Jenny Clarke

From: David Hamilton <davidh@waikato.ac.nz>
Sent: Monday, 10 December 2012 8:55 a.m.
To: Andy Bruere
Cc: Michelle Lee; Paul Scholes; Anna Grayling
Subject: RE: Okataina Action Plan and Land run off research

Hi Andy

Sorry for the delay in getting back to you. I agree fully with what you mention. This will be a fairly challenging project as there are issues around the limited number of streamflows for testing but it is one that I think we need to initiate sooner rather than later. I do not know whether we need to take this to the TAG for approval or for their information? I say this because there may be a possibility of getting a student going on it a little earlier than our envisaged TAG meeting in the new year, and it may be possible to keep a subset of people involved to that point in time – on the subject matter, possible selection of a student and background to the development of the project.

Cheers,
David

From: Andy Bruere [mailto:Andy.Bruere@envbop.govt.nz]
Sent: Thursday, 29 November 2012 9:02 a.m.
To: David Hamilton (davidh@waikato.ac.nz)
Cc: Michelle Lee; Paul Scholes; Anna Grayling
Subject: Okataina Action Plan and Land run off research

Hi David,

I'm not sure if I have put into writing what we discussed about Okataina land use issues and the possibility of research, but wanted to make sure we are starting progress on this research and have some objectives set.

It seems from the lake water quality and analysis of surrounding land use types and areas that the water quality of Okataina is probably lower than would be expected considering that there is very little high producing farming taking place within the catchment and a significant area of the catchment is covered in native bush and not used for and productive land use. There is also an area of production forestry that has been harvested recently.

From our discussions it is possible that the nature of the land and pest issues within the catchment may be leading to a higher phosphorus run off from the catchment than would normally be expected. It has been established by whole lake nutrient budget that the sustainable load of nitrogen and phosphorus to the lake would be met if discharge from the catchment was reduced by 860 and 380 kg/year. The nitrogen target can be met relatively easily with about another 20 ha of land use change, from dry stock farming to forestry.

However, the phosphorus target is more difficult to achieve. If all the farming land use within the catchment was converted to forestry, then there would still be a shortfall in the P reduction target of about 50Kg/yr. It is unlikely that all the farming land use will be converted to forestry, so the P shortfall is likely to be larger than 50 Kg.

There are few other opportunities to reduce P in the catchment from land use or other uses. Consequently we believe it is necessary to investigate the role of the bush and forestry catchment in contributing to the P load reaching the lake.

I believe there are 3 main areas that we need to investigate:

1. What is the P run off characteristics of the catchment, and how does this compare with other lake catchments of similar topography and vegetation type?

2. Is there some interaction between P run off and the condition of the native bush within the catchment? For example is there some impact on P run off due to pest damage to the native forest?
3. What is the impact of the production forest areas on P run off to the catchment? Is this similar to what we expect from other research and models?

I would expect that part of the research project will be to develop a lake model for Ōkataina that allows simulations to be run to assess possible changes in water quality as we make changes within the catchment. I am not sure of the feasibility of connecting this with land use models at this stage.

I am expecting that this project could be a PhD or Masters project.

David I think the next step here would be for us to discuss with TAG and set up a way forward to initiate the project,

Cheers,

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