WATER QUALITY IN 2019
An Indicators Report
Environmental Protection Agency

The EPA is responsible for protecting and improving the environment as a valuable asset for the people of Ireland. We are committed to protecting people and the environment from the harmful effects of radiation and pollution.

The work of the EPA can be divided into three main areas:

- **Regulation**: Implementing regulation and environmental compliance systems to deliver good environmental outcomes and target those who don’t comply.
- **Knowledge**: Providing high-quality, targeted and timely environmental data, information and assessment to inform decision making.
- **Advocacy**: Working with others to advocate for a clean, productive and well-protected environment and for sustainable environmental practices.

Our responsibilities include:

**LICENSING**
- Large-scale industrial waste and petrol storage activities;
- Urban wastewater discharges;
- The contained use and controlled release of genetically modified organisms;
- Sources of ionising radiation;
- Greenhouse gas emissions from industry and aviation through the EU Emissions Trading Scheme.

**NATIONAL ENVIRONMENTAL ENFORCEMENT**
- Audit and inspection of EPA-licensed facilities;
- Drive the implementation of best practice in regulated activities and facilities;
- Oversee local authority responsibilities for environmental protection;
- Regulate the quality of public drinking water and enforce urban wastewater discharge authorisations;
- Assess and report on public and private drinking water quality;
- Coordinate a network of public service organisations to support action against environmental crime;
- Prosecute those who flout environmental law and damage the environment.

**WASTE MANAGEMENT AND CHEMICALS IN THE ENVIRONMENT**
- Implement and enforce waste regulations including national enforcement issues;
- Prepare and publish national waste statistics and the National Hazardous Waste Management Plan;
- Develop and implement the National Waste Prevention Programme;
- Implement and report on legislation on the control of chemicals in the environment.

**WATER MANAGEMENT**
- Engage with national and regional governance and operational structures to implement the Water Framework Directive;
- Monitor, assess and report on the quality of rivers, lakes, transitional and coastal waters, bathing waters and groundwaters, and measurement of water levels and river flows.

**CLIMATE SCIENCE AND CLIMATE CHANGE**
- Publish Ireland’s greenhouse gas emission inventories and projections;
- Provide the Secretariat to the Climate Change Advisory Council and support to the National Dialogue on Climate Action;
- Support National, EU and UN climate science and policy development activities.

**ENVIRONMENTAL MONITORING & ASSESSMENT**
- Design and implement national environmental monitoring systems: technology, data management, analysis and forecasting;
- Produce the State of Ireland’s Environment and Indicator Reports;
- Monitor air quality and implement the EU Clean Air for Europe Directive, the Convention on Long Range Transboundary Air Pollution and the National Emissions Ceiling Directive;
- Oversee the implementation of the Environmental Noise Directive;
- Assess the impact of proposed plans and programmes on the Irish environment.

**ENVIRONMENTAL RESEARCH AND DEVELOPMENT**
- Coordinate and fund national environmental research activity to identify pressures, inform policy and provide solutions;
- Collaborate with national and EU environmental research activity.

**RADIOLOGICAL PROTECTION**
- Monitoring radiation levels and assess public exposure to ionising radiation and electromagnetic fields;
- Assist in developing national plans for emergencies arising from nuclear accidents;
- Monitor developments abroad relating to nuclear installations and radiological safety;
- Provide, or oversee the provision of, specialist radiation protection services.

**GUIDANCE, AWARENESS RAISING, AND ACCESSIBLE INFORMATION**
- Provide independent evidence-based reporting, advice and guidance to government, industry and the public on environmental and radiological protection topics;
- Promote the link between health and wellbeing, the economy and a clean environment;
- Promote environmental awareness including supporting behaviours for resource efficiency and climate transition;
- Promote radon testing in homes and workplaces and encourage remediation where necessary.

**PARTNERSHIP AND NETWORKING**
- Work with international and national agencies, regional and local authorities, non-governmental organisations, representative bodies and government departments to deliver environmental and radiological protection, research coordination and science-based decision making.

