

Implementing the Water Environment and Water Services (Scotland) Act 2003:

Proposals for assessing the status of Scotland's water environment

A Consultation

September 2008



FOREWORD

The Water Framework Directive (WFD) is changing the way we manage Scotland's water environment. We need to ensure that water use is sustainable, for this and future generations, and to this end the WFD requires us to protect and improve the health of aquatic plant and animal communities in our rivers, lochs, estuaries and groundwaters.

To help us do this, classification schemes are needed to assess the state of our aquatic environment. Classification shows us where the status of the water environment is good, and where it requires improvement. This helps us identify and prioritise where improvements may be needed, and will in turn help us to assess how our water bodies have benefited from those improvements.

This consultation seeks your views on our proposals for classification schemes to support our WFD implementation and the delivery of our objectives for Scotland's water environment.

In 2007, we published two key policy statements. The first of these, "[Principles for setting objectives for the River Basin Management Plan](#)", set out our approach to setting **environmental objectives** for the water environment through the river basin management planning process. The second, "[Development of environmental standards and conditions](#)", described the application of **environmental standards** in helping achieve those objectives.

In addition to those statements, we published a further consultation in June 2008, on the "[Development of environmental standards and conditions limits – phase II](#)".

We suggest that you may wish to **read these documents in tandem with this consultation.**

CONTENTS

1. PURPOSE

2. CONSULTATION ARRANGEMENTS

3. INTRODUCTION

4. CLASSIFYING SURFACE WATER BODIES

- 4.1 Overview
- 4.2 Monitoring issues
- 4.3 The classification process

5. CLASSIFYING GROUNDWATER BODIES

- 5.1 Overview
- 5.2 The classification process

6. CLASSIFYING HEAVILY MODIFIED AND ARTIFICIAL WATER BODIES

- 6.1 Overview
- 6.2 The classification process

7. PROTECTED AREAS

- 7.1 Overview
- 7.2 Drinking Water Protected Areas

8. LEVELS OF CONFIDENCE

9. PRESENTATION AND REPORTING

10. CONCLUSIONS AND NEXT STEPS

ANNEX A: Relevant quality elements to be considered when assessing ecological status in the different surface water categories

ANNEX B: Standards for assessing the impact of acidification on benthic invertebrate communities in rivers

ANNEX C: Interim criteria for assessing fish in rivers

ANNEX D: Summary of classification process for surface water bodies other than those designated as heavily modified or artificial

ANNEX E: Tests for assessing groundwater chemical status

ANNEX F: Tests for assessing groundwater quantitative status

ANNEX G: Summary of classification process for surface water bodies designated as heavily modified or artificial

ANNEX H: Assessing whether the objectives for drinking water protected areas are being achieved

1. PURPOSE

This consultation provides information on proposals for schemes for classifying surface waters, including heavily modified and artificial water bodies; for classifying groundwaters; and for assessing protected areas. These proposals are intended to enable the consistent assessment of the quality of Scotland's water environment. The proposals are based on the latest recommendations from the UK Technical Advisory Group ("UKTAG") to the Scottish Government and the other UK administrations.

Following the completion of this consultation the agreed schemes will be set out in the form of Directions to the Scottish Environment Protection Agency ("SEPA") made by the Scottish Ministers.

We welcome your comments on any aspect of this paper.

2. CONSULTATION ARRANGEMENTS

Please send your views and comments on the proposals set out in this document to:

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Responses should reach us by 17 October 2008.

3. INTRODUCTION

The Water Framework Directive (WFD) was introduced in Scotland by the Water Environment and Water Services Act (Scotland) 2003. The principal mechanism for delivering improvements to the water environment and ensuring sustainable water use will be the river basin management planning process. This process will rely on the use of environmental standards and conditions to help us assess risks to the ecological quality of our water environment and to identify the scale of improvements which would be needed to bring those waters not in good condition back to good health.

In addition to the introduction of specific standards and conditions, we need a mechanism for assessing and describing where the water environment is of good quality and where it may require improvement. Classification systems provide such a mechanism for describing the state of our aquatic environment and for assessing the effectiveness of our programme of measures in achieving environmental objectives established through the river basin management plans.

This consultation describes the proposed classification schemes and how they will be applied as part of the river basin management planning process. These proposals are based on recommendations made by UKTAG¹ for classifying surface waters, groundwaters, surface water bodies designated as heavily modified or artificial, and for assessing protected areas. They include proposals for:

- How SEPA should use for the purposes of classification the environmental standards and condition limits to be set out in the 2008 Ministerial Directions²;
- How spatial considerations should be taken into account;
- How SEPA should carry out an assessment of its confidence in the classification results; and
- How the results of the classification exercise should be presented and reported.

We expect the application of the classification schemes to provide us with our most comprehensive understanding of the status of Scotland's water environment.

Further information on the UKTAG recommendations can be found at:

- [Surface waters](#) classification
- [Groundwater](#) classification
- [Heavily modified water bodies](#) classification

¹ UKTAG is a partnership of the UK environment and conservation agencies, including the Scottish Environment Protection Agency and Scottish Natural Heritage, which was established to provide technical advice to the UK Administrations on the implementation of the WFD.

² See "[Development of environmental standards and conditions limits – phase II](#)"

4. CLASSIFYING SURFACE WATER BODIES

4.1 Overview

The WFD requires each surface water body to be classified in terms of ecological and chemical quality. For those water bodies not designated as heavily modified or artificial, this ecological quality is described in terms of 'ecological status'. This is an expression of the quality of the structure and functioning of surface water ecosystems as indicated by the condition of a number of 'quality elements'. The WFD uses the term 'quality elements' to refer to the different indicators of ecological quality making up its ecological status classification schemes.

There are five classes of ecological status, defined in terms of how much the ecological quality deviates from natural conditions. These are high, good, moderate, poor or bad. High status means that the water body is unaffected or virtually unaffected by human activity. A good status water body shows some signs of damage, such as slight alterations in the balance of aquatic species (biological quality elements) that would be expected in a water body unaffected by human activity.

The quality elements used to assess ecological status are:

- biological quality elements;
- chemical and physicochemical elements; and
- hydromorphological quality elements.

