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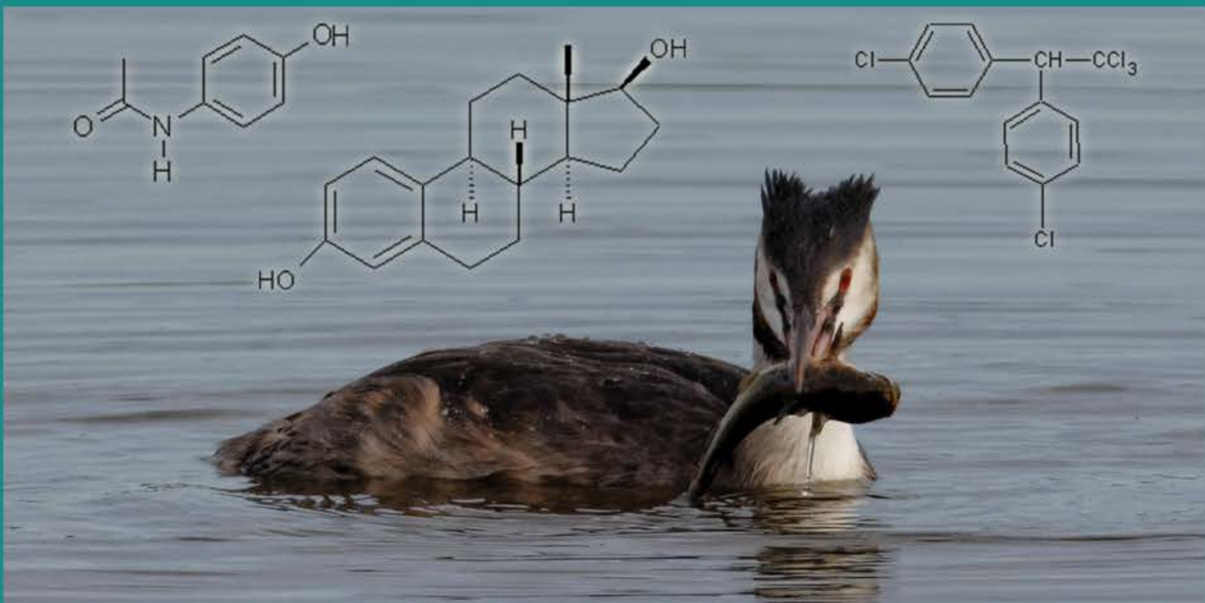
European Topic Centre
Inland, coastal, marine waters

Hazardous Substances in European waters

Volume 1

Analysis of the data on hazardous substances in groundwater, rivers, lakes, transitional, coastal and marine waters reported to the European Environment Agency from 2002–2011



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Cover photo: Chemical pollution of water and the water dependent foodchain. Great crested grebe eating a catfish at étang des landes, Creuse, France in water with substances paracetamol, oestradiol and DDT symbolizing hazardous substances in water.

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0 Executive summary

This ETC/ICM Technical Report on Hazardous Substances in Water is a complementary report to the European Environment Agency (EEA) Report No. 8/2011 – Hazardous Substances in Europe's Fresh and Marine Water[1].

This report is an update and extension ofthe ETC/ICM Technical Report No. 1/2013 'Hazardous substances in European waters – Analysis of the data on hazardous substances in groundwater, rivers, transitional, coastal and marine waters reported to the European Environment Agency from 1998–2010'. The report provides a systematic summary presentation of the data. It gives a quick overview of the state and availability of State of Environment (SoE) hazardous substances data in rivers, lakes, groundwater, transitional/coastal/marine waters, occurrence, concentrations levels and developments over time as well as "traffic light indicators" at country level by comparisons with quality standards, where applicable. These overviews are considered useful for a compact display of the thousands of data records for each substance, but should not be seen as an assessment of the situation between the reporting countries.

This report has been further developed from the ETC/ICM Technical Report No.1/2013 on hazardous substances to cover the new period 2002–2011 as well as including lake data for the first time. The marine environment assessment has not been updated with 2011 data, but a new comprehensive overview of the availability of marine biota and sediments has been added.

After a comprehensive clean-up of the database, including discarding of unrealistically low and high values, some of the river water samples reported from the countries were discarded from further data processing, due to a lack of essential supplementary data not submitted in a correct way. The quality of the hazardous substances data has been continually improved due to the on-going thorough quality assurance/quality control (QA/QC) procedures within the State of Environment (SoE) data reported to the European Environment Agency (latest version of tests from January–February 2015) and in the communication with respective national reference centers (NRCs) from member countries. Despite of the QA/QC done by the ETC/ICM, some of the presented values are still "questionable", which is highlighted in the text where applicable. Issues related to the limit of detection (LOD) or limit of quantification (LOQ) are the main cause for the exclusion of data and consequently, the provision of LOQ/LOD may significantly improve the data coverage.

The State of Environment (SoE) groundwater data show that mainly triazine pesticides and their metabolites (atrazine, desethylatrazine), heavy metals and metalloids (lead, arsenic) are the hazardous substances most frequently occurring and exceeding quality standards. For water in rivers and lakes, concentrations of cadmium, nickel, mercury, lead, and PAH-compounds reported as the sum of benzo(g,h,i)-perylene and indeno(1,2,3-cd)-pyrene were among the compounds that exceeded environmental quality standards (EQS) in most countries. For biota (fish and mussels) from transitional and coastal waters, high concentration levels are particularly seen for DDT and PCBs i.e. persistent substances with high bioaccumulation potential.

It is the aim that compilations such as this Technical Report, presenting data on hazardous substances in water and marine biota, may contribute to the European knowledge base on this important topic and enhance the use of these data by a number of different stakeholders.

The report provides overview statistics on methodological issues (chapter 2) and on the spatial and temporal data coverage (chapter 3) followed by the main part on presenting results from the monitoring data on hazardous substances in groundwater, the marine environment, rivers and lakes, respectively (chaper 4). The very comprehensive display of hazardous substances data in each of these water categories is presented by an initial statistical overview followed by graphical and tabular presentation per substance. This structure allows the user to search for information on the same

[1] http://www.eea.europa.eu/publications/hazardous-substances-in-europes-fresh

substance across different water categories. In the future, any updates of this report might happen by establishment of an interactive viewer at the EEA website enabling the user to create similar graphical and tabular displays of the data by direct querying the underlying European datasets.

1 Introduction

Hazardous substances occur in the freshwater and marine environment. Their effects on the environment and their potential risk to human health and socio-economics are considered serious and therefore considerable efforts have been channeled to combat their emissions to water and air. The reason for concern has been the proven and potential hazard that some chemicals have on humans, biota, and the environment due to their toxic, bio-accumulative and persistent characteristics. There are a lot of possible pathways to water ecosystem contamination. They occur not only at hot spots directly caused by a particular human activity. Diffuse pollution and long-range transport causes some substances also to be found at locations far away from point-sources.

Considerable efforts have been made to establish and maintain monitoring programs to assess the level, trends and effects of hazardous substances in water ecosystems throughout Europe via the Water Framework Directive (2000/60/EC) implementation for example. However, there is a lack of reliable and consistent information for many hazardous substances at pan-European level. State of Environment (SoE) hazardous substances data have until now not been used for an assessment in the form of indicators of the current status of the chemical pollution of Europe's waters except for some pesticides for the Agri-environmental indicator – pesticide pollution of water[2] and the marine indicator (MAR001[3]). This missing use of the SoE hazardous substances data in waterbase also influenced the analysis for this report as many data quality issues were only discovered during the processing of the SoE data.

The groundwater, river and lake data are solely based on SoE data and reflect the current status of the SoE dataflow and the resulting internal ETC/ICM working database on hazardous substances. From this database, extracts on annual averages and summary statistics have been published in the respective Waterbases for rivers, lakes, groundwater and transitional/coastal/marine environment within the Water Information System for Europe (WISE).

Some of the river and lake data were excluded from the assessment due to data quality issues. The limits of quantification (LOQ) differ among countries. The LOQ is very crucial for comparison of the results, especially for groundwater. As a matter of fact, some countries using low LOQs are somehow "penalized" compared to other countries with higher LOQs. This is due to the fact that those countries with low LOQs have a higher percentage of positive samples and are consequently indicating a more frequent occurrence of hazardous substances in each of these respective countries. On the other hand the countries should aim at applying chemical analytical methods with a lower LOQ, ideally equal or below a value of 30 % of the relevant environmental quality standard as required by the 2009/90/EC Directive[4] to ensure a comparable assessment throughout Europe.

The marine chapter is partly based on SoE data, partly on the Marine Conventions' (OSPAR and HELCOM) data.

SoE data collection for the EEA has been supported by the ETC/ICM within the Eionet network and takes place electronically via Reportnet[5]. The reporting obligations for the relevant dataflows, further addressed in this report, are defined in the Reporting Obligation Database (ROD) for the WISE-SoE

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[2] http://ec.europa.eu/eurostat/statistics-explained/index.php?title=Agri-environmental_indicator_-esticide_pollution_of_water&oldid=221211

[3] http://www.eea.europa.eu/data-and-maps/indicators/hazardous-substances-in-marine-organisms/hazardous-substances-in-marine-organisms-3

[4] http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:201:0036:0038:EN:PDF

[5] http://www.eionet.europa.eu/reportnet

reporting: Groundwater quality[6], Rivers Water Quality[7], Lakes Water Quality[8] (from 2015 onwards combined into one joint reporting obligation on water quality) and Transitional, Coastal and Marine Waters (TCM)[9], respectively. From these ROD pages, links are provided to the reporting guidelines, and further description of the datasets and data models (Data Dictionary). The SoE data are processed by the ETC/ICM, which includes quality assessment (QA) and quality check (QC) and, where applicable, also processing of annual averages from dis-aggregated data per station (individual samples). Further details of the process are described in Chapter 2 and 3. The data are published and are freely available for download from Waterbase[10] for each of the dataflows. For groundwater, rivers and lakes, annual averages are published. For TCM-data, the individual measurements are available in Waterbase, however, only results from biota monitoring used for the indicator and from sediment monitoring are presented in this report.

The SoE data reported to the EEA do not fully represent all of the national data on hazardous substances, but their selection should provide a representative overview of the water quality in each member country of the European Environment Agency. The aim of this report is to provide an updated overview of information on hazardous substances in the working database, SoE data availability and the occurrence of hazardous substances throughout Europe including spatial and temporal changes.

This report is supposed to be a periodical Technical Report updated every second year, however, other means of interactive display of the data is planned. The feedback and suggestions for the improvement of this report by EEAs 39 National Reference Centres (NRCs) is highly desirable to assure better quality of the next issue of this report – or other means of displaying the results – that will cover the 10 year period of 2005–2014.

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[6] http://rod.eionet.europa.eu/obligations/30

[7] http://rod.eionet.europa.eu/obligations/28

[8] http://rod.eionet.europa.eu/obligations/29

[9] http://rod.eionet.europa.eu/obligations/630

[10] http://www.eea.europa.eu/themes/water/dc#tab-datasets

2 Methodology

2.1 Groundwater

For the analysis of hazardous substances concentrations in groundwater a dataset from data reported via the Water Information System for Europe – State of Environment (WISE-SoE, also called EIONET-Water) reporting to the EEA and stored in the ETC/ICM internal working database was used. The dataset is highly heterogeneous with uneven spatial and temporal coverage and is currently not directly supporting any EEA thematic indicator. Data from the period 2002–2011 were used for hazardous substances analysis. The majority of concentration data were reported as "total" and just some data for metals as "dissolved" concentrations depending on the country and even the year. Both forms of metal concentrations were assessed separately in this report. Even though considering just the dissolved fractions of metals would be the most appropriate approach, due to the state of the data described above, it would lead to the elimination of the majority of the data from the processing. All the groundwater data presented in this report were handled in the same manner i.e. concentrations below limit of detection/quantification (LOD/LOQ) were replaced by half of the corresponding LOD/LOQ, with an exception for statistics of maximum concentrations and the statistics of positive/negative findings.

The monitoring sites have been chosen as the spatial assessment units. Since the analysis should provide comparable information throughout Europe, the Directive 98/83/EC on the quality of water intended for human consumption also known as Drinking Water Directive (DWD) which establishes Drinking Water quality standards (hereinafter referred to as DW) was used as common ground. For pesticides, the DW corresponds to the groundwater quality standards pursuant to the Directive 2006/118/EC on the protection of groundwater against pollution and deterioration, also known as Groundwater Directive (GWD). For naturally occurring pollutants (e.g. metals) in groundwater it would be advisable to refer to the groundwater threshold values which are the national groundwater quality standards. The natural background values might vary due to varying geological characteristics and the exceeding of drinking water standards does not always mean anthropogenic influence. In many cases it is not possible to improve groundwater quality due to natural circumstances. This is one of the reasons why threshold values were introduced. Additionally, threshold values also consider the receptors and uses that might be affected and causing risk in groundwater bodies, therefore threshold values for synthetic substances have been established in the EU Member States as well. The problem of various threshold values used throughout the EU Member States for Directive 2000/60/EC, also called Water Framework Directive (WFD), for its chemical status assessment might be solved if all Member States provide to ETC/ICM the corresponding threshold values established pursuant to the GWD in each Member State. The ETC/ICM would use the national threshold values for consecutive analysis in the next version of this Technical Report. This approach is not possible for the analysis for EEA member countries outside of the EU which have not established threshold values. From this perspective the use of drinking water standards currently seems to be the most feasible solution.

A hazardous substance "traffic light" indicator has been developed for groundwater based on Groundwater Quality Standards set out by GWD and the Drinking Water Standards set out by DWD and occurrence in groundwater. Both directives have a common standard for pesticides of 0.1 μg/l. The Drinking Water Standards (DW) also apply to the other hazardous substances, see Table 2.1.1. The majority of selected hazardous substances are considered extraneous; hence their natural concentration should be below the limit of detection/quantification (this only partly applies for heavy metals). Since groundwater dynamics are in most cases very slow, monitored concentrations are "naturally" averaged, thus the measured concentration of each hazardous substance is classified into three classes (below LOD/LOQ, above LOD/LOQ and still below or equal to the DW, above the DW). Substance with a concentration above the DW ("red light") is a substance representing a possible threat for European groundwaters. Substances with a concentration above the LOQ, but still not exceeding the DWare given a "yellow" light. This indicate a groundwater anthropogenically impacted by the occurrence of hazardous substances in case of synthetic compounds. In the case of metals, measurable concentrations may be due to natural conditions within the aquifer. Substances with a concentration below LOD/LOQ are given a “green light”. Occurrence in groundwater is indicated by at least one measurement above the LOQ and exceedance of the DW is indicated by at least one measurement exceeding the DW.

The selection of substances for the groundwater analysis has been done taking into account spatial and temporal coverage of available data within the ETC/ICM working database, relevance of substances for groundwater and EU legislation. Pre-selection of hazardous substances was based on EU legislation requirements e.g. WFD, GWD and DWD. Additionally, selected substances with sufficient spatial (number of countries) and temporal (time series) availability of data and with relevance for groundwater (occurrence, environmental properties) have been added to the resulting list of so called “preferred substances”. Those preferred substances should be preferentially reported to the EEA via WISE-SoE dataflow by all EEA member countries in order to improve the data quality and coverage.

