
Early insights indicator report

Nitrogen concentrations in selected major rivers

January - June 2026



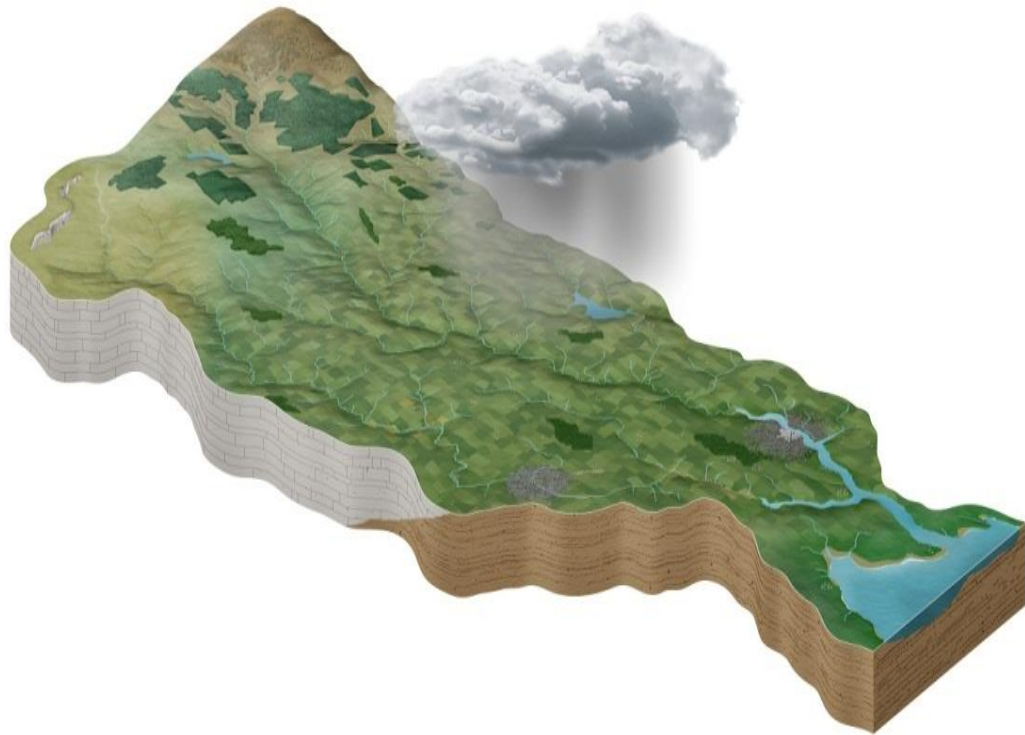
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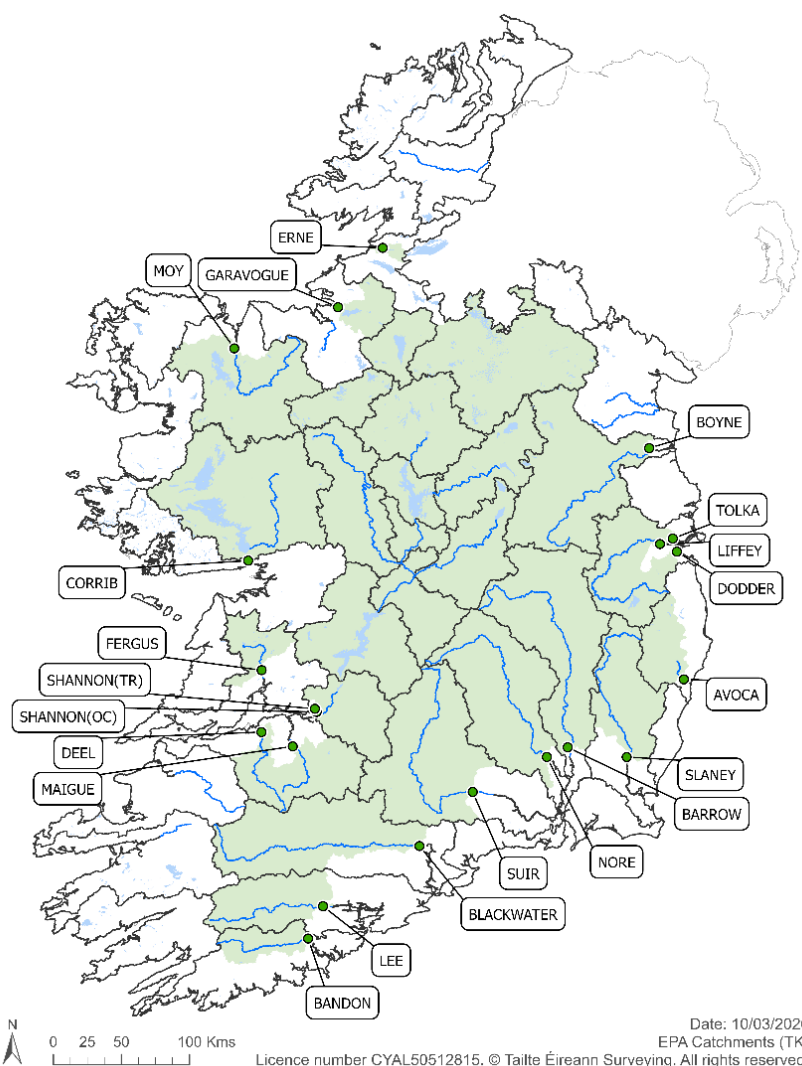
Early Insights nitrogen concentration indicator

