# DEVELOPING A FARMER LED CATCHMENT PLAN FOR A ROTORUA LAKE WITH REGIONAL COUNCIL SUPPORT

**Bob Parker[1] Bob Longhurst[2] Ian Power[2] Martin Hawke[3] and Greg Corbett[4]**

*[1]Fruition Horticulture, Tauranga*
*[2]AgResearch, Hamilton*
*[3]Bay of Plenty Pastoral Research, Rotorua*
*[4]Bay of Plenty Regional Council, Rotorua*

Lake Rerewhakaaitu is the easternmost lake of the Rotorua lakes. It has a predominantly pastoral catchment, mostly in dairy farming. A regional council report in 2001 indicated that while lake water quality was satisfactory, stream measurements and land use trends suggested there was a risk of water quality deteriorating. Farmers were concerned about the ability to continue farming. Since this report farmers in the catchment have wanted to be proactive and have worked together to better understand the linkage between nutrient loss and lake water quality.

In 2002 farmers initiated a SFF project to identify the impacts of farming in the waterways and lake. This project focused on nitrogen and introduced Overseer as a nutrient management tool. After initial scepticism, most farmers gained confidence and accepted Overseer and its use in nutrient decision making.

A second project in 2006 focused on phosphate loss. The lake is phosphate sensitive. This project tested as "proof of concept" a number of on farm mitigations. The volume of P loss was quantified and the main pathways of loss were identified.

At the final meeting of the second project in 2009 the CEO of Bay of Plenty Regional Council (BOPRC) endorsed the progress the farmers had made and offered financial and technical support for the farmers to write the catchment plan for Lake Rerewhakaaitu. The council also decided that the targeted rate for the catchment would be 0%.

**Farmer Response**

The farmer group had a number of queries about the process. These can be summarized by the following:

- We want a clear idea of what Council expects of us
- How are we going to be judged?
- How do we prove we are doing the best we can with the resources we have?
- We want a policy of openness and sharing of data: "no surprises"
- We want a five year timeframe
- Which farms are involved?
- Some farmers will not come on board
- We want Department of Conservation on board.

**Council Explanation of Outcomes**
The Council wanted a catchment plan that resulted in a reduction of nutrient loss from the catchment so the Lake TLI*stays at the three year average of 3.6 or lower.

The Council did not want to dictate the process of achieving this and did not have any other requirements. Basically the farmers were given a blank sheet of paper as a starting point to develop the plan. It was agreed that the focus would be on only using the collective catchment farm data in the plan. There would be no need to see individual farm data.

While a lot of information was known on nutrient movement in the catchment there was much less known about what was happening in the lake and groundwater. The council agreed that more work is needed on what is occurring in these areas so that there would be confidence about the data underpinning future models.

The judgment of success would be discussed and agreed with the farmers before implementation. There are two possible approaches:

- The collective loss from the catchment is at a level that might reasonably be expected if best farm management practise is applied.
- The nett nutrient loss to the lake is at a level that is at or below the capacity of the lake to absorb and maintain a TLI of 3.6.

The regional council did not want to limit participants and did not want to stop farmers participating. The catchment plan however would include only those farms in the catchment.

The immediate area surrounding the lake is crown land and is managed by the Department of Conservation. They accepted the invitation to join the project and have prepared a draft EMS for the future management of this area.

*The TLI is an indicator of lake water quality. Four parameters are combined to construct the TLI: total nitrogen, total phosphorus, clarity, and chlorophyll a. The TLI is measured annually and the marker showing change is the running three year average. This is the key parameter to measure change in lake water quality.

**Timeframe**

*July – December 2009*
As a result of a series of meetings over this time the farmers elected to accept the offer and proceed with developing the plan. This was done fully knowing that not all the linkages between catchment nutrient loss and build up of nutrients in the lake. It was accepted that the process for each farm was voluntary and it hoped all farmers would come on board.
AgResearch is the primary science provider.

*Autumn 2010*
The project began with farm visits to collect farm data to be used in Overseer. In addition to council funding the project won SFF funding to support the development of the plan.

*December 2011*
At this time 43 of the 44 farms in the project had completed a farm NMP. There are 30 farms in the catchment and 11 farms outside who wanted to be involved. Three of the larger lifestyle blocks were also included.

The strategy was for each farmer to prepare a farm Nutrient Management Plan (NMP) with support of AgResearch using OVERSEER® for each farm and these would be the basis of the catchment plan.

The NMP process included data collection and input into Overseer. There was an on farm walk (Envirowalk) to identify critical source areas and other farm features. A draft NMP was prepared and discussed on site with the farmer. From this a final NMP was completed and agreed with the farmer.

**Some Features**

1. The project adopted the Environmental Management System (EMS) approach for the farm plans. This was done primarily to include the riparian area around the lake managed by DOC. As more was learnt about EMS it became apparent that it was much more than reducing nutrient loss and it was felt this would take focus away from this which is the key environmental issue. At the same time it is recognized that the EMS is a good model and may well be adopted by some farmers in the future.
2. During the second project, monitoring showed that short intense rain events (characteristic of the district) create a large volume of runoff (sediment) to waterways. Analysis showed this sediment contains high levels of phosphate and is the major source of phosphate loss from catchment. A solution to this is to build a series of detention dams at strategic locations in a sub catchment, to contain and slow down this runoff. The council has sited suitable locations and provided designs for the dams. Currently farmers and council staff are working through the issues to get these dams constructed.
3. Department of Conservation (DOC) have been invited and have accepted joining the project. DOC manage the riparian zone around the lake. This includes: public access areas, toilet facilities, camping areas, regenerating bush and waste areas of broom, gorse and blackberry. Doc has prepared a draft EMS plan for the riparian area.
4. Farmer support and confidence has increased over time. This is primarily due to good communication lines between all participants. Farmers wanted and have a constructive working relationship with the regional council the science providers. Communication has been through one to one contact, the committee, hall meetings and newsletters.

**Going forward : 2012 – 2014**

The project is now currently in the stage of implementation of the farm NMP's. In many cases these are well underway. Many of the simpler lower cost mitigations have been completed. The project is currently developing a system to audit the rate of implementation of the NMP plans.

Work will start soon on developing the draft catchment plan. The intention is to have this completed by June 2013.

The regional council has initiated work on developing a nutrient model for the lake and keeping ongoing communication with farmers on this development is a priority.
The long term vision is that once the plan is completed and accepted by the regional council, farmers will manage the plan beyond 2014. An agenda on how this could work has yet to be developed.

**References**

MAF Sustainable FARMING FUND website: Project 01/10

Poster presentation (FLRC Conference 2012), Reducing Nutrient Losses to Lake Rerewhakaaitu – Bob Longhurst, Ian Power, M Hawke, Bob Parker

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Farmers in Rerewhakaaitu district

MAF Sustainable Farming Fund

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AgResearch

Bay of Plenty & Pastoral Research

Dairy NZ.

Trust between farmers and council has remained strong despite some of the unknowns that face the project. Communication through personal contact, hall meetings and newsletters has been critical in achieving this.

In addition and outside the SFF project work has continued on developing some macro mitigations involving installing sediment traps and dams in some of the dry streams. These will mitigate the runoff of phosphate during heavy rain events which contribute a large component of the phosphate that gets in the lake and waterways.

Technical details on progress are in the poster paper "Reducing Nutrient Losses to Lake Rerewhakaaitu".

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