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How do we do inter-disciplinary eco-hydrological restoration science? Some experience from the EC-funded FLOBAR2 project

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Maintaining or improving the ecological quality and hydrological functions of floodplains is a necessary component of floodplain restoration, and consistent with the aims of the Water Framework Directive. Such restoration, and environmental management generally, requires making choices. The "normal science" that characterises the study of hydroecology must therefore be embedded within a "robust" or "citizen" science, part of whose research agenda is to understand the institutional contexts in which that choice can be made. The policy environment thus becomes part of the research programme, and institutions that underpin and manage the policy should be subject to analysis themselves. To facilitate floodplain restoration, it may be necessary to understand how the institutions can variously promote or hinder the process; and how agencies may or may not have adequate structures for making choices that are accountable scientifically and democratically.

The EC-funded FLOBAR2 project (***FLO****odplain* ***B****iodiversity* ***A****nd* ***R****estoration* ***2****: Integrated natural science and socio-economic approaches to catchment flow management*; 2000-2003) sought to emphasise that water management practices should consider the water needs of floodplain ecosystems. It had two main aims. One addressed the scientific understanding of interactions of biological and physical systems on floodplains, exploring the impact of flow regime on the growth and regeneration of floodplain plant species, and the impact of floodplain vegetation on floodwater reten-

tion and hydraulics. It was therefore concerned with biodiversity on the one hand, and flood management on the other, and these often *appear* to be conflicting aims to the agencies that represent various institutionalised ideas and policies. Second, however, FLOBAR2 analysed how decision-making was able to deal with this conflict in the varying European institutional contexts for river and catchment management, and the implications of this for floodplain and water management. This may be one model for inter-disciplinarity: it moves a social science research agenda "upstream" to analyse and influence the policy and decision-making bodies structurally, and prioritises "robust" science relative to "normal" science. The latter then deals with specific issues that in different places and times may be more or less important, and in the case of some river reaches are selected as relevant, but in others are ignored. Overall, however, there may be both biodiversity and flood management gains at the catchment scale through selective floodplain restoration.