

Summary Report Water Quality in Ireland

2016 - 2021

Water Quality in Ireland: A Summary Report

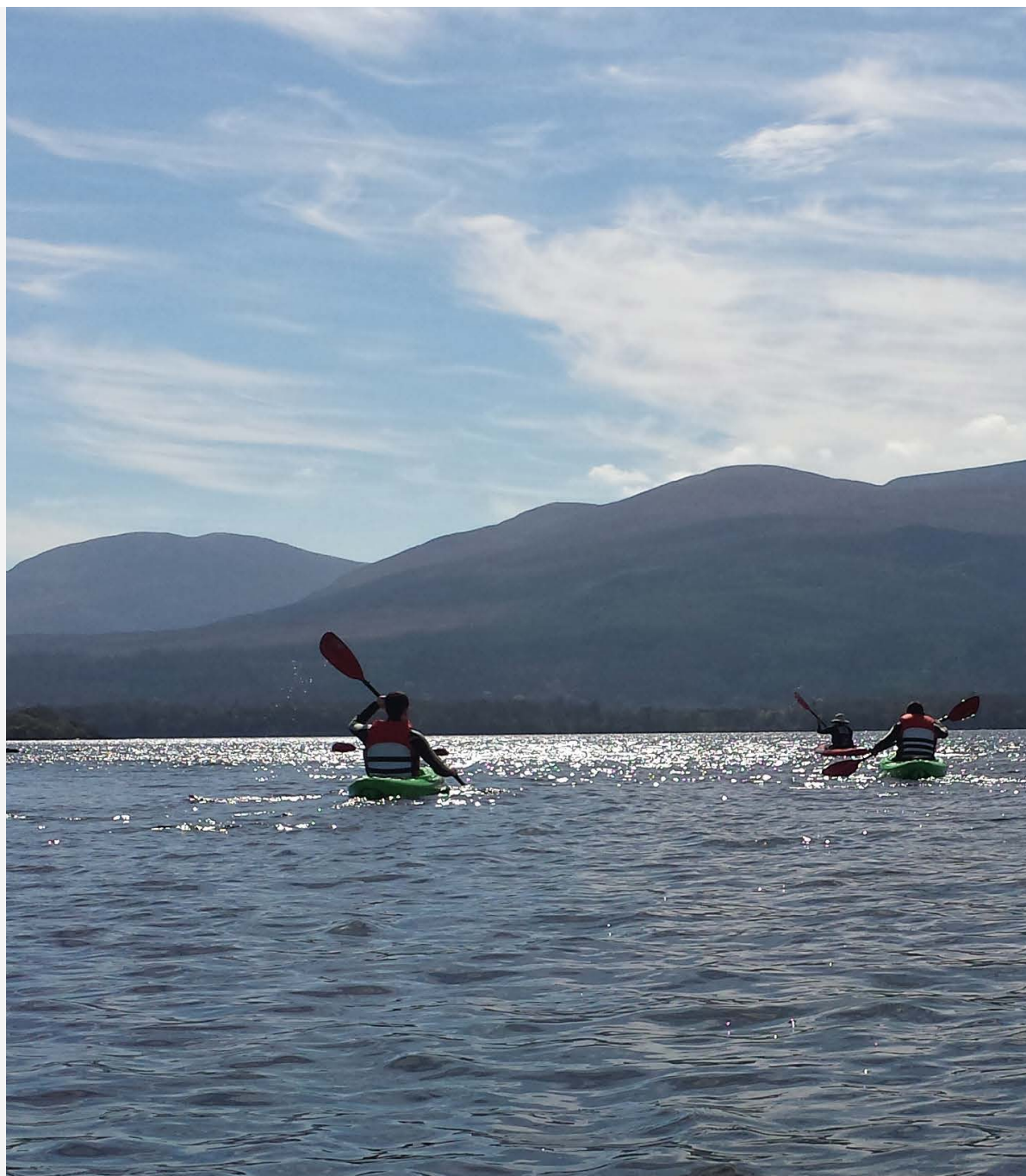
Introduction

This report provides summary information on the status of our rivers, lakes, estuaries, coastal waters (known collectively as surface waters) and groundwaters. It is based on information collected over a 6-year period from 2016 to 2021 under Ireland's national water quality monitoring programme from over 4,000 surface water bodies and 514 groundwater bodies. It highlights changes in the condition of these waters, identifies the main problems causing water quality issues and sets out what actions need to be taken to protect this important national resource.

The full detailed report on Ireland's water quality can be downloaded from the EPA website.

As humans we have an essential need for water. Access to clean water is essential for our livelihoods, our economy and our wellbeing. Clean water is also essential for nature to thrive. Our rivers and lakes are home to hundreds of freshwater species while our estuaries and coastal waters remain a rich source of marine biodiversity.

This important resource is under threat from human activities that cause water pollution and habitat degradation. Nearly half of Ireland's surface waters are in an unsatisfactory condition due to the damage being caused by activities that release pollutants into our environment and physical alterations that damage habitats and ecosystems. The trends indicate that, overall, water quality is declining and getting worse. It is incumbent on us now more than ever to halt this pollution and destruction and to protect our aquatic habitats.