**MANAGEMENT AND STRUCTURE OF THE EPA**

The EPA is managed by a full-time Board, consisting of a Director General and five Directors. The work is carried out across five Offices:

- Office of Environmental Sustainability
- Office of Environmental Enforcement
- Office of Evidence and Assessment
- Office of Radiation Protection and Environmental Monitoring
- Office of Communications and Corporate Services

The EPA is assisted by advisory committees who meet regularly to discuss issues of concern and provide advice to the Board.
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Introduction

This report provides an update on the quality of water in Ireland’s rivers, lakes, transitional and coastal waters and groundwater using information collected in 2019.

Water quality monitoring in Ireland is carried out under the Water Framework Directive (WFD). The EPA undertakes a full assessment of water quality in Ireland every three years and we report on the indicators of water quality in the intervening years. These indicators provide an update on the biological quality of our rivers and lakes and the nutrient concentrations in all the water categories. We also include information on the input of nutrients to our marine environment. Each indicator presents the current situation and where possible details of any recent changes or trends.

The indicators are:

1. River biological quality
2. Nitrate in rivers
3. Phosphate in rivers
4. Lake biological quality
5. Total phosphorus in lakes
6. Nitrogen in estuaries and coastal waters
7. Phosphate in estuaries and coastal waters
8. Nutrient inputs to the marine environment
9. Nitrate in groundwater
10. Phosphate in groundwater

The last full assessment of water quality in Ireland found that just over half of our rivers and lakes were in satisfactory ecological health and overall water quality had declined since the previous assessment.

The main problem damaging our waters is the presence of too much nutrients such as phosphorus and nitrogen which come primarily from agriculture and waste water.

These nutrients, if too abundant, can lead to the over-growth of plants and algae that outcompete and displace other flora and fauna. This over-growth can also cause oxygen depletion and damage the ecology of our water bodies.

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1 Indicators for other elements used to determine overall ecological status such as hydromorphology and fish are not included in this report.
2 Trends are calculated using the Mann-Kendall and Sens slope tests where applicable.
3 Water Quality in Ireland 2013-2018
4 Can be expressed as total phosphorus, phosphate or molybdate reactive phosphate (MRP).
5 Can be expressed as nitrate or dissolved inorganic nitrogen (DIN).
Excess phosphorus is a particular concern for the ecological health of rivers and lakes and contributes to eutrophication. Losses of phosphorus to water are a particular problem in agricultural areas with poorly draining soil. Some rivers in the east and lakes in the northeast of the country have elevated phosphorus concentrations.

Our estuaries and coastal waters are particularly sensitive to high nitrogen concentrations. When rivers with excess nitrogen flow into these areas they can cause water quality problems such as increases in the occurrence of harmful algal blooms. High nitrogen levels can also be a problem in drinking water. The predominance of free draining soils in the south and southeast make these areas particularly susceptible to nitrogen losses from agriculture.

EPA monitoring at Owenass River, Co Laois. Photo: Hugh Feeley.
Insights – What are the indicators telling us?

Nutrients

The indicators show us that nutrient concentrations are too high in a significant proportion of our water bodies and the trends are going in the wrong direction. Over one third of rivers and a quarter of lakes are failing to meet their environmental quality standards for nutrients. High levels of phosphorus in the north-east of the country are impacting on lake biological quality, while high nitrogen concentrations in the south and southeast are damaging the quality of our estuaries.

Of significant concern is the finding that nitrate is increasing in nearly half of our river sites. Phosphate levels are also on the rise in a quarter of river sites. This is in sharp contrast to the picture prior to 2015 when only a small proportion of sites had increasing nitrate and phosphate concentrations (1.4% and 4.2%, respectively).

The increase in river concentrations is also reflected in the inputs of total nitrogen and total phosphorus loads to the marine environment, which have increased by 24% and 31%, respectively since 2012-2014.

The upward trend in nitrate is also apparent in our groundwaters. Almost half of groundwater sites now have increasing nitrate levels.

These elevated nitrate concentrations are contributing to eutrophication in our freshwaters and estuaries and causing difficulties with drinking water standards in some areas. This is a particular problem in the south and southeast where trends are going in the wrong direction. There are also implications for long-term impacts in our estuaries and coastal waters. Our coastal waters are largely in good condition and more of these water bodies will be put at risk if we fail to tackle this issue.