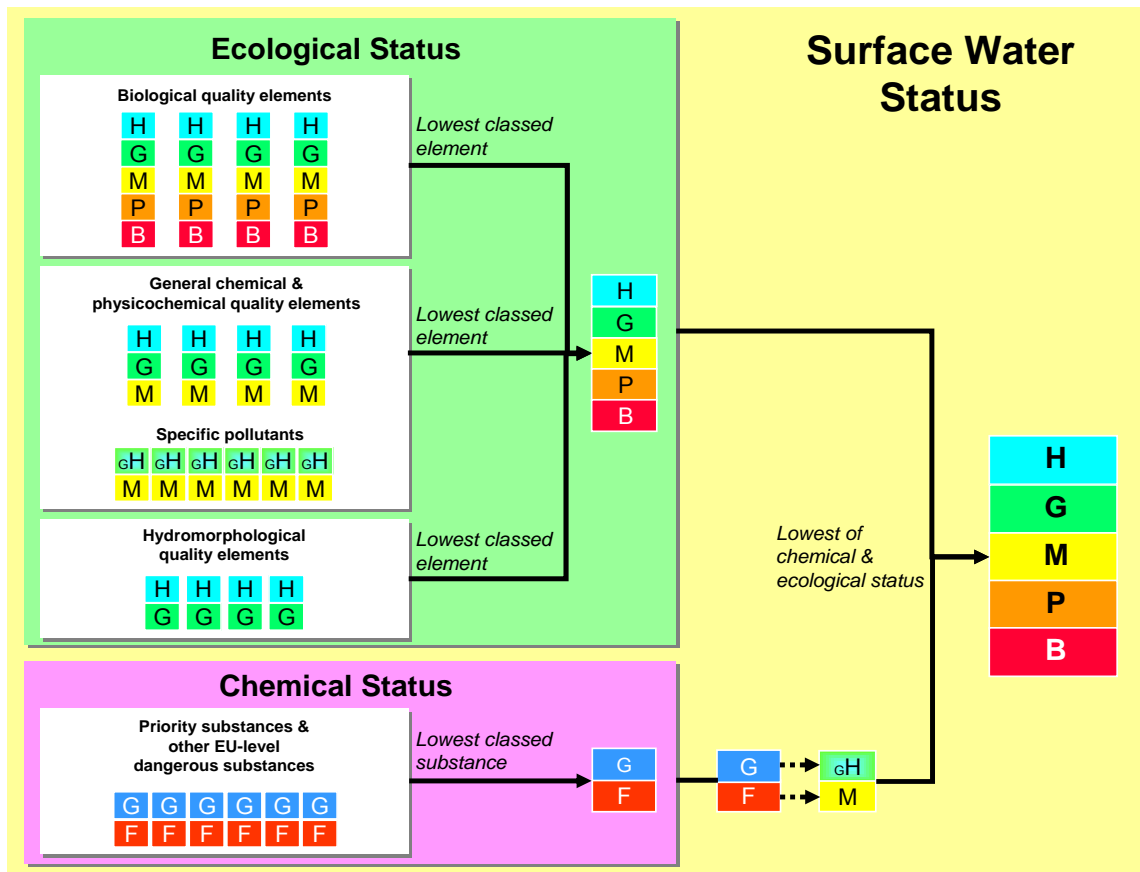
The ecological status of a water body is determined by combining assessment results for biological, chemical and physicochemical quality elements; with the quality element most severely affected by human activity determining the overall ecological status. This is called the '*one out – all out principle*'³.

For a water body to achieve good ecological status, the biological quality elements must show only slight signs of disturbance caused by human activity. Among other things, this requires the chemical, physicochemical and hydromorphological quality of the water body to achieve the standards and conditions necessary to support the biological quality elements at good status.

Chemical status is either 'good' or 'failing to achieve good'. 'Good' means that none of the environmental quality standards established for priority substances and other dangerous substances identified at EU-level is being exceeded.

Ecological status and chemical status are then combined to provide an assessment of overall surface water status. The following diagram illustrates how these various elements are combined and how the 'one-out all-out' principle is applied.

³ Annex V, 1.4.2(i) of the Water Framework Directive (2000/60/EC)



Surface water status is determined by the poorer of ecological and chemical status; thus if chemical status is good but ecological status is failing to achieve good, then overall surface water status class is "moderate".

The classification of surface water bodies which are designated as heavily modified or artificial is described in Section 6.

4.2 Monitoring issues

Each surface water body will be classified by determining the impacts of the pressures to which it is subject using data collected by monitoring and, where relevant, the results of modelling. It is not possible to monitor accurately every stretch of water across Scotland at all times. It is therefore essential that SEPA's monitoring programmes are targeted on the basis of risk. For water bodies judged to be at risk of failing to achieve good status, SEPA will be expected to focus its assessments on those quality elements sensitive to the pressures placing the water bodies at risk.

SEPA must design a risk-based monitoring programme appropriately and collect sufficient data to inform its classification decisions. SEPA will be expected to provide information on its confidence in its classification (see Section 8 below).

SEPA may discount monitoring results which are influenced by one-off, unrepresentative and transient incidents, provided that the condition of each affected water body is adversely affected for only a short period of time, and recovers within a short period of time without the need for any restoration measures (i.e. there is only a transient blip in the condition of the water body).

4.3 The classification process

4.3.1 Assessing relevant quality elements

Standards and condition limits are used to define the class boundaries applicable to the different quality elements. To classify the ecological or chemical status of a surface water body, the determined values for parameters indicative of the relevant quality elements in a water body have to be compared with the corresponding standards and condition limits to be included in Ministers' 2008 Directions⁴. The relevant quality elements depend on whether the water body concerned is a river, loch, transitional water or coastal water body. These are illustrated in Tables A1 to A5 at **Annex A**.

4.3.2 Update on biological assessment methods

In its report on [surface water classification](#), UKTAG set out summary details of a range of biological methods recommended for use in the classification of surface water bodies. Full descriptions of those methods are currently being developed and are expected to be published on UKTAG's website in the autumn. SEPA will be expected to use these methods in carrying out the classification of Scotland's water bodies.

At present, the range of methods developed by UKTAG does not include systems for directly measuring:

- (i) the impact of acidification on biological quality elements in rivers; or
- (ii) the condition of fish communities in rivers or freshwater lochs

Methods to fill these gaps are being developed by UKTAG but will not be available in time to use in producing classifications for the river basin management plans in 2009.

⁴ See "[Development of environmental standards and conditions limits – phase II](#)".

Thus we are proposing to use the interim methods described in the following sections.

- **River invertebrates and acidification**

Given the significance of acidification impacts in parts of Scotland, we are proposing that SEPA uses the benthic invertebrate method described in **Annex B** for the purposes of assessing the ecological impact of acidification on rivers. This method will serve in the interim before a UK method becomes available and will ensure the first classification results reflect the impacts of acidification on river ecosystems.

- **Fish assessment**

There is currently limited data available on fish in lochs and so it is not practicable for SEPA to use an interim method to directly assess the condition of fish in freshwater lochs. However, we expect risks to fish communities to be indirectly reflected in the classification results. This is because impacts on other quality elements in lochs resulting from pressures that also affect fish, such as acidification, nutrient enrichment and hydromorphological alterations, will be assessed using the monitoring and assessment methods proposed for those other quality elements.

There is much more data on fish in rivers and we think it is appropriate that SEPA takes account of any such data available to it when making classification decisions. Consequently, where it has suitable data, we are proposing that SEPA use the interim criteria set out in Table C1 in **Annex C** when assessing the condition of fish communities in rivers. These criteria will apply until a UK monitoring and assessment method for fish is available.

We also expect SEPA to apply the standards specified in Table C2 in **Annex C** and developed by UKTAG for the purpose of assessing whether or not physical alterations affecting the hydromorphological quality element 'river continuity' are having significant adverse impacts on fish movements.

