

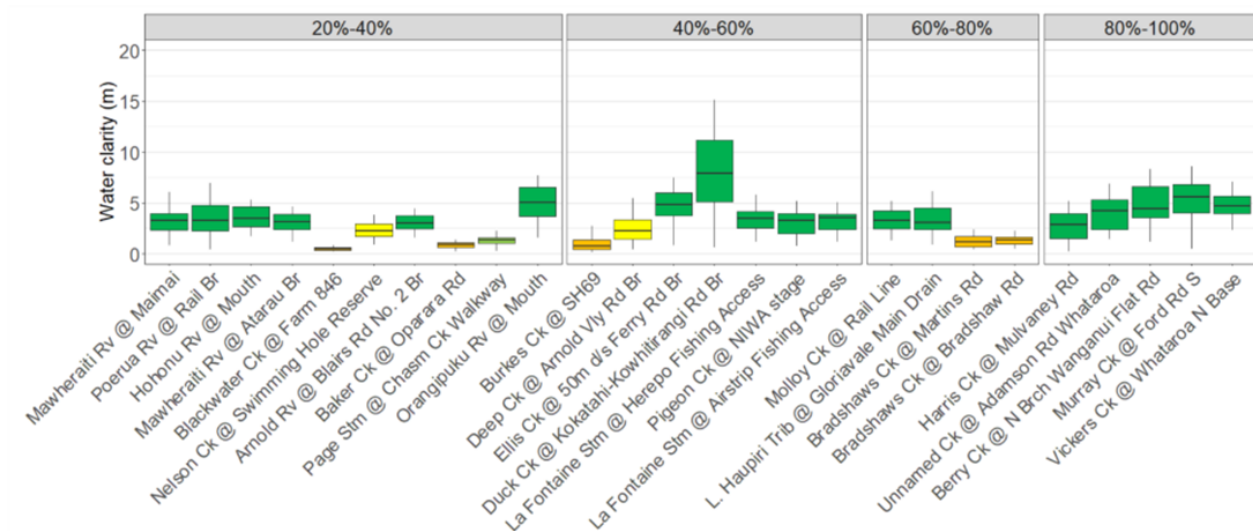
[Draft] Duck Ck background SWQ

From Jonny Horrox <jh@wrc.govt.nz>
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 To Tony Ridge <tr@wrc.govt.nz>