How are our waters assessed?

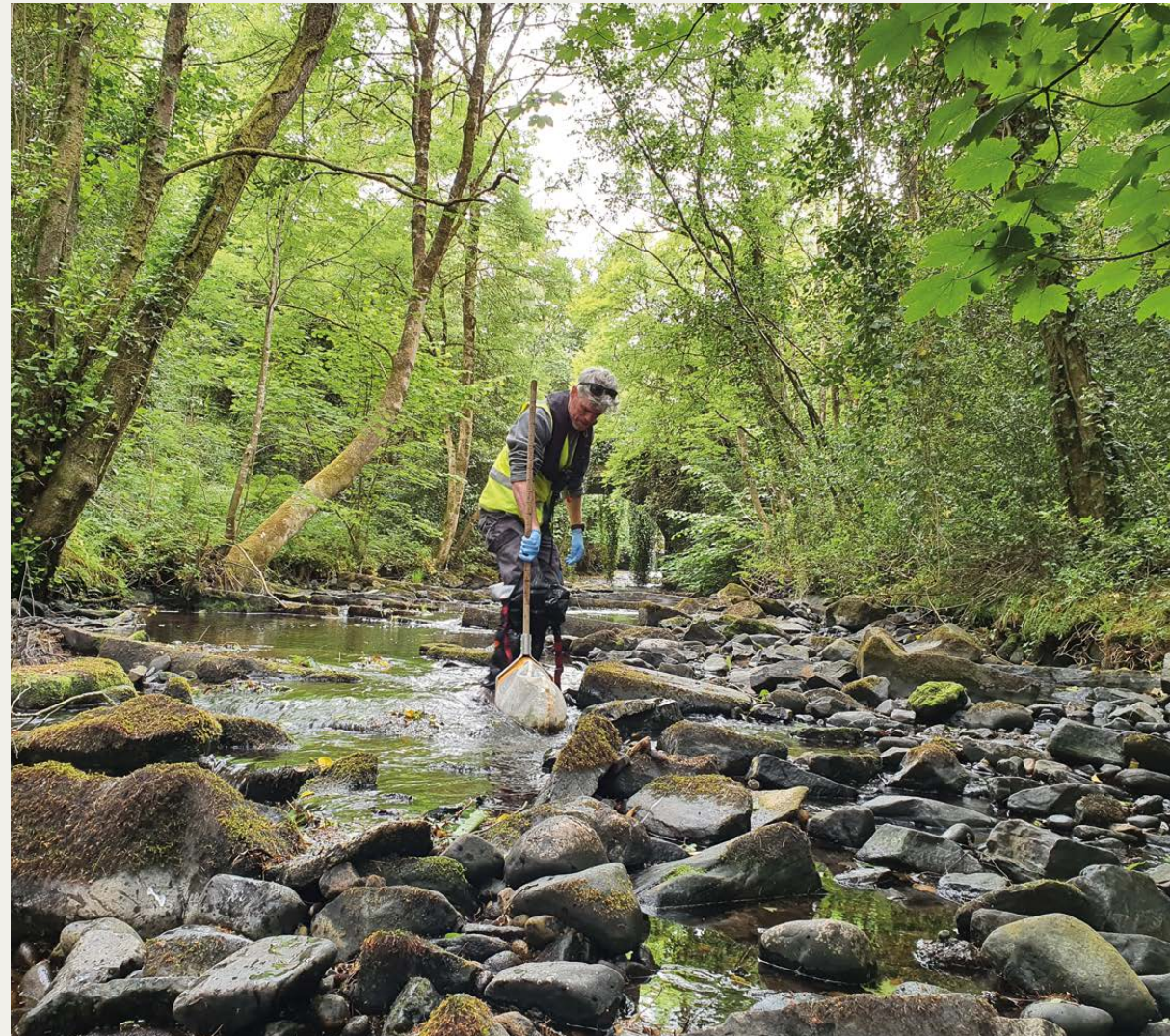
The ecological health of our surface waters is assessed by studying the different types of plants and animals living in them. Elements such as oxygen, nutrient concentration and physical alterations (the hydromorphological condition) of a water body are also assessed. This information tells us how healthy our waters are.

We also assess the chemical status of our surface waters which is determined by measuring the concentration of different chemical pollutants such as metals and pesticides that are known to be harmful to aquatic organisms and the environment.

Groundwaters are assessed for their chemical and quantitative (amount and volume of water) status.