Overview

Since 2024, Early Insights reports have been published every six months to provide an update on nitrogen levels in Ireland's major rivers. They use the latest available data from 20 representative monitoring sites located on these rivers, providing an early indication of national trends in nitrogen levels.

The six-month indicator allows nitrogen levels to be assessed before a full year of monitoring data is available. The first Early Insights report¹ includes an assessment of how well the representative monitoring sites reflect the wider EPA monitoring network.

This report presents nitrogen concentration data from January to June 2026 and compares the results with the same six-month period in previous years. Map 1 shows the location of the monitoring sites and the catchment area represented by each site.



Map 1: Location of the Early Insights nitrogen indicator monitoring stations. Catchment areas associated with each monitoring point are shown in green.

¹ [Early-insights-indicator-report---Nitrogen-concentrations-in-selected-major-rivers-January-June-2024.pdf](#)

Early insight nitrogen levels at representative sites

Figure 1 shows the average nitrogen levels, from January to June each year, between 2016 and 2026. The data underpinning the figure are available on the EPA [website](#). The previous reports¹ showed that average nitrogen concentrations at the representative monitoring points during the first six-months of the calendar year were a reasonable, albeit conservative predictor of the overall 12-month annual average.

Nitrogen levels increased by 4.3% in the first half of 2026 compared with the same six-month period in 2025, marking a second consecutive year of increase.

The Early Insights indicator provides an early indication of national trends in river nitrogen levels based on aggregated data from 20 monitoring sites across Ireland's major river catchments. Each catchment has its own agronomic, geological and meteorological characteristics, which influence how nitrogen levels respond at a local scale. As a result, the trends presented in Early Insights should be interpreted as an indication of overall national direction rather than a reflection of performance in individual catchments.

In preparation for the development of the next Water Action Plan, all sectors are reviewing the measures they are implementing and evaluating their effectiveness in delivering improved water quality outcomes. This collaborative process will strengthen the evidence base on the implementation and impact of actions, particularly in higher-risk catchments. This will help identify where measures are contributing to improved water quality and where the scale, targeting, or implementation of actions needs to be strengthened.