Biological quality

The indicators show that our rivers and lakes are not as biologically healthy as they should be; just over half of them are in high or good biological quality. The rivers surveyed in 2019 have, however, shown more improvements than declines overall, which is welcome. We are also seeing improvements in the Priority Areas for Action which are the areas being targeted for restoration under the River Basin Management Plan. This builds on the improvements reported in these areas previously.

The number of river sites at high quality has also increased (58 extra sites), although these gains do not extend to our highest quality ‘pristine’ sites of which there are now just 22 sites nationally. These high status sites are important reservoirs for aquatic biodiversity and it is essential that they are protected and improved.

While the improvements in biological quality are encouraging signs for water quality, it should be noted that some of these are still not sufficient to return these waters to a satisfactory condition and further action will be needed. Furthermore if the current rate of nutrient concentration increase in our waters continues it is likely that some of the positive signs we are seeing will be reversed.

6 Approximately one third of the national monitoring programme was completed in 2019. Improvements in biological quality may not necessarily result in improvements in ecological status when all the other quality elements are considered for the full assessment.

Focussed action needed

The most prevalent human activities impacting on our water quality with excess nutrients are agriculture and discharges of urban waste water. Agriculture impacts on over half (53%) of the 1460 water bodies at risk of not meeting their WFD environmental objectives and urban waste water impacts on 22%. Physical habitat changes such as dredging and barriers, urban run-off, and activities such as forestry, and peat extraction and drainage also put pressure on our water environment.

Analysis by the EPA shows that intensive agricultural practices are the predominant source of excess nitrogen in our waters, particularly in the south and southeast of the country. The increasing trend in nitrate concentrations, particularly in our rivers and groundwater, shows that additional urgent and focussed action is now needed to reduce the nitrate losses to our waters.

The forthcoming review of the Nitrates Action Plan, the new Common Agricultural Policy Strategic Plan and the full implementation of the EU Farm to Fork Strategy and Biodiversity Strategy offer significant opportunities to achieve improvements in water quality while also delivering multiple benefits for the environment including for climate, air quality and biodiversity.

In relation to urban waste water the EPA has, in its most recent report, identified 113 priority areas where improvements are needed to prevent water pollution, eliminate discharges of raw sewage, meet EU treatment standards and protect bathing waters and freshwater pearl mussels. The EPA has called on Irish Water to address the delays in providing waste water infrastructure in order to deliver the water quality improvements needed to meet our Water Framework Directive and wastewater treatment objectives.

Ireland’s River Basin Management Plan sets out the national approach for protecting and restoring our water quality. The Plan sets clear targets and actions to address water quality issues and its full implementation across all sectors, particularly agriculture and urban waste water is now critical to prevent any further declines in water quality and to deliver the improvements needed.

What are the main findings?

**Rivers**
- Nearly half (47%) of river sites have unsatisfactory nitrate concentrations. 44% of sites are showing an increasing nitrate trend for the period 2013-2019.
- Over a third (34%) of sites have unsatisfactory phosphate concentrations. One quarter (26%) of sites are showing an increasing phosphate trend for the period 2013-2019.
- 57% (1,329) of river water bodies are in high or good biological quality with the remaining 43% (1,002) in moderate or worse quality.
- The rivers surveyed in 2019 (856 out of 2331 water bodies) have shown a net improvement in biological quality in 114 water bodies.

**Lakes**
- Over half (54%) of lakes are in high or good biological quality with the remaining 46% in moderate or worse quality.
- Over a quarter of lakes (27%) had unsatisfactory total phosphorus concentrations with 22% showing an increasing trend.

**Estuaries and Coastal Waters**
- Over a fifth (22%) of estuarine and coastal water bodies have unsatisfactory dissolved inorganic nitrogen (DIN) concentrations. The highest DIN concentrations are in the south and southeast of the country.
- Nearly all (96%) estuaries and coastal waters have satisfactory phosphate concentrations and these are generally stable.
- Loads of total nitrogen and total phosphorus to the marine environment from our rivers have increased by 24% (13,559 tonnes) and 31% (338 tonnes) respectively since 2012-2014.