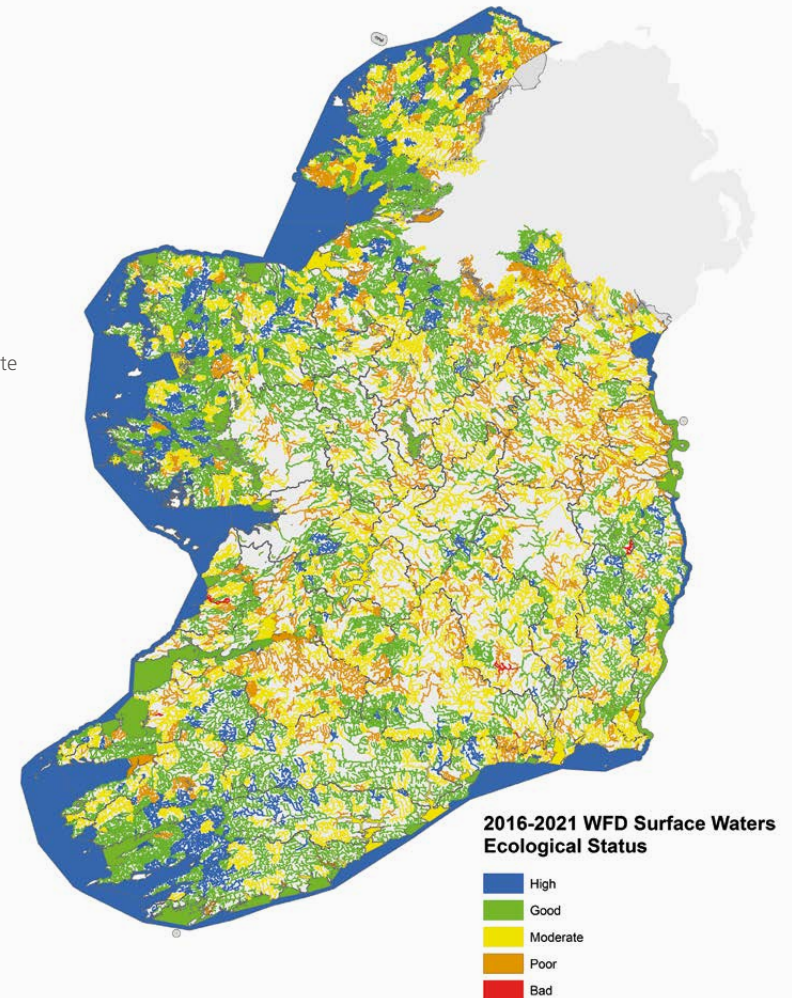
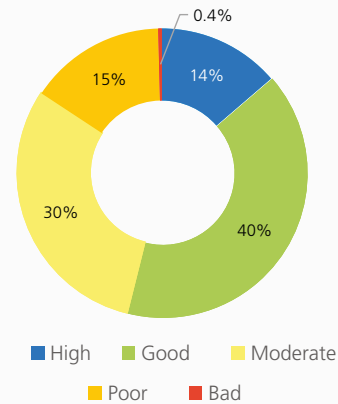
This information is combined to provide an overall assessment of our waters. Water bodies in high or good status are in a healthy condition whereas waters in moderate, poor and bad status are less healthy because they are being damaged by pollution or habitat degradation.

The Water Framework Directive was adopted by member states across Europe, including Ireland, in 2000. A requirement of the Directive is that all waters are protected and restored to at least good status by 2027. This means that waters in moderate or worse status must be restored to at least good status by then.

