



# Water quality monitoring report on nitrogen and phosphorus concentrations in Irish waters 2022

# 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:

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- Large-scale industrial, waste and petrol storage activities;
- Urban waste water 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 waste water 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.

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- 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.

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- 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.



# WATER QUALITY MONITORING REPORT ON NITROGEN AND PHOSPHORUS CONCENTRATIONS IN IRISH WATERS 2022

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## Background to this Report

Regulation 37 of the European Union (Good Agricultural Practices for the Protection of Waters) (Amendment) Regulations ([S.I. 393 of 2022](#)) requires the EPA to prepare an annual report of the results of water quality monitoring to support the assessment of the impact of the nitrates derogation as required by the [Commission Implementing Decision \(EU\) 2022/696](#).

In preparing this report, the EPA has used phosphorus and nitrate data from the national water quality monitoring programme for groundwater, rivers, lakes, estuarine and coastal waters. Nitrogen results are expressed as nitrate or dissolved inorganic nitrogen and phosphorus results are measured as molybdate reactive phosphate.

The results are expressed as annual means in the case of rivers, lakes, and groundwater or as winter medians for estuarine and coastal waters. The figures and tables in this report summarise the mean annual concentrations during 2022 for groundwater, rivers and lakes and the relative deviation from the threshold median concentration for 2020-2022 in transitional and coastal waters. Nitrate and phosphorus data are also presented to show the annual concentrations since 2010.

While both nitrate and phosphorus are important drivers of nutrient enrichment and pollution (eutrophication), their impact should be considered in conjunction with the overall ecological condition of our waters. The latest EPA Water Quality in Ireland [report](#), covering the period 2016-2021, provides a full assessment of the chemical and ecological water quality and ecological status of Irish waters.

Public access to the nutrient data for the sites in the water monitoring programme is available on [www.catchments.ie](http://www.catchments.ie) and the [EPA website](#).

Annex 1 of this report provides an additional water quality assessment, as required under Regulation 38 of S.I. 393 of 2022. This interim water quality assessment is based on the assessment criteria prescribed by the European Commission in Article 12 of Commission Implementing Decision (EU) 2022/696.

As part of the development of Ireland's 3<sup>rd</sup> cycle River Basin Management Plan, the EPA has carried out an analysis of the types of actions that may be most beneficial in each river sub-catchment to meet the WFD environmental objectives. Additional information, based on this analysis, is also provided in this report to support the decision making on targeting agricultural measures.

## Water Quality Summary

The latest EPA Water Quality in Ireland report ([EPA, 2022](#)), covering the period 2016-2021, found that only 54% of our surface waters were in satisfactory ecological health, and that overall water quality is in decline. The picture for our estuaries is even more stark with only 36% in satisfactory ecological condition. The assessment indicated that the main problem impacting our waters was the presence of too much phosphorus and nitrogen, leading to increased eutrophication in these waters.

The data in this report shows that nitrate concentrations remain too high in rivers, groundwater, and estuaries in the south east, south west and midlands & eastern regions. Nationally, although there have been year on year fluctuations, average nitrate concentrations have increased since 2012/2013 in all waterbody types.

Six percent of groundwater monitoring sites exceeded the groundwater threshold value of 37.5 mg/l NO<sub>3</sub> in 2022. Twenty percent of groundwater monitoring sites have mean nitrate concentrations greater than 25 mg/l NO<sub>3</sub>. Mean concentrations above 25 mg/l NO<sub>3</sub> in groundwater are of concern because they are a significant deviation from natural conditions and are approaching the threshold where drinking water quality may be compromised. Higher concentrations of nitrate in groundwater may also impact the ecological health of rivers and associated marine waters in those catchments.

In 2022, 44% of our rivers had concentrations higher than 8 mg/l NO<sub>3</sub> in 2022, which is having a water quality impact on the ecological health of these rivers and the ecological health in the downstream marine waters.

In relation to phosphorus the report finds that in 2022, a quarter of all rivers have phosphorus concentrations which are greater than the good status Environmental Quality Standard (0.035 mg/l P). The highest river phosphorus concentrations are in areas with poorly draining soils, and the elevated phosphorus concentrations are impacting the ecological health of these rivers and are contributing to nutrient enrichment in the downstream estuaries.

There has been an increase in nutrient concentrations since 2012/2013 in most water types and nutrient concentrations remain too high in many parts of the country. Nitrate concentrations were higher in 2022 than in 2021.

Based on the specified water quality criteria set out in Article 12 of Commission Implementing Decision (EU) 2022/696, over 44,000 km<sup>2</sup> of land is identified as requiring additional measures to protect water quality. The EPA's analysis provides further detail on where agricultural measures need to be targeted to achieve the Water Framework Directive objectives.

Map 1 shows the location of derogation farm holdings<sup>1</sup> in 2022. The highest densities are found in the south east, the south west, and to a lesser extent in the north east.

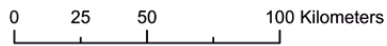
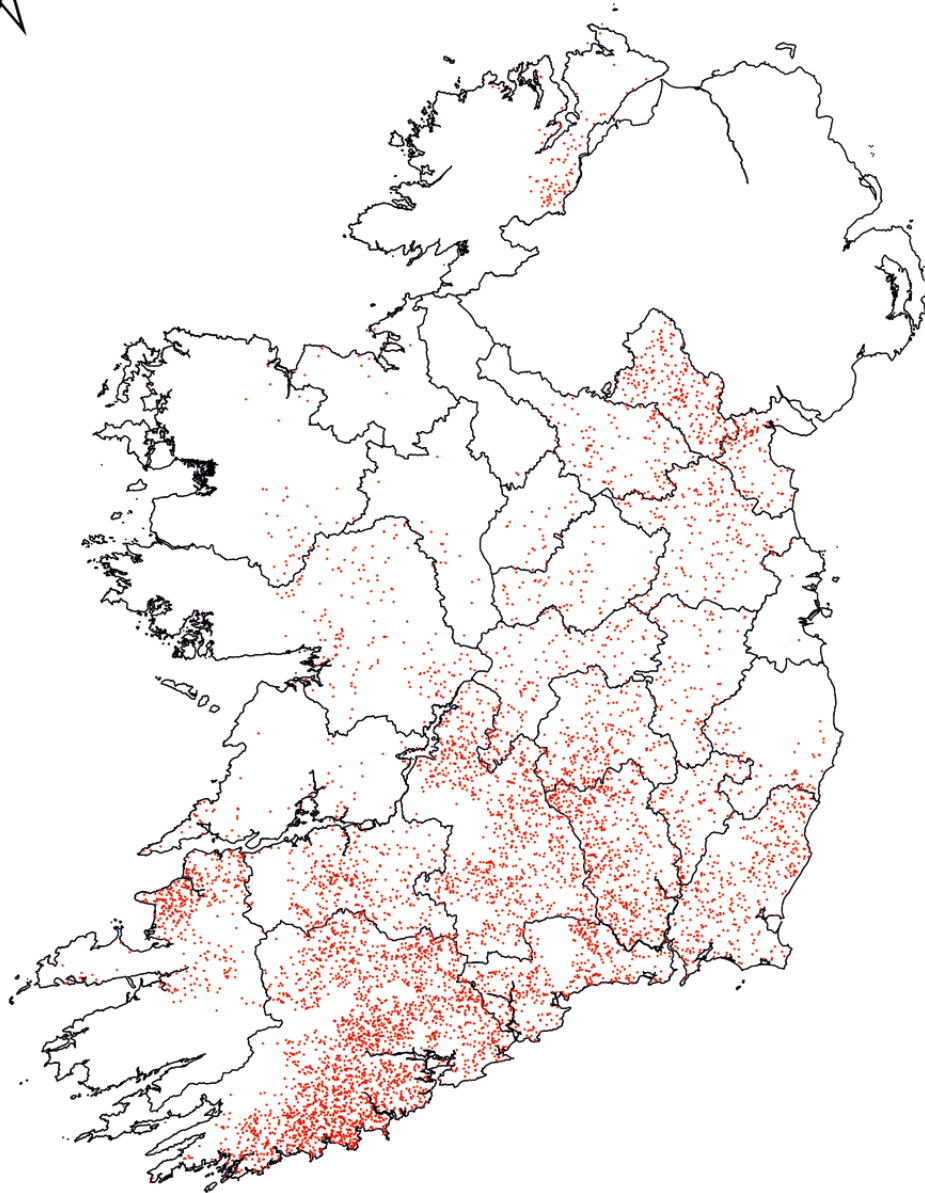
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1 Derogation farms are those which have been granted a derogation from the standard limit of 170 kg nitrogen per hectare of livestock manure from grazing livestock which can be applied to the land each year on grassland farms. Farms granted derogations may apply manure up to a limit of 250 kg nitrogen per hectare (including by the animals themselves).





### 2022 Derogation Herd Locations



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**Map 1:** National distribution of derogation herds in 2022 (Source: Department of Agriculture, Food and the Marine)

## Results of Water Quality Monitoring

The following section sets out the results of monitoring for groundwater, rivers, lakes and transitional and coastal waters. Groundwater, lake and river monitoring data were averaged and are presented for monitoring undertaken during 2022, while the estuarine and coastal data presented represents the median winter concentration between 2020-2022.

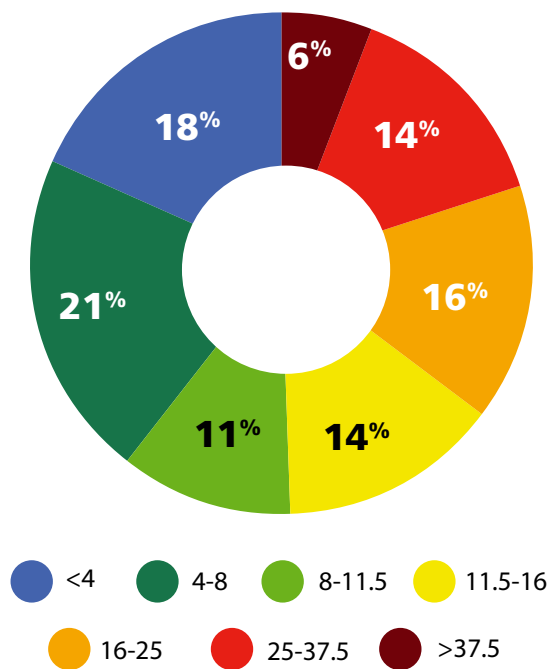
The water quality data presented makes reference to environmental quality standards and/or environmental limits of concern for different water types and parameters.

