

Water Framework Directive

Environmental Standards and the Water Framework Directive

Your Questions Answered

Environmental Standards and the Water Framework Directive – Your Questions Answered

The Water Framework Directive is changing the way Northern Ireland's water environment is managed and monitored, and requires us to look at the water environment as a whole. This means moving away from pollution focussed monitoring to assessing the health of the aquatic environment overall; integrating factors such as quality, quantity and physical structure with ecological indicators. The health of animals and plants that live in waters will now be among the main indicators of the state of water bodies.

What are environmental standards?

Environmental standards will allow us to protect human health, the health of animals and plants and even property.

When referring to environmental standards for the water environment under the Water Framework Directive (the Directive), we mean the environmental conditions needed to support healthy aquatic plant and animal communities. Such standards include standards for water quality, water flow, water levels, the structure and condition of the beds & banks of rivers and lakes, and the structure and condition of the beds & shores of coastal waters and estuaries.

What are environmental standards used for?

We use environmental standards to manage the water environment. Environmental standards help us work out how much water could be abstracted from a body of water, how much of a pollutant could be discharged and how much engineering works could be undertaken without significant risks to the health of the plants and animals that live in the water.

For example, suppose an environmental standard specifies that the concentration of a particular chemical in the water environment should be less than 20 milligrams per litre. Suppose we monitor the concentration of that particular chemical in a body of water and find that it is currently only 12 milligrams per litre. Our assessment would be that the chemical is not posing a significant risk to the health of the plants and animals in the water body.

On the other hand, suppose a new discharge is proposed and we predict that it would increase the average concentration of the chemical in the water body by 15 milligrams per litre to 27 milligrams per litre. Such a concentration would pose a significant risk to the health of the plants and animals in the water body. We use such risk assessments as the basis for setting permit limits.

How are environmental standards set?

The Water Framework Directive requires us to protect the ecological status of water bodies from deterioration and, where necessary and practicable, restore water bodies to good ecological status. To work out what would need to be done to achieve these objectives, we have to identify environmental standards that support healthy aquatic plant and animal communities.

To do this, the environment and conservation agencies from across the UK, under the guidance of the UK Technical Advisory Group (UKTAG), have collaborated on a major review of existing environmental standards. This review has been designed to identify standards that represent the environmental quality needed to achieve good ecological status.

This review is the first of its kind and has involved many of the UK's leading independent experts in ecology, hydrology, geomorphology and chemistry. Monitoring results from literally thousands of sites across the UK and scientific literature from around the world has informed the process. It has provided us with the best view science can provide of the environmental standards needed to support healthy aquatic plant and animal communities.

Will the standards vary across the UK and Europe?

The animals and plants you find in waters in one part of the UK can often be very different to those found in other parts. This is because animals and plants have evolved under different environmental conditions. For example, some plants and animals are adapted to the cold, nutrient poor conditions found in highland Scotland. Others are adapted to the warmer, richer conditions of lowland Britain. This means that different environmental standards are needed for different types of waters to protect those waters' characteristic plant and animal communities.

The environmental standards developed by the UK environment and conservation agencies reflect differences in the ecology of our waters by setting out how the standards change with factors such as altitude and alkalinity.

At a European level, differences in the conditions to which plants and animals are adapted can be even more marked. We are currently involved in a major European exercise (known as European intercalibration exercise) designed to ensure that, taking into account these natural differences, the environmental quality we are aiming to achieve is comparable. We are taking account of the outputs of this work in the development of the environmental standards.

Will the standards change?

The amount of monitoring of aquatic plants and animals communities over the next few years will increase. This will give us more information on the environmental standards needed by those communities. We will use this information to review and, where necessary, update the environmental standards.

We will need three or more years' monitoring information for such reviews. This is because it will take at least this amount of time to collect sufficient data to improve on our current scientific understanding of how aquatic animals and plants respond to the condition of the water bodies in which they live.

How will we know if the standards need to be revised?

The principal means by which we assess if we have been effective in our efforts to protect and improve the water environment is to classify the status of water bodies.

To do this, we monitor and assess the health of the plants and animals living in the water bodies together with the chemical quality of the water, the water flows & levels and the structure and condition of the bed and banks of the water body.

We use the results of these assessments to decide the class of each water body. We will assign each water body to one of five ecological status classes: high, good, moderate, poor or bad. These classes indicate the degree to which the aquatic plant and animal communities living in the water body have been adversely affected by human activity.

If the ecological health of water bodies turns out to be significantly worse or better than expected, this may indicate that the environmental standards need to be revised. We will use classification information and the European intercalibration exercise to determine the need to review the environmental standards.

The results of classification will be published in the first river basin management plans. At this time, the programme of measures required to protect the water environment are also due to be finalised. We will then review how effective our management actions have been after 2012.

What does it mean for water users?

We will use the environmental standards in helping to assess the risks to the water environment from activities we control, such as discharges, abstractions and engineering works.

