

21. Trends in pressures on biodiversity: surface water status

Type: State indicator

Indicator Short Description

The Water Framework Directive (WFD) is an important mechanism for assessing and managing the water environment in the EU, through a 6-yearly cycle of planning and implementing measures to protect and improve the water environment. Since the UK left the EU, the Water Environment (Water Framework Directive) (England and Wales) 2003 Regulations have been revoked and replaced by the Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 which came into force in April 2017. The UK continues to fulfil its reporting requirements under the new legislation. For ease of reference this legislation will be referred to as the WFD throughout this document.

The indicator shows the percentage of English water bodies in each status classification and assesses the change in the percentage of water bodies awarded a good or high surface water status classification under the WFD. Around 5,000 water bodies were assessed in each year of the indicator: including rivers, canals, lakes, estuaries and coastal waters. For a broader view of the condition of the water environment, see [Indicator B3](#) in the [Outcome Indicator Framework for the 25 Year Environment Plan: 2021 update](#).

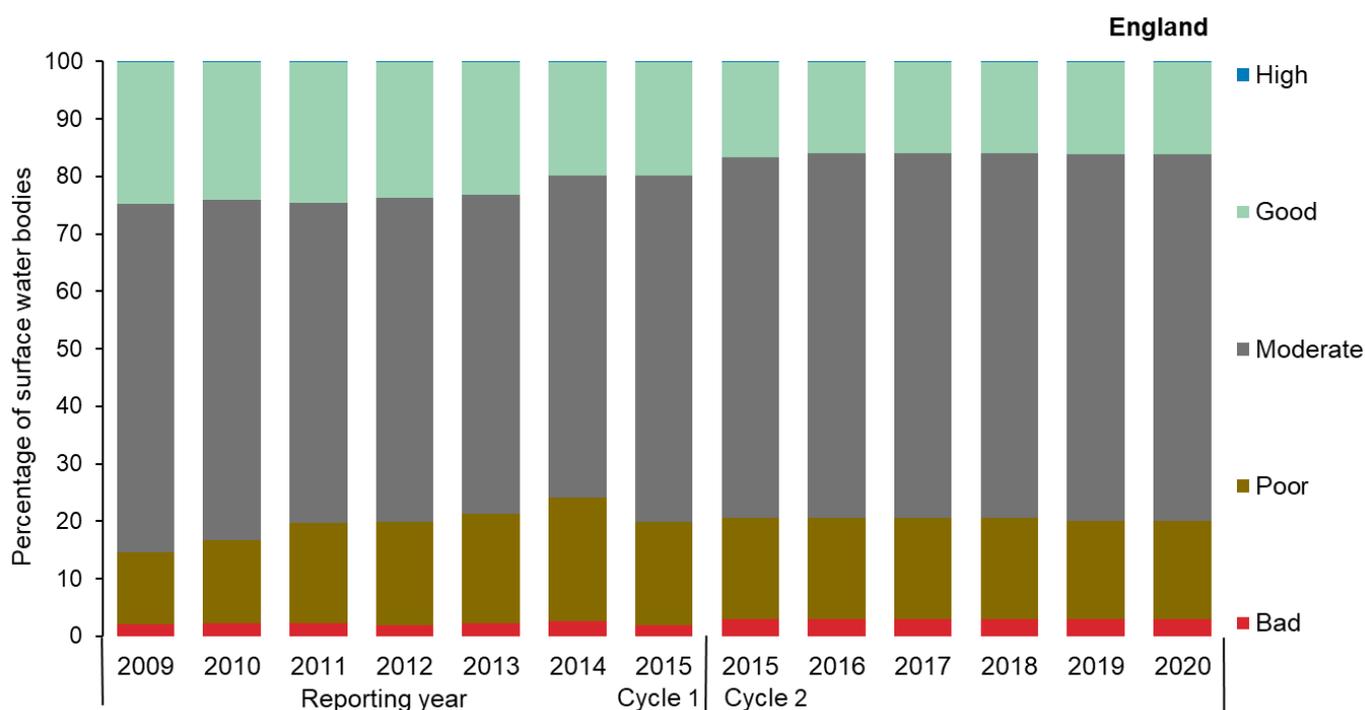
Summary

There has been a decrease in the proportion of surface water bodies in England awarded high or good ecological status since the indicator was first prepared in 2009; the indicator has also declined in the short term, between 2015 and 2020 (Figure 21.1). In 2020¹, 16% of surface water bodies assessed under the Water Framework Directive (WFD) were in high or good status compared with 25% in 2009 and 17% in 2015 (**Footnote:** In 2016, the Environment Agency moved to a triennial reporting system therefore the classifications for 2016 have been carried forward for both 2017 and 2018. The most recent classification was in 2019 and therefore these classifications have been carried forward to 2020).

