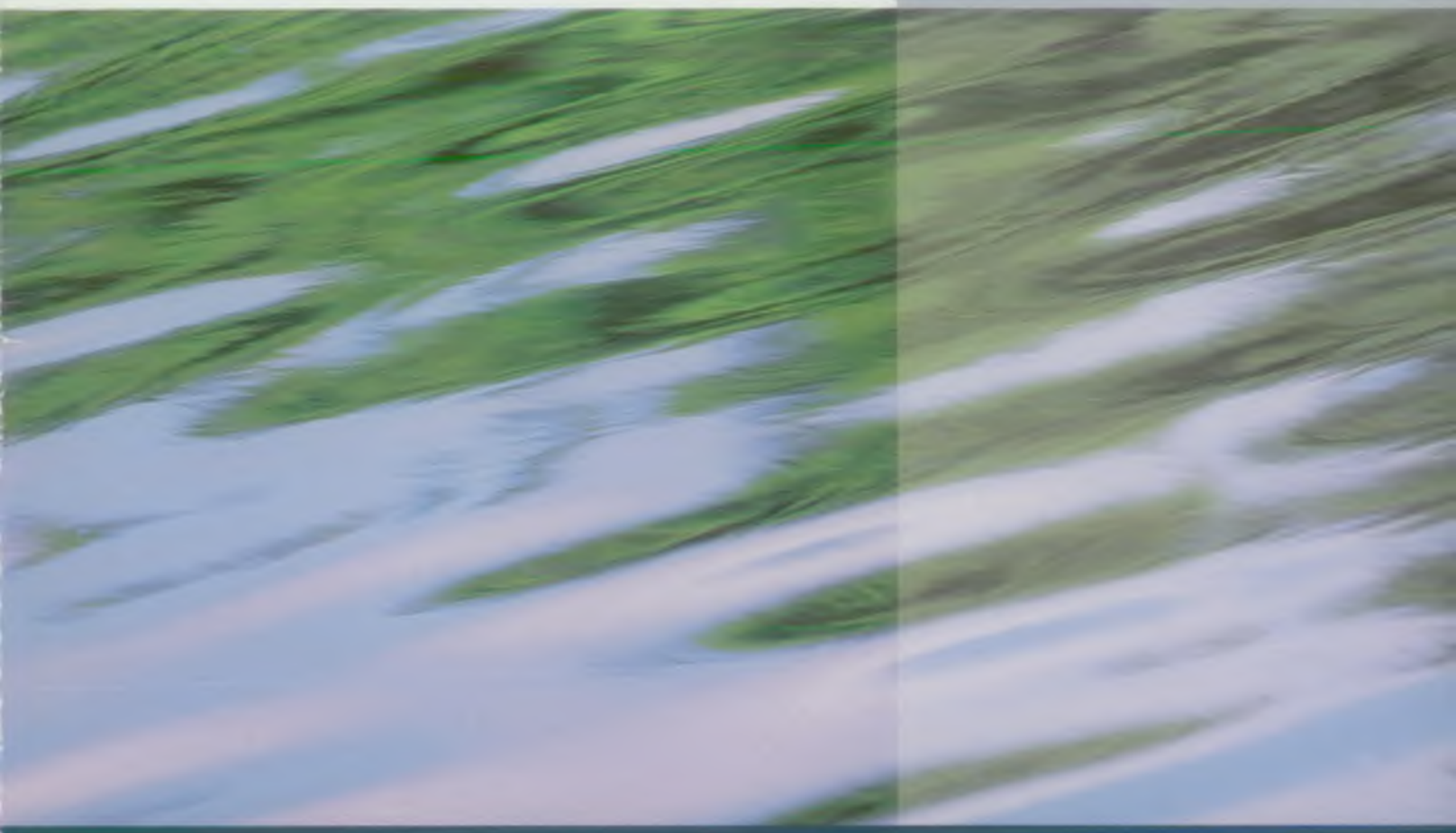

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The Water Framework Directive

Guiding principles on the technical requirements

Accompanying summary to the Environment Agency consultation document

ENVIRONMENT AGENCY

Introduction

1.1 Background

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 (known as the Water Framework Directive), seeks to resolve some of the conflicting approaches and implementation problems of previous water Directives. This will be through a new, integrated approach to the protection, improvement and sustainable use of Europe's rivers, lakes, estuaries, coastal waters and groundwaters.

