

Section	Paragraph	Message Id	Message	Date	Action to take	
1.Indicator Assessment: Pesticides in rivers, lakes and groundwater in Europe	Key messages	150734	Pre-face for all comments made by me: I make these comments on behalf of CropLife Europe.	2021/07/27 13:58	Acknowledge	
	Pesticides in surface and groundwaters are relevant to environmental quality, chemicals strategy for sustainability, Zero Pollution and agriculture assessments. This indicator focuses on pesticides[1] in rivers, lakes and groundwater based on measured concentrations[2] assessed against effect thresholds.			Last bullet point: The term "variation in losses from the application of pesticides between years" is not clear: Please specify, if you mean a) differences of used pesticide spectrum and volume in catchment of monitoring point or b) weather-induced variation of pesticide losses from treated fields between years in catchment of monitoring point, or c) both.		
	13 to 34% of all surface water monitoring sites showed threshold exceedances of pesticides in surface waters between 2013 to 2019. This was mainly caused by the insecticides imidacloprid and malathion, and the herbicides MCPA, metolachlor and metazachlor. These substances were approved for use in plant protection products during the monitoring period.	766945		We propose to make a separate assessment of the exceedance rates for pesticides in water bodies for a) all measured substances (as done currently in the report) and in addition b) only measured substances with current approval of crop protection product(s) (active ingredient) of origin. This would provide on the one hand a complete picture of water contamination with pesticides (assessment a), and on the other hand illustrate the part of the contamination, for which actions may still be possible and potentially needed (assessment b). Pesticides in surface and groundwaters are relevant to human health (so not only from an environmental quality perspective) as well as these types of waters are the main raw water source for drinking water.	2021/08/02 14:08	Address
	The percentage of pesticides exceeding the groundwater quality standard was lower, at 3 to 17% of monitoring sites. In groundwater, exceedances were mainly caused by the herbicide atrazine and its metabolites. Atrazine was not approved for use in plant protection products during the monitoring period. Exceedance rates higher than 30% occurred in ...	498254		Once the results of this analysis will be published, they will likely get a lot of attention. My prediction is that the pesticide regulatory system will be challenged, which is not necessarily bad. However, I think it may be good to highlight that the adoption of the one-out-all-out approach 'hides' that for the vast majority of records, effect thresholds were not exceeded. If I interpret the dashboard correctly (very nice BTW), >99% of records were below the effect thresholds for both surface and groundwater (except surface water in 2015). Perhaps it would be appropriate to acknowledge this, in the key messages or somewhere else.	2021/08/04 09:53	Acknowledge
		435489		Metolachlor is not approved for use in PPPs, S-Metolachlor is, so text needs revision "13 to 34% of all surface water" - suggest to give an average figure, as this range is so wide that it is difficult to give a clear message. "showed threshold exceedances of pesticides in surface waters between 2013 to 2019". I suggest it would be more useful and accurate to state "One or more pesticides were detected above threshold values at X % of surface water monitoring sites each year between 2013 to 2019" Same applies to groundwater with range of 3-17% - the message is clearer by giving a single average figure. "The percentage of pesticides exceeding..." is incorrect - the % relates to monitoring sites. I suggest "Exceedances of or more pesticides were detected at X % of ground water monitoring sites each year between 2013 to 2019" "owing to e.g. variation in losses from the application of pesticides between years" - the meaning is not clear, is there any evidence that losses vary between years? "For these reasons, between-year changes may not be significant." If this is correct, the uncertainty around the % figures needs to be highlighted more prominently	2021/08/10 15:50	Address
		291514		Support the point raised by Alessio Ippolito - it is important to state clearly that 99% of PPPs are not found in water above threshold values/0.1ug/l	2021/08/10 15:53	Acknowledge
		626863		Suggest to mention Green Deal and F2F in the first line, given that these are mentioned later in the text	2021/08/10 16:04	Address
		479247		PIRLG1: This used working method also shows that different compounds are used to show one sort of visualization. This means that although within the WFD reporting priority substances are shown differently than national targeted substances. The former representing chemical status and the latter ecological status. It cannot be stated enough that only data from (official) reporting is used. This concerns data used for WFD reporting. This means a.o. that emerging compounds are not presented in the current report. Usage of the lowest EQS for the latter mentioned substances can lead to a different judgement within this indicator (PIRLG1) / report when compared to WFD reporting. Is it possible to state in which case(s), which substances, this will be the case? In PIRLG3 a table is shown in which the MS with lowest EQS is mentioned.	2021/08/25 10:39	Acknowledge
		507283		PIRLG2: Although using the lowest EQS could lead to different judgement(s) – see prior comment – I am charmed by the overview of substances of national relevancy. PIRLG5: Within national legislation (in the Netherlands) also the sum of pesticides must not exceed a threshold value. Within the current report this is not taken into account. Is it possible to use a sum of various pesticides to come up with a judgment of 'sum parameters'? Comment from German Federal State Schleswig-Holstein: The indicator concept was tested with a dataset derived from the WFD monitoring of the German Federal State Schleswig-Holstein. The results were: - Surface waters: EQS exceedances were found especially in small rivers with the herbicides Flufenacet and Diflufenican, followed by the herbicide Nicosulfuron and the insecticide / biocide Imidacloprid on top of a list of 10 pesticides. Flufenacet was found in bigger rivers too, but, due to dilution, no EQS exceedances have been detected. - Groundwater: We acknowledge, that the indicator does not use "Non relevant Metabolites" since there is no agreed EU threshold. In Germany these metabolites are assessed with "Health Related Indication Values (HRIV)" specialized for each metabolite. Exceedances of these threshold values for the non-relevant metabolites are the main causes of the poor status in the group of plant protection and degradation products.	2021/09/07 15:01	Acknowledge
		916453		We suggest that an INFO should be added which would inform the public/readers, that this indicator should not be compared with national classification due to differences in methodologies.	2021/09/10 12:24	Address
		758768		I agree to the previous comment that some info could be added already here that the indicator is not comparable to the national water classification under WFD. It's not easy to make a good indicator based on reported very heterogeneous monitoring data -and without harmonized quality standards. Indicator tries give the overview of the situation and has to simplify the system. I think that the uncertainties related to data and method should be stated clearly already in the key messages. In addition to the last point "No trends...", it's clear that neither countries can be compared (the other one having several monitoring sites in background areas and the other a few in risky areas). Perhaps this could be added to the text. Moreover, a new point could be added e.g. "The indicator demonstrates the need of EU wide harmonizing of limit values (including national RBSP EQS values)". Referring to the key message and the most detected substances, it could be useful to show a list of the substances that most determine the exceedances, specifying if they are authorized substances, in order to take actions to reduce the risks.	2021/09/12 21:41	Address
				Suggest to add a bullet to explain that there is variable data from the reporting countries (number and type of samples, number of substance analysed for) which make comparisons between countries and even within the same country over time difficult.	12/09/2021 07/09/2021	Acknowledge Acknowledge