In 2015, England adopted the new monitoring and classification standards laid out in cycle 2 of the WFD. This explains part of the step change in classification results. Figure 21.1 shows the data for both cycle 1 and cycle 2 in 2015; the change in reporting accounted for 3.3 of the 8.6 percentage-points decrease in the indicator since 2009.

¹ In 2016, the Environment Agency moved to a triennial reporting system therefore the classifications for 2016 have been carried forward for both 2017 and 2018. The most recent classification was in 2019 and therefore these classifications have been carried forward to 2020.

Figure 21.1: Status classifications of surface water bodies in England under the Water Framework Directive, 2009 to 2020



Notes:

1. Based on the numbers of surface water bodies classified under the Water Framework Directive (WFD) in England. These include rivers, canals, lakes, estuaries and coastal water bodies, but exclude sites of special scientific interest (SSSI) ditches and surface water transfers.
2. A water body is a management unit, as defined by the relevant authorities.
3. Water bodies that are heavily modified or artificial (HMAWBs) are included in this indicator alongside natural water bodies. HMAWBs are classified as good, moderate, poor or bad 'ecological potential'. Results have been combined; for example, the number of water bodies with a good status classification has been added to the number of HMAWBs with good ecological potential.
4. The results published each year relate to data reported in that year under the WFD; data reported in a given year relate to data collected over the previous year. In 2016, the Environment Agency moved to a triennial reporting system therefore the classifications for 2016 have been carried forward for both 2017 and 2018. The most recent classification was in 2019 and therefore these classifications have been carried forward to 2020.
5. The percentage of water bodies in each status classification has been calculated based on the total number of water bodies assessed in each year.
6. The total number of assessments varies slightly from year to year: in 2009, 5,805 water bodies were assessed; in 2010, 5,739 were assessed; in 2011, 5,760; in 2012, 5,692; in 2013, 5,735; in 2014, 5,769; in 2015, 5,738 under cycle 1 and 4,656 under cycle 2. The results from the 4,656 water bodies assessed in 2016 have been carried forward to 2017 and 2018. The current results from the 4,655 water bodies assessed in 2019 have been carried forward to 2020.
7. The relatively large reduction in the number of assessments in 2015 was due to England adopting the monitoring and classification standards laid down in cycle 2 of the WFD. This means that data from 2015 onwards are not directly comparable to those in earlier years.

Source: Environment Agency.

Indicator assessment

Assessment of change in status of surface water bodies in England

Percentage surface water bodies in 'High' or 'Good' ecological status:

**Long term (2009 to 2020): Deteriorating; Short term (2015 to 2020): Deteriorating;
Latest year (2020): No change**

Note: The short-term assessment is based on a 3% rule of thumb. The base year for this assessment uses a 3-year average. See [Assessing Indicators](#).

Indicator description

The WFD specifies the quality elements that can be used to assess the surface water status of a water body. Quality elements can be biological (for example, fish, invertebrates and plants), chemical (for example, heavy metals, pesticides and nutrients) or indicators of the condition of the habitats and water flows and levels (for example, presence of barriers to fish migration and modelled lake level data). Classifications indicate where the quality of the environment is good, where it may need improvement and what may need to be improved. They can also be used, over the years, to plan improvements, show trends and monitor progress.

Surface water status is a composite measure that looks at both the chemical status and the ecological (including biological and habitat condition) status of a water body.

Relevance

Surface waters with good status support a diverse assemblage of aquatic invertebrates, fish, mammals and birds. The Water Environment (Water Framework Directive) (England and Wales) 2017 regulations aim to improve and integrate the way water bodies are managed throughout England and Wales. England aims to reach good chemical and ecological status in inland and coastal waters by 2027 at the latest. England is striving to improve and protect the condition of the water environment: objectives to improve and protect each water body have been set; and measures defined to ensure meeting the objectives.

The indicator shows progress towards commitments to reduce environmental pressures and protect freshwater ecosystems. It is relevant to outcomes 1, 2 and 3 of [Biodiversity 2020: A strategy for England's wildlife and ecosystem services](#) (see Annex A). The indicator is also relevant to international goals and targets (see Annex B of the aforementioned publication for further details).