4.3.3 Alien species assessment

It is important to ensure that the impact of alien species is properly reflected in the classification process. Where significant adverse impacts are causing the ecological status of a water body to be moderate, poor or bad, we expect these to be reflected through the normal application of the proposed biological monitoring and assessment methods.

However these biological monitoring and assessment methods are not expected to be able to reliably detect impacts resulting from the introduction of alien species, such as to enable SEPA to differentiate between the high and good status classes.

In the absence of such tools, we expect SEPA to consider the impact of those 'high impact' species listed in Annex B of the UKTAG report on [surface water classification](#). Where there is evidence that a listed species has become established over a significant spatial extent of a water body, SEPA should not classify the water body as being at high ecological status.

4.3.4 Spatial considerations

An important factor in assessing the status of a water body is the spatial extent of any adverse impact on a water body. Small, localised impacts are unlikely on their own to affect the ecological quality of a water body. In contrast, adverse impacts that extend over a significant area or length of a water body should be reflected in the classification results.

To ensure that classification results reflect impacts on the ecological quality of the water environment that are of sufficient spatial extent to affect ecological status, we expect SEPA to take account of the spatial criteria set out in the UKTAG report on [surface water classification](#).

To do this, SEPA should aim to ensure that the monitoring data and modelling results it uses in classification are representative of the appropriate spatial extents of water bodies as defined by the UKTAG spatial criteria.

4.3.5 Overall surface water body status

SEPA must classify the overall status of each surface water body as high, good, moderate, poor or bad.

A detailed step-by-step approach to classifying the ecological status, chemical status and overall surface water status is set out in **Annex D**.

5. CLASSIFYING GROUNDWATER BODIES

5.1 Overview

Protection of our groundwater resources is important to enable their continued use for public and private drinking water supplies, bottled water production and a range of other industrial uses. It is also important for our surface waters and wetlands which depend on the water that reaches them from groundwater.

For groundwater bodies, the approach to classification is different from that for surface water bodies. For each body of groundwater, we are required to classify its chemical status and its quantitative status. Both have to be classed as either 'good' or 'poor'. The WFD sets out a series of criteria that must be met for a body to be classed as good quantitative status and good chemical status. The criteria for good chemical status are further elaborated in the Groundwater Directive.

5.2 The classification process

UKTAG has developed the criteria specified in the WFD and Groundwater Directive into a series of tests as set out in its proposals on [groundwater classification](#). The tests are intended to be applied where a risk is identified to the achievement of the corresponding criteria for good quantitative status or chemical status, and are used to assess whether those identified risks have affected the chemical or quantitative status of the groundwater. Where no risks are identified, a water body can be classed as good status without undertaking the more detailed investigations required by the tests.

SEPA will also be expected to estimate the confidence in its classifications in terms of the level of confidence achieved in the results of each applicable test.

5.2.1 Groundwater chemical status

Five tests are relevant to the assessment of groundwater chemical status. These are summarised in **Annex E**. The application of the tests is triggered once a relevant risk is identified. The identification of a risk leads to investigations to determine whether or not the criteria specified in the test are met. If the investigations confirm that one or more of the criteria for poor groundwater chemical status specified in a test are met, the body of groundwater must be classed as poor groundwater chemical status. Where no risks are identified, the body will be classed as good groundwater chemical status.

5.2.2 Groundwater quantitative status

Four tests are relevant to the assessment of groundwater quantitative status. These are summarised in **Annex F**. The application of the tests is triggered once a relevant risk is identified. The identification of a risk leads to investigations to determine whether or not the criteria specified in the test are met. If the investigations confirm that one or more criteria for poor groundwater quantitative status specified are met, the body of groundwater must be classed as poor groundwater quantitative status. Where no risks are identified, the body will be classed as good groundwater quantitative status.

5.2.3 Overall groundwater status

The 'one-out, all-out' principle also applies to groundwater classification; thus overall groundwater status is determined by the lower of the groundwater chemical status and quantitative status classifications. SEPA will be expected to classify the overall groundwater status of each body of groundwater as 'good' or 'poor' accordingly.

6. CLASSIFYING HEAVILY MODIFIED AND ARTIFICIAL WATER BODIES

6.1 Overview

In some cases, substantial modifications to the physical characteristics of surface water bodies have been made to accommodate uses like navigation, water storage, flood defence and land drainage. Such modifications may be preventing the bodies achieving good ecological status. If this is so and the bodies cannot be restored to 'good' ecological status without significant adverse effects on those uses, the WFD allows the bodies to be designated as heavily modified water bodies (HMWBs). Man-made water bodies, such as canals, that have been created where no natural water body previously existed, can be designated as artificial water bodies

The principal objective for such water bodies is to aim to achieve good ecological 'potential' by 2015. Further details of this process are described in our Policy Statement, "[Principles for setting objectives for the River Basin Management Plan](#)".

There are five classes of ecological potential defined in the WFD. The classes are defined in terms of how much the ecological quality of such water bodies deviates from the best that could be achieved (i.e. the maximum ecological potential) without putting in place mitigation (relating to the modified or artificial physical characteristics) that would have a significant adverse effect on the relevant use or on the wider environment.

Although the WFD does not require us to distinguish between bodies at good and maximum ecological potential when presenting classification maps, we expect SEPA to take steps to make this distinction, in order to protect those water bodies from deterioration.

For the purposes of determining whether a heavily modified water body is at good or maximum ecological potential, SEPA cannot simply apply the normal standards and condition limits for hydromorphological quality elements or biological indicators that are sensitive to hydromorphological alterations. This is because a failure of these standards and condition limits would not necessarily mean that a water body was failing to achieve good or even maximum ecological potential. Instead, if all mitigation that could be taken to address the adverse ecological effects of a body's modified or artificial characteristics has been taken, SEPA should:

- (a) classify the body's hydromorphological characteristics as being sufficient to enable the achievement of good or maximum ecological potential; and
- (b) provided no other pressures (e.g. discharges) on the water body are causing a failure of any of the standards or condition limits for 'good', classify the water body as achieving good or maximum ecological potential.

6.2 The classification process

The classification of the **ecological potential** of heavily modified and artificial water bodies requires identification and assessment of the following:

- the modifications and artificial characteristics of the water body concerned that are preventing the achievement of good ecological status;
- the mitigation measures already taken in relation to those characteristics and whether they adequately mitigate the identified impacts; and
- whether there are other mitigation measures which could be put in place without significant adverse effects on the use or uses, or on the wider environment.

Most of the other steps in the process are similar or identical to those described in Section 4 for classifying the **ecological status** of other surface water bodies. The steps are summarised in **Annex G**. Further details about appropriate mitigation measures can be found in UKTAG's report on [Heavily modified water bodies](#) classification.

The classification of the **chemical status** of heavily modified and artificial water bodies follows the same process described in Section 4 and detailed in **Annex D** for other surface water bodies.

