Council of the European Union

Brussels, 23 July 2026
(OR. en)

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ENV 963
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AGRI 601

COVER NOTE

From:	Secretary-General of the European Commission, signed by Ms Martine DEPREZ, Director
date of receipt:	15 July 2026
To:	Ms Thérèse BLANCHET, Secretary-General of the Council of the European Union
No. Cion doc.:	SWD(2026) 232 final - Part 21/27
Subject:	COMMISSION STAFF WORKING DOCUMENT Member State country fiche on the implementation of Council Directive 91/676/EEC concerning the protection of waters against pollution caused by nitrates from agricultural sources based on Member States reports for the period 2020-2023

Delegations will find attached document SWD(2026) 232 final - Part 21/27.

Encl.: SWD(2026) 232 final - Part 21/27

EUROPEAN
COMMISSION

Brussels, 15.7.2026
SWD(2026) 232 final

PART 21/27

COMMISSION STAFF WORKING DOCUMENT

Member State country fiche on the implementation of Council Directive 91/676/EEC concerning the protection of waters against pollution caused by nitrates from agricultural sources based on Member States reports for the period 2020–2023

European Commission

Netherlands

Country staff working document
on the implementation of the Nitrates Directive

Period: 2020-2023

Contents

1. KEY FINDINGS AND RECOMMENDATIONS

The Netherlands submitted its report under the Nitrates Directive for the period 2020-2023 in November 2024 ([1]) via electronic reporting on Reportnet 3 portal ([2]).

This country staff working document is presented in line with the reporting guidelines and it is based on the data reported by the Member State ([3]), Eurostat and other EU official data sources. The Dutch authorities were consulted for factual correctness. There may be differences with the information presented in their national report ([4]).

The numbers presented below are indicators of the situation in the Member State but need further interpretation to draw specific conclusions. In some cases, changes in the monitoring networks and in methodology for assessing trophic status may complicate comparisons between reporting periods.

1.1. Key findings

Pressure from agriculture

In the Netherlands, the utilised agricultural area (UAA) accounts for 53% of the country's total land area, which is higher than the EU average (38%). The livestock density is 3.3 livestock units per hectare (LSU/ha) of UAA, which is higher than the EU average of 0.7 LSU/ha, and there are regional variations with livestock densities above 6 LSU/ha UAA in some NUTS2 regions. The gross nitrogen balance is 148 kg/ha UAA and the gross phosphorus balance is less than 1 kg/ha UAA ([5]).

Monitoring network

For groundwater, the density of the monitoring network is around 35 stations per 1 000 km^2, which is higher than the EU average (8 stations). Compared to the previous reporting period, the density increased by 8%.

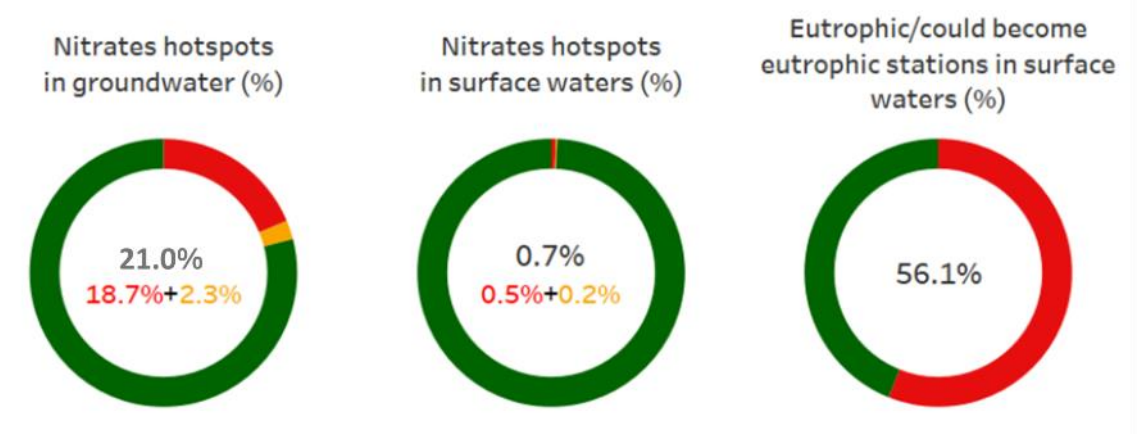
For surface freshwater, the density of the monitoring network is around 29 stations per 1 000 km^2, which is higher than the EU average (7 stations). Compared to the previous reporting period, the density increased by 26%. The monitoring network includes river and lake/water reservoir stations.

For surface saline waters, the monitoring network includes transitional, coastal and marine waters. However, for saline waters trophic status was reported for transitional and coastal waters but not for marine waters

([1]) Final version was received in February 2026.
([2]) Reportnet 3 is e-Reporting platform for reporting environmental and climate data to the European Environment Agency (EEA).
([3]) Only monitoring points electronically reported with nitrate concentration or trophic status, which were not removed from the monitoring network were considered for this assessment.
([4]) A uniform data-processing approach is applied to all Member States. In some instances this may not fully correspond to the specific methodology used in the Member State.
([5]) The EU average is not available due to data gaps.

Water quality

Figure 1 – Share of monitoring points showing pollution in groundwater and surface waters



Note: The percentage share of **nitrate hotspots** refers to monitoring points with average annual nitrate concentrations ≥ 50 mg/l (red), or between 37.5 and 49.99 mg/l with an increasing trend (orange). This is calculated relative to the total number of points with measurements. The percentage share of monitoring points classified as **eutrophic or could become eutrophic** (red) is calculated relative to the total number of points with trophic status reported.

In **groundwater**, 81.3% of monitoring points show nitrate concentrations below 50 mg/l.

Overall, 20.9% of monitoring points fall in two categories illustrated in Figure 1, i.e., they show nitrate concentrations ≥ 50 mg/l (18.7%) or between 37.5 and 49.99 mg/l with an increasing trend (2.3%). Compared to the data reported in the previous reporting period, this represents an increase of 4.6 percentage points (from 16.4% to 21.0%).

Compared to the previous reporting period, nitrate concentrations decreased in 14.1% of groundwater monitoring points and increased in 25.4%. Among points with nitrate concentration ≥ 50 mg/l, increases (77.0%) were more frequent than decreases (18.8%).

In **surface water**, 99.5% of monitoring points show nitrate concentrations below 50 mg/l and 43.9% are classified as non-eutrophic.

On the other hand, 0.7% monitoring points fall in two categories illustrated in Figure 1, i.e., they show nitrate concentrations ≥ 50 mg/l (0.5%) or between 37.5 and 49.99 mg/l with an increasing trend (0.2%). Compared to the data reported in the previous period, this represents a decrease of 0.2 percentage points (from 0.9% to 0.7%). 29% of surface water monitoring stations show nitrate concentrations ≥ 10 mg/l, which is relevant for eutrophication.

Compared to the previous reporting period, nitrate concentrations decreased in 18.7% of surface water monitoring points and increased in 30.7%.

The share of monitoring points reported as eutrophic/could become eutrophic is 56.1% as illustrated in Figure 1. This represents a decrease of 12.8 percentage points compared to the data reported in the previous period (from 68.9% to 56.1%). The provinces with the highest share are Limburg (71.4%), North Brabant (70.5%) and Zeeland (70.2%).

Nitrate Vulnerable Zones

In line with Article 3 paragraph 5, the Netherlands apply an action programme with mandatory measures throughout the entire national territory.

Action Programme

The Netherlands modified the action programme during the reporting period. The 6th and 7th nitrates action programme applied during the current reporting period and are part of the fourth period of the Dutch fertiliser policy. Amendments in the reporting period concerned the nitrogen and phosphate fertiliser limit, the designation of nutrient polluted areas, buffer strips along watercourses and specifications for crop rotations on sandy and loess soils.

Derogation

During the reporting period, derogations allowed the Netherlands the application of livestock manure over the limit of 170 kg N/ha per year, under certain conditions, on farms with at least 80 % grassland, in the context of the Dutch action programmes.

1.2. Recommendations

- Review and where necessary reinforce measures to improve water quality, notably with a view to addressing:
  - high or increasing nitrate concentrations in groundwaters
  - high or increasing nitrate concentrations in surface waters
  - eutrophication of surface water bodies including coastal and marine waters
- When preparing the Nitrates Action Programme:
  - take into account objectives and deadlines of the Water Framework Directive, ensuring coherence with the 4th RBMP
  - consider introducing limitations on phosphorus fertilisation, if not yet implemented
  - ensure the cooperation between competent authorities in different sectors, such as agriculture and water, and with stakeholders
  - consider where measures could be simplified without compromising on results, working with the Commission and the other member States in the light of the findings of the evaluation of the Nitrates Directive
- Promote the dissemination of best practice, scientific knowledge and innovation to:
  - improve the analysis of expected future evolution in water quality and develop gap assessments for the nutrient load reductions required to reach water quality objectives
  - accelerate preparedness and resilience of action programmes and measures in the context of climate change

2. PRESSURES FROM AGRICULTURE

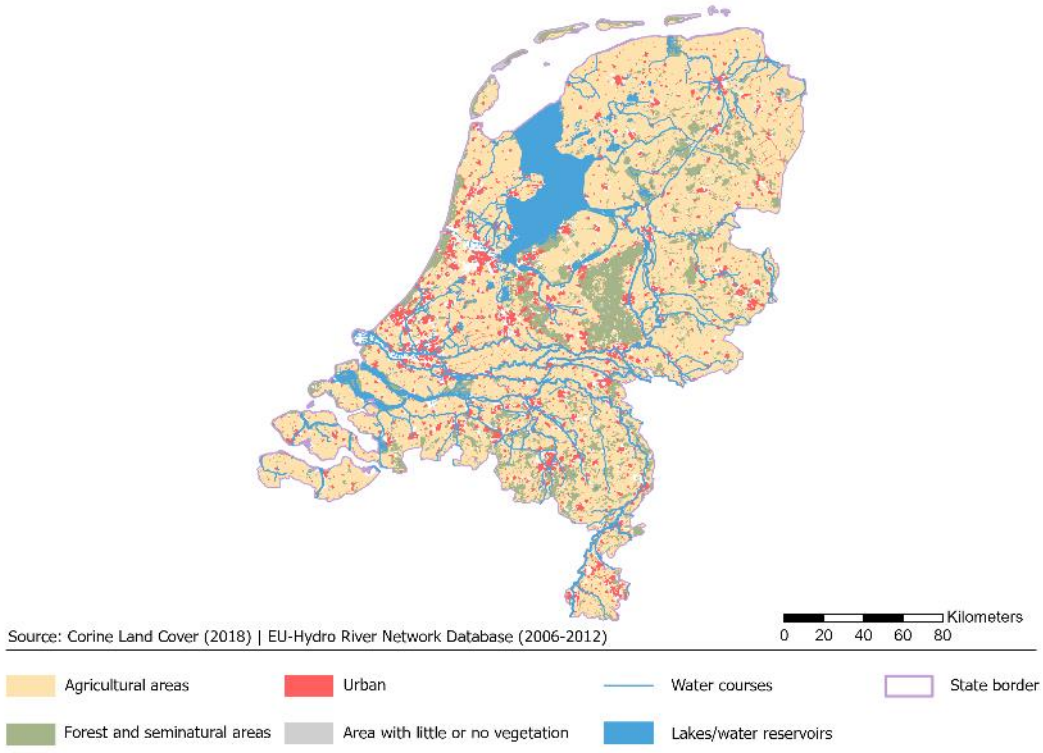
In the Netherlands, crop production accounted for the largest portion of the agricultural sector's total output value at 50.7% in the reporting period 2020-2023. Animal production followed with 36.7%, and other outputs made up 12.5%. ([6]) The share of agricultural land used for organic farming increased from 3.4% in the reporting period 2016-2019 to 4.4% in the reporting period 2020-2023. ([7])

The risk of diffuse pollution of waters by nutrients from agriculture is primarily dependent on the agricultural pressures in the Member State, expressed in terms of utilised agricultural area (UAA), livestock density, the use of mineral and manure fertilisers, as well as the nitrogen and phosphorus balance. This section describes the evolution of these indicators.

2.1. Land use

The map below presents the distribution of land use in the Netherlands along with watercourses and lakes/water reservoirs.

Figure 2 – Land use distribution in the Netherlands



([6]) Source: Eurostat (aact_eaa01)
([7]) Source: Eurostat (ef_m_org)

The utilised agricultural area (UAA) in the Netherlands covered 1.8 million hectares in 2023, making up 52.8% of the country's total land area in 2023. Arable land accounts for 56.0% of UAA, followed by permanent grassland at 42.0% and permanent crops at 2.0%.

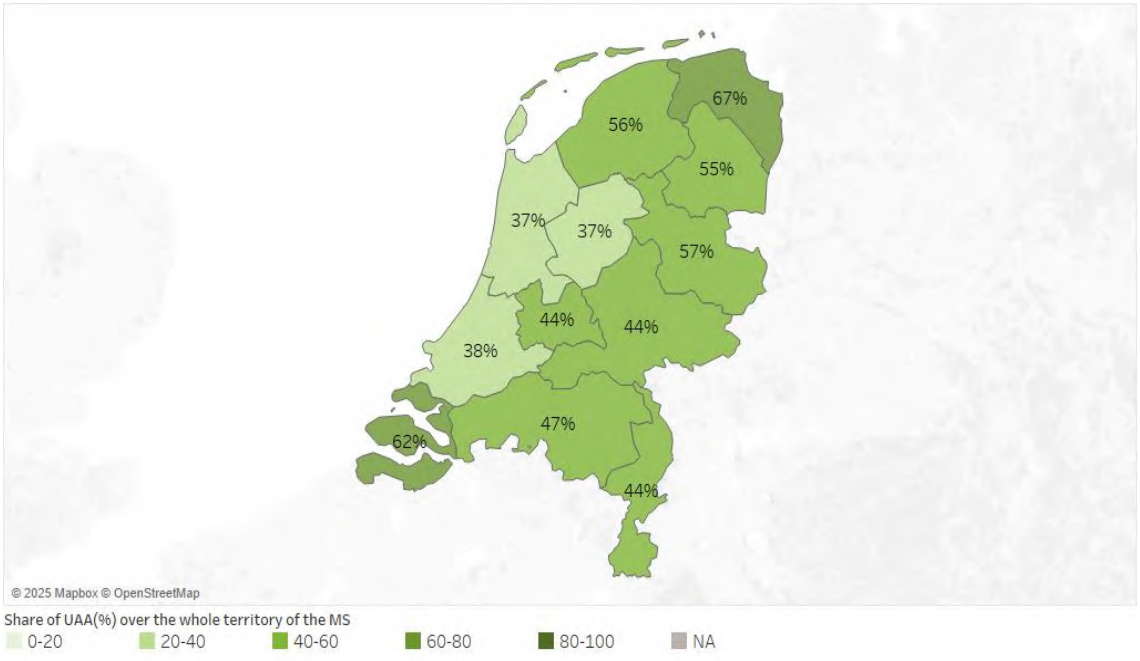
Table 1 – Evolution of the utilised agricultural area

	2010	2013	2016	2020	2023
utilised agricultural area (1000 ha)	1,872	1,848	1,796	1,818	1,806
arable land (1000 ha)	1,022	1,038	1,028	1,008	1,012
permanent grassland (1000 ha)	813	773	730	772	758
permanent crops (1000 ha)	37	37	38	37	36
kitchen gardens (1000 ha)	0	NA	NA	0	0

Source: Eurostat (ef_lus_main)

In 2020, the share of the UAA ranged from 67% of in Groningen, to 37% in Flevoland and North Holland.