				I think there should be a point on what the results actually mean and some context to avoid any misunderstanding....i.e. that exceedance shows failure to meet certain standards set out in EU legislation, but does not necessarily indicate risks to health or non-target organisms. Could mention that active substances and PPPs are thoroughly evaluated under the framework laid down in Regulation 1107/2009 and that risk assessments for each PPP use are carried out by Member States. Products can only be authorised if the approval criteria laid down in 1107/2009 are fulfilled.	08/09/2021	Acknowledge

		The 0.1 µg/L groundwater value is not an effect threshold. It is a quality standard laid down in the water legislation. Suggest to amend for accuracy (to be consistent with line 78). Check/amend also in other places	09/09/2021	Address	
		By 'losses of pesticides' do you mean substances being removed from the market or loss of pesticides applied? Seems to be the latter when looking at lines 144-148. However, changes to the approval status of substances and authorisations of PPPs can also influence trends. Would not be like for like each year. Suggest to modify to make that clearer	10/09/2021	Address	
		Perhaps add a footnote or explain later in the document why despite atrazine not being approved for quite some years it is still detected i.e. due to persistence	11/09/2021	Address	
Fig 1 Percentage of monitoring sites with threshold exceedances in surface waters and groundwater in Europe		we suggest comparing the rate of exceedances with the number of sites monitored per year and the number of substances searched, to partly explain the annual variation in frequencies. Together with a country weighting factor, we propose to introduce a factor related to the number of monitoring sites to avoid that high frequencies of exceedances due to few monitoring sites can drive the total exceedance rate. The high contribute of Spain to the total exceedance rate is based on 2 monitoring sites with exceedances on a total of 3 monitoring sites (66.7%). The contamination of surface water is therefore not realistic for the country and for the European indicator. We propose to introduce a minimum number of detection sites per country in proportion to their area or a multiplication factor related to the number of detected sites.	12/09/2021	Acknowledge	
a) Surface waters					
b) Groundwater					
Note:					
The figures show the percentage of monitoring sites with exceedance of effect thresholds or quality standard, set by European or national regulatory standards, with a country weighting factor to reduce the impact of uneven data reporting:	400248	The use of the "lowest ecotoxicologically-based effect threshold" for an EU-wide assessment will lead to a worst-case picture, which does not reflect the national situation with regard to exceedance of national EQS values. This may be confusing for country stakeholders and citizens that know the national reporting on EQS exceedances in their countries. In addition, high exceedance levels at EU level may then not be used to trigger actions at MS level, as there the level of EQS exceedances calculated with the national EQS may be acceptable. Alternatively, the EQS exceedances can be calculated for each country with the respective national EQS value.	2021/08/12 15:08	Acknowledge	
\sum Percentage of monitoring sites with exceedances per country [%] x country area [km ²]		Please specify why 12 nM were not included in the assessment: e.g. "12 non-relevant metabolites (nM) were excluded from the assessment, as no specific (ecotox-based) EQS were yet established for surface or groundwater at EU level or in MSs, and the 0.1 µg/L limit value for pesticides and their relevant metabolites does not apply to nMs".			
\sum Area of countries with reported monitoring sites per year [km ²]		Please specify what was done with the data for the 103 compounds without effect threshold: Were these data then excluded from this analysis?			
For surface waters, European environmental quality standards and (in absence of those) national regulatory standards were used, reflecting the lowest ecotoxicologically-based effect threshold. Effect thresholds were identified for 114 out of 217 pesticides (53%). Exceedances included here refer to these 114 pesticides.	398836	Further information is needed regarding the exclusion of non-relevant Metabolites from the assesment. These metabolites are a part of the CIS Voluntary Groundwater Watch List Process and they are not yet required by the Groundwater Directive.	2021/08/16 10:32	Acknowledge	
For groundwater, the Groundwater Directive quality standard of 0.1µg/l was used to identify exceedance. 12 non-relevant metabolites (nM) were ...	412701	For groundwater, the threshold value of 0.1 µg/L was used to set an indicator value. Note however that in the BPR (Annex IV, Article 68) it is written that: "The evaluating body shall conclude that the biocidal product does not comply with criterion (iv) under point (b) of Article 19(1) where, under the proposed conditions of use, the foreseeable concentration of the active substance or any other substance of concern, or of relevant metabolites or breakdown or reaction products in groundwater, exceeds the lower of the following concentrations: — the maximum permissible concentration laid down by Directive 98/83/EC, or — the maximum concentration as laid down following the procedure for approving the active substance under this Regulation, on the basis of appropriate data, in particular toxicological data, unless it is scientifically demonstrated that under relevant field conditions the lower concentration is not exceeded." This means in practice that if e.g. toxicological threshold values for some substances are lower than the trigger value of 0.1 µg/L, then the lower threshold value is used in the assessment. Note that the same principle applies also for plant protection products! The text in the BPR was in fact copied from the regulation on plant protection products. This means that for the indicator setting you may overlook some critical substances when looking only at the trigger value of 0.1 µg/L...	2021/08/31 09:20	Acknowledge	
	846912	1) Fig1 „Percentage of monitoring sites with threshold exceedances in surface waters and groundwater in Europe“ The presented exceedances are only from reported monitoring sites, not from all monitored sites and this should be added also in the title, together with information about using weighting factor, e.g.: Fig1 Percentage of reported monitoring sites with threshold exceedances in surface waters and groundwater in Europe based on a country weighting factor 2) It would be appropriate to add the table to the Fig 1 for surface water and groundwater - for each year to present substances that exceeded the limits. These substances that exceeded the limits should be further assessed for their risk. 3) Figure1 Groundwater: The descriptions on the Y axis should correspond to the formula in line 82. Now there are only pure percentages but there should be percentages affected by the country weight index according to the formula in line 82. Proposal to modify the title for Figure 1: Surface waters and groundwater in Europe based on a country weighting factor. 4) Page 4, Line 85: European environmental quality standards: We propose to add reference to EU directives 5) Page 4, Line 89-90: What criteria were defined for the non-relevancy of metabolites excluded from the assessment? 6) Page 5, line 94, 95, Figure 2.: a / Are the percentages for surface waters calculated in this table in the same way as the percentages in Figure 1? I. e. Is the percentage multiplied by the weighting factor of the land area? If so, this table should indicate what the actual units are and whether the data in Figure 1 and Figure 2 are comparable. b / The evaluation given in Figure 2 is based on data from SELECTED REPORTED sites. There are few countries that report all monitoring sites within WISE. Therefore, we think that if the weighting factor is used in the table and the area of the landscape is taken into account, the situation is distorted here. c / Is the data for groundwater for SK correct? We suppose it should be 10% according to the data in the file PIRLG_4_reported_data_and_exceedance_rates_by_country_and_year.xlsx. (?) d) There in this table are presented „only“ reported monitoring sites, not all monitored sites. Therefore the results could be indicative. 7) Could be made available a list of all assessed substances (with active substance/metabolite resolution)?	2021/09/09 10:38	Address	6) c): Data check has been carried out. Based on methods use (i.e. exclusion of nM in groundwater), not all monitoring sites were considered in the assessment.
