

**ECOLOGICAL QUALITY OF WATER
EUROPEAN TECHNICAL WORKSHOP**

**10 and 11 May 1995
Brussels**

**Report of Discussions, Findings and
Recommendations**

July 1995



NRA

National Rivers Authority

**ECOLOGICAL QUALITY OF WATER - EUROPEAN TECHNICAL
WORKSHOP - 10 AND 11 MAY 1995, BRUSSELS**

REPORT OF DISCUSSIONS, FINDINGS AND RECOMMENDATIONS

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ENVIRONMENT AGENCY



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The National Rivers Authority

The National Rivers Authority (NRA) is responsible for the protection and management of the water environment in England and Wales with duties covering water quality, water resources, pollution control, flood defence, fisheries, conservation and navigation.

It is the competent authority for around 20 EC directives covering the environment and responsible for monitoring water quality and assessing compliance with EC standards for transmission to the Department of the Environment and the European Commission. The EU's water policy therefore has a significant influence on the work of the NRA in controlling and protecting the water environment.

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MAIN CONCLUSIONS AND RECOMMENDATIONS ARISING FROM THE WORKSHOP

This report is a record of a National Rivers Authority hosted technical workshop on the ecological quality of water held on the 10 and 11 May 1995 in Brussels. The overall objective of the workshop was to look at the technical and scientific implications of the implementation of the proposed EC Directive on the ecological quality of surface waters.

The workshop comprised three working groups and subsequent plenary discussions. These discussions, in addition to addressing the key points arising from the working group presentations, encompassed a debate on broader issues, including, whether the overall concept and structure of the proposed Directive were considered sensible and whether the key elements of the approach would be workable, either now or in the future.

This section summarises the main conclusions and recommendations arising from the working group sessions and the plenary discussions.

1. The general aims of the proposed Directive were widely supported and welcomed, in particular the emphasis on the role of ecological quality assessment as a central element in the management of the water environment.
2. The general structure of the proposal, which lays down a framework for the achievement of good ecological water quality, is based on measurement and monitoring, detection of sources, setting of operational targets, drawing-up integrated programmes and public information and consultation. This structure was considered to be generally sensible and consistent with good management practice.
3. There was a strong view that the Directive should not become another chemistry-based Directive, and that the ecological quality elements should form the core of the requirements for assessment rather than the more traditional chemical and physical parameters for which legislation already exists. Ecological quality assessment provides a direct measure of the "health" of ecosystems; it should reduce the need for and reliance on routine chemical monitoring and allow better targeting of effort to those areas where ecological symptoms exist and improvements need to be made.
4. It was considered important that when assessing the quality of different water types (lakes, rivers, estuaries, reservoirs and coastal waters), the most appropriate quality elements should be selected from the nine listed in Annex 1 of the Directive dependant upon the water type and location, rather than all being mandatory for all circumstances. For each water type it was considered important to distinguish between a core, mandatory set of quality elements and those which could be applied on a discretionary basis.

5. It was considered that for many of the quality elements it would not be possible at this stage to have a prescriptive pan-European classification of ecological quality, rather the emphasis should be on the provision of a framework classification within which Member States report the quality of their own waters. Further work is required to examine the calibration between different assessment methods used in different Member States within the framework classification, so that effective comparisons can be made.
6. A five class classification was favoured as the most practical option with the best quality class being described as 'special' or 'high' and being representative of natural or pristine ecosystems. The next quality would be 'good' and would represent sustainable ecosystems though with some human impact. The objective would then be to maintain the special or high class ecosystems, and to achieve good ecological quality in the poorer quality ecosystems. This would recognise that it may not be possible to attain pristine or natural ecosystems in many water bodies of Europe, and that the existing highest quality ecosystems, such as nature conservation areas, would require special recognition and protection. A clear separation needs to be made in the definitions of 'good' and 'high' ecological quality.
7. There was strong support to monitor only a representative portion (rather than all) of a water type (e.g. lake, river, reservoir or estuary) within each Member State - this requirement would be easier to implement logistically and financially.
8. When operational targets are set for improvement of ecological quality, the 'stepping stone' approach with realistic short term targets on the way to achieving the long term goal of good ecological quality was thought to be the best option. Targets should also be appropriate for the individual quality elements so that progress can be demonstrated. The setting of specific targets for each of the quality elements should take into account the 'ecological potential' at each site considering habitat, geographic and climatic influences. The timescales for achieving individuals targets will need to reflect local circumstances and take into account practicality, affordability and relative costs and benefits.
9. The workshop welcomed the clarification that it was not DGXI's intention to make biological targets statutory, as biological communities are inherently variable and influenced by factors which may not be controllable.
10. It was considered important that integrated programmes for improvements should be established and implemented on a water catchment basis.
11. It was considered that many Member States would be in a position to classify some water types and quality elements within a framework classification on the basis of existing methods and systems. Further research and development will be needed if a greater convergence in approach is to be achieved in the future. This will necessitate the analysis and classification of key biological community types across ecological and biogeographic zones within Europe. This is considered to be a priority research requirement over the next few years.