If an existing activity is causing an environmental standard to be failed, we may require the person responsible for that activity to take the measures necessary to improve the condition of the water environment. We will not do this if the measures would be technically unfeasible or disproportionately expensive. If this were the case, we would set an appropriate alternative objective for how the water environment should be managed.

When we have assessed what improvements a water user needs to deliver to achieve an environmental standard, we will revise their licence conditions. To achieve the objectives set for the first river basin planning cycle, water users will be expected to comply with any revised authorisation conditions by December 2012.

What costs will the standards give rise to?

If we do not set standards, we will not be able to implement the Water Framework Directive and appropriately protect the water environment. We therefore have no choice over whether or not to have environmental standards. However, achieving the standards in all water bodies within the timeframe of the first river basin planning cycle would be extremely expensive and impracticable. Fortunately, we are not required to do this.

Where an environmental standard is not being met, we will work out what needs to be done to achieve that standard. In some cases, achieving the standard may be technically unfeasible or disproportionately expensive. If this is the case, we will set an alternative objective. This alternative objective may be to achieve good ecological status over a much longer period of time or to achieve a less stringent objective.

Environmental standards do not dictate implementation costs. This is because we can set an alternative objective wherever meeting environmental standards would be disproportionately expensive. The costs of implementation depend on the outcome of the objective setting process.

We will have to undertake more environmental monitoring and modelling than at present to assess the extent to which the standards are being failed. However, this is largely a consequence of the Directive's objective of protecting the health of aquatic ecosystems. This will require us to assess the impacts of a much wider range of pressures on the water environment than in the past when we focused almost exclusively on pollution problems. The environmental standards themselves

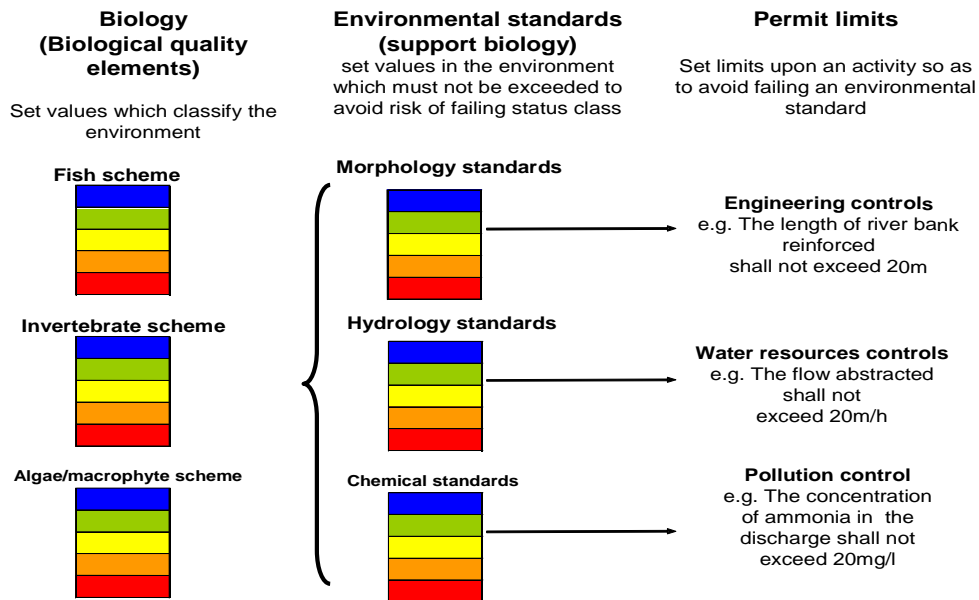
will have only a minor affect on the monitoring costs compared to this change in scope of our monitoring and assessment work.

Classification and environmental standards – how are they related?

Environmental standards will describe the physical, chemical and structural characteristics that are required to support biology. It will help identify where change in the water environment may be changed from being of good quality to moderate quality, or vice versa.

We use classification systems to assess the state of the environment. Classification systems are a management tool to help scientists assess the available data and to monitor improvements or deterioration. This provides an audit process that enables us to ensure that the measures we take, which are based on the environmental standards, are effective.

The figure below explains the relationship between the biological quality elements used to classify water and the supporting environmental standards.



How are the new classification systems different?

New classification schemes will be used to describe the state of the water environment under the Water Framework Directive and will provide an assessment of the effectiveness of the measures put in place to meet good status. It is anticipated that when the new classification schemes are up and running they will eventually replace the General Quality Assessment (GQA) classification schemes currently used across the UK.

Classification systems such as the General Quality Assessment (GQA) have concentrated mainly on a small number of chemical and biological indicators. The Directive asks us to look at the water environment as a whole, integrating water quality, quantity and physical habitat with ecological indicators. We are developing new classification systems for rivers, lakes, estuaries, coastal waters and groundwater. The health of the animal and plant groups that live in surface waters will now be the main factor that describes the state of those waters. We will need to use new and updated environment standards to help us assess if the environmental conditions are good enough to support the biology.