7. PROTECTED AREAS – ACHIEVEMENT OF OBJECTIVES

7.1 Overview

The river basin management planning process provides the framework for assessing whether we are achieving our objectives for 'protected areas'. These are areas designated under EU legislation as requiring special protection. This might be because they are important for recreational activities, such as bathing; because they support economically important species, such as shellfish; or because they support habitats or species important for biodiversity conservation. Such designations are made by Ministers – current designations can be found under the Register of Protected Areas on SEPA's website.

Specific standards and objectives apply to protected areas. These standards and objectives, and the methods for determining whether they are being achieved or not, are set under the EU-legislation establishing the area. SEPA is required to identify in the river basin district management plans where we are achieving the objectives and standards for the different protected areas.

The process of assessing whether protected area standards and objectives are being achieved is a separate process to water body classification and made specifically in relation to any objectives a water body might have as a protected area. Although this is not 'classification' in the same terms as that described in previous sections, we consider it appropriate to discuss how SEPA should assess the achievement of protected area objectives, as part of this consultation. The different types of protected areas and the associated assessment requirements are summarised in the table below.

Different types of protected areas and their associated assessment requirements		
Protected Area	Legislation under which designated	Assessment required
Areas designated for the abstraction of water intended for human consumption	Waters designated as intended to be used for human consumption under the Water Framework Directive	Whether achieving, or failing to achieve, the objective as described in Section 7.2 below
Areas designated for the protection of economically significant aquatic species	Waters designated under the Freshwater Fish Directive (78/659/EEC) or the Shellfish Waters Directive (79/923/EEC)	Whether achieving, or failing to achieve, the standards & objectives required by the relevant Directive
Bodies of water designated as recreational waters	Waters designated under the Bathing Water Directives (2006/7/EC & 76/160/EEC)	Whether complying, or failing to comply, with the requirements of the relevant Directive
Nutrient-sensitive areas	Waters identified as polluted waters under the Nitrates Directive (91/676/EEC) or as sensitive areas under the Urban Waste Water Treatment (91/271/EEC)	Whether complying, or failing to comply, with the requirements of the relevant Directive
Areas designated for the protection of habitats or species where the maintenance or improvement of the status of water is an important factor in their protection	Relevant Natura 2000 sites designated under the Habitats Directive (92/43/EEC) or the Birds Directive (79/409/EEC)	Whether meeting or failing to meet the water status-related needs of the site's biodiversity conservation objectives

7.2 Drinking water protected areas

Although the majority of objectives for protected areas are established under other EU legislation, there is one exception to the above; drinking water protected areas. These areas and their objectives were established specifically by the WFD. Consequently, we need to set out how SEPA is expected to assess whether or not the objectives for these areas are being achieved.

Drinking water protected areas are surface water bodies or groundwater bodies with totalled abstractions intended for human consumption of greater than 10 cubic metres per day on average, or serving more than 50 people.

Drinking water protected areas have to comply with the requirements of Article 7 of the Water Framework Directive (WFD). Such areas will fail to meet these requirements if deterioration in their quality has compromised, or would compromise, for example, any supply or combination of supplies providing 10 cubic metres per day on average, or serving more than 50 people. Otherwise they will be assessed as achieving their drinking water protected area objective.

A supply for human consumption would be compromised if, for example, an alternative source had to be used to comply with the requirements of the Drinking Water Directive; the water blended with that from another source; additional treatment installed; or the operating demands placed on the existing water treatment system significantly increased. Deterioration of the microbiological or chemical quality of a drinking water protected area may be responsible for a supply being compromised.

The status of a body of groundwater that is also a drinking water protected area cannot be classed as good unless the body is achieving its drinking water protected area objective.

More detail on the assessment process is described at **Annex H**. For the first river basin management plan, the data available to SEPA for the purpose of undertaking the assessments described principally relate to large public water supplies. As the available data increases, particularly that for private water supplies, we expect SEPA to incorporate this into its assessment of drinking water protected areas.

8. LEVELS OF CONFIDENCE

In any system for classifying the state of the environment there will inevitably be uncertainty. This may lead to some water bodies being misclassified. Some of the uncertainty will result from the limited amount of monitoring data that SEPA has been able to obtain using the new monitoring and assessment methods before the first classification results have to be produced. Over time more data will be gathered, and this will help reduce uncertainties.

Before action to improve water bodies is taken, we need to be confident that there really are adverse impacts to be addressed; and therefore where water bodies have been classified as worse than good, we need to be confident in that classification. Accordingly we expect SEPA to provide information on the confidence of its classification for each water body. This information will be important in identifying any appropriate follow-up action.

To do this, SEPA should identify the confidence of class in respect of the results for each quality element (or test in respect of groundwater classification) that was assessed in order to make the classification decision. It should define the confidence as either “high”, “medium”, or “low”. UKTAG's report on [surface water classification](#) provides recommendations on how to determine the confidence of class and we expect SEPA to follow these recommendations.

In making an assessment of confidence, SEPA may take into account a range of sources of evidence about the impacts on a water body. Such evidence may include suitable data provided by other organisations. We would expect SEPA to develop a transparent process for demonstrating what evidence it has considered and the results of those considerations.

This assessment of confidence will inform SEPA and other regulators' decisions about where to prioritise action, in line with the principles set out in our Policy Statement, [“Development of environmental standards and conditions”](#).

9. PRESENTATION AND REPORTING

Information on classification results is important to inform the river basin management planning process. We need to ensure that those who wish information about the state of the water environment can access it readily. Consequently, the presentation of classification results is a key component of the river basin management planning process. We expect SEPA to make available a range of information about classification results, through a series of interactive maps using its GIS system. This information should include information about:

- the overall status of bodies of surface water and groundwater;
- the chemical status and, as relevant, the ecological status or ecological potential of bodies of surface water;
- the chemical status and the quantitative status of bodies of groundwater;
- the classification results for the individual quality elements for bodies of surface water or 'tests' for bodies of groundwater that were assessed in order to determine the classification of the water body;
- Information on the confidence of class in relation to, as applicable, the quality elements or tests that were assessed in order to determine the classification of the water body; and
- information on whether or not protected areas are achieving their protected area objectives

We expect SEPA to review and update the classification of water bodies on a rolling programme as new data is collected through its monitoring programmes and from other sources, as applicable. This will normally mean the results are updated once a year.

10. CONCLUSIONS AND NEXT STEPS

Conclusions

These proposals will enable a consistent approach to be taken in assessing the status of Scotland's surface waters, groundwaters and heavily modified and artificial water bodies. They will also assist in assessing whether we have met our objectives for drinking water protected areas.

Taken together with the proposed standards and condition limits set out in our 2007 Directions and in our consultation of June 2008, "[Development of environmental standards and conditions limits – phase II](#)", these classification schemes will enable us to assess the effectiveness of our programme of measures in achieving our environmental objectives. They will enable us to protect those water bodies which are currently at good status or better; and help us to prioritise future measures for those water bodies most in need of improvement.