1. INTRODUCTION

The proposed EC Directive on ecological quality of water, (COM(93) 680 final), tabled by the European Commission 15 June 1994 and published in the Official Journal of the European Communities No. C222 10.08.94, is a major new approach, focusing for the first time on protecting the aquatic ecosystem and water uses as a whole. The proposal is concerned with the adoption of measures to protect all surface waters (lakes, rivers, canals, reservoirs, estuaries and territorial waters) from both point and diffuse source pollution and other anthropogenic influences. The measures adopted must be designed to maintain and improve the ecological quality of waters, with the ultimate aim of achieving good ecological quality.

The main requirements of the proposal are to:

- Set up and introduce monitoring and classification schemes for determining the ecological quality of surface waters
- Create inventories of point and diffuse pollution sources and undertake assessments of those sources
- Define operational targets, in terms of good ecological quality, for all surface waters
- Draw up and implement integrated programmes aimed at achieving the operational targets
- Inform the public about the outcome of the above initiatives, including consultation over the improvement programmes, and to report on implementation to the Commission.

Political negotiations are at an early stage and at the time of the workshop the French Presidency of the European Union has held two meetings within the Council. Focal points of the discussion have been Articles 1 and 2 on the definition and specifications of ecological water quality and the list of parameters in Annexes 1 and 2 to classify and monitor ecological water quality.

In addition, EU environment ministers held a short political debate at their meetings of 9 March and 22 June and endorsed the work of the Council working group on the draft directive. The Environment Committee of the European Parliament began its first reading of the draft directive in November with a draft report from Ian White, MEP for Bristol, but the reading has been delayed until September 1995 due to a hearing on EU water policy held on 20 June 1995.

The Directive, if adopted, will have a major impact on the management of the water environment across Europe. It is therefore essential that the proposal is discussed and debated by the regulators and practitioners responsible for environmental protection. To that end the National Rivers Authority (NRA) decided to convene a technical workshop where these issues could be fully discussed.

2. AIMS OF THE WORKSHOP

The workshop was hosted by the National Rivers Authority of England and Wales in Brussels on the 10 and 11 May 1995. The workshop programme is given in Appendix A of this report. The overall objective of the workshop was to look at the technical and scientific implications of the implementation of the proposed EC Directive on the ecological quality of surface waters. Thirty six technical and scientific experts from 14 European countries and representatives of Directorate General XI and relevant European Environment Agency Topic Centres attended to discuss and put forward recommendations on relevant technical issues associated with the Directive. The names of the attendees and their affiliations are given in Appendix B of this report.

This report summarises the main points arising in the workshop and the principal conclusions and recommendations. The results of the workshop have been communicated to the key institutions of the European Union and other relevant organisations.

The workshop comprised three working groups, each addressing a specific aspect of the Directive:

1. Definitions and specifications for ecological water quality
2. Monitoring, classification and operational targets
3. Integrated improvement programmes.

Participants were allocated to a working group to discuss specific issues and each working group presented their findings back to the workshop as a whole. Following the final presentations from each working group (Sections 3, 4 and 5) there was an open plenary discussion leading to a consensus view on the most significant findings and issues arising. These findings are presented at the front of this report.

3. WORKING GROUP 1: DEFINITIONS AND SPECIFICATIONS FOR ECOLOGICAL WATER QUALITY

- 3.1 This working group was chaired by Dr Torben Moth Iversen, NERI, Denmark with Simon Leaf of the NRA, UK, as rapporteur. The participants in this working group are listed in Appendix B.
- 3.2 Discussion related to the eight key questions listed in the guidance notes for Working Group 1 (Appendix C). The aim of this working group was to provide a practical perspective on the definitions and specifications for ecological water quality. The debate could be broken down into the two principal areas of (a) the Article 2 definitions (2.1 to 2.4 inclusive) and (b) the Annex I and II specifications.