**Groundwaters**
- Over a fifth (22%) of sites have high (>25mg/l N0₃) nitrate concentrations and three sites exceed the drinking water standard (50 mg/l N0₃).
- Almost half (49%) of all sites have increasing nitrate concentrations for the period 2013-2019.
- 8% of sites have unsatisfactory phosphate concentrations.
Estuarine and Coastal
Riverine inputs of nitrogen and phosphorus increasing since 2012-2014

Biological quality
- 22% of sites have unsatisfactory concentrations of nitrate
- 27% of sites have unsatisfactory concentrations of phosphate

Groundwater
- 49% of sites have satisfactory concentrations of nitrate
- 44% of sites have satisfactory concentrations of phosphate

Lakes
- 47% of sites have unsatisfactory concentrations of nitrate
- 34% of sites have unsatisfactory concentrations of phosphate

Rivers
- 47% of sites have unsatisfactory concentrations of nitrate
- 34% of sites have unsatisfactory concentrations of phosphate

Changes in biological quality of rivers surveyed in 2019
- 204 increased in biological quality
- 90 declined in biological quality

2019 Water Indicators

31% of sites have increasing nitrate concentrations
31% of sites have increasing phosphate concentrations
8% of sites have increasing concentrations of phosphate
Indicator: River Biological Quality

The biological quality of river water bodies across the country is assessed as part of the national Water Framework Directive (WFD) monitoring programme. The system assesses macroinvertebrate communities to categorise the biological quality (Q value) of a river into five classes: high, good, moderate, poor and bad.

Macroinvertebrates (tiny animals without backbones, for example, insects, snails and worms) have been used to assess water quality and the general health of rivers in Ireland since the 1970s. Macroinvertebrates make excellent biological indicators as their lifecycles generally last a year or more and as a result they can signal long-term changes in water quality.

Findings

57% (1,329) of the river water bodies assessed over the period 2017-2019 were in high or good biological quality. The remaining 43% (1,002) were in moderate, poor or bad quality.

Of the 856 (out of 2331) river water bodies assessed in 2019, there was a net improvement in quality overall in 114 river water bodies which is very welcome, although some catchments showed net declines. This net improvement was also seen in the Priority Areas for Action (52 water bodies) which builds on the improvements reported previously. The number of river water bodies in bad condition has reduced to three.

9 Q value system: Q5 and Q4-5=High; Q4=Good; Q3-4=Moderate; Q3 and Q2-3=Poor; Q2, Q1-2 and Q1=Bad.
10 These were the Ballyteigue-Bannow, Nore, Colligan-Mahon and Shannon Estuary North catchments.
11 River water bodies in bad biological condition: Ballaghdoon_010 and Culdaff_010 (Co. Donegal) and Ahavarraga Stream (Co. Limerick).
**High Quality Sites**

Since monitoring began in the 1980s there has been a significant decline in our high quality river sites. This assessment has shown a welcome increase of 58 sites classified as high quality (Q4-5 and Q5), though only two were in the Q5 category (highest quality) bringing the total number to 22. These high quality sites are important for supporting sensitive aquatic species such as juvenile salmon and trout and the protected, but declining, freshwater pearl mussel.

![Percentage of water sites](image)

*A high status site on the River Laney, Co. Cork. Photo: Ruth Little*
Indicator: Nitrate in Rivers

Nitrate enters our waterways from subsurface run-off, through free draining soils to our groundwaters where it can then be discharged to rivers and ultimately to our marine waters. Areas of the south and southeast are particularly susceptible to nitrogen losses from agriculture.

This indicator is based on an assessment of average nitrate concentrations over three-years (2017-2019). A total of 1,338 individual river sites in 624 river channels were assessed.

Findings

The 2017-2019 data for nitrate in rivers show that 47% of river sites have unsatisfactory nitrate concentrations (above 8 mg/l NO₃). The map shows that nitrate concentrations are highest in rivers in the south, southeast and parts of the east of the country where there is more intensive farming coupled with freely draining soils and lower rainfall.