### Groundwater

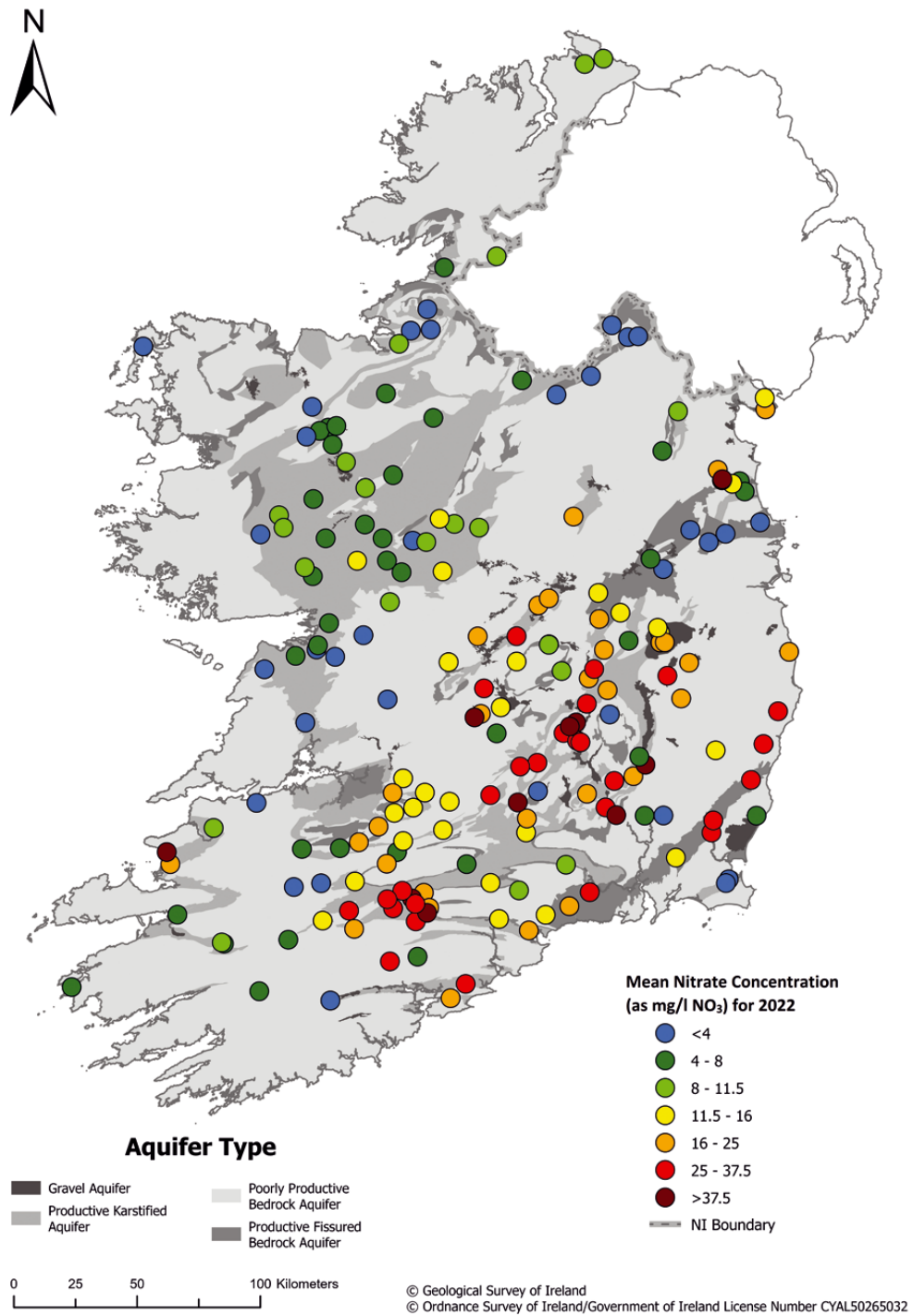
#### Nitrate in Groundwater

Figure 1 summarises the mean nitrate concentrations for 187 groundwater monitoring sites monitored in 2022. Map 2 shows that most sites with concentrations greater than 25 mg/l NO<sub>3</sub> are in the river catchments draining the south east and south west regions.

Percentage of Groundwater Sites in each Nitrate Concentration (mg/l NO<sub>3</sub>) Category



**Figure 1:** Mean nitrate concentrations in groundwater during 2022



**Map 2:** Mean nitrate concentrations in groundwater during 2022

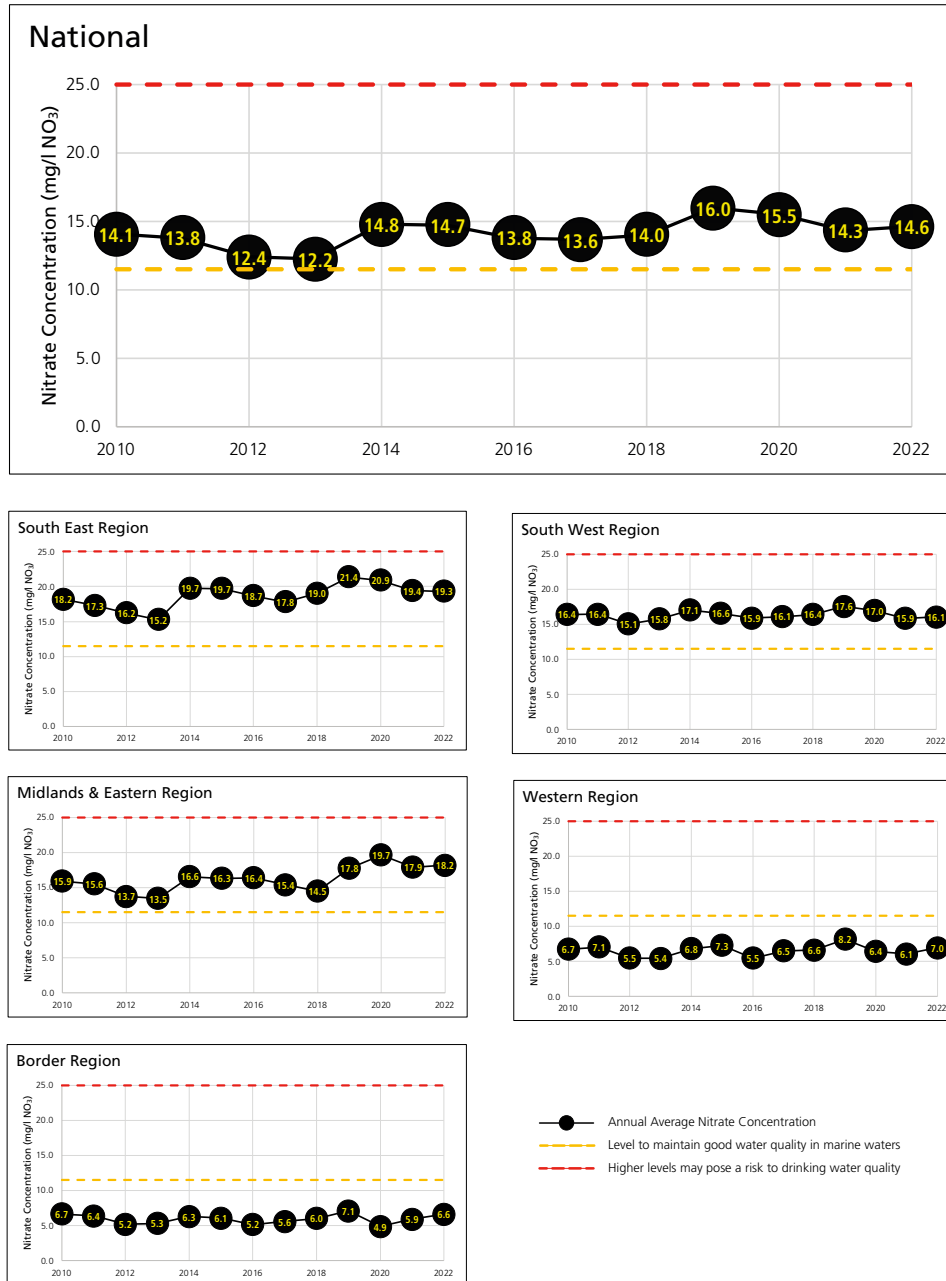


Figure 2: Mean groundwater nitrate concentrations since 2010

In 2022, 20% of groundwater monitoring sites had a mean nitrate concentration greater than 25 mg/l NO<sub>3</sub>, with mean groundwater concentrations slightly increasing since 2021. Mean concentrations above 25 mg/l NO<sub>3</sub> in groundwater are of concern because they are a significant deviation from natural conditions and are approaching the threshold where drinking water quality may be compromised. Eleven (6%) monitoring sites exceeded the Irish Threshold Value of 37.5 mg/l NO<sub>3</sub>. Mean concentrations above the Threshold Value are an indication that there may be exceedances of the drinking water standard of 50 mg/l NO<sub>3</sub> during the year. One of the monitoring sites had a mean nitrate concentration greater than 50 mg/l NO<sub>3</sub>. This site is used to supply drinking water, but it has an appropriate water treatment system in place to ensure the provision of safe drinking water.

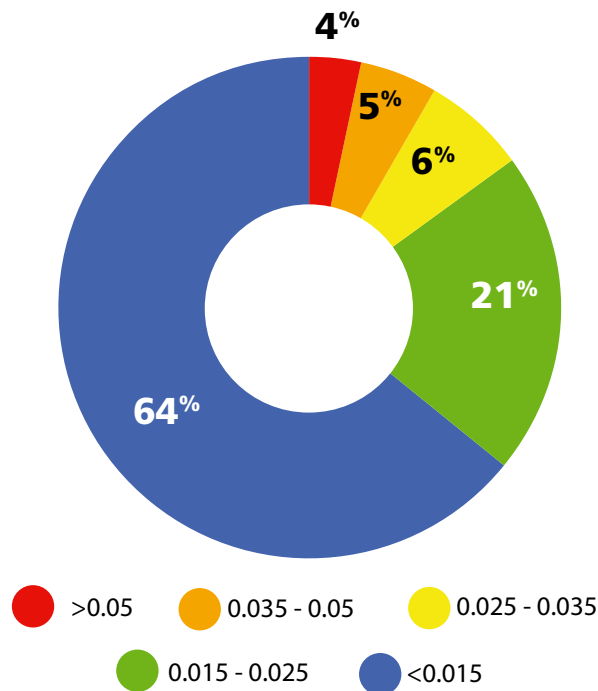
As groundwater contributes to surface water flow across the catchment, elevated nutrient concentrations are contributing to an increase in the growth of algae and aquatic plants in rivers and the downstream marine waters.