Article 2.1 (definition of Ecological [Water] Quality)

- 3.3 The group felt that the word "water" should be deleted from this expression, to recognise the need to consider the ecosystem beyond the water itself. This change should also apply to the other Articles (2.2 and 2.3). However, the scope (Article 1.1) of maintaining and improving the ecological quality of surface waters should remain unchanged.
- 3.4 In addition, the final sentence of 2.1, referring to aesthetics, should be deleted as this is a very subjective concept and is not readily assessable at European level. Aesthetics should also be deleted from Element 9 of Annexes 1 and 2.
- 3.5 It was decided to re-word the current text to account for the above points and to incorporate the concept of the ecosystem as follows:

"Ecological quality of surface waters is an overall expression of the structure and function of aquatic ecosystems, taking into account the biological community and natural physiographic, geographical and climatic factors as well as physical and chemical conditions, including those resulting from human activities."

Article 2.2 (definition of Good Ecological [Water] Quality)

- 3.6 The consensus was that the current definition of 'good' quality, when taken with the nine associated elements in Annex II, was too similar to 'high' (meaning pristine or undisturbed) quality. A definition of Good Ecological Quality (GEQ) was required which was distinguishable from 'high' ecological quality and which recognised that some degree of anthropogenic influence was inevitable in most countries.
- 3.7 Three revised versions of Article 2.2 were initially proposed as follows:

i "Good ecological quality is the quality which is suitable for the needs of the ecosystem and which satisfies the relevant elements listed in Annex II."

This was based closely on the proposed Directive, whilst excluding the reference to self-purification which was felt to be ambiguous.

ii *"Good ecological quality is where the indigenous biocoenosis is not restricted both in quality and quantity by substances or structural components and which satisfies the relevant elements in Annex II."*

iii *"Good ecological quality is the quality where human activities have no significant detrimental effect on the structure and function of the ecosystem and which satisfies the relevant elements in Annex II."*

This made some allowance for anthropogenic influences.

- 3.8 Following further discussion a combination of the above was broadly agreed as follows, although there was some remaining concern as to whether this definition distinguished sufficiently between 'good' and 'high' quality:

"Good ecological quality of surface waters is the quality of aquatic ecosystems where substances or structural components from human activities have no significant detrimental effects on the ecosystem and which satisfies the relevant elements in Annex II."

- 3.9 The issue of water use-protection was discussed. In Annex II, the GEQ specification, refers to protection of the "normal uses" of the water but Article 2.2, with which the Annex is closely associated, does not mention uses. The consensus was that standards for water use-protection, such as those laid down in various use-related Directives, were valuable and should not be lost. The proposed repeal of certain use-related Directives, linked to the introduction of the Ecological Quality Directive, would require careful handling. Whilst recognising this point, it was felt that use-protection did not sit happily with the concept of ecological quality and could not easily be incorporated into the definitions.

Article 2.3 (definition of High Ecological [Water] Quality)

- 3.10 The current text was considered acceptable and should be interpreted as applying to truly pristine waters and waters close to this quality but exhibiting some impact from human activities, this being inevitable in many countries.

- 3.11 The agreed text was as follows:

"High ecological quality is the quality inherent in a given aquatic ecosystem which is demonstrated not to be significantly influenced by human activities."

Article 2.4 (definition of Community Surface Waters)

- 3.12 This was agreed as suitable and was to be interpreted as meaning all surface waters within Europe.