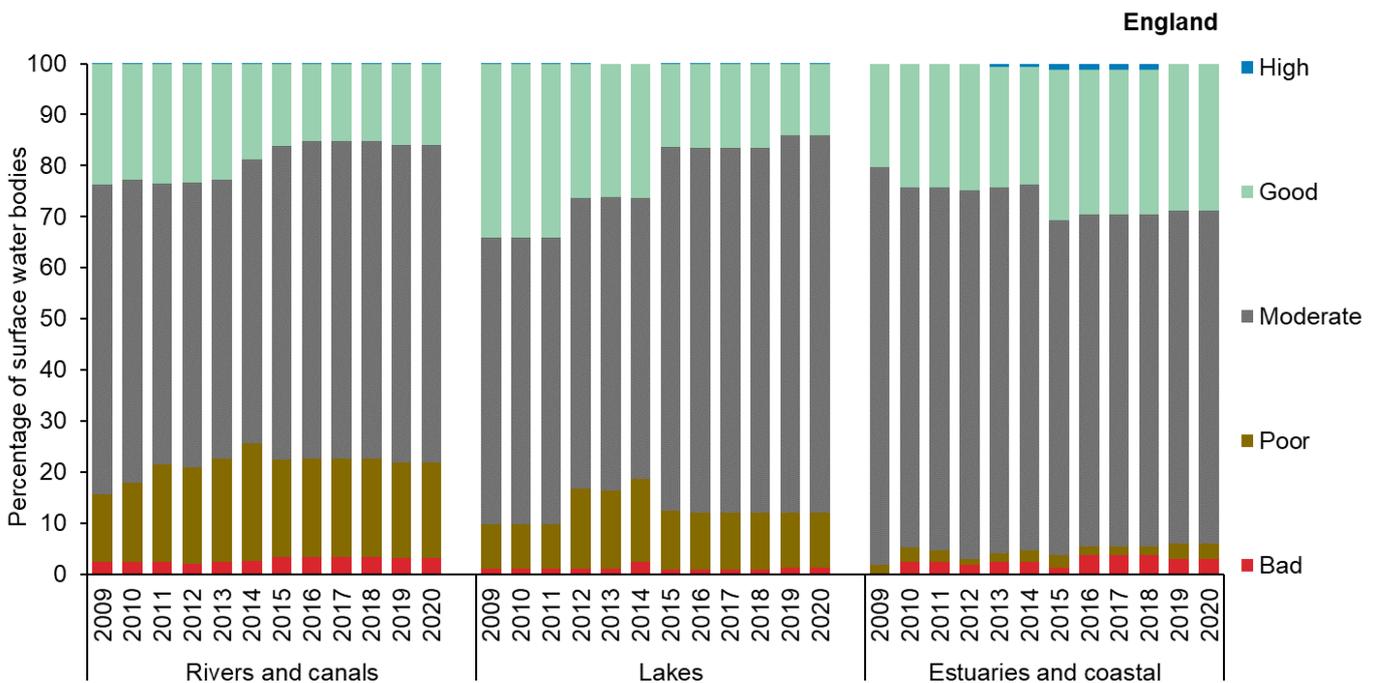
Background

The WFD came into force in December 2000 and became part of English, Welsh, Scottish and Northern Irish law in December 2003. Since leaving the EU, the Water Environment (Water Framework Directive) (England and Wales) 2003 has been revoked and replaced by the Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 which came into force in April 2017. It requires England and Wales to plan and deliver a better water environment. There are a number of water quality objectives in the Water Environment (Water Framework Directive) (England and Wales) Regulations 2017, and key aspects are:

- aquatic ecology;
- specific unique and valuable habitats;
- drinking water resources; and
- bathing water.

In 2020, 751 surface water bodies (16%) in England were in high or good status (Figure 21.1). A breakdown of the headline measure by water body type is presented in Figure 21.2 and in the text below. In 2020, 16% of rivers and canals, 14% of lakes and 29% of estuaries and coastal water bodies in England were in high or good status.

