WISE
WATER INFORMATION SYSTEM FOR EUROPE




Water Notes on the Implementation of the Water Framework Directive

Water Note 4

Reservoirs, Canals and Ports: Managing artificial and heavily modified water bodies

Across Europe, economic development has physically altered rivers and other waters for navigation, flood control and other purposes. Barge canals and hydroelectric reservoirs have been created where no water bodies previously existed.

Examples of such changes can be seen in the Rhine river basin. Over the past two centuries the Rhine has been straightened and dredged so that barges could transport goods along the river. Embankments have cut off the Rhine from its former flood plains, many of which are now used for farming, industry and settlements. Dams along the river and its tributaries generate electricity and control water levels and in many parts of the basin, such as in the Alsace region in France, a number of canals were built to bring barge traffic to major cities and to the Rhine itself.

For centuries, Europe has used its surface waters as an economic resource. The Water Framework Directive provides a framework to protect the EU's waters and manage them in a sustainable manner. By allowing Member States to classify water bodies as artificial or heavily modified, the directive provides a mechanism to reconcile economic activity with environmental goals.

A lower target

One of the aims of the European Union's Water Framework Directive is to ensure that by 2015 all of Europe's water bodies are of good ecological quality. But aquatic ecosystems which are part of modified water bodies – such as stretches of the Rhine and artificial ones like navigation canals – may not be able to meet this standard.

This is why the directive allows Member States to designate some of their surface waters as heavily modified water bodies or artificial water bodies whereby they will not need to meet the same quality criteria required of other surface waters. They will need to meet the "good ecological potential" criterion for these ecosystems rather than "good ecological status". However, artificial and heavily modified bodies will still need to achieve the same low level of chemical contamination as other water bodies.

Member States must meet a series of tests to designate water bodies in these categories (described in the box).

Thames River, London, UK

The Water Framework Directive establishes a legal framework to protect and restore clean water across Europe and ensure its long-term, sustainable use. (Its official title is *Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy*.)

The directive establishes an innovative approach for water management based on river basins, the natural geographical and hydrological units and sets specific deadlines for Member States to protect aquatic ecosystems. The directive addresses inland surface waters, transitional waters, coastal waters and groundwater, and it establishes innovative principles for water management, including public participation in planning and economic approaches, including the recovery of the cost of water services.

Under Article 4(3) of the directive, Member States can designate artificial and heavily modified water bodies.

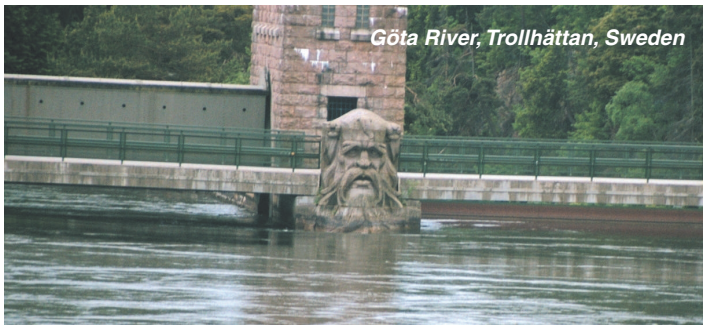
Almost one-fifth of EU waters

In 2005 Member States made their initial designations which resulted in about 15% of the EU's surface water bodies being identified as heavily modified and a further 4% as artificial.

A surface body of water is a section of a river, lake, or transitional or coastal water. This means that Member States can decide to designate only specific sections of a river as heavily modified. In the United Kingdom, for example, upper stretches of the Thames River remain largely in their natural state. But the lower stretches of the Thames, which are modified by embankments and other public works as they flow through London were identified in the UK's 2005 river basin report as heavily modified.

The situation varies widely between Member States. Belgium, the Czech Republic, the Netherlands and Slovakia designated over 40% of their surface water bodies as heavily modified (see the box describing the Netherlands).

In contrast, Latvia and Ireland indicated that less than 2% of their water bodies are heavily modified or artificial.



Göta River, Trollhättan, Sweden

Next steps

The initial designations made in 2005 are only provisional. The final decisions will be included in the river basin management plans Member States must prepare for 2009. These plans will contain the measures Member States will implement in order to meet the directive's 2015 objectives, which include ensuring the good chemical status and good ecological potential of all artificial and heavily modified bodies of water.

Subsequent management plans must be prepared every six years. These will review whether the designations are still necessary in light of the steps some Member States are taking to restore the natural state of heavily modified water bodies such as reopening some of rivers' flood plains.

Tests for designating artificial and heavily modified water bodies

An artificial water body is defined as a body of water created by human activity while a heavily modified body is one that has undergone man-made alterations that have substantially changed its character.

There are a number of key test Member States have to meet before designating surface waters as artificial or heavily modified (Article 4(3)). One of these tests is whether the body of water in question will be able to meet the objective of good ecological status by 2015. If it can meet this objective, there is no need to classify it separately from other surface waters.

Another test is whether the beneficial objectives of the artificial or heavily modified water body could be met in other ways. If a section of a river was dredged and straightened for navigation in the past and current traffic could be easily transferred to rail it would not meet the criteria as a heavily modified water body.

Netherlands: the need to work with the water

The Netherlands have been modifying their rivers, lakes and other waters for centuries in its efforts to build a thriving economy. Coastal defences and other works provide flood protection to this low-lying territory.

The IJsselmeer provides an example. This freshwater lake was created when a coastal defence dam closed the Zuiderzee, an extensive saltwater bay, from the North Sea in the 1930s. The IJsselmeer was later split in two by a second dam. Both segments are now designated as heavily modified bodies.

The country's many artificial water bodies include the network of small canals that weave across the landscape.

In 2005 the Netherlands published a report – under the European Union's Water Framework Directive – that provisionally identified over 90% of its water bodies as either heavily modified or artificial. For all of these water bodies, the aim is to achieve good chemical status and good ecological potential.

To learn more about the Water Framework Directive and on Europe's waters, see the **Water Information System for Europe** (WISE): water.europa.eu. The European Commission's web pages on water protection, which are linked to WISE, provide further information, including a map of water bodies not at risk in each Member State: see http://ec.europa.eu/environment/water/water-framework/facts_figures/index_en.htm. For technical information, a link from the Commission's pages leads to the guidance documents prepared under the Common Implementation Strategy, a co-ordinated effort by the Commission, Member States, Accession Countries and Norway to address technical challenges for implementation of the directive.

ISBN 978-92-79-09300-5