Table 2.1.1 Drinking water standards pursuant to the Directive 98/83/EC used for the analysis

Substance	CAS	Limit	Unit
1,1,2,2-tetrachloroethene	127-18-4	10*	µg/l
1,1,2-trichloroethene	79-01-6	10*	µg/l
1,2-dichloroethane	107-06-2	3	µg/l
2,4-D	94-75-7	0.1	µg/l
Alachlor	15972-60-8	0.1	µg/l
Arsenic	7440-38-2	10	µg/l
Atrazine	1912-24-9	0.1	µg/l
Bentazone	25057-89-0	0.1	µg/l
Benzene	71-43-2	1	µg/l
Benzo(a)pyrene	50-32-8	0.01	µg/l
Cadmium	7440-43-9	5	µg/l
Copper	7440-50-8	2000	µg/l
DDD, p,p'	72-54-8	0.1	µg/l
DDT, p,p'	50-29-3	0.1	µg/l
Desethylatrazine	6190-65-4	0.1	µg/l
Desisopropylatrazine	1007-28-9	0.1	µg/l
Dieldrin	60-57-1	0.03	µg/l
Diuron	330-54-1	0.1	µg/l
gamma-HCH (Lindane)	58-89-9	0.1	µg/l
Chlorpyrifos	2921-88-2	0.1	µg/l
Chromium	7440-47-3	50	µg/l
Isoproturon	34123-59-6	0.1	µg/l
Lead	7439-92-1	10	µg/l
Linuron	330-55-2	0.1	µg/l
MCPA	94-74-6	0.1	µg/l

Substance	CAS	Limit	Unit
Mecoprop	7085-19-0	0.1	µg/l
Mercury	7439-97-6	1	µg/l
Nickel	7440-02-0	20	µg/l
Prometryn	7287-19-6	0.1	µg/l
Propazine	139-40-2	0.1	µg/l
Simazine	122-34-9	0.1	µg/l
Terbuthylazine	5915-41-3	0.1	µg/l
Trifluralin	1582-09-8	0.1	µg/l

* Drinking water standard for the Sum of 1,1,2,2,-tetrachloroethene and 1,1,2-trichloroethene

LOQs vary considerably among countries and even among the years, with in some cases 5 or more orders of magnitude, probably due to the errors in reported data. Some substances were also reported with 20 or more various LOQs throughout Europe, see Table 2.1.2. in the Annex. More details on the number of various LOQs reported by countries is given in Table 2.1.3 in the Annex for the whole of the 2002–2011 period and in Table 2.1.4 in the Annex for the 2010–2011 period. Lists of minimal and maximal LOQs reported by countries within the 2002–2011 period are provided in Tables 2.1.5 and 2.1.6 in the Annex, lists of minimal and maximal LOQs reported by countries within the 2010–2011 period are provided in Tables 2.1.7 and 2.1.8 in the Annex. Reported data below the LOQ that was higher than the drinking water standards (DW) were excluded from the analysis. Together 4831 values from the 2002–2011 period and 431 values from the 2010–2011 period were excluded. An overview of excluded values for the 2002–2011 period is given in Table 2.1.9 in the Annex and for the 2010–2011 period in Table 2.1.10 in the Annex.

2.2 Marine environment

There is a large number of potentially hazardous substances, but to date, only a few where data are available with sufficient geographical and temporal coverage to warrant a pan-European assessment. Therefore, the EEA pan-European assessment of the state of hazardous substances in marine organisms is based on the assessment of seven substances (cadmium, lead, mercury (total), the pesticides DDT (using pp'DDE as a representative of DDT) and lindane (γ-HCH), hexachlorobenzene (HCB), and PCBs (using chlorinated biphenyls CB28, CB52, CB101, CB118, CB138, CB153, and CB180 as representatives)) that form the core set of indicators for the EEA. All except PCBs are included in the lists of the WFD Daughter Directive 2008/105/EC, commonly referred to as Environmental Quality Standard Directive (EQSD). The assessment is solely based on the EEA MAR001 indicator. Data from the 1998–2010 period were used for hazardous substances assessment. Because there has not been an update of the EEA/ETC MAR001 indicator (Hazardous Substances in Marine Organisms), that is the basis for an assessment in this hazardous substances technical report, since the publication of the ETC/ICM Technical Report 1/2013, the marine assessment has not been updated with the 2011 data.

General trend assessments for the main regions are based on a tally of significant upward and downward trends for the contaminant and region in question (OSPAR, 2009). A significant dominance of time series trends in one direction is taken as indicating a regional trend in that direction.

Symbol colour (Table 2.2.1) shows the classification of recent concentration levels into Low, Moderate and High, based on comparing the upper 95% confidence limit of the estimated geometric mean for recent years with limits provided in Table 2.2.2. The selection of limits is currently being reassessed. For a series with less than 5 years of data, the mean is taken over all yearly medians, for a longer series the mean is the fitted trend value at the most recent year of the time series. Using the upper confidence limit means that the classification has a built-in bias against giving too good a classification; a short time series with a large between-year variation may get a worse classification than if a percentile level of observed concentrations was used. Symbol shape indicates four categories of trend assessment: Too few data, Not Significant, Up or Down. Assessment of level and trend requires at least 3 and 5 years of data, respectively, and including data from 2006 or later. In trend assessments, only data from the last 10 years were used. Symbols are placed at station positions without any geographical aggregation, so stations close to each other will overlap: Moderate may hide Low, and High may hide Low and Moderate indicated stations.

Table 2.2.1 Map symbol description indicating Low, Moderate and High classes of concentrations, combined with four categories of time trend assessment

Time trend assessment (requires at least 5 years of data)	Classification of recent level (requires at least 3 years of data)		
	Low (green)	Moderate (yellow)	High (red)
Too few data (circle)			
Not significant (square)			
Decrease (arrow down)			
Increase (arrow up)			

Table 2.2.2 Limit concentrations used for the classification of recent concentration levels in figures and maps: Low/High concentration limits for spatial assessment which delimits the classes Low, Moderate and High. EU foodstuff limits are highlighted in a grey shade. Except for EU legislation, the limits have no legal application. All values are expressed in units of µg/kg and on a dry weight (D), wet weight (W) or a fat weight (L) basis. Many values are derived from OSPAR Background Assessment Concentration (BAC) or Eco-toxicological Assessment Criteria (EAC). NB: these concentrations are under development.

Note: * indicates where limits have been revised (cf. EEA 2003). Limits for lindane in fish have also been added.

Name and tissue	Latin name	Low/High limits	µg/kg	basis	Reference	Comment
CADMIUM						
Mussels	Mytilus sp.[1]	Low	960	D	OSPAR 2008	BAC limit
Mussels	Mytilus sp.	High	5000	D	EU 2006	Foodstuffs limit for "bivalve molluscs", Regulation (EC) No. 1881/2006, conversion assuming 20% wet weight (cf. OSPAR CEMP assessment manual 2008, Table 2.1)
Atlantic cod, liver	Gadus morhua	Low	26	W	OSPAR 2008	BAC limit
Atlantic cod, liver	Gadus morhua	High	1000	W	EU 2006	Foodstuffs limit for "bivalve molluscs", Regulation (EC) No. 1881/2006
Herring, muscle	Clupea harengus	Low	26	W	OSPAR 2008	BAC limit
Herring, muscle	Clupea harengus	High	1000	W	EU 2006	Foodstuffs limit for "bivalve molluscs", Regulation (EC) No. 1881/2006
MERCURY						
Mussels	Mytilus sp.[1]	Low	90	D	OSPAR 2008	BAC limit
Mussels	Mytilus sp.	High	2500	D	EU 2006	Foodstuffs limit for "fisheries products", Regulation (EC) No. 1881/2006, conversion assuming 20% wet weight (cf. OSPAR CEMP assessment manual 2008, Table 2.1)
Atlantic cod, muscle	Gadus morhua	Low	35	W	OSPAR 2008	BAC limit
Atlantic cod, muscle	Gadus morhua	High	500	W	EU 2006	Foodstuffs limit for "meat of fish molluscs", Regulation (EC) No. 1881/2006
Herring, muscle	Clupea harengus	Low	35	W	OSPAR 2008	BAC limit
Herring, muscle	Clupea harengus	High	500	W	EU 2006	Foodstuffs limit for "meat of fish molluscs", Regulation (EC) No. 1881/2006
LEAD						
Mussels	Mytilus sp.[1]	Low	1300	D	OSPAR 2008	BAC limit

Name and tissue	Latin name	Low/High limits	µg/kg	basis	Reference	Comment
Mussels	Mytilus sp.	High	7500	D	EU 2006	Foodstuffs limit for "bivalve molluscs", Regulation (EC) No. 1881/2006, conversion assuming 20% wet weight (cf. OSPAR CEMP assessment manual 2008, Table 2.1)
Atlantic cod, liver	Gadus morhua	Low	26	W	OSPAR 2008	BAC limit
Atlantic cod, liver	Gadus morhua	High	1500	W	EU 2006	Foodstuffs limit for "bivalve molluscs", Regulation (EC) No. 1881/2006
Herring, muscle	Clupea harengus	Low	26	W	OSPAR 2008	BAC limit
Herring, muscle	Clupea harengus	High	1500	W	EU 2006	Foodstuffs limit for "bivalve molluscs", Regulation (EC) No. 1881/2006
HCB						
Mussels	Mytilus sp.[1]	Low	0.63	D	OSPAR 2008	BAC limit
Mussels	Mytilus sp.	High	6.3	D		Taken as 10 times "Low" (or approximately the median of High:Low ratio for CBs in mussel, which is 8.6)
Atlantic cod, liver	Gadus morhua	Low	0.18	L	OSPAR 2008	BAC limit times 2 (OSPAR [2])
Atlantic cod, liver	Gadus morhua	High	135	L		Taken as 750 times "Low" (median of High:Low ratio for CBs in cod)
Herring, muscle	Clupea harengus	Low	1.8	L	OSPAR 2008	BAC [2] limit times 20 (OSPAR [2])
Herring, muscle	Clupea harengus	High	135	L		Taken as the same for cod, in pattern with CBs EAC's
LINDANE						
Mussels	Mytilus sp.[1]	Low	0.97	D	OSPAR 2008	BAC limit
Mussels	Mytilus sp.	High	1.45	D	OSPAR 2008	EAC limit
Atlantic cod, liver	Gadus morhua	Low	0.29	L		Taken as 1/750 times "High" (median of Low:High ratio for CBs in cod)
Atlantic cod, liver	Gadus morhua	High	220	L		Taken as the same for herring
Herring, muscle	Clupea harengus	Low	2.9	L		Taken as 10 times value for cod, as
Herring, muscle	Clupea harengus	High	220	L	OSPAR 2008	Taken as OSPAR EAC (2008) = 11 * 20 (to convert wet weight to lipid weight – (OSPAR [2]) = 220 ppb l.w.
PCB (CB 28)						
Mussels	Mytilus sp.[1]	Low	0.75	D	OSPAR 2008	BAC limit
Mussels	Mytilus sp.	High	3.2	D	OSPAR 2008	EAC limit
Atlantic cod, liver	Gadus morhua	Low	0.2	W	OSPAR 2008	BAC limit times 2 (OSPAR [2])
Atlantic cod, liver	Gadus morhua	High	64	L	OSPAR 2008	EAC limit

Name and tissue	Latin name	Low/High limits	µg/kg	basis	Reference	Comment
Herring, muscle	Clupea harengus	Low	2	W	OSPAR 2008	BAC limit times 20 (OSPAR [2])
Herring, muscle	Clupea harengus	High	64	L	OSPAR 2008	EAC limit
PCB (CB 52)						
Mussels	Mytilus sp.[1]	Low	0.75	D	OSPAR 2008	BAC limit
Mussels	Mytilus sp.	High	5.4	D	OSPAR 2008	EAC limit
Atlantic cod, liver	Gadus morhua	Low	0.16	W	OSPAR 2008	BAC limit times 2 (OSPAR [2])
Atlantic cod, liver	Gadus morhua	High	108	L	OSPAR 2008	EAC limit
Herring, muscle	Clupea harengus	Low	1.6	W	OSPAR 2008	BAC limit times 20 (OSPAR [2])
Herring, muscle	Clupea harengus	High	108	L	OSPAR 2008	EAC limit
PCB (CB 101)						
Mussels	Mytilus sp.[1]	Low	0.7	D	OSPAR 2008	BAC limit
Mussels	Mytilus sp.	High	6	D	OSPAR 2008	EAC limit
Atlantic cod, liver	Gadus morhua	Low	0.16	W	OSPAR 2008	BAC limit times 2 (OSPAR [2])
Atlantic cod, liver	Gadus morhua	High	120	L	OSPAR 2008	EAC limit
Herring, muscle	Clupea harengus	Low	1.6	W	OSPAR 2008	BAC limit times 20 (OSPAR [2])
Herring, muscle	Clupea harengus	High	120	L	OSPAR 2008	EAC limit
PCB (CB 118)						
Mussels	Mytilus sp.[1]	Low	0.6	D	OSPAR 2008	BAC limit
Mussels	Mytilus sp.	High	1.2	D	OSPAR 2008	EAC limit
Atlantic cod, liver	Gadus morhua	Low	0.2	W	OSPAR 2008	BAC limit times 2 (OSPAR [2])
Atlantic cod, liver	Gadus morhua	High	24	L	OSPAR 2008	EAC limit
Herring, muscle	Clupea harengus	Low	2	W	OSPAR 2008	BAC limit times 20 (OSPAR [2])
Herring, muscle	Clupea harengus	High	24	L	OSPAR 2008	EAC limit
PCB (CB 138)						
Mussels	Mytilus sp.[1]	Low	0.6	D	OSPAR 2008	BAC limit
Mussels	Mytilus sp.	High	15.8	D	OSPAR 2008	EAC limit
Atlantic cod, liver	Gadus morhua	Low	0.18	W	OSPAR 2008	BAC limit times 2 (OSPAR [2])
Atlantic cod, liver	Gadus morhua	High	316	L	OSPAR 2008	EAC limit
Herring, muscle	Clupea harengus	Low	1.8	W	OSPAR 2008	BAC limit times 20 (OSPAR [2])
Herring, muscle	Clupea harengus	High	316	L	OSPAR 2008	EAC limit
PCB (CB 153)						

Name and tissue	Latin name	Low/High limits	µg/kg	basis	Reference	Comment
Mussels	Mytilus sp.[1]	Low	0.6	D	OSPAR 2008	BAC limit
Mussels	Mytilus sp.	High	80	D	OSPAR 2008	EAC limit
Atlantic cod, liver	Gadus morhua	Low	0.2	W	OSPAR 2008	BAC limit times 2 (OSPAR [2])
Atlantic cod, liver	Gadus morhua	High	1600	L	OSPAR 2008	EAC limit
Herring, muscle	Clupea harengus	Low	2	W	OSPAR 2008	BAC limit times 20 (OSPAR [2])
Herring, muscle	Clupea harengus	High	1600	L	OSPAR 2008	EAC limit
PCB (CB 180)						
Mussels	Mytilus sp.[1]	Low	0.6	D	OSPAR 2008	BAC limit
Mussels	Mytilus sp.	High	24	D	OSPAR 2008	EAC limit
Atlantic cod, liver	Gadus morhua	Low	0.22	W	OSPAR 2008	BAC limit times 2 (OSPAR [2])
Atlantic cod, liver	Gadus morhua	High	480	L	OSPAR 2008	EAC limit
Herring, muscle	Clupea harengus	Low	2.2	W	OSPAR 2008	BAC limit times 20 (OSPAR [2])
Herring, muscle	Clupea harengus	High	480	L	OSPAR 2008	EAC limit
DDE (as DDT representative)						
Mussels	Mytilus sp.[1]	Low	0.63	D	OSPAR 2008	BAC limit
Mussels	Mytilus sp.	High	6.3	D		Taken as 10 times "Low"
Atlantic cod, liver	Gadus morhua	Low	0.2	L	OSPAR 2008	BAC limit times 2 (OSPAR [2])
Atlantic cod, liver	Gadus morhua	High	150	L		Taken as 750 times "Low" (median of High:Low ratio for CBs)
Herring, muscle	Clupea harengus	Low	2	L	OSPAR 2008	BAC limit times 20 (OSPAR [2])
Herring, muscle	Clupea harengus	High	150	L		Taken as the same for cod, in pattern with CB's EACs

[1] Blue mussel (Mytilus edulis) for the north-east Atlantic, Mediterranean mussel (M. galloprovincialis) for the Mediterranean and Black Sea.

[2] Used in the OSPAR statistical assessment (R.Fryer (Marine Lab., UK) pers. comm.)

2.3 Rivers and lakes

A selection of hazardous substances for the river and lake analysis with coherent Environmental Quality Standards (EQS) as annual average concentrations was performed according to Annex I of Environmental Quality Standard Directive (EQSD), later amended by the Directive 2013/39/EU (Table 2.3.1). The analysis draws upon data reported to the EEA from the National Monitoring Programs via WISE-SOE (Eionet-Water). Data for the period 2002–2011 were chosen for long term analysis, while data from 2010–2011 were used for the current status analysis. Preferably disaggregated data were used. In cases of missing disaggregated data, reported aggregated datasets were used instead.

Table 2.3.1 Environmental Quality Standards (EQS) as Annual Average concentrations (AA) for surface freshwater pursuant to the Directive 2008/105/EC.