Figure 2 shows that the national average nitrate concentration in groundwater has gradually increased since 2012/13, albeit with year-on-year fluctuations. The increased nitrate concentration in groundwater is most notable in the south east and midlands & eastern regions

### Phosphorus in Groundwater

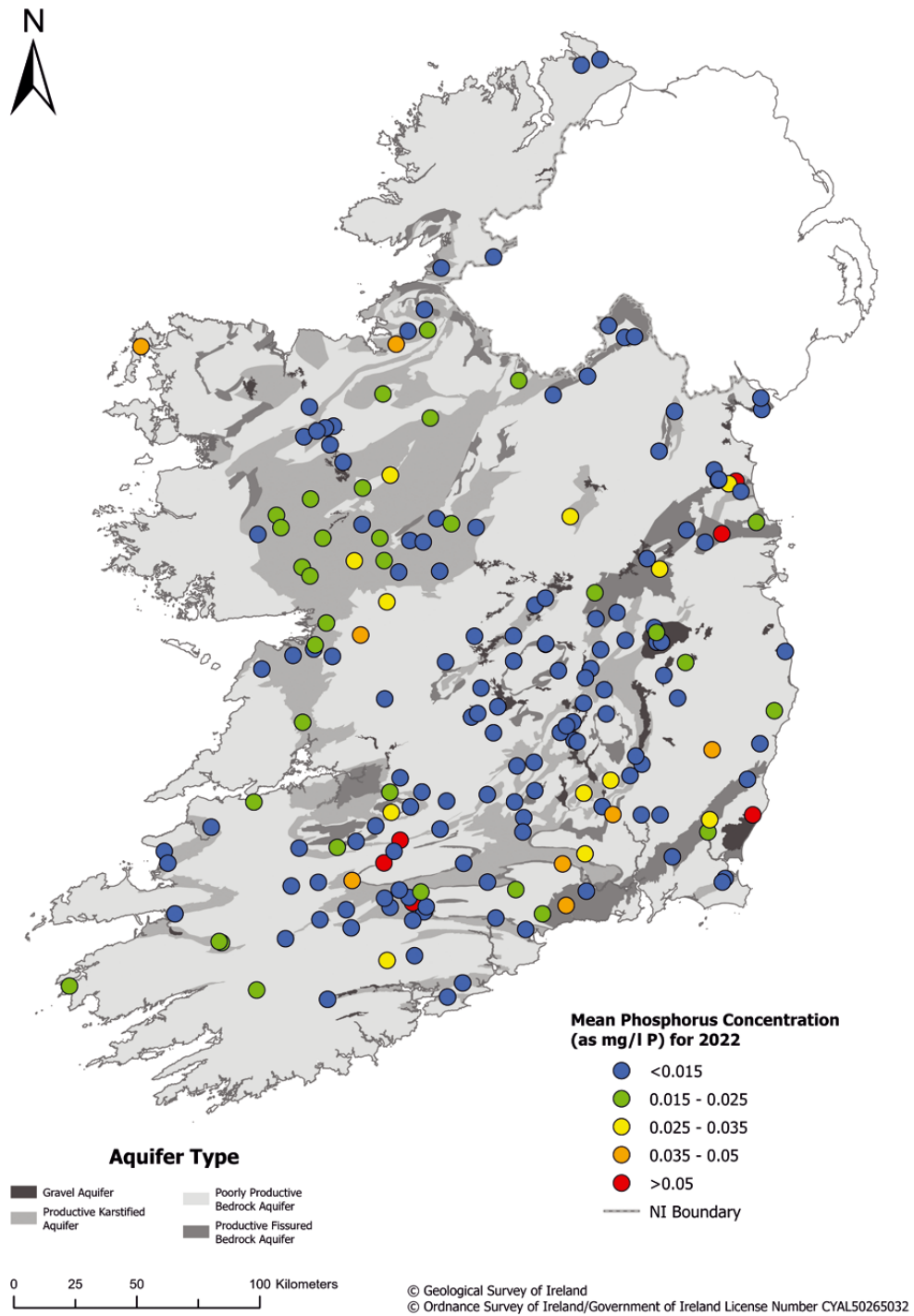
Figure 3 summarises the mean phosphorus concentrations (measured as molybdate reactive phosphorus (MRP)) for the 188 sites in the national groundwater monitoring programme during 2022. Figure 3 shows that 8.5% of monitoring sites had mean phosphorus concentrations greater than the Irish good ecological status threshold value of 0.035<sup>2</sup> mg/l P. Groundwater phosphorus concentrations have remained relatively stable in the last decade and Map 3 indicates there isn't a strong spatial correlation between elevated concentrations and derogation farms. This is because the soils and geological setting have a large influence on whether phosphorus applied at the land surface can reach groundwater.

Percentage of Groundwater Sites in each Phosphorus Concentration (mg/l P) Category



**Figure 3:** Mean phosphorus concentrations in groundwater during 2022

<sup>2</sup> This groundwater Threshold Value is the WFD Good Status EQS for rivers



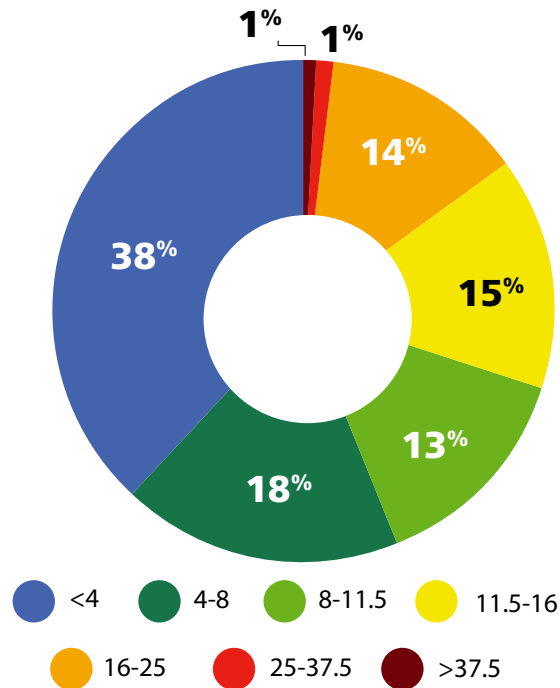
**Map 3:** Mean phosphorus concentrations in groundwater during 2022

## Rivers

### Nitrate in Rivers

Figure 4 summarises the mean nitrate concentrations at 1,305 river monitoring sites from the national river monitoring programme in 2022.

Percentage of Rivers in each  
Nitrate Concentration (mg/l NO<sub>3</sub>) Category

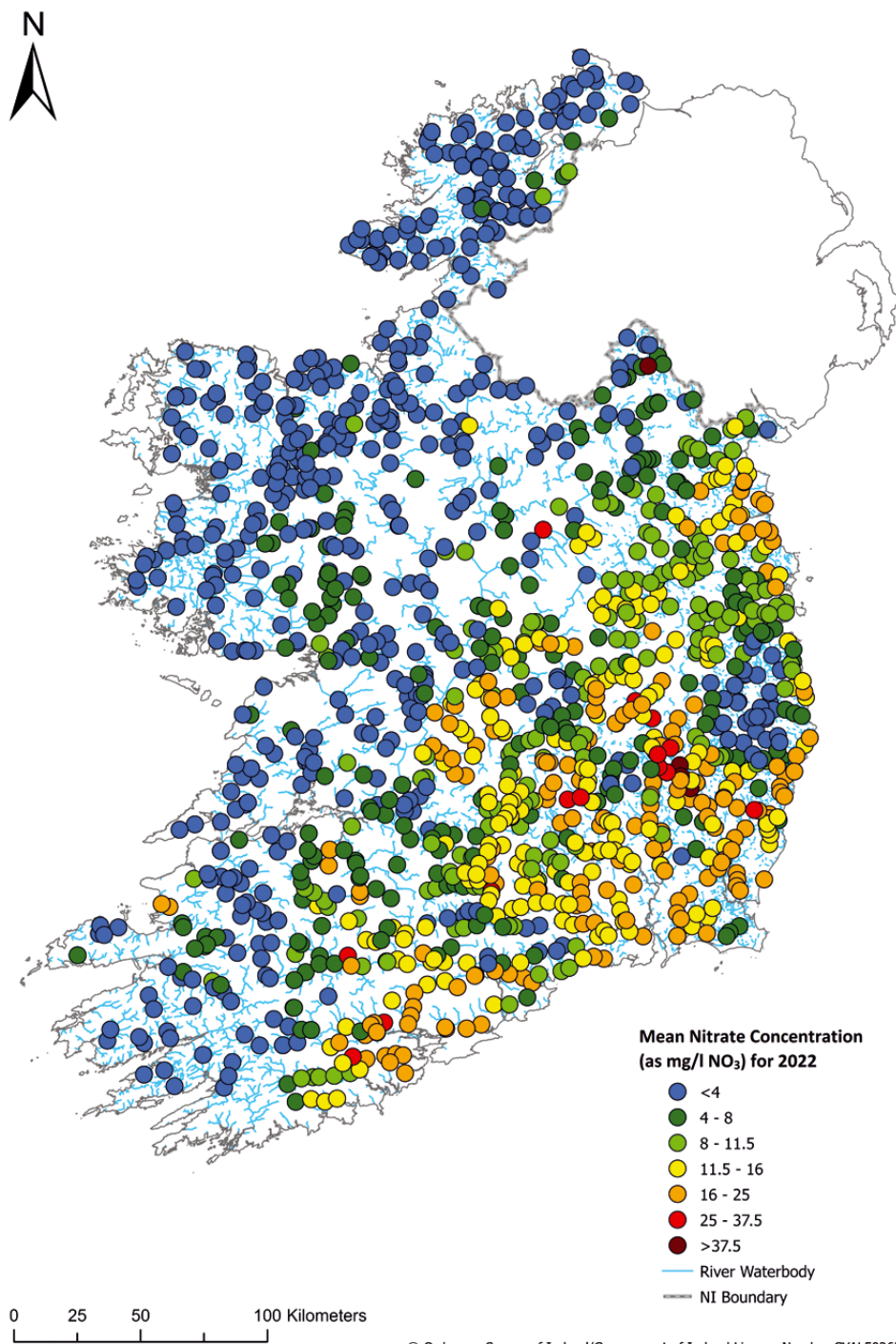


**Figure 4:** Mean nitrate concentrations at river monitoring sites in 2022

Figure 4 shows that nearly half (44%) of our rivers had mean nitrate concentrations above 8 mg/l NO<sub>3</sub> in 2022. Concentrations above 8 mg/l NO<sub>3</sub> are likely to have a water quality impact on the ecological health of these rivers. Mean concentrations greater than 11.5 mg/l NO<sub>3</sub> may result in a breach of the marine waters EQS which could impact the ecological health of the downstream marine waters. Map 4 shows that most of the rivers in the south east and along the southern seaboard have concentrations above 11.5 mg/l NO<sub>3</sub>.

Figure 5 shows that the national average nitrate concentration in rivers have gradually increased since 2012/13, albeit with year-on-year fluctuations. Increased concentrations observed in 2018/19 were associated with climate conditions and agricultural practices during the 2018 drought. Notwithstanding the influence of the drought, overall, concentrations in the south east and midlands & eastern regions have been increasing steadily since 2012/13. The south east region has consistently had the highest nitrate concentrations over time; the annual averages in this region exceed concentrations that are likely to have a negative impact on marine water quality.

The western and border regions have the lowest overall river nitrate concentrations. There has, however, been an increase in river nitrate concentrations in all regions over the 12 months from 2021 to 2022.