12 There are currently no environmental quality standards for nitrate, however, average nitrate concentration values less than 4 mg/l NO₃ (0.9mg/l N) and less than 8 mg/l NO₃ (1.8mg/l N) are considered by the EPA to be indicative of high and good quality respectively. The nitrate standard for drinking water is 50mg/l NO₃.
Just under half (44%) of sites are showing an increasing nitrate trend for the period 2013-2019 while only 4% have a decreasing trend\(^\text{13}\).

Inputs of nutrients to our marine environment are on the increase (see the indicator on Nutrient Inputs to the Marine Environment).

\(^{13}\) Rate of change (mg/l N yr\(^{-1}\)): Strong decrease (>0.2); Weak decrease (0.05-0.2); No change (varying by <0.05); Weak increase (0.05-0.2); Strong increase (>0.2).
Indicator: Phosphate in Rivers

Phosphate enters waters from a variety of sources, but primarily from sewage and industrial discharges and agricultural land where animal manure and inorganic fertilisers have been spread.

This indicator is based on an assessment of average phosphate concentrations over three-years. 1,437 individual river sites in 633 river channels were assessed.

Findings

The assessment shows that 34% of sites have unsatisfactory phosphate concentrations while the remaining two thirds (66%) are at high or good quality. Sites with higher concentrations are evident in the catchments of Liffey and Dublin Bay and Nanny-Devlin in the east, in the Erne catchment in the northeast and in the Shannon Estuary South catchment in the southwest of the country.

14 Measured as molybdate reactive phosphate (MRP).
15 Average phosphate concentrations of less than 0.025 mg/l P and less than 0.035 mg/l P have been established in Ireland as legally binding national standards (EQS) to support the achievement of high and good ecological status respectively.
The rate of change in river phosphate was calculated over the 2013-2019 period. 26% of sites had an increasing concentration while 10% of sites had a decreasing concentration.

16 Rate of change (mg/l P/yr): Strong decrease (>0.005); Weak decrease (0.002-0.005); No change (varying by <0.002); Weak increase (0.002-0.005); Strong increase (>0.005).
Indicator: Lake Biological Quality

Ireland has more than 12,000 lakes. They are primarily located along the western seaboard and in the centre of Ireland, with relatively few in the east of the country. Lakes are one of the main sources of drinking water for two million people in Ireland.

This indicator is based on the biological assessment of 224 monitored lakes for the period 2017-2019. Lake biology is categorised into five classes: high, good, moderate, poor and bad. The biological elements that are assessed for lake biological quality are plants, phytoplankton, phytobenthos and fish. These biological indicators give an indication of the long-term water quality of a lake.

Findings

Over half (54%) of our lakes are in high or good biological quality for the period 2017-2019 with the remaining 46% in moderate, poor or bad biological quality. Eight lakes (4%) are in bad biological quality, the worst class, for 2017-2019. The majority of lakes that are failing to achieve good biological quality are in the Erne and Upper Shannon Catchments.

The proportion of lakes at satisfactory quality (high and good) has remained relatively unchanged in recent years.
Indicator: Total Phosphorus in Lakes

The concentration of total phosphorus (mg/l P) in lakes is a key indicator because of its impact on biological quality in freshwater.

This indicator is based on an assessment of the average three-year total phosphorus concentration in 224 monitored lakes into five quality classes: high, good, moderate, poor, and bad.

Findings

In the period 2017-2019, a quarter of lakes (27%) had unsatisfactory total phosphorus concentrations.\textsuperscript{17}

Just over a fifth of lakes (22%) had an increasing trend in total phosphorus concentration for 2013-2019 and 17% had a decreasing trend.

\textsuperscript{17} Average total phosphorus concentrations in lakes of less than 0.01 mg/l P and less than 0.025 mg/l P have been established in Ireland as a national standard to support the achievement of high and good ecological status as required by the WFD.
Indicator: Nitrogen in Estuaries and Coastal Waters

Nitrogen is generally considered the primary limiting nutrient in coastal ecosystems, meaning that its concentration can control the growth of algae and aquatic plants.

