Replies to comments for the 2022 – Consultation on Nutrients in freshwater in Europe (CSI020)

Consultation deadline	2022/09/21
#Comments received	5
Replies provided	2022/10/05

1. Comment, Contributor: lopesana (Ana Rita Lopes), Date: 2022/09/19 12:21

Paragraph URL: https://forum.eionet.europa.eu/nrc-eionet-freshwater/library/nutrients-freshwater-europe/eionet-consultations-nutrients-rivers-lakes-and-groundwater/consultation-on-nutrients-in-freshwater-in-europe-csi020/indicator-text-and-figures/033

Section	Paragraph	Message	Reply
1 - Indicator text and figures	Additional information, figure 1 The geographical coverage is the 38 EEA member countries, but only complete time series are included in the analysis. The selected time series are aggregated to European level by averaging across all sites for each year. Two time series are shown – a longer time series representing fewer water bodies and a shorter time series representing more water bodies. Upper chart: Nitrate in groundwater: The number of groundwater bodies included per country is given in parenthesis: 1992-2020: Europe (461), Austria (13), Belgium (24), Bulgaria (25), Denmark (1), Estonia (16), Finland** (7), France (247), Germany (66), Ireland (50), Portugal (2), Slovakia (4), Slovenia (5), Spain (1). 2000-2020: Europe (1012), Austria (14), Belgium (37), Bulgaria (40), Cyprus (6), Czechia (64), Denmark (4), Estonia (18), Finland** (8), France (437), Germany (175), Ireland (66), Italy (10), Latvia (15), Malta (2), Portugal (10), Serbia (21), Slovakia (16), Slovenia (6), Spain (26), Switzerland (37). …	PT - Nitrates in groundwater 1992-2020: We don't understand why there is only two GWB for PT. At the "20220815_present_state_2022_v1_CSI020" file you used 75 GWB. Nitrates in groundwater 2000-2020: We don't understand why you included only 10 GWB. At the "20220815_present_state_2022_v1_CSI020" file you used 75 GWB. Regarding nitrate in rivers Portugal reported data for the period 2010-2020.It is considered that there should be reference to the Member States that reported data even with shorter series. Regarding total phosphorus in lakes Portugal reported data for the period 2010-2020.We would like to highlight that in mainland of Portugal there are no lakes but reservoirs. Consequently the water quality is different.	For the present state analysis we use data only from the last three years with data, i.e. 2018-2020 in this year's indicator update. This can be seen in the notes to figure 2 or in the Metadata sheet in the excel file you refer to. In the time series analysis (figure 1) we use only monitoring sites or GWBs with data from the whole time period 1992-2020 or 2000-2020 (we do allow gaps up to three years, though, see details in the supporting information). Most PT GWBs have too short nitrate series, actually just too short, as many start in 2004. We are working on changing the time series analysis to be able to include also the shorter time series, but with the current criteria we can usually include far more sites and GWBs in the present state than the time series analyses. Regarding your data on rivers and lakes it is the same - we hope to use these time series in the near future. But the intention of the notes in the indicators is to explain which data have been used. We cannot list all the data that is not used (so far) - even if we appreciate these data being reported. And - thanks for your comment on reservoirs. The indicator assessment has strict space limitation, so it is difficult to comment at a detailed level. Currently we are also not discussing lake total phosphorus at country level. But we will keep this in mind for future assessments

2. Comment, Contributor: molleing (Ingelise Møller Balling), Date: 2022/09/20 16:40			
Paragraph URL: https://forum.eionet.europa.eu/nrc-eionet-freshwater/library/nutrients-freshwater-europe/eionet-consultations-nutrients-rivers-lakes-and-groundwater/consultation-on-nutrients-in-freshwater-in-europe-csi020/indicator-text-and-figures/033			
Section	Paragraph	Message	Reply
1 - Indicator text and figures	Additional information, figure 1 The geographical coverage is the 38 EEA member countries, but only complete time series are included in the analysis. The selected time series are aggregated to European level by averaging across all sites for each year. Two time series are shown – a longer time series representing fewer water bodies and a shorter time series representing more water bodies. Upper chart: Nitrate in groundwater: The number of groundwater bodies included per country is given in parenthesis: 1992-2020: Europe (461), Austria (13), Belgium (24), Bulgaria (25), Denmark (1), Estonia (16), Finland** (7), France (247), Germany (66), Ireland (50), Portugal (2), Slovakia (4), Slovenia (5), Spain (1). 2000-2020: Europe (1012), Austria (14), Belgium (37), Bulgaria (40), Cyprus (6), Czechia (64), Denmark (4), Estonia (18), Finland** (8), France (437), Germany (175), Ireland (66), Italy (10), Latvia (15), Malta (2), Portugal (10), Serbia (21), Slovakia (16), Slovenia (6), Spain (26), Switzerland (37). …	DK - Nitrate in groundwater. We cannn't understand that there only is 1 groundwater body with data for the period 1992-2020 and 4 for groundwater body with data for the period 2000-2020. Looking at the reporting to the nitrate directive we have about 400 groundwater monitoring stations that have been active since c. 1990. These data have been reported over the years. We can address two issues that can cause problems for the time series: there have been more generations of broundwater bodies - new at each six years reporting period of the WFD At the latest reporting of monitoring stations, the station identifier is sligthly changes from the format DKxxx-xxxx-0[1-9] to DKxxx-xxxx-[1-9]. Thus with this in mind there should still be more stations that the very few ones you get. Please, contact us, so that we can sort this out.	Yes, the low number of time series is probably due to a shift in groundwater body (GWB) codes. There are Danish 244 GWBs with nitrate data in the database. Some have just few and scattered data. But many have time series that either end in 2015 or start in 2016. If pairs of these time series actually belong to the same GWB, there would be far more time series to include in the analysis. Time series ending in 2015 have a format like DK2-5-2-30-TUDEAA, while time series starting in 2016 have a format like DK2-5-12-303. In this analysis we use only GWBs. But if there have been changes in monitoring site codes, this should also be looked into. Time series with different codes are regarded as belonging to different sites. You will be contacted on how to solve these issues.