Annexes I and II - Specifications of Ecological and Good Ecological Quality

- 3.13 The applicability of the specifications for use with various ecosystem types (lakes and reservoirs, canals, streams and rivers, estuaries and coastal waters) and across the various Member States was discussed.
- 3.14 The group thought that the GEQ elements should be reworded to allow differentiation, particularly for six of the nine elements, between 'good' and 'high' ecological quality. The current references in Annex II to the "undisturbed condition of the ecosystem" and "insignificant anthropogenic disturbance" could easily be interpreted as equating to 'high' rather than 'good' quality.
- 3.15 With regard to Element 1 (dissolved oxygen) it was felt that this could also include other means of expressing the oxygen parameter, such as Total Organic Carbon, Chemical Oxygen Demand and Biochemical Oxygen Demand.
- 3.16 It was agreed that the elements in Annexes I and II should be re-ordered, placing the biological parameters in front of the chemical ones to reflect the importance of the former in ecological assessment.
- 3.17 There was general support for the inclusion of the widely measured physico-chemical parameters such as pH, temperature, conductivity and nutrients to compliment information given from biological monitoring. Chemical monitoring alone does not give an indication of ecological quality. The level of chemical monitoring should be up to individual states and generally would address the requirements of other legislation.
- 3.18 A consensus was reached to the effect that Element 3 (on levels of disease in animals and plants) should be deleted since it could not realistically be incorporated into meaningful classification or target setting initiatives.
- 3.19 It was felt that water quantity should, ideally, be added to the list of nine elements, since water presence was clearly crucial to the existence of aquatic ecosystems. However, it was recognised that there may be legal complications associated with the inclusion of a water resources element in this proposed Directive.
- 3.20 It was recognised that the degree of applicability of the various elements differed widely. The consensus was that the elements, other than disease levels, should be retained within the 'menu', but considerable effort would be required in order to develop many of the elements (particularly Element 7 on diversity of higher vertebrates and Element 9 on riparian corridors) into workable operational parameters at European level. The need for workable parameters applied to all ecosystem types, but particularly saline waters. Action should be taken to progress this development work.
- 3.21 Some of the elements were considered appropriate to particular ecosystem types (e.g. rivers) but not to others (e.g. coastal waters). It was decided that further consideration was required, within Europe, as to which elements were applicable to

each of the ecosystem types. It was also felt that the lists of elements identified as relevant to a particular water type should, subject to certain provisos, be mandatory once developed to facilitate comparisons between different Member States. Other additional elements could be used if desirable.

- 3.22 There was some concern that long lists of dangerous substances (stemming from Element 2) should not, in the transposition of the Directive, be included as a general widespread monitoring requirement, particularly outside areas affected by these substances.
- 3.23 It was decided that integrated measures (such as biotic indices) should, where possible, be utilised.
- 3.24 With regard to the relationship between the chemical and biological elements, the consensus was that some biological parameters were essential, given the subject matter of the Directive. Chemical parameters should be used to complement the information provided by the biological ones, but could not in themselves constitute a meaningful ecological assessment.
- 3.25 The group undertook an initial assessment, using streams and rivers as an example, as to which elements were considered appropriate to a pan-European system. The consensus was that Element 4 (invertebrates) and Element 9 (riparian zone), plus a limited number of chemical parameters (Elements 1 and 2) should be mandatory, once developed, with Element 6 (fish populations) and Element 5 (plant communities) being used where appropriate. From this exercise it was concluded that the derivation of sets of relevant appropriate elements for each of the different water types (e.g. lakes, estuaries and coastal waters) should be feasible, given time. This matter should be progressed by further debate and consideration within Europe.

4. WORKING GROUP 2: MONITORING, CLASSIFICATION AND OPERATIONAL TARGETS

- 4.1 This working group was chaired by Mr Martin McGarrigle, Environmental Protection Agency, Ireland with Steve Nixon of the Water Research Centre, UK, as rapporteur. The participants in this working group are given in Appendix B.
- 4.2 Discussion related to the nine key questions listed in the guidance notes for Working Group 2 (Appendix C). The aim of this working group was to provide technical inputs to the issues of monitoring, classification and operational targets raised by the proposed Directive.

Monitoring frequency

- 4.3 Concern was expressed over the scale of monitoring that might be required in Member States. The large number of lakes and length of rivers that might require monitoring in Austria was cited as an example. It may be the case that sampling a 'representative' proportion of a water type might be acceptable to the Commission.
- 4.4 It was recognised that the required monitoring frequency would depend upon the water type (river, lake, estuary etc.), the type of parameter (operational indicator) that was defining ecological quality, and the spatial and temporal variability of that parameter in the water body itself. In addition, as biology tends to integrate the impact of variable water quality, biological monitoring would potentially be required less frequently than chemical.
- 4.5 Monitoring frequency would also be a balance between the desired level of sensitivity in detecting real changes of quality and economic constraints. This aspect also directly relates to the definition of class thresholds in the quality rating system.

Classification

- 4.6 The consensus was that a rigid pan-European classification was probably not feasible for most parameters defining ecological quality (EQ).
- 4.7 However, a framework classification within which Member States could operate and report should be a way forward.
- 4.8 It was suggested that narrative descriptors might be incorporated more easily into a framework classification but must be tightly defined to avoid variable interpretation. There was also a strong view that numerical values could be given to class defining thresholds for some parameters suggested for a pan-European lakes classification. The latter had been developed by the Joint Research Centre at Ispra.

