

Do Environmental Flows Improve River Condition and Health or Are They Part of the River Regulation Problem?

CALL FOR PAPERS

Well before the publication of Professor Petts' book, "Impounded Rivers" in 1984, it was already known that dams and the consequent regulation of rivers caused drastically altered streamflow and sediment regimes, impaired water quality, changes in macroinvertebrate and fish communities, altered riparian vegetation, channel changes, and river bed coarsening. What Petts' book admirably achieved was a succinct summary and a detailed understanding of why these downstream impacts had occurred. River condition deteriorated below dams and, until recently, little attempt had been made to redress these impacts to any degree. The ecology of environmental flows has advanced rapidly over the last 30 years to try to reduce these downstream impacts although complete restoration to a preregulation condition has still not been attempted.

A plethora of different methods has developed to determine environmental flows but proof of success in reducing the above impacts has still not been clearly demonstrated. Experimental floods, expert panels, and predictive physical and biological models have gained increasing acceptance as methods to evaluate how to rehabilitate rivers from river regulation. However, the whole range of fluvial ecological processes should be covered and the aim of restoring preregulation conditions is almost impossible without removing the dam. We hope to consolidate recent world-wide research on setting environmental flows to demonstrably improve downstream river condition and health in this special issue. We, therefore, seek high quality contributions from ecologists, biologists, botanists, hydrologists, ornithologists, geomorphologists, sedimentologists, and geographers who can contribute answers to the above question. We will accept original, well written articles that will inform all branches of aquatic ecology of the current state of knowledge. We interpret "ecology" in its broadest sense.

Potential topics include but are not limited to the following:

- ▶ Experimental floods to set environmental flows
- ▶ Erosion thresholds to set limits on environmental flows
- ▶ Prediction of pool destratification to improve water quality and to set environmental flows
- ▶ Bed mobility and macroinvertebrate response
- ▶ Riparian vegetation response to experimental floods
- ▶ Water bird response to river regulation and how to reverse degradation
- ▶ Fish passage during environmental flows
- ▶ Pest species control by environmental flows
- ▶ Sediment control by environmental flows
- ▶ Environmental flows and bed armouring
- ▶ Water quality improvement by environmental flows
- ▶ Aquatic habitat improvement by environmental flows
- ▶ Intermediate disturbance hypothesis and environmental flows
- ▶ Hydrology of environmental flows
- ▶ Impacts of river regulation on downstream biogeochemistry and wetlands and how environmental flows can partially reverse the trends
- ▶ How to manage sediment depletion below dams by environmental flows
- ▶ Benthic algae and environmental flows
- ▶ Thermal pollution and remediation by environmental flows
- ▶ Geomorphic change resulting from environmental flows
- ▶ Scientific monitoring and adaptive management to improve effectiveness of environmental flows
- ▶ Lessons learned from environmental flow studies
- ▶ How should environmental flows differ between various river types?

Authors can submit their manuscripts through the Manuscript Tracking System at <https://mts.hindawi.com/submit/journals/scientifica/ecology/efirc/>.

Papers are published upon acceptance, regardless of the Special Issue publication date.

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