Next steps

Once we have taken into account responses to this consultation we propose to issue Ministerial Directions to SEPA on how it should classify our surface waters, groundwaters, heavily modified and artificial water bodies, and assess drinking water protected areas. The Directions will be published on the Scottish Government's website and notice of their publication will be made via the Edinburgh Gazette once they have been finalised.

These Directions will sit alongside the proposed 2008 Directions on environmental standards and condition limits, as well as the policy statements on objective-setting and environmental standards.

SEPA will issue its first comprehensive classification of Scotland's water environment in the River Basin Management Plan, due for publication in December 2009.

ANNEX A: RELEVANT QUALITY ELEMENTS TO BE CONSIDERED WHEN ASSESSING ECOLOGICAL STATUS IN THE DIFFERENT SURFACE WATER CATEGORIES

Table A1: Relevant quality elements to be considered when assessing the ecological status of rivers

Ecological classification	High	Good	Moderate	Poor	Bad
Biological quality elements	Invertebrates Fish Macrophytes & phytobenthos	Invertebrates Fish Macrophytes & phytobenthos	Invertebrates Fish Macrophytes & phytobenthos	Invertebrates Fish Macrophytes & phytobenthos	Invertebrates Fish Macrophytes & phytobenthos
General chemical and physico-chemical quality elements	Dissolved oxygen Soluble reactive phosphorus Temperature pH	Dissolved oxygen Soluble reactive phosphorus Temperature pH	<i>Dissolved oxygen</i> <i>Soluble reactive phosphorus</i> <i>Temperature</i> <i>pH</i>	<i>Dissolved oxygen</i> <i>Soluble reactive phosphorus</i> <i>Temperature</i> <i>pH</i>	<i>Dissolved oxygen</i> <i>Soluble reactive phosphorus</i> <i>Temperature</i> <i>pH</i>
Specific pollutants	Specific pollutants as listed in the 2008 Directions	Specific pollutants as listed in the 2008 Directions			
Hydro-morphological quality elements	River flows River morphological conditions Continuity for fish	<i>River flows</i> <i>River morphological conditions</i> <i>Continuity for fish</i>	<i>River flows</i> <i>River morphological conditions</i> <i>Continuity for fish</i>	<i>River flows</i> <i>River morphological conditions</i> <i>Continuity for fish</i>	<i>River flows</i> <i>River morphological conditions</i> <i>Continuity for fish</i>

Table A2: Relevant quality elements to be considered when assessing the ecological status of inland lochs

Ecological classification	High	Good	Moderate	Poor	Bad
Biological quality elements	phytoplankton; macrophytes and phytobenthos; and benthic invertebrates	phytoplankton; macrophytes & phytobenthos; and benthic invertebrates	phytoplankton; macrophytes & phytobenthos; and benthic invertebrates	phytoplankton; macrophytes & phytobenthos; and benthic invertebrates	phytoplankton; macrophytes and phytobenthos; and benthic invertebrates
General chemical and physico-chemical quality elements	Dissolved oxygen; salinity (as conductivity); acid neutralising capacity; and total phosphorus	Dissolved oxygen; salinity (as conductivity); acid neutralising capacity; and total phosphorus	<i>Dissolved oxygen</i> ; <i>salinity (as conductivity)</i> ; <i>acid neutralising capacity</i> ; and <i>total phosphorus</i>	<i>Dissolved oxygen</i> ; <i>salinity (as conductivity)</i> ; <i>acid neutralising capacity</i> ; and <i>total phosphorus</i>	<i>Dissolved oxygen</i> ; <i>salinity (as conductivity)</i> ; <i>acid neutralising capacity</i> ; and <i>total phosphorus</i>
Specific pollutants	Specific pollutants as listed in the 2008 Directions	Specific pollutants as listed in the 2008 Directions			

Hydro-morphological quality elements	Loch levels; and loch morphological conditions.	<i>Loch levels; and loch morphological conditions.</i>	<i>Loch levels; and loch morphological conditions.</i>	<i>Loch levels; and loch morphological conditions.</i>	<i>Loch levels; and loch morphological conditions.</i>
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Note on Table A2

We also expect SEPA to ensure that pressures that could affect fish in loch water bodies are considered by assessing impacts on other quality elements also sensitive to those pressures (see Section 4.3.2).

Table A3: Relevant quality elements to be considered when assessing the ecological status of estuaries and other transitional waters

Ecological classification	High	Good	Moderate	Poor	Bad
Biological quality elements	Phytoplankton; macroalgae; angiosperms; benthic invertebrates; and fish	Phytoplankton; macroalgae; angiosperms; benthic invertebrates; and fish	Phytoplankton; macroalgae; angiosperms; benthic invertebrates; and fish	Phytoplankton; macroalgae; angiosperms; benthic invertebrates; and fish	Phytoplankton; macroalgae; angiosperms; benthic invertebrates; and fish
General chemical and physico-chemical quality elements	Dissolved oxygen; and dissolved inorganic nitrogen	Dissolved oxygen; and dissolved inorganic nitrogen	<i>Dissolved oxygen; and dissolved inorganic nitrogen</i>	<i>Dissolved oxygen; and dissolved inorganic nitrogen</i>	<i>Dissolved oxygen; and dissolved inorganic nitrogen</i>
Specific pollutants	Specific pollutants as listed in the 2008 Directions	Specific pollutants as listed in the 2008 Directions			
Hydro-morphological quality elements	Freshwater flows into transitional waters; and transitional water morphological conditions	<i>Freshwater flows into transitional waters; and transitional water morphological conditions</i>	<i>Freshwater flows into transitional waters; and transitional water morphological conditions</i>	<i>Freshwater flows into transitional waters; and transitional water morphological conditions</i>	<i>Freshwater flows into transitional waters; and transitional water morphological conditions</i>

Table A4: Relevant quality elements to be considered when assessing the ecological status of coastal waters

Ecological classification	High	Good	Moderate	Poor	Bad
Biological quality elements	Phytoplankton; macroalgae and angiosperms; and benthic invertebrates	Phytoplankton; macroalgae and angiosperms; and benthic invertebrates	Phytoplankton; macroalgae and angiosperms; and benthic invertebrates	Phytoplankton; macroalgae and angiosperms; and benthic invertebrates	Phytoplankton; macroalgae and angiosperms; and benthic invertebrates
General chemical and physico-chemical quality elements	Dissolved oxygen; and dissolved inorganic nitrogen	Dissolved oxygen; and dissolved inorganic nitrogen	<i>Dissolved oxygen; and dissolved inorganic nitrogen</i>	<i>Dissolved oxygen; and dissolved inorganic nitrogen</i>	<i>Dissolved oxygen; and dissolved inorganic nitrogen</i>
Specific pollutants	Specific pollutants as listed in the 2008 Directions	Specific pollutants as listed in the 2008 Directions			
Hydro-morphological quality elements	morphological conditions	<i>morphological conditions</i>	<i>morphological conditions</i>	<i>morphological conditions</i>	<i>morphological conditions</i>

Table A5: Relevant quality elements to be considered when assessing the chemical status of any surface water body, including heavily modified and artificial water bodies