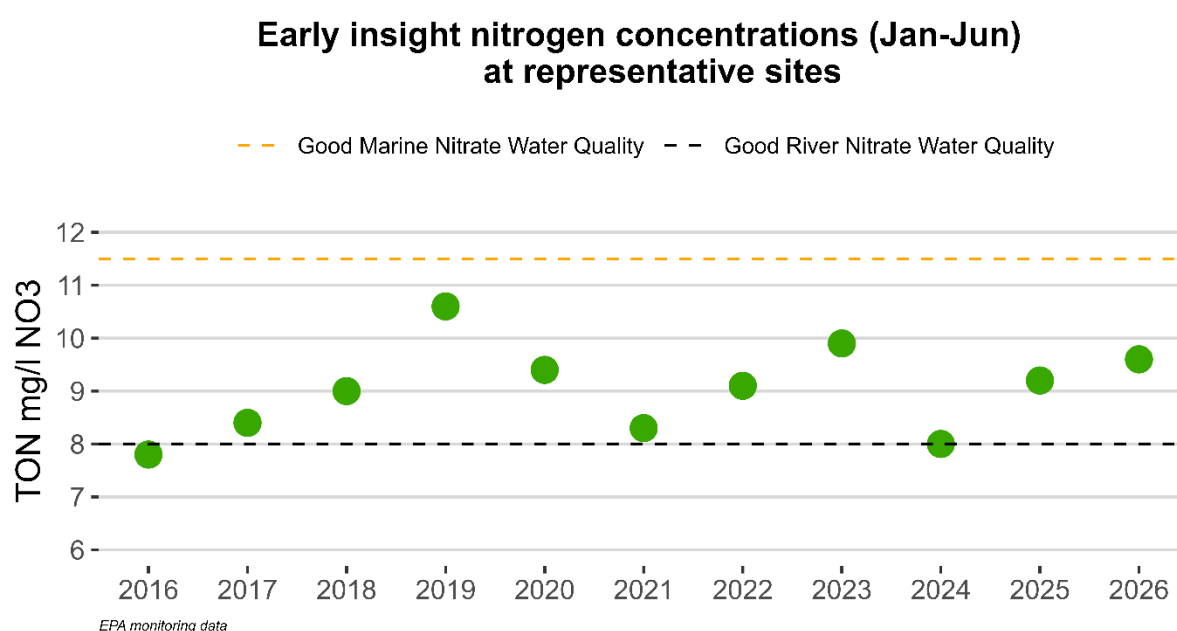


Figure 1: Early insight average nitrogen concentrations for the January - June period of each year from 2016 to 2026 at 20 representative sites located around the country. Concentrations are presented as total oxidised nitrogen (TON), which includes both nitrate and nitrite. The proportion of nitrite in TON is extremely low. The estuarine standard of 11.5 mg/l NO₃ (2.6 mg/l as N), and the guideline value to support healthy river systems of 8 mg/l as NO₃ (1.8 mg/l as N) are included.

Factors influencing changes in nitrogen levels

Year on year, nitrogen levels fluctuate due to a combination of factors, including source loading, agricultural land management and weather patterns. Source loading means inputs of nitrogen to the environment, the vast majority of which comes from chemical and organic fertilisers from farming. Different factors may be dominant in different catchments, depending on its physical characteristics. Rainfall and river flow influence nitrogen transport to watercourses, and the resulting in-stream concentrations: periods of high rainfall may increase nitrogen losses through leaching, or reduce concentrations through dilution, depending on catchment soil properties and underlying geology.

A hydrogeological lag, reflecting the time required for nitrogen to move through soils and groundwater, means that land management and weather patterns in a given year contribute to river nitrogen losses observed in subsequent years.

Some of the key factors influencing nitrogen concentrations between 2024 and 2026 were as follows:

- Fertiliser nitrogen sales increased by 10.6% in 2024 compared with 2023², followed by a further 12.5% increase in 2025³. Annual results are not yet available for 2026, however quarterly figures released by DAFM indicate a 7.3% increase in fertiliser nitrogen sales in the six months running up to the end of March this year, compared with the same period in 2024/2025. Although fertiliser sales do not directly reflect the quantity of fertiliser applied or nitrogen losses to the environment, which are influenced by factors such as farm practices and soil type, they remain an indicator of nitrogen loading and a factor in increased nitrogen levels in waters.
- Between 2023 and 2024, CSO Livestock Survey data indicates a 3.3% reduction in the overall national herd⁴; a further 0.4% reduction was reported in 2025⁵. Decreases in animal numbers are associated with decreases in the source loading.
- Overall, 2025 was wetter than 2024, with above-average rainfall nationally, while rainfall in 2024 was broadly average⁶. The first half of 2026 was wetter than normal, with five of the six months recording above-average rainfall. River flows were also generally above the long-term normal range for most of the period, particularly from February to April and again in June. May was the only month that was below normal for both rainfall and river flows⁷.
- Coupled with increases in nitrogen source loading between 2024 and 2026, higher rainfall in the latter half of 2025, continuing into 2026, may have increased nitrogen transport to watercourses. While weather can influence the movement of nitrogen through catchments, sustainable agricultural systems need to account for such variability through appropriate management measures that minimise nutrient losses and protect water quality.

² [Fertiliser Sales 2024 - Central Statistics Office](#)

³ [Fertiliser Sales 2025 - Central Statistics Office](#)

⁴ [Livestock Survey December 2024 - Central Statistics Office](#)

⁵ [Livestock Populations December 2025 - Central Statistics Office](#)

⁶ [Annual Climate Statement for 2025 - Met Éireann - The Irish Meteorological Service](#)

⁷ [Hydrology Bulletins | Environmental Protection Agency](#)

Early Insights nitrogen levels in catchments requiring nitrogen load reductions

This Early Insights report presents the most current information available at the 20 representative monitoring sites. Separately, the EPA has published reports identifying the catchments that require nitrogen load reductions to achieve water quality objectives. Those reports are based on three years of nitrogen concentration data from representative monitoring sites, with the most recent assessment covering the period from 2022 to 2024⁸. The data for 2026 presented in this Early Insights report are newly available and have not been included in previous EPA assessments or publications.

Figure 2 and Map 2 show nitrogen levels in the catchments which require⁸ or have previously required⁹ nitrogen load reductions to achieve water quality objectives (purple colour). Catchments requiring reductions in nitrogen load losses are mainly located in the east, south and south-east of the country, where soil type, agricultural source pressures, land management practices and meteorological conditions combine to increase the risk of nitrogen losses to water. Also shown are catchments where nitrogen concentrations are consistently below levels that impact on ecological health (cream colour); these are primarily located in the west and northwest of the country.

Catchment nitrogen levels are markedly higher in the east, south and southeast, compared to catchments in the west and northwest, reflecting differences in farm practices, soil types and climate conditions.