No.	Name of Substance	CAS Number	AA-EQS (µg/l)
(1)	Alachlor	15972-60-8	0.3
(2)	Anthracene	120-12-7	0.1
(3)	Atrazine	1912-24-9	0.6
(4)	Benzene	71-43-2	10
(6)	Cadmium and its compounds (depending on water hardness classes)	7440-43-9	≤ 0.08(Class1) 0.08(Class2) 0.09(Class3) 0.15(Class4) 0.25(Class5)
(8)	Chlorfenvinphos	470-90-6	0.1
(9)	Chlorpyrifos	2921-88-2	0.03
(9a)	Aldrin Dieldrin Endrin Isodrin	309-00-2 60-57-1 72-20-8 465-73-6	Σ=0.01
(9b)	DDT total	Not applicable	0.025
	DDT, p,p’	50-29-3	0.01
(10)	1,2-Dichloroethane	107-06-2	10
(11)	Dichloromethane	75-09-2	20
(12)	Di(2-ethylhexyl)-phthalate (DEHP)	117-81-7	1.3
(13)	Diuron	330-54-1	0.2
(14)	Endosulfan	115-29-7	0.005
(15)	Fluoranthene	206-44-0	0.1
(16)	Hexachlorobenzene (HCB)	118-74-1	0.01
(17)	Hexachlorobutadiene (HCBD)	87-68-3	0.1
(18)	Hexachlorocyclohexane	608-73-1	0.02
(19)	Isoproturon	34123-59-6	0.3
(20)	Lead and its compounds	7439-92-1	7.2
(21)	Mercury and its compounds	7439-97-6	0.05
(22)	Naphthalene	91-20-3	2.4
(23)	Nickel and its compounds	7440-02-0	20
(24)	Nonylphenol (4-Nonylphenol)	104-40-5	0.3

No.	Name of Substance	CAS Number	AA-EQS (µg/l)
(25)	Octylphenol (4-(1,1′,3,3′-tetramethylbutyl)-phenol)	140-66-9	0.1
(26)	Pentachlorobenzene	608-93-5	0.007
(27)	Pentachlorophenol	87-86-5	0.4
(28)	Polyaromatic hydrocarbons (PAH)	not applicable	not applicable
	Benzo(a)pyrene	50-32-8	0.05
	Benzo(b)fluoranthene	205-99-2	Σ=0.03
	Benzo(k)fluoranthene	207-08-9	
	Benzo(g,h,i)-perylene	191-24-2	Σ=0.002
	Indeno(1,2,3-cd)-pyrene	193-39-5	
(29)	Simazine	122-34-9	1
29a)	Tetrachloroethylene (1,1,2,2-tetrachloroethene)	127-18-4	10
(30)	Tributyltin compounds (Tributyltin-cation)	36643-28-4	0.0002
(31)	Trichlorobenzenes	12002-48-1	0.4
(32)	Trichloromethane	67-66-3	2.5
(33)	Trifluralin	1582-09-8	0.03

A hazardous substance “traffic light” indicator was developed for rivers and lakes, based on Environmental Quality Standards (EQS) provided from EQSD (Table 2.3.1). The average concentration of each hazardous substance is divided by the EQS and hence creating an indicator with a trigger value of 1. A substance with an indicator equaling or larger than 1 (“red light”) is a substance posing a possible problem in European surface waters. Substances with an indicator between 0.8 and 1 are given a “yellow” light indicating a substance close to the EQS values. Substances with an indicator below 0.8 are given a “green light”.

It should be noted that whilst the respective EQS’s that originate from the EQSD have been used in this analysis, the analysed data do not arise from the Water Framework Directive (WFD) reporting, but the EEA’s WISE-SoE reporting, as mentioned before.

River and lake data quality issues and data processing

For both lakes and rivers data, some QC rules were applied by the respective database managers. During autumn 2014, a document on improvement of QC procedures for hazardous substances in surface waters was developed. It was focussing on lower and upper limits of reported data to discard obviously wrong values (called simple outliers in the methodology), and to identify potentially suspicious values (called complex outliers) requiring further exploration with the data provider. For the current report, the dataset used for rivers and lakes exclude obvious wrong values (simple outliers) and follow the data processing rules detailed hereunder.

Compared to rivers, data submitted for hazardous substances in lakes were scarce, with respect to countries, numbers of stations and time developments. The various types of hazardous substances (pesticide, metal or industrial chemical) were more or less equally reported in the different stations.

The quality of data reported from the countries varied, and during the compilation of the data it was discovered that a substantial amount of data had been incorrectly submitted or essential information was missing or ambiguity on the determinand was existing. In order to reduce the uncertainty and improve the quality assurance, a considerable amount of river and lake data were excluded from the analysis. Both LOD (Limit of Detection) and LOQ (Limit of Quantification) are often not reported at all or values were set at zero. Reported LOD or LOQ above the EQS were also excluded, in order to remove uncertainties related to analytical concerns, to ensure that results < a high LOQ should not appear as “traffic light indicators” exceeding EQS and to make it visible that countries should aim at applying chemical analytical methods with a lower LOD or LOQ, ideally equal or below a value of 30 % of the relevant EQS as required by the Directive 2009/90/EC also known as Quality Assessmenta and Quality Control Directive (QA/QC Directive).

The number of different LOQs is very high and in some cases, very high LOQs are considered questionable and potentially subject to unit errors. Part of the data should not have passed the QC. We will address those issues in an improvement of automated QA/QC procedures in the next reporting exercise. An overview of how the data and individual compounds were treated is given below.

Data processing rules

- Data from 2002–2011 included.
- Records with the concentration = 0 or outside the plausible range (simple outlier) were excluded.
- Records with LOD and LOQ = 0 (both aggregated and disaggregated data) or missing LOQ (aggregated data only) were excluded.
- Records with unknown/ambiguous determinand were excluded.
- Values below LOD, or with LOQ > EQS were excluded.
- Concentrations exceeding upper limits empirically set for each substance were excluded in order to avoid unit errors or decimal order errors.
- Data used for the table depicting maximum concentrations below LOD or LOQ, were flagged with [or <, respectively.
- For the calculation of mean concentrations, reported concentrations flagged with [or <, were divided by ½, according to the Directive 2009/90/EC, Article 5, paragraph 1.
- Number of samples = number of all measurements.
- Number of samples below LOD or LOQ = number of samples flagged with [or <.
- When both LOD and LOQ were provided, LOQ was used in the calculations.
- Substances used for sum calculations (Σ):
    - Benzo(b)fluoranthene, Benzo(k)fluoranthene
    - Benzo(g,h,i)perylene, Indeno(1,2,3-cd)pyrene
    - Aldrin, Endrin, Dieldrin, Isodrin
    - DDD-p,p', DDE-p,p’, DDT-o,p', DDT-p,p'
    - Alpha-HCH, Beta-HCH, Delta-HCH, Epsilon-HCH, Gamma-HCH (Lindane)
- Sum calculations were performed according to the Directive 2009/90/EC, Article 5, paragraph 3 requirements.

Issues regarding metals

According to EQSD, Part B, paragraph 3, EQS for metals (Hg, Ni, Cd, and Pb) refers to the dissolved concentration, i.e. the dissolved phase of a water sample obtained after filtration through a 0.45 µm filter or any equivalent pre-treatment. Some, but few countries had reported metal data on the dissolved fraction. In the analysis, a separation between data reported as dissolved metal and “all other” fractions is given, to elucidate this issue.

For Cd and its compounds, the EQS values vary depending on the hardness of the water as specified in the five class categories. Few of the countries have reported hardness of the water concurrently with Cd concentrations. Due to the missing hardness data, the EQS of 0.15 µg/l corresponding to a water hardness of 100 to < 200 mg/l of $CaCO_3$ was selected for data analysis where no information on hardness was provided.

Overview of excluded data

A substantial amount of data was excluded due to deficiency in reported coordinates, and issues related to LOD and LOQ. Issues related to LOD, LOQ > EQS accounted for most of the data excluded. Considerable numbers of river data were excluded from especially Spain (ES) (63.5 %) and the Former Yugoslav Republic of Macedonia (MK) (43.6 %), mainly due to LOD, LOQ > EQS. Data from several other countries were excluded as well and data submission should be improved, as well as the use of analytical methods with LOD or LOQ lower than EQS. In rivers, there was no difference whether data for metals or organic substances were excluded due to a high LOD or LOQ.

LOQs vary considerably among countries and years, in some cases with 9 or more orders of magnitude, probably due to errors in reported data and some substances (mainly metals) were reported with 63 or more various LOQs throughout Europe; see Table 2.3.2 (rivers) and 2.3.8 (lakes) in the Annex. More detail on the number of various LOQs reported by countries for the whole of the 2002–2011 period is given in Table 2.3.3 (rivers) and Table 2.3.9 (lakes) in the Annex. Lists of minimal and maximal LOQs reported by countries within the 2002–2011 period are provided in Tables 2.3.4 and 2.3.5 (rivers) and Tables 2.3.10 and 2.3.11 (lakes) in the Annex. Some very high LOQs in the mg/l range may potentially be subject to unit errors, however, as these have been excluded from the dataset they do not appear on the visualisations in this report.

An overview of excluded values per substance for the whole of Europe for the 2010–2011 period is given in Table 2.3.6 (rivers) and Table 2.3.12 (lakes) in the Annex. An overview of the numbers of excluded values in countries for the 2010–2011 period is given in Table 2.3.7 (rivers) and Table 2.3.13 (lakes) in the Annex.

3 Overview of available SoE data, temporal and spatial coverage

This chapter briefly describes the status of the data available to the EEA through the agreed reporting of State of Environment (SoE) data. The ETC/ICM data managers do all data processing in working databases including importing, quality assurance/quality control (QA/QC), aggregation, querying and the exporting of data. Then the data gets exported to the EEA‘s Waterbase and quality flagged. Due to practical reasons, the data for this report were prepared from the so-called “working databases” maintained at the ETC/ICM servers, however, it is the same data-values published in the EEA’s Waterbase (quality assured and aggregated data per station and year for rivers or per groundwater body and per year for groundwater). SoE datasets are not temporally and spatially homogenous: there are gaps in the time series, the countries report various sets of hazardous substances data, with various Limits of Detection (LOD) or Quantification (LOQ) that change over time and LOD/LOQ may differ by up to three orders of magnitude depending on the reporting country. Some very extreme values were discovered in working databases during the processing of the data for this report additionally to the issues described in the previous chapter. The feedback from 15 countries regarding a draft of this report helped to improve the quality of data in the ETC/ICM working databases and enhanced the overall quality of this report.

3.1 Groundwater

There are more than 2 800 000 reported values for selected hazardous substances (see Table 3.1.1 for the list of substances) in more than 7 700 groundwater stations for the 2002–2011 period available in the SoE database. Generally speaking the most complete datasets are available for metals, followed by pesticides. The number of reported values significantly increased over the 2002–2011 period. Recently the SoE databases were updated with a considerable amount of data, predominantly for recent years.

Table 3.1.1 Temporal availability of SoE groundwater data for selected hazardous substances in the 2002–2011 period

Substance	No. of years	Period
1,1,1-trichloroethane	10	2002-2011
1,1,2,2-tetrachloroethene	10	2002-2011
1,1,2-trichloroethene	10	2002-2011
1,2-Dichloroethane	10	2002-2011
2,4-D	10	2002-2011
4-nonylphenol	10	2002-2011
Alachlor	10	2002-2011
Aldrin	10	2002-2011
Alpha-Endosulfan	10	2002-2011
Alpha-HCH	10	2002-2011
Anthracene	10	2002-2011
Arsenic	10	2002-2011
Arsenic dissolved	10	2002-2011
Atrazine	10	2002-2011
Bentazone	10	2002-2011
Benzene	10	2002-2011
Benzo(a)pyrene	10	2002-2011
Benzo(b)fluoranthene	10	2002-2011
Benzo(g,h,i)perylene	10	2002-2011
Benzo(k)fluoranthene	10	2002-2011
Beta-HCH	10	2002-2011
Cadmium	10	2002-2011
Cadmium dissolved	10	2002-2011
Chlorfenvinphos	10	2002-2011
Chloroalkanes C10-13	7	2002-2011
Chlorpyrifos	10	2002-2011
Chromium	10	2002-2011
Chromium dissolved	10	2002-2011
Copper	10	2002-2011
Copper dissolved	10	2002-2011
DDD, p,p'	10	2002-2011
DDE, p,p'	10	2002-2011
DDT, o,p'	10	2002-2011
DDT, p,p'	10	2002-2011
Desethylatrazine	10	2002-2011
Desisopropylatrazine	10	2002-2011

Substance	No. of years	Period
Di (2-ethylhexyl) phthalate (DEHP)	8	2002-2011
Dichloromethane	10	2002-2011
Dieldrin	10	2002-2011
Diuron	10	2002-2011
Endrin	10	2002-2011
Fluoranthene	10	2002-2011
Gamma-HCH (Lindane)	10	2002-2011
Hexachlorobenzene (HCB)	10	2002-2011
Hexachlorobutadiene (HCBD)	10	2002-2011
Indeno(1,2,3-cd)pyrene	10	2002-2011
Isodrin	10	2002-2011
Isoproturon	10	2002-2011
Lead	10	2002-2011
Lead dissolved	10	2002-2011
Linuron	10	2002-2011
MCPA	10	2002-2011
Mecoprop	10	2002-2011
Mercury	10	2002-2011
Mercury dissolved	5	2002-2011
Naphthalene	10	2002-2011
Nickel	10	2002-2011
Nickel dissolved	10	2002-2011
Para-tert-octylphenol	6	2002-2011
Pentachlorobenzene	9	2002-2011
Pentachlorophenol	10	2002-2011
Prometryn	10	2002-2011
Propazine	10	2002-2011
Simazine	10	2002-2011
Terbuthylazine	10	2002-2011
Terbutryn	10	2002-2011
Tetrachloromethane	10	2002-2011
Trichloromethane	10	2002-2011
Trifluralin	10	2002-2011
Zinc	10	2002-2011
Zinc dissolved	10	2002-2011

Table 3.1.2 No. of years with available groundwater data for countries within the 2002–2011 period