- 4.9 Though habitat/physical considerations were implicit to some definitions of EQ (e.g. Elements 6 and 9), it was felt that there was a case for incorporating a tenth element where such considerations were explicit, e.g. the importance of flow, physical obstructions, channelisation.
- 4.10 Rules would be required as to how natural ecosystems are defined when considering the definition of reference sites (representative of good/high quality) against which other qualities could be compared. Different ecoregions (which may cross national boundaries) and ecotypes would also have to be fully considered.
- 4.11 The optimum number of classes was fully discussed. The national average appeared to be four or five classes, with some examples of seven. An odd number of classes was considered best, and five was agreed the optimal compromise between potential volatility of the classification and the ability to detect differences and changes.
- 4.12 It was also noted that the performance of the classification in detecting real changes and differences in quality in relation to the number of classes would ideally be tested and assessed through a statistical evaluation of monitoring data.
- 4.13 It was agreed that in a five class classification the two 'top' quality classes (1 and 2) should be considered to be acceptable or complying in terms of the Directive's objectives. It was suggested that Class 1 might be termed 'special' being indicative of 'pristine/natural' ecosystems, and requiring measures or protection to prevent deterioration in quality. Class 2 would then be described as 'good' and be representative of a sustainable ecosystem but with some human impact. The goal might then be to achieve good quality rather than 'pristine quality'. The latter would not be generally achievable without the removal of a large proportion of human populations. [Note: Working Group 1 thought that class 1 should be termed 'high' rather than 'special'].
- 4.14 The concept of ecological potential of water bodies should also be considered when establishing reference sites, hence some sites may have more potential for ecological improvement than others, particularly when natural physical aspects are taken into account.
- 4.15 As an alternative to reference sites being established, reference levels (natural or background levels) could perhaps be used when there are established and proven techniques available. The morphoedaphic index was given as an example of a possible method applicable to lakes. The AMOEBA approach in the Netherlands also attempts to determine historic (reference) levels. Reference levels could then be used as targets for achievement of good EQ.
- 4.16 The Directive was felt to be driven not only by ecological quality but also by pollution control aspects (e.g. BEP and BAT). It is important that riparian/habitat quality is taken into account when considering classification etc., and that the Directive does not become a chemically-based Directive. The proposed Directive was seen as an opportunity, and of real benefit, to incorporate biological measures into monitoring/classification programmes.

- 4.17 It was strongly felt that each of the relevant quality elements should be reported separately as a single map, with an aggregated class or colour, would lose useful interpretative information. Separate reports would enable specific problems to be identified and progress to be monitored more readily.
- 4.18 The importance of appropriate quality control procedures was acknowledged with performance criteria specified for all sampling, analysis and data handling. It was also noted that the Commission was tending to quote relevant standards when defining monitoring methods.
- 4.19 It was thought that guidance should be provided on when monitoring of each quality element should take place as some times of year are more appropriate than others for some of the parameters.
- 4.20 Classification could also be reported in terms of how close a particular water body was to the good quality (GQ) target - perhaps as a percentage or a fraction of the GQ value.

Operational targets

- 4.21 The 'stepping stone' approach with realistic short term targets on the way to achieving the long term goal of good ecological quality was thought to be the best approach for setting operational targets.
- 4.22 Targets should also be appropriate for the individual quality elements so that progress can be demonstrated.
- 4.23 Biological targets should not be statutory (biology is too unpredictable). - [Note: a representative of DGXI later indicated that it was not the intention to make biological targets statutory].
- 4.24 If targets were to be set in terms of target organisms e.g. salmon, otter (introduction) *Cladophora* (reduction), they should be based on ecologically appropriate species.
- 4.25 Timescales relating to targets should also be economically feasible and achievable, and the targets should relate to the expected timescale of improvements.
- 4.26 There appears to be difficulties with translation of important aspects of the proposal which in some states may lead to implementation problems. The translation into German (the Directive was drafted in English) indicated that operational targets were to be quality objectives (in statute) rather than the intended less formal operational targets. In the French version it appeared that the list in Annex I was a mandatory list rather than an optional list. The view was that it should be standardised to avoid problems of implementation across Europe.

