



## **Learning outcomes from participatory modelling: A case study in the Tamar catchment, UK**

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Strong arguments for participatory modelling in hydrology can be made on substantive, instrumental and normative grounds. These arguments have led to increasingly diverse groups of stakeholders (here anyone affecting or affected by an issue) getting involved in hydrological research and the management of water resources. In fact, participation has become a requirement of many research grants, programmes, plans and policies. However, evidence of beneficial outcomes of participation as suggested by the arguments is difficult to generate and therefore rare. This is because outcomes are diverse, distributed, often tacit, and take time to emerge.

In this paper we present results from applying an evaluation framework focussed on learning outcomes (Krueger et al., 2012) to a participatory modelling process within the Tamar catchment pilot of the UK government's new Catchment Based Approach of managing water resources. The process was run as a series of workshops with email and telephone conversations in between. The outputs were models of sediment and Faecal Coliform transfers from land to water and down to the catchment outlet, mitigated by sewage treatment options, land use, livestock densities and farm management practices. The learning outcomes were assessed through semi-structured interviews with the participants.

The results indicate a lack of fairness and some competence issues of the participatory modelling process. Nevertheless, salience, credibility and legitimacy of the models were judged positively by the majority of participants, and some substantive and instrumental benefits of participatory modelling theory could be confirmed, specifically input of better data and increased buy-in and ownership from the participants, respectively. Instrumental learning by the participants was high and facilitated through the models as well as the group setting. Communicative learning by the participants was mixed, with people increasingly appreciating the views of others and discovering shared interests, but not necessarily changing their own view, behaviour or institutional practice.

We conclude the paper with a discussion of two learning aspects of the participatory modelling process for which conflicting results were obtained: the question of depth of model scrutiny and the question of trust in the model, in the modeller and between the participants.

### References

Krueger, T, Inman, A, Chilvers, J. 2012. An evaluation framework for participatory modelling. Paper Number EGU2012-5958. European Geosciences Union General Assembly, April 22nd-27th: Vienna, Austria.