

Jenny Clarke

From: Penny MacCormick
Sent: Friday, 6 June 2014 2:06 p.m.
To: Andy Bruere
Subject: John McIntosh comments to the internal catchment and springs

Penny MacCormick | Lakes Restoration Officer | Bay of Plenty Regional Council | Rotorua, New Zealand | Ph: 0800 884 881 x7466 | Web: www.boprc.govt.nz
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From: Andy Bruere
Sent: Wednesday, 14 May 2014 8:51 a.m.
To: John McIntosh; 'David Hamilton'; Penny MacCormick
Cc: 'Christopher McBride'; Alastair MacCormick
Subject: RE: Lake Rotoma Catchment analysis

Thanks for that info John.

As Penny has been helping with the leaching data, Penny could you please help with the area that John has mentioned Alastair could help with below,

Thank you

Andy Bruere | Lake Operations Manager | Bay of Plenty Regional Council | Rotorua, New Zealand | Ph: 0800 884 881 x7497 | Web: www.boprc.govt.nz
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From: John McIntosh [<mailto:lochmoigh@xtra.co.nz>]
Sent: Wednesday, 14 May 2014 8:10 a.m.
To: Andy Bruere; 'David Hamilton'
Cc: 'Christopher McBride'; Alastair MacCormick
Subject: RE: Lake Rotoma Catchment analysis

Hi Guys

Attached is the inflow data for examining land use effects. All the P input export levels were less than 0.2 kgP/ha/yr. The reason I trimmed them related to the fact that a lot of water was filtered through the Lagoons and the fact that somehow you have to reconcile the inputs with the lake concentrations. What I later found when doing the Waitahanui study for the consent application was that there is some land included in the Rotoma catchment to the north of the lake that drains to the north. There is an area that forms a separate catchment (basin) of its own with no apparent outlet but from topography it has been included in the Rotoma catchment. I found two springs draining this area to the north. One has a large flow (abt 200 – 300 L/s) and the other was inaccessible unless you could abseil into a deep gully with abundant blackberry, but you could hear the flow. These both go underground shortly downstream. So there is 100 – 200 ha that is included in our catchment area here that does not flow to the lake. Alastair could give you a size for that. If that is removed the P export coefficients could be adjusted to the measured ones. If you examine Fish Creek (pasture) and the Ruru Stream (mixed native/exotic) there is no evidence that the groundwater is old age so I think that is why the lake is so depleted in P. It is a puddle of rainwater some of which drains quickly from the comparatively small land area. There is a small surface flow to the Shirley lagoon (the westerly one) but not to the Davies (the one just to the east of this) or the

east one which was not sampled. The land to the north could well all drain to the north except for surface runoff. This would be consistent with the lake resembling rainwater.

We obviously miscalculate the occupation rate for housing. The final action plan included the population number but we did not connect the dots with the budget at the time.

The dairy grazing was a small area so is not critical. There is an indication that winter grazing can have a higher export than general dairying, if that is what happens there. At Rerewhakaaitu the groundwater nitrate data from the Grant Rd area has very high nitrate. That area drains the land to the east of the Lake Rerewhakaaitu not actually in the lake catchment and drains to the Rangitaiki. They winter graze dairy herds there at the base of Mt Tarawera and stockpile feed at other times and the leaching must be enhanced because the bulk of the stocking is in winter.

Regards

John Mc

From: Andy Bruere [<mailto:Andy.Bruere@envbop.govt.nz>]
Sent: Monday, 12 May 2014 10:48 p.m.
To: David Hamilton
Cc: Andy Bruere; Christopher McBride; lochmoigh@xtra.co.nz
Subject: Re: Lake Rotoma Catchment analysis

Hi David ,

I don't disagree with your comments but I think john has some monitoring of the water coming through from the lagoons and so we need to be considering what the real number should be. The numbers from penny are overseer undertaken by a farm consultant with no regard what so ever for what the lake is seeing, so we need to be careful with that also.

Yes if the numbers are different to overseer then we need to have good understanding and justification of why that would be,

Hopeful john can shed some light on that,

Cheers

Andy

Sent from my iPhone

On 12/05/2014, at 9:39 pm, "David Hamilton" <davidh@waikato.ac.nz> wrote:

Hi Andy

The basis of the figures for S&B were those provided by Penny, which are generated from OVERSEER. Please remember that this is a first cut but it nevertheless contains considerable work [thanks Chris] in trying to provide a basis for deriving some of the numerical values given – in several cases we could find none and in other cases there appeared to be large discrepancies from what is reported in the literature.

I think we need to think carefully about starting to alter things for attenuation, i.e. to have a documented basis for it. Wetlands are already weighted at zero, indicating not so much that they emit nothing but that they balance what comes in with what goes out.

Taupo attenuation is c. 0.2, Waikato River is c. 0.5. For Rotoma it would likely be closer to the 0.2 value than the 0.5 value. Nevertheless we need to make the value quite explicit and we need justification of why it might apply to one source and not another.

Cheers,
David

From: Andy Bruere [mailto:Andy.Bruere@envbop.govt.nz]
Sent: Monday, 12 May 2014 7:54 p.m.
To: Christopher McBride; (lochmoigh@xtra.co.nz)
Cc: David Hamilton
Subject: RE: Lake Rotoma Catchment analysis

Chris,

I really concerned about the P changes, the farming has gone from about .38 kgP/Ha to over 3 kg per Ha. There needs to be some discussion on why that would be. I think we need to talk with John Mac to see why they selected the low rate in the first place. The farms are located behind some lagoons and so the overseer numbers may be quite different to the measured reality.

John could you look at these numbers please. I'll send the attachments in the next email.

Andy Bruere | Lake Operations Manager | Bay of Plenty Regional Council | Rotorua, New Zealand |
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From: Christopher McBride [mailto:cmcbride@waikato.ac.nz]
Sent: Monday, 12 May 2014 6:09 p.m.
To: Andy Bruere
Cc: David Hamilton
Subject: Lake Rotoma Catchment analysis

Hi Andy,

This afternoon David and I have worked through the catchment loads for Lake Rotoma; please see the attached file. Note a slight reduction in catchment TN, and substantial increase in TP. Also note relatively reduced percentage contributions from Septic tank inputs, due largely to our use of Kevin Bryan's annual average occupancy of 1.15 persons (as opposed to the 2.8 persons/year used in the action plan).

Please take a look and see what you think - any comments or suggestions would be much appreciated. Tomorrow we'll apply a similar methodology to the Rotoiti catchment.

Cheers,

Chris McBride
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