Successful transposition and implementation of the Water Framework Directive represents a significant challenge to Government and organisations responsible for water management in England and Wales.

1.2 Successfully transposing the Directive

Each Member State has until December 2003 in which to transpose the Directive into domestic law. In England and Wales, the Department for Environment, Food and Rural Affairs (DEFRA), and the Welsh Assembly Government have the responsibility for overseeing this transposition. The Environment Agency has and will provide extensive support in this process.

DEFRA and the Welsh Assembly Government produced their first consultation paper on transposition of the Directive in March 2001. In this document they identified that the Environment Agency would consult on the technical aspects of Annexes II and V of the Directive. The consultation document ***"The Water Framework Directive: Guiding principles on the technical requirements"*** represents our response to this request.

This accompanying summary document outlines some of the key aspects of the full consultation document and is intended to direct readers to the appropriate sections in the full document.

The aim of the full consultation paper is to stimulate interested parties to examine the detail of the proposals and to give their views on the principles on which they are based. The full range of expertise and information within the scientific and professional community concerned with water management is widespread. Hence, a partnership approach allowing all stakeholders to become involved will assist the successful implementation of the Directive.

Photo 1 Example showing some of the hydro-morphological quality elements for rivers.

The hydro-morphological quality elements for rivers include the structure and substrate of the river bed, variation in the river's depth and width and the structure and condition of its riparian zone. The riparian zone is land adjacent to the river that is important to the quality of the river and is in turn influenced by the river.

1.3 Consultation on the technical annexes of the Directive

The following sections of this summary paper follow the layout of the main consultation document. The paper thus presents an overview of the Directive and some of the key principles and issues, which result from the interpretation of its requirements. For those readers who wish to explore specific issues in more depth, references are given to the chapters of the main consultation document where the detail is presented.

Section 2 of this paper describes the key changes in water management that the Directive seeks to achieve. Section 3 summarises some of the main issues raised in the full paper and where responses from stakeholders and other interested parties are sought.

Summary of the technical features of the annexes in relation to the Directive

2.1 Key changes to water management

The Water Framework Directive has introduced two key changes to the way that the water environment must be managed across Europe.

The first change is with regard to the types of **environmental objective** that the Directive is designed to deliver. As with previous European water legislation, objectives are set to protect particular uses of water from the effects of pollution and to protect the water environment itself from especially dangerous substances. However new, broader ecological objectives have been introduced by the Directive, designed to protect and where necessary restore the structure and function of aquatic ecosystems. The Directive's Annexes will establish classification schemes needed to define these ecological objectives. Identification of where objectives are not being achieved and where improvements are necessary is also a requirement of the Directive's implementation.

The second fundamental change required by the Water Framework Directive, is the introduction of a **river basin management planning system**. This is the mechanism for ensuring integrated management of the water environment, providing a decision-making framework for setting environmental objectives. The Annexes deal with the technical tasks involved in river basin planning, such as analyses, assessments and monitoring.

2.2 River basin planning

The Directive requires river basin management plans to be drawn up for river basin districts. Based on a six-year cycle, river basin management planning (RBMP) will be the mechanism for delivery of the Directive's environmental objectives. This cycle has four distinct elements:

- characterisation and assessment of impacts on river basin districts;
- environmental monitoring;
- setting of environmental objectives; and
- design and implementation of programmes of measures needed to achieve the environmental objectives.

The requirements set out in the Directive's Annexes are strongly inter-related. Within each cycle of the RBMP process many of the activities are on a critical path that is then repeated in the next cycle. For example objective setting is dependent upon characterisation and assessment. Re-assessment in a subsequent cycle then depends on monitoring and how successfully the programme of measures undertaken has been implemented in the intervening period.