	425114	The weighting by country area assumes that results from monitoring sites could be extrapolated into the whole country. This is not the case e.g. in Finland where monitoring is focused in the potential risky areas - while areas with no pressures are not monitored (some sites included into screenings to demonstrate no detections). => perhaps river basin specific weighting instead of country specific? Moreover, it seems that no weighting is given to data quality (number of analyzed substances, LOQs, sampling frequencies). It should be added - but i have no ideas how to do it.	2021/09/12 22:39	Acknowledge	
	148963	Clarity is needed in this table, and throughout, if the results refer to a 6 year period or 6 x 1 year periods. E.g. 13% of surface waters in Austria above the threshold - this could be 2.1% of rivers each year, (but always different rivers for each of the 6 years), or 13% of rivers (but the same rivers) each year	2021/08/10 16:01	Address	

840667	See comment on previous section: The use of the "lowest ecotoxicologically-based effect threshold" for an EU-wide assessment will lead to a worst-case picture, which does not reflect the national situation in MSs with regard to exceedance of national EQS values. This may be confusing for country stakeholders and citizens that know the national reporting on EQS exceedances in their countries. In addition, high exceedance levels at EU level may then not be used to trigger actions at MS level, as there the level of EQS exceedances calculated with the national EQS may be acceptable. Alternatively, the EQS exceedances can be calculated for each country with the respective national EQS value.	2021/08/12 15:11	Acknowledge		
601975	Please specify the criteria for classification of "large", "medium", and "small" rivers. The use of the "lowest ecotoxicologically-based effect threshold" seems logic for an EU-wide assessment since the overview should in fact be based on harmonised background values, if the values are chosen country-specific, the picture is not very meaningful. The Danish Environmental Protection Agency (EPA) did not succeed identifying which data applied in the indicator based on the information provided in the method description (PIRLG 2 Methodology). In the non-aggregated dataset (https://www.eea.europa.eu/data-and-maps/data/waterbase-water-quality-icm-1) data points for 27 Danish stations for surface water (lakes and rivers) and 2.027 Danish stations for groundwater was identified by the Danish EPA. None of the numbers is identical with the numbers of Danish stations presented in the indicator (Fig. 2, PIRLG 1 Indicator assessment) where 36 stations for surface water and 867 stations for groundwater are presented. The sorting is not conditional by a filtration of the compounds that would be present in the specified stations. This might explain the disagreement in the number of groundwater stations, as there might be stations with non-relevant compounds, which are included in the Danish identification. However it does not explain the lower number of surface water stations. In addition to the above, it was not possible to identify the categorization in the dataset that result the separation of the dataset into large, medium and small rivers. Proposal for clarification of criteria for selection of effect-based limit values. It is proposed to clarify in the indicator why the maximum allowed limit of detection for compounds on the Watch List takes precedence over national determined environmental quality standards when setting effect based limit values. a column with unassigned monitoring sites could be added, so as not to lose the information	2021/08/31 09:26 07/09/2021	Acknowledge Address	Data check has been carried out. Based on methods use (i.e. exclusion of nM in groundwater), not all reported monitoring sites were considered in the assessment.	
Fig. 2 Percentage of monitoring sites with threshold exceedances of pesticides in surface waters, different sized rivers, lakes and groundwater in European countries, 2013 – 2019.	The reported data from the Netherlands are a surprising small selection of what is available. In the methodology part some critical remarks on the quality and completeness of the data should be added I read that the Netherlands (NL) reports n.d. (no data) for groundwater, where the national government (PBL) reports that in 47 of 156 (30%) groundwater sources for drinking water, the threshold value of 0,1 µg/l is exceeded. https://www.pbl.nl/sites/default/files/downloads/20200522_addendum_naw.pdf Similar percentages are found by RIVM, the official reporting agency from the Netherlands: https://www.rijksoverheid.nl/binaries/rijksoverheid/documenten/rapporten/2021/05/26/rivm-rapport-staat-drinkwaterbronnen/rivm-rapport-staat-drinkwaterbronnen.pdf Furthermore in all large rivers in the Netherlands (Rhine, Meuse, Scheldt), a 100% exceedance of the 0,1 µg/l value is found for pesticides. The consultation gives 46%. For the period 2015-2019 we measure about 33 individual pesticides and metabolites (structural an incidentally) above the limits. https://www.vewin.nl/stoffen/Paginas/default.aspx . I hope it is helpful and we remain available for further exchanges	12/09/2021 06/09/2021 06/09/2021	Acknowledge Acknowledge Address	Data check has been carried out. National monitoring sites were not reported into Waterbase - Water Quality in the respective time period.	
Note: n.d. = No data; In brackets: Total number of reported monitoring sites. The percentage of exceedance rates was calculated based on the number of reported monitoring sites with exceedances, divided by the total number of reported monitoring sites. River size could not be assigned to all monitoring sites (so total surface waters does not equal the sum of lakes plus large, medium and small rivers). This issue mainly affects Italy and Spain.	We strongly support the comment given by Volker Laabs. Our main concern is the fact, that indicator like this is not in line with national classification systems where national EQS are being used. Comment on Slovenian data: We report 11 lakes through WISE. On three (3) lakes we do not measure pesticides, since there is no pressure identified. So the result for Slovenian lakes should state 36% (11). Data should be corrected accordingly.	2021/09/10 12:25	Address		
Pesticides differ from many other pollutants as they are designed to harm organisms (e.g. plants, insects, fungi) and thus inevitably have an effect on the environment. When concentrations of pesticides are above critical thresholds, individually or as mixtures, they can be harmful to the environment and /or humans by contaminating soil, surface waters and groundwater. Pesticide contamination of both surface waters and groundwater can affect aquatic fauna and flora, but also human health if, for instance, water or fish contaminated by pesticides is consumed. According to Water Framework Directive (WFD) (EC, 2000) pesticide pollution above critical thresholds leads to both failure of 'good chemical status' in surface waters based on pesticide substances listed as priority substances, and failure of 'good ecological status' based on pesticide substances listed as river basin specific pollutants. This directly affects the failure of the environmental objectives of the WFD as well as the goal of the new ...	550755 999359	No data is presented on pesticide mixtures, so suggest to delete. No data presented on pesticides in soil, so suggest to delete Green Deal - the target is a 50% reduction in the use and risk of chemical pesticides First paragraph: We suggest to re-phrase the first sentence to: "Pesticides differ from many other pollutants as they are used to kill/control harmful organisms (i.e. defined pests like weeds, insects, fungi) in agricultural fields to protect the crops. Consequently, pesticides have an inherent potential to cause effects on organisms in the environment." Third paragraph: We suggest to add information about the nature of the 0.1 µg/L limit value for pesticides in groundwater and rephrase the 2nd sentence: "For each pesticide substance, a quality standard of 0.1 µg/L was set in the Groundwater Directive (EU, 2006), which is not a health-based limit value, but a general precautionary limit value." Last paragraph: The groundwater quality standard is not based on ecotoxicological effect thresholds (see comment above). Therefore, we suggest to rephrase the last sentence to: "The indicator for surface water is based on ecotoxicological effect thresholds defined for aquatic systems (EQS values) and thus addresses the targets of all the directives and strategies mentioned above. The groundwater quality standard for pesticides of 0.1 µg/L is a precautionary one, reflecting the political desire to keep pesticides concentrations in groundwater at extremely low levels."	2021/08/10 16:07 2021/08/12 15:12	Address Address	
	405607	If the idea is that the term "pesticides" covers in this report also biocides, I would describe the use area as well as the potential exposure area much wider. Biocides, using partly the same active substances as plant protection products, are used in a wide range of areas, from stables (insecticides) to households, over industrial uses (e.g. preservatives in different industries) with potential direct releases to soil and surface waters, including marine compartments: e.g. wood-/paint- or masonry preservatives applied outdoors, releasing to soil during application and service life (for up to 20 years) and anti-fouling applied on ships/boats releasing to freshwater or saltwater compartments during their service life. <u>What about groundwater...that is not based on ecotox effects</u>	2021/08/31 09:35	Acknowledge	