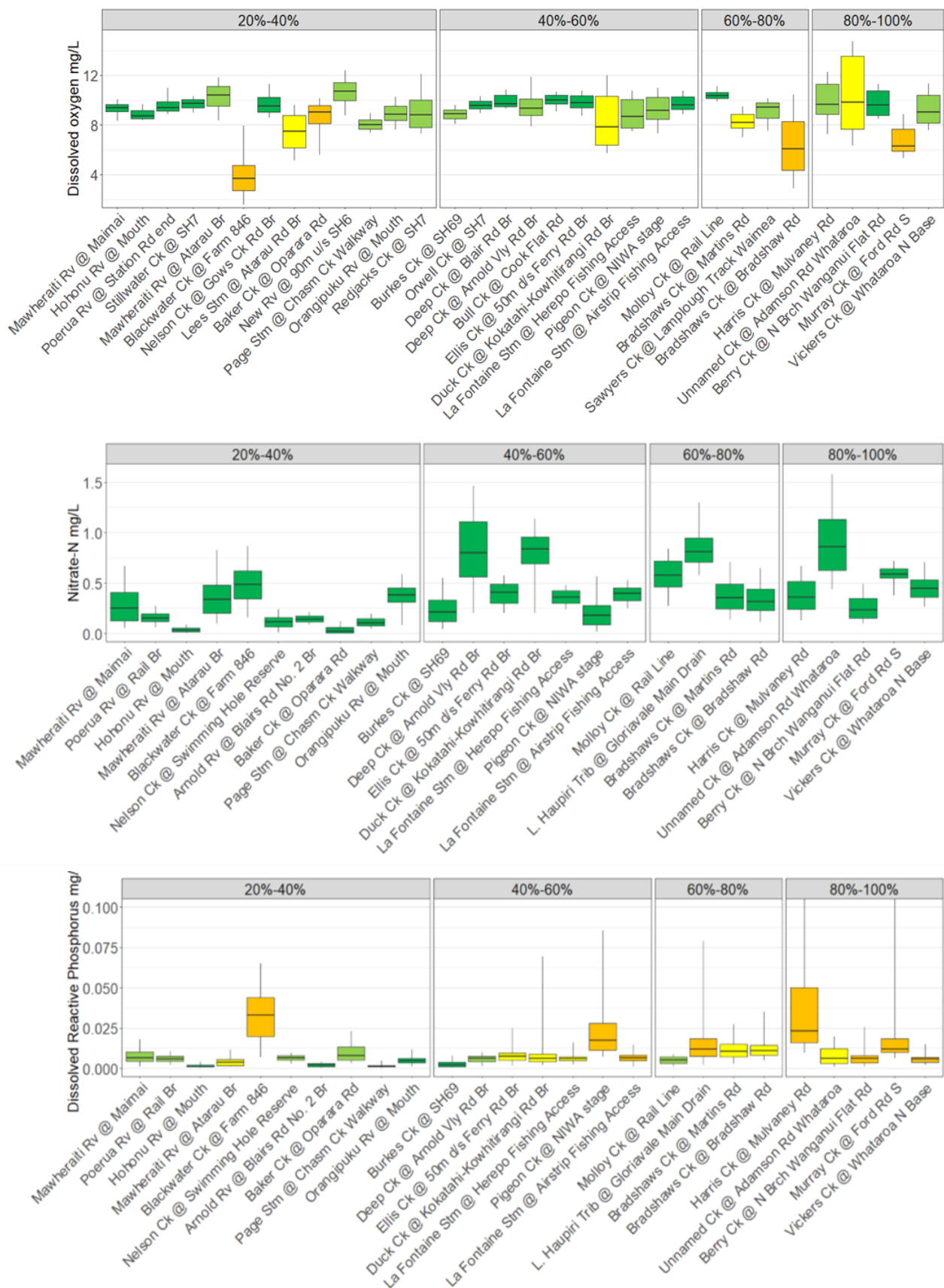
Hi Tony

Here is some background data on Duck Ck. We have a lot of data. The site is at the road bridge, just upstream of the composting facility. The percentages along the top of the graphs are percent human land use/landcover in the catchment.

- Mean flow at about a 1.1 cumecs.
- Clarity: very clear.