Substance	AL	AT	BA	BE	BG	CH	CY	CZ	DE	DK	EE	ES	FI	FR	GB	GR	HR	HU	IE	IS
1,1,1-trichloroethane	0	0	1	6	0	10	0	0	6	10	0	0	0	6	10	0	3	0	6	0
1,1,2,2-tetrachloroethene	0	0	1	6	6	10	4	4	0	10	0	0	0	6	10	0	2	0	6	0
1,1,2-trichloroethene	0	0	0	6	6	10	4	4	0	10	0	0	0	6	10	0	0	0	6	0
1,2-dichloroethane	0	10	0	10	0	0	0	9	6	3	0	0	0	9	10	0	3	0	6	8
2,4-D	0	0	0	6	2	3	0	4	6	6	0	0	0	6	6	0	0	0	3	0
4-nonylphenol	0	0	0	0	0	0	0	0	0	0	0	0	0	7	3	0	0	0	0	0
Alachlor	0	10	0	9	4	3	4	10	1	0	0	0	0	8	0	0	3	0	0	0
Aldrin	0	5	1	9	10	0	0	7	1	0	0	0	0	9	10	0	3	0	0	0
Alpha-Endosulfan	0	0	1	0	8	0	0	7	1	0	0	0	0	9	10	0	0	0	0	0
Alpha-HCH	0	0	0	0	10	0	0	4	3	0	0	0	0	6	3	0	3	0	0	0
Anthracene	0	0	0	10	0	0	0	9	3	0	0	0	0	9	10	0	3	0	1	8
Arsenic	0	0	2	4	4	10	4	4	3	10	4	0	0	5	10	3	2	0	9	0
Arsenic dissolved	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	10	1
Atrazine	0	10	0	10	10	10	4	10	8	10	0	0	0	9	10	0	3	0	3	0
Bentazone	0	10	0	6	0	4	0	4	6	10	0	0	0	6	10	0	0	0	3	0
Benzene	0	0	0	10	0	10	0	9	6	10	1	0	0	9	10	0	3	0	6	8
Benzo(a)pyrene	0	0	0	10	0	0	0	9	6	1	0	0	0	9	10	0	3	0	1	8
Benzo(b)fluoranthene	0	0	0	10	0	0	0	9	6	0	0	0	0	9	9	0	3	0	0	8
Benzo(g,h,i)perylene	0	0	0	10	0	0	0	9	6	1	0	0	0	9	10	0	3	0	0	8
Benzo(k)fluoranthene	0	0	0	10	0	0	0	9	6	0	0	0	0	9	10	0	3	0	0	8
Beta-HCH	0	0	0	0	10	0	0	4	3	0	0	0	0	6	3	0	3	0	0	0
Cadmium	0	10	4	10	9	10	4	9	6	9	3	0	0	9	10	3	1	0	8	4
Cadmium dissolved	0	0	0	0	1	0	0	0	3	0	0	0	0	0	5	0	3	0	10	4
Copper	3	10	4	10	9	7	5	9	4	9	0	0	0	9	10	3	1	0	8	6
Copper dissolved	0	0	0	0	1	0	0	0	3	8	0	0	0	0	5	0	3	0	10	2
DDD, p,p'	0	0	0	0	10	0	0	4	0	0	0	0	0	6	4	0	3	0	0	0
DDE, p,p'	0	0	0	5	10	0	0	9	0	0	0	0	0	9	10	0	3	0	0	0
DDT, o,p'	0	0	0	0	10	0	0	9	1	0	0	0	0	9	10	0	1	0	0	0
DDT, p,p'	0	0	0	1	10	0	0	9	1	0	0	0	0	9	10	0	3	0	4	0
Desethylatrazine	0	10	0	6	2	9	0	4	6	10	0	0	0	9	9	0	0	0	0	0
Desisopropylatrazine	0	0	0	6	2	9	0	4	6	10	0	0	0	6	9	0	0	0	0	0
Di (2-ethylhexyl) phthalate (DEHP)	0	0	2	0	0	0	0	4	0	8	0	0	0	6	6	0	1	0	0	0
Dieldrin	0	0	1	9	10	0	0	7	1	0	0	0	0	9	10	0	3	0	4	0
Dichloromethane	0	10	0	0	0	0	0	9	9	2	0	0	0	8	10	0	3	0	0	8
Diuron	0	10	0	10	1	7	0	8	8	6	0	0	0	9	10	0	0	0	3	0
Endrin	0	0	1	9	10	0	0	7	1	0	0	0	0	9	10	0	3	0	0	0
Fluoranthene	0	0	0	10	0	0	0	9	6	1	0	0	0	9	10	0	3	0	0	8
Gamma-HCH (Lindane)	0	5	0	10	10	0	0	10	9	0	0	0	0	9	10	0	3	0	4	0
Hexachlorobenzene (HCB)	0	5	0	6	9	0	0	8	1	0	0	0	0	9	10	0	3	0	0	0
Hexachlorobutadiene (HCBD)	0	0	0	6	0	0	0	7	3	0	0	0	0	9	10	0	3	0	0	0
Chlorfenvinphos	0	0	0	10	2	0	4	0	1	0	0	0	0	9	10	0	3	0	0	0
Chloroalkanes C10-13	0	0	0	0	0	0	0	4	0	0	0	0	0	7	0	0	0	0	0	0
Chlorpyrifos	0	0	0	0	4	0	4	10	2	0	0	0	0	8	10	0	3	0	0	0
Chromium	3	0	4	4	4	7	4	4	3	4	0	0	0	5	10	0	1	0	8	0
Chromium dissolved	0	0	0	1	0	0	0	0	1	0	0	0	0	0	2	0	3	0	10	0
Indeno(1,2,3-cd)pyrene	0	0	0	10	1	0	0	9	4	1	0	0	0	9	10	0	3	0	0	8
Isodrin	0	0	0	0	10	0	0	7	1	0	0	0	0	9	10	0	3	0	0	0
Isoproturon	0	8	0	10	0	7	0	10	9	6	0	0	0	9	10	0	0	0	3	0
Lead	3	10	4	10	9	10	4	9	3	9	3	0	0	9	10	3	1	0	8	6
Lead dissolved	0	0	0	0	1	0	0	0	3	0	0	0	0	0	5	0	3	0	10	2
Linuron	0	8	0	10	0	0	0	8	6	1	0	0	0	9	10	0	0	0	0	0
MCPA	0	0	0	6	0	4	0	4	6	6	0	0	0	6	10	0	0	0	3	0
Mecoprop	0	0	0	6	0	3	0	2	6	10	0	0	0	6	10	0	0	0	3	0
Mercury	0	10	4	10	4	5	4	9	6	3	3	0	0	9	10	0	1	0	3	6
Mercury dissolved	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	3	0	5	2
Naphthalene	0	0	0	9	0	4	0	9	2	10	0	0	0	8	10	0	3	0	1	8
Nickel	3	10	2	10	9	7	5	9	6	10	0	0	0	9	10	3	1	0	8	4
Nickel dissolved	0	0	0	0	1	0	0	0	3	9	0	0	0	0	5	0	3	0	10	4
Para-tert-octylphenol	0	0	0	0	0	0	0	0	0	0	0	0	0	6	5	0	0	0	0	0
Pentachlorobenzene	0	0	0	0	0	0	0	7	0	0	0	0	0	9	4	0	2	0	0	0
Pentachlorophenol	0	0	0	10	0	0	0	4	2	10	0	0	0	8	10	0	3	0	0	0
Prometryn	0	0	0	6	7	0	0	4	6	0	0	0	0	6	10	0	0	0	0	0
Propazine	0	0	0	6	10	7	4	0	6	0	0	0	0	6	10	0	0	0	0	0
Simazine	0	10	0	10	10	10	4	10	10	10	0	0	0	9	10	0	3	0	1	0
Terbuthylazine	0	0	0	6	2	10	0	4	6	6	0	0	0	6	0	0	0	0	0	0
Terbutryn	0	0	0	6	7	10	0	0	6	0	0	0	0	4	10	0	0	0	0	0
Tetrachloromethane	0	0	0	6	1	10	0	4	3	10	0	0	0	6	10	0	3	0	0	0
Trifluralin	0	0	0	10	4	0	4	10	5	0	0	0	0	9	10	0	0	0	0	0
Trichloromethane	0	0	0	10	0	10	0	9	9	10	0	0	0	9	10	0	3	0	0	8
Zinc	3	10	5	10	9	7	1	9	6	9	0	0	0	9	10	3	2	0	8	6
Zinc dissolved	0	0	0	0	1	0	0	0	3	8	0	0	0	0	5	0	3	0	10	2

Table 3.1.2 continued

Substance	IT	LI	LT	LU	LV	ME	MK	MT	NL	NO	PL	PT	RO	RS	SE	SI	SK	TR	XK
1,1,1-trichloroethane	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	4	0	0
1,1,2,2-tetrachloroethene	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	5	6	0	0
1,1,2-trichloroethene	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	5	5	0	0
1,2-dichloroethane	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	8	10	0	0
2,4-D	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	4	0	0
4-nonylphenol	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0
Alachlor	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	5	0	0
Aldrin	1	0	1	0	0	0	0	0	0	0	1	0	0	3	0	6	5	0	0
Alpha-Endosulfan	1	0	1	0	0	0	0	0	0	0	1	1	0	0	0	8	0	0	0
Alpha-HCH	1	0	1	0	0	0	0	0	0	0	1	0	0	3	0	3	0	0	0
Anthracene	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	5	0	0
Arsenic	1	0	2	0	2	0	0	0	0	0	5	2	0	0	0	4	5	0	0
Arsenic dissolved	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0
Atrazine	1	0	1	0	0	0	0	0	0	0	0	0	0	3	0	9	10	0	0
Bentazone	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	3	0	0
Benzene	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	10	0	0
Benzo(a)pyrene	1	0	0	3	0	0	0	0	0	0	1	0	0	0	0	0	10	0	0
Benzo(b)fluoranthene	1	0	0	3	0	0	0	0	0	0	1	0	0	0	0	0	5	0	0
Benzo(g,h,i)perylene	1	0	0	3	0	0	0	0	0	0	1	0	0	0	0	0	5	0	0
Benzo(k)fluoranthene	1	0	0	3	0	0	0	0	0	0	1	0	0	0	0	0	5	0	0
Beta-HCH	1	0	1	0	0	0	0	0	0	0	1	0	0	3	0	3	0	0	0
Cadmium	1	0	1	0	2	0	0	0	0	0	4	2	0	1	0	9	9	0	0
Cadmium dissolved	1	0	2	0	0	0	1	0	0	0	4	0	0	4	4	0	0	0	0
Copper	1	0	1	0	1	0	0	0	0	0	4	2	0	1	0	9	10	0	0
Copper dissolved	1	0	2	0	0	0	1	0	0	0	4	1	0	4	4	0	0	0	1
DDD, p,p'	1	0	0	0	0	0	0	0	0	0	1	0	0	2	0	3	0	0	0
DDE, p,p'	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	3	1	0	0
DDT, o,p'	1	0	0	0	0	0	0	0	0	0	0	0	0	3	0	5	0	0	0
DDT, p,p'	1	0	0	0	0	0	0	0	0	0	1	0	0	3	0	3	5	0	0
Desethylatrazine	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	4	0	0
Desisopropylatrazine	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	3	0	0
Di (2-ethylhexyl) phthalate (DEHP)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0
Dieldrin	1	0	1	0	0	0	0	0	0	0	1	0	0	3	0	6	5	0	0
Dichloromethane	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	5	0	0
Diuron	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	3	0	0
Endrin	1	0	1	0	0	0	0	0	0	0	1	0	0	3	0	3	5	0	0
Fluoranthene	0	0	0	3	0	0	0	0	0	0	1	0	0	0	0	0	10	0	0
Gamma-HCH (Lindane)	1	0	1	0	0	0	0	0	0	0	1	1	0	3	0	3	10	0	0
Hexachlorobenzene (HCB)	0	0	1	0	0	0	0	0	0	0	0	1	0	3	0	1	10	0	0
Hexachlorobutadiene (HCBD)	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	4	0	0
Chlorfenvinphos	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	8	3	0	0
Chloroalkanes C10-13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chlorpyrifos	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	5	0	0
Chromium	1	0	0	0	1	0	0	0	0	0	4	1	0	0	4	4	5	0	0
Chromium dissolved	0	0	2	0	0	0	1	0	0	0	1	0	0	2	0	0	0	0	1
Indeno(1,2,3-cd)pyrene	1	0	0	3	0	0	0	0	0	0	1	0	0	0	0	0	5	0	0
Isodrin	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0
Isoproturon	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	5	0	0
Lead	1	0	1	0	2	0	0	0	0	0	4	2	0	1	0	9	10	0	0
Lead dissolved	1	0	2	0	0	0	1	0	0	0	4	1	0	4	4	0	0	0	0
Linuron	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	0	0	0
MCPA	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	5	0	0
Mecoprop	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0
Mercury	1	0	0	0	1	0	0	0	0	0	4	1	0	1	0	9	10	0	0
Mercury dissolved	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0
Naphthalene	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0
Nickel	1	0	0	0	1	0	0	0	0	0	4	2	0	1	0	9	10	0	0
Nickel dissolved	1	0	2	0	0	0	1	0	0	0	4	1	0	4	4	0	0	0	0
Para-tert-octylphenol	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0
Pentachlorobenzene	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0
Pentachlorophenol	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	10	0	0
Prometryn	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	6	4	0	0
Propazine	1	0	1	0	0	0	0	0	0	0	0	0	0	3	0	6	0	0	0
Simazine	1	0	1	0	0	0	0	0	0	0	0	0	0	3	0	9	10	0	0
Terbuthylazine	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	4	0	0
Terbutryn	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	4	0	0
Tetrachloromethane	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	5	0	0
Trifluralin	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	8	5	0	0
Trichloromethane	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	5	6	0	0
Zinc	1	0	1	0	1	0	0	0	0	0	4	2	0	1	0	9	10	0	0
Zinc dissolved	1	0	2	0	0	0	1	0	0	0	4	1	0	4	4	0	0	0	1

Table 3.1.3 No. of years with available groundwater data for countries within the 2010–2011 period

Substance	AL	AT	BA	BE	BG	CH	CY	CZ	DE	DK	EE	ES	FI	FR	GB	GR	HR	HU	IE	IS
1,1,1-trichloroethane	0	0	1	2	0	2	0	0	2	2	0	0	0	2	2	0	2	0	0	0
1,1,2,2-tetrachloroethene	0	0	1	2	2	2	2	2	0	2	0	0	0	2	2	0	2	0	0	0
1,1,2-trichloroethene	0	0	0	2	2	2	2	2	0	2	0	0	0	2	2	0	0	0	0	0
1,2-dichloroethane	0	2	0	2	0	0	0	2	2	0	0	0	0	2	2	0	2	0	0	2
2,4-D	0	0	0	2	0	2	0	2	2	0	0	0	0	2	2	0	0	0	0	0
4-nonylphenol	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0
Alachlor	0	2	0	2	2	2	2	2	0	0	0	0	0	2	0	0	2	0	0	0
Aldrin	0	0	0	2	2	0	0	0	0	0	0	0	0	2	2	0	2	0	0	0
Alpha-Endosulfan	0	0	0	0	2	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0
Alpha-HCH	0	0	0	0	2	0	0	2	0	0	0	0	0	2	2	0	2	0	0	0
Anthracene	0	0	0	2	0	0	0	2	2	0	0	0	0	2	2	0	2	0	0	2
Arsenic	0	0	2	2	2	2	2	2	1	2	2	0	0	2	2	0	1	0	1	0
Arsenic dissolved	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	2	1
Atrazine	0	2	0	2	2	2	2	2	2	2	0	0	0	2	2	0	2	0	0	0
Bentazone	0	2	0	2	0	2	0	2	2	2	0	0	0	2	2	0	0	0	0	0
Benzene	0	0	0	2	0	2	0	2	2	2	1	0	0	2	2	0	2	0	0	2
Benzo(a)pyrene	0	0	0	2	0	0	0	2	2	0	0	0	0	2	2	0	2	0	0	2
Benzo(b)fluoranthene	0	0	0	2	0	0	0	2	2	0	0	0	0	2	2	0	2	0	0	2
Benzo(g,h,i)perylene	0	0	0	2	0	0	0	2	2	0	0	0	0	2	2	0	2	0	0	2
Benzo(k)fluoranthene	0	0	0	2	0	0	0	2	2	0	0	0	0	2	2	0	2	0	0	2
Beta-HCH	0	0	0	0	2	0	0	2	0	0	0	0	0	2	2	0	2	0	0	0
Cadmium	0	2	2	2	2	2	2	2	0	2	1	0	0	2	2	0	0	0	0	0
Cadmium dissolved	0	0	0	0	0	0	0	0	2	0	0	0	0	0	2	0	2	0	2	2
Copper	2	2	1	2	2	2	2	2	0	2	0	0	0	2	2	0	0	0	0	0
Copper dissolved	0	0	0	0	0	0	0	0	2	1	0	0	0	0	2	0	2	0	2	2
DDD, p,p'	0	0	0	0	2	0	0	2	0	0	0	0	0	2	0	0	2	0	0	0
DDE, p,p'	0	0	0	0	2	0	0	2	0	0	0	0	0	2	2	0	2	0	0	0
DDT, o,p'	0	0	0	0	2	0	0	2	0	0	0	0	0	2	2	0	1	0	0	0
DDT, p,p'	0	0	0	0	2	0	0	2	0	0	0	0	0	2	2	0	2	0	0	0
Desethylatrazine	0	2	0	2	0	2	0	2	2	2	0	0	0	2	2	0	0	0	0	0
Desisopropylatrazine	0	0	0	2	0	2	0	2	2	2	0	0	0	2	2	0	0	0	0	0
Di (2-ethylhexyl) phthalate (DEHP)	0	0	2	0	0	0	0	2	0	2	0	0	0	2	2	0	1	0	0	0
Dieldrin	0	0	0	2	2	0	0	0	0	0	0	0	0	2	2	0	2	0	0	0
Dichloromethane	0	2	0	0	0	0	0	2	2	0	0	0	0	2	2	0	2	0	0	2
Diuron	0	2	0	2	0	2	0	2	2	0	0	0	0	2	2	0	0	0	0	0
Endrin	0	0	0	2	2	0	0	0	0	0	0	0	0	2	2	0	2	0	0	0
Fluoranthene	0	0	0	2	0	0	0	2	2	0	0	0	0	2	2	0	2	0	0	2
Gamma-HCH (Lindane)	0	0	0	2	2	0	0	2	2	0	0	0	0	2	2	0	2	0	0	0
Hexachlorobenzene (HCB)	0	0	0	2	1	0	0	0	0	0	0	0	0	2	2	0	2	0	0	0
Hexachlorobutadiene (HCBD)	0	0	0	0	0	0	0	0	1	0	0	0	0	2	2	0	2	0	0	0
Chlorfenvinphos	0	0	0	2	1	0	2	0	0	0	0	0	0	2	2	0	2	0	0	0
Chloroalkanes C10-13	0	0	0	0	0	0	0	2	0	0	0	0	0	2	0	0	0	0	0	0
Chlorpyrifos	0	0	0	0	2	0	2	2	0	0	0	0	0	2	2	0	2	0	0	0
Chromium	2	0	1	2	2	2	2	2	1	0	0	0	0	2	2	0	0	0	0	0
Chromium dissolved	0	0	0	1	0	0	0	0	1	0	0	0	0	0	2	0	2	0	2	0
Indeno(1,2,3-cd)pyrene	0	0	0	2	0	0	0	2	2	0	0	0	0	2	2	0	2	0	0	2
Isodrin	0	0	0	0	2	0	0	0	0	0	0	0	0	2	2	0	2	0	0	0
Isoproturon	0	0	0	2	0	2	0	2	2	0	0	0	0	2	2	0	0	0	0	0
Lead	2	2	2	2	2	2	2	2	0	2	1	0	0	2	2	0	0	0	0	0
Lead dissolved	0	0	0	0	0	0	0	0	2	0	0	0	0	0	2	0	2	0	2	2
Linuron	0	0	0	2	0	0	0	2	2	0	0	0	0	2	2	0	0	0	0	0
MCPA	0	0	0	2	0	2	0	2	2	0	0	0	0	2	2	0	0	0	0	0
Mecoprop	0	0	0	2	0	1	0	0	2	2	0	0	0	2	2	0	0	0	0	0
Mercury	0	2	2	2	2	0	2	2	2	1	1	0	0	2	2	0	0	0	0	0
Mercury dissolved	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	2
Naphthalene	0	0	0	2	0	2	0	2	2	2	0	0	0	2	2	0	2	0	0	2
Nickel	2	2	0	2	2	2	2	2	0	2	0	0	0	2	2	0	0	0	0	0
Nickel dissolved	0	0	0	0	0	0	0	0	2	1	0	0	0	0	2	0	2	0	2	2
Para-tert-octylphenol	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0
Pentachlorobenzene	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	2	0	0	0
Pentachlorophenol	0	0	0	2	0	0	0	0	0	2	0	0	0	2	2	0	2	0	0	0
Prometryn	0	0	0	2	0	0	0	2	2	0	0	0	0	2	2	0	0	0	0	0
Propazine	0	0	0	2	2	2	2	0	2	0	0	0	0	2	2	0	0	0	0	0
Simazine	0	2	0	2	2	2	2	2	2	2	0	0	0	2	2	0	2	0	0	0
Terbuthylazine	0	0	0	2	0	2	0	2	2	0	0	0	0	2	0	0	0	0	0	0
Terbutryn	0	0	0	2	0	2	0	0	2	0	0	0	0	1	2	0	0	0	0	0
Tetrachloromethane	0	0	0	2	0	2	0	2	0	2	0	0	0	2	2	0	2	0	0	0
Trifluralin	0	0	0	2	2	0	2	2	2	0	0	0	0	2	2	0	0	0	0	0
Trichloromethane	0	0	0	2	0	2	0	2	2	2	0	0	0	2	2	0	2	0	0	2
Zinc	2	2	2	2	2	2	0	2	0	2	0	0	0	2	2	0	1	0	0	0
Zinc dissolved	0	0	0	0	0	0	0	0	2	1	0	0	0	0	2	0	2	0	2	2