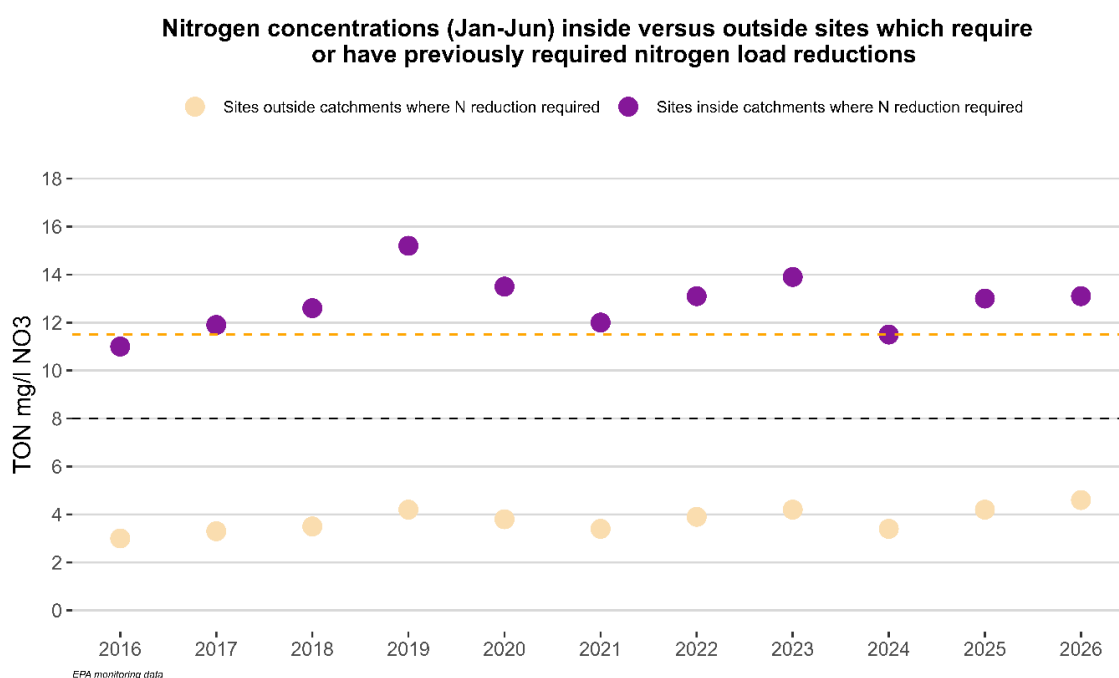
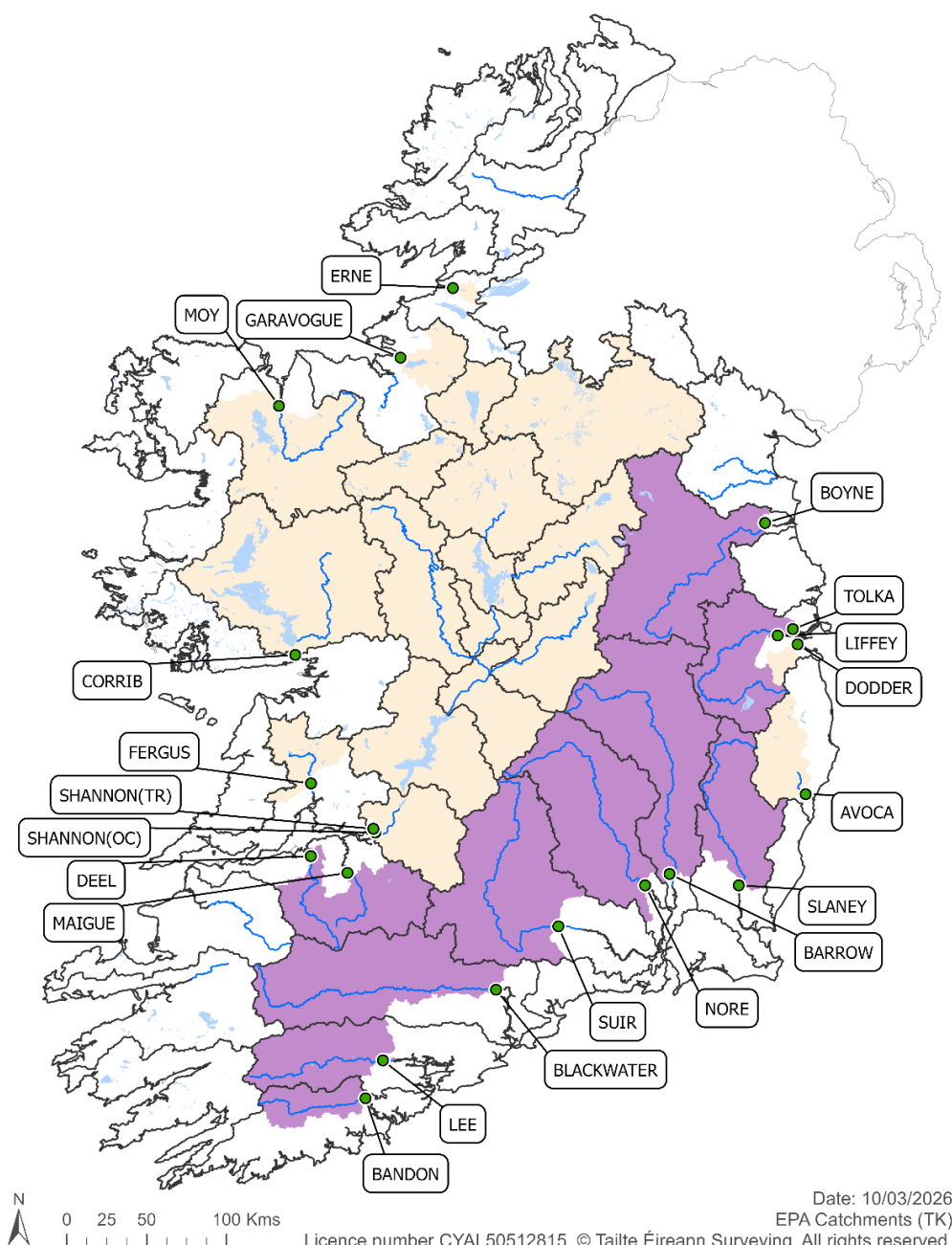