The indicators are in line with the one-out-all-out-principle of the WFD: If one substance exceeds effect threshold value (in surface water) or quality standard (in groundwater) the monitoring site is classified as 'Threshold exceedance' or 'Quality standard exceedance'. Between 2013 to 2019, pesticide concentrations were reported from a total of 9 481 monitoring sites for surface waters and 13 869 for groundwater. The number of reported monitoring sites in surface waters varies between countries from less than 10 sites (CH, HU, IS, LU) to more than 1 000 sites (ES, FR, IT, PL). This variation also occurs in groundwaters, with numbers ranging from 39 sites (LT) to more than 3 000 sites in IT (and more than 1 000 sites in AT, DE, ES, and FR). The number of reported pesticide substances in surface waters ranges from less than 10 substances (CH, DK, HU, IS, LU, NO) to more than 100 substances (CZ, DE, FR, IT). For groundwater, the lowest reported number of substances was reported from AT (6) and highest ...	247186 078116 808052	SANTE request the data be presented and analysed for the EU-27 to make it more relevant to Green Deal, F2F, Biodiversity Strategy It is acknowledged that the one-out-all-out-principle of the WFD was used here also. However, as mentioned above, considering that the number and type of samples, the number of substances analysed for, by the reporting countries are variable, the exceedance of only one threshold value (in surface water) or one quality standard (in groundwater) does not mean the same as regards risks if the site has been monitored for one or ten substances respectively. This reinforces the feeling that this indicator, although in line with the WFD principle of non-compliant status of the water bodies, is not reflecting the actual level of risks Last paragraph: We suggest to include in the 2nd sentence newest information on substance approval status: "These substances were approved for use in plant protection products during the monitoring period, while imidacloprid approval has expired in 2020." Furthermore, we propose to make a separate assessment of the exceedance rates for pesticides in water bodies (fora) all measured substances (as done currently in the report) and in additionb) measured substances with current approval of crop protection product (active ingredient) of origin. This would provide on the one hand a complete picture of water contamination with pesticides (assessment a), and on the other hand the part of the contamination, for which actions may still be possible and potentially needed (assessment b). The number of reported monitoring sites in surface waters varies between countries from less than 10 sites (CH, HU, IS, LU) to more than 132 1 000 sites (ES, FR, IT, PL). Here, in this sentence, is exactly what we wrote about above, what is the huge difference in the number of reported places. In that case, even a weighting factor will not help ...	09/09/2021 2021/08/10 16:09 09/09/2021 2021/08/12 15:14 2021/09/09 10:43	Address Out of scope Acknowledge Address Acknowledge	

	It is not yet possible to determine a trend in Figure 1. Losses from the application of pesticides may vary considerably between years depending upon e.g. crop type and the weather (EC, 2008), and the frequency of monitoring of pesticides in surface waters can be limited to one year out of three. For these reasons, changes between years may not be significant. It is anticipated that a trend will become apparent in the next few years.	047677	The appearance of a meaningful trend will very much depend the stability of the monitoring programme. In the period considered in this study, there is a rather clear temporal trend (increase) in the number of monitored substances, monitoring sites, and overall records. While this trend is welcome to get a better picture of the overall situation, it hampers a meaningful year-by-year comparison, especially when using the one-out-all-out principle.	2021/08/04 09:30	Acknowledge	
	Fig. 1 shows the percentage of monitoring sites with threshold exceedances in surface waters and groundwater. In surface waters, the peak in 2017 is driven by an exceedance rate in Spain ten times more than compared to other years. In groundwater, the peak in 2014 is driven by an exceedance rate in Italy ten times more than other years, and in Slovakia three times more.	709540	Following on from Alessio Ippolito comment, as MS analyse for a wider range of substances, these trends could easily get worse in the future, but this would reflect, at least in part, better monitoring/analysis. It is important to state and highlight this fact at the outset. The alternative is a worsening trend and the EEA/COM seeking to explain a negative trend retrospectively.	2021/08/10 16:14	Acknowledge	
		024732	Further explanation needed, as this will raise questions - text needs to explain in simple English how the exceedance rate in Spain jumped 10 times in 2017. In the absence of a clear explanation, this will reduce confidence in the indicator.	2021/08/10 16:22	Address	
		051291	2nd paragraph: What is the explanation for the peaking exceedance rates in single years in Spain, Italy, and Slovakia? In case of insecure data (e.g., due to analytical or sampling method issues) or suspected reporting issues (i.e., no reasonable explanation could be given for the excessive exceedance rates in these years), we suggest to exclude these anomalous years as outliers from the exceedance rate. By 'losses of pesticides' do you mean substances being removed from the market or loss of pesticides applied? Seems to be the latter when looking at lines 144-148. However, changes to the approval status of substances and authorisations of PPPs can also influence trends. Would not be like for like each year. Suggest to modify to make that clear. Important to explain that the status of substances and PPPs changeover time and this can also lead to difficulties in interpreting trends. Some substances may contaminate for years or even decades but use has stopped (e.g. atrazine) i.e. exceedance in one year does not necessarily come from use of PPPs in that year.	2021/08/12 15:15	Address	
		524135	The 0.1 ug/L groundwater value is not an effect threshold. It is a quality standard laid down in the water legislation. Suggest to amend for accuracy (to be consistent with line 78). Check/amend also in other places.	09/09/2021	Address	
		938632	Additional information regarding the exceedance rate in Italy reported in the years excluding 2014 is needed to explain the stated highest percentage of pesticide exceeding the common threshold value of 0.1 ug/l. Furthermore, it is significant to specify if the numbers and/or locations of groundwater monitoring sites with exceedance of the quality standard or the types of pesticides analyzed in 2014 were considerably different than the rest of monitoring period.	2021/08/16 10:29	Acknowledge	
			We suspect wrong Spanish data are being used to calculate the indicator. The right file was uploaded from Spain (and apparently accepted) in the web WISE SoE Data Deliveries (WISE-SoE_WaterQuality_2017_SW_v4.xls) in July, 2019. There was a Final Feedback which informed us that the delivery had been accepted. This is the source we analysed last July when we answered the mail about the high values reported from Spain in relation to the headline indicator. Our data are not consistent with the information contained in the file "PIRLG_4_Reported data and exceedance rates by country and year", for the years 2016 and 2017. According to the information of this file, n° of reported monitoring sites for Spain is 2 for 2016 and 3 for 2017, which is clearly a mistake, especially if you compare the data with the whole historic series.	2021/09/06 08:11	Address	Data from surface waters reported in 2016 and 2017 were excluded from the assessment
	Fig. 2 shows the percentage of monitoring sites with threshold exceedances of pesticides in surface waters, different sized rivers, lakes and groundwater in European countries. This was used to examine threshold exceedances according to Surface Waters; Rivers, small; Rivers, medium; Rivers, large; Lakes, and Groundwater. Exceedance rates higher than 30% occurred in 15 out of 30 countries in surface waters, and in one out 24 countries in groundwater. High exceedance rates were mainly related to monitoring sites in small and medium-sized rivers.	672750	Suggest to explain what are small rivers, medium rivers etc., e.g. length, water volume etc.	2021/08/10 16:24	Acknowledge	
		610208	Exceedance rates for pesticide in surface water shall be based on the "lowest ecotoxicologically-based effect threshold". However, looking at Annex 4 (list of used EQS values) it becomes apparent that for several pesticides (or metabolites) a precautionary value of 0.1 µg/L was used as lowest AA-EQS value (presumably based on the drinking water quality standard), instead of a truly ecotox-effect based threshold. This is the case for the following substances: 2,4,5-T 2,4-D Ametryne Bentazone Chorfenvinphos Chloridazon Demeton-O Demeton-S-methylsulfon Desethyl-terbuthylazine Dichlorprop (2,4-DP) MCPB Mecoprop Mecoprop-P (MCPP-P) Methamidophos Metolachlor Oxydemeton-methyl Phosalone	2021/08/12 15:17	Address	