2.2.1 Water bodies

The basic management unit for setting environmental objectives is the water body. These can be rivers, streams, lakes or estuaries, stretches of coastal water or distinct volumes of groundwater. The use of water bodies permits the setting of appropriate objectives in relation to anthropogenic pressures.

Annex II of the Directive requires characterisation of both surface and groundwater, by differentiating the various types on the basis of their natural characteristics. It also requires specific pressures on each water body to be identified.

Under existing EU legislation areas requiring special attention either to protect their groundwater or surface water or to conserve habitats and species that depend on those waters are designated as Protected Areas. The Water Framework Directive requires that a register of all Protected Areas within specified categories should be drawn up.

2.2.2 Risk assessment

Successful river basin planning relies on risk assessment to identify environmental problems from which cost-effective protection and improvement measures can be designed and implemented. Outputs required by the Directive are lists of water bodies considered to be at risk for which remedial measures may be required.

The level of detail included in each assessment should be proportionate to the difficulty in making a judgement on the status of a water body. Risk assessments do not cease when complete. The intention is that they are updated regularly (within each RBMP cycle) as new information is received.

The Directive specifically alludes to risk assessment in the "Assessment of Impacts" requirement (for Surface Waters) and "Review of the impact of human activity on groundwaters" requirement in Annex II. Risk assessments are also required to meet other requirements in the Annexes.

2.2.3 Monitoring

The purpose of monitoring is to provide targeted information to help identify, assess and manage environmental problems. Annex V of the Directive details how and for what purposes monitoring programmes should be undertaken. Most monitoring effort will be targeted at water bodies identified as being at risk from specific pressures.

The amount of monitoring information needed will in part be dependent on the level of confidence required for the assessment and will vary and change dynamically in response to how the particularly water environment changes with time. For example water bodies known to be heavily polluted or considered to be at significant risk of pollution may require more monitoring than those not subject to similar pressures. It may also be possible to rationalise monitoring by grouping similar water bodies together.

The Directive specifies five different types of monitoring programme:

- surveillance monitoring;
- operational monitoring;
- groundwater level monitoring;
- investigative monitoring; and
- Protected Area monitoring.

In practice, information provided by the different programmes will often be used for more than one purpose. In conjunction with other initiatives, all monitoring information will be brought together and used to develop a coherent and comprehensive overview of water status in each river basin district.

2.3 Environmental objectives

River basin management planning allows environmental quality standards to be set for the purpose of establishing a balance between environmental, social and economic priorities. A fundamental part of the Directive is the classification of water bodies using the biological and chemical criteria set out in the Annexes. The status of each water body is determined by comparison with specified reference conditions.