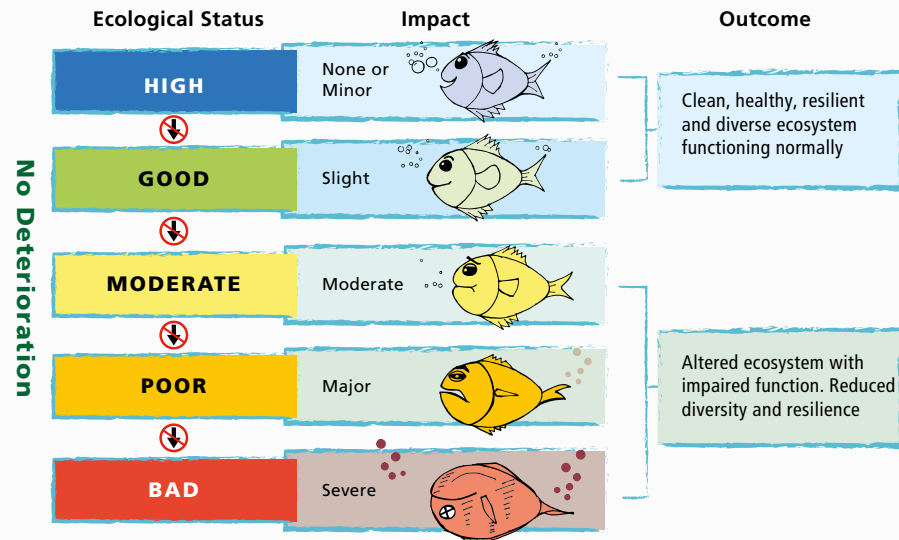


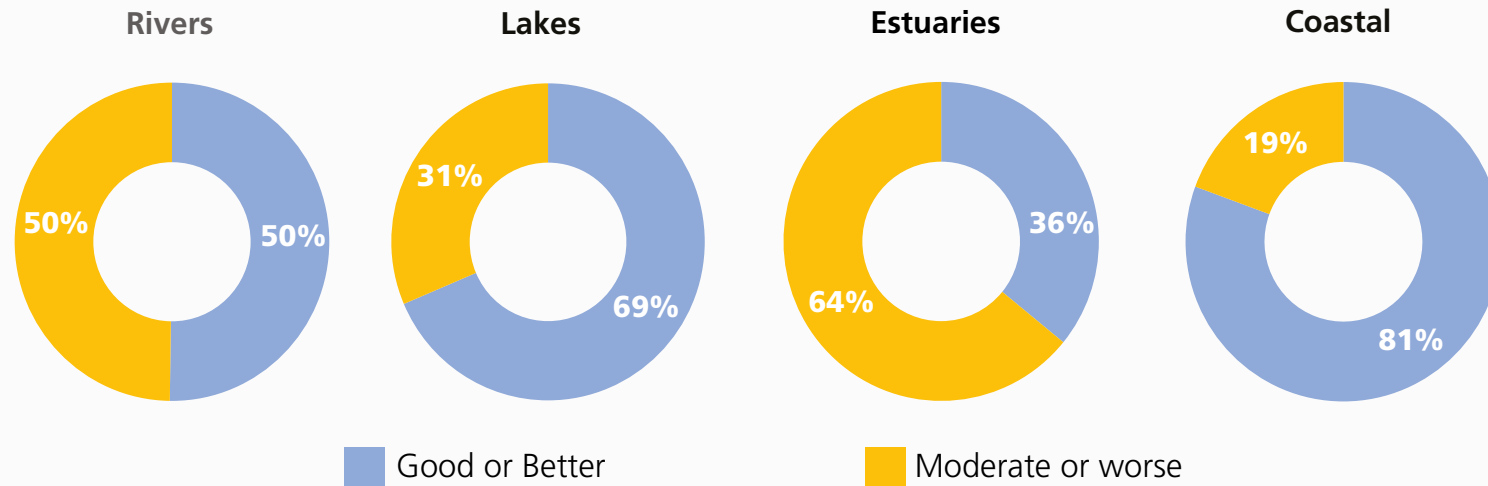
Is water quality improving or declining?

This assessment shows that over half (54%) of our surface waters are in good or better ecological status which means that nearly half (46%) are in unsatisfactory condition. Overall, our water quality has declined. The number of water bodies in satisfactory condition in our estuaries and coastal waters has declined by almost 16 percent and 10 percent respectively since the last assessment (2013-2018). There has also been a relatively small decline in the water quality of our rivers and lakes.



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Looking at these surface waters individually, we see the following trends.

Rivers: Half of rivers (50%) are in high or good ecological status. There has been a **1% decline** in the number of monitored rivers in satisfactory condition compared with the last assessment period. We are failing to protect our highest quality rivers; only 43% of rivers that have been given a high status objective have achieved that standard.

The regions or catchments¹ with the best river water quality are in the west and southwest of the country. The catchments with the lowest percentage of rivers with satisfactory water quality are distributed across the country in the northwest, east, southeast and midlands.

Over the period of this assessment there were 161 fish kills recorded. Any fish kill is unacceptable and their causes need to be eradicated.

Lakes: 69% of lakes are in high or good ecological status. There has been a **2.7% decline** in the number of monitored lakes in satisfactory condition since the last assessment.

The majority of high and good ecological status lakes are found in the southwest, west and northwest of the country. The catchments with the highest percentage of lakes with unsatisfactory water quality are situated in the northeast; this is due to the high phosphorus levels in lakes in this region.

Estuaries: There has been a decline in the quality of our estuaries and coastal waters, particularly in the south and southeast of the country where high nutrient levels in the water are damaging their ecology.

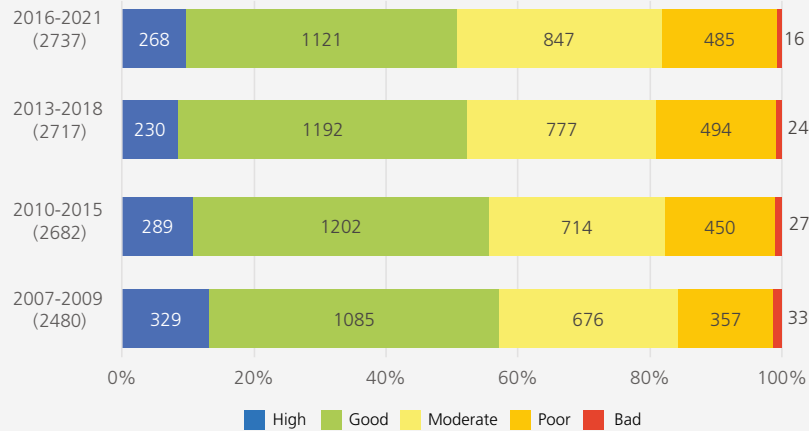
36% of estuaries are in high or good ecological status and 64% in moderate, poor or bad ecological health. There has been a marked **decline of 15.7%** in the number of monitored estuaries in satisfactory condition.

Coastal waters: Coastal waters have the highest percentage of waters in high or good ecological status (81%). However, there was a **9.5% decline** in the number of monitored coastal water bodies in satisfactory condition compared with last assessment period.