		390766	In a few countries (e.g., Italy, Germany, Luxembourg), surface water AA-EQS values were derived for some substances based on precautionary or drinking water quality standards (see national ordinances). For instance, in Italy an ordinance (Legislative Decree 172, 2015) defines that where an ecotox-based EQS value has not been set for an individual pesticide (listed in the respective table), a value of 0.1 µg/L should be used for both parent and metabolites. As this is not in accordance with the WFD CIS guidance for establishing surface water EQS values (which should be ecotox based), we strongly propose to not use the (precautionary) value of 0.1 µg/L in the EQS exceedance calculation method for surface water, but to use the next lowest truly ecotox-based EQS value available in MSs for these substances.	2021/08/16 10:32	Acknowledge	
		434088	Additional information as a list of pesticides exceeding the thresholds in each country can be given on the same figure or with a separate table elsewhere.	2021/08/31 09:39	Acknowledge	
2. Supporting Information	2.1. Indicator definition The indicator 'Pesticides in rivers, lakes and groundwater in Europe' shows	006377	"with pesticide substances causing exceedances against an effect threshold" suggest to state "with pesticide substances exceeding effect thresholds"	2021/08/10 16:26	Address	
	The percentage of reported monitoring sites with pesticide substances causing exceedances against an effect threshold, for surface waters and groundwater in Europe, over the period 2013 to 2019; The percentage of reported monitoring sites with pesticide substances causing	245504	Country weighting factor: \sum Percentage of monitoring sites with exceedances per country [%] x country area [km ²] \sum Area of countries with reported monitoring sites per year [km ²] Our suggestion is to find a way to consider in this weighting factor the water bodies of each country (number or length (for rivers) and area (for lakes)).	2021/09/06 08:20	Acknowledge	

exceedances compared with effects threshold in surface waters, different sized rivers, lakes and groundwater of European countries, over the period 2013 to 2019.	946722	Comment from UBA Germany, unit pesticides: Substance selection should be continuously (and retroactive) updated according to data availability. This means that absolute exceedance numbers for a year may change with each actualization of the indicator. Similarly, due to continuous improvement of the available data (as stated by the authors) the reference period for the indicator should not be fixed to a now available time period, while it is expected that data improves over the next years. DE-UBA suggests a sliding reference period allowing reliable trend derivation in the future. Due to the mentioned shortcomings of the data set, we strongly support the authors assessment, that trend analysis is scientifically not appropriate for the now available data set.	2021/09/07 13:18	Acknowledge
2.2. Units The indicator is expressed as percentage of threshold exceedance for surface water and quality standard exceedances for groundwater in percent. To reduce the impact of uneven spatial and temporal data reporting, a country weighting factor has been used:	805305	Comment from Anja Duffek (German Member of CIS WG Chemicals): (With reference also to PIRLG_2, chapter 2:) First of all, I do not totally understand the rationale behind the indicator, especially if all background information and limitations (as described in PIRLG_1, chapter 2.6) are taken into account. What kind of information shall be given and for which specific purpose?	2021/09/07 15:39	Acknowledge
Σ Share of monitoring sites with exceedances per country [%] x country area [km ²] Σ Area of countries with reported monitoring sites per year [km ²]				
2.3. Rationale				
1.3.1. ...	903667	As explained in the background document the database is quite diverse in terms of the number of pesticides reported and their EU wide spatial and temporal coverage. Not for all pesticides are sound thresholds available in order to assess the risk to the aquatic environment. Weighting factor: We propose to also consider a weighting factor that is taking regard of the areas of the groundwater bodies as well because in many cases pesticide pollution is occurring in certain GWBs only and not all over the country.	2021/09/09 17:30	Acknowledge
2.4. Policy context and targets	063350	The reference to the recast Drinking Water Directive 2020/2184 could be added.	2021/08/02 14:17	Acknowledge
2.4.1. Context description				
The Water Framework Directive (WFD) (EC, 2000) and its daughter directives on Environmental Quality Standards (EQSD) in water policy (EC, 2008), as amended in 2013 (EC, 2013b), and on groundwater (EC, 2006) set quality objectives and targets for pesticides in surface and groundwater and should protect water quality from pesticide pollution.	721910	when referring to 'older pesticides' from priority substances in both documents, perhaps an explanatory footnote would be helpful Should be 'sets out rules' F2F target is to "reduce the use and risk of chemical pesticides"	15/09/2021 09/09/2021 2021/08/10 17:14	Address Out of scope Address
With the Green Deal (EC, 2019) and its associated strategies and actions, such as Farm to Fork Strategy (EC, 2020c), Biodiversity Strategy (EC, 2020b), Chemicals Strategy for Sustainability (EC, 2020a) and Zero Pollution Action Plan (EC, 2021), there is renewed ambition to significantly reduce the use and risk of pesticides and promote the improvement of chemicals risk assessment.	178110	Comment from UBA Germany, unit pesticides: The pesticide indicator should include both, active substances which are no longer approved in ppp and currently approved or emerging new active substances which are for sale in ppp. However, a differentiation on these two substance groups (approved and not approved) should be made to reflect consequences of non-approval. DE-UBA would welcome if the substance assignment was revised every year, to represent active substance dynamics. Furthermore, DE-UBA would welcome the feature to visualize/extract substance specific exceedances over the years e.g. within a dashboard. Perhaps for single substances the available data would allow to derive trends already.	2021/09/07 13:14	Acknowledge
European policies aimed at reducing the potential risk from pesticides are also supported by the Plants Protection Products Regulation (EC, 2009b), the Sustainable Use of Pesticides Directive (EU, 2009) and the Biocidal ...	712782	Comment from Anja Duffek (German Member of CIS WG Chemicals): We need to make clear that at EU level there are several processes to take actions against pollution with pesticides. Under the WFD, there are the PS list, the list of RBSP, the watch lists in order to update the PS list and further lists of national/local interest. Monitoring data are generated for different purposes with a different temporal and spatial resolution. Only for the PS and RBSP measures are taken to reduce the pollution under WFD regime. I would suggest not to merge all pesticides from these different lists (although they all may contribute the overall contamination). The EEA indicator should not duplicate risk assessment processes at EU level but could visualize the impact and effectiveness of the WFD to reduce pollution. As the indicator shall also visualize how the EU is on the track to speed up the pollution reduction (to reach the ZPA target for 2030), I would suggest to further differentiate the exceedance rate for pesticides (e.g. as stacked bars) into different sub-groups that show different needs for action: identified as PS (to track progress in pollution reduction – trend) identified as RBSP (to track progress in pollution reduction – trend) from the watch list (to identify new pesticides at risk, new candidate PS for further action) any other pesticides (early warning for "new" contaminants)	2021/09/07 15:43	Acknowledge
	357315	and/or to differentiate between approved and not approved pesticides. That would help to show the need and kind for further action. One additional indicator could also count the number of pesticides not yet assessed in their risk but found in water (to indicate the need for risk assessment). Comment from Germany, Federal State Bavaria: Apart from an immission indicator also the emission is important. Firstly, it could be based on sales-data, but in the future data on the application of pesticides should be made available by agriculture at the small scale of fields or waterbodies.	2021/09/09 17:06	Acknowledge