**Map 4:** Mean nitrate concentrations in rivers during 2022



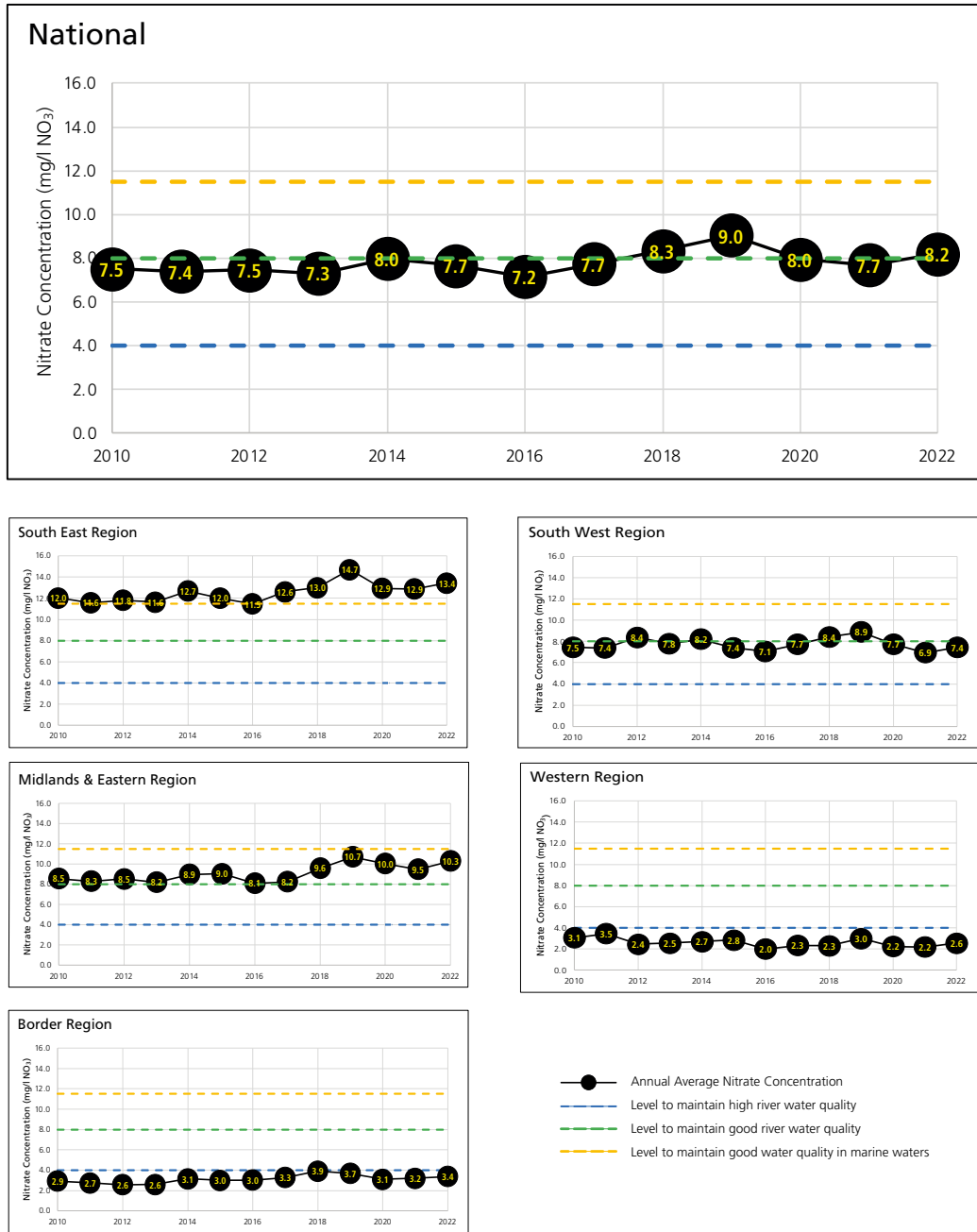


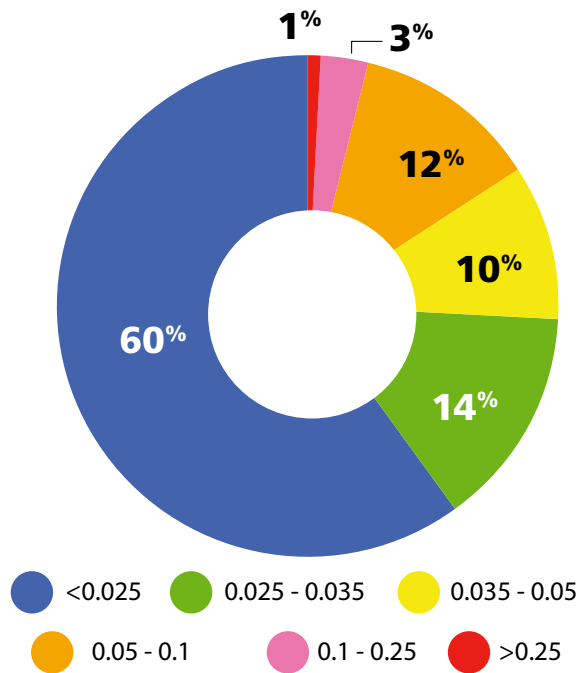
Figure 5: Mean riverine nitrate concentrations since 2010

### Phosphorus in Rivers

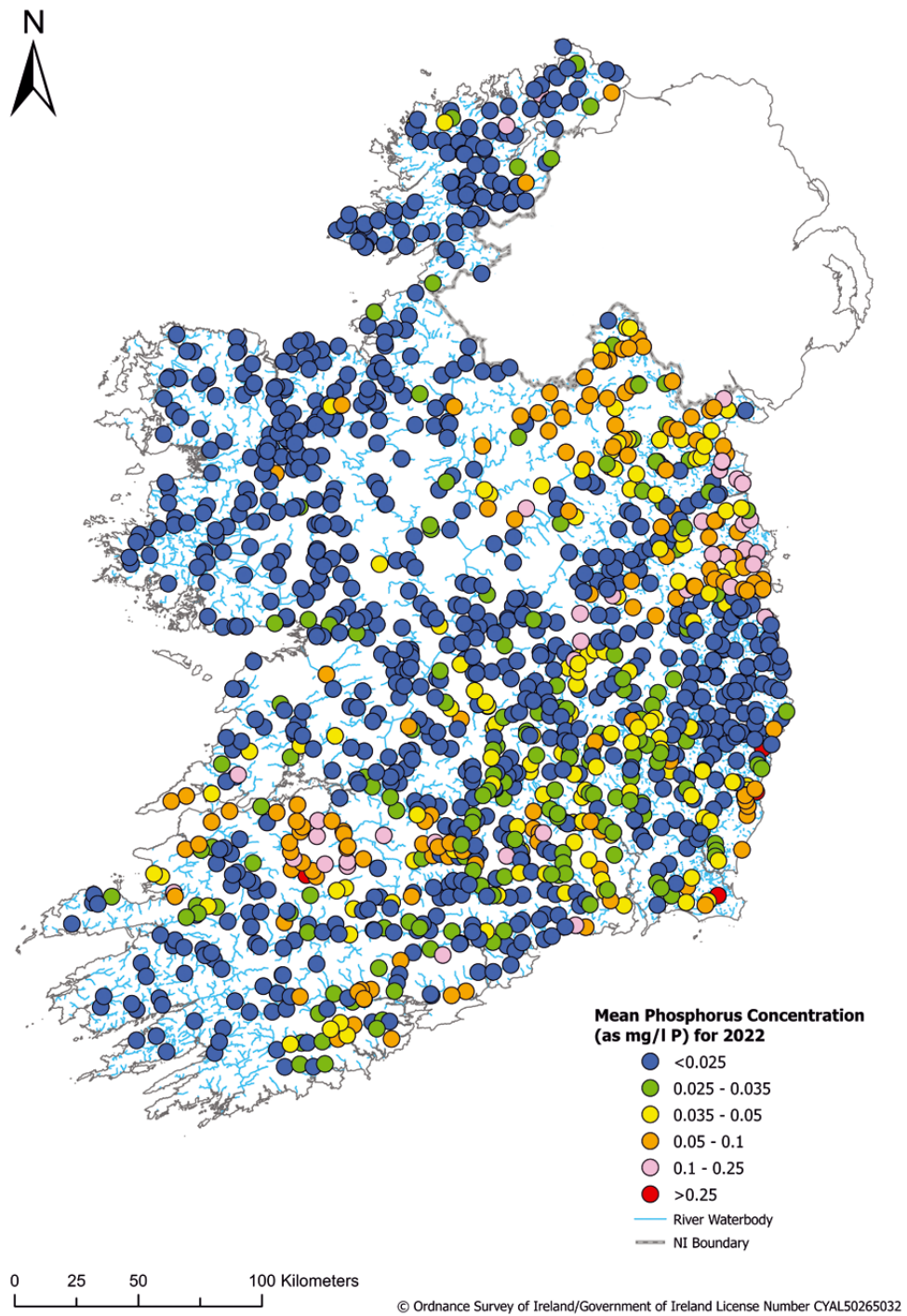
Figure 6 summarises the mean phosphorous concentrations at 1,305 river monitoring sites from the national river monitoring programme for 2022.

During 2022, mean river concentrations were greater than the good status EQS (0.035 mg/l P) in 25% of rivers. Map 5 shows that the highest phosphorus concentrations i.e., greater than 0.05 mg/l P, are found in areas that have a high proportion of poorly draining soils e.g., Limerick, Monaghan, the area north west of Dublin and Wexford.

Percentage of Rivers in each Phosphorus Concentration (mg/l P) Category



**Figure 6:** Mean phosphorus concentrations at river monitoring sites in 2022



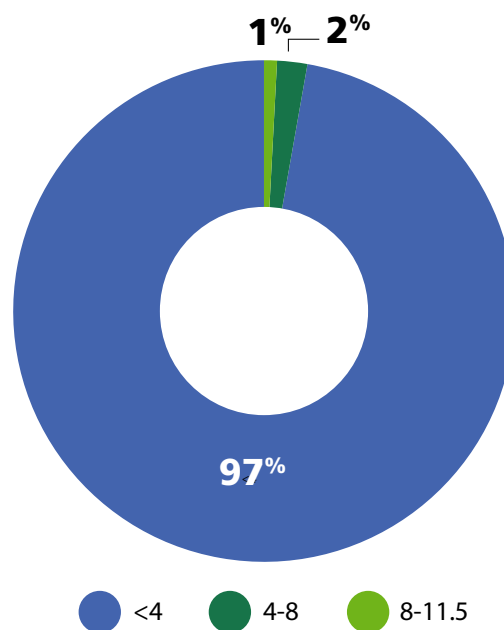
**Map 5:** Mean phosphorus concentrations in rivers during 2022