Groundwater: With a few localised exceptions, the quality of groundwater in Ireland is generally good. However, there has also been a **slight decline (0.8%)** in the quality of our groundwaters with more groundwater bodies now in poor condition. Overall, 92% of groundwater bodies are in good chemical status and nearly all are in good quantitative² status. The south and southeast regions have the greatest proportion of sites with high and increasing nitrate concentrations.

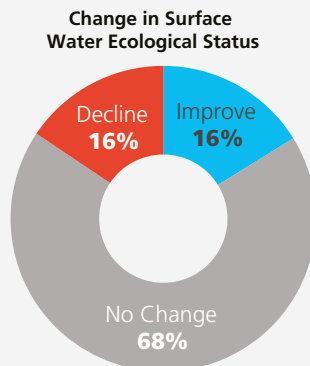
¹ Areas of land that drain into rivers, lakes or estuaries
² Volume of water present in the groundwater body.

The water quality reported in this assessment reflects the general pattern of decline in satisfactory water quality in our surface waters since the first assessment of ecological status was undertaken in the period 2007-2009.



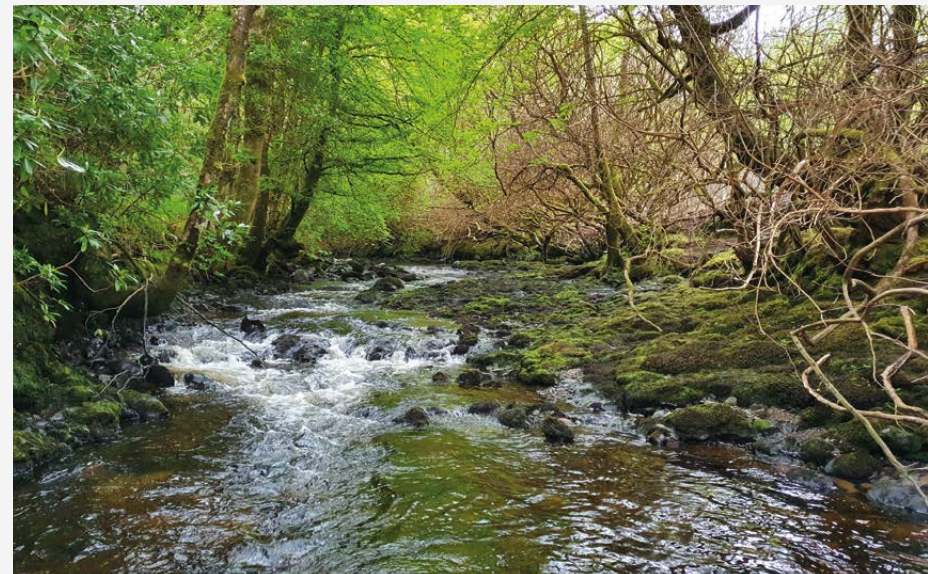
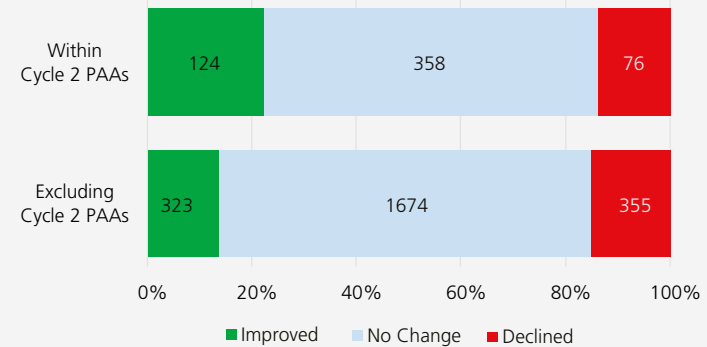
Improvements are being canceled out by declines during 2016- 2021

If we look across the five assessment classes (i.e. high, good, moderate, poor and bad) for all water bodies, 16% of water bodies have shown an improvement and are moving in the right direction. However, the proportion of water bodies improving in status has been exactly matched by the proportion of water bodies declining in status. The result being that any improvements in water quality are being offset by declines occurring elsewhere.

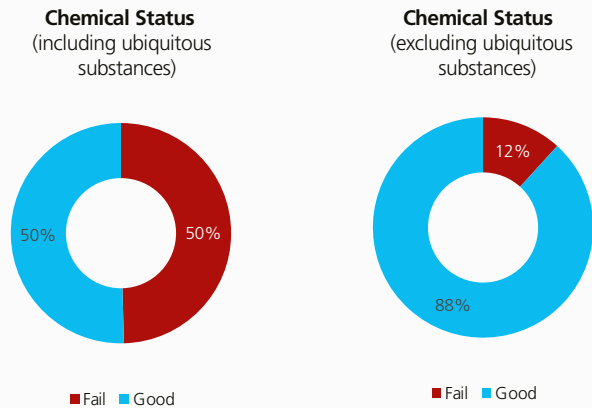


Priority Areas for Action

In the Priority Areas for Action (PAAs), which were selected for special attention in Ireland’s national River Basin Management Plan (2018-2021), the picture is more encouraging. Current data show that the proportion of improvements within the PAAs exceeded improvements outside these areas. This indicates that when targeted action is taken improvements in water quality can be achieved.