Figure 3 – Share of utilised agricultural area (UAA) at NUTS2 level in 2020 ([8])



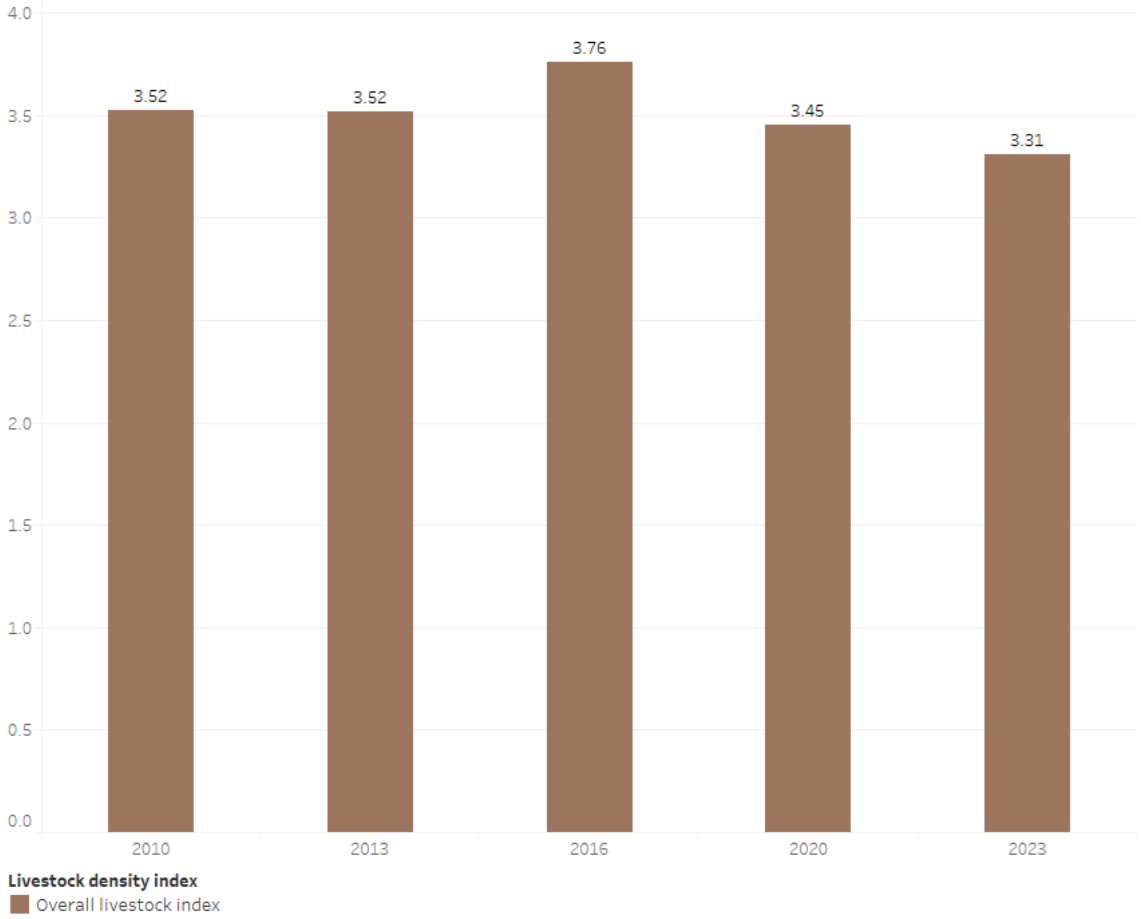
Source: Eurostat (ef_lus_main)

([8]) Latest available data.

2.2. Livestock density

In the Netherlands the livestock density was 3.31 livestock units per hectare (LSU/ha) of UAA in 2023. The livestock density in the Netherlands reached a peak around 2016 and has since decreased.

Figure 4 – Evolution of the livestock density (LSU/ha UAA)



Source: Eurostat (ef_fsi_lskds)

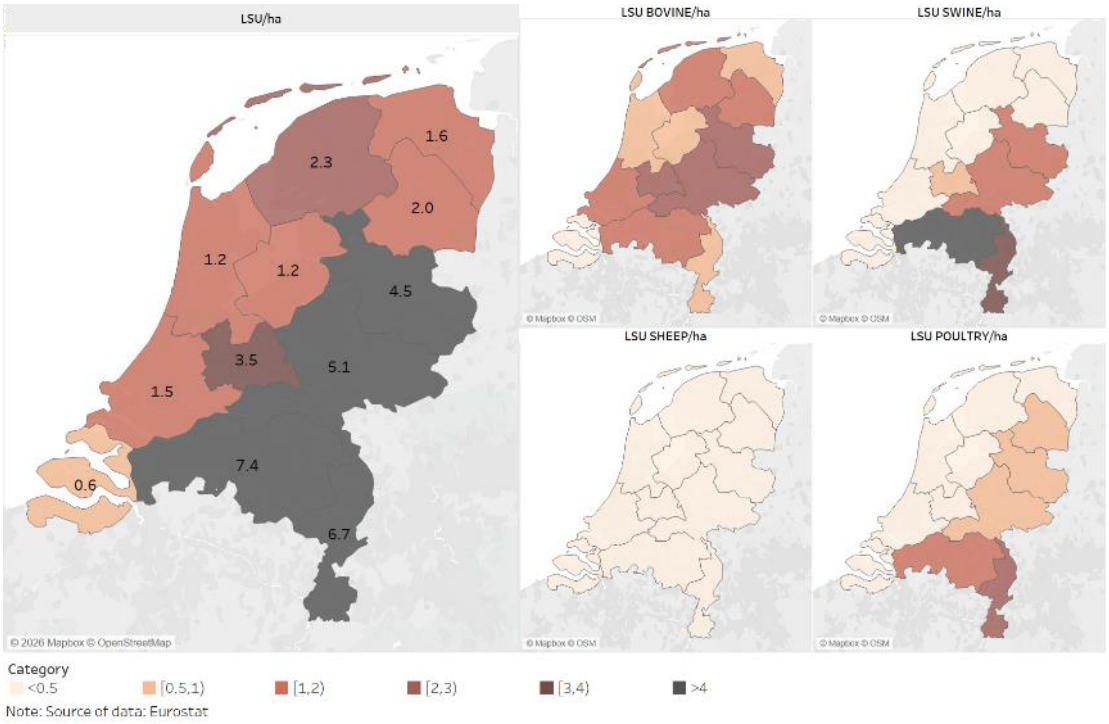
Table 2 – Evolution of the livestock numbers by animal type

	2007	2010	2013	2016	2020	2023
live bovines (Million heads)	3.82	3.96	4.09	4.29	3.69	3.74
of which dairy cows (Million heads)	1.49	1.52	1.60	1.79	1.57	1.55
live pigs (Million heads)	11.71	12.21	12.01	11.88	11.54	10.38
live poultry (Million heads)	NA	103.62	99.43	107.34	103.30	93.00
live sheep (Million heads)	NA	1.13	1.07	1.04	0.71	0.67
live goats (Million heads)	0.36	0.38	0.41	0.50	0.56	0.57

Source: Eurostat, for live poultry and live sheep data complemented with FAOSTAT

There are variations among provinces, with livestock densities of 7.4 LSU/ha UAA in North Brabant, 6.7 in Limburg and 5.1 in Gelderland.

Figure 5 – Livestock density distribution by animal type (LSU/ha UAA) at NUTS2 level in 2020 ([9])



Source: Eurostat (Livestock units: ef_lsk_main; Utilised agricultural area: ef_lus_main)

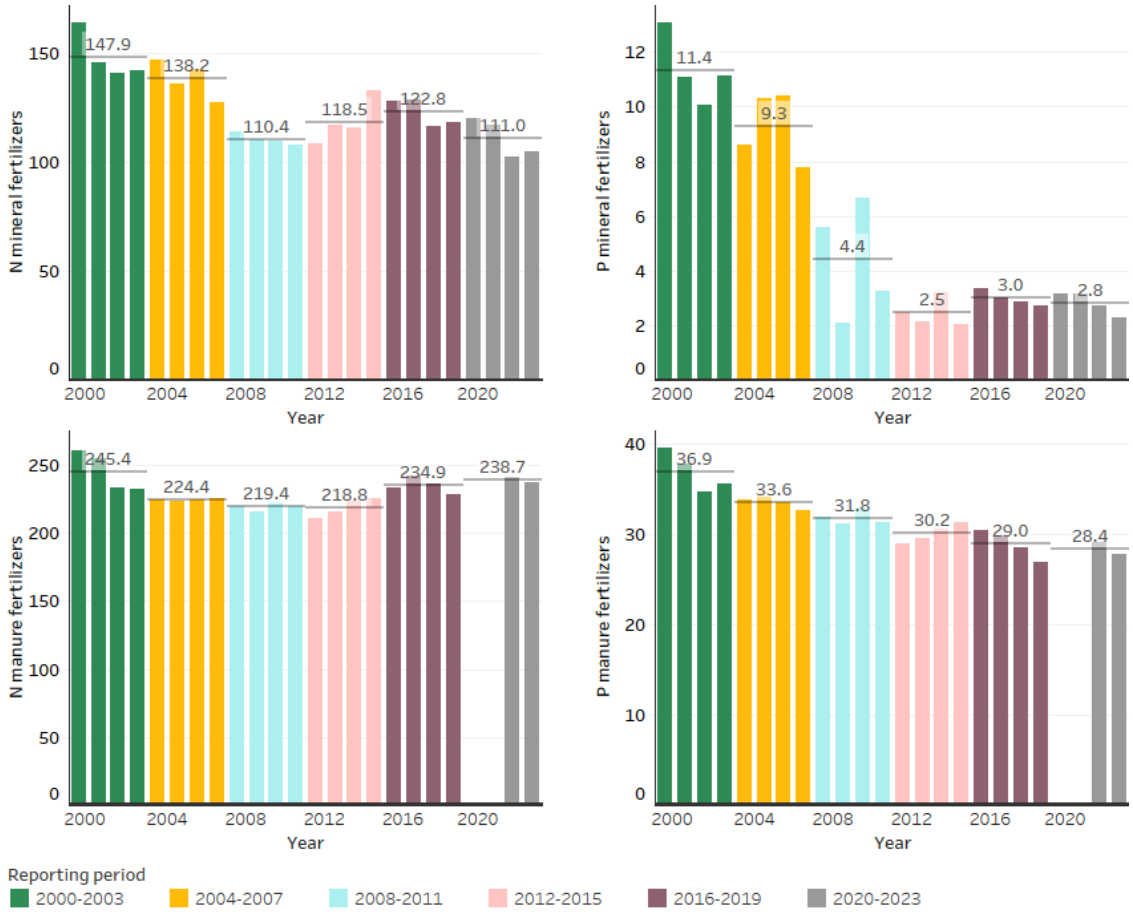
([9]) Latest available data.

2.3. Nitrogen and phosphorus fertiliser use

In the Netherlands, the **use of nitrogen (N) fertilisers** was 111.0 kg/ha UAA for N mineral fertilisers in 2020-2023 and 238.7 kg/ha UAA for N manure fertilisers in 2022-2023 . The use of mineral fertilisers has decreased by 11.8 kg/ha UAA and the use of manure fertilisers has decreased by 3.8 kg/ha UAA since the last reporting period.

The **use of phosphorus (P) fertilisers** was 2.8 kg/ha UAA for mineral fertilisers in 2020-2023 and 28.4 kg/ha UAA for manure fertilisers in 2022-2023. The use of P mineral fertilisers decreased by 0.2 kg/ha UAA since the last reporting period and the use of manure fertilisers decreased by 0.6 kg/ha UAA since the last reporting period.

Figure 6 – Evolution of nitrogen and phosphorus fertiliser use (kg/ha UAA)



Source: Eurostat (aei_pr_gnb)

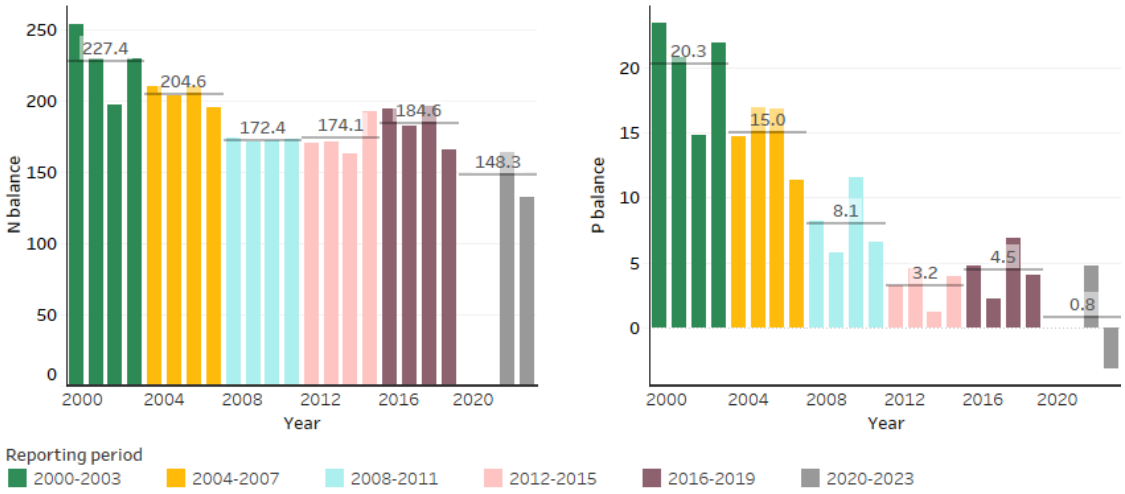
2.4. Nitrogen and phosphorus balance

The nutrient balance ([10]) per hectare of agricultural land (kg/ha UAA) is an indicator of the success that farmers have had in implementing balanced fertilisation and of the resulting nutrient pressure from agriculture. A high surplus (positive balance) indicates a risk of emissions into water and air.

In the Netherlands, the **gross nitrogen (N) balance** was 148.3 kg/ha UAA in 2022-2023. The nitrogen balance decreased by 36.3 kg/ha UAA since previous reporting.

The **gross phosphorus (P) balance** was 0.8 kg/ha UAA in 2022-2023 . The phosphorus balance decreased by 3.7 kg/ha UAA since previous reporting.

Figure 7 – Evolution of gross nitrogen and phosphorus balance (kg/ha UAA)



Source: Eurostat (aei_pr_gnb)

2.5. Nitrogen discharge into environment

The Netherlands didn't provide recent numerical information on nitrogen discharge from agriculture to the environment in their implementation report.

([10]) Gross nutrient balance (aei_pr_gnb)

3. NITRATE VULNERABLE ZONES

In line with Article 3 paragraph 5, the Netherlands apply an action programme with mandatory measures throughout the entire national territory (whole country approach) since 1994 and is thus exempted from designating NVZ.

4. NITRATES IN GROUNDWATER

4.1. Monitoring of nitrate concentrations in groundwater

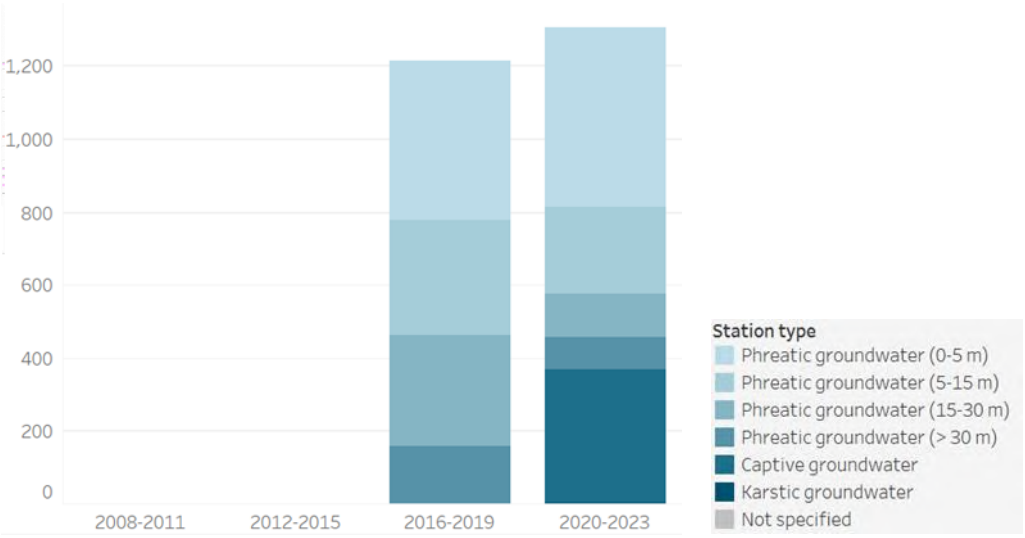
The monitoring of groundwater quality for the Nitrates Directive in the Netherlands is performed by the National Institute for Public Health and the Environment (RIVM) and the drinking water companies. In the Netherlands, monitoring under the Nitrates Directive relies on several water monitoring networks, including both, local but also the regional and national level, to obtain the data for its assessment, collectively providing a comprehensive picture for measuring the impact of the policies in place.

In particular, the effects of Dutch fertiliser policy in nutrients emissions from agricultural sources, specifically the effects of the nitrates actions programmes, are measured by the Fertiliser Policy Monitoring Programme (LMM). The LMM is administered by the RIVM and the Wageningen Social & Economic Research Institute and it monitors the quality of leaching water and operates directly at farms.

During the reporting period 2020-2023 nitrate concentrations were reported at 1 308 groundwater monitoring points. The station density was 34.9 stations per 1,000 km^2.

The overall number of monitoring points increased by 91 (7.5%) compared to the previous reporting period. The change was driven mainly by a significant increase in captive groundwater and a reduction in the number of phreatic monitoring points (0-30m and >30m). Captive groundwater monitoring points had not been reported in 2016-2019. The graph below presents the changes in the monitoring network over the last two reporting periods. ([11])

Figure 8 – Evolution of groundwater monitoring network (monitoring points with measurements of nitrates)



([11]) Stations for the reporting periods 2008-2011 and 2012-2015 are not shown due to previous errors in reporting. Although these reporting errors were resolved thereupon, it is not possible to include the new data in the subsequent reports.

