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Hydrology and Earth System Sciences Discussions



# *Interactive comment on* "Technical Note: Demonstrating a 24/7 solution for monitoring water quality loads in rivers" *by* P. Jordan and R. Cassidy

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The manusript address a great and growing problem in environmental monitoring and management of eg. nutient loads as managers needs a best technical and still cost-effective way of getting as high an accuracy as achievable for monthly and annual nutrient loads. The authors presents in this technical note a very valuable input with a solution to overcome this problem in a feasible way. In such, the manuscript present a novel ooncept for monitoring of total P loads in small streams.

General comments

I believe that the authors have to reflect more clearly and show also in the Title of the mauscript that there proposal of a new monitoring strategy (24/7) is in my opinion only the most cost-effective in catchment up to a certain size (< 25 km2). The authors should include also results from a paper by Kronvang and Bruhn (1996) Hydrol. Proc. 10: 1483-1501 in which the authors clearly documents the dependency of sampling frequency and nutrient load calculations on catchment size. The authors in that manuscript also suggest a combination of a baseflow sampling programme coupled to an automatic sampling during spates as these streams where only with a low impact from point sources. The manuscript should be more clear on the difference in sampling strategy between streams recieving nutrient inputs from both point sources and diffuse sources and those only having inputs from diffuse sources - a different sampling strategy should be used in these two cases. A discussion of the implications for seasonal (monthly loads) would be welcome as water bodies are responding on the seasonlaity of nutrient inputs not annual inputs. Moreover, a breif discussion on the implications for different P forms - dissolved inorganic P and particulate P would be welcomed as the note seems to focus more or less on particulate P and sediments - again water bodies responds ecologically first of all on bioavailable nutrients.

Specific comments

The authors seems to have Fig 1 and Fig 2 referenced wrongly in the text (p. 5040 (Fig 1a and b - should be Figure 2a and b. The same goes to Fig, 2b on line 22, p. 5041 which should be Fig. 1 b and the reference to Fig. 1a same page in line 17 should instead be Fig. 2a.

I could not find the reference to Fealy et al., 2010 in the main body of text although the reference is in the reference list.

In conclusion, I find that the manuscipt should be published with a few minor revisions.

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Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 8, 5035, 2011.