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Interactive Comment

# *Interactive comment on* "Impact of phosphorus control measures on in-river phosphorus retention associated with point source pollution" *by* B. O. L. Demars et al.

## Anonymous Referee #3

Received and published: 7 March 2005

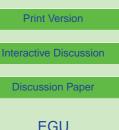
## **GENERAL COMMENTS**

The paper of Demars et al deals with an important issue: P dynamic and mass balance in a large watershed. The authors have used an empirical model to calculate point source, diffuse sources and in stream sources (retention) contributions to P export at the outlet, before and after P control measures.

This paper give a substantial contribution to water quality science.

The key points of the paper relies on:

-methodologies used: based on C/Q relationships, methodologies enable the use of noisy long term data such as data collected by Governmental agencies; this should be very usefull;



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-use of "critical discharge" concept to deal with P dynamic in the river system (transition from retention to remobilisation);

-evaluation of uncertainties and error propagation associated with mass balance calculations

Some weak points questions and suggestions:

-typology of diffuse and point sources of the basin should be given (any unknown small point sources? are they negligible? Urban runoff? River bed erosion???)

-proposed model introduce a coefficient r of retention remobilisation; this suggest that transport of point sources and remobilisation of in stream phosphorus follow the same; dynamic (eq 4) : you should justify and discuss that

- is it possible to justify the hydrological power law hypothesis?

Comments on "discussion":

- Not enough explication is given regarding the reduction of P retention following P treatment.

- How does the model compare with other currently referenced models?

- Management : discussion on management implications is missing the point; it should be more general and explain how the study can support decision making process on water quality issues. It should also show how the P mass balance model presented enable a better use of monitoring data generated by Environmental Services (or enable to improve the monitoring strategies of theses agencies) - Conclusion: the conclusion sums up discussions and results. OK but some aperture on research perspectives would be relevant.

## **RESULTS OF EVALUATION**

-The paper is relevant within the scope of HESS, presents interesting tools ideas and

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conclusions. The paper should be accepted

All the current standards for a scientific papers are reached.

-Results support Interpretations

- -Description of site, methods, calculations are complete.
- -The presentation is clear and well structured.
- -Abstracts references are appropriate.

-Discussion and conclusion could be improved (see general comments)

Interactive comment on Hydrology and Earth System Sciences Discussions, 2, 37, 2005.

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