General notes

- 4.27 It was felt that the marine area had not been fully considered in the discussions of this group.
- 4.28 The issue of alien species in relation to good ecological quality was raised. Though indigenous species were mentioned in Element 1 (dissolved oxygen - Annex I) it was thought that when diversity was mentioned it should relate to native species rather than those normally present which in some cases may be alien.
- 4.29 The important point of how man-made lakes/reservoirs/channels/canals should be treated when establishing appropriate and suitable reference levels for ecological quality was raised during the plenary session. A representative from DGXI indicated that this was of concern and perhaps an answer was to create reference levels appropriate to the nature and ecological potential of such waters. There may also be difficulties in defining appropriate reference dates for comparison with the present situation. The Norfolk Broads in the UK was cited as an example. These were created by man in the 12th Century and so the baseline could correspond to the date of formation as now many would consider them to be natural.

5. WORKING GROUP 3: INTEGRATED IMPROVEMENT PROGRAMMES

- 5.1 This working group was chaired Mr Mauri Karonen, Uusimaa Regional Environment Centre, Finland with Dr Peter Bird of the NRA, UK, as rapporteur. The participants in this working group are given in Appendix B.
- 5.2 Discussion related to the nine key questions listed in the guidance notes for Working Group 3 (Appendix C). The aim of this working group was to provide technical inputs to the issues associated with the integrated improvement programmes required by the proposed Directive.

Evaluation of the programmes

- 5.3 It was thought that the development of Integrated Programmes should be kept at the local level and the group recommended a river basin approach to build the programme up step by step. France was quoted as an example where the current programmes are built from an initial local level to enable reasonable targets to be fixed. As these programmes develop in the catchment these local targets are costed, evaluated and reviewed before a final programme is agreed. It was recognised, however, that many legal systems do not facilitate this approach so it may be necessary to follow a national/river basin approach followed by tactical/operational plans at regional levels after local consultation. This approach relies on the use of advanced modelling to demonstrate the connection between each parameter and the final programme objective. Modelling should be able to predict the ecological impact of the actions of the integrated plan, for example, prediction of the effect of the removal of a discharge on a biological index.
- 5.4 Sometimes final objectives cannot be met immediately by a single set of actions. It may, therefore, be necessary to set smaller targets which can be revised in line with the final objectives. These final objectives may be a series of simple long term targets, e.g. salmon breeding, people swimming or drinking water and detailed short term targets would be built up to attain the final goal. The long term targets can be developed from simple water uses.

Realistic targets for improvement

- 5.5 In France it will take at least ten years to meet the construction requirements for the Urban Waste Water Treatment Directive. This means that the ecological quality of water proposal will take at least 10 - 15 years for its objectives to be reached. High ecological quality could take many more years.
- 5.6 Integrated Programmes should include actions to prevent any reduction of high ecological quality as where no positive actions are taken, high ecological quality waters may deteriorate.

- 5.7 It has been possible, in Italy, to set programmes which will improve the quality of lakes. It is, however, recognised that it is more difficult to set such standards for running waters. In addition, if biological indicators are to be used for Water Quality Objectives these will probably be more stringent than the current chemical indicators and could therefore become the ruling parameters. Target setting for biological parameters is not yet very advanced and more work is required, especially for coastal waters, for setting Improvement Programmes based on ecological improvement.
- 5.8 The Improvement Programmes for large catchments are particularly difficult because of the diversity of habitats and geology. This will create difficulties in setting priorities for the improvements. Programmes should therefore be built up from a number of smaller plans developed for sub catchments in compliance with a general, overall improvement programme for a large catchment area.
- 5.9 Where rivers cross national boundaries each river basin should have a formal committee of nations to agree the overall Integrated Programme.
- 5.10 Because quality objectives for different water types are developing at different rates, the timetables for targets should be split for each type. For example, Integrated Programmes for coastal and estuarine waters should only be developed once freshwater programmes have been developed.

Regulatory approach

- 5.11 The use of a broader range of instruments for environmental management was generally welcomed and it was suggested that a number of regulatory processes and methods should be used in parallel to manage improvements. The use of economic instruments, as proposed in Article 8, could complement more traditional regulatory approaches.
- 5.12 Some concern, however, was expressed that the sections within the Directive where economic instruments could be applied were to be determined by the Commission and the Article 16 Committee (an unelected body). In accordance with the subsidiarity principle, the decision should rest with Member States.
- 5.13 The relevance of self regulation to the proposed Directive was discussed. For example, how would the use of good agricultural practice fit in with the proposal, especially where it is voluntary? Self regulation will not work on its own but it may be used as part of the whole regulatory programme. For agricultural pollution (diffuse) economic instruments are untested. The polluter pays principle should be applied in this case in conjunction with some self regulation.