In this reporting period, changes in nitrate concentrations compared to the previous monitoring period (trends) were assessed for 1 190 monitoring points, accounting for 91.0% of all points with measurements. The share of monitoring points with trends decreased compared to the previous reporting period, which was 95.3% in reporting period 2016-2019. The table below presents the number of monitoring points with measurements and trends in the last four reporting periods.

Table 3 – Number of groundwater monitoring points with measurements of nitrates and trends by station type ([12])

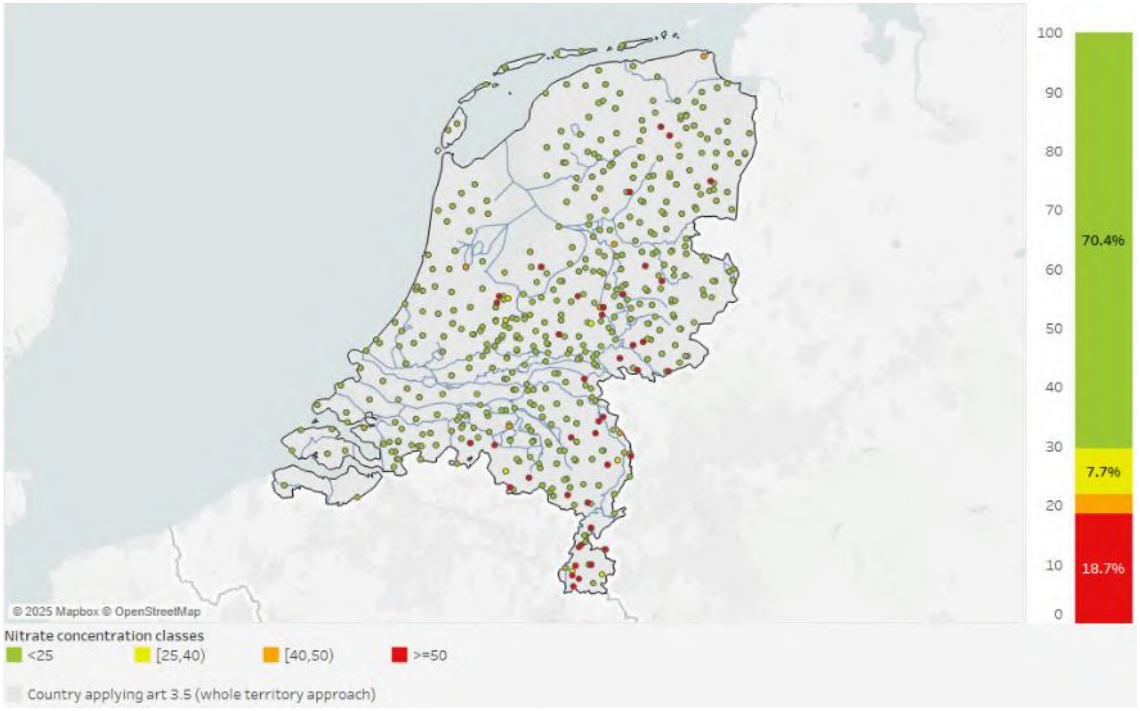
	Stations with measurements				Stations with trends			
Station type	2008-2011	2012-2015	2016-2019	2020-2023	2008-2011	2012-2015	2016-2019	2020-2023
Phreatic groundwater (0-5 m)			438	496			381	389
Phreatic groundwater (5-15 m)			317	234			317	232
Phreatic groundwater (15-30 m)			301	120			301	119
Phreatic groundwater (> 30 m)			161	89			161	89
Captive groundwater				364				357
Karstic groundwater				5				4
Not specified								
Total			1,217	1,308			1,160	1,190

([12]) The Netherlands reported that monitoring was discontinued in 477 monitoring points relative to the previous reporting period. Discontinuation may be due to nitrate concentrations below 25 mg/l, change in station code or type, or other specific reasons.

4.2. Nitrate concentrations in groundwater

In the Netherlands, 18.7% of groundwater monitoring points showed average nitrate concentrations equal to or above the drinking water threshold of 50 mg/l, whereas 3.2% had concentrations between 40-49.99 mg/l, 7.7% showed concentrations between 25-39.99 mg/ and 70.4% below 25 mg/l. The Figure below shows a spatial distribution of the average nitrate concentrations and the shares in corresponding nitrate concentration classes.

Figure 9 – Map of average annual mean nitrate concentrations in groundwater and share of monitoring points by nitrate concentration class in the reporting period 2020-2023



Note: In the map, monitoring points with higher values are plotted on top. In the graph, the percentages below 5% are not labelled.

Note: This map does not represent correctly the geographical distribution of the 496 shallow phreatic groundwater monitoring stations (0-5 m) because the Netherlands has not reported the location of these stations. This does not affect the shares in concentration classes.

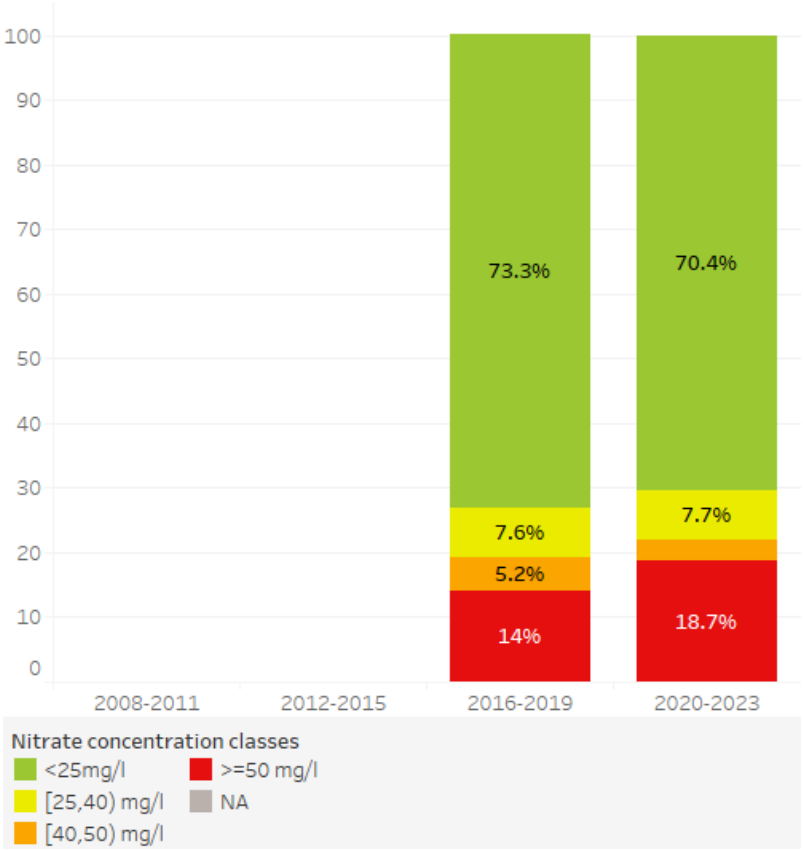
The station type categories with the highest share of points with nitrate concentrations ≥ 50 mg/l were karstic groundwater with share of 60% (3 out of 5 stations) and phreatic groundwater at depth 0-5m with share of 40.9%, as shown in the table below.

Table 4 – Share of groundwater monitoring points by nitrate concentration class (mg/l) in the reporting period 2020-2023, categorised by station type

	Number of stations	% of Total	<25	[25,40)	[40,50)	>=50
Phreatic groundwater (0-5 m)	496	37.9%	34.3%	17.9%	6.9%	40.9%
Phreatic groundwater (5-15 m)	234	17.9%	83.8%	2.6%	2.1%	11.5%
Phreatic groundwater (15-30 m)	120	9.2%	88.3%	2.5%	1.7%	7.5%
Phreatic groundwater (> 30 m)	89	6.8%	97.8%	2.2%		
Captive groundwater	364	27.8%	98.9%	0.3%	0.3%	0.5%
Karstic groundwater	5	0.4%	40.0%			60.0%
Not specified						
Total	1,308	100.0%	70.4%	7.7%	3.2%	18.7%

Compared to the previous reporting period, the share of monitoring points with concentration ≥ 50 mg/l increased from 14.0% to 18.7%. The graph below presents the share of monitoring points per classes of nitrate concentrations in the last two reporting periods.

Figure 10 – Share of monitoring points in groundwater by class of nitrate concentration ([13]) in the current and previous reporting periods



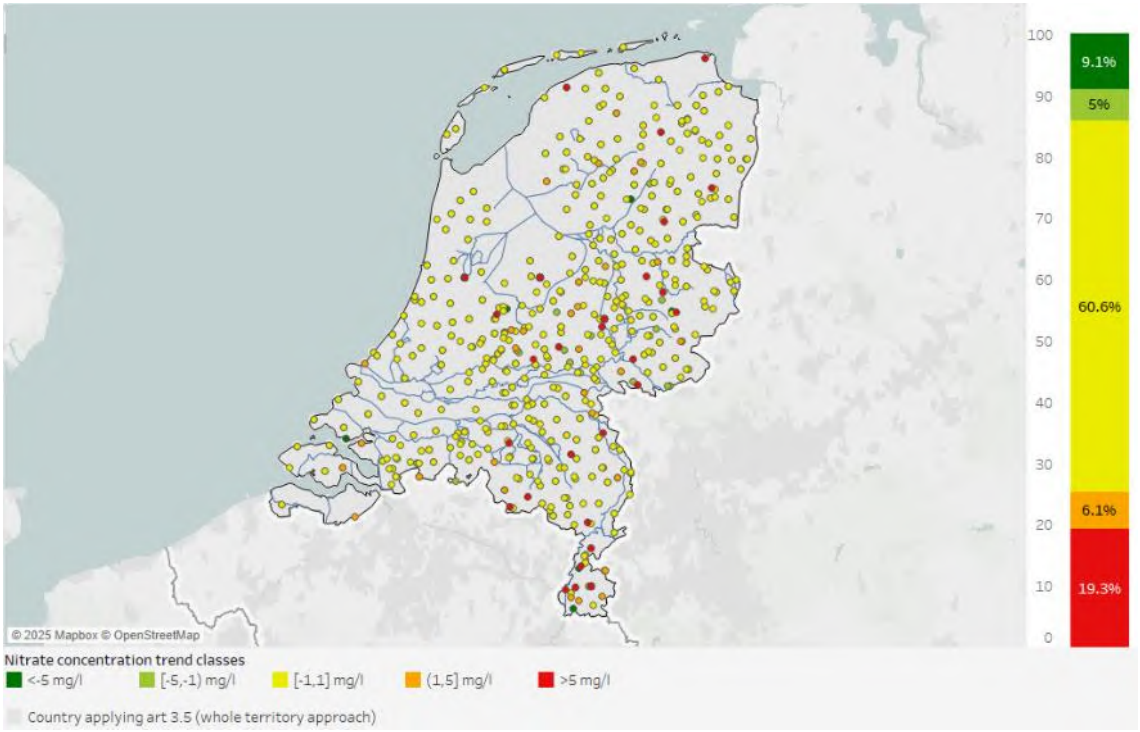
Note: The percentages below 5% are not labelled.

([13]) Average of annual mean values over the reporting period.

4.3. Trends in nitrate concentrations in groundwater

Compared to the last reporting period, there has been a decrease of nitrate concentrations in 14.1% of monitoring points and an increase in 25.4%. For the remaining 60.6% there was no significant change. The increase or decrease can be categorised as weak if it is between 1 and 5 mg/l, and as strong if its above 5 mg/l.

Figure 11 – Map of trends in average annual mean nitrate concentrations ([14]) in groundwater between the periods 2016-2019 and 2020-2023 and share of monitoring points by trend class



Note: In the map, monitoring points with higher values are plotted on top.

Note: This map does not represent correctly the geographical distribution of the 496 shallow phreatic groundwater monitoring stations (0-5 m) because the Netherlands has not reported the location of these stations. This does not affect the shares in concentration classes.

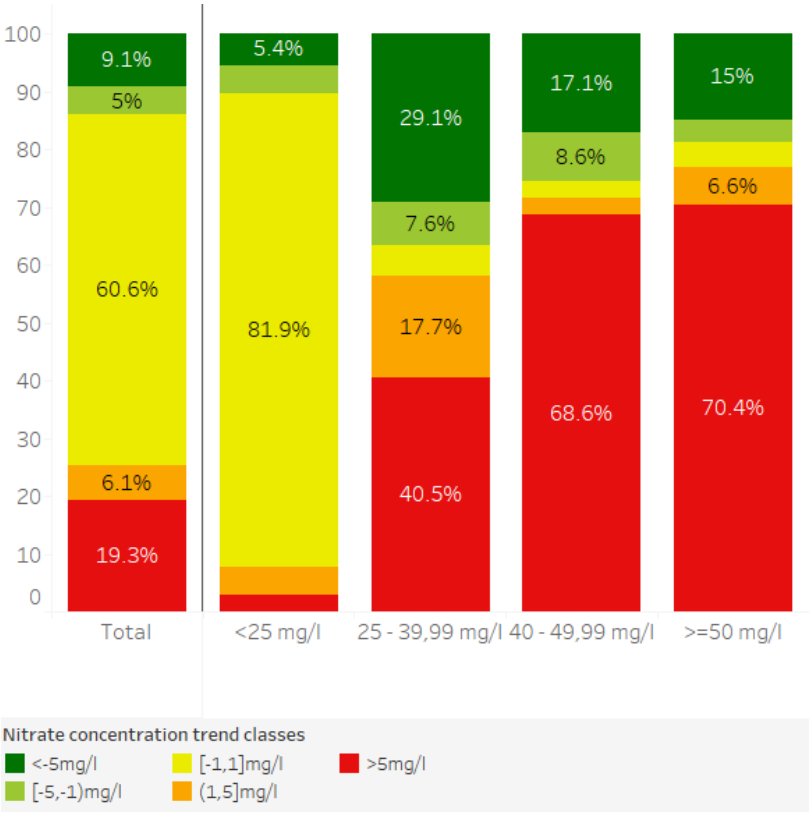
Table 5 – Share of groundwater monitoring points by trend class (mg/l) between the periods 2016-2019 and 2020-2023, categorised by station type

	Total Number of Stations	% Total Number of Stations	<-5	[-5,-1)	[-1,1]	(1,5]	>5
Phreatic groundwater (0-5 m)	389	32.7%	17.2%	7.7%	12.3%	10.3%	52.4%
Phreatic groundwater (5-15 m)	232	19.5%	12.1%	4.3%	67.7%	7.3%	8.6%
Phreatic groundwater (15-30 m)	119	10.0%	5%	7.6%	82.4%	3.4%	1.7%
Phreatic groundwater (>30 m)	89	7.5%	1.1%	9%	79.8%	7.9%	2.2%
Captive groundwater	357	30.0%	1.4%	0.6%	96.9%	0.6%	0.6%
Karstic groundwater	4	0.3%	25%		25%	50%	
Not specified							
Total	1,190	100.0%	9.1%	5%	60.6%	6.1%	19.3%

([14]) The average of annual mean values of nitrate concentrations over the reporting period 2020-2023 compared to the average for the reporting period 2016-2019.

When looking at the trend for waters that are polluted during the current reporting period (above 50 mg/l), there has been an increase of nitrate concentration for 77.0% and a decrease for 18.8% between the previous and the current reporting periods. The graph below shows the increase (in red and orange) and decreases (in green) per nitrate concentration class.

Figure 12 – Share of groundwater monitoring points by classes of trend between the periods 2016-2019 and 2020-2023, across different nitrate concentration classes (<24.99 mg/l, 25-39.99 mg/l, 40-49.99 mg/l and ≥50mg/l) ([15])

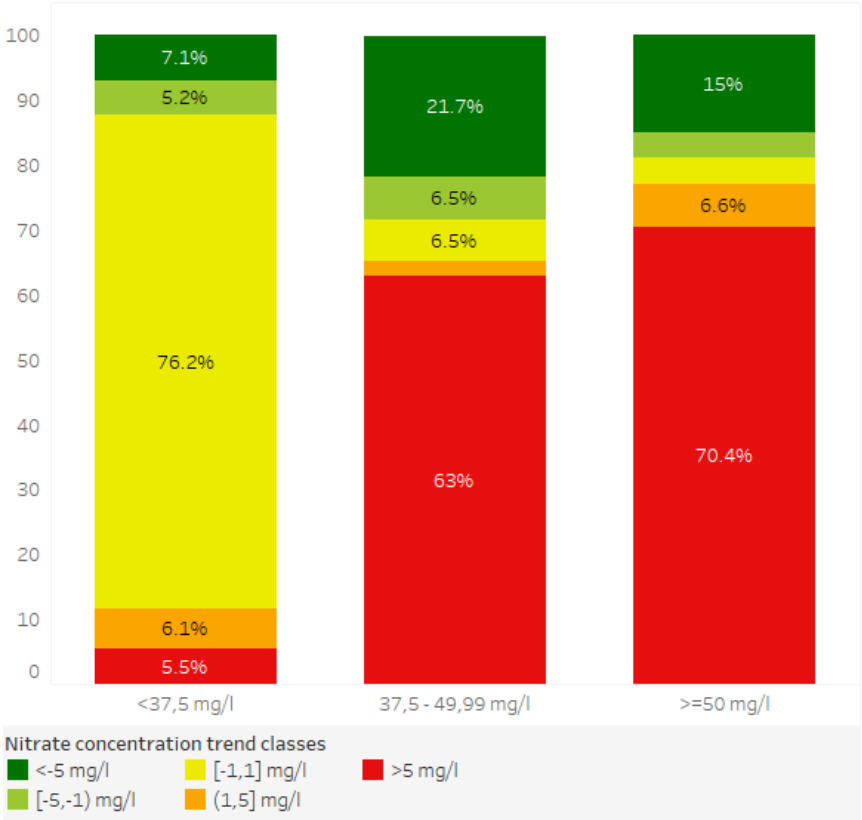


Note: The percentages below 5% are not labelled.

