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Hydrology and Earth System Sciences
Discussions

Interactive comment on "Dissolved and particulate nutrient transport dynamics of a small Irish catchment: the River Owenabue" *by* S. T. Harrington and J. R. Harrington

Anonymous Referee #2

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This is a highly correct paper on its results and conclusions, but with minor novelty apart of its local description of the case. The paper neglects stating the main question as well as the underlying hypothesis that guided the approach. Indeed, the reader is willing to quickly understand which are the main issues defining the specific study. This needs to be supplemented in the forthcoming revision. A more detailed description of the hydrological pattern should be also appreciated, since hydrology (and in particular storm events) appear to be so much important for the nutrient dynamics. Finally, patterns need to be compared with others elsewhere; the comparison is by now restricted to very similar systems, and it remains unanswered whether the behavior is or

not singular.

The writing is sometimes unclear. I provide comments on specific sections of the paper.

110- L3 Why "enriching" nutrients?

L12 Better "determination between. . ."

L22 Awkward sentence "a potential eutrophication risk to the river where phosphorus was found to be the limiting nutrient"

L25 reducing temperature, productivity, density, the mass of bethnic communities. . . You mean that nutrients decrease productivity? and the mass of benthic (not bethnic) communities? This is certainly against usual knowledge.

111-L13 non-point pollution to the surface- You mean surface waters?

113-L25 and ff. "The objective for the 2015 to 2021 reporting period is to improve river water quality. The poor status of the river can be attributed to the results of the macroinvertebrate tests rather than the physio-chemical testing"- This sounds contradictory. Probably you confuse the ecological status with the chemical status. The following sentence suggests you do not provide credibility to the biological status. In my opinion you need to refine this- the WFD is precisely requiring the different endpoints to be jointly considered.

114-. . . discharge by the staff of the Office of Public Works. . . this is not necessary

L15 Why Whatman GFC filters, 1.2 μm 15 pore size were used? This is confusing regarding the comments at the introduction on the pore size. An explanation is required for this choice. Which were the fractions filtered and which were not- please describe in the text.

L17 Define the method PhosVer3 Acid Persulfate Digestion/Photometric Method 8190. Stating that it is equivalent to USEPA Method 365.2 does not help much. Provide references.

L25- Equal for Cadmium Reduction Method 8171/Photometric

118 curves instead of cures.

120 L7 and ff- As stated, N:P stoichiometry is useful to predict P or N limitation, and this might be extensive not only to phytoplankton, but also for the other primary producers probably important in the river: biofilms, and even some plants. It is also clear that other factors are indeed important in affecting the primary producers' growth: hydrology, light, temperature. This needs to be included in the prediction of eutrophy, and references need to be included.

Figures are in general of poor quality. Axes labels and numbering cannot be properly read. Figure 1 is tiny, and several others are hardly readable.

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 11, 109, 2014.