Riparian zones and physical aspects of rivers

- 5.14 The Improvement Programmes should include the riparian zone to at least 10 metres, wetlands and all other areas in direct contact with fluvial flow, e.g. flood plains.

- 5.15 The Improvement Programmes should include habitat restoration and natural morphology protection. This would be useful to reduce the velocity of waters which is advantageous both for self purification and flood control.
- 5.16 A methodology is required to identify the important habitats for ecological protection and then for the setting of operational targets for these habitats.
- 5.17 The question as to whether there should be within the Directive the means to remove existing engineering structures which are affecting the achievement of good ecological quality was discussed.
- 5.18 The group thought that the Directive should be expanded to include all wildlife and flora in the flood plains and associated wetlands used for breeding purposes.

Public participation

- 5.19 The definition of "the public" in terms of consultation over integrated plans for improvement was discussed. The view was that it should include not only the local elected bodies but also other representative groups.
- 5.20 Integrated Programmes should be built up after consultation with all local interests not only with elected authorities and commercial bodies. The recommendation was to involve non government organisations and the local population in the process from the beginning.

Detailed requirements for integrated programmes

- 5.21 It was generally felt that the amount of detail required by the Directive was about right. It was important to set general programmes when looking at national targets and to set detailed plans at regional or local levels.
- 5.22 The plans should be detailed enough to show the Commission that there has been transparency in public consultation.
- 5.23 There may be some problems with the approval of the Directive under qualified majority voting as Annex VI includes requirement for unanimity, a matter for unanimity.
- 5.24 Given the enormous numbers of similar waters (e.g. lakes) in some countries, it was not considered feasible or appropriate to produce an Integrated Programme for each individual water. A single programme should, where relevant, encompass many individual waters of similar quality.
- 5.25 There was some concern over the timescales set in the Directive. The review of Integrated Programmes every three years may not allow enough time to show ecosystem improvements. It was thought that a timescale of at least five years should be put into Article 14 (1). In addition, as Member States will also be required to report river water quality to the European Environment Agency (EEA) every three years, these returns should be co-ordinated with the Directive returns.

Review of integrated programmes

- 5.26 The Directive should include a feedback mechanism from the Commission enabling Member States to see how Improvement Programmes are produced and implemented in other Members of the Union. This is particularly important in the case of programmes for river basins which cross national boundaries. Article 9 (2) could be used for this requirement.

APPENDIX A WORKSHOP PROGRAMME

9 May

2000 **Registration/Reception**
Hosted by NRA

DAY ONE (10 May)

0930 **Registration**

1000 **Opening Address**
Clive Swinnerton, NRA

1015 **Introduction and Objectives
of the Workshop**
John Seager, NRA

1030 **Aims and Progress - DGXI
contract on the Harmonised
Monitoring and Classification
of Surface Waters within the
European Union**
Steve Nixon, WRC

1100 **Coffee**

1120 **Introduction to Working
Groups followed by first
Working Group Session**

1300 **Lunch**

1430 **Working Group Session**

1630 **Tea**

1650 **Progress Reports from each
Working Group**

1945 **Workshop Dinner**

DAY TWO (11 May)

0900 **Opening Remarks**
John Seager, NRA

0915 **The Ecological Water Quality
Directive**
Paul Campbell, DGXI

0930 **Working Group Session**

1100 **Coffee**

1120 **Working Group Presentations**

1300 **Lunch**

1430 **Workshop Conclusions and
Recommendations**
John Seager, NRA

1600 **Workshop Summary**
Clive Swinnerton, NRA

1630 **Close and Tea**

Working Groups

1. **Definitions and specifications for ecological water quality**
2. **Monitoring, classification and operational targets**
3. **Integrated improvement programmes**