2.5. Methodology	279947	In the documents on the indicator methodology and the data in Annex 3, it is not clear whether the indicator takes into account a) incomplete reporting from MS (for example not all relevant sites are reported) b) the diversity in reporting pesticides (not all countries are reporting the same pesticides and countries have very often different definitions of non-relevant pesticides). This is partially explained in the section on Uncertainties but to what extent can these uncertainties be translated into a +/- % and ideally be displayed within the figures. It seems that for the substances included to the Watch List considering the maximum acceptable detection limit as a base for establishing the effect threshold value isn't always relevant. The fact that particular substance occurs in water environment in detectable amounts not always means its concentration causes negative environmental effect. So, only these Watch List substances should be taken into account which are recognised by any Member States as RBSP and have EQS (or good ecological status/potential boundaries) established by MS. For RBSP: the scope of substances as well as EQS derivation methods differ between MS. Moreover, the situation may occur that the same substance may have more than one AA-EQS or more than one MAC-EQS (or good ecological status/potential boundary) value established, if considered EU-wide (or EEA-wide). It seems that calculation of the effect threshold value for RBSP will become fully reliable when common methods/guidelines for RBSP designation and RBSP EQS derivation are adopted by CIS WFD working groups (most probably WG Chemicals).	2021/08/25 19:04	Address
A detailed description of the methodology on pesticides indicator development is provided in the methodology paper.	458112	Maybe it'd appropriate to evaluate the values of all countries with the same threshold value, even if it is the most restrictive, but it would be necessary to indicate that this is the most conservative criterion. The EQS have not necessarily been defined in each country with the same criteria, and it would not be possible to make comparisons based on values that could be very different.	2021/08/25 19:04	Address
	256513	Could the mean value of RBSP EQS values be used instead of the lowest ones. The RBSP EQS values vary between countries. E.g. MCPA has values from 0.01 to 100 µg/l. This indicates a need for EU wide harmonization.	2021/09/06 08:21	Address
	436435	Perhaps new threshold values could be derived for the missing ones from pesticide registration data (or PPDB pesticide property database). The methodology report does not focus on drinking water sources. Given the ambitions of the WFD and the new DWD (article 8 and 9 on Hazard assessment of bodies of water used for the abstraction of water intended for human consumption, and supply risk assessment), we could suggest to add an indicator that describes the percentage of sources for drinking water in which we find pesticides > 0,1 µg/l. It should be zero in 2027 according to the WFD, but I am afraid it is > 20% and growing This seems to be a gap. Should the quality standards for non-relevant Metabolites be set in the first instance before "Guidance Values" are derived by Member States? In Ireland the dominant Pesticide being detected in drinking water is MCPA. This is an acid herbicide which is used to control the growth of rushes (which grow in poorly drained soil). In the case of this Pesticide it originates in catchments with land that has high rush growth and is applied almost exclusively by farmers.	2021/09/12 23:12 06/09/2021 06/09/2021	Acknowledge Acknowledge Out of scope

			The report states that the data reporting is voluntary while the website of EEA states that data delivery is an obligation. Please check Waterbase - Water Quality ICM — European Environment Agency (europa.eu). The data was delivered between 2000 and 2019 by EEA member countries and cooperating countries, in the scope of the current WISE SoE - Water Quality ICM (WISE-6) reporting obligation and the retired WISE SoE - Water Quality (WISE-4), River quality (EWN-1), Lake quality (EWN-2) and Groundwater quality (EWN-3) reporting obligations. It includes WFD watch list data from 2016 onwards, reported by EU Member States. The national data deliveries are compiled into a European-wide Waterbase. The data is used for EEA core set indicators that assess the state, trends in water related pressures and monitor the progress of European policy objectives	06/09/2021	Adress
			They seem to have identified a range of logical assessment methodologies for surface water based on various EQSs and Maximum Acceptable Detection Limits. For Groundwater they use the blanket 0.1µg/L standard. Should they also apply a blanket 0.1µg/L standard for surface water (even by way of comparison to the EQS)?	06/09/2021	Out of scope
2.6. Uncertainties	380662	53% and 47% - please explain is this due to lack of time/resources/data or do 47% of PPPs have no effect, and therefore no threshold could be established		2021/08/10 17:16	Acknowledge
2.6.1. Methodology uncertainty	262377	We suggest the possibility of including in the conclusions the fact of the high variation between countries, regarding to number of reported monitoring sites and number of measures substances. Maybe a higher weight could be given to those countries with more data reported (either for reported monitoring sites or measured substances). Another possibility is to define a classification, even if it is a qualitative one, in order to highlight those data with more or less uncertainty according to this approach.		2021/09/06 08:23	Acknowledge
For surface waters, effects thresholds could only be identified for 53 % of substances reported; 47 % of all reported pesticides could not be considered in the assessment. The calculation method used to determine exceedance rates with country weighting reduces an imbalance in the reported data with respect to the number of monitoring sites as well as the reported pesticides. This reduces the impact of high levels of reporting by a few countries on the overall percentage of monitoring sites with exceedances.	839373	This approach is in the same line of what is said in the chapter 2.6.1. (Methodology uncertainty): A minimum number of reported monitoring sites per country and year would be necessary to reduce this imbalance. We suggest to further develop this point.		2021/09/12 23:16	Acknowledge
This country weighting means that unusually high or low exceedance rates within a		I support Alejandra Puig infante suggestion of qualitative classification of data -and further development of the minimum criteria for			
2.6.2. Data sets uncertainty	831436	Please state if monitoring sites/samples are targeted in any way? e.g. in areas of intensive agriculture, immediately after heavy rainfall events, targeted sampling etc.		2021/08/10 17:24	Acknowledge
Monitoring data are not evenly spread across Europe, with high variation between countries in the number of reported monitoring sites and in the number of measured substances. Results are mainly dominated by countries with the highest numbers of reported monitoring sites and substances, which was addressed by a weighting factor	203754	Can/should any targeted samples be excluded from the dataset?		2021/08/12 15:25	Out of scope
However, a minimum number of reported monitoring sites and substances should be reported to achieve a representative overview of pesticide concentration in European waters.	677168	In case of measurements <LoQ and a LoQ above the effect threshold concentrations, no conclusions can be drawn about a potential exceedance, as the concentrations were not quantifiable in these samples. Therefore, these data should be disregarded in this assessment of exceedance rates (i.e., per default treated as "no exceedance").		2021/09/07 15:22	Acknowledge
Reporting of LoQ and substance concentration: This increases uncertainty in determining measurements that are below LoQ needed for analyses of effect threshold exceedances. Many reported measurements were flagged as 'below LoQ'.	344790	Comment from Anja Duffek (German Member of CIS WG Chemicals): With reference to "PIRLG_2, chapter 3.1.3 + 3.1.4": Please also specify, how values below the LOQ have been considered, if the LOQ did not meet the QA/QC requirement. Good comments above		2021/09/12 23:18	Acknowledge
2.6.3. Rationale uncertainty	480647	First paragraph: As mentioned in one of our comments above, for some pesticides (and metabolites) the precautionary value of 0.1 µg/L was used as lowest AA-EQS to calculate exceedance rates. This is in contradiction to the WFD CIS guidance and therefore the next lowest ecotox-based EQS value from a MS should be used in these cases.		2021/08/12 15:25	Address
In surface waters, ecotoxicologically-based effect thresholds were determined to assess exceedance rates at monitoring sites. Those thresholds indicate a potential pollution by pesticide substances affecting communities in aquatic ecosystems.	265251	Comment from Germany, Federal State Saxonia to 2.7 Data sources: Currently PSM active substances are not systematically reported within the framework of WISE6 (SoE), but only on a voluntary basis. As far as we know, there is currently no basis for data provision for nrM. There is no corresponding coding, nor is there a possible core parameter set. In order to have a better data basis for developing the indicator in the future, it would be desirable to include these requirements in the data flow for WISE6.		2021/09/09 14:47	Acknowledge
In groundwater, exceedances were assessed against the 0.1 µg/l quality standard set down in the Groundwater Directive. No regulated quality standards for non-relevant metabolites are available and thus excluded from the assessment.					