Chemical classification	Good	Failing to achieve good
Priority substances	Priority substances and other dangerous substances listed in the Priority Substances Directive	Priority substances and other dangerous substances listed in the Priority Substances Directive

ANNEX B: STANDARDS FOR ASSESSING THE IMPACT OF ACIDIFICATION ON BENTHIC INVERTEBRATE COMMUNITIES IN RIVERS

Table B1: Interim benthic invertebrate standards for rivers - standards indicative of the impacts of acidification on the benthic invertebrate quality element

Good ecological status or better		Moderate ecological status or worse	
Samples collected between 1st November and 30th April	Samples collected between 1st May and 31st October	Samples collected between 1st November and 30th April	Samples collected between 1st May and 31st October
Four or more taxa present from lists A and B combined, at least one of which is from List A	Three or more taxa from list A present	Less than four taxa present from list A and B combined; or no taxa from list A present	Less than three taxa from list A present
Note on Table B1			
The benthic invertebrate taxa applicable to lists A and B are specified in Table B2 below			

Table B2: List A and List B benthic invertebrate taxa relevant to the application of the benthic invertebrate standards specified in Table B1

List A	List B
<i>Gammarus pulex</i>	<i>Baetis rhodani</i>
<i>Lymnaea peregra</i>	<i>Rhithrogena semicolorata</i>
<i>Ancylus fluviatilis</i>	<i>Ecdyonurus spp</i>
<i>Potamopyrgus jenkinsi</i>	<i>Electrogena lateralis</i>
<i>Baetis scambus</i>	<i>Serratella ignita</i>
<i>Alainites muticus</i>	<i>Perlodes microcephala</i>
<i>Caenis rivulorum</i>	<i>Chloroperla tripunctata</i>
<i>Perla bipunctata</i>	<i>Hydropsyche pellucidula</i>
<i>Dinocras cephalotes</i>	
<i>Esolus parallelepipedus</i>	
<i>Glossosoma spp</i>	
<i>Agapetus spp</i>	
<i>Hydropsyche instabilis</i>	
<i>Silo pallipes</i>	
<i>Odontocerum albicorne</i>	
<i>Philopotamus montanus</i>	
<i>Wormaldia spp</i>	
<i>Sericostoma personatum</i>	

ANNEX C: INTERIM CRITERIA FOR ASSESSING FISH IN RIVERS

Status	River type		
	Salmonid rivers in which migratory salmonids ¹ and brown trout as well as other fish species are expected to be present.	Salmonid rivers in which brown trout are not expected but migratory salmonids ¹ as well as other fish species are expected to be present.	Salmonid rivers in which migratory salmonids ¹ are not expected but in which brown trout as well as other fish species are expected to be present.
Classify as 'good or high'	<p>(a) all expected age classes of migratory salmonids and brown trout present; and</p> <p>(b) number of individual fish of all species per metre² $\geq 0.1^{(2)}$.</p>	<p>(a) all expected age classes of migratory salmonids present; and</p> <p>(b) number of individual fish of all species per metre² $\geq 0.1^{(2)}$.</p>	<p>(a) all expected age classes of brown trout present; and</p> <p>(b) number of individual fish of all species per metre² $\geq 0.1^{(2)}$.</p>
Classify as 'moderate'	<p>(a) migratory salmonids absent but other expected migratory species and brown trout present;</p> <p>(b) migratory salmonids present but with one or more age classes missing;</p> <p>(c) brown trout absent but other expected resident and migratory species present;</p> <p>(d) brown trout present but with one or more age classes missing; or</p> <p>(e) number of individual fish of all species per metre² < 0.1 and $> 0.01^{(2)}$.</p>	<p>(a) migratory salmonids present but with one or more age classes missing; or</p> <p>(b) migratory salmonids present but number of individual fish of all species per metre² < 0.1 and $> 0.01^{(2)}$.</p>	<p>(a) brown trout present but with one or more age classes missing; or</p> <p>(b) brown trout present but number of individual fish of all species per metre² < 0.1 and $> 0.01^{(2)}$.</p>

Classify as 'poor'	(a) all migratory species absent but other fish species present; (b) trout and migratory salmonids absent but other species present; or (c) number of individual fish of all species per metre ² ≤ 0.01 ⁽³⁾ and > 0.	(a) migratory salmonids absent and number of individual fish of other species per metre ² < 0.1 and > 0 ⁽²⁾ ; (b) all migratory species but resident fish species present; or (c) number of individual fish per metre ² ≤ 0.01 ⁽³⁾ and > 0.	(a) brown trout absent and number of individual fish of other species per metre ² < 0.1 and > 0 ⁽²⁾ ; or (b) number of individual fish per metre ² ≤ 0.01 ⁽⁴⁾ and > 0.
Classify as 'bad'	No fish species present	No fish species present	No fish species present

Notes on Table C1

⁽¹⁾"Migratory salmonids" means Atlantic salmon and sea trout

⁽²⁾Where SEPA has evidence that the river is likely to have supported > 1 individual fish per metre² under high status conditions, it may classify the water body as being 'moderate' if the number of individual fish per metre² is < 0.75 and > 0.5.

⁽³⁾Where SEPA has evidence that the river is likely to have supported > 1 individual fish per metre² under high status conditions, it may classify the water body as being 'poor' if the number of individual fish per metre² is ≤ 0.5 and > 0.

Table C2: Standards for the hydromorphological quality element, 'river continuity' to be used in assessing impacts on the movement of fish species in river systems

Column 1	Column 2	Column 3
High	Good	Moderate
Severe loss of fish access to rivers draining less than 1 % of catchment area of the water body	Severe loss of fish access to rivers draining less than 5 % of catchment area of the water body	Severe loss of fish access to rivers draining less than 20 % of the catchment area of the water body

Notes on Table C2

(a) The condition limits refer to lost access by fish to the catchment areas during that part of the year in which fish movement to those areas would normally be expected to occur in the absence of man-made barriers to fish movements.

(b) Catchment areas known to be naturally inaccessible to the fish species should be disregarded when applying the condition limits.

(c) Where a loss of access to waters draining smaller catchment areas than those referred to in Column 1, 2 or 3 is assessed as having, respectively, more than a very minor, slight or moderate adverse impact on fish, the criteria in Column 1, 2 or 3, as the case may be, shall not apply and the water body will be classed according to the estimated impact on fish populations. This may be the case where the waters are particularly important in the lifecycle of the fish species concerned.

(d) A severe loss of access means that more than 80 % of fish that would otherwise access the catchment areas concerned are judged unable to do so because of man-made barriers to their movements.