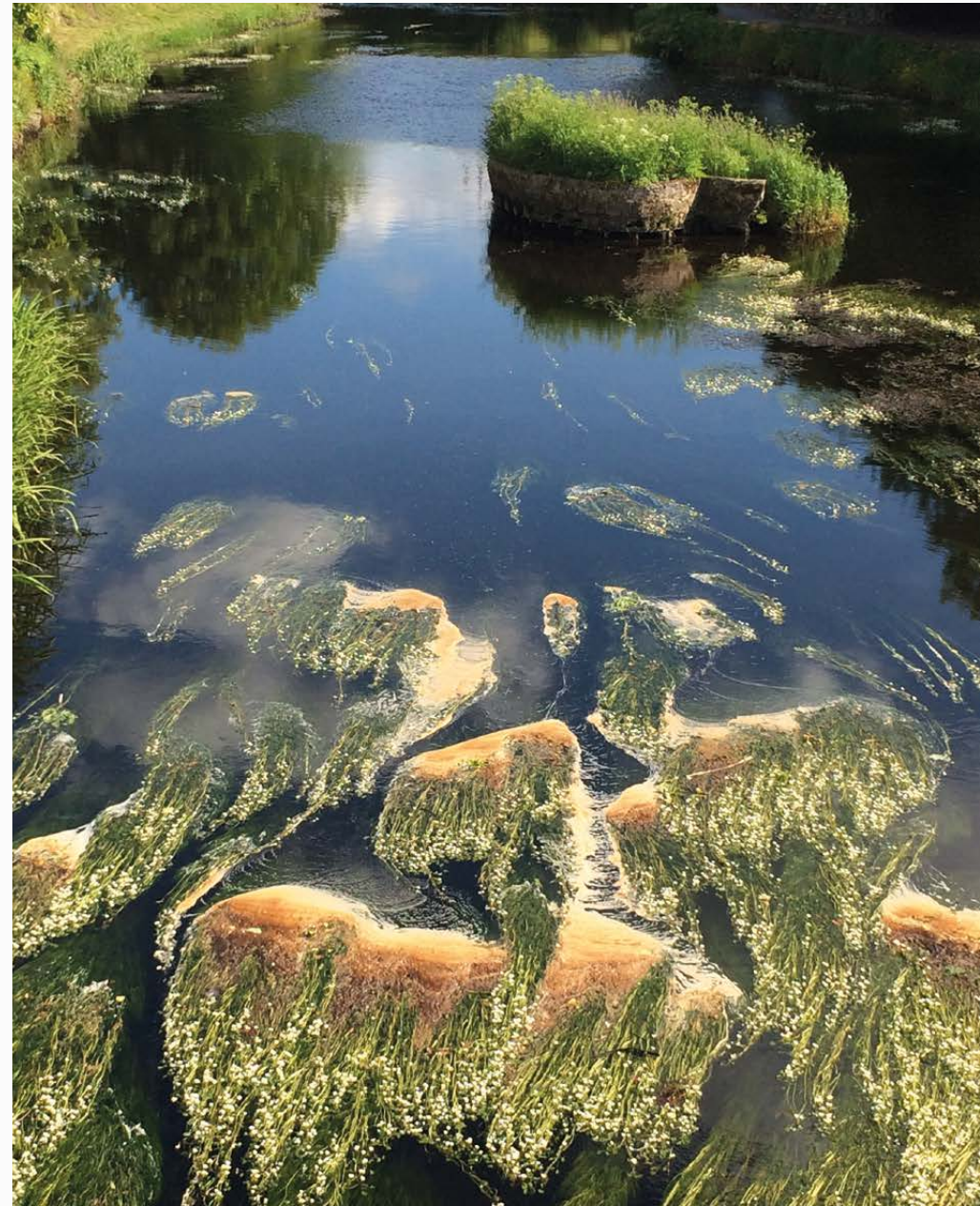
Chemical Status - Surface waters



Half of surface water bodies assessed are in good chemical status which means that half have failed to achieve a good standard.

Many of these failures were due to substances, such as mercury and polycyclic aromatic hydrocarbons (PAHs), which are known as ubiquitous substances because they can be found nearly everywhere in the environment. Some of these substances can persist for decades even after their emissions have ceased and many are capable of long-range transport from their place of origin. When these substances are excluded from the assessment, 88% of water bodies assessed achieved good chemical status.

The information on chemical status is presented in this way to help identify those water bodies which are being impacted by non-ubiquitous substances likely to have come from local sources. These water bodies need measures to remove these substances from the environment.



What is the problem?

The quality of our freshwater and marine ecosystems is being damaged by activities that release pollutants into the water environment and damage the physical integrity of water habitats.