Figure 21.2: Status classifications of surface water bodies in England, by water body type, under the water framework directive, 2009 to 2020



Notes:

1. Based on numbers of surface water bodies classified under the Water Framework Directive (WFD) in England. Includes rivers, canals, lakes, estuaries and coastal water bodies, but excludes SSSI ditches and surface water transfers.
2. A water body is a management unit, as defined by the relevant authorities.
3. Water bodies that are heavily modified or artificial (HMAWBs) are included in this indicator alongside natural water bodies. HMAWBs are classified as high, good, moderate, poor or bad 'ecological potential'. Results have been combined; for example, the number of water bodies with a high status classification has been added to the number of HMAWBs with high ecological potential.
4. The results published each year relate to data reported in that year under the WFD; data reported in a given year relate to data collected over the previous year. In 2016, the Environment Agency moved to a triennial reporting system therefore the classifications for 2016 have been carried forward for both 2017 and 2018. The most recent classification was in 2019 and therefore these classifications have been carried forward to 2020.
5. The percentage of water bodies in each status classification has been calculated based on the total number of that type of water body assessed in each year.
6. The total number of water bodies assessed varies slightly from year to year.

7. Data from 2015 onwards are not directly comparable to those in earlier years because of the move to reporting under cycle 2 of the WFD.

Source: Environment Agency.

Percentage of surface water bodies in England awarded each status classification in 2020; by water body type

Rivers and canals (Total number of water bodies = 3,900): High 0.1%; Good 15.8%; Moderate 62.3%; Poor 18.6%; Bad 3.2%.

Estuaries and coastal (Total number of water bodies = 166): High 0.0%; Good 28.9%; Moderate 65.1%; Poor 3.0%; Bad 3.0%.

Lakes (Total number of water bodies = 589): High 0.2%; Good 13.9%; Moderate 73.9%; Poor 10.9%; Bad 1.2%.

Total Figures.

Number of water bodies = 4,655; High: 0.1%; Good: 16.0%; Moderate: 63.9%; Poor: 17.0%; Bad: 2.9%

Source: Environment Agency.

In England, WFD status classification is based on information obtained from monitoring of water quality and biological elements in both long-term surveillance networks and more risk-based operational networks.

The programme of monitoring that takes place in a given period is informed by the results of the previous cycle of monitoring and risk assessments. Where it is known with high certainty that a water body is in good status or in less-than-good status, monitoring effort can be refocused to areas at higher risk. This helps to target resources where they are needed most in the environment.

Surveillance water bodies are monitored more intensively. One objective of surveillance monitoring is to look for signs of impact from pressures in order to validate risk assessments and provide a consistent, long-term monitoring network of sites. At water bodies chosen for the surveillance network, data collectors aim to monitor all quality elements over a river basin management plan cycle.

If there are no sampling data for a particular classification period, results from previous classifications may be rolled-over into the classification assessment. For example, river phosphorus results are calculated from data from the previous 3 years. If there are no data in that sampling period, the last classification assessment is rolled forward.

During 2013 and 2014, England introduced the Ecological Status Indicator (ESI) monitoring program in order to establish a new fixed network of sampling points and provide a complete baseline of ecological status, covering every river water body in England. This new monitoring program significantly increased the number of samples that would normally be collected in any single year. This improved confidence in the classification of ecological status and reported statistics of environmental change in river water bodies from 2014. It also resulted in the step changes to the number of rivers assessed in 2013 and 2014 as being in each of the status classifications (see Figures 21.1 and 21.2).

The introduction of new WFD monitoring data and classification standards (including a new baseline adopting all of the new standards, tools, designations and water body boundaries) in 2014 led to a step change in the number of water bodies assessed as being in each status classification in following years. It also led to a reduction in the total

number of water bodies being assessed because under the new WFD guidance, water bodies below the 10 kilometres squared catchment area no longer need to be included. The formal reporting of new standards in cycle 2 of the WFD used the second cycle plans published in 2015. The Environment Agency reported using cycle 2 for the first time in 2015, alongside reporting for the end of cycle 1 in both 2015 and 2016. New water body classifications were produced in 2019 and will be used in reporting for the third cycle plans currently in development and due for publication in 2022. This is combined with a review of monitoring and data provision for reporting on the state of the water environment in future.

Information on the objectives to improve and protect each water body, as well as measures defined to ensure the objectives are met, can be found on the Environment Agency website (see links below).

Web links for information

GOV.UK: [Improving water quality](#)

European Commission: [Water Framework Directive](#)

Environment Agency: [River Basin Management Plans](#)

GOV.UK: [Outcome Indicator Framework for the 25 Year Environment Plan: 2021 Update \(publishing.service.gov.uk\)](#) – Indicator B3, State of the water environment

Last updated: October 2021

Latest data available: 2020² (**Footnote:** In 2016, the Environment Agency moved to a triennial reporting system therefore the classifications for 2016 have been carried forward for both 2017 and 2018. The most recent classification was in 2019 and therefore these classifications have been carried forward to 2020).

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