ANNEX D: SUMMARY OF CLASSIFICATION PROCESS FOR SURFACE WATER BODIES OTHER THAN THOSE DESIGNATED AS HEAVILY MODIFIED OR ARTIFICIAL

SEPA must classify the **ecological status** of surface water bodies in accordance with the following steps:

1. Applying the spatial criteria, determine the values for the appropriate indicators of the condition of the relevant biological, chemical, physicochemical, hydrological and morphological quality elements from monitoring or modelling results. The appropriate indicators shall include:
 - (i) indicators of the biological⁵ quality element or elements expected to be most sensitive to any pressures likely to be significant enough to cause a failure of a standard applicable to such elements;
 - (ii) indicators of the hydrological and morphological quality elements expected to be most sensitive to any pressures likely to be significant enough to cause a failure of a standard or condition limit applicable to such elements;
 - (iii) the concentrations of any pollutants likely to be in the water body in quantities that could cause a failure of a chemical standard applicable to such pollutants; and
 - (iv) the values for any physicochemical quality elements likely to be so altered by human activity as to be failing a physicochemical standard applicable to such elements.
2. Classify the condition of the biological; chemical, physicochemical; hydrological and morphological quality elements by comparing the values of the indicators determined from monitoring or modelling with the applicable standards and condition limits that Ministers have directed SEPA to use.
3. Classify the ecological status of the water body as 'high' if there is no evidence that a listed high impact alien species has become established in the water body (see section 4.3.3) and:
 - i. none of the pressures, if any, to which the water body is subject are determined to be significant enough to cause a failure of an applicable standard or condition limit; or
 - ii. the conditions determined for the biological, chemical, physicochemical, hydrological and morphological quality elements comply with the highest corresponding standards and condition limits that Ministers have directed SEPA to use.
4. Where a water body is not classified as high ecological status and subject to Step 5 below, classify the ecological status of the water body according to the lowest classed biological, chemical or physicochemical quality element. If the lowest classed quality element is a chemical or physicochemical quality element, the class assigned to the water body shall be no lower than moderate ecological status.
5. Where a water body is not classified as high ecological status and SEPA considers that the biological results are unlikely to be representative of the effects on the condition of biological quality elements of modifications to the body's physical characteristics⁶, it shall

⁵ In so far as methods are available for assessing appropriate indicators (see Step 5).

⁶ e.g. because none of the methods available adequately represents the effects of such modifications on that element.

classify the ecological status of the water body according to the lowest classed biological, chemical, physicochemical; hydrological or morphological quality element. If the lowest classed quality element is a chemical or physicochemical quality element, the class assigned shall be no lower than moderate ecological status.

SEPA must classify the **chemical status** of surface water bodies in accordance with the following steps:

1. Estimate (from monitoring or modelling) the concentrations in the water body of appropriate priority substances and other dangerous substances identified at EU-level. The appropriate substances shall include, as a minimum, those substances likely to be in the water body in quantities that could cause a failure of the corresponding environmental quality standard.
2. Classify the condition of each appropriate substance by comparing the values estimated from monitoring or modelling with the applicable standards that Ministers have directed SEPA to use.
3. Classify the chemical status of the surface water body as good unless the concentrations estimated for one or more priority or other dangerous substances is failing an applicable standard. If one or more standards are being failed, classify the body as "failing to achieve good chemical status".

SEPA must classify the **surface water status** of surface water bodies in accordance with the following steps:

1. Classify the surface water status as 'high' if the chemical status of the water body is good and the ecological status is high.
2. Classify the surface water status as 'good' if the chemical status and the ecological status are both good.
3. Classify the surface water status as moderate if:
 - (i) the chemical status is classed as failing to achieve good and the ecological status is determined to be no lower than moderate; or
 - (ii) the ecological status is moderate.
4. If the ecological status is lower than moderate, classify the surface water status correspondingly as 'poor' or 'bad', as applicable.

ANNEX E: TESTS FOR ASSESSING GROUNDWATER CHEMICAL STATUS

Test 1: Presence or absence of saline or other intrusions

Test 1 is common to the assessment of groundwater chemical status and groundwater quantitative status.

Trigger for applying test	Criteria for poor groundwater chemical status
Failure of a threshold value indicative of a risk of saline intrusion; or Indications of a significant risk of other intrusions	(a) significant and sustained upward trend in electrical conductivity indicating saline intrusion; (b) significant or sustained upward trend in the concentration of indicators of the risk of other intrusions; or (c) evidence that abstractions have been rendered unsuitable for use without additional treatment as a result of an intrusion.

Tests 2a (diffuse sources) and 2b (point sources): Presence or absence of adverse impacts on associated surface water bodies¹

Trigger for applying test	Criteria for poor groundwater chemical status
Failure of a groundwater threshold value indicative of a potential adverse impact on associated surface waters; or a standard for 'good' is failed in an associated surface body and there is reason to suspect that inputs of pollutants via groundwater are contributing to the failure	(a) an applicable chemical or physicochemical standard for 'good' is failed in an associated surface water body and the concentration in the surface body of the pollutant concerned resulting solely from inputs via groundwater represents $\geq 50\%$ of the value of the surface water standard.

¹Note on Tests 2a and 2b

Different threshold values apply as triggers for applying the test depending on whether the risk is posed by point source or diffuse source pollution.

Test 3: Presence or absence of adverse impacts on groundwater dependent terrestrial ecosystems (wetlands)

Trigger for applying test	Criteria for poor groundwater chemical status
Indications of significant damage to a wetland resulting from pollution where the source of pollution is suspected to be the groundwater	(a) there is evidence of significant damage to a wetland caused by pollution and the pollutants responsible for that damage are judged to have reached the wetland via groundwater.

Test 4: Pass or failure of the groundwater drinking water protected areas

Trigger for applying test	Criteria for poor groundwater chemical status
Failure of a threshold value indicative of potential risks to abstractions for human consumption; Indications of a risk of failure of the drinking water protected area objective for the water body	(b) failure of the drinking water protected area objective for the body of groundwater as determined in accordance with Section 7 and Annex H.

Test 5: General quality of the body in terms of whether its ability to support human uses has been significantly impaired by pollution

Trigger for applying test	Criteria for poor groundwater chemical status
Failure of a threshold value indicative of a potential risk to the general quality of the body	(a) The average of the monitoring results representative of the risk to the general quality of the groundwater in the body exceeds the threshold value

ANNEX F: TESTS FOR ASSESSING GROUNDWATER QUANTITATIVE STATUS

Test 1: Presence or absence of saline or other intrusions

Test 1 is common to the assessment of groundwater chemical status and groundwater quantitative status.

Trigger for applying test	Criteria for poor groundwater quantitative status
Failure of a threshold value indicative of a risk of saline intrusion; or Indications of a significant risk of other intrusions	(a) significant and sustained upward trend in electrical conductivity indicating saline intrusion; (b) significant or sustained upward trend in the concentration of indicators of the risk of other intrusions; or (c) evidence that abstractions have been rendered unsuitable for use without additional treatment as a result of an intrusion.