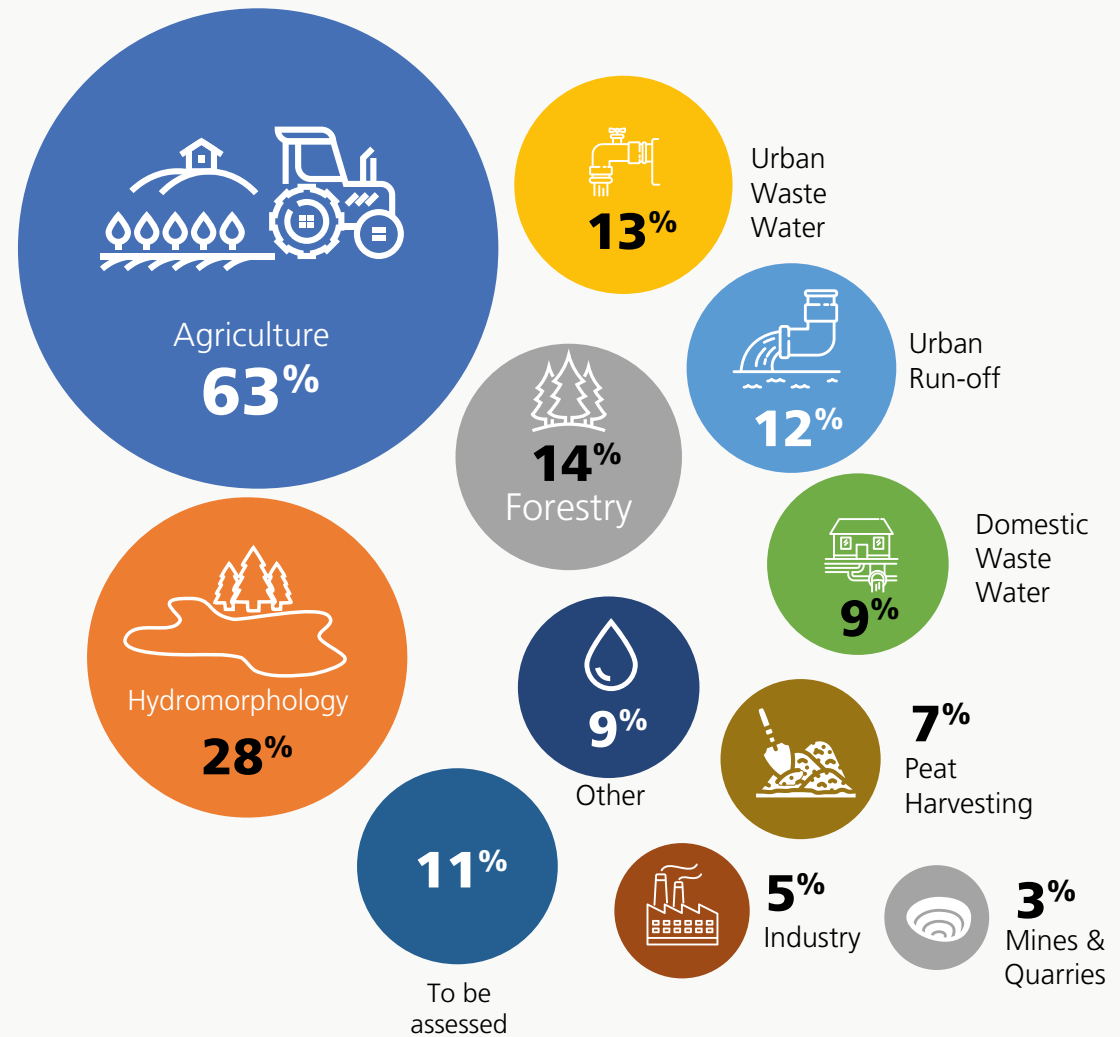
The main causes are:

- ▲ Run-off of nutrients, sediment and pesticides from agricultural lands and farmyards.
- ▲ Activities such as land drainage, navigational dredging and the presence of barriers such as dams, weirs or culverts in water courses.
- ▲ Discharges of poorly treated sewage from urban waste water treatment plants, domestic treatment systems and storm water overflows;
- ▲ Run-off of nutrients and sediment from forestry operations.

When nutrients such as nitrogen and phosphorus enter our waterways they cause an increase in the growth of plants and algae. This in turn clogs up our water courses, uses up oxygen and harms other aquatic life such as insects and fish.

Concentrations of these nutrients are far too high in many of our water bodies. 43% of river sites, mostly in the south and southeast of the country, have high nitrate concentrations while nearly a third of river sites (30%) and a third of lakes (33%) have elevated phosphorus concentrations. Phosphorus levels are particularly high in lakes in the northeast of the country.

The presence of too much nutrients in our rivers and lakes has led to an increase in the nutrients flowing into our marine environment. Over the last decade, the amounts of nitrogen and phosphorus flowing into our estuaries have increased by 20% and 37%, respectively. The ecology of our estuaries, particularly in the south and southeast, is being damaged by these high nutrient inputs.



