed at 4.30pm

NEXT MEETING: To be confirmed

Paul Dell
Lakes Project Coordinator