Table 3.1.3 continued

Substance	IT	LI	LT	LU	LV	ME	MK	MT	NL	NO	PL	PT	RO	RS	SE	SI	SK	TR	XK
1,1,1-trichloroethane	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0
1,1,2,2-tetrachloroethene	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0
1,1,2-trichloroethene	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0
1,2-dichloroethane	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0
2,4-D	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0
4-nonylphenol	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0
Alachlor	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0
Aldrin	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	2	0	0
Alpha-Endosulfan	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0
Alpha-HCH	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0
Anthracene	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2	0	0
Arsenic	1	0	2	0	0	0	0	0	0	0	2	2	0	0	0	1	2	0	0
Arsenic dissolved	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0
Atrazine	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0
Bentazone	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0
Benzene	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0
Benzo(a)pyrene	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2	0	0
Benzo(b)fluoranthene	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2	0	0
Benzo(g,h,i)perylene	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2	0	0
Benzo(k)fluoranthene	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2	0	0
Beta-HCH	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0
Cadmium	1	0	0	0	0	0	0	0	0	0	0	2	0	0	0	1	2	0	0
Cadmium dissolved	1	0	2	0	0	0	1	0	0	0	2	0	0	2	2	0	0	0	0
Copper	1	0	0	0	0	0	0	0	0	0	0	2	0	0	0	1	2	0	0
Copper dissolved	1	0	2	0	0	0	1	0	0	0	2	1	0	2	2	0	0	0	0
DDD, p,p'	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0
DDE, p,p'	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0
DDT, o,p'	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
DDT, p,p'	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	2	0	0
Desethylatrazine	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0
Desisopropylatrazine	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0
Di (2-ethylhexyl) phthalate (DEHP)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dieldrin	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	2	0	0
Dichloromethane	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0
Diuron	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0
Endrin	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	2	0	0
Fluoranthene	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2	0	0
Gamma-HCH (Lindane)	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	2	0	0
Hexachlorobenzene (HCB)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0
Hexachlorobutadiene (HCBD)	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0
Chlorfenvinphos	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	2	0	0
Chloroalkanes C10-13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chlorpyrifos	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0
Chromium	1	0	0	0	0	0	0	0	0	0	1	1	0	0	2	1	2	0	0
Chromium dissolved	0	0	2	0	0	0	1	0	0	0	1	0	0	2	0	0	0	0	0
Indeno(1,2,3-cd)pyrene	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2	0	0
Isodrin	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0
Isoproturon	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0
Lead	1	0	0	0	0	0	0	0	0	0	0	2	0	0	0	1	2	0	0
Lead dissolved	1	0	2	0	0	0	1	0	0	0	2	1	0	2	2	0	0	0	0
Linuron	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
MCPA	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0
Mecoprop	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
Mercury	1	0	0	0	0	0	0	0	0	0	2	1	0	0	0	1	2	0	0
Mercury dissolved	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0
Naphthalene	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0
Nickel	1	0	0	0	0	0	0	0	0	0	0	2	0	0	0	1	2	0	0
Nickel dissolved	1	0	2	0	0	0	1	0	0	0	2	1	0	2	2	0	0	0	0
Para-tert-octylphenol	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0
Pentachlorobenzene	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pentachlorophenol	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0
Prometryn	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0
Propazine	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
Simazine	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0
Terbuthylazine	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0
Terbutryn	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0
Tetrachloromethane	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0
Trifluralin	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0
Trichloromethane	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0
Zinc	1	0	0	0	0	0	0	0	0	0	0	2	0	0	0	1	2	0	0
Zinc dissolved	1	0	2	0	0	0	1	0	0	0	2	1	0	2	2	0	0	0	0

Table 3.1.4 Available groundwater samples within the 2002–2011 period

Substance	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	Total
1,1,1-trichloroethane	309	661	480	708	1009	1052	2256	4224	4958	4652	4810	5797	4838	**35754**
1,1,2,2-tetrachloroethene	309	680	490	762	1013	1054	2228	4157	5270	6024	6222	7364	6009	**41582**
1,1,2-trichloroethene	309	682	490	763	1012	1055	2243	4219	5153	6051	6226	7260	5935	**41398**
1,2-dichloroethane	794	736	462	726	1655	2571	3739	4404	5944	5616	5964	7072	5167	**44850**
2,4-D	578	569	622	682	588	519	672	3047	4892	5334	6417	6122	7300	**37342**
4-nonylphenol	0	0	4	5	4	45	310	246	203	775	79	682	1710	**4063**
Alachlor	655	619	653	973	989	1995	2797	3754	6069	5692	7214	8115	6749	**46274**
Aldrin	628	468	383	520	1743	3134	3187	4687	6426	5846	6889	5591	5974	**45476**
Alpha-Endosulfan	0	135	137	127	1216	2188	3104	3840	5554	4871	6169	4517	5122	**36980**
Alpha-HCH	2	14	32	44	48	61	10	1834	3453	4302	5721	5465	5805	**26791**
Anthracene	248	265	20	49	455	725	1655	2015	2850	3666	4285	4302	3798	**24333**
Arsenic	584	1063	956	1827	1957	2200	2860	3304	7966	9341	9196	9946	7590	**58790**
Arsenic dissolved	60	110	148	134	238	208	225	186	883	1061	819	679	1514	**6265**
Atrazine	1559	2613	1897	2022	4079	4720	6678	8708	10933	10353	10758	11330	9940	**85590**
Bentazone	1195	999	930	999	1062	2387	2267	6077	7774	8173	8852	8947	8415	**58077**
Benzene	464	829	489	745	1917	2075	3479	4462	5391	5277	5409	6600	5503	**42640**
Benzo(a)pyrene	259	518	130	173	1035	1311	2599	2580	3855	3907	4641	4790	3848	**29646**
Benzo(b)fluoranthene	258	270	12	27	810	885	1798	1800	3317	3149	3645	4664	3849	**24484**
Benzo(g,h,i)perylene	256	522	129	140	973	1290	2570	2548	3855	3903	4239	4664	3849	**28938**
Benzo(k)fluoranthene	256	523	131	146	981	1289	2576	2549	3853	3897	4241	4664	3851	**28957**
Beta-HCH	2	1	25	44	48	48	9	1842	2881	3380	4680	3695	5257	**21912**
Cadmium	1271	1590	1403	2420	4564	5347	7909	7880	13434	12150	12026	12306	10339	**92639**
Cadmium dissolved	72	110	148	142	238	208	225	242	943	1571	1566	5127	5022	**15614**
Copper	1261	1593	1405	2761	4933	5593	8188	8364	13559	12725	12114	12235	10472	**95203**
Copper dissolved	504	561	627	631	707	207	739	274	1589	1882	2113	5234	4989	**20057**
DDD, p,p'	2	1	12	40	10	10	10	2704	3351	4583	5130	4028	4396	**24277**
DDE, p,p'	18	145	128	202	802	1892	2420	3974	4841	4927	6054	4969	5271	**35643**
DDT, o,p'	11	130	118	116	788	1861	2381	3798	4622	4998	6059	4936	5143	**34961**
DDT, p,p'	13	42	29	109	542	955	1448	3529	4999	5916	5460	5147	5367	**33556**
Desethylatrazine	1203	1806	1237	1292	2107	2819	5052	7128	8516	8851	10137	10894	9475	**70517**
Desisopropylatrazine	567	581	622	682	659	1352	2486	6480	7794	7808	9488	8972	8876	**56367**
Di (2-ethylhexyl) phthalate (DEHP)	0	0	0	0	0	4	18	550	891	1262	2322	1188	880	**7115**
Dieldrin	3	392	300	367	1643	2539	2895	4388	6507	6222	6785	5160	5463	**42664**
Dichloromethane	626	368	361	435	989	1921	1804	1913	3556	3062	3316	4540	2820	**25711**
Diuron	1430	1910	860	1008	2948	4456	5728	7446	9051	8582	9380	8722	8370	**69891**
Endrin	5	132	155	192	1019	1930	2398	4007	4930	4926	6004	4869	5682	**36249**
Fluoranthene	259	523	131	192	1013	1304	2597	2536	3825	3895	4245	4591	3841	**28952**
Gamma-HCH (Lindane)	999	1030	742	887	1890	3261	3972	5013	7169	7065	7338	6082	6450	**51898**
Hexachlorobenzene (HCB)	661	315	511	586	904	2602	2729	3006	6327	5610	6488	4883	4732	**39354**
Hexachlorobutadiene (HCBD)	0	242	107	94	775	1676	2597	2263	4136	4097	4318	3929	3242	**27476**
Chlorfenvinphos	200	723	251	268	1159	1723	3277	4897	5589	5284	6275	5826	6643	**42115**
Chloroalkanes C10-13	0	0	0	0	0	0	310	246	1	813	1853	2342	1728	**7293**
Chlorpyrifos	50	0	4	303	361	1763	3645	5002	6145	5835	7169	7660	7018	**44955**
Chromium	451	1129	821	1735	1884	3061	4781	5900	9839	11384	10859	12086	9090	**73020**
Chromium dissolved	60	110	147	142	238	208	220	160	897	1061	849	3722	4811	**12625**
Indeno(1,2,3-cd)pyrene	258	522	126	139	968	1288	2564	2533	3837	3896	4241	4664	3845	**28881**
Isodrin	0	129	117	98	1011	1902	2321	3384	4228	4404	5608	4325	5055	**32582**
Isoproturon	1446	1916	846	1243	3359	4620	5839	7460	9168	9034	9354	8701	8341	**71327**
Lead	1261	1589	1404	2759	4542	5343	7853	8233	13445	11937	11726	12470	9990	**92552**
Lead dissolved	60	110	148	142	238	208	225	247	944	1527	1511	4749	4993	**15102**
Linuron	993	778	264	366	1592	3446	3960	5892	7958	7508	8261	8069	7350	**56437**
MCPA	578	903	776	926	928	1768	2147	5473	6959	7361	7791	7472	7116	**50198**
Mecoprop	576	908	748	847	928	1799	2147	5891	7097	8087	8557	6753	7085	**51423**
Mercury	789	1150	647	1069	2159	3467	4071	3415	7618	7498	7150	8245	6027	**53305**
Mercury dissolved	0	5	8	0	0	0	0	0	891	1061	849	852	1020	**4686**
Naphthalene	297	318	287	286	840	1211	1879	3998	4334	4019	4472	4508	3430	**29879**
Nickel	1262	1603	1409	2746	4613	5484	8218	8742	14150	12824	12506	13313	10806	**97676**
Nickel dissolved	505	562	634	651	714	191	810	227	1594	1880	2113	5180	4977	**20038**
Para-tert-octylphenol	0	0	0	0	0	0	0	246	298	890	913	2142	2339	**6828**
Pentachlorobenzene	0	0	4	0	314	782	1345	826	2237	3478	4813	3659	3054	**20512**
Pentachlorophenol	668	845	622	713	1010	474	1666	1828	3747	2496	3622	2902	4911	**25504**
Prometryn	3	234	199	298	350	998	1643	5058	5609	6227	7196	6950	6337	**41102**
Propazine	12	265	201	301	436	1123	1810	5940	7247	6860	6991	6744	7245	**45175**
Simazine	1527	2004	1533	2023	4016	4616	6679	8700	10210	9918	10720	11313	9762	**83021**
Terbuthylazine	578	572	628	764	591	583	862	4319	5282	5598	7052	8020	6687	**41536**
Terbutryn	2	239	210	380	444	1087	1812	5245	5402	6038	2825	3027	6685	**33396**
Tetrachloromethane	309	654	439	726	961	995	2185	4079	4866	5558	5382	6349	5277	**37780**
Trifluralin	220	690	254	535	1755	2548	3117	4483	6373	6096	7005	7543	6514	**47133**
Trichloromethane	482	833	458	717	2210	2661	4042	4603	5795	5684	5662	7346	6209	**46702**
Zinc	1265	1611	1425	2889	5051	5742	8466	9408	14668	13221	12128	12117	10353	**98344**
Zinc dissolved	508	584	651	704	717	219	808	260	1584	1880	2163	5269	5075	**20422**
Total	**31990**	**44734**	**32777**	**47542**	**92752**	**130059**	**191560**	**272673**	**389532**	**394759**	**424435**	**444396**	**412626**	**2909835**

Table 3.1.5 Available groundwater samples for countries within the 2002–2011 period