This assessment is based on winter levels of dissolved inorganic nitrogen\(^{18}\) (DIN). The concentration of DIN in winter is expected to be at its highest due to the absence of any significant plant or algal growth.

Findings

Twenty-two of the 98 (22\%) estuarine and coastal water bodies assessed were in unsatisfactory condition for DIN\(^{19}\).

The estuaries with the highest median winter dissolved inorganic nitrogen concentrations were in the south and southeast of the country. The estuaries in these regions receive water from catchments that have rivers with elevated nitrogen levels (see Nitrate in Rivers indicator). A trend analysis (2009-2019) has shown that these areas with high nitrate concentrations are not improving. The only estuary where DIN is decreasing is the Lower Lee Estuary, Co. Cork.

Excess algae from too much nutrients entering an estuary. Photo: Robert Wilkes

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18 Nitrite + nitrate + ammonia. DIN is expressed as nitrogen (N)
19 Salinity related thresholds have been defined for DIN in our estuaries and coastal waters. The thresholds range from between 2.6 mg/l N in freshwater to 0.25 mg/l N in fully saline waters. DIN concentrations above these thresholds can indicate pollution.
Estuarine and Coastal Water
Winter Dissolved Inorganic Nitrogen
2017 - 2019

Percentage exceedance in value
- < -50%  Trend 2017-2019
- -49% to -15%  Downward trend
- -14% to 0%  No trend
- 1% to 50%
- > 50%
Indicator: Phosphate in Estuaries and Coastal Waters

Phosphate is important in estuarine systems because it is typically the limiting nutrient in lower salinity waters meaning that the concentration of this nutrient can control the growth of algae and aquatic plants. If present in sufficient concentration it can cause eutrophication.

This assessment is based on winter phosphate\textsuperscript{20} levels. In winter the concentration of phosphate is expected to be at its highest due to the absence of any significant plant or algal growth.

Findings

Nearly all (96\%) estuaries and coastal waters assessed were in satisfactory condition for phosphate\textsuperscript{21}. Only two water bodies, the Maigue Estuary and Deel Estuary (Co. Limerick) were in unsatisfactory condition.

A trend analysis (2009-2019) shows that phosphate concentrations in the Middle Suir Estuary (Cos. Kilkenny and Waterford), Outer Galway Bay (Co. Galway) and Waterford Harbour (Cos. Waterford and Wexford) have decreased significantly.

\textsuperscript{20} Measured as molybdate reactive phosphate (MRP).

\textsuperscript{21} Salinity related thresholds have been defined for phosphate in both our estuaries and coastal waters. The thresholds are 0.060 mg/l P for fresh to intermediate salinity waters and range from 0.040 to 0.059mg/l P for intermediate to full salinity waters. Phosphate concentrations above these thresholds can indicate pollution.
Estuarine and Coastal Water
Winter Molybdate Reactivate Phosphorus
2017-2019

Percentage exceedance in value

- < -50%  
- -49% to -15%  
- -14% to 0%  
- 1% to 50%  

Average MRP Trend 2017-2019

Downward trend

Stable

Estuarine & Coastal Waterbodies

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Indicator: Nutrient Inputs to the Marine Environment

The inputs of total phosphorus and total nitrogen from 19 major rivers into the marine environment are monitored and provide an indicator of the loss of nutrients from land-based sources.\(^{22}\)

**Findings**

Loads of total nitrogen have increased to reach a three-year average of 70,264 tonnes in 2017-2019. This represents a 24% increase since the 2012-2014 period. Most of this loading is coming from catchments in the south and southeast of the country.

Loads of total phosphorus have also increased to reach a three-year average of 1,412 tonnes in 2017-2019, representing a 31% increase since 2012-2014.

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\(^{22}\) The inputs are calculated based on nutrient concentrations, which are measured 12 times a year, and river flow, which is measured continuously. Inputs are presented as three-year averages to reduce the effects of annual fluctuations. Changes due to river flow between years are accounted for.
Indicator: Nitrate in Groundwater

Groundwater flows through spaces or fractures in the subsoil or bedrock to streams, rivers, lakes and estuaries. It can be an important contributor of nitrate from pollution sources into surface water bodies. During periods when there is little or no rain, almost all the water flowing in streams and rivers originates from groundwater.