APPENDIX B LIST OF ATTENDEES AND WORKING GROUPS

Dr Peter Bird *	National Rivers Authority	UK	3
Mr Helmut Bloch	DGXI European Commission		1
Dr Phil Boon	Scottish Natural Heritage	UK	2
Mr Vanden Bossche	DGRNE Wallone Region	Belgium	1
Mr Paul Campbell	DGXI European Commission		
Dr Marina Camusso	IRSA	Italy	3
Dr Silvia Cocito	ENEA	Italy	2
Dr William Dickson	Environmental Protection Agency	Sweden	3
Professor G Friedrich	LNW	Germany	2
Mr Francois Guerber	Agence Seine-Normandie	France	3
Ms Caroline Hager	National Rivers Authority	UK	2
Ms Rachael Hill #	National Rivers Authority	UK	1
Dr Torben Moth Iversen	NERI	Denmark	1
Ms Pauline Juggins #	Water Research Centre	UK	3
Mr Mauri Karonen	Uusimaa Regional Environment Centre	Finland	3
Dr Peter Kristensen	NERI	Denmark	1
Dr Tim Lack	Water Research Centre	UK	3
Mr M Lafont	CEMAGREF	France	1
Mr Paul Latour	RIZA	Netherlands	3
Mr Simon Leaf *	National Rivers Authority	UK	1
Mr Paul Logan	National Rivers Authority	UK	2
Mr Martin McGarrigle	Environment Protection Agency	Ireland	2
Mr Steve Nixon *	Water Research Centre	UK	2
Mr L C Oudin	Agence Loire-Bretagne	France	2
Dr Guido Premazzi	ETC/Joint Research Centre	Italy	2
Mr J Preusser	Informationsburo des Freistaates Bayern	Germany	1
Mr Jean Marie Reis	Administration de l'Environnement	Luxembourg	3
Mr John Seager	National Rivers Authority	UK	
Ms Vitoria M da Silva	INAG	Portugal	2
Miss Sandra De Smedt	Vlaamse Mileumaatschappij	Belguim	1
Mrs Maria H E de Sousa	Insituto da Agua	Portugal	1
Mr Karl Schwaiger	Austrian Working Group on Waters	Austria	2
Dr A W Steiner	Bavarian Environment Ministry	Germany	1
Dr Clive Swinnerton	National Rivers Authority	UK	
Mr Manuel Toro	CEDEX	Spain	3
Miss Annick de Winter	Vlaamse Miluemaatschappij	Belgium	1

* - Working group rapporteurs

- Administrative support staff

APPENDIX C KEY QUESTIONS ADDRESSED BY WORKING GROUPS

Working Group 1 : Definitions and Specifications for Ecological Water Quality

Key Questions:

- Are the definitions workable?
- What are the key operational indicators of, or determinands defining, ecological quality?
- Should each quality element be assessed with integrated measures (e.g. biotic indices or ecotoxicological tests) or by a number of individual biological, chemical and/or physical determinands?
- Will the definitions be applicable across Europe and water types?
- What criteria should be used to define the most appropriate operational indicators considering ecological relevance, practicability, general applicability between water types and bioregions, present knowledge and costs of implementation of the associated monitoring requirements?
- How do/should the definitions relate to water use and associated quality values/standards?
- How do the quality elements relate to operational targets?
- Should the quality elements be considered as a menu or a mandatory list?

Working Group 2 : Monitoring, Classification and Operational Targets

Key Questions:

- What is the required monitoring frequency?
- Is a Pan-European classification possible and/or desirable?
- Should there be a framework classification within which individual states report their national ecological quality?
- If so what would be the nature of such a framework?
- What criteria should be used when defining the optimum number of classes between pristine quality and heavily degraded quality, and the class limiting thresholds?
- What criteria should be used in defining reference sites against which quality at other sites/water types will be compared.? For example, should they be representative of high ecological quality (i.e. pristine, if this can be defined) or that which represents good ecological quality in a sustainable ecosystem with some human impacts?
- How should the results be regulated and presented?
- How should operational targets be set? Is it possible to have time bound targets for biological parameters?
- Should the same parameters be used for classification and time-setting purposes?

Working Group 3 : Integrated Improvement Programmes

Key Questions:

- How are these programmes and targets to be established?
- What are realistic targets for improvements in terms of costs and timescales?
- Should an overall objective be set or smaller mile stones?
- What is the best process to manage improvement - traditional regulatory approaches, the use of economic instruments or self regulation?
- What is the size of the riparian system?
- What are the impacts of the physical situation of river?
- Public participation in setting integrated programmes?
- Should the Directive set detailed requirements for integrated programmes?
- What feedback is required for the constructive review of integrated programmes?