Substance	AL	AT	BA	BE	BG	CY	CZ	DE	DK	EE	ES	FI	FR	GB	GR	HR	HU	CH	IE	IS	IT	LI	LT	LU	LV	ME	MK	MT	NL	NO	PL	PT	RO	RS	SE	SI	SK	TR	XK
1,1,1-trichloroethane	0	0	15	1058	0	0	0	1236	2463	0	0	0	7595	17474	0	124	0	971	677	0	1515	0	0	0	0	0	0	0	0	0	0	0	0	0	0	479	697	0	0
1,1,2,2-tetrachloroethene	0	0	15	1444	216	642	3996	0	2462	0	0	0	8565	17969	0	94	0	945	677	0	1702	0	0	0	11	0	0	0	0	0	0	0	0	0	0	479	886	0	0
1,1,2-trichloroethene	0	0	0	1448	208	642	3996	0	2461	0	0	0	8560	18103	0	0	0	945	677	0	1642	0	0	0	11	0	0	0	0	0	0	0	0	0	0	479	745	0	0
1,2-dichloroethane	0	4926	0	1832	0	0	6817	207	7	0	0	0	7782	17005	0	114	0	0	677	11	1686	0	0	0	11	0	0	0	0	0	0	0	0	0	0	755	1028	0	0
2,4-D	0	0	0	1601	69	0	3996	498	3185	0	0	0	20994	2482	0	0	0	346	1374	0	275	0	0	0	0	0	0	0	0	0	0	0	0	0	0	156	597	0	0
4-nonylphenol	0	0	0	0	0	0	0	0	0	0	0	0	3656	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	389	0	0
Alachlor	0	6023	0	1711	123	544	7093	6	0	0	0	0	25411	0	0	64	0	346	0	0	1197	0	0	0	0	0	0	0	0	0	0	0	0	0	0	875	954	0	0
Aldrin	0	1042	33	1733	405	0	4981	22	0	0	0	0	24577	9732	0	171	0	0	0	0	211	0	10	0	0	0	0	0	0	0	98	0	0	200	0	345	437	0	0
Alpha-Endosulfan	0	0	33	0	115	0	4979	22	0	0	0	0	22278	8516	0	0	0	0	0	0	16	0	10	0	0	0	0	0	0	0	98	29	0	0	0	612	0	0	0
Alpha-HCH	0	0	0	0	359	0	2726	87	0	0	0	0	21160	1843	0	124	0	0	0	0	80	0	10	0	0	0	0	0	0	0	98	0	0	200	0	56	0	0	0
Anthracene	0	0	0	1216	0	0	6817	38	0	0	0	0	9075	4387	0	86	0	0	400	11	0	0	0	0	0	0	0	0	0	0	98	0	0	0	0	0	1672	0	0
Arsenic	0	0	29	1920	586	678	3996	1625	4571	96	0	0	9641	20738	115	83	0	708	4319	0	1359	0	142	0	98	0	0	0	0	0	628	116	0	0	0	283	4456	0	0
Arsenic dissolved	0	0	0	0	0	0	0	575	0	0	0	0	0	0	0	42	0	0	5202	1	0	0	0	0	0	0	0	0	0	0	0	0	0	127	0	0	0	0	0
Atrazine	0	6031	0	2890	389	414	7093	3630	5747	0	0	0	27965	19256	0	127	0	990	1397	0	1427	0	10	0	0	0	0	0	0	0	0	0	0	200	0	875	1080	0	0
Bentazone	0	1557	0	2351	0	0	3996	1964	5744	0	0	0	21784	14400	0	0	0	402	1390	0	559	0	0	0	0	0	0	0	0	0	0	0	0	0	0	334	472	0	0
Benzene	0	0	0	1845	0	0	6817	118	2422	33	0	0	7542	18033	0	68	0	822	676	11	1209	0	0	0	0	0	0	0	0	0	0	0	0	0	0	532	730	0	0
Benzo(a)pyrene	0	0	0	2963	0	0	6817	93	1	0	0	0	10694	5508	0	86	0	0	400	11	204	0	0	15	0	0	0	0	0	0	98	0	0	0	0	0	1849	0	0
Benzo(b)fluoranthene	0	0	0	2961	0	0	6817	94	0	0	0	0	10695	1417	0	86	0	0	0	11	78	0	0	15	0	0	0	0	0	0	98	0	0	0	0	0	1672	0	0
Benzo(g,h,i)perylene	0	0	0	2962	0	0	6817	94	1	0	0	0	10695	5502	0	86	0	0	0	11	78	0	0	15	0	0	0	0	0	0	98	0	0	0	0	0	1672	0	0
Benzo(k)fluoranthene	0	0	0	2962	0	0	6817	94	0	0	0	0	10695	5519	0	86	0	0	0	11	78	0	0	15	0	0	0	0	0	0	98	0	0	0	0	0	1672	0	0
Beta-HCH	0	0	0	0	337	0	2726	87	0	0	0	0	17248	1001	0	100	0	0	0	0	21	0	10	0	0	0	0	0	0	0	98	0	0	200	0	56	0	0	0
Cadmium	0	4337	81	2999	758	672	7091	2840	4184	91	0	0	10261	41677	78	66	0	706	3722	5	2007	0	24	0	98	0	0	0	0	0	180	102	0	43	0	901	5353	0	0
Cadmium dissolved	0	0	0	0	121	0	0	1642	0	0	0	0	0	6220	0	172	0	0	5220	11	780	0	142	0	0	0	17	0	0	0	590	0	0	253	116	0	0	0	0
Copper	59	4337	186	3018	885	711	7091	2063	4187	0	0	0	11469	43777	300	72	0	515	3718	12	1430	0	23	0	24	0	0	0	0	0	180	251	0	42	0	901	5693	0	0
Copper dissolved	0	0	0	0	131	0	0	1553	3172	0	0	0	0	6223	0	190	0	0	5219	4	737	0	142	0	0	0	17	0	0	0	590	2	0	253	116	0	0	0	16
DDD, p,p'	0	0	0	0	253	0	2726	0	0	0	0	0	18209	2674	0	82	0	0	0	0	35	0	0	0	0	0	0	0	0	0	98	0	0	129	0	56	0	0	0
DDE, p,p'	0	0	0	752	405	0	5384	0	0	0	0	0	19800	8647	0	82	0	0	0	0	80	0	0	0	0	0	0	0	0	0	98	0	0	0	0	56	48	0	0
DDT, o,p'	0	0	0	0	374	0	5384	22	0	0	0	0	19795	8579	0	20	0	0	0	0	64	0	0	0	0	0	0	0	0	0	0	0	0	200	0	264	0	0	0
DDT, p,p'	0	0	0	314	405	0	5384	22	0	0	0	0	19807	5158	0	82	0	0	1413	0	80	0	0	0	0	0	0	0	0	0	98	0	0	200	0	56	453	0	0
Desethylatrazine	0	6031	0	2406	3	0	3996	2250	5733	0	0	0	27796	14443	0	0	0	847	0	0	1353	0	0	0	0	0	0	0	0	0	0	0	0	0	0	564	849	0	0
Desisopropylatrazine	0	0	0	2386	3	0	3787	2134	5744	0	0	0	23891	14456	0	0	0	847	0	0	102	0	0	0	0	0	0	0	0	0	0	0	0	0	0	564	683	0	0
Di (2-ethylhexyl) phthalate (DEHP)	0	0	29	0	0	0	1825	0	1992	0	0	0	2984	131	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	152	0	0
Dieldrin	0	0	33	1731	385	0	4981	22	0	0	0	0	22149	9787	0	166	0	0	1413	0	212	0	10	0	0	0	0	0	0	0	98	0	0	200	0	345	437	0	0
Dichloromethane	0	4926	0	0	0	0	6817	1909	5	0	0	0	7330	302	0	110	0	0	0	11	1353	0	0	0	0	0	0	0	0	0	0	0	0	0	0	755	838	0	0
Diuron	0	1091	0	2884	5	0	6542	3300	3115	0	0	0	27692	17558	0	0	0	813	1396	0	275	0	0	0	0	0	0	0	0	0	0	0	0	0	0	338	682	0	0
Endrin	0	0	33	1707	376	0	4981	22	0	0	0	0	19210	8533	0	165	0	0	0	0	80	0	10	0	0	0	0	0	0	0	98	0	0	200	0	105	437	0	0
Fluoranthene	0	0	0	2979	0	0	6817	94	1	0	0	0	10650	5439	0	86	0	0	0	11	0	0	0	15	0	0	0	0	0	0	98	0	0	0	0	0	1849	0	0
Gamma-HCH (Lindane)	0	1042	0	1824	437	0	5660	1391	0	0	0	0	26904	9281	0	94	0	0	1413	0	45	0	10	0	0	0	0	0	0	0	98	29	0	200	0	105	594	0	0
Hexachlorobenzene (HCB)	0	1042	0	868	222	0	5094	22	0	0	0	0	21240	8541	0	80	0	0	0	0	0	0	10	0	0	0	0	0	0	0	0	29	0	200	0	20	499	0	0
Hexachlorobutadiene (HCBD)	0	0	0	402	0	0	4494	30	0	0	0	0	11926	8157	0	6	0	0	0	0	714	0	0	0	0	0	0	0	0	0	0	0	0	0	0	701	697	0	0
Chlorfenvinphos	0	0	0	1973	9	412	0	6	0	0	0	0	20949	16292	0	68	0	0	0	0	0	0	10	0	0	0	0	0	0	0	98	0	0	0	0	794	330	0	0
Chloroalkanes C10-13	0	0	0	0	0	0	3071	0	0	0	0	0	4222	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chlorpyrifos	0	0	0	0	151	542	7093	28	0	0	0	0	20488	15152	0	68	0	0	0	0	849	0	10	0	0	0	0	0	0	0	0	0	0	0	0	83	437	0	0
Chromium	60	0	138	1920	345	680	3996	1550	1168	0	0	0	6979	41916	0	66	0	516	3675	0	2093	0	0	0	24	0	0	0	0	0	628	22	0	0	116	370	4456	0	0
Chromium dissolved	0	0	0	85	0	0	0	489	0	0	0	0	0	5983	0	172	0	0	5178	0	0	0	142	0	0	0	17	0	0	0	0	0	0	127	0	0	0	0	16
Indeno(1,2,3-cd)pyrene	0	0	0	2957	1	0	6817	68	1	0	0	0	10695	5476	0	86	0	0	0	11	78	0	0	15	0	0	0	0	0	0	98	0	0	0	0	0	1672	0	0
Isodrin	0	0	0	0	186	0	4981	22	0	0	0	0	18197	8496	0	44	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	410	0	0
Isoproturon	0	1054	0	2868	0	0	7092	3745	3136	0	0	0	27671	17531	0	0	0	813	1397	0	275	0	0	0	0	0	0	0	0	0	0	0	0	0	0	583	954	0	0
Lead	60	4337	46	3013	820	662	7091	1182	4185	91	0	0	9067	43774	258	66	0	707	3721	12	2155	0	22	0	98	0	0	0	0	0	180	114	0	43	0	901	5693	0	0
Lead dissolved	0	0	0	0	126	0	0	1504	0	0	0	0	0	6182	0	172	0	0	5219	4	457	0	142	0	0	0	17	0	0	0	590	2	0	253	116	0	0	0	0
Linuron	0	1055	0	2631	0	0	6542	508	7	0	0	0	24919	17459	0	0	0	0	0	0	698	0	0	0	0	0	0	0	0	0	0	0	0	0	0	583	0	0	0
MCPA	0	0	0	1592	0	0	3996	528	3135	0	0	0	21191	14395	0	0	0	400	1394	0	275	0	0	0	0	0	0	0	0	0	0	0	0	0	0	412	623	0	0
Mecoprop	0	0	0	1415	0	0	2160	1963	5744	0	0	0	20294	15479	0	0	0	277	1394	0	275	0	0	0	0	0	0	0	0	0	0	0	0	0	0	190	0	0	0
Mercury	0	4331	81	2768	501	674	7092	730	159	91	0	0	6495	15534	0	66	0	411	2722	12	1973	0	0	0	23	0	0	0	0	0	487	39	0	35	0	901	5693	0	0
Mercury dissolved	0	0	0	50	0	0	0	0	0	0	0	0	0	0	0	172	0	0	4221	4	0	0	0	0	0	0	0	0	0	0	0	0	0	127	0	0	0	0	0
Naphthalene	0	0	0	972	0	0	6790	37	2007	0	0	0	8705	7974	0	68	0	341	400	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1672	0	0
Nickel	60	4337	53	3023	763	740	7092	2885	4596	0	0	0	12630	43457	227	66	0	514	3642	5	2181	0	0	0	24	0	0	0	0	0	180	223	0	43	0	869	5693	0	0
Nickel dissolved	0	0	0	0	126	0	0	1595	3475	0	0	0	0	6215	0	172	0	0	5145	11	478	0	142	0	0	0	17	0	0	0	590	2	0	253	116	0	0	0	0
Para-tert-octylphenol	0	0	0	0	0	0	0	0	0	0	0	0	6302	70	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	456	0	0
Pentachlorobenzene	0	0	0	0	0	0	4913	0	0	0	0	0	15174	155	0	62	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	204	0	0
Pentachlorophenol	0	0	0	2001	0	0	2147	31	3164	0	0	0	8206	6987	0	126	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	705	0	0
Prometryn	0	0	0	1659	147	0	3996	261	0	0	0	0	16007	16963	0	0	0	0	0	0	211	0	10	0	0	0	0	0	0	0	0	0	0	0	0	564	848	0	0
Propazine	0	0	0	2177	378	396	0	1846	0	0	0	0	20919	17250	0	0	0	813	0	0	144	0	10	0	0	0	0	0	0	0	0	0	0	200	0	564	0	0	0
Simazine	0	6031	0	2891	387	420	7093	3920	5675	0	0	0	27869	18844	0	115	0	929	163	0	1456	0	10	0	0	0	0	0	0	0	0	0	0	200	0	875	1079	0	0
Terbuthylazine	0	0	0	2363	25	0	3996	2243	3211	0	0	0	24176	0	0	0	0	929	0	0	1403	0	0	0	0	0	0	0	0	0	0	0	0	0	0	564	848	0	0
Terbutryn	0	0	0	1659	150	0	0	531	0	0	0	0	10824	17014	0	0	0	1081	0	0	442	0	0	0	0	0	0	0	0	0	0	0	0	0	0	396	848	0	0
Tetrachloromethane	0	0	0	1068	6	0	3996	131	2463	0	0	0	7608	18026	0	132	0	971	0	0	1068	0	0	0	0	0	0	0	0	0	0	0	0	0	0	161	748	0	0
Trifluralin	0	0	0	2194	146	544	7093	168	0	0	0	0	24057	9658	0	0	0	0	0	0	868	0	10	0	0	0	0	0	0	0	0	0	0	0	0	794	437	0	0
Trichloromethane	0	0	0	1827	0	0	6817	2311	2342	0	0	0	9873	17762	0	103	0	971	0	11	1621	0	0	0	11	0	0	0	0	0	0	0	0	0	0	434	846	0	0
Zinc	60	4337	186	3032	933	109	7092	3309	4282	0	0	0	11714	44884	1098	96	0	615	3818	12	1475	0	23	0	24	0	0	0	0	0	142	211	0	1	0	901	5689	0	0
Zinc dissolved	0	0	0	0	135	0	0	1801	3238	0	0	0	0	6190	0	172	0	0	5318	4	691	0	142	0	0	0	17	0	0	0	590	2	0	247	116	0	0	0	16

Note: The figures for Austria represent the number of sampling sites to avoid bias due to risk-based monitoring frequency. Therefore the exact number of samples is not known for Austria. Contrary to the WISE-SoE dataset definition, Austrian data were reported as stations' annual averages without a specification of how many samples had been used for the annual average calculations.