Figure 2: Early Insight annual nitrogen concentrations from 2016 to 2026 at 20 representative sites located around the country, categorised by catchment type. The estuarine standard of 11.5 mg/l NO₃ (2.6 mg/l as N), and the guideline value to support healthy river systems of 8 mg/l as NO₃ (1.8 mg/l as N) are included.

⁸ [Evidence-based targeting of agricultural measures to reduce nitrogen in catchments to achieve water quality objectives | Environmental Protection Agency](#)

⁹ [Assessment of the catchments that need reductions in nitrogen concentrations to achieve water quality objectives - Catchments.ie - Catchments.ie](#)

Nitrogen levels increased in both catchments at higher risk of nitrogen losses to water, which are mainly located in the east, south and southeast, and catchments at lower risk, which are concentrated in the west and northwest. The increase in the lower-risk catchments suggests that national factors, such as weather conditions and fertiliser prices, may have contributed to the national trend. However, the substantially higher nitrogen levels observed in the higher-risk catchments, located in the east, south and south-east of the country, highlight the influence of local factors, including soil type, agricultural intensity and farm management practices.



Map 2: Location of the Early Insights nitrogen indicator monitoring stations and associated catchments. Catchments requiring nitrogen reduction measures are shown in purple^{8,9}, primarily in the east, south and south-east, while catchments where nitrogen concentrations are consistently below ecological thresholds are shown in cream. The coloured catchments represent areas upstream of EPA OSPAR monitoring points above the saline extent of estuaries. Nitrogen reduction measures are also required downstream of the monitoring points, to protect the estuaries.

Further information

In August 2025, the EPA published evidence to further support the targeting of agricultural measures to protect and improve water quality⁸. This report included an update to the Farm and Landscape measures for Agriculture (FLAG) map - previously called the Targeting Agricultural Measures map. The FLAG map highlights where the highest risk areas are, and the types of local actions that are needed to maintain or improve water quality. The map can be found here: <https://gis.epa.ie/EPAMaps/agriculture>.

The EPA undertakes a full assessment of the overall quality and ecological status of Ireland's waters every three years. The latest full assessment was published in October 2025, covering the period 2019-2024, and is available on the EPA website¹⁰. Between full ecological status assessments, a biological quality indicators report is published to provide an interim assessment of changes in the biological condition of water bodies. Water Quality in 2025 - An Indicators Report is available on the EPA website¹¹.

The EPA also publishes water indicator data for over 1000 monitoring points from the national water monitoring network, on an annual basis – the latest report on nitrogen and phosphorus concentrations in Irish waters 2025 was published in July 2026¹².

The next Early Insights Nitrogen report is scheduled for March 2027 and will include data from July to December 2026. This will be followed in summer 2027 by the Nitrogen and Phosphorus Concentrations in Irish Waters report, which presents data from approximately 1,000 monitoring locations across Ireland.

¹⁰ [Water Quality in Ireland 2019-2024 | Environmental Protection Agency](#)

¹¹ [Water Quality in 2025 – An Indicators Report](#)

¹² [Water quality monitoring report on nitrogen and phosphorus concentrations in Irish waters 2025 | Environmental Protection Agency](#)

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