

# ***Interactive comment on “Comparison of high frequency, in-situ water quality analysers and sensors with conventional water sample collection and laboratory analyses: phosphorus and nitrogen species” by Steven J. Granger et al.***

**Steven J. Granger et al.**

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Re: Specific comment 1) We obviously agree and acknowledge the issues of the comparison between approached and the LOQ problem. Obviously any analysis/sampling/approach introduces error however, we are as confident as we can be about the quality of the lab data. The error introduced between 'sampling' and 'analysis' however could perhaps be emphasised better which we will undertake in the revision process. As the reviewer points out, perhaps small agricultural catchments are not best suited for this equipment, which is an aspect of the work that is worth reporting

and noting.

Re Specific comment 2) The data reported by the Phosphax IS rounded to the nearest 10 ug/l at our site. This may have been a function of the telemetry system that transmits the data back to the main site. It is something we can report on in the text when we have clarified why this is the case

Re Specific comment 3) This maybe the case but the only QC'd data we have is from the lab. Therefore we compare to it as the main point of reference. There was a divergence of concentration between the two approaches at low NO<sub>3</sub> concentrations but we were unable to clarify why that occurred. My feeling was that it was a sonde issue of some description, however we cannot confirm either way and it would be wrong to side with one approach or the other on a 'feeling'.

Re Specific comment 4) We can present information on the 'predetermined flow thresholds' if required, however we did not feel as though that detail would have helped the reader in the understanding of the results/discussion. For brevity we didn't include other than to say samples were taken throughout the flow event. Similarly with sampling position: as this is not a river channel, but instead a small circular concrete culvert with limited space for sample variation within the flow we did not include the information for brevity. However this can all be provided should it be felt necessary. More detail on the manual grab sample collection and storage will be provided.

Re Specific comment 5) Given our position that we compare autoanalyser data to the lab data because it was analysed in a QC'd environment we will provide information on the analytical quality process in our laboratory.

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Discussion paper