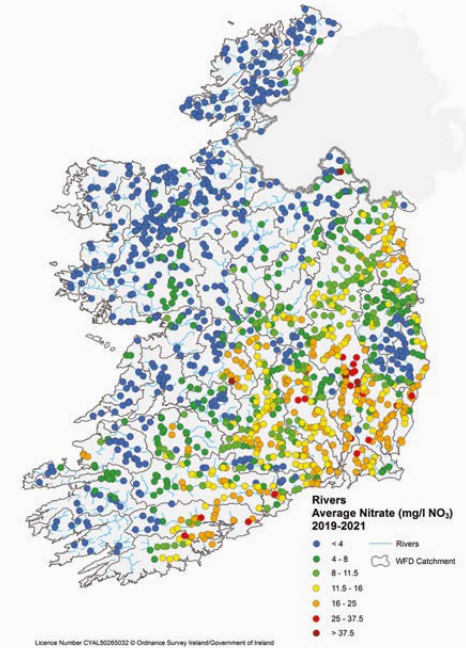
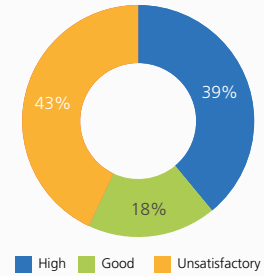
The percentage of impacted water bodies affected by different activities. Some water bodies are affected by more than one activity so the summed total for all activities will be greater than 100%

A significant proportion of our water bodies are being damaged by activities that impact on their physical shape, flow and form - these changes, referred to as hydromorphological alterations, are most common in our river and estuarine water bodies. Physical barriers such as dams, weirs or culverts can block the movement of fish and other wildlife while activities such as land drainage and dredging can result in the loss of important habitats. Over 400 of our surface water bodies are known to be affected by these activities and modifications.

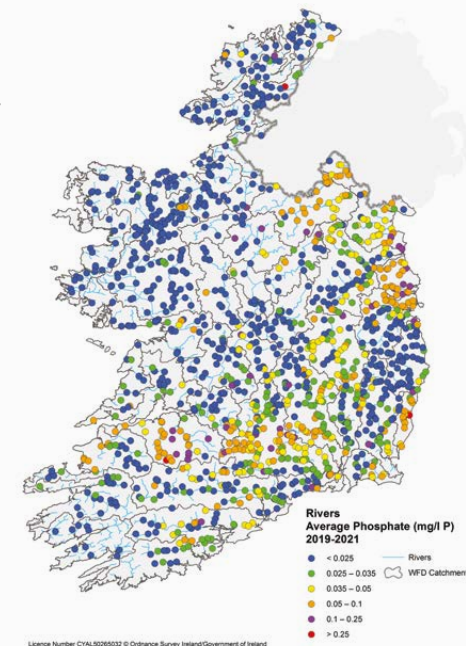
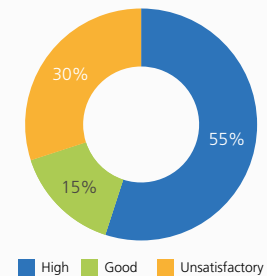
A number of water bodies are impacted by chemical pollution. Some rivers in the east are still suffering from the effects of historic mining while many rivers in the northwest of the country have experienced suspected chemical pollution leading to toxic impacts; the suspected cause being the use of pesticides in sheep dip and forestry.



River Nitrate Quality



River Phosphate Quality



What needs to be done?

The evidence presented in this report clearly shows that the goal of restoring all waters to good status by 2027 will not be achieved. Our water quality is going in the wrong direction and any improvements we are seeing are being cancelled out by declines occurring elsewhere.

If we are to make progress and improve water quality, Ireland needs to take the following actions:

- ▲ The next River Basin Management Plan (2022-2027) must be published with a firm commitment to address the main pressures on water quality (agriculture, hydromorphology, forestry and waste water). The Plan needs to be clear on what will be achieved by 2027, the proposed measures, the timeframes for delivery and the expected improvements in water quality. The Plan should also build on the progress made in the Priority Areas for Action with a focus on preventing further declines.
- ▲ The Nitrates Action Programme must be fully implemented to deliver reductions in nutrient losses to our waters. The existing regulations must be fully implemented by the local authorities and the Department of Agriculture, Food and Marine using the full range of tools from compliance promotion to enforcement. To support this work, the EPA will develop and implement a National Agricultural Inspection Programme for local authorities.
- ▲ Sustained investment in water services infrastructure is required to eliminate waste water as a significant pressure on water quality.
- ▲ The development of a regulatory regime to better manage and regulate activities that cause hydromorphological alteration is required. In the interim, measures are required now to address hydromorphological pressures. Public authorities such as the Office of Public Works and Local Authorities must lead by example in terms of best practice for any works on or near rivers.
- ▲ Government departments and relevant state bodies need to deliver greater coherence and integration across national programmes and policies which could impact on water quality and seek opportunities for multiple benefits particularly from climate and biodiversity measures.



Actions are being taken but significant work in all sectors remains. The challenge now is to ensure that the actions set out above and in Ireland's next national River Basin Management Plan (2022-2027) are fully implemented. This will deliver not only benefits for water quality but also multiple benefits for human health and the broader environment in terms of drinking water quality, biodiversity and climate change.

The EPA will continue to develop and communicate the science and evidence to support these actions and will through its regulatory functions address pressures from EPA-regulated activities.

Further information on water quality data and catchment assessments is available on www.catchments.ie.

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