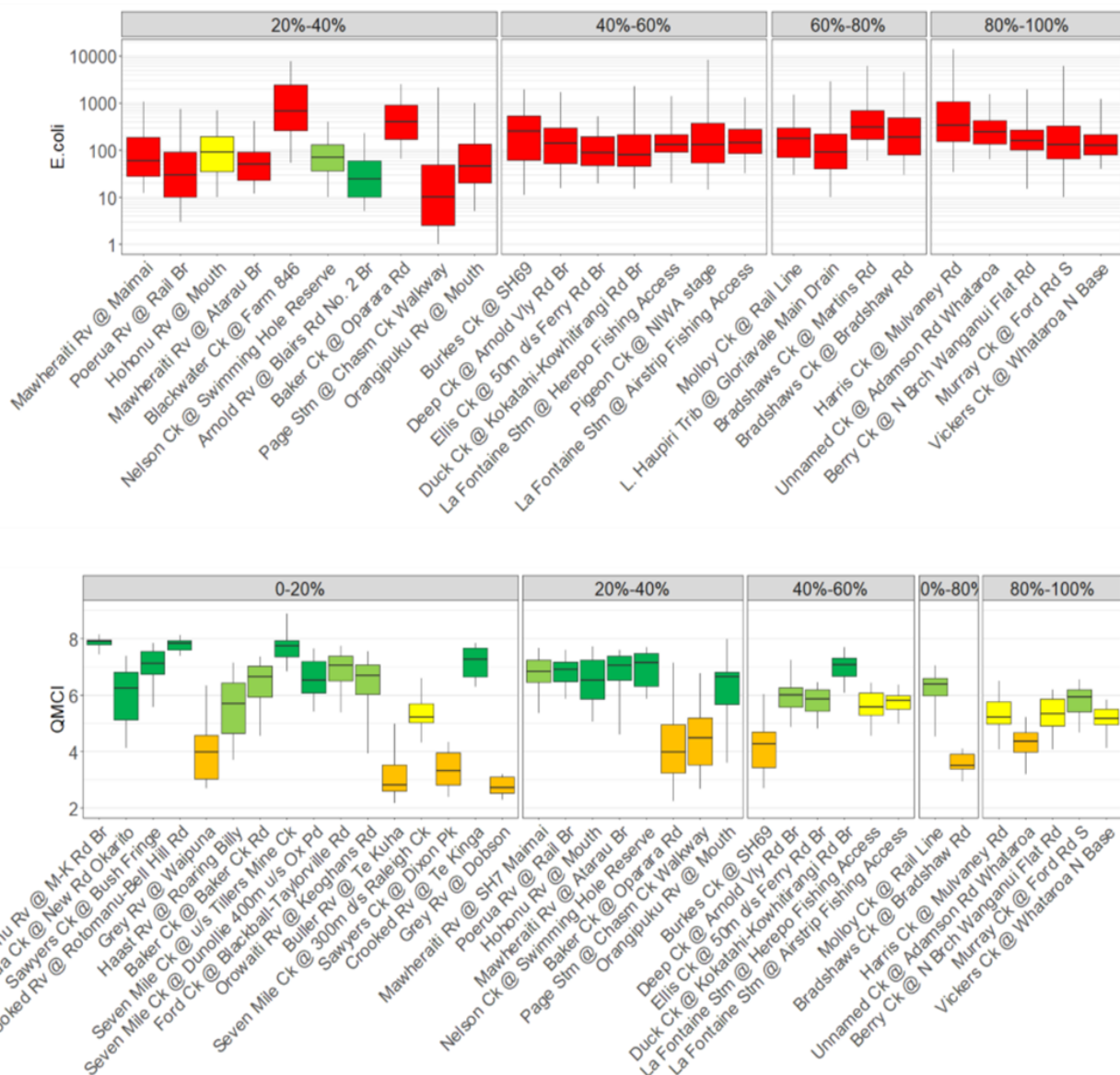


- All the groundwater recharge that keeps it flowing in dry weather and makes it clear also leans it towards lower oxygen (low DO in groundwater). Add this to the plants and reduced turbulence and DO gets low, in summer, during the night. So it starts out with reduced DO and then this is further exacerbated by plant and algal respiration at night. Plants and algae are doing well because Duck has limited riparian shade and plenty of nutrients (see below) from agriculture.



E. coli is high which is what you'd expect for intensive farming in the catchment and a high rainfall environment.

Macroinvertebrate health is really good, so the low DO doesn't bother them. Maybe the trout.



In summary:

Duck is a pretty nice stream thanks largely to constant groundwater recharge. It doesn't need more nutrients, but at 1 cumec it has the ability to dilute this and that, now and then.

High clarity, healthy fauna.

Stable flow, no riparian shade, high nutrients makes it susceptible to algae and plant proliferations, which aren't good for habitat and mess with the oxygen. But seems OK thus far based on bug sampling.

JH

Jonny Horrox

Principal Scientist | West Coast Regional Council

✉ jh@wrc.govt.nz | 📞 +64 3 744 7324 | 📠 +64211903312

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