2.7. Data sources	144351	Comment from Germany, Federal State Bavaria to 2.7 Data sources: It would be appreciated if the water quality status reportet according to the WFD for water bodies could be used for the indicator instead of data from monitoring sites of SoE-Reporting. Water bodies cover the whole landscape of a country and are monitored representative with a large number of monitoring sites. SoE-Reporting instead cover only watersheds of selected monitoring sites in usually bigger rivers/lakes. In addition WFD set requirements (e.g. analytical standards) which should result in more comparable data.		2021/09/09 17:02	Acknowledge
Waterbase – Water Quality eea.europa.eu/data-and-maps/data/waterbase-water-quality-icm-1 compiled and processed by European Environment Agency (EEA)					
3. Further comments	1) Here is space for additional comments reviewers may wish to make. Should you have comments on:	Comment to the Dashboard - for countries to check their reporting If possible, add the option to select "Pesticides together", which would correspond to the data presented in the indicator under Figure 2. The above mentioned "pesticides together" could be a first step to take into account mixtures.		2021/09/09 10:53 2021/09/12 23:25	
the approach to normalising the data; non-relevant metabolites for groundwater; the use of RACs for threshold exceedances in surface waters;		For compounds where there is neither an EQS value nor RAC value, it is proposed to apply the Predicted No Effect Concentration (PNEC) as an alternative to environmental quality standards.		07/09/2021	
2) Approach to normalisation - use of country area weighting Fig 1 uses country area weighting as a way to normalise the reported data. Country area weighting has some disadvantages (principally that if a country with a large area has a high exceedance rate in one year, that can influence the overall result) but this approach seems to be a reasonable way to normalise the results and be less prone to fluctuations owing to variability in numbers of reported data. We expect some noise in the data as the WISE 6 reporting adapts to this new indicator, but that this will settle down in a few years to provide a more consistent trend.	112794	A definition of the parameter "Country area" (line number 243, PIRLG 1 Indicator assessment) would be appreciated in the method description for normalization. Under the assumption that "Country area" equals the area of the land of concern, Denmark agrees in the use of normalization. The normalization has a purpose of equalizing the potential differences among the EU member states considering the relation between the number of measuring stations/waterbodies and the geographical size of the member state. The normalization will provide a better fundament for comparison e.g. between a large country with few measuring stations and a small country with a larger number of measuring stations. In the text for Figure 1 and 2 (line number 69 and 94, PIRLG 1 Indicator assessment) it is not specified whether the numbers are presented as normalized or non-normalized in figures and tables.		2021/08/12 15:19	
	946058	The normalization of the exceedance rate to the country area makes sense, as it is about environmental protection and each square kilometer of EU territory should get the same weight for an EU-wide assessment of water body quality. Comment from Germany, Federal State Saxonia: The methodology introduces a weighting based on area proportions in order to reduce the effects of heterogeneous spatial and temporal data. This is intended to compensate for the temporal and spatial imbalances in the data of the individual countries. The formula proposed for this results in an indicator which relates the sum of the percentage shares of the exceedances to the land areas of the participating countries and the sum of the areas of these countries per year. Whether this approach actually brings an advantage in terms of compensating for data gaps is difficult to assess and certainly also depends on the type of data gaps. We would like to point out that the participating countries have very different percentages of agricultural land and percentages of arable land and permanent crops in the respective land area, in addition to the different density of measuring points and gaps in the data. Arable land and permanent crops represent the area category from which the emissions of pesticides usually originate. Since the measuring points mainly detect immissions emanating from arable land and permanent crops, a reference to this appears more conclusive than to the total area of the federal states.		2021/09/09 14:40	
3) Exclusion of non-relevant metabolites from groundwater indicator assessment We excluded non-relevant metabolites (nrM) from the calculation of exceedance rates in groundwater. This is in line with the 2006 Groundwater Directive, where the quality standard for pesticides of 0.1µg/l does not apply to nrM. However, recent work towards a Europe-wide study recommends inclusion of nrM in Annex I of the Groundwater Directive, with the need to establish harmonised definition and assessment of nrM and to set quality standards in line with quality	591564	It is noted that non-relevant metabolites has been excluded from the groundwater assessment (line number 297-299 PIRLG1 and line number 97-98 PIRLG2). Denmark now distinguish between relevant and non-relevant metabolites, however non-relevant metabolites are still regulated as relevant metabolites with a value of 0.1 mg/L. In the PIRLG 2-document (line number 224) a list is provided listing non-relevant metabolites excluded from the assessment. If possible, it would be very interesting to receive the assessment behind placing the metabolites on this list, as it would be of relevance when assessing the compounds nationally for the purpose of the Drinking Water There is a wide variety between countries in identifying nrM. Not all countries apply the same assessment methods for identifying nrM.		07/09/2021 2021/08/02 14:26	

standards of Groundwater Directive. Should nrM be included in the indicator? If so, what quality standards should apply?	551755	Last paragraph: As mentioned in paragraph one, there currently is no EU-wide quality standard established for nrMs in groundwater. This may or may not change in the current process of Annex I/II revision of the EU Groundwater Directive. Some MSs have defined threshold values for nrMs in drinking water (e.g., Germany, Austria, The Netherlands), but for general surface or groundwater this was not the case yet. Therefore, we propose to exclude nrMs from the current exceedance value calculation. In case an EU-harmonized limit value for nrMs in drinking or groundwater is needed, we propose to use the TTC-based threshold value of 9 µg/L for all nrMs (Cramer Class III substances, default WHO methodology for drinking water guidance values – 20% allocation of ADI to drinking water; see also Laabs, V., Leake, C., Botham, P., and Melching-Kollmuß, S. 2015. Regulation of non-relevant metabolites of plant protection products in drinking and groundwater in the EU: Current status and way forward. <i>Requil. Toxicol. Pharmacol.</i> 73, 276-286).	2021/08/12 15:21