This indicator is based on the annual average nitrate concentration for 194 groundwater monitoring sites.

Findings

The average nitrate concentration exceeded 37.5 mg/l NO$_3$ at 11 (6%) monitoring sites and exceeded the drinking water standard of 50 mg/l NO$_3$ at three (less than 2%) monitoring sites$^{23}$.

Over a fifth (22%) of sites had concentrations greater than 25 mg/l NO$_3$ (considered as a high nitrate concentration). This is an increase of 5.2% since 2018. Generally, groundwater in the south and southeast of the country continues to have the higher nitrate concentrations.

A trend analysis over the period 2013 to 2019 indicated that almost half (49%) of sites had increasing nitrate concentrations. Reducing nitrate concentrations were observed in 19% of sites. The most substantial nitrate increases are occurring in the south-east and south-west.

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$^{23}$ Nitrate concentrations in groundwater that are higher than 10 mg/l NO$_3$ are usually indicative of inputs relating to human activities, anything above 25 mg/l NO$_3$ is considered an elevated nitrate concentration. The Irish groundwater WFD threshold value is 37.5 mg/l NO$_3$. Groundwater is widely abstracted for drinking water in Ireland and the drinking water standard of 50 mg/l NO$_3$ relates to the potential for harm to human health.
Groundwater Nitrate Concentration

- <5%: 37%
- 5-10: 21%
- 10-25: 20%
- 25-37.5: 16%
- 37.5-50: 4%
- >50: 2%

Groundwater Nitrate Trend

- Increase: 49%
- No change: 32%
- Decrease: 19%
Indicator: Phosphate in Groundwater

Groundwater is an important pathway for the movement of phosphate from diffuse and small point sources to water ecosystems, particularly in catchments with thin soils or exposed bedrock. This indicator is based on the annual average phosphate concentrations for 194 groundwater monitoring sites.

Findings

In 2019, 8% of sites had average phosphate concentrations greater than the Irish groundwater WFD threshold value of 0.035 mg/l P. These sites are dispersed geographically. Roughly three quarters (72%) of sites had average phosphate less than 0.015 mg/l P (considered a low phosphate concentration).

Groundwater Phosphate Concentration (mg/l)

- <0.015: 72%
- 0.015-0.025: 15%
- 0.025-0.035: 5%
- 0.035-0.05: 5%
- >0.05: 3%

24 Measured as Molybdate Reactive Phosphate (MRP).
Further information

Detailed information and data on water quality in Ireland can be found at [www.catchments.ie](http://www.catchments.ie).

A series of fact sheets providing information about the different elements of the Water Framework Directive monitoring programme can be found at [Water Quality: Environmental Protection Agency, Ireland](http://www.epa.ie).


To find out more about how to get involved in protecting and managing your local waters visit the Local Authority Waters Programme website at [http://watersandcommunities.ie/get-involved/](http://watersandcommunities.ie/get-involved/).
Tá an GCC freagach as an gcomhshaoil a chosaint agus a fheabhsú, mar shamhail, luaigh an mhuintir ná hÉireann. Táimíd liom tionscanna do dhaonáiste agus don gcomhshaoil a chosaint ar chliuchtadh bheoibhneacha na rialachanda agus an truaillithe.

Is féidir obair do Gníomhaireachta a roinnt ina tré thríomhhréimise: • Rialaí: Rialaí a chur ar fáil don Chomhairle Chomhairleach éifeachta a chur in bhfeidhm, chun dea-thorthaíonn comhshaoil a bhaint amach agus díriú orthu siúd nach mbíonn ag cló leo.
  Eolas: Sonraí, eolas agus measúnú archaighdeáin, spriochdhírithe agus tráthtaí a chur ar fáil i leith an chomhshaoil chun bonn eolas a chur faoi gníomh go forghairne.
• Abhcóideachta: Ag obair le daoine eile ar son timpeallacha glaine, tairgiúlta agus achtanna agus ar son cleachtadh inbhuanaithe i dtaoibh an chomhshaoil.

