

# ***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;

Full Screen / Esc

Print Version

Interactive Discussion

Discussion Paper

-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

[Full Screen / Esc](#)[Print Version](#)[Interactive Discussion](#)[Discussion Paper](#)

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.

Full Screen / Esc

Print Version

Interactive Discussion

Discussion Paper