([15]) Nitrate concentration classes as per the Nitrates Directive report.

To better align the water quality assessment with the thresholds defined under the Groundwater Directive, trends were also calculated for the water quality class with nitrate concentrations between 37.5-49.99 mg/l. When looking at the trend in this concentration category, there has been an increase of nitrate concentration for 65.2% and a decrease for 28.2% monitoring points.

Figure 13 – Share of groundwater monitoring points by classes of trend between the periods 2016-2019 and 2020-2023, in different nitrate concentration classes (<37.5 mg/l, 37.5-49.99 mg/l and ≥50mg/l) ([16])

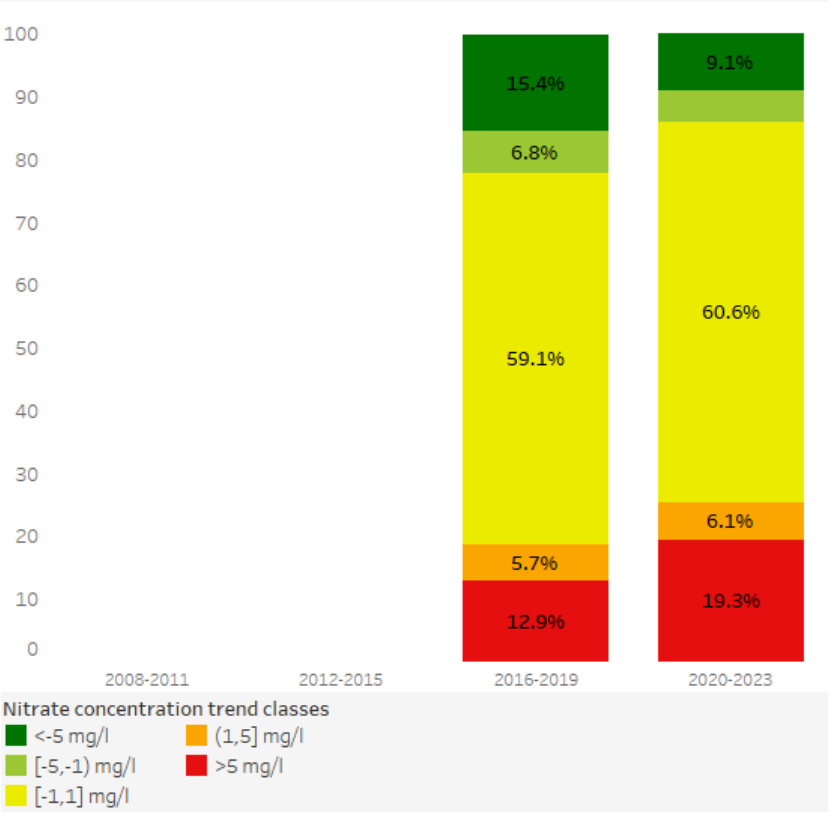


Note: The percentages below 5% are not labelled.

([16]) Nitrate concentration classes as in the Water Framework Directive guidance on GW status and trend assessment as division of nitrates quality standard (50 mg/l and 75 % of this value [37.5 mg/l]).

Compared to the previous reporting period, there is a lower share of monitoring points with decreasing nitrate concentrations (14.1% in the current reporting period compared to 22.2% in the previous reporting period) and a higher share of monitoring points with increasing nitrate concentrations (25.4% compared to 18.6%%). The graph below shows the share of monitoring points with increases (in red and orange), decreases (in green) and without significant change (in yellow) in nitrate concentrations between reporting periods.

Figure 14 – Share of groundwater monitoring points by class of nitrate concentration trend ([17]) in the current and previous reporting periods



Note: The percentages below 5% are not labelled.

([17]) Change in average annual mean nitrate concentrations to the previous reporting period.

4.4. Nitrate pollution hotspots in groundwater

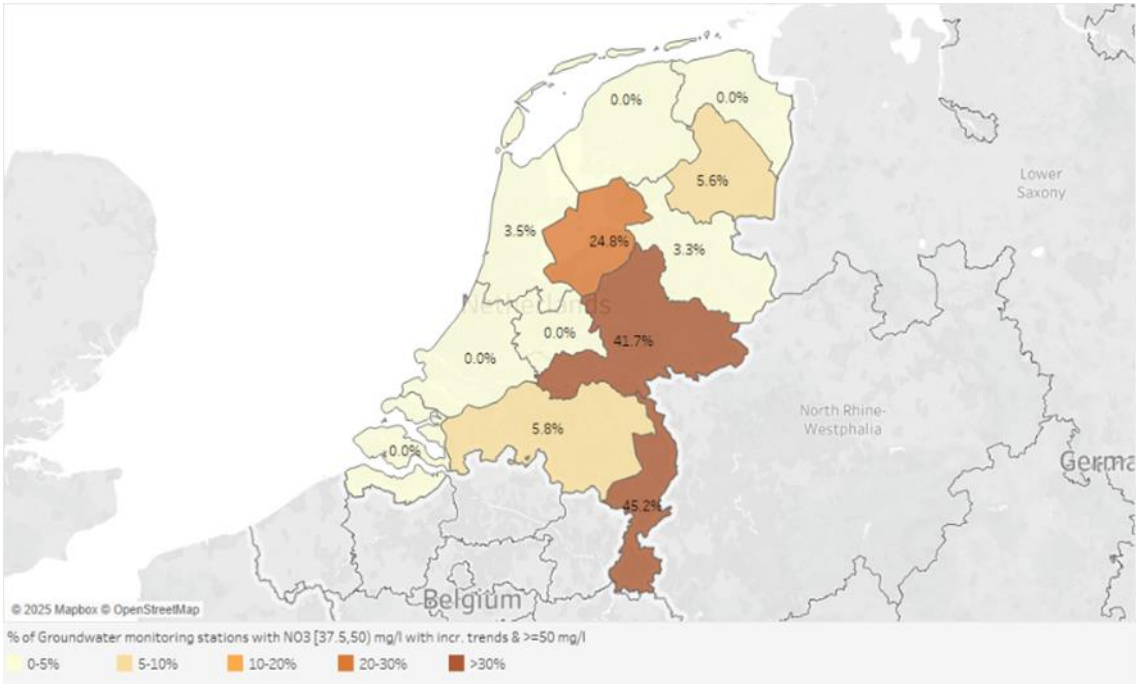
A nitrate pollution hotspot in groundwater is defined here as a monitoring point where the average annual nitrate concentration is either ≥ 50 mg/l or between 37.5 and 49.99 mg/l with an increasing trend. In the Netherlands there are 274 groundwater nitrate pollution hotspots.

Figure 15 – Groundwater nitrate pollution hotspots

		inside NVZ	outside NVZ	Total
Groundwater	[37.5,50) with incr. trend	30		30
	>=50	244		244
Not Specified	[37.5,50) with incr. trend			
	>=50			
Total		274		274

Note: This map does not represent correctly the geographical distribution of the 496 shallow phreatic groundwater monitoring stations (0-5 m) because the Netherlands has not reported the location of these stations. This does not affect the shares in concentration classes.

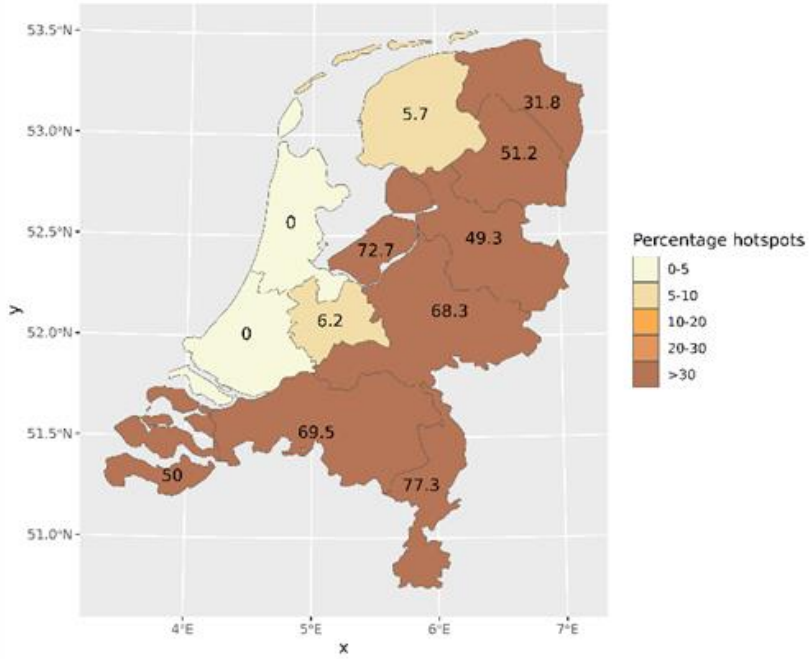
Figure 16 – Share of groundwater nitrate pollution hotspots at NUTS2 level



Note: This map does not represent correctly the geographical distribution of the 496 shallow phreatic groundwater monitoring stations (0-5 m) because the Netherlands has not reported the location of these stations. This does not affect the shares in concentration classes.

The map below shows the geographical distribution of hotspots in shallow phreatic groundwaters per NUTS 2 region. The provinces with the highest share of hotspots in shallow phreatic groundwaters are Limburg (77.3%), Flevoland (72.7%) and Noord-Brabant (69.5%).

Figure 17 – Share of groundwater nitrate pollution hotspots at NUTS2 level in shallow phreatic groundwater (0-5m)



Note: This map was produced and provided by the Netherlands for the correct display of the shallow phreatic groundwater monitoring stations (0-5 m).

5. NITRATES IN SURFACE WATERS

5.1. Monitoring of nitrate concentrations in surface waters

The Netherlands aims for maximum alignment in the water quality reports for the WFD and the Nitrates Directive. Surface water targets have been formulated based on the system developed under the WFD, and nitrates reporting uses data from all WFD monitoring locations in both regional and national waters. However, not all surface waters directly affected by agriculture such as ditches, canals and smaller size surface waters are designated as water bodies under the WFD ([18]).

The monitoring strategy, particularly the sampling frequency, differs among the multiple monitoring networks for surface waters. These networks are designed at the regional or national level or considering specific water types. It depends on factors such as the expected change in water quality over time, the magnitude of change intended to be detectable, variation in time and space, geohydrological conditions, and the organisational and financial aspects of sampling. Based on these factors the sampling can vary from one sample per year to seasonal samples or monthly samples.

During the reporting period 2020-2023 nitrate concentrations were reported at 1 112 surface water monitoring points. Among these, 35.1% were in rivers, 61.5% were in lakes or reservoirs ([19]), and 3.4% were in saline waters. The freshwater monitoring points density was 28.7 stations per 1000 km^2.

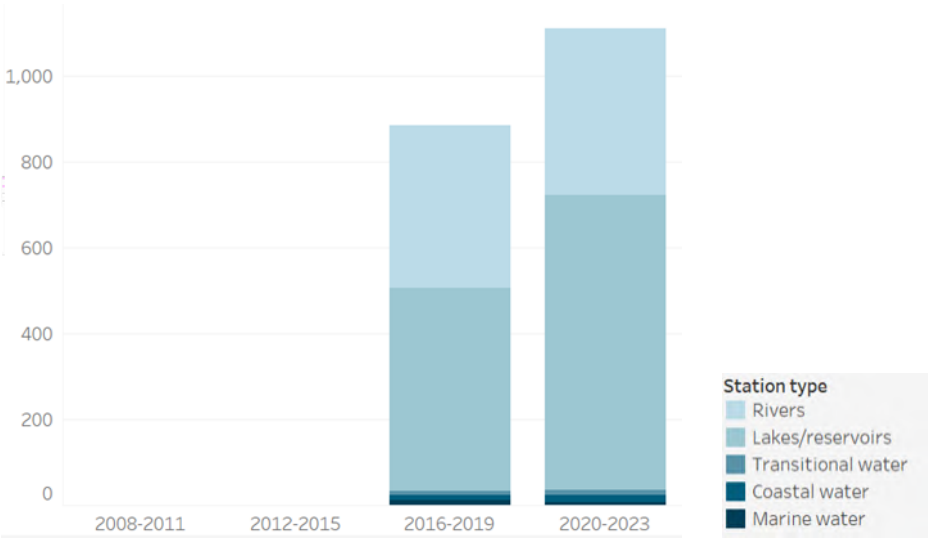
The overall number of monitoring points increased by 226 (25.5%) compared to the previous reporting period. The main increase is due to an additional 209 monitoring points in lakes/reservoirs. The graph below presents the changes in the monitoring network over last two reporting periods. ([20])

([18]) The LLM network also monitors nutrient concentrations in ditches and canals directly affected by agriculture and the measures of the NAP apply throughout the whole territory.

([19]) This category of points also includes ditches and canals.

([20]) Stations for the reporting periods 2008-2011 and 2012-2015 are not shown due to previous errors in reporting. Although these reporting errors were resolved thereupon, it is not possible to include the new data in the subsequent reports.

Figure 18 – Evolution of surface water monitoring network (monitoring points with measurements of nitrates)



In this reporting period, changes in nitrate concentrations compared to the previous monitoring period (trends) were assessed for 1 054 monitoring points, accounting for 79.7% of all points with measurements. The share of monitoring points with trends increased compared to the previous reporting period (76.7% in reporting period 2016-2019). The table below presents the number of monitoring points and the number of monitoring points with trends in the last four reporting periods.

Table 6 – Number of surface water monitoring points with measurements of nitrates and trends per type ([21])

	Stations with measurements				Stations with trends			
Station type	2008-2011	2012-2015	2016-2019	2020-2023	2008-2011	2012-2015	2016-2019	2020-2023
Rivers			377	390			344	376
Lakes/reservoirs			475	684			430	642
Transitional water			10	13			10	13
Coastal water			12	14			12	14
Marine water			12	11			12	9
Total			886	1,112			808	1,054

([21]) The Netherlands reported that monitoring was discontinued in 181 monitoring points relative to the previous reporting period. Discontinuation may be due to nitrate concentrations below 25 mg/l, change in station code or type, or other specific reasons.

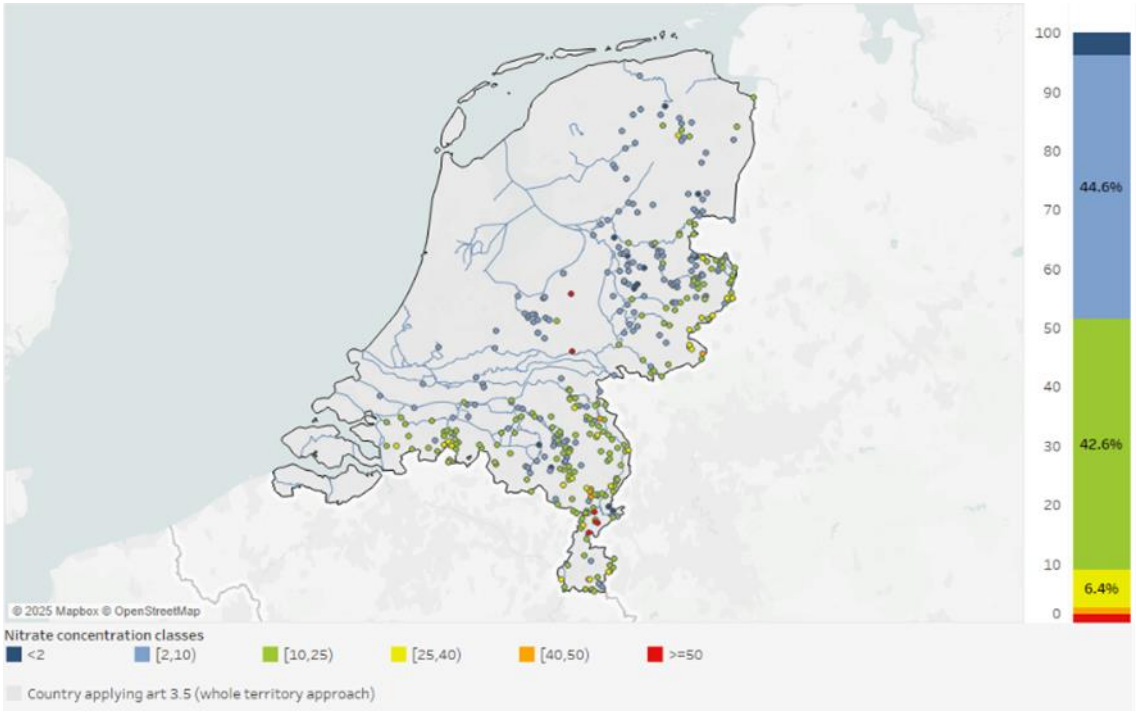
5.2. Nitrate concentrations in surface waters

Rivers

In the Netherlands, 1.5% of monitoring points in rivers showed average nitrate concentrations equal to or above the drinking water threshold of 50 mg/l, whereas 1.0% had concentrations between 40-49.99 mg/l, 6.4% showed concentrations between 25-39.99 mg/, 42.6% in the class 10-24.99 mg/l, 44.6% in the class 2-9.99 mg/l and 3.8% below 2 mg/l.