## Lakes

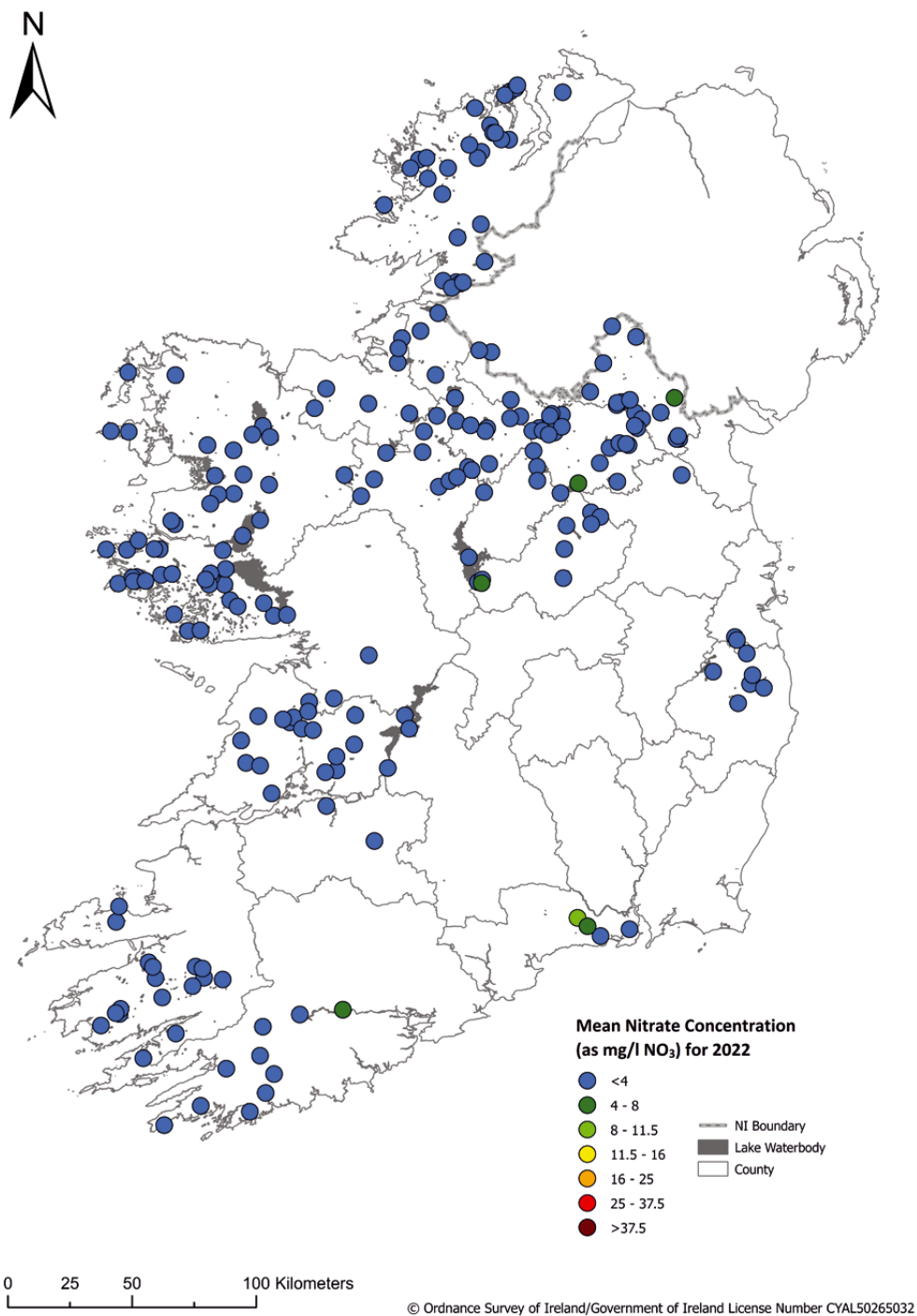
### Nitrate in Lakes

Figure 7 summarises the mean nitrate concentrations from the national lake monitoring programme for 2022. Data were available for a total of 222 lakes. In summary, Figure 7 and Map 6 show that mean nitrate concentrations in lakes remain low, with the highest concentrations observed in the lakes of the south east and south.

Percentage of Lakes in each  
Nitrate Concentration (mg/l NO<sub>3</sub>) Category



**Figure 7:** Mean nitrate concentrations in lakes during 2022



**Map 6:** Mean nitrate concentrations in lakes during 2022

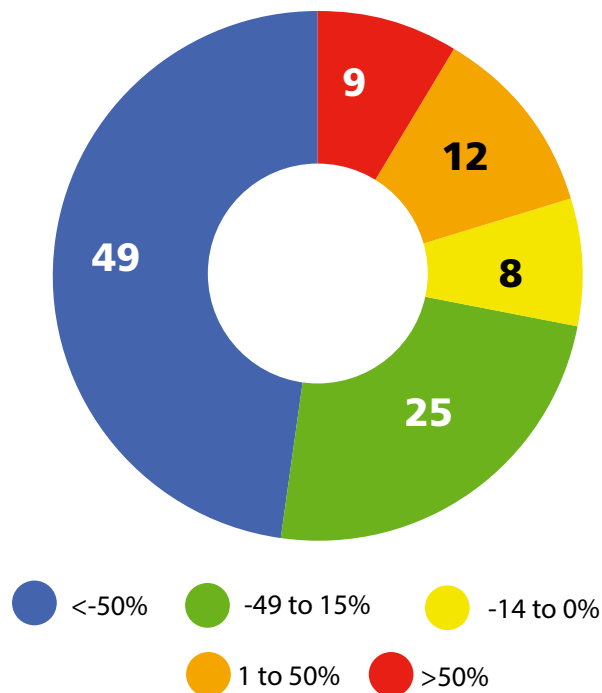
## Estuarine and Coastal Waters

### Nitrogen in Estuarine and Coastal Waters

Figure 8 summarises the relative percentage deviation from the median winter nitrogen threshold<sup>3</sup> from the national transitional and coastal monitoring programme during 2020 to 2022. The median winter nitrogen concentration in marine waters is measured as dissolved inorganic nitrogen (DIN) and it is assumed that all measured nitrogen is present as nitrate. The concentration of DIN is expected to be at its highest in winter because of the absence of any significant plant or algal growth at that time of year; therefore less nitrogen is used up and remains in the water. The most recent assessment was carried out on 103 estuarine and coastal water bodies. Twenty one of the 103 (20%) estuarine and coastal water bodies assessed were in unsatisfactory condition for DIN.

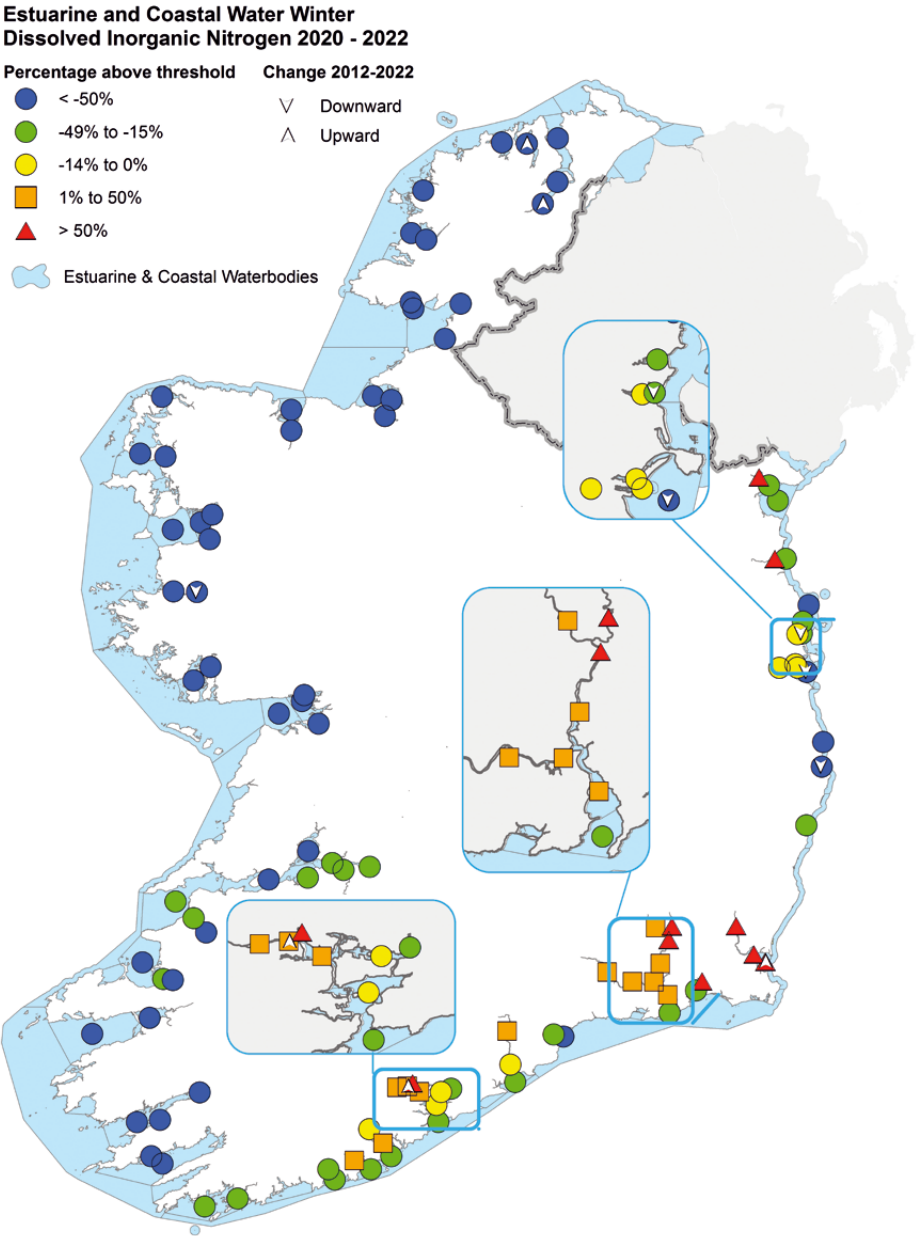
Map 7 shows that the marine waters with the highest concentrations above the assessment thresholds for DIN were in the south and south east of the country, which are the areas with the highest groundwater and river nitrate concentrations.

Number of estuarine and coastal waters and their relative percentage deviation from the median winter nitrogen threshold



**Figure 8:** Number of estuarine and coastal waters and their relative percentage deviation from the median winter nitrogen threshold during 2020-2022

<sup>3</sup> For marine waters, the percentage deviation from the median winter nitrogen threshold is used because the nitrogen threshold varies with the salinity of the waters. The thresholds range from 2.6 mg/l N in freshwater to 0.25 mg/l N in fully saline waters. DIN concentrations (exceedances) above these thresholds can indicate pollution.



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**Map 7:** Relative percentage deviation from the median winter nitrogen threshold in marine waters during 2020-2022

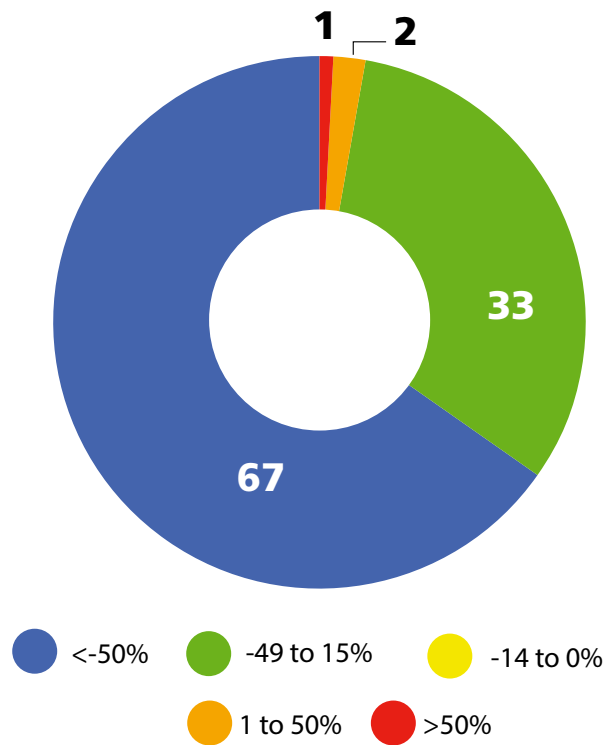
## Phosphorus in Estuarine and Coastal Waters

Figure 9 summarises the relative percentage deviation from the median winter phosphorus threshold for 103 estuaries and coastal waters in the national monitoring programme for 2020 to 2022. In winter the concentration of phosphate is expected to be at its highest due to the absence of any significant plant or algal growth.

Nearly all (97%) estuaries and coastal waters assessed were in satisfactory condition for phosphate. Only three waterbodies were in unsatisfactory condition, having exceeded the relevant threshold<sup>4</sup>.

Map 8 shows that the Deel and Mague estuaries (Shannon) and Castletown estuary in the north east were in unsatisfactory condition due to median winter phosphorus exceedances.