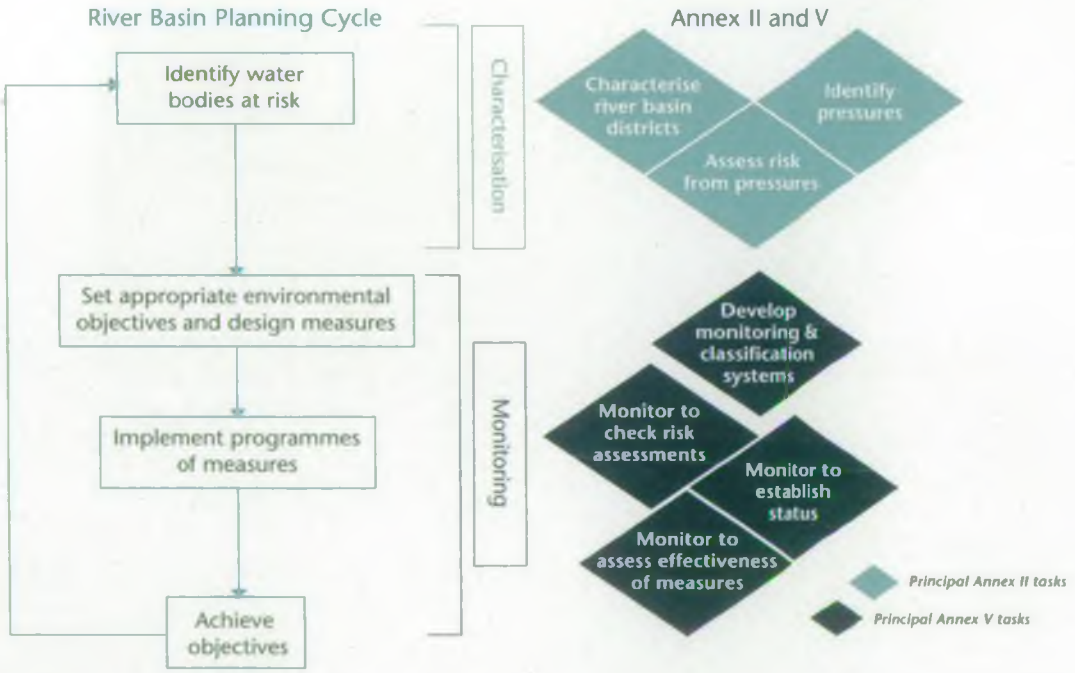

Figure 1 | Relationship of Annex II and V tasks to the River Basin Planning Cycle

The Directive specifies three principal environmental objectives for surface water bodies and/or bodies of groundwater:

- deterioration in their status should be prevented;
- they should be restored to good status (or good potential for Heavily Modified and Artificial water bodies; see chapter 5) by 2015; and
- where applicable, they should be protected and restored to achieve the water quality related objectives for Protected Areas established under Community legislation.

These objectives will be the most important drivers for the future management of the water environment in England and Wales, but under certain circumstances different objectives may be set. Annex II and V set out the details for establishing status classification schemes for water bodies.

2.3.1 Classification schemes for surface waters

The status of a surface water body will be determined by the poorer of its chemical or ecological status. **Chemical status** describes whether or not the concentration of any pollutant exceeds standards that have been set for the water body at European Community level.

Ecological status is principally a measure of the effects of human activities on river, lake, estuary or coastal water ecosystems; there are five ecological status classes. Classifying the ecological status of a water body will require, among other things, the condition of its aquatic plants and animals to be estimated from monitoring information, and then compared with their predicted reference conditions.

One of the key tasks in implementing the Directive will be to develop suitably reliable monitoring systems that ensure the risk of misclassification is kept to a minimum. The work to develop such systems will focus principally on building on, and adapting the wide range of existing monitoring methods.

2.3.2 Classification schemes for heavily modified and artificial surface waters

The Directive recognises that some water bodies have been changed or created as a result of human activity to such an extent that it would not be possible to achieve good ecological status. The restoration of these water bodies to reference conditions may not be practical or feasible without leading to significant adverse effects on the purpose for which they were modified. The Directive recognises the need to designate such water bodies as heavily modified water bodies (HMWB) or artificial water bodies (AWB) to which separate classification schemes will be applied.

The classification scheme to describe the condition of HMWB and AWB will use five classes of ecological potential in contrast to the five classes of ecological status used for surface water bodies. Ecological potential will be determined through the same sub-set of criteria as used for surface water bodies. Although AWBs & HMWBs still have to achieve good chemical status, once designated the ecological objective will switch from good ecological **status** to good ecological **potential.**

Photo 2 Example of an Artificial Water Body – Manchester ship canal

2.3.3 Classification of groundwater status

The objective of good groundwater status is designed to ensure a long-term supply of water for people's use while protecting and, where necessary, restoring the water needs of those surface water bodies and terrestrial ecosystems, such as wetlands, that depend on groundwater flows. The Directive also requires the European Commission to put forward by the end of 2002 proposals for a Daughter Directive on groundwater that sets out specific measures to prevent and control groundwater pollution.