3. Comment, Contributor: lopesana (Ana Rita Lopes), Date: 2022/09/19 12:22			
Paragraph URL: https://forum.eionet.europa.eu/nrc-eionet-freshwater/library/nutrients-freshwater-europe/eionet-consultations-nutrients-rivers-lakes-and-groundwater/consultation-on-nutrients-in-freshwater-in-europe-csi020/indicator-text-and-figures/034			
Section	Paragraph	Message	Reply
1 - Indicator text and figures	Notes, figure 2: Kosovo* refers to Kosovo under UNSC Resolution 1244/99. The current concentration per river site is calculated as the average of available annual mean concentrations for the years 2018-2020. Concentrations are in mg nitrate-nitrogen per litre (mg NO3-N/l). The river sites are assigned to different concentration classes to visualise the distribution of data in the dataset. 11.3 mg NO3-N/l corresponds to the maximum allowable concentration for nitrate of 50 mg/l in the Drinking Water Directive (2020/2184). The number of river sites per country is given in parenthesis.	PT - In the document it is not clear how the classes in figure 2 were established. For a quicker analysis the units should be the same of the Directives, i.e. Nitrates Directive in mg/l NO3.	The main purpose of the present state analysis is to compare the distribution of concentrations among countries. It is not linked to specific policies, althoug some boundaries correspond to those of policies, e.g. 11.3 mg NO3-N/l (50 mg NO3/l) of the Nitrates Directive. In the future we may change the class boundaries to be based purely on distribution, e.g. quintiles. We use mg NO3/l for GW and mg NO3-N/l for surface waters, as these are considered the most commonly used units for these respective waters.

4. Comment, Contributor: lopesana (Ana Rita Lopes), Date: 2022/09/19 12:25			
Paragraph URL: https://forum.eionet.europa.eu/nrc-eionet-freshwater/library/nutrients-freshwater-europe/eionet-consultations-nutrients-rivers-lakes-and-groundwater/consultation-on-nutrients-in-freshwater-in-europe-csi020/indicator-text-and-figures/028			
Section	Paragraph	Message	Reply
1 - Indicator text and figures	Disaggregate level assessment Rivers that drain land with intense agriculture or a high population density generally have the highest nitrate concentrations. In the period 2018-2020 (link to chart from 2021 indicator assessment), Czechia and Lithuania had the largest proportion of river sites with average nitrate concentrations exceeding 5.6 mg NO3-N/l (13% and 16%, respectively). Moreover, Belgium, Denmark, and Switzerland had a high proportion (more than 25%) of sites with concentrations exceeding 3.6 mg NO3-N/l. There has been a decrease in river nitrate concentrations at 47% of the monitoring sites since 1992, and an increase at 16% of the sites (Figure 1). Czechia, Denmark, Germany and Slovakia had the highest proportion of significantly decreasing trends (63-100%). France, Ireland, Spain and Switzerland had similar proportions of significantly increasing and decreasing trends, while Estonia had the highest proportion of significantly increasing trends (44%). An overall decline, although slowing in …	PT- It is not clear from the text where the thresholds 5.6 mg NO3-N/l and 3.6 mg NO3-N/l come from.	These thresholds have been used for many years, and as mentioned above the main purpose is to show the distribution of the data. The 5.6 mg NO3-N/l (25 mg NO3/l) corresponds to the guideline concentration in the Surface Water for Drinking Directive. The 3.6 mg NO3-N/l threshold has no link to policy. We will update the supporting information to better explain the present state analysis.

5. Comment, Contributor: lopesana (Ana Rita Lopes), Date: 2022/09/19 12:28			
Paragraph URL: https://forum.eionet.europa.eu/nrc-eionet-freshwater/library/nutrients-freshwater-europe/eionet-consultations-nutrients-rivers-lakes-and-groundwater/consultation-on-nutrients-in-freshwater-in-europe-csi020/supporting-information/013			
Section	Paragraph	Message	Reply
2 - Supporting information	Methodology uncertainty Nutrient conditions vary throughout the year depending on, for example, season and flow conditions. Hence, the annual average concentrations should ideally be based on samples collected throughout the year. Using annual averages representing only part of the year introduces some uncertainty, but it also makes it possible to include more sites, which reduces the uncertainty in spatial coverage. Moreover, the majority of the annual averages represent the whole year. Nitrate concentrations in groundwater originate mainly from anthropogenic activities as a result of agricultural land use. Concentrations in water are the effect of a multidimensional and time-related process, which varies from groundwater body to groundwater body and is less quantified. To properly evaluate the nitrate concentration in groundwater and its development, closely-related parameters such as ammonium and dissolved oxygen should be taken into account.	PT - It must taking into account that in some GWB the water level are deep. Hence, we are in an enviroment without oxygen. Is important to consider the differences throughout Europe.	Yes, we write in the uncertainties section that oxygen level should ideally be taken into account in a proper evaluation. In this overview assessment it is difficult to go to such detail, though.

Thank you for your contributions.

Kari Austnes (kari.austnes@niva.no)

Jørgen Olsen (Jorgen.Olsen@eea.europa.eu)