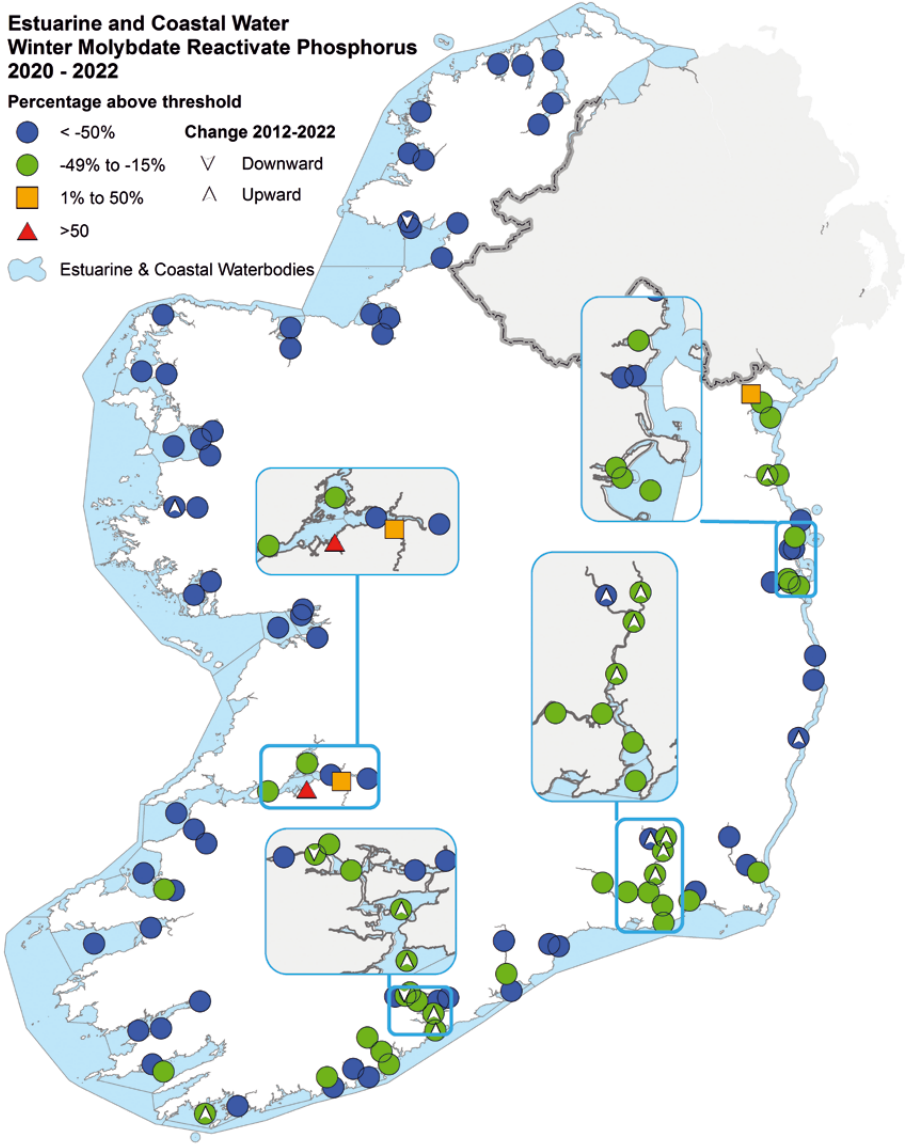
Number of estuarine and coastal waters and their relative percentage deviation from the median winter Phosphate threshold



**Figure 9:** Number of estuarine and coastal waters and their relative percentage deviation from the median winter phosphorus threshold during 2020-2022

<sup>4</sup> Salinity related thresholds have been defined for phosphate in estuaries and coastal waters. The thresholds range from 0.060 mg/l P for fresh and intermediate salinity waters to 0.040 mg/l P for fully saline waters. Phosphate concentrations above these thresholds can indicate pollution.





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**Map 8:** Relative percentage deviation from the median winter phosphorus threshold in marine waters during 2020-2022

## Targeting Agricultural Measures

As part of the development of Ireland's 3<sup>rd</sup> cycle River Basin Management Plan, the EPA has carried out an analysis of the types of actions that may be most beneficial in each river sub-catchment to meet the WFD environmental objectives. The following additional information, based on this analysis, is provided to support the decision making on targeting measures to reduce the impacts of agriculture on water quality.


The main water quality issues from farming activities are loss of excess nutrients and sediment to water.

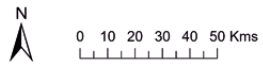
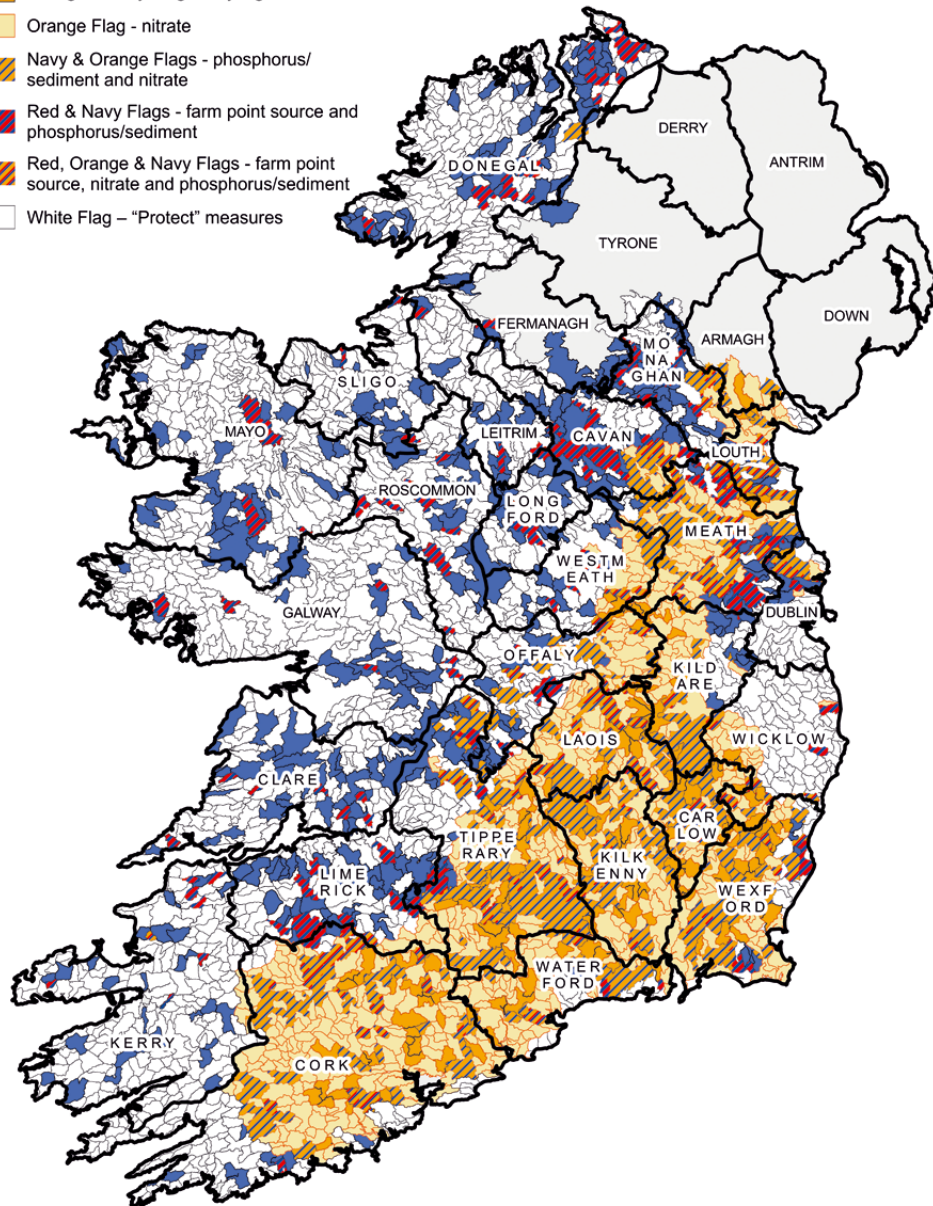
- ▲ Nitrate is highly mobile in the landscape. In freely draining soils, it leaches readily to groundwater, and ultimately into rivers and on to estuaries where the associated nutrient enrichment causes water quality problems. Measures to reduce nitrogen leaching should be targeted into the nitrate critical sources areas. Such measures might include reductions in nitrogen use and increases in nitrogen use efficiency. EPA has published maps of these critical source areas for nitrogen, known as Pollution Impact Potential maps, on our mapping website at <https://gis.epa.ie/EPAMaps/Water>.
- ▲ In contrast to nitrate, phosphorus is much more readily lost from poorly draining soils where overland flow carries it to the nearest watercourse following rain. Phosphorus and sediment loss reduction measures should be targeted at breaking the pathways between the sources and the watercourses in these phosphorus critical source areas, for example, buffer strips, farm ponds and management of ditches. EPA has published maps of these critical source areas for phosphorus, known as Pollution Impact Potential maps, and maps showing the runoff pathways for phosphorus and sediment, on our mapping website at <https://gis.epa.ie/EPAMaps/Water>.
- ▲ Excess ammonium may also be a problem in some water bodies. These losses arise from point sources such as farmyards, or from diffuse sources such as spreading of fertilisers and manures. Measures to ensure compliance with the Good Agricultural Practice Regulations should be targeted in these areas.

The Targeting Agricultural Measures map (Map 9) has been developed by the EPA to identify the types of agricultural issues that require targeted measures in each sub-catchment to support targeting the right measure in the right place to achieve water quality objectives. This incorporates EPA monitoring and characterisation data along with information from Local Authorities to assign flags to each sub-catchment which indicate the potential water quality issues to focus on:

- ▲ Coloured flags indicate areas where agricultural measures are needed to restore water quality:
  - ▶ orange flags indicate areas to reduce nitrate losses.
  - ▶ navy flags are for measures to reduce phosphorus/sediment losses, and
  - ▶ red flags indicate that there is a potential farm point source issue.
- ▲ A white flag indicates areas where agriculture is not identified as a significant pressure and measures to protect existing good water quality are appropriate.

### Targeting Agricultural Measures 2023

-  Navy Flag - phosphorus/sediment
-  Orange Priority Flag - very high nitrate
-  Orange Flag - nitrate
-  Navy & Orange Flags - phosphorus/sediment and nitrate
-  Red & Navy Flags - farm point source and phosphorus/sediment
-  Red, Orange & Navy Flags - farm point source, nitrate and phosphorus/sediment
-  White Flag - "Protect" measures



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**Map 9:** Targeting Agricultural Measures

## Summary

Nutrient losses from agriculture are one of the significant drivers for waters not meeting their environmental objectives under the Water Framework Directive (WFD).

The most recent ecological status assessment (2016-21) indicates that just over half of our rivers and lakes; and only 36% of our estuaries were in satisfactory ecological health and overall water quality was in decline. Since 2018, twelve of the estuarine and coastal water bodies in the south east and south west have declined in ecological status (EPA, 2022). This decline is being driven by increases in nitrate and phosphorus concentrations.

This report finds that nitrate concentrations remain too high in rivers, groundwater and estuaries in the south east; and concentrations continue to increase in the south east and midlands & eastern regions. Nationally, there has been an increase in nitrate concentrations over the 12 months from 2021 to 2022. Forty four percent of our rivers had concentrations higher than 8 mg/l NO<sub>3</sub> in 2022, which is having a water quality impact on the ecological health of these rivers and the ecological health in the downstream marine waters. Twenty percent of groundwater monitoring sites had a mean nitrate concentration greater than 25 mg/l NO<sub>3</sub>, which is of concern because they are a significant deviation from natural conditions and are approaching the threshold where drinking water may be compromised. Six percent of groundwater monitoring sites exceeded the groundwater threshold value of 37.5 mg/l NO<sub>3</sub> in 2022.