The classification scheme for groundwater status must describe whether human alterations to the quality or quantity of groundwater have significantly affected associated surface water bodies and terrestrial ecosystems. Also whether, and to what extent, over-abstraction is causing a problem. A groundwater body will be classed as poor status if there are any such adverse effects, otherwise it will be classed as good status.

The Directive also introduces a requirement to reverse any significant and sustained upward trends in the concentration of pollutants in groundwater.

2.3.4 Wetlands and the Directive

The Directive does not set environmental objectives for wetlands in the way it does for rivers, lakes, estuaries, coastal waters and groundwater. However, it will contribute to the protection, restoration and recreation of wetlands in a number of ways.

There is a recognised interaction between wetlands and water bodies (as defined under the Directive) that are adjacent or near to them. Wetlands can provide an effective means of trapping and breaking-down pollutants that would otherwise end up in surface waters. The protection and understanding of how existing wetlands interact with surface waters or groundwaters will be key to achieving environmental objectives.

2.3.5 Drinking water protected area objectives

In addition to designation of water bodies for environmental reasons, the Directive also requires surface water and groundwater bodies to be designated as Drinking Water Protected Areas if they provide more than 10 cubic metres of drinking water a day or serve more than 50 people, or are intended to do so in the future. Many bodies of water across England and Wales will need to be identified as Drinking Water Protected Areas.

2.4 Towards meeting the information requirements of the Directive

The implementation of the technical Annexes of the Directive will require existing information on the water environment to be collated and new information to be collected in a targeted way. This information gathering is important. Having the right information easily available in a consistent and useable format will be essential to ensure that real environmental problems can be identified and then addressed by the most cost-effective combinations of measures.

Currently, information on the environment in England and Wales is held by a number of public, private and voluntary sector organisations. However, the Environment Agency is the principal source of this information and the great majority is generated from on-going monitoring activities that are part of its existing responsibilities.

It will be important to provide appropriate opportunities, for those who wish to do so, to become involved in the implementation of the technical requirements of the Directive. The full consultation paper seeks the views of the reader on how this should be achieved.

Summary of issues raised in the consultation paper

The following sections highlight some of the points raised in Chapters 3 to 8 of the full consultation paper indicating the main areas where the Agency seeks informed comment and feedback. For further details the reader is referred to the main paper which gives cross-references to the text of the Directive and the technical Annexes.

3.1 Water bodies (chapter 3 of main paper)

The consultation paper sets out proposals for screening and selecting surface water bodies to be identified under the Directive using suggested criteria based, primarily, on area. For lakes the surface area of open water is proposed, whereas catchment area will be used for small streams, estuaries and brackish lagoons. The paper seeks views on the proposed approach to screening, and to what extent further selection criteria based on ecological, conservation or social resource value should be used.

3.2 Surface water classification (chapter 4 of main paper)

The Directive states that reference conditions must represent a state of "no, or only very minor" changes as a result of human activities. The consultation paper therefore seeks examples of water bodies considered to be at high status, together with reasons for their selection.

For the purposes of status classification in England and Wales, it is currently proposed that, when determining if a freshwater or transitional water body is at good ecological status, the effects of direct impacts on fish populations caused by over–fishing, will not be considered. This means that if the fish community in a freshwater or transitional water body is significantly impaired, but the impairment is not due to alterations to the hydro-morphological or physico-chemical conditions, the water body may still be classed as being at good ecological status. However, when determining if a water body is at high ecological status, the effects of all pressures, including fishing, will be taken into account.

3.3 Heavily Modified and Artificial Water Bodies (chapter 5 of main paper)

There appear to be several options for deciding on appropriate reference conditions for those AWBs that are no longer used for their original purpose:

(i) set the reference conditions so that they are compatible with the original purpose;

(ii) set the reference conditions so that they are compatible with the current purpose; or

(iii) establish the intended purpose as part of each river basin planning cycle and set reference conditions accordingly.

Comments are sought on these options.