I measc ár gcuid freagraichtaí tá:

CEADÚNÚ
• Gníomhachtaí tionscail, dramhailí agus stórála peitril ar chuid de na húdaráíochtaí.
• Sceiltheadh fuilolluiseuirigh; Úsáid shrianta agus seanfhailteachtaí Orgánach Gníomhachtaí; Foinseí rialaithe agus comhairleadh.
• Astaíochtaí a chur ar fáil don chomhshaoil.

FORFHEIDHMIÚ NÁISIÚNTA I LEITH CÚRSAIG COMHSHAOIIL
• Úsáid síos a bhaint amach agus tuairiscí a dhéanamh ar chomhshaoil.
• Fonsí rialaithe agus cabhrú leis an gcomhshaoil.
• An dlí a chur orthu siúd a bhriatharr iomáin.

BAINISTÍOCHT DRAMHAILÍ ACH AS EARFÓLCHTÉIR
• Ruánaíocht a chur ar fáil don chomhshaoil.
• Cogadh agus bhundhálaíocht a bhaint amach agus díriú orthu.

MONATÓIREACHT ACH AS FORBHÁIRT COMHSHAOIIL
• Tuairisciú a dhéanamh ar scéimeacht an AE agus a thimpeallacht.
• Leictreachtaí agus fuilolluiseuirigh.

BAINISTÍOCHT AGUS STRUCHTÚR NA GNÍOMHAIREACHTA UM COMHSHAOIL
• An Oifig Cumarsáide agus Seirbhísí Corparáideachta agus theasóireacht na radaíochtaí.
• An Oifig um Chosaint agus Monatóireacht ar Fhorbairtí Teisceanta.
• An Oifig Forfheidhmithe i leith Cúrsaí Comhshaoil.
• An Oifig um Inbhunaitheacht i leith Cúrsaí Comhshaoil.
• An Oifig um Chosaint ar Radaíocht agus Monatóireacht.
• An Oifig um Chosaint ar Rinneadh agus Forbairtí Thar lear.

TÁIGHDE AGUS FORBHÁIRT COMHSHAOIIL
• Éifeachtaí a dhéanamh ar thaidh a chur i bhfeidhm.
• Tu aimsiú agus comhairleadh.
• Comhoibriú le gníomhaíochtaí idirnáisiúnta agus náisiúnta.

COSAINT RAIDEOLÁICH
• Tuairiscíocht, cothromacht agus tuairiscí ar aisteoireachtaí.

COSAINT RAIDÉAILCHT AGUS STRÚCHTÚR NA GNÍOMHAIREACHTA UM COMHSHAOIL
• Tuairiscíocht, cothromacht agus tuairiscí ar aisteoireachtaí.

BAINISTÍOCHT EARAÍDE ACH AS THEASÓIREACHTA
• Rúnaíocht agus táirgíocht a bhaint amach.
• Cogadh agus bhundhálaíocht a bhaint amach.

BAOMHAIRLECHT NA GNIÓMHAIREACHTA UM CHOMHSHAOIL
• An Gníomhaireacht Pháirtect Neamhspleáchbhaileachta. Deirtear an obair ar fud chun iarracht a dhéanamh.
• An Clár Náisiúnta um Chosc Draíochtaí a fhorbairt agus a dhéanamh ar thionchar.
• Sainseirbhísí um chosaínt ar an raideolaíocht a sholáthar.

TREOR, ARDÚ FEASACHTA AGUS FAISNÉIS INROCHTANA
• Tuairiscíocht, cothromacht agus tuairiscí ar aisteoireachtaí.
• Tuairiscíocht, cothromacht agus tuairiscí ar aisteoireachtaí.

BAINISTÍOCHT EARAÍDE ACH AS THEASÓIREACHTA
• Rúnaíocht agus táirgíocht a bhaint amach.
• Cogadh agus bhundhálaíocht a bhaint amach.

BAINISTÍOCHT EARAÍDE ACH AS THEASÓIREACHTA
• Rúnaíocht agus táirgíocht a bhaint amach.
• Cogadh agus bhundhálaíocht a bhaint amach.