Phosphorus concentrations are above the good status environmental quality standard in 25% of rivers, typically in areas associated with poorly draining soils. Elevated phosphorus concentrations are impacting the ecological health of these rivers and are contributing to nutrient enrichment in the downstream estuaries.

Overall, to reverse these declines in ecological status and to achieve the WFD objectives, mitigation measures need to be targeted to the water quality issues and physical settings where they occur, i.e., the critical source areas within sub-catchments. Within a catchment, the critical source areas for phosphorus and nitrate frequently occur in different locations because they are driven by the hydrological properties of the soils. Therefore, any mitigation measures introduced should be tailored and targeted to the critical source area that is relevant to the pollutant of concern.

Annex 1 provides the outcome of an assessment required by the Commission based on the specified water quality criteria set out in Article 12 of Commission Implementing Decision (EU) 2022/696. The outcome of that assessment is that over 44,000 km<sup>2</sup> of land is identified as requiring additional measures to protect water quality.

## References

Environmental Protection Agency (2022) *Water Quality in Ireland 2016-21*. Environmental Protection Agency, Wexford, Ireland.

## **Annex 1 - Interim water quality review, as required in response to European Commission in Article 12 of Commission implementing decision (EU) 2022/696**

### **Introduction**

Ireland's Nitrates Action Programme (NAP) gives effect to the requirements of the Nitrates Directive. Its purpose is to put in place controls to prevent pollution of surface waters and groundwater from agricultural sources, and to protect and improve water quality. Ireland's current (Fifth) Nitrates Action Programme (NAP) commenced in 2022 and concludes in 2025.

As part of the NAP, Ireland applied to the Commission for a derogation from the standard maximum allowable applications of organic manure to land. On 29 April 2022, the Commission granted the derogation, subject to a number of conditions as set out in its Derogation Decision<sup>5</sup>. One of those conditions is that an interim water quality review must be carried out in 2023<sup>6</sup>. In areas where the water quality criteria set down by the Commission in Article 12 of the Derogation Decision have not been achieved, additional measures shall be applied under the Nitrates Action Programme by 1 January 2024. For farms in these areas that have been granted a derogation, the amount of manure that may be applied to the land shall not exceed 220 kg nitrogen/ha per year.

This report presents the outcome of the interim water quality review. The criteria for carrying out the assessment have been prescribed by the Commission and are related to nitrate concentrations and trophic status<sup>7</sup> of water bodies. Further details on the data and methodology for evaluating each criterion are presented in below.

### **The requirements of the interim water quality review**

Article 12 of the Derogation Decision (see Appendix 1) prescribes the criteria and the data to be used in the interim water quality review. The review is to be submitted by 30 June 2023, as an annex to the annual national derogation report, required by Article 13. The aim of the review is to identify waterbodies that are polluted, at risk of pollution or showing worsening trends as a result of agricultural activities. Additional measures are required in the areas draining to those waterbodies to help improve water quality.

There are four water quality assessment criteria set out by the Commission in Article 12 (Figure 1):

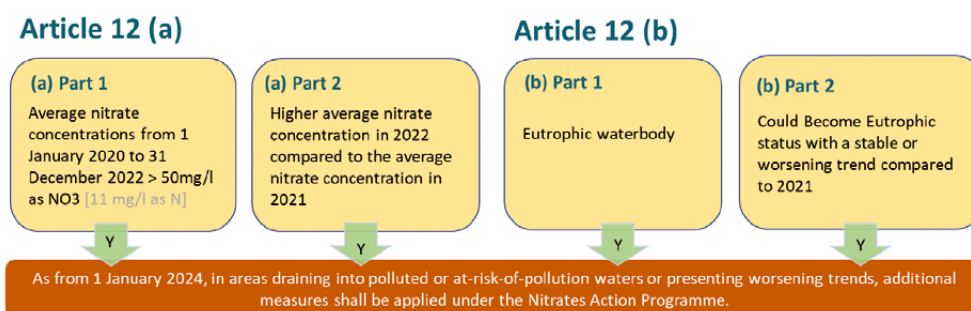
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5 Commission implementing decision (EU) 2022/696 <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32022D0696>

6 Article 38 in the amended GAP Regulations requires the Agency to complete the interim assessment. [S.I. No. 393/2022 - European Union \(Good Agricultural Practice for Protection of Waters\) \(Amendment\) Regulations 2022 \(irishstatutebook.ie\)](#)

7 Trophic status is a measure of the biological productivity of an aquatic ecosystem in response to excess nutrients. Surface waters are classified into one of three classes: eutrophic, potentially eutrophic and not eutrophic

- (A1)** an average nitrate concentration > 50 mg/l NO<sub>3</sub> for the three-year period from 1 January 2020 to 31 December 2022.
- (A2)** a higher average nitrate concentration in 2022 compared to the average nitrate concentration in 2021.
- (B1)** "Eutrophic" status.
- (B2)** "Could become eutrophic" status with a stable or worsening trend, i.e., comparing the 2022 data with data from 2021.



**Figure 1:** Description of the four criteria which are required to be evaluated out as part of the interim water quality assessment.

Article 12 specifies that the data to be used in the assessment are required to be taken from the monitoring network set up under the Nitrates Directive 91/676/EEC to monitor the impacts of agriculture on water quality. The Nitrates Directive monitoring programme dataset is a subset of the full national monitoring programme network that was established to implement the Water Framework Directive. The approach to carrying out the assessment, including the methodology for assessing trends, is specified by the Commission and is the same as the methodology used in the Article 10 (of the Nitrates Directive) water quality assessment which is submitted to the Commission every four years as part of the review of the Nitrates Action Programme. An accompanying technical document outlining the specifics of the assessment is published on the EPA [website](#).

## Methodology for the interim review of water quality

This section provides an overview of the assessment methodology. The four criteria which are prescribed in Article 12 of the Derogation Decision (Figure 1) have been evaluated separately. Once the waterbodies that met the criteria were identified, the areas draining to those areas were identified for consideration for the additional measures. These are shown in Map 1.

### Criterion A1

Test A1 Description: Water bodies that have a station with an average nitrate concentration > 50 mg/l NO<sub>3</sub> over the 3-year period from 1 January 2020 to 31 December 2022.

### Criterion A2

Test A2 Description: Water bodies that have a station with a higher average nitrate concentration in 2022 compared to the average nitrate concentration in 2021. A higher average concentration means there is a difference of >1 mg/l NO<sub>3</sub> between the average nitrate concentrations for the two individual years<sup>8</sup>.

### Criterion B1

Test B1 Description: Water bodies that are “Eutrophic”. The eutrophic condition test combines data on the ecological health of a waterbody and nutrient conditions, and it is carried out on all surface water body types including rivers, lakes, estuaries and coastal waters. The eutrophic test is not required for groundwater bodies. The metric used is Trophic Status which includes, in addition to biological quality elements, nutrient data that contribute to eutrophication e.g. phosphorus for all waterbody types and both phosphorus and nitrogen in transitional and coastal waters.

The biological quality monitoring element of the National Water Quality Monitoring programme is a three-year programme, with one third of the country monitored each year. The results are reported every three years. The latest three-year assessment period is for 2019-2021. However, to support the evaluation of the Commission’s criteria, the EPA have produced a 2022 Trophic Status assessment based on the most recent monitoring data available, i.e. 2020 to 2022.

### Criterion B2

Test B2 Description: Water bodies that “Could become Eutrophic” and have a stable or increasing trend when compared with 2021. As with the B1 criterion, the data used here are the 2022 Trophic Status based on the most recent available monitoring data available and ‘trend’ means a comparison between 2022 and 2021.

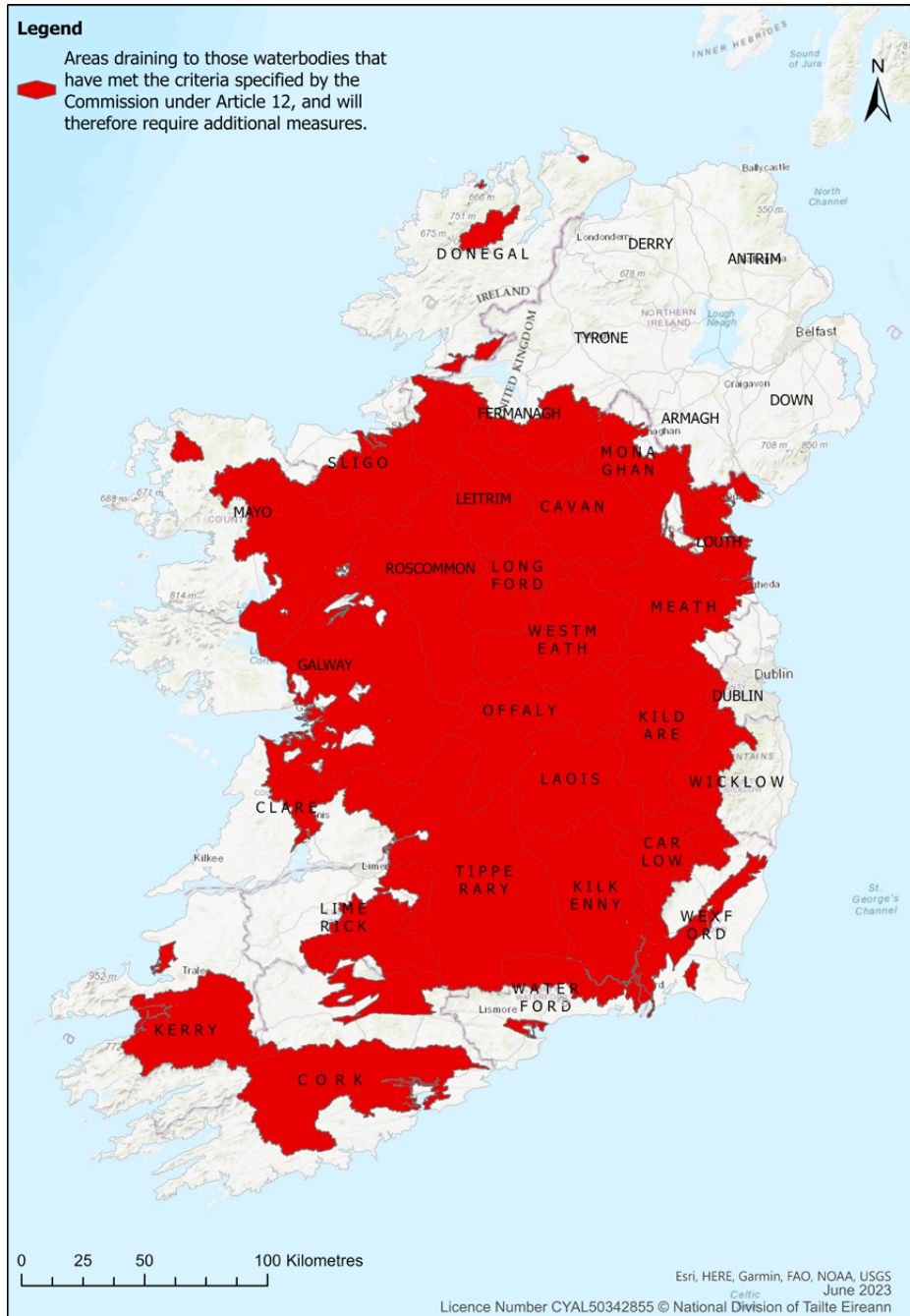
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8 The 1 mg/l NO<sub>3</sub> threshold is taken from the Nitrates Directive Article 10 assessment methodology



## Results of the Commissions Water Quality Review Criteria

The EPA have evaluated the four prescribed criteria using the data specified by the Commission in the Derogation Decision<sup>9</sup>. Map 1 shows all the areas draining to waters that have met one or more criteria based on the specified data. Over 44,000 km<sup>2</sup> are identified for requiring additional measures as part of the conditions of Ireland's derogation.