The consultation paper also seeks views on how the competent authorities should work with the owners and users of HMWBs and AWBs and other interested parties to develop suitable classification schemes for modified water bodies.

3.4 Groundwater classification (chapter 6 of main paper)

Among other criteria, the Directive's definition of good groundwater chemical status implies that a body of groundwater will be classified as being at poor status if the concentrations of pollutants in that body have:

(i) lowered the status that would otherwise be achieved by a surface water body;

(ii) compromised the restoration of a surface water body; or

(iii) increased the risk of one the objectives for a surface water body being compromised.

A framework for assessing the significance of the effects of groundwater quality on surface water quality is suggested in Figure 6.3 (para 6.3.2). Your opinions are welcome on the suggested approach.

Good groundwater status is, in part, defined by the effects of alterations to the quantity or quality of groundwater flows upon directly dependent terrestrial ecosystems, such as wetlands. Where such alterations have resulted, or would result, in significant damage to a terrestrial ecosystem, the body of groundwater will fail to achieve good status. To ensure that efforts to restore bodies of groundwater to good status tackle real environmental problems, what criteria should be used to define significant damage to directly dependent terrestrial ecosystems?

3.5 Review of the impacts of human activity (chapter 7 of main paper)

Risk assessments will be at the heart of the river basin planning process. It is important that the methods used to identify risks to the Directive's objectives are clear to anyone with an interest in the water environment. This will help water users and others to understand, and contribute, to the assessment process.

The consultation paper therefore seeks views on how, and at what stage of development, information on risk assessment methods should be made available.

3.6 Monitoring requirements (chapter 8 of main paper)

The basis for some of the monitoring tools that will be needed already exists. The development of appropriate monitoring systems will involve identifying suitable indicators and establishing reference conditions for these. This is one of the biggest technical challenges in implementing the Directive.

The consultation documents asks whether there are any significant gaps in the current and proposed monitoring programmes and whether there are any major sources of existing information on pressures and impacts not mentioned in Chapter 9.

ENVIRONMENT AGENCY HEAD OFFICE

Rio House, Waterside Drive, Aztec West, Almondsbury, Bristol BS32 4UD.
Tel: 01454 624 400 Fax: 01454 624 409

www.environment-agency.gov.uk
www.environment-agency.wales.gov.uk

ENVIRONMENT AGENCY
GENERAL ENQUIRY LINE
0845 9 333 111

ENVIRONMENT AGENCY
F L O O D L I N E
0845 988 1188

ENVIRONMENT AGENCY
EMERGENCY HOTLINE
0800 80 70 60

ENVIRONMENT AGENCY REGIONAL OFFICES

ANGLIAN
Kingfisher House
Goldhay Way
Orton Goldhay
Peterborough PE2 5ZR
Tel: 01733 371 811
Fax: 01733 231 840

MIDLANDS
Sapphire East
550 Streetsbrook Road
Solihull B91 1QT
Tel: 0121 711 2324
Fax: 0121 711 5824

NORTH EAST
Rivers House
21 Park Square South
Leeds LS1 2QG
Tel: 0113 244 0191
Fax: 0113 246 1889

NORTH WEST
PO Box 12
Richard Fairclough House
Knutsford Road
Warrington WA4 1HG
Tel: 01925 653 999
Fax: 01925 415 961

SOUTHERN
Guildbourne House
Chatsworth Road
Worthing
West Sussex BN11 1LD
Tel: 01903 832 000
Fax: 01903 821 832

SOUTH WEST
Manley House
Kestrel Way
Exeter EX2 7LQ
Tel: 01392 444 000
Fax: 01392 444 238

THAMES
Kings Meadow House
Kings Meadow Road
Reading RG1 8DQ
Tel: 0118 953 5000
Fax: 0118 950 0388

WALES
Rivers House/Plas-yr-Afon
Fortran Road
St Mellons Business Park
St Mellons
Cardiff CF3 0EY
Tel: 029 2077 0088
Fax: 029 2079 8555

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