Table 3.1.6 Available groundwater stations with data within the 2002–2011 period

Substance	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
1,1,1-trichloroethane	572	812	811	1811	3127	3549	3074	3196	3624	3384
1,1,2,2-tetrachloroethene	623	814	814	1796	3034	3631	3706	3895	4333	4265
1,1,2-trichloroethene	623	814	814	1811	3073	3493	3726	3894	4276	4221
1,2-dichloroethane	648	1247	1708	2672	3201	4260	3575	3830	4334	3879
2,4-D	612	558	471	623	1521	1884	2017	2397	2335	3389
4-nonylphenol	5	4	45	134	108	203	188	60	243	789
Alachlor	934	917	1160	1340	1808	2746	2628	3045	3545	2948
Aldrin	462	1259	2136	1647	2427	2949	2869	2956	2382	2401
Alpha-Endosulfan	91	806	1230	1519	2048	2648	2507	2698	1871	2065
Alpha-HCH	35	47	54	10	808	1427	1808	2082	2310	2424
Anthracene	39	349	332	989	1190	1869	1697	2145	2062	2364
Arsenic	1221	1360	1274	2000	1719	4508	4776	5056	5577	4515
Arsenic dissolved	72	114	110	114	104	209	216	213	273	773
Atrazine	1876	2998	3170	4295	5295	5949	5574	5772	6089	5482
Bentazone	963	1026	2223	1977	3788	4092	4324	4458	4525	4310
Benzene	633	1391	1360	2383	3077	3791	3240	3359	3799	3709
Benzo(a)pyrene	138	654	795	1507	1392	2182	1828	2285	2301	2438
Benzo(b)fluoranthene	25	469	420	769	802	1795	1342	1566	2231	2438
Benzo(g,h,i)perylene	108	599	774	1478	1360	2181	1826	2073	2231	2438
Benzo(k)fluoranthene	111	600	773	1483	1361	2180	1823	2073	2231	2440
Beta-HCH	35	47	44	9	814	1139	1485	1801	1230	2234
Cadmium	1731	2946	3152	4383	4207	7101	5877	6122	6336	5819
Cadmium dissolved	72	114	110	114	137	245	564	831	3130	2813
Copper	1908	3109	3350	4465	3994	7044	5893	5923	6006	5735
Copper dissolved	552	579	109	620	164	873	880	1365	3249	2771
DDD, p,p'	31	10	10	10	1532	1732	2326	1864	1319	1509
DDE, p,p'	177	481	1170	1390	2141	2379	2514	2635	2100	2254
DDT, o,p'	100	467	1165	1365	2140	2382	2578	2644	2080	2135
DDT, p,p'	99	251	421	568	1931	2384	2726	2077	2207	2310
Desethylatrazine	1222	1623	2136	3227	4689	4939	5252	5387	5824	5184
Desisopropylatrazine	612	629	1215	1992	4080	4309	4481	4772	4593	4613
Di (2-ethylhexyl) phthalate (DEHP)	0	0	4	18	403	481	618	1220	838	731
Dieldrin	309	1153	1538	1532	2330	2963	2965	3020	2199	2243
Dichloromethane	432	863	1211	1018	1198	2534	1746	1932	2497	2097
Diuron	954	1895	3064	3480	4259	4324	4051	4637	4381	4080
Endrin	137	683	1198	1370	2198	2531	2610	2760	2133	2351
Fluoranthene	157	646	794	1504	1382	2180	1828	2074	2196	2436
Gamma-HCH (Lindane)	805	1355	2259	2141	2701	3217	3349	3247	2675	2766
Hexachlorobenzene (HCB)	542	694	1797	1585	1958	2974	2794	2767	2025	2027
Hexachlorobutadiene (HCBD)	79	544	1008	1444	1458	2360	2215	2175	1937	1635
Chlorfenvinphos	251	611	1123	1798	2822	2910	2870	2971	2742	3030
Chloroalkanes C10-13	0	0	0	134	108	1	202	809	923	924
Chlorpyrifos	303	361	1149	1988	2988	3265	3238	3480	3708	3482
Chromium	1067	1264	1649	2832	2730	4776	4849	4964	5929	4654
Chromium dissolved	72	114	110	114	102	209	216	224	2197	2670
Indeno(1,2,3-cd)pyrene	108	594	773	1472	1353	2176	1824	2073	2231	2437
Isodrin	83	677	1186	1318	1942	2237	2359	2583	1855	2028
Isoproturon	1201	2253	3142	3515	4261	4441	4433	4631	4364	4066
Lead	1906	2877	3148	4330	3970	7008	5440	5844	6276	5584
Lead dissolved	72	114	110	114	137	245	536	794	2922	2806
Linuron	355	818	2198	2176	3040	3820	3724	3988	3972	3514
MCPA	846	887	1603	1853	3282	3308	3526	3536	3393	3352
Mecoprop	806	887	1629	1853	3582	3780	4229	4172	3297	3268
Mercury	788	1396	2381	2329	2217	4586	4143	4064	4935	4092
Mercury dissolved	0	0	0	0	0	209	216	224	403	349
Naphthalene	263	693	725	1183	2724	3029	2207	2338	2247	2179
Nickel	1913	2963	3272	4523	4386	7228	6024	6167	6807	5916
Nickel dissolved	571	581	115	697	142	874	877	1372	3310	2773
Para-tert-octylphenol	0	0	0	0	108	247	259	334	838	918
Pentachlorobenzene	0	310	314	565	400	1034	1477	1776	1112	868
Pentachlorophenol	673	851	383	1102	1267	2154	1564	2211	1838	2376
Prometryn	249	340	879	1327	2829	2929	3398	3529	3446	3318
Propazine	252	426	916	1363	3456	3696	3577	3329	3274	3363
Simazine	1877	2982	3143	4295	5298	5786	5642	5759	6073	5415
Terbuthylazine	644	561	531	681	2232	2189	2409	2791	3400	2754
Terbutryn	282	375	915	1370	2872	2962	3134	2013	2052	3027
Tetrachloromethane	587	779	767	1772	3035	3454	3423	3369	3794	3838
Trifluralin	516	1086	1481	1527	2234	2913	3002	3067	3395	2975
Trichloromethane	576	1556	1585	2743	3339	4016	3516	3614	4374	4120
Zinc	1936	3148	3454	4628	4693	7700	6191	5886	5938	5658
Zinc dissolved	592	583	115	690	163	872	878	1393	3289	2816

Table 3.1.7 Available groundwater stations with data for countries within the 2002–2011 period

Substance	AL	AT	BA	BE	BG	CY	CZ	DE	DK	EE	ES	FI	FR	GB	GR	HR	HU	CH	IE	IS	IT	LI	LT	LU	LV	ME	MK	MT	NL	NO	PL	PT	RO	RS	SE	SI	SK	TR	XK
1,1,1-trichloroethane	0	0	15	387	0	0	0	614	895	0	0	0	1538	2816	0	19	0	42	213	0	792	0	0	0	0	0	0	0	0	0	0	0	0	0	0	49	194	0	0
1,1,2,2-tetrachloroethene	0	0	15	393	101	99	691	0	895	0	0	0	1581	2906	0	20	0	41	213	0	874	0	0	0	11	0	0	0	0	0	0	0	0	0	0	49	256	0	0
1,1,2-trichloroethene	0	0	0	395	101	99	691	0	895	0	0	0	1581	2914	0	0	0	41	213	0	837	0	0	0	11	0	0	0	0	0	0	0	0	0	0	49	199	0	0
1,2-dichloroethane	0	677	0	424	0	0	723	57	6	0	0	0	1405	2840	0	17	0	0	213	4	881	0	0	0	11	0	0	0	0	0	0	0	0	0	0	74	258	0	0
2,4-D	0	0	0	192	39	0	691	128	858	0	0	0	1623	1260	0	0	0	42	145	0	143	0	0	0	0	0	0	0	0	0	0	0	0	0	0	66	194	0	0
4-nonylphenol	0	0	0	0	0	0	0	0	0	0	0	0	992	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	162	0	0
Alachlor	0	682	0	138	55	100	723	6	0	0	0	0	1761	0	0	18	0	42	0	0	620	0	0	0	0	0	0	0	0	0	0	0	0	0	0	76	270	0	0
Aldrin	0	626	33	148	160	0	717	22	0	0	0	0	1729	2397	0	24	0	0	0	0	107	0	9	0	0	0	0	0	0	0	91	0	0	71	0	75	144	0	0
Alpha-Endosulfan	0	0	33	0	60	0	717	22	0	0	0	0	1630	2191	0	0	0	0	0	0	8	0	9	0	0	0	0	0	0	0	91	8	0	0	0	73	0	0	0
Alpha-HCH	0	0	0	0	157	0	688	63	0	0	0	0	1673	998	0	24	0	0	0	0	37	0	9	0	0	0	0	0	0	0	91	0	0	71	0	29	0	0	0
Anthracene	0	0	0	391	0	0	723	7	0	0	0	0	1241	1422	0	18	0	0	212	4	0	0	0	0	0	0	0	0	0	0	91	0	0	0	0	0	348	0	0
Arsenic	0	0	16	388	102	100	691	669	943	87	0	0	1659	2748	79	19	0	42	217	0	830	0	117	0	89	0	0	0	0	0	169	115	0	0	0	47	495	0	0
Arsenic dissolved	0	0	0	0	0	0	0	479	0	0	0	0	0	0	0	19	0	0	220	1	0	0	0	0	0	0	0	0	0	0	0	0	0	67	0	0	0	0	0
Atrazine	0	682	0	441	157	100	723	923	931	0	0	0	1859	3184	0	19	0	42	147	0	757	0	9	0	0	0	0	0	0	0	0	0	0	71	0	76	270	0	0
Bentazone	0	639	0	396	0	0	691	607	930	0	0	0	1672	2848	0	0	0	42	147	0	315	0	0	0	0	0	0	0	0	0	0	0	0	0	0	48	177	0	0
Benzene	0	0	0	426	0	0	723	31	893	33	0	0	1144	2957	0	15	0	42	213	4	615	0	0	0	0	0	0	0	0	0	0	0	0	0	0	73	204	0	0
Benzo(a)pyrene	0	0	0	437	0	0	723	7	1	0	0	0	1284	1703	0	18	0	0	212	4	110	0	0	6	0	0	0	0	0	0	91	0	0	0	0	0	352	0	0
Benzo(b)fluoranthene	0	0	0	437	0	0	723	7	0	0	0	0	1284	710	0	18	0	0	0	4	40	0	0	6	0	0	0	0	0	0	91	0	0	0	0	0	348	0	0
Benzo(g,h,i)perylene	0	0	0	437	0	0	723	7	1	0	0	0	1284	1703	0	18	0	0	0	4	40	0	0	6	0	0	0	0	0	0	91	0	0	0	0	0	348	0	0
Benzo(k)fluoranthene	0	0	0	437	0	0	723	7	0	0	0	0	1284	1705	0	18	0	0	0	4	40	0	0	6	0	0	0	0	0	0	91	0	0	0	0	0	348	0	0
Beta-HCH	0	0	0	0	142	0	688	63	0	0	0	0	1474	766	0	20	0	0	0	0	20	0	9	0	0	0	0	0	0	0	91	0	0	71	0	29	0	0	0
Cadmium	0	672	36	437	115	100	723	903	915	82	0	0	1805	3158	67	28	0	42	212	3	1153	0	24	0	89	0	0	0	0	0	43	101	0	42	0	76	529	0	0
Cadmium dissolved	0	0	0	0	83	0	0	677	0	0	0	0	0	2084	0	30	0	0	220	4	420	0	117	0	0	0	8	0	0	0	131	0	0	71	64	0	0	0	0
Copper	13	672	48	438	189	125	723	780	915	0	0	0	1776	3324	231	28	0	42	212	5	741	0	23	0	24	0	0	0	0	0	43	128	0	41	0	76	529	0	0
Copper dissolved	0	0	0	0	90	0	0	637	761	0	0	0	0	2086	0	30	0	0	220	2	398	0	117	0	0	0	8	0	0	0	131	2	0	71	64	0	0	0	16
DDD, p,p'	0	0	0	0	111	0	688	0	0	0	0	0	1513	1133	0	24	0	0	0	0	27	0	0	0	0	0	0	0	0	0	91	0	0	67	0	29	0	0	0
DDE, p,p'	0	0	0	125	161	0	719	0	0	0	0	0	1563	2165	0	24	0	0	0	0	37	0	0	0	0	0	0	0	0	0	91	0	0	0	0	29	48	0	0
DDT, o,p'	0	0	0	0	161	0	719	22	0	0	0	0	1563	2163	0	5	0	0	0	0	29	0	0	0	0	0	0	0	0	0	0	0	0	71	0	47	0	0	0
DDT, p,p'	0	0	0	87	161	0	719	22	0	0	0	0	1556	1583	0	24	0	0	151	0	37	0	0	0	0	0	0	0	0	0	91	0	0	71	0	29	136	0	0
Desethylatrazine	0	682	0	398	3	0	691	683	930	0	0	0	1859	2649	0	0	0	42	0	0	723	0	0	0	0	0	0	0	0	0	0	0	0	0	0	76	270	0	0
Desisopropylatrazine	0	0	0	398	3	0	684	637	930	0	0	0	1727	2647	0	0	0	42	0	0	56	0	0	0	0	0	0	0	0	0	0	0	0	0	0	76	262	0	0
Di (2-ethylhexyl) phthalate (DEHP)	0	0	16	0	0	0	617	0	824	0	0	0	514	20	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	61	0	0
Dieldrin	0	0	33	146	161	0	717	22	0	0	0	0	1625	2397	0	24	0	0	151	0	107	0	9	0	0	0	0	0	0	0	91	0	0	71	0	75	144	0	0
Dichloromethane	0	677	0	0	0	0	723	691	4	0	0	0	1388	111	0	17	0	0	0	4	714	0	0	0	0	0	0	0	0	0	0	0	0	0	0	74	251	0	0
Diuron	0	624	0	440	5	0	721	875	844	0	0	0	1859	3071	0	0	0	42	147	0	143	0	0	0	0	0	0	0	0	0	0	0	0	0	0	59	262	0	0
Endrin	0	0	33	143	161	0	717	22	0	0	0	0	1668	2189	0	24	0	0	0	0	37	0	9	0	0	0	0	0	0	0	91	0	0	71	0	48	144	0	0
Fluoranthene	0	0	0	437	0	0	723	7	1	0	0	0	1284	1697	0	18	0	0	0	4	0	0	0	6	0	0	0	0	0	0	91	0	0	0	0	0	352	0	0
Gamma-HCH (Lindane)	0	626	0	305	155	0	720	445	0	0	0	0	1856	2270	0	24	0	0	151	0	29	0	9	0	0	0	0	0	0	0	91	8	0	71	0	48	150	0	0
Hexachlorobenzene (HCB)	0	626	0	180	124	0	717	22	0	0	0	0	1633	2196	0	17	0	0	0	0	0	0	9	0	0	0	0	0	0	0	0	8	0	71	0	11	150	0	0
Hexachlorobutadiene (HCBD)	0	0	0	112	0	0	716	25	0	0	0	0	1163	2110	0	1	0	0	0	0	356	0	0	0	0	0	0	0	0	0	0	0	0	0	0	74	194	0	0
Chlorfenvinphos	0	0	0	157	9	100	0	6	0	0	0	0	1607	2876	0	18	0	0	0	0	0	0	9	0	0	0	0	0	0	0	91	0	0	0	0	74	131	0	0
Chloroalkanes C10-13	0	0	0	0	0	0	620	0	0	0	0	0	481	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chlorpyrifos	0	0	0	0	56	100	723	28	0	0	0	0	1582	2842	0	18	0	0	0	0	456	0	9	0	0	0	0	0	0	0	0	0	0	0	0	41	144	0	0
Chromium	13	0	49	388	71	100	691	654	757	0	0	0	1609	3225	0	28	0	42	212	0	1139	0	0	0	24	0	0	0	0	0	169	22	0	0	64	74	495	0	0
Chromium dissolved	0	0	0	44	0	0	0	412	0	0	0	0	0	2035	0	30	0	0	220	0	0	0	117	0	0	0	8	0	0	0	0	0	0	67	0	0	0	0	16
Indeno(1,2,3-cd)pyrene	0	0	0	437	1	0	723	6	1	0	0	0	1284	1698	0	18	0	0	0	4	40	0	0	6	0	0	0	0	0	0	91	0	0	0	0	0	348	0	0
Isodrin	0	0	0	0	83	0	717	22	0	0	0	0	1524	2240	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	133	0	0
Isoproturon	0	624	0	432	0	0	723	891	848	0	0	0	1859	3075	0	0	0	42	147	0	143	0	0	0	0	0	0	0	0	0	0	0	0	0	0	73	270	0	0
Lead	13	672	16	437	143	100	723	435	915	82	0	0	1753	3317	181	28	0	42	212	5	1157	0	22	0	89	0	0	0	0	0	43	113	0	42	0	76	529	0	0
Lead dissolved	0	0	0	0	91	0	0	618	0	0	0	0	0	2081	0	30	0	0	220	2	246	0	117	0	0	0	8	0	0	0	131	2	0	71	64	0	0	0	0
Linuron	0	624	0	380	0	0	721	122	6	0	0	0	1745	3070	0	0	0	0	0	0	369	0	0	0	0	0	0	0	0	0	0	0	0	0	0	73	0	0	0
MCPA	0	0	0	191	0	0	691	156	848	0	0	0	1611	2849	0	0	0	42	147	0	143	0	0	0	0	0	0	0	0	0	0	0	0	0	0	75	194	0	0
Mecoprop	0	0	0	118	0	0	685	607	930	0	0	0	1561	2988	0	0	0	41	147	0	143	0	0	0	0	0	0	0	0	0	0	0	0	0	0	46	0	0	0
Mercury	0	672	36	435	93	100	723	172	158	82	0	0	1743	2562	0	28	0	34	212	5	1237	0	0	0	23	0	0	0	0	0	131	39	0	34	0	76	529	0	0
Mercury dissolved	0	0	0	43	0	0	0	0	0	0	0	0	0	0	0	30	0	0	219	2	0	0	0	0	0	0	0	0	0	0	0	0	0	67	0	0	0	0	0
Naphthalene	0	0	0	220	0	0	723	6	884	0	0	0	1190	2434	0	15	0	42	212	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	348	0	0
Nickel	13	672	33	438	140	150	723	898	943	0	0	0	1812	3315	182	28	0	42	212	3	1164	0	0	0	24	0	0	0	0	0	43	170	0	42	0	76	529	0	0
Nickel dissolved	0	0	0	0	85	0	0	650	784	0	0	0	0	2087	0	30	0	0	220	4	246	0	117	0	0	0	8	0	0	0	131	2	0	71	64	0	0	0	0
Para-tert-octylphenol	0	0	0	0	0	0	0	0	0	0	0	0	1095	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	162	0	0
Pentachlorobenzene	0	0	0	0	0	0	716	0	0	0	0	0	1228	71	0	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	81	0	0
Pentachlorophenol	0	0	0	212	0	0	710	28	916	0	0	0	1286	1628	0	19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	183	0	0
Prometryn	0	0	0	119	60	0	691	79	0	0	0	0	1312	2903	0	0	0	0	0	0	111	0	9	0	0	0	0	0	0	0	0	0	0	0	0	76	270	0	0
Propazine	0	0	0	333	149	99	0	620	0	0	0	0	1590	2907	0	0	0	42	0	0	71	0	9	0	0	0	0	0	0	0	0	0	0	71	0	76	0	0	0
Simazine	0	682	0	441	157	100	723	928	924	0	0	0	1859	3122	0	18	0	42	90	0	758	0	9	0	0	0	0	0	0	0	0	0	0	71	0	76	270	0	0
Terbuthylazine	0	0	0	399	21	0	691	683	858	0	0	0	1745	0	0	0	0	42	0	0	734	0	0	0	0	0	0	0	0	0	0	0	0	0	0	76	270	0	0
Terbutryn	0	0	0	119	60	0	0	144	0	0	0	0	1482	2905	0	0	0	42	0	0	222	0	0	0	0	0	0	0	0	0	0	0	0	0	0	76	270	0	0
Tetrachloromethane	0	0	0	388	6	0	691	57	895	0	0	0	1537	2897	0	20	0	42	0	0	547	0	0	0	0	0	0	0	0	0	0	0	0	0	0	42	199	0	0
Trifluralin	0	0	0	213	55	100	723	72	0	0	0	0	1662	2395	0	0	0	0	0	0	456	0	9	0	0	0	0	0	0	0	0	0	0	0	0	74	144	0	0
Trichloromethane	0	0	0	423	0	0	723	782	882	0	0	0	1629	2887	0	20	0	42	0	4	828	0	0	0	11	0	0	0	0	0	0	0	0	0	0	67	256	0	0
Zinc	13	672	49	438	225	109	723	896	922	0	0	0	1776	3398	557	29	0	40	212	5	758	0	23	0	24	0	0	0	0	0	43	135	0	1	0	76	529	0	0
Zinc dissolved	0	0	0	0	91	0	0	661	764	0	0	0	0	2084	0	30	0	0	220	2	376	0	117	0	0	0	8	0	0	0	131	2	0	71	64	0	0	0	16