	209994	Comment from UBA Germany, Unit Pesticides: We suggest to consider non relevant metabolites of pesticides with a threshold value of 1 µg/L. As emerging contaminants, non relevant metabolites shall be considered for precautionary reasons: Many of them are very mobile and persistent, difficult to analyse, hardly removable from water resources and with a scarce data base compared to active substances. In some cases, non relevant metabolites were classified as relevant later on or showed unexpected effects (e.g. transformation to carcinogenic compounds during water treatment, Schmidt and Brauch (2008): https://pubmed.ncbi.nlm.nih.gov/18800499/). Also, the awareness for non relevant metabolites is rising in many member states. For instance, the new drinking water directive demands the member states to define a guide value for non relevant metabolites. Implications for other directives and national law are expected. In Germany, a threshold value in groundwater regulation was discussed and supported by various stakeholders (but finally not implemented, however at least monitoring duties were established in the same law). Indeed, there is no legislative threshold or limit value yet. However, in plant protection regulation the value of 10 µg/L according to SANCO 221/2000 guidance (https://ec.europa.eu/food/system/files/2016-10/pesticides_ppp_app-proc_guide_fate_metabolites-groundwtr.pdf) is applied for the groundwater risk assessment of pesticides on EU level and, in some member states, as exclusion criteria for the authorization of plant protection products. It is basically common sense that concentrations above 10 µg/L for non relevant metabolites in groundwater are not acceptable. However, a threshold of 10 µg/L is not sufficient for the analysis of trends and the precautionary consideration of risk mitigation measures: Leaching to groundwater underlies high retardation in soil and there is hardly any further degradation in the groundwater bodies. Therefore, elevated concentrations cannot or only slowly may be reduced by measures or reduced application. Based on the established German concept of Health Related Indication Values (HRIV) UBA suggests to use the value of 1 µg/L. This value is also very close to the threshold of 0.75 µg/L as trigger for deeper assessment according to SANCO 221/2000. This value is also applied by some EU member states for their authorization of plant protection products, e.g. Denmark and Italy. Considering these trends and discussions it would be adequate to proactively include non relevant metabolites in the pesticide indicator. We propose to consider non relevant metabolites of pesticides with a threshold value of 0.75 µg/L, according to SANCO 221/2000 guidance on metabolite risk assessment in groundwater. For metabolites with concentration between 0.75 and 10 µg/L a refined assessment is required for registration. Such level relates to an acceptable upper limit for the concentration of substances of unknown structure. Very little is known on the toxicological profile of nrM and, based on precaution principle, we consider adequate the threshold value of 0.75 µg/L. Moreover, in Italy the metabolites 2,6-dichlorobenzamide, AMPA, Desethylterbutylazine and Desisopropylatrazine are among the most detected substances in groundwater, with concentration over of 0.1 µg/L (limit value), proving that the exposure is potentially of concern for human health.	2021/09/07 13:01
3) Exclusion of non-relevant metabolites from groundwater indicator assessment We excluded non-relevant metabolites (nrM) from the calculation of exceedance rates in groundwater. This is in line with the 2006 Groundwater Directive, where the quality standard for pesticides of 0.1µg/l does not apply to nrM. However, recent work towards a Europe-wide study recommends inclusion of nrM in Annex I of the Groundwater Directive, with the need to establish harmonised definition and assessment of nrM and to set quality standards in line with quality standards of Groundwater Directive. Should nrM be included in the indicator? If so, what quality standards should apply?	868333	Comment from German Federal State Schleswig-Holstein (repeated from 1. Key Messages): The indicator concept was tested with a dataset derived from the WFD monitoring of the German Federal State Schleswig-Holstein. The results were: - Groundwater: We acknowledge, that the indicator does not use "Non relevant Metabolites" since there is no agreed EU threshold. In Germany these metabolites are assessed with "Health Related Indication Values (HRIV)" specialized for each metabolite. Exceedances of these threshold values for the non-relevant metabolites are the main causes of the poor status in the group of plant protection and degradation products. It is considered acceptable to apply final RAC values (EFSA and ECHA) as an alternative to environmental quality standards if this makes it possible to include additional active substances in the risk assessment. There are often more data available for pesticide active substances compared to biocide active substance; in this regard, it could be considered an advantage applying the RAC value in the risk assessment of biocide active substance in surface water if the active substance is also assessed for pesticide use. It should be noted that the procedure of setting EQS and RAC values differs and that the values are not directly comparable. There is a difference in the requirement for data in relation to origin, test organisms, documentation for concentrations used and the use of safety factor. EQS's may be based on literature studies/results based on nominal concentrations whereas RAC values are based on studies performed in the laboratory in accordance to test guidelines and measured concentrations. Due to this difference, EQS may be set with a safety factor from 1-10.000 and for RAC values in the range of 1-100. Due to the difference in deriving EQS and RAC values, it cannot be concluded, which values will be the most conservative, however it is the opinion of Danish EPA that the most conservative approach would be to apply EQS values.	2021/09/07 15:05
	530781	I find this argument a bit weak, especially the one on the spatial scale. While this is conceptually true, the practice is that most EQS and all tier-1 RAC are derived from a laboratory ecotoxicological endpoint (the lowest available) divided by an assessment factor. Hence, the consideration of the spatial scale is not really impactful. I find also a bit odd that tier-1 RAC were considered too different compared to EQS, but the use of maximum acceptable detection limits from the watchlist – something whose relation with toxicity is not so straightforward – was considered OK as 'an indicator of the likely order of magnitude'.	2021/08/04 09:40
	098957	A direct alignment of the RAC and the EQS for a particular pesticide (or metabolite) is not expected, as they consider different protection goals and apply to different types of water bodies. Nevertheless, the comprehensive ecotoxicological data produced for pesticide authorization purposes under Regulation 1107/2009 can be and is used to derive robust EQS values according to the respective European Commission Common Implementation Strategy Guidance (EC 2018). We therefore propose to derive "missing" EQS values based on the available ecotoxicological data compiled under Regulation 1107/2009 according to WFD CIS guidance in a transparent and participative way (EU-level process led e.g., by EEA), including EU registration holders of pesticides as stakeholders in this process.	2021/08/12 15:22
	580387	Comment from UBA Germany, Unit Pesticides: For 34 pesticides we have compared the highest-tier Regulatory Acceptable Concentration (RAC) used in our monitoring of small streams in the agricultural landscape in Germany with the MAC-EQS values used for the pesticide indicator (with the addition of some own MAC-EQS derivations). The result was: RAC values could be used for the assessment of short term peaks, if no MAC-EQS is available (see attached file displaying RAC/MAC ratios). In contrast, a relatively high discrepancy exists between the RAC and AA-EQS values for the same compound, since the various RAC-values are based on either acute, chronic or even mesocosm data with respective assessment factors (AF) and hence, were often much higher than AA-EQS that are based on chronic data only.	2021/09/09 11:33