It is relevant to look at the distribution in nitrate concentration classes below 25 mg/l for surface water as there can be a risk of eutrophication in lower concentration classes.

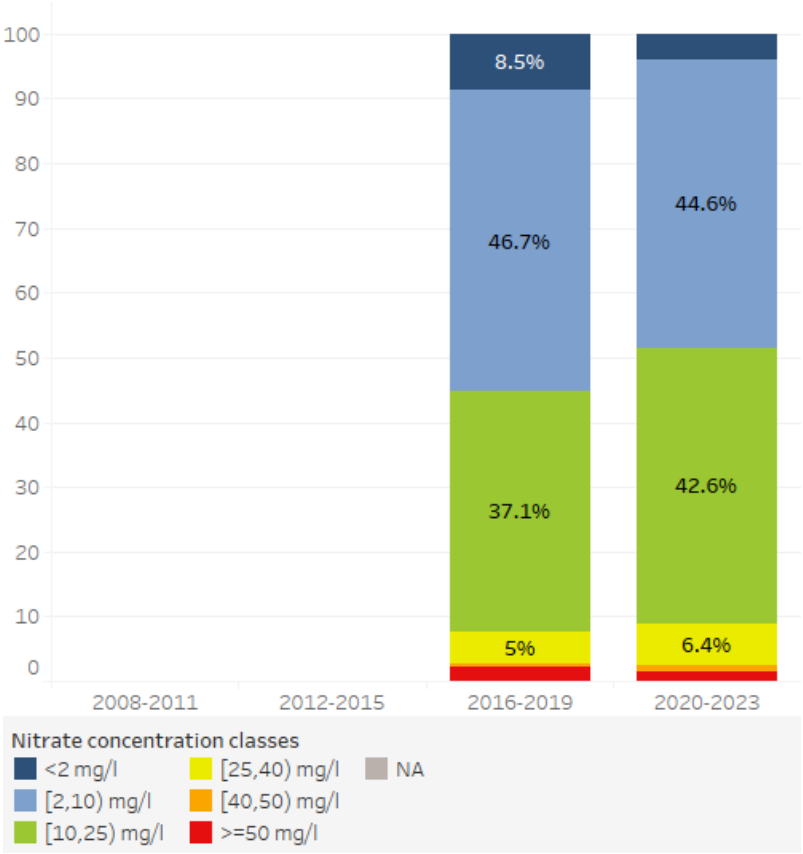
Figure 19 – Map of average annual mean nitrate concentrations in rivers and share of monitoring points by concentration class in the reporting period 2020-2023



Note: In the map, monitoring points with higher values are plotted on top. In the graph, the percentages below 5% are not labelled.

Compared to the previous reporting period, the share of monitoring points in rivers with concentrations ≥ 50 mg/l decreased from 2.1% to 1.5%. The graph below presents the shares of monitoring points per classes of nitrate concentration in last two reporting periods.

Figure 20 – Share of monitoring points in rivers by class of nitrate concentration ([22]) in the current and previous reporting periods



Note: The percentages below 5% are not labelled.

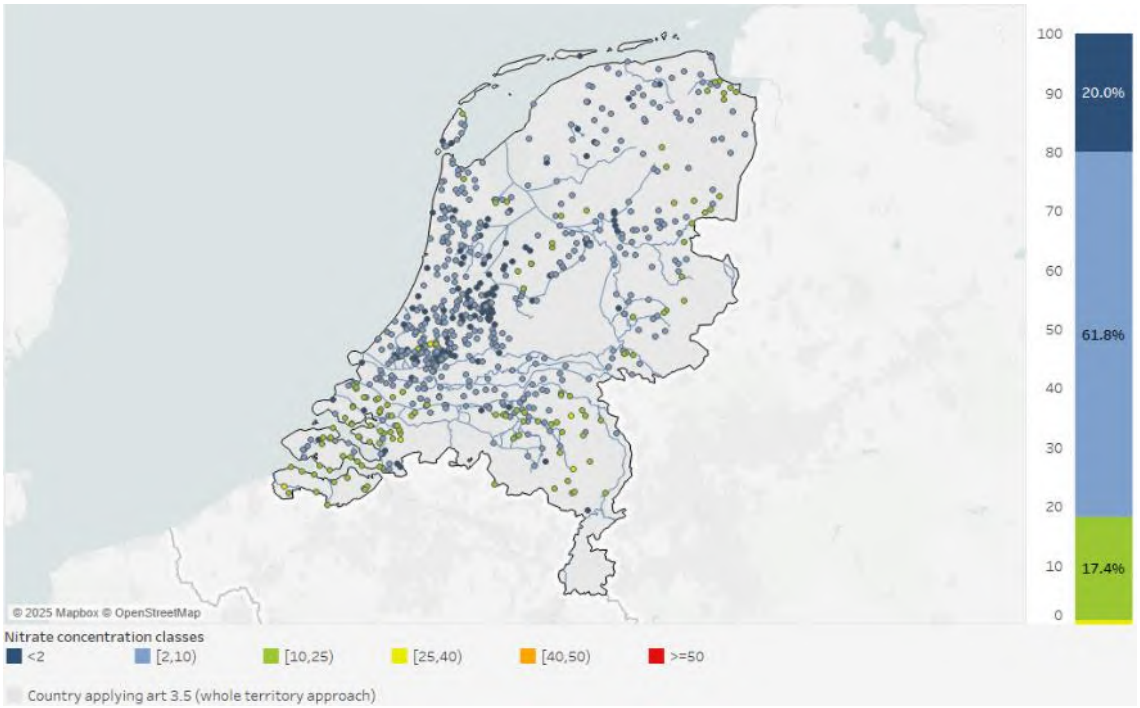
([22]) Average of annual mean values over the reporting period.

Lakes/water reservoirs

In the Netherlands, no freshwater monitoring points in lakes/water reservoirs showed average nitrate concentration above the drinking water threshold of 50 mg/l and between 40-49.99 mg/l, whereas 0.7% showed concentrations between 25-39.99 mg/, 17.4% in the class 10-24.99 mg/l, 61.8% in the class 2-9.99 mg/l and 20.0% below 2 mg/l.

It is relevant to look at the distribution in nitrate concentration classes below 25 mg/l for surface water as there can be a risk of eutrophication in lower concentration classes.

Figure 21 – Map of average annual mean nitrate concentrations in lakes/water reservoirs and share of monitoring points by concentration class in the reporting period 2020-2023



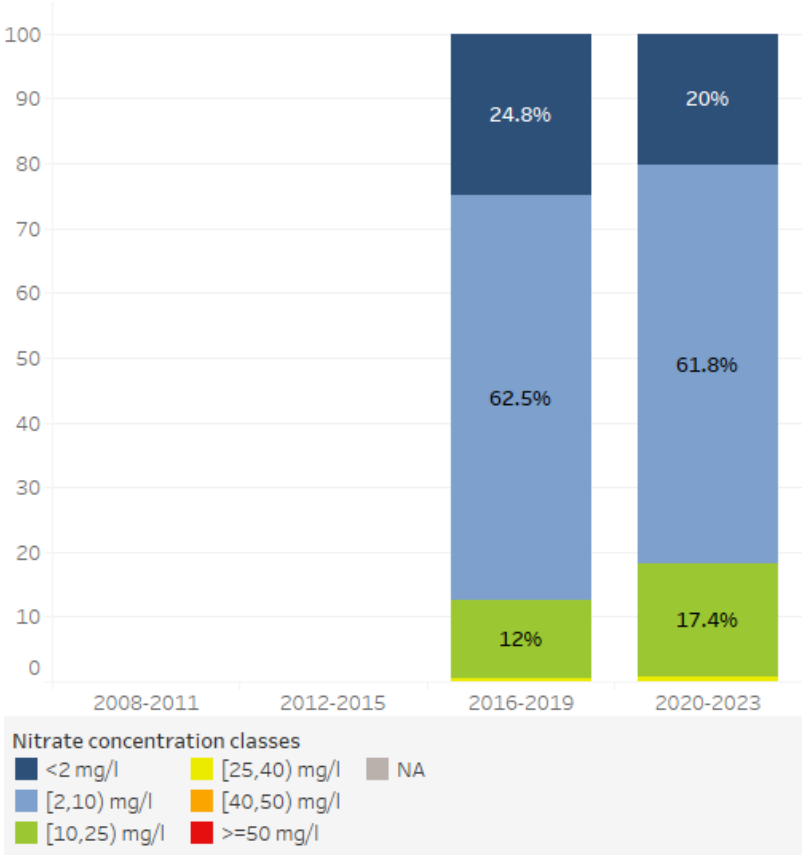
Note: In the map, monitoring points with higher values are plotted on top. In the graph, the percentages below 5% are not labelled.

Table 7 – Share of freshwater monitoring points by nitrate concentration class (mg/l) in reporting period 2020-2023, categorised by station type

	Number of stations	% of Total	<2	[2,10)	[10,25)	[25,40)	[40,50)	>=50
Rivers	390	36.3%	3.8%	44.6%	42.6%	6.4%	1.0%	1.5%
Lakes/reservoirs	684	63.7%	20.0%	61.8%	17.4%	0.7%		
Total	1,074	100.0%	14.2%	55.6%	26.5%	2.8%	0.4%	0.6%

Compared to the previous reporting period, the share of monitoring points in lakes/water reservoirs with concentration ≥ 50 mg/l remained at 0%. The graph below presents the shares of monitoring points per classes of nitrate concentration in last two reporting periods. From 2016-2019 to 2020-2023 the share in concentration class 10-24.99 mg/l increased from 12.0% to 17.4% while the shares in classes 2-9.99 mg/l and <2 mg/l decreased slightly.

Figure 22 – Share of monitoring points in lakes/water reservoirs by class of nitrate concentration ([23]) in the current and previous reporting periods



Note: The percentages below 5% are not labelled.

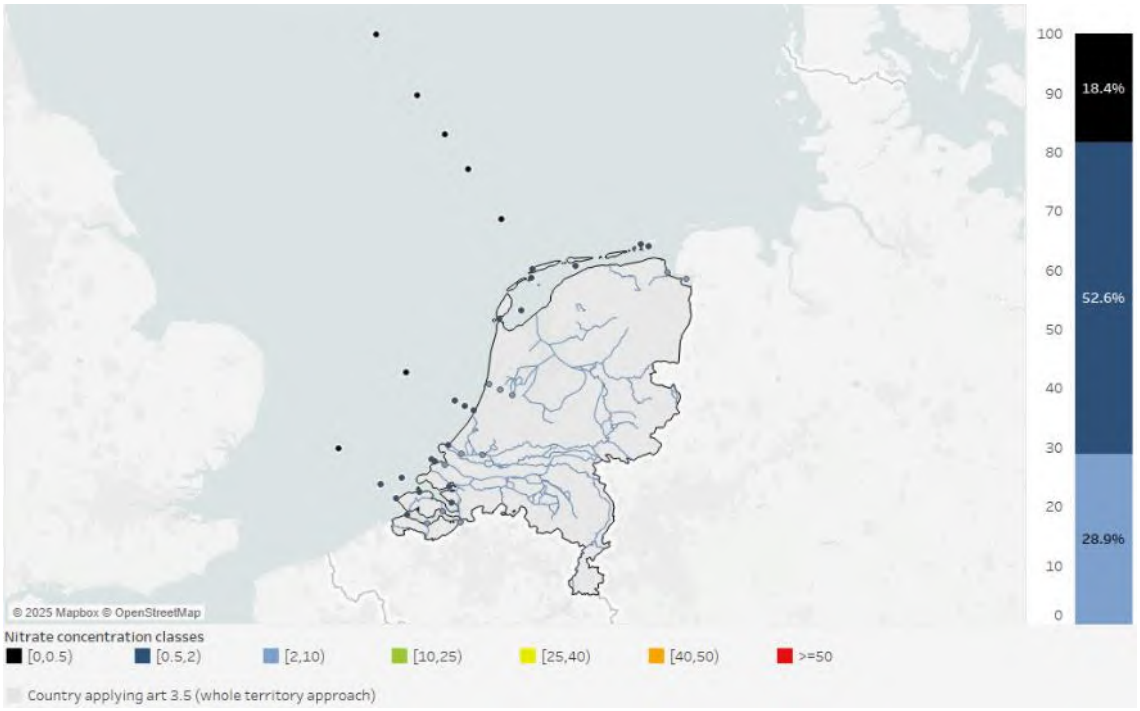
([23]) Average of annual mean values over the reporting period.

Saline waters ([24])

No points in saline waters monitoring points showed average nitrate concentrations ≥ 10 mg/l, 28.9% showed concentrations 2-9.99 mg/l and 52.6% between 0.5-2 mg/l and 18.4% below 0.5 mg/l.

It is relevant to look in detail at very low nitrate concentrations, also below 0.5 mg/l and between 0.5 mg/l and 2 mg/l, because saline waters tend to have very low concentrations and some saline waters can become eutrophic even at concentrations below 2 mg/l.

Figure 23 – Map of average annual mean nitrate concentrations in saline waters and share of monitoring points by concentration class in reporting period 2020-2023



Note: In the map, monitoring points with higher values are plotted on top.

It is also relevant to look separately at transitional waters as they typically show higher nitrate concentrations. In the Netherlands, 84.6% monitoring points showed average annual mean nitrate concentrations between 2-9.99 mg/l and 15.4% between 0.5-2 mg/l.

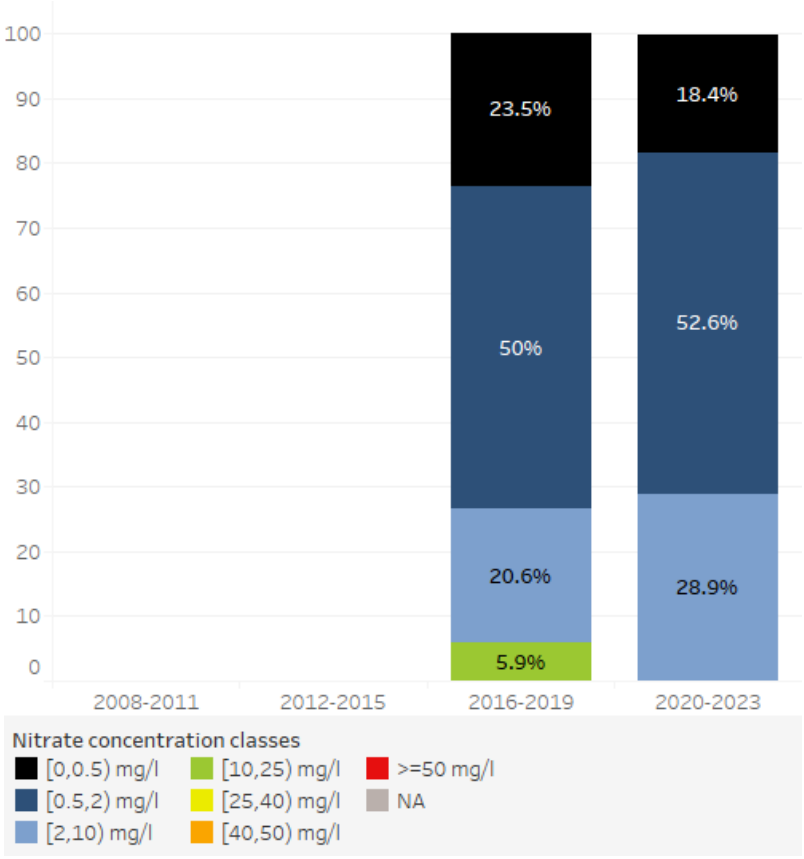
Table 8 – Share of saline water monitoring points by nitrate concentration class (mg/l) in the reporting period 2020-2023, categorised by station type

	Number of stations	% of Total	<0.5	[0.5,2)	[2,10)	[10,25)	[25,40)	[40,50)	>=50
Transitional water	13	34.2%		15.4%	84.6%				
Coastal water	14	36.8%		100.0%					
Marine water	11	28.9%	63.6%	36.4%					
Total	38	100.0%	18.4%	52.6%	28.9%				

([24]) This includes coastal, marine and transitional waters.