Test 2: Presence or absence of adverse impacts on associated surface water bodies

Trigger for applying test	Criteria for poor groundwater quantitative status
A river flow standard for 'good' is failed in an associated surface body and there is reason to suspect that groundwater abstractions may be contributing to the failure	(a) an applicable river flow standard for 'good' is failed in an associated river water body and the reduction in river flow volume in the surface body concerned resulting solely from groundwater abstraction represents $\geq 50\%$ of the value of the applicable river flow standard

Test 3: Presence or absence of adverse impacts on groundwater dependent terrestrial ecosystems (wetlands)

Trigger for applying test	Criteria for poor groundwater quantitative status
Indications of significant damage to a wetland resulting from insufficient water availability where alterations to groundwater levels are suspected to be the major cause of the insufficient water availability	(a) there is evidence of significant damage to a wetland caused by insufficient water availability and the major reason for the insufficient water availability is judged to be alterations to groundwater levels resulting from human activities.

Test 4: Presence or absence of long-term impacts on groundwater levels

Trigger for applying test	Criteria for poor groundwater quantitative status
Apply to all bodies where there are groundwater abstractions	(a) the annual average volume of water abstracted from the groundwater represents more than 20 % of the long-term annual volume of recharge (i.e. water that replenishes the groundwater) and there is evidence of a long-term drop in groundwater levels in the body of groundwater

ANNEX G: SUMMARY OF CLASSIFICATION PROCESS FOR SURFACE WATER BODIES DESIGNATED AS HEAVILY MODIFIED OR ARTIFICIAL

SEPA must classify the **ecological potential** of surface water bodies designated as heavily modified or artificial in accordance with the following steps:

1. Applying the spatial criteria, determine the values for the appropriate indicators of the condition of the relevant biological, chemical, physicochemical, hydrological and morphological quality elements from monitoring or modelling results. The appropriate indicators shall include:
 - (i) indicators of the biological⁷ quality element or elements expected to be most sensitive to any pressures likely to be significant enough to cause a failure of a standard applicable to such elements;
 - (ii) indicators of the hydrological and morphological quality elements expected to be most sensitive to any pressures likely to be significant enough to cause a failure of a standard or condition limit applicable to such elements;
 - (iii) the concentrations of any pollutants likely to be in the water body in quantities that could cause a failure of a chemical standard applicable to such pollutants; and
 - (iv) the values for any physicochemical quality elements likely to be so altered by human activity as to be failing a physicochemical standard applicable to such elements.
2. Classify the condition of the biological; chemical, physicochemical; hydrological and morphological quality elements by comparing the values of the indicators determined from monitoring or modelling with the standards and condition limits that Ministers have directed SEPA to use.
3. Determine whether or not all practicable mitigation has been taken to improve the modified or artificial physical characteristics of the body other than mitigation which would have a significant adverse impact on (a) the use served by the modified or artificial characteristics or (b) the wider environment.
4. Classify as 'good or maximum ecological potential' if all applicable mitigation measures have been taken and:
 - (i) none of the pressures, if any, to which the water body is subject (other than the modified physical characteristics) are determined to be significant enough to cause a failure of an applicable standard or condition limit; or
 - (ii) the estimated values of the appropriate indicators of the biological, chemical and physicochemical quality elements achieve the standards identified for 'high' or 'good'. For this purpose, the appropriate indicators of the biological quality elements shall not include those expected to fail a standard for good ecological status because of the effects of the body's modified or artificial physical characteristics.

⁷ In so far as methods are available for assessing appropriate indicators.

5. Classify as 'moderate ecological potential' if one or more of the following apply and, where one or more applies, no other results are worse:
 - (i) not all applicable mitigation measures have been taken but none of the appropriate indicators of the hydrological or morphological quality elements fails a standard or condition limit for 'moderate' or 'poor';
 - (ii) one or more of the appropriate indicators of the chemical or physicochemical quality elements fails a standard for 'good'; or
 - (iii) one or more of the appropriate indicators of the biological quality elements fails a standard for 'good'.

6. Classify as 'poor ecological potential' if one or more of the following apply and, where one or more applies, no other results are worse:
 - (i) not all applicable mitigation measures have been taken and one or more of the appropriate indicators of the hydrological or morphological quality elements fails a standard or condition limit for 'moderate'; or
 - (ii) one or more of the appropriate indicators of the biological quality elements fails a standard for 'moderate'.

7. Classify as 'bad ecological potential' if one or more of the following apply:
 - (i) not all applicable mitigation measures have been taken and one or more of the appropriate indicators of the hydrological or morphological quality elements fails a standard or condition limit for 'poor'; or
 - (ii) one or more of the appropriate indicators of the biological quality elements fails a standard for 'poor'.

SEPA must classify the **chemical status** of surface water bodies designated as heavily modified or artificial in accordance with the steps described in **Annex D** for classifying the chemical status of other surface water bodies.

ANNEX H: ASSESSING WHETHER THE OBJECTIVES FOR DRINKING WATER PROTECTED AREAS ARE BEING ACHIEVED

Risk assessments

Scottish Water is undertaking work to identify the risks to raw water quality. The results of these risk assessments will be used to inform the development of drinking water safety plans.

The risk assessments will include work aimed at identifying water supplies that have been, or are likely to be, compromised by deterioration in the quality of the water environment. This work is being undertaken jointly with SEPA.

For larger private water supplies, local authorities are under a duty to undertake similar risk assessments from source to tap. For smaller supplies, local authorities have discretion to undertake such assessments but are not under a duty to do so. In such cases, provided that the owner of the private supply has, and makes available, information on supply chain risks, SEPA will be able to work jointly with the owner to assess whether, as relevant:

- (a) the supply has been compromised by deterioration in the quality of the protected area;
or
- (b) there is risk that deterioration in the quality of the protected area is occurring and likely to compromise the supply.

Determining whether the objective is achieved

Where it is concluded on the basis of any of the assessments referred to above that a supply has been compromised and that this was caused by deterioration in the quality of water in the drinking water protected area, the protected area will be assessed as failing to achieve its objective.

Where an assessment instead indicates that water quality could be deteriorating but a supply has not yet been compromised, monitoring data will be used where available to identify and assess trends in the concentration of relevant substances or micro-organisms in the protected area. The data for this purpose may be obtained from monitoring programmes undertaken by Scottish Water, the owner of the private supply, the local authority or SEPA. These monitoring programmes will be informed and prioritised by the results of the risk assessments.

If the trend assessment identifies the presence of:

- (a) a statistically significant upward trend in the concentration, or in the variability of the concentration, of a substance or micro-organism for which standards are set under the Drinking Water Directive; and
- (b) the trend is predicted to compromise a supply for human consumption

the protected area will be assessed as failing to achieve its objective.

Where there is insufficient evidence⁸ to determine whether or not:

- (a) a supply has been compromised because of deterioration of a drinking water protected area (rather than some other cause); or
- (b) will be compromised by deterioration of such an area if a trend goes unchecked,

the protected area will be identified as being at risk of failing to achieve its objective.

Where an area is identified as at risk, further environmental monitoring and investigation should be prioritised to enable the risk to be properly assessed and a decision made on whether the protected area is achieving its objective.

⁸ (e.g. because a suitable risk assessment has not yet been undertaken or there is insufficient time-series data to undertake a trend analysis)