3.2 *Marine environment*

The data on hazardous substances in biota and sediment from Transitional, Coastal and Marine (TCM) waters are collected through the Eionet Reportnet or ICES (that acts as a data centre for both HELCOM and OSPAR). The yearly compiled datasets are published in Waterbase. The most recent version of these datasets can be found here: http://www.eea.europa.eu/data-and-maps/data/waterbase-transitional-coastal-and-marine-waters-9

For general regional assessments, stations are assigned to the main regions of the North East Atlantic, Baltic Sea and Mediterranean, using only station coordinates. All biota stations with sufficient data for assessment are in coastal areas. The Baltic Sea has poor geographical coverage due to lack of defined assessment limits for commonly monitored species and tissues; most of the data used in assessments are from Kiel Bay and the Danish Belts. In the Mediterranean only the north-western part is covered, and only data for mussels are included in the assessment, because assessment limits for Mediterranean fish have not been established. An overview of data availability for the 1998–2010 period is provided in Table 3.2.1. Note that for the marine environment data was selected from the period 1998–2010 compared to the period 2002–2011 selected for the freshwater analysis.

Table 3.2.1 Data availability for assessment of hazardous substances in marine biota for the 1998–2010 period

Data Provider	Number of time series per determinant						
	Cadmium	Mercury	Lead	DDT (DDE, p,p’)	HCB	Gamma HCH	PCB
Belgium	3	4	3	4	4	4	4
Croatia	19	18	19	15		19	
Denmark	31	37	31	35	37	37	37
Estonia		3					
Finland		6					
France	80	80	80	75		74	77
Iceland	12	12	12	12	12	12	12
Ireland	24	24	18	15	15	15	15
Italy		55	55	39	25		52
Netherlands	2	5	2	2	5	2	5
Norway	40	48	39	48	48	48	48
Poland	2	5	2	2	2	2	2
Spain	30	30	30	28	13	29	30
Sweden		6		2	2	2	2
United Kingdom	72	88	69	3			85
Total	315	421	360	280	163	244	369

Additionally the data availability for the 2002–2011 period was analysed although no assessment was done for this period. Number of measurements in sediments for individual substances are shown in figures 3.2.1–3.2.29, number of measurements in 3 fish species (Clupea harengus – Herring, Gadus morhua- Atlantic cod, Platichthys flesus – Flounder) and 1 respective 2 bivalve species (Mytilus edulis and galloprovincialis – Blue mussel and the related Mediterranean mussel) for individual substances are shown in figures 3.2.30 –3.2.100. It should be noted that tissue (e.g. muscle, liver) is not included in this overview due to the level of detail. It is however generally assumed that the countries are consistent in measuring the same tissue throughout the time series.

Fig. 3.2.1 Number of measurements of aldrin in sediments divided by country submitting data to Eionet CDR or ICES.

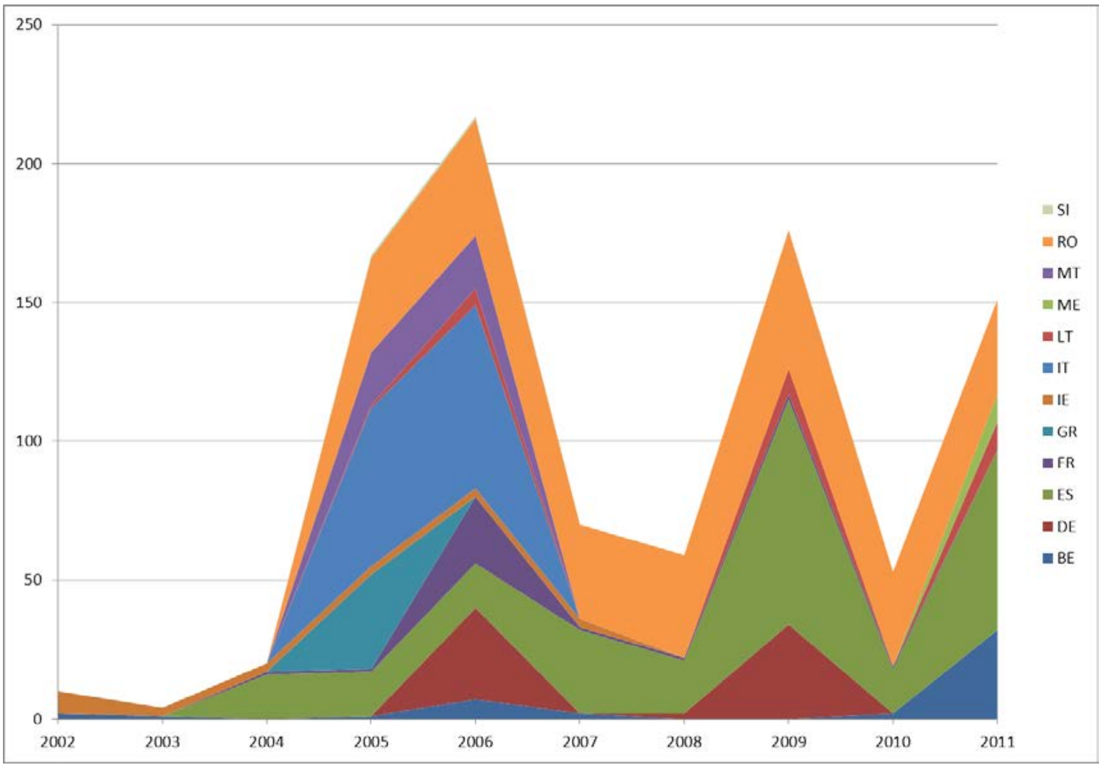


Fig. 3.2.2 Number of measurements of anthracene in sediments divided by country submitting data to Eionet CDR or ICES.

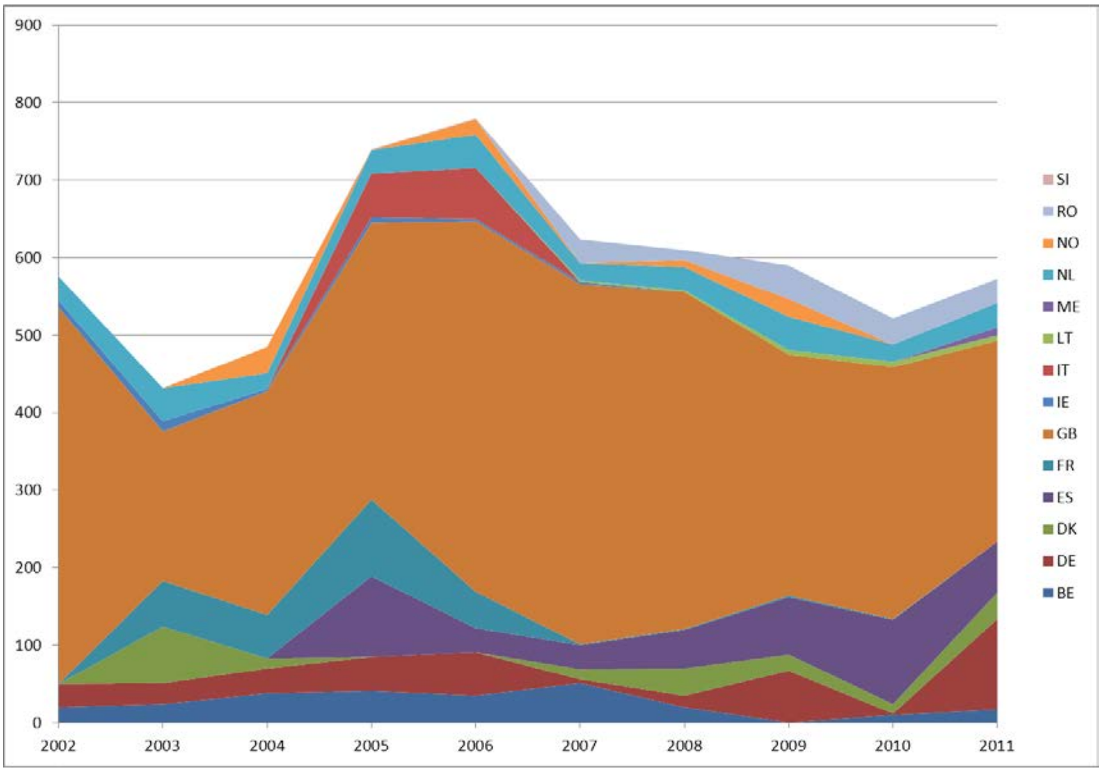


Fig. 3.2.3 Number of measurements of benzo(a)pyrene in sediments divided by country submitting data to Eionet CDR or ICES.

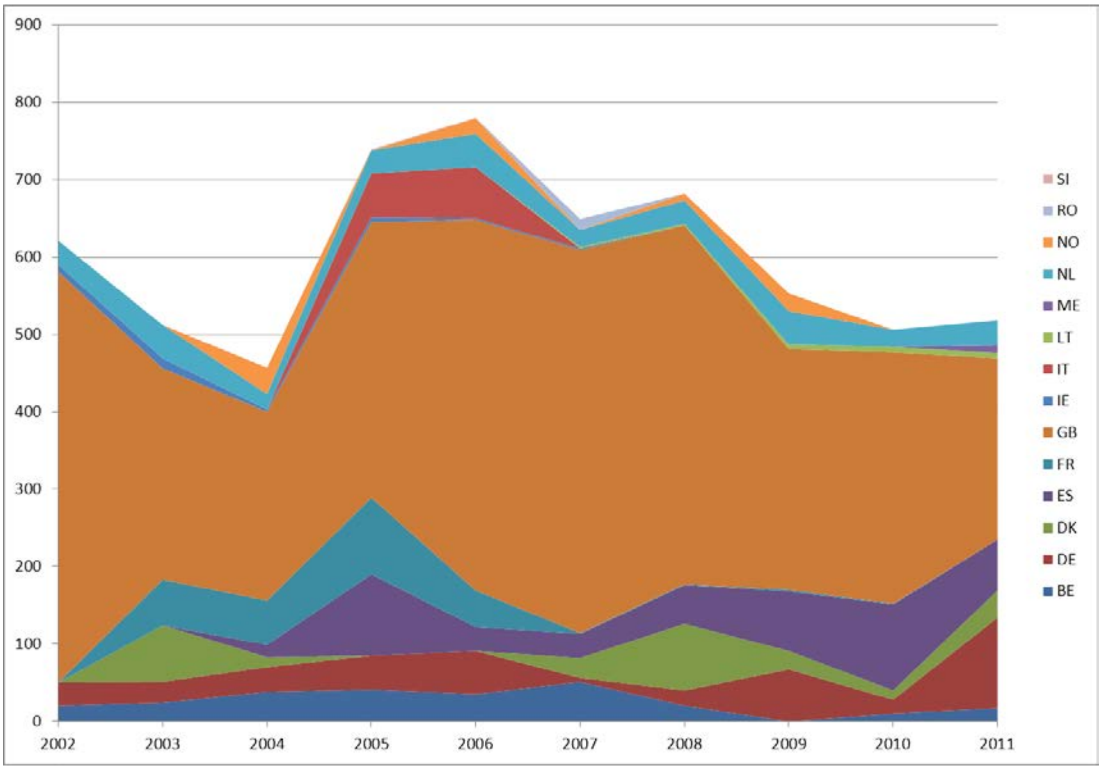


Fig. 3.2.4 Number of measurements of benzo(b)fluoranthene in sediments divided by country submitting data to Eionet CDR or ICES.

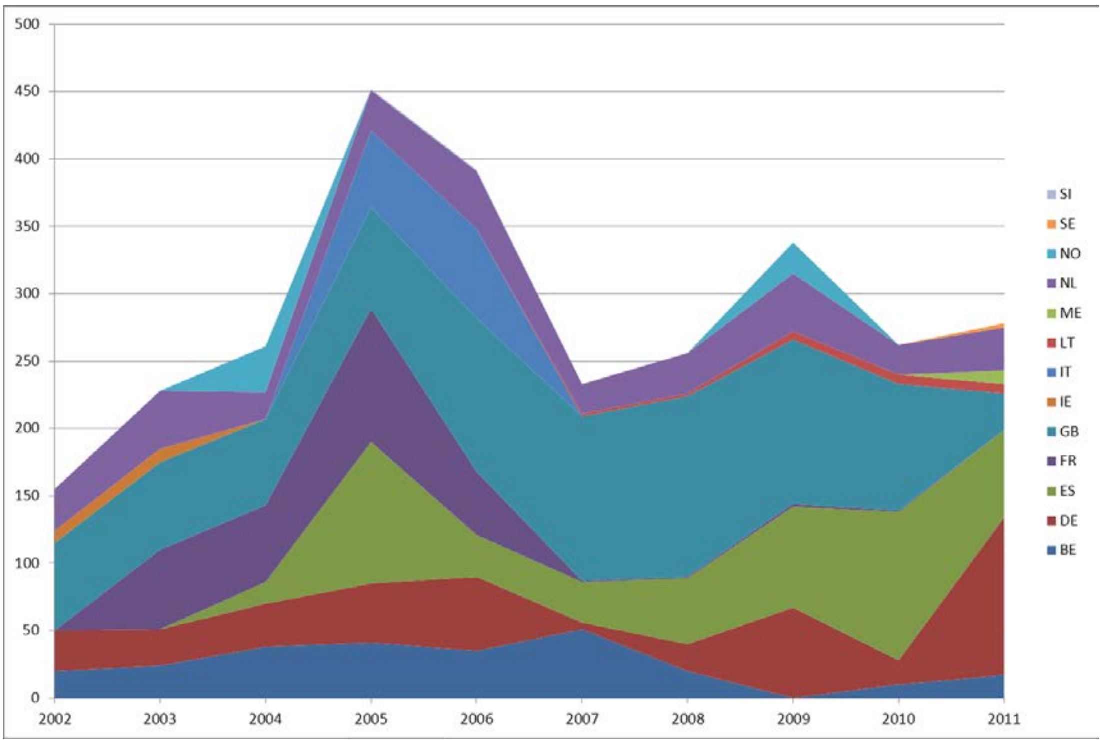


Fig. 3.2.5 Number of measurements of benzo(g,h,i)perylene in sediments divided by country submitting data to Eionet CDR or ICES.