**Map 1:** Areas identified as the areas draining to those waterbodies that have met or exceeded the criteria specified by the Commission under Article 12, and will therefore require additional measures.

<sup>9</sup> Commission implementing decision (EU) 2022/696 <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32022D0696>

## Conclusion

The EPA has carried out the interim review of water quality as specified by the Commission as a condition of Ireland's derogation under the Nitrates Directive. Based on the specified water quality criteria set out by the Commission, over 44,000 km<sup>2</sup> of land is identified as requiring additional measures to protect water quality. The Commission also requires that by 1 January 2024, derogation farms located within this area reduce their application rate of manure from a maximum of 250 kg nitrogen/ha per year to 220 kg nitrogen/ha per year.

## Appendix 1 - Copy of Article 12 of the Commission Implementing Decision

L 129/44

EN

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### Article 12

#### Two-year review

1. The competent authorities shall submit, by 30 June 2023, with the report described in Article 13, corresponding to the year 2022, an annex containing the results of monitoring as regards the nitrates concentrations of groundwater and surface waters and the trophic status of surface water bodies, based on the monitoring network and requirements of the Nitrates Directive 91/676/EEC and including at least maps showing those areas draining into waters where monitoring data reveal:

- (a) average values of nitrate concentrations above 50 mg/l or increasing trends of nitrates concentration compared to 2021;
- (b) 'Eutrophic' status or 'could become eutrophic' status with a stable or worsening trend compared to 2021.

Waters identified by either point (a) or (b) of the first subparagraph shall be considered as polluted, at risk of pollution or showing worsening trends. The data for the estimation of the average values shall cover the period from 1 January 2020 to 31 December 2022. For the assessment of trends, the data from 2021 and 2022 shall be compared.

2. For the elaboration of the annex referred to in paragraph 1 of this Article, the data used shall be taken from the monitoring network set up under Directive 91/676/EEC.

3. As from 1 January 2024, in areas draining into polluted or at-risk-of-pollution waters or presenting worsening trends, additional measures shall be applied under the Nitrates Action Programme. For farms that have been granted an authorisation pursuant to this Decision and located in such areas, the amount of manure that may be applied to the land shall not exceed 220 kg nitrogen/ha per year.

4. The competent authorities shall inform the Commission, by 30 September 2023, of the outcomes of this two-year review, and in particular on the areas and farms with an authorisation where the maximum amount of manure to be applied is 220 kg nitrogen/ha per year and of the additional measures to be applied within the Nitrates Action Programme.



# AN GHNÍOMHAIREACTH UM CHAOMHNÚ COMHSHAOIL

Tá an GCC freagrach as an gcomhshaol a chosaint agus a fheabhsú, mar shócmhainn luachmhar do mhuintir na hÉireann. Táimid tiomanta do dhaoine agus don chomhshaol a chosaint ar thionchar díobhálach na radaíochta agus an truaillithe.

Is féidir obair na Gníomhaireachta a rinnt ina trí phríomhréimse:

**Rialáil:** Rialáil agus córais chomhlíonta comhshaoil éifeachtacha a chur i bhfeidhm, chun dea-thorthaí comhshaoil a bhaint amach agus díriú orthu siúd nach mbíonn ag cloí leo.

**Eolas:** Sonraí, eolas agus measúnú ardchaighdeán, spriocdhírthe agus tráthúil a chur ar fáil i leith an chomhshaoil chun bonn eolais a chur faoin gcinnteoireacht.

**Abhcóideacht:** Ag obair le daoine eile ar son timpeallachta glaine, táirgiúla agus dea-chosanta agus ar son cleachtas inbhuanaithe i dtaobh an chomhshaoil.

## I measc ár gcuid freagrachtaí tá:

### Ceadúnú

- Gníomhaíochtaí tionscail, dramhaíola agus stórála peitрил ar scála mór;
- Sceitheadh fuíolluisce uirbigh;
- Úsáid shrianta agus scaoileadh rialaithe Orgánach Géinmhodhnaithe;
- Foinsí radaíochta ianúcháin;
- Astaíochtaí gás ceaptha teasa ó thionscal agus ón eitlíocht trí Scéim an AE um Thrádáil Astaíochtaí.

### Forfheidhmiú Náisiúnta i leith Cúrsaí Comhshaoil

- Iníúchadh agus cigireacht ar shaoráidí a bhfuil ceadúnas acu ón GCC;
- Cur i bhfeidhm an dea-chleachtais a stiúradh i ngníomhaíochtaí agus i saoráidí rialáilte;
- Maoirseacht a dhéanamh ar fhreagrachtaí an údarais áitiúil as cosaint an chomhshaoil;
- Caighdeán an uisce óil phoiblí a rialáil agus údaruithe um sceitheadh fuíolluisce uirbigh a fhorfheidhmiú
- Caighdeán an uisce óil phoiblí agus phríobháidigh a mheasúnú agus tuairiscíú air;
- Comhordú a dhéanamh ar líonra d'eagraíochtaí seirbhíse poiblí chun tacú le gníomhú i gcoinne coireachta comhshaoil;
- An dlí a chur orthu siúd a bhriseann dlí an chomhshaoil agus a dhéanann dochar don chomhshaol.

### Bainistíocht Dramhaíola agus Ceimiceáin sa Chomhshaol

- Rialacháin dramhaíola a chur i bhfeidhm agus a fhorfheidhmiú lena n-áirítear saincheisteanna forfheidhmithe náisiúnta;
- Staitisticí dramhaíola náisiúnta a ullmhú agus a fhoilsiú chomh maith leis an bPlean Náisiúnta um Bainistíocht Dramhaíola Guaisí;
- An Clár Náisiúnta um Chosc Dramhaíola a

fhorbairt agus a chur i bhfeidhm;

- Reachtaíocht ar rialú ceimiceán sa timpeallacht a chur i bhfeidhm agus tuairiscíú ar an reachtaíocht sin.

### Bainistíocht Uisce

- Plé le struchtúir náisiúnta agus réigiúnacha rialachais agus oibriúcháin chun an Chreat-treoir Uisce a chur i bhfeidhm;
- Monatóireacht, measúnú agus tuairiscíú a dhéanamh ar chaighdeán aibhneacha, lochanna, uiscí idirchreasa agus cósta, uiscí snámha agus screamhuisce chomh maith le tomhas ar leibhéil uisce agus sreabhadh abhann.

### Eolaíocht Aeráide & Athrú Aeráide

- Fardail agus réamh-mheastacháin a fhoilsiú um astaíochtaí gás ceaptha teasa na hÉireann;
- Rúnaíocht a chur ar fáil don Chomhairle Chomhairleach ar Athrú Aeráide agus tacaíocht a thabhairt don Idirphlé Náisiúnta ar Ghníomhú ar son na hAeráide;
- Tacú le gníomhaíochtaí forbartha Náisiúnta, AE agus NA um Eolaíocht agus Beartas Aeráide.

### Monatóireacht & Measúnú ar an gComhshaol

- Córais náisiúnta um monatóireacht an chomhshaoil a cheapadh agus a chur i bhfeidhm: teicneolaíocht, bainistíocht sonraí, anailís agus réamhaisnéisiú;
- Tuairiscí ar Staid Timpeallacht na hÉireann agus ar Tháscairí a chur ar fáil;
- Monatóireacht a dhéanamh ar chaighdeán an aeir agus Treoir an AE i leith Aeir Ghlain don Eoraip a chur i bhfeidhm chomh maith leis an gCoinbhinsiún ar Aerthruaillíú Fadraoin Trasteorann, agus an Treoir i leith na Teorann Náisiúnta Astaíochtaí;
- Maoirseacht a dhéanamh ar chur i bhfeidhm na Treorach i leith Torainn Timpeallachta;
- Measúnú a dhéanamh ar thionchar pleananna agus clár beartaithe ar chomhshaol na hÉireann.
- Taighde agus Forbairt Comhshaoil
- Comhordú a dhéanamh ar ghníomhaíochtaí taighde comhshaoil agus iad a mhaoiniú chun brú a aithint, bonn eolais a chur faoin mbeartas agus réitigh a chur ar fáil;
- Comhoibriú le gníomhaíocht náisiúnta agus AE um thaighde comhshaoil.

### Cosaint Raideolaíoch

- Monatóireacht a dhéanamh ar leibhéil radaíochta agus nochtadh an phobail do radaíocht ianúcháin agus do réimsí leictreamaighnéadacha a mheas;
- Cabhrú le pleananna náisiúnta a fhorbairt le haghaidh éigeandálaí ag eascairt as tairmí núicléacha;
- Monatóireacht a dhéanamh ar fhorbairtí thar lear a bhaineann le saoráidí núicléacha agus leis an tsábháilteacht raideolaíochta;
- Sainseirbhísí um chosaint ar an radaíocht a sholáthar, nó maoirsiú a dhéanamh ar sholáthar na seirbhísí sin.

### Treoir, Ardú Feasachta agus Faisnéis Inrochtana

- Tuairiscíú, comhairle agus treoir neamhspleách, fianaise-bhunaithe a chur ar fáil don Rialtas, don tionscal agus don phobal ar ábhair maidir le cosaint comhshaoil agus raideolaíoch;
- An nasc idir sláinte agus folláine, an geilleagar agus timpeallacht ghlan a chur chun cinn;
- Feasacht comhshaoil a chur chun cinn lena n-áirítear tacú le hiompraíocht um éifeachtúlacht acmhainní agus aistriú aeráide;
- Tástáil radóin a chur chun cinn i dtithe agus in ionaid oibre agus feabhsúchán a mholadh áit is gá.

### Comhpháirtíocht agus líonrú

- Oibriú le gníomhaireachtaí idirnáisiúnta agus náisiúnta, údarais réigiúnacha agus áitiúla, eagraíochtaí neamhrialtais, comhlachtaí ionadaíochta agus ranna rialtais chun cosaint comhshaoil agus raideolaíoch a chur ar fáil, chomh maith le taighde, comhordú agus cinnteoireacht bunaithe ar an eolaíocht.

### Bainistíocht agus struchtúr na Gníomhaireachta um Chaomhnú Comhshaoil

Tá an GCC á bhainistiú ag Bord lánaimseartha, ar a bhfuil Ard-Stiúrthóir agus cúigear Stiúrthóir. Déantar an obair ar fud cúig cinn d'Oifigí:

- An Oifig um Inbhuanaitheacht i leith Cúrsaí Comhshaoil
- An Oifig Forfheidhmithe i leith Cúrsaí Comhshaoil
- An Oifig um Fhianaise agus Measúnú
- An Oifig um Chosaint ar Radaíocht agus Monatóireacht Comhshaoil
- An Oifig Cumarsáide agus Seirbhísí Corparáideacha

Tugann coistí comhairleacha cabhair don Gníomhaireacht agus tagann siad le chéile go rialta le plé a dhéanamh ar ábhair imní agus le comhairle a chur ar an mBord.



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