

# **Bridging the gap between scientists and practitioners in environmental science**

## **Experience from implementing the Water Framework Directive**

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The Water Framework Directive is widely considered to be a progressive and innovative legislative driver for improving the quality of European surface waters. The Directive requires ecologically based assessments, indicators of a wide range of environmental pressures, and ecological status related to the degree of change from an agreed type-specific reference, or unmodified, condition. All surface waters are required to meet defined objectives which are ecologically close to reference. There has been a great deal of effort to intercalibrate national assessment systems across Europe. The Directive is grounded in economic reality and objectives for water bodies take account of those already heavily modified for specific human uses and for which restoration to near natural condition would be infeasible; even though this economic test is not easy or straightforward. A key underpinning element of the Directive is the delivery of objectives through statutory catchment plans inclusive of a range of stakeholders.

However, there are also some difficult issues still to be resolved. Although EU intercalibration of ecological status has been innovative and largely successful, compliance with agreed reference has been fairly poor so far. Alignment of methods for lakes and coastal waters has been problematic. The level of ambition and timescales for achieving ecological objectives varies widely across the EU and countries differ in how to take account of invasive non-native species in ecological assessment. Experience in Scotland over the last 8 years has been reasonably good. River basin planning is well organised, stakeholder participation is good and there are advanced plans for meeting water body objectives within specific timescales. We now have a comprehensive view of where the pressures are and the measures required to meet objectives. But the availability of up to 3 river basin planning cycles has led to backloading of planned measures where these are more difficult, financial incentives for some non-regulatory measures are available but not always well targeted at the catchment scale, and designation of heavily modified rivers has proved a difficult concept in an agricultural setting.

It can be argued that achievement of consistent EU-wide ecological status objectives is a rather narrow focus and that a more flexible, and inclusive, approach to catchment management requires an ecosystem services approach to environmental risk management. It is also important to demonstrate good value for money for taxpayer funded measures by the achievement of multiple benefits for flood risk management, biodiversity, climate change mitigation and other potential environmental gains.