The graph below presents the shares of monitoring points per classes of nitrate concentration in the last two reporting periods. From 2016-2019 to 2020-2023 the share in concentration class 10-24.99 mg/l decreased from 5.9% to 0% while shares in classes 2-9.99 mg/l and 0.5-1.99 mg/l increased from 20.6% to 28.9% and from 50.0% to 52.6% while the share for stations with concentrations <2 mg/l decreased from 23.5% to 18.4%.

Figure 24 – Share of monitoring points in saline waters by class of nitrate concentration ([25]) in the current and previous reporting periods



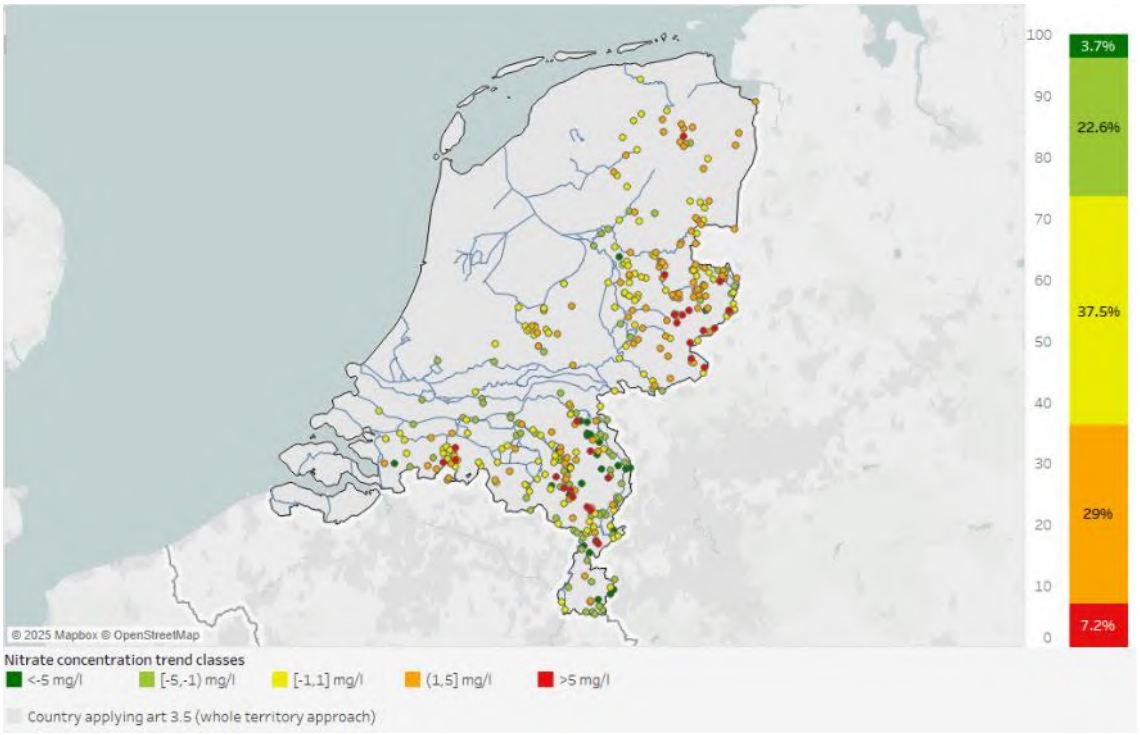
([25]) Average of annual mean values over the reporting period.

5.3. Trends in nitrate concentrations in surface waters

Rivers

Compared to the last reporting period, there has been a decrease of average nitrate concentrations in 26.3% of monitoring points and an increase in 36.2%. For the remaining 37.5% there was no significant change. The increase or decrease can be categorised as weak if it is between 1 and 5 mg/l, and as strong if its above 5 mg/l.

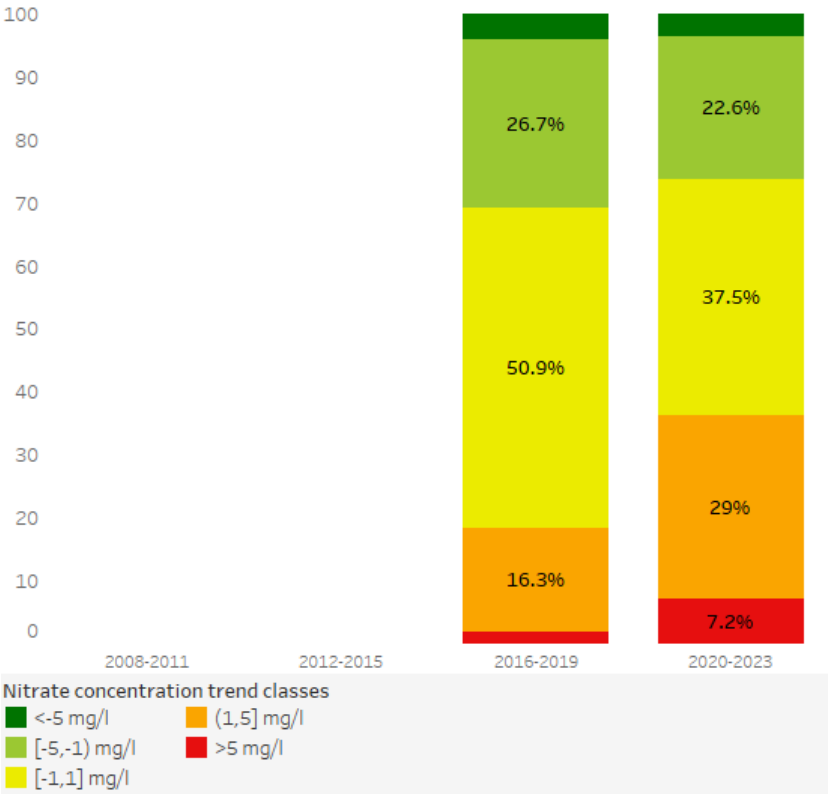
Figure 25 – Map of trends in average annual mean nitrate concentrations in rivers between the periods 2016-2019 and 2020-2023 and share of monitoring points by trend class



Note: In the map, monitoring points with higher values are plotted on top.

Compared to the previous reporting period, there is a lower share of monitoring points with decreasing nitrate concentrations (26.3% in the current reporting period compared to 30.8% in the previous reporting period compared) and a higher share of monitoring points with increasing nitrate concentrations (36.2% compared to 18.3%). The graph below shows the share of monitoring points with increases (in red and orange), decreases (in green) and without significant change (in yellow) in nitrate concentrations between reporting periods.

Figure 26 – Share of monitoring points in rivers by class of nitrate concentration trend ([26]) in the current and previous reporting periods



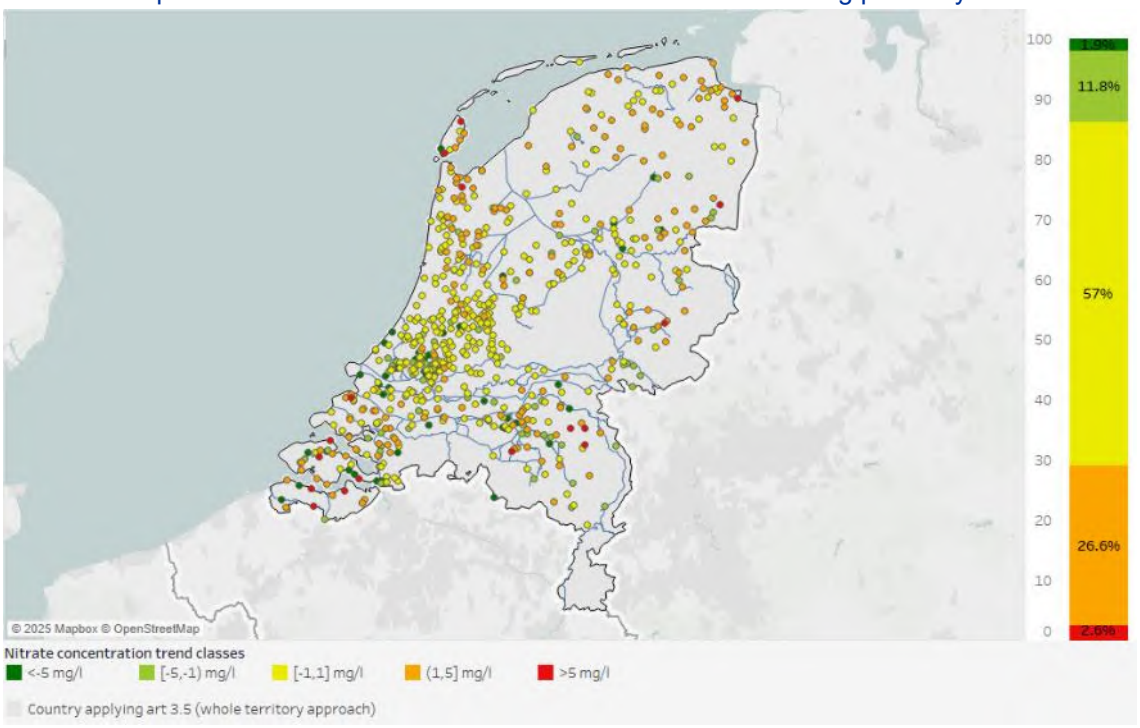
Note: The percentages below 5% are not labelled.

([26]) Change in average annual mean nitrate concentrations to the previous reporting period.

Lakes and water reservoirs

Compared to the last reporting period, there has been a decrease of nitrate concentrations in 13.7% of monitoring points and an increase in 29.2%. For the remaining 57.0% there was no significant change. The increase or decrease can be categorised as weak if it is between 1 and 5 mg/l, and as strong if its above 5 mg/l.

Figure 27 – Map of trends in average annual mean nitrate concentrations in lakes/water reservoirs between the periods 2016-2019 and 2020-2023 and share of monitoring points by trend class



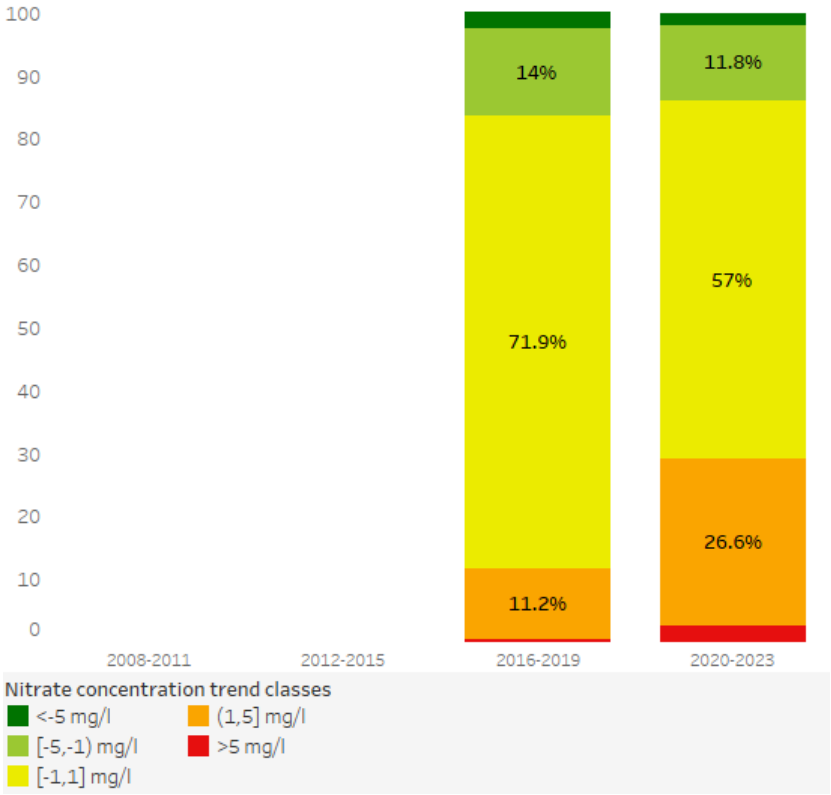
Note: In the map, monitoring points with higher values are plotted on top.

Table 9 – Share of freshwater monitoring points by trend class (mg/l) between the periods 2016-2019 and 2020-2023, categorised by station type

	Total Number of Stations	% Total Number of Stations	<-5	[-5,-1)	[-1,1]	(1,5]	>5
River	376	36.9%	3.7%	22.6%	37.5%	29%	7.2%
Lake/Reservoir	642	63.1%	1.9%	11.8%	57%	26.6%	2.6%
Total	1,018	100.0%	2.6%	15.8%	49.8%	27.5%	4.3%

Compared to the previous reporting period, there is a lower share of monitoring points with decreasing nitrate concentrations (13.7% in the current reporting period compared to 16.6% in the previous reporting period) and a higher share of monitoring points with increasing nitrate concentrations (29.2% compared to 11.7%). The graph below shows the share of monitoring points with increases (in red and orange), decreases (in green) and without significant change (in yellow) in nitrate concentrations between reporting periods.

Figure 28 – Share of monitoring points in lakes/water reservoirs by class of nitrate concentration trend ([27]) in the current and previous reporting periods



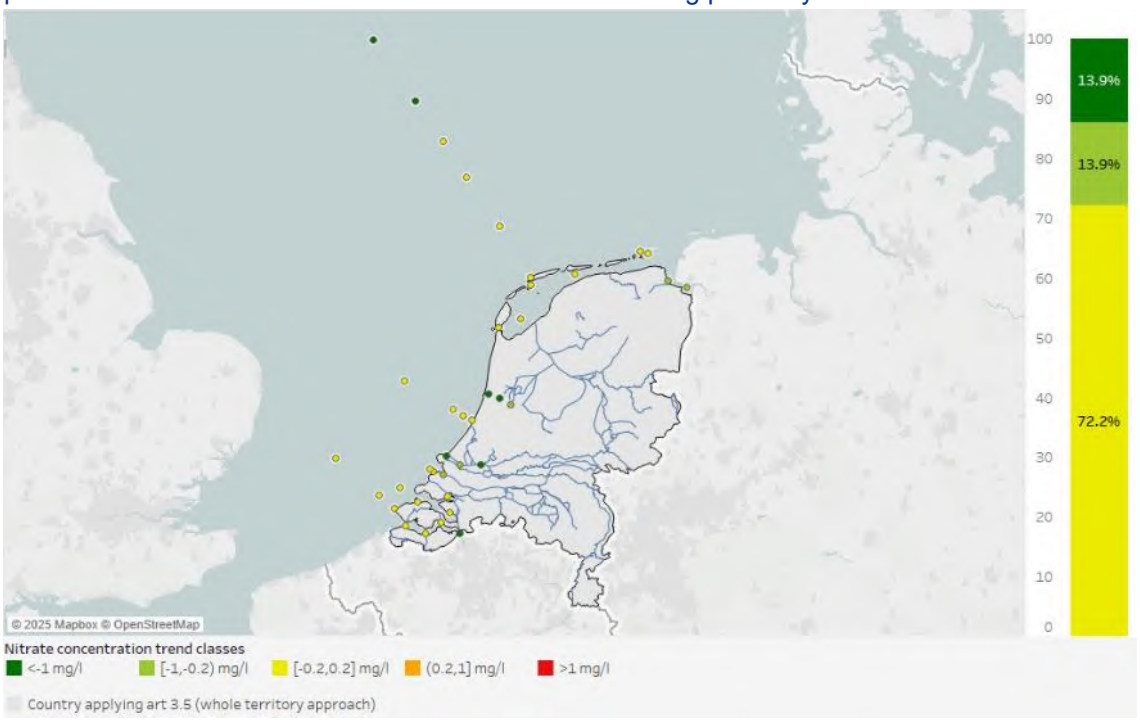
Note: The percentages below 5% are not labelled.

([27]) Change in average annual mean nitrate concentrations to the previous reporting period.

Saline waters

Compared to the last reporting period, there has been a decrease of nitrate concentrations in 27.8% of monitoring points and no increases. For the remaining 72.2% there was no significant change. The increase or decrease can be categorised as weak if it is between 0.2 and 1 mg/l, and as strong if its above 1 mg/l.

Figure 29 – Map of trends in average annual mean nitrate concentrations in saline waters between periods 2016-2019 and 2020-2023 and share of monitoring points by trend class



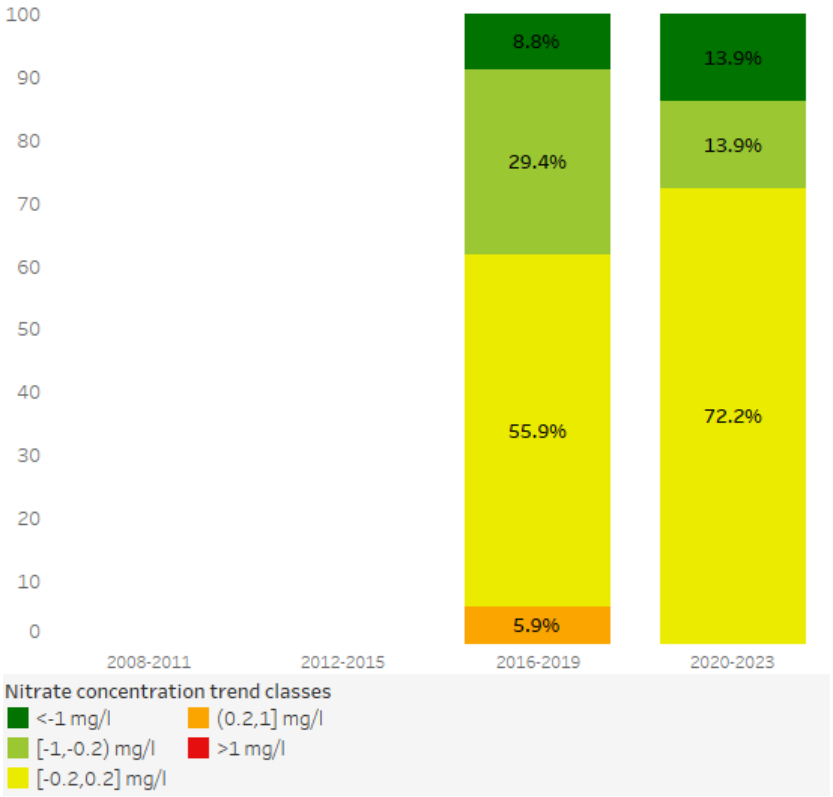
Note: In the map, monitoring points with higher values are plotted on top.

Table 10 – Share of saline water monitoring points by trend class (mg/l) between the periods 2016-2019 and 2020-2023, categorised by station type

	Total Number of Stations	% Total Number of Stations	<-1	[-1,-0.2)	[-0.2,0.2]	(0.2,1]	>1
Transitional water	13	36.1%	38.5%	38.5%	23.1%		
Coastal water	14	38.9%			100%		
Marine water	9	25.0%			100%		
Total	36	100.0%	13.9%	13.9%	72.2%		

Compared to the previous reporting period, there is a lower share of monitoring points with decrease of nitrate concentrations (27.8% in the current reporting period compared to 38.2% in the previous reporting period) but also a lower share of monitoring points with increase of nitrate concentrations (0% compared to 5.9%). The graph below shows the share of monitoring points with increases (in red and orange), decreases (in green) and without significant change (in yellow) in nitrate concentrations between reporting periods.

Figure 30 – Share of monitoring points in saline waters by classes of nitrate concentrations ([28]) in the current and previous reporting periods



([28]) Change in average annual mean nitrate concentrations to the previous reporting period.

5.4. Nitrate pollution hotspots in surface waters

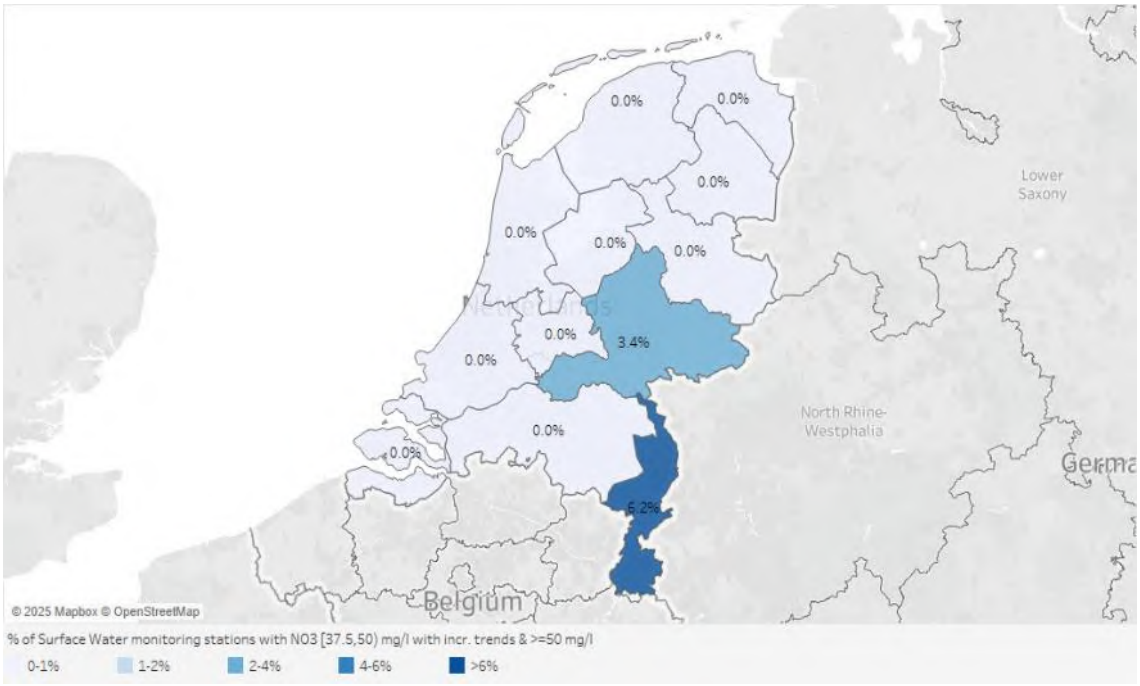
A nitrate pollution hotspot is defined here as a monitoring point where the average annual nitrate concentration is either ≥ 50 mg/l or between 37.5 and 49.99 mg/l with an increasing trend. There are 8 surface water nitrate pollution hotspots.

Figure 31 – Surface water nitrate pollution hotspots

		inside NVZ	outside NVZ	Total
Rivers	[37.5,50) with incr. trend	2		2
	>=50	6		6
Lakes/reservoirs	[37.5,50) with incr. trend			
	>=50			
Total		8		8

The highest share of the hotspots is in the provinces of Limburg (6.2%) and Gelderland (3.4%).

Figure 32 – Share of surface water nitrate pollution hotspots at NUTS2 level



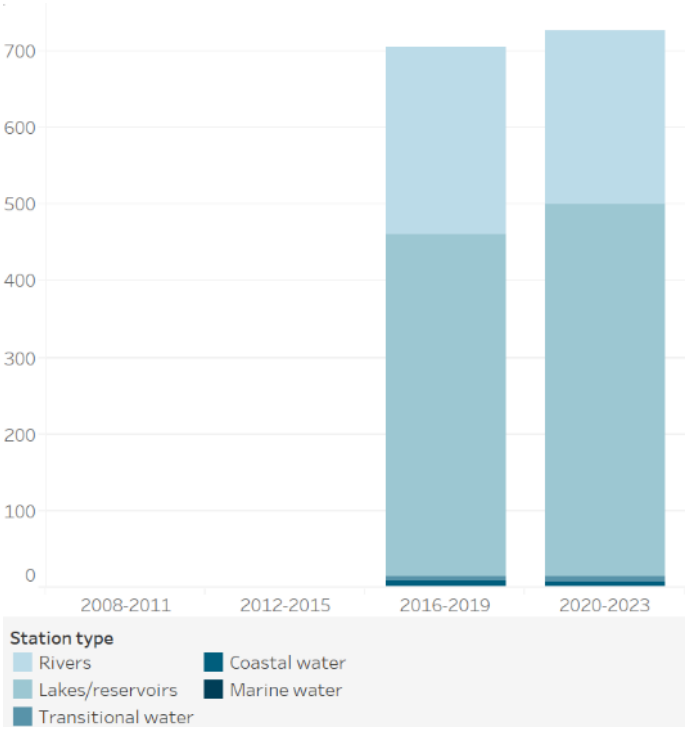
6. EUTROPHICATION OF SURFACE WATERS

6.1. Monitoring of trophic status in surface waters

During the reporting period 2020-2023 trophic status was reported at 726 monitoring points. Among these, 31.1% were in rivers, and 66.9% were in lakes or reservoirs, and 1.9% were in saline waters. The station density of monitoring points, where trophic status was assessed was 19.0 stations per 1 000 km^2.

The overall number of freshwater monitoring points increased by 21 (3.0%), and number of saline water monitoring points remained stable compared to the previous reporting period. ([29])

Figure 33 – Evolution in surface water monitoring network (number of points with trophic status reported)



([29]) Stations for the reporting periods 2008-2011 and 2012-2015 are not shown due to previous errors in reporting. Although these reporting errors were resolved thereupon, it is not possible to include the new data in the subsequent reports.

Table 11 – Number of monitoring points with trophic status by station type ([30])

Station type	Stations with trophic status			
	2008-2011	2012-2015	2016-2019	2020-2023
Rivers			243	226
Lakes/reservoirs			448	486
Transitional water			5	6
Coastal water			9	8
Marine water				
Total			705	726

6.2. Methodology for the assessment of trophic status

Following the indications in the ND reporting guidelines, the eutrophication status is assessed in accordance with the WFD methodology, using an evaluation of the biological conditions and nutrient status in water bodies. The benchmarks are based on the average summer values for total nitrogen and total phosphorus, expressed in mg/l as N and mg/l as P, respectively.

To assess the biological condition, measurements are taken at WFD locations for phytoplankton (in lakes, canals, coastal waters, and transitional waters) and phytobenthos or other water plants (in rivers). For phytoplankton, both the abundance (chlorophyll-α concentration) and the species composition are determined.

The water quality and eutrophication in marine waters are assessed according to the methodology established within the framework of OSPAR. A revision and harmonisation of the assessment of eutrophication in marine waters within OSPAR was completed in 2022, which included harmonised and coherent threshold values laid down in the revised Common Procedure. Additionally, for the first time, the assessment is based on a combination of in-situ data and satellite observations to determine chlorophyll-a concentrations, improving the reliability of the assessment.

The Netherlands reported that the parameters and limit values used in the eutrophication assessment for the Nitrates Directive align with those of the Water Framework Directive.

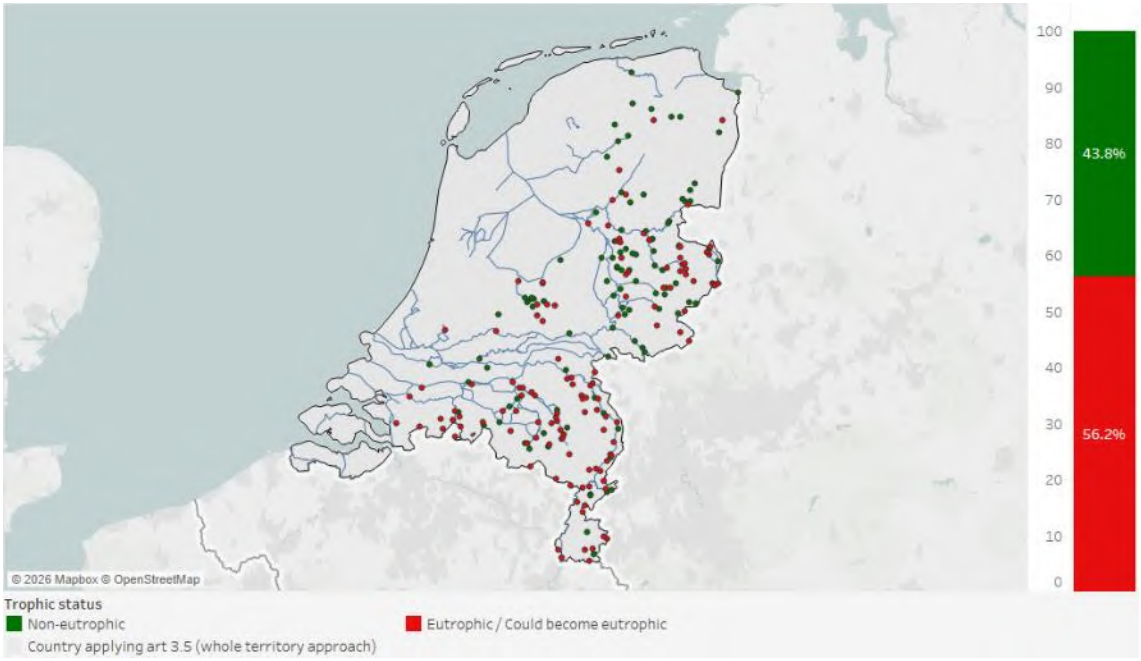
([30]) The Netherlands reported that monitoring was discontinued in 398 monitoring points relative to the previous reporting period. Discontinuation may be due to nitrate concentrations below 25 mg/l, change in station code or type, or other specific reasons.

6.3. Eutrophication of surface waters

Rivers

56.2% of monitoring points in rivers were eutrophic/could become eutrophic. The Figure below shows the shares in respective classes in a graph and spatial distribution in the map.

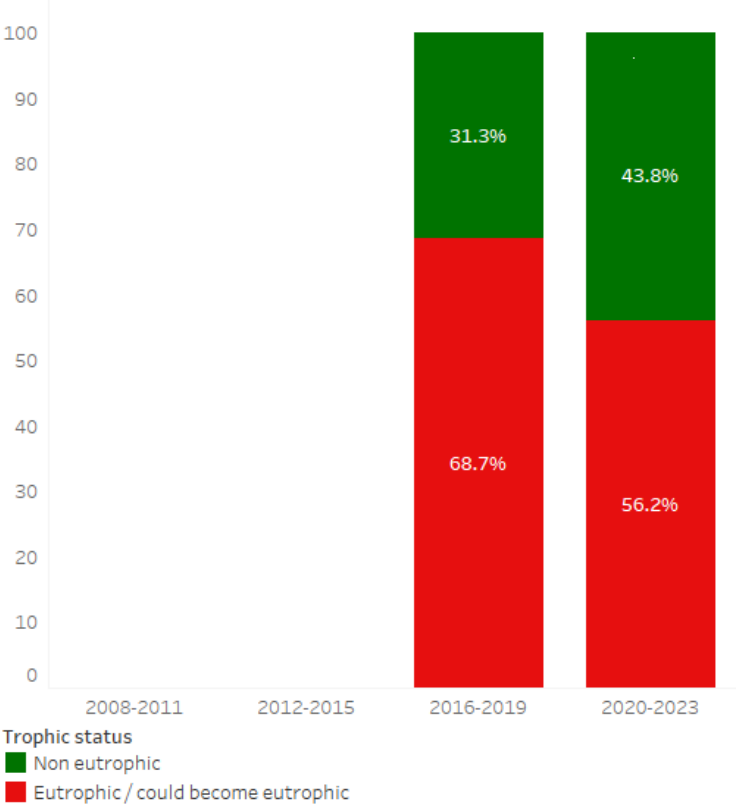
Figure 34 – Map of trophic status in rivers and share of monitoring points by trophic class in the reporting period 2020-2023



Note: In the map, eutrophic/could become eutrophic monitoring points are plotted on top.

Compared to the previous reporting period, the share of eutrophic/could become eutrophic monitoring points decreased from 68.7% to 56.2%. The graph below presents the shares of monitoring points according to their trophic status in the last two reporting periods.

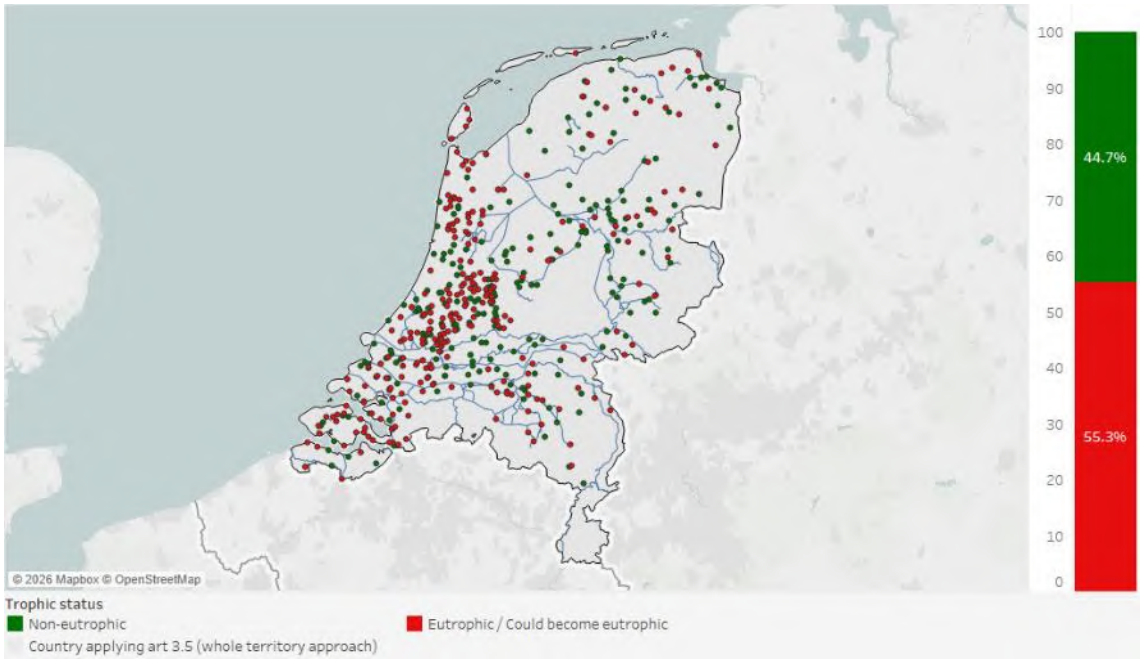
Figure 35 – Share of monitoring points in rivers by class of trophic status in the current and previous reporting periods



Lakes and water reservoirs

55.3% of monitoring points in lakes/water reservoirs were eutrophic/could become eutrophic. The figure below shows the shares in respective classes in a graph and spatial distribution in the map.

Figure 36 – Map of trophic status in lakes/water reservoirs and share of monitoring points by trophic class in the reporting period 2020-2023



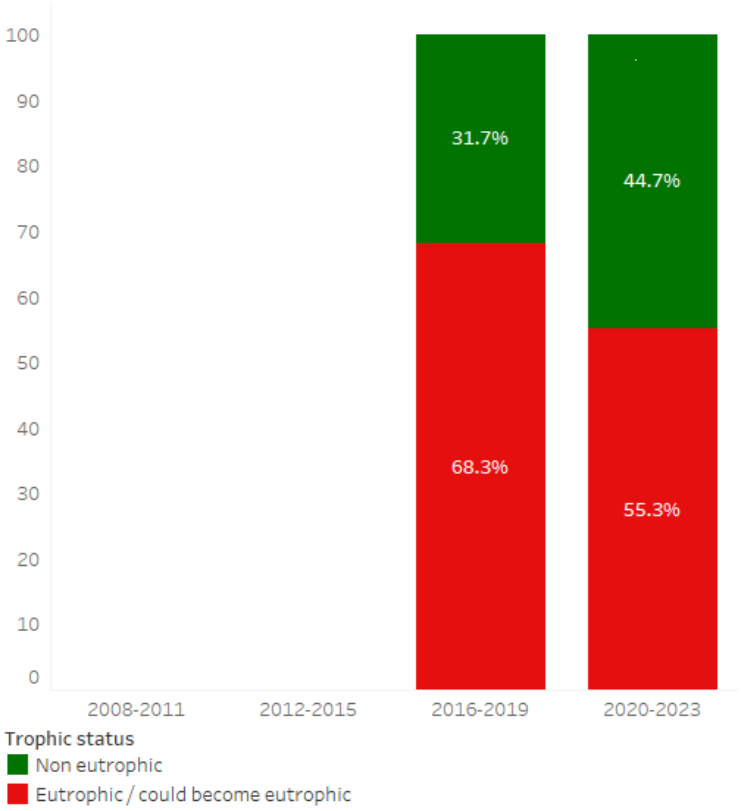
Note: In the map, eutrophic/could become eutrophic monitoring points are plotted on top.

Table 12 – Share of freshwater monitoring points by class of trophic status, categorised by station type

Station type	Number of Stations	% of Total	Non-eutrophic	Eutrophic/could become eutrophic
Rivers	226	31.7%	43.8%	56.2%
Lakes/reservoirs	486	68.3%	44.7%	55.3%
Total	712	100.0%	44.4%	55.6%

Compared to the previous reporting period, the share of eutrophic/could become eutrophic monitoring points decreased from 68.3% to 55.3%. The graph below presents the shares of monitoring points according to their trophic status in the last two reporting periods.

Figure 37 – Share of monitoring points in lakes/water reservoirs by class of trophic status in the current and previous reporting periods



Saline waters

78.6% of saline water monitoring points were eutrophic/could become eutrophic. The figure below shows the shares in respective classes in a graph and spatial distribution in the map.

Figure 38 – Map of trophic status in saline waters and share of monitoring points by trophic class in the reporting period 2020-2023

Note: In the map, eutrophic/could become eutrophic monitoring points are plotted on top.

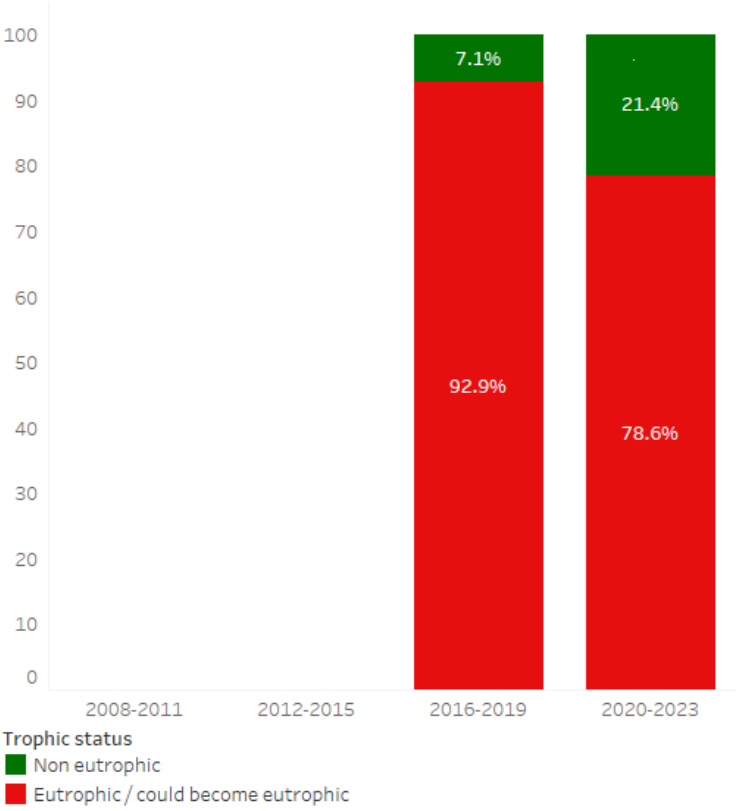
It is relevant to look separately at different types of saline waters (transitional, coastal and marine). In the Netherlands, 66.7% of transitional water and 87.5% of coastal water monitoring points were eutrophic/could become eutrophic, as shown in the table below.

Table 13 – Share of saline water monitoring points by class of trophic status, categorised by station type

Station type	Number of Stations	% of Total	Non-eutrophic	Eutrophic/could become eutrophic
Transitional water	6	42.9%	33.3%	66.7%
Coastal water	8	57.1%	12.5%	87.5%
Marine water				
Total	14	100.0%	21.4%	78.6%

Compared to the previous reporting period, the share of eutrophic/could become eutrophic monitoring points in saline waters decreased from 92.9% to 78.6%. The graph below presents the shares of monitoring points according to their trophic status in the last two reporting periods.

Figure 39 – Share of monitoring points in saline waters by class of trophic status in the current and previous reporting periods



6.4. Eutrophication hotspots in surface waters

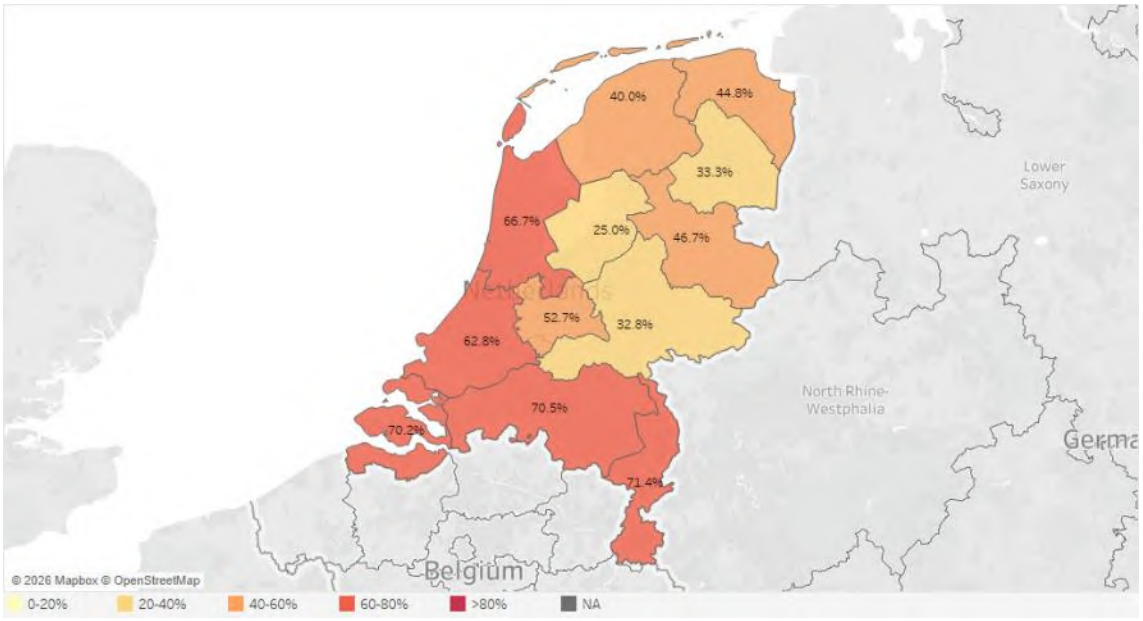
A eutrophication hotspot in surface waters is defined here as a monitoring point with trophic status evaluated as “eutrophic” or “could become eutrophic”. Overall, there are 407 surface water monitoring points which were reported eutrophic/could become eutrophic.

Figure 40 – Eutrophic/could become eutrophic monitoring points

	inside NVZ	Total
Rivers	127	127
Lakes	269	269
Transitional water	4	4
Coastal water	7	7
Total	407	407

The highest shares of hotspots are in Limburg (71.4%), North Brabant (70.5%) and Zeeland (70.2%).

Figure 41 – Share of eutrophic/could become eutrophic monitoring points at NUTS2 level



7. NITRATES ACTION PROGRAMME

The Nitrates Directive mandates the establishment of a code of good agricultural practice that shall be implemented by farmers on a voluntary basis and promoted through training and information for farmers. Action programmes with mandatory requirements for farms should be established and enforced in NVZ or across the entire territory with mandatory measures applicable to all farms in those areas. These requirements primarily focus on implementing good practices for the handling of fertilisers and manure on farms to minimise the risk of nutrient leaching and run-off from fields. Annex II and III of the Directive set the types of measures to be included. The directive leaves wide discretion to Member States to design the measures in line with local circumstances. Compliance with the action programme measures is monitored by public authorities.

The action programmes contain measures concerning fertiliser application (periods when land application of different types of fertilisers is prohibited, land application on steeply sloping ground, prohibition of land application on water-saturated, flooded, frozen or snow-covered ground, the conditions for land application of fertiliser near water courses, balanced fertilisation and the amount of livestock manure that can be applied to the land), and the capacity of storage vessels for livestock manure. They may also include additional measures in relation to fertilizer planning and record keeping, land use management, including the use of crop rotation systems, minimum vegetation cover during sensitive periods, irrigation systems and other relevant measures complementing the nitrates action programme.

7.1. Measures in the action programme and code of good agricultural practices

The first action program was published in 1995 and it was revised regurarly.The Sixth (2018-2021) and Seventh (2022-2025) Nitrates Action Programme applied during the current reporting period and form part of the fourth phase of Dutch fertiliser policy. This policy phase is characterised by tighter controls on manure production and responsible manure removal, complemented by local projects involving close cooperation with stakeholders to improve water quality. The Seventh Action Programme is implemented through amendments to The Fertilizer Law, The Decree on the fertilizer Law, The implementation regulation on the Fertilizer Law, The Environmental Activities Decree and The Environmental Regulation.

Although the Netherlands has designated its entire territory as a nitrate-vulnerable zone and therefore applies the Action Programme nationally, it differentiates measures according to soil types and regional susceptibility to leaching and run-off into groundwater and surface water. The regulations distinguish four soil type categories: sand, loess, clay and peat, with specific requirements for sandy soils. The action programme places particular emphasis on improving groundwater quality in the most vulnerable regions, especially arable areas on sandy and loess soils.

From 2023, farmers on sandy and loess soils are required to grow a break crop at least once every four years, and from 2027, this obligation will be once every three years.

From 2023 onwards, a catch crop, sown before 1 October, or the cultivation of a winter crop has also been mandatory on sandy and loess soils. The programme further strengthens protection of surface water, through mandatory buffer strips along watercourses from 2023, with widths varying according to watercourse type and the proportion of the plot affected. Additional measures have also been introduced as conditions under the 2022 Nitrates Derogation Decision, including the designation of nutrients polluted areas .

A consolidated overview of the action programme currently in force is provided in a separate document ([31]).

Derogation

Paragraph 2 of Annex III to the Nitrates Directive establishes that Member States intending to apply more livestock manure than 170 kg N/ha are to fix amounts so as not to prejudice the achievement of the objectives specified of the Directive. These amounts are to be justified on the basis of objective criteria. The Netherlands was granted a derogation for the first time in 2005, which was renewed in 2010, 2014, 2018, 2020, and 2022. The derogation granted in 2022 by the Decision (EU) 2022/2069 set as a transitional derogation period allowed the Netherlands the application of livestock manure up to a limit of 250 kg N/ha per year for 2022, 240 kg N/ha per year for 2023, 230 kg N/ha per year for 2024, and 200 kg N/ha per year for 2025 under certain conditions, on farms with at least 80 % grassland, in the context of the Dutch Action Programme. Lower limits were stablished in nutrient polluted areas. The Derogation Decision expired on 31 December 2025.

7.2. Controls

The Netherlands Enterprise Agency (RVO) is the competent national authority responsible for implementing controls under, which conducts administrative enforcement of the Fertilisers Act. It conducts administrative enforcement through comprehensive (integral) inspections, verifications and checks on administrative obligations and checks on manure transport. On the other hand, the Dutch Food and Consumer Product Safety Authority (NVWA) is responsible for monitoring compliance with the manure regulations and carries out checks in the field.

During the previous reporting period (2016-2019), significant concerns emerged regarding possible fraud in manure transport. In responce, the Dutch authorities reinforced their control framework, with RVO placing particular emphasis on (semi)automatic, repeated administrative verifications of the Animal Manure Transport Certificate (VDM). Since 2023, manure carriers are required to use a real-time, fully digital VDM within a newly established electronic system. The enforcement of the manure policy is addressed programmatically. This programmatic enforcement is a process in which risks of non-compliance and environmental risks are assessed. Priorities are set on the basis of the risks and an intervention strategy is then determined using a target group analysis.

([31]) https://environment.ec.europa.eu/publications/summaries-national-nitrates-action-programmes_en

Regarding on-the-spot checks, the Dutch authorities reported that 3% of the businesses bound by manure regulations were inspected (this includes farms, manure-producing holdings, intermediaries, etc.). The check intensity varies among business, with 30% of the intermediaries companies checked, 6% in the case of pig farms, or 1% of arable farms. In total, 22% of checks resulted in enforcement actions. By business categories the enforcement rate was 23% for intermediares companies, 22% for pig farms, and 15% for arable farms.

Regarding administrative controls, which are largely concentrated on VDM verification, in 2022, the number of administrative checks reached a peak of approximately 14 000, with around 90% of these checks resulting in non-approval. ([32]) Where infringements were identified, administrative actions including warnings, fines or a penalty order (*last onder dwangsom*). Penalties increased slightly in 2023 compared with the previous two years and fines applied to intermediaries rose sharply relative to 2022.

([32]) The Netherlands uses a risk based approach whereby administrative and physical controls are focused on those farms and companies where the risk of non-compliance is highest.

8. WATER QUALITY OUTLOOK

The forecast of water quality in the Netherlands involves a model study by Groenendijk et al. (2024) which calculated the effects of measures adopted from the seventh Nitrates Directive Action Programme and the 2022 derogation decision.

The results indicate that while nitrate concentrations in leachate and groundwater have generally decreased over time due to past measures, recent years have seen stagnation and even increases in certain regions. For example, in regions with sandy or loess soils, nitrate concentrations have remained above standard levels, with more than half of the farms experiencing too high concentrations in leachate. Although some improvements in groundwater quality have been observed, these are slow and localized. It is expected that by 2033, the average nitrate concentration in sandy soil areas will meet the standard, although Sand South and Loess regions may still exceed targets, necessitating further measures

Regarding the objective of the Water Framework Directive (WFD) for nutrients, it is expected that by 2027, despite implemented measures, a significant number of surface water bodies will still not meet the surface water standards due to various factors, including the influence of foreign nutrient loads and the complexity of achieving full compliance.

Achieving the Water Framework Directive (WFD) objectives for nutrients in groundwater remains challenging. While the average nitrate concentration is expected to meet standards in some areas by 2033, the Loess and Sand South regions will likely still exceed these standards. The variability introduced by extreme weather conditions further complicates the attainment of WFD objectives, as fluctuations in water quality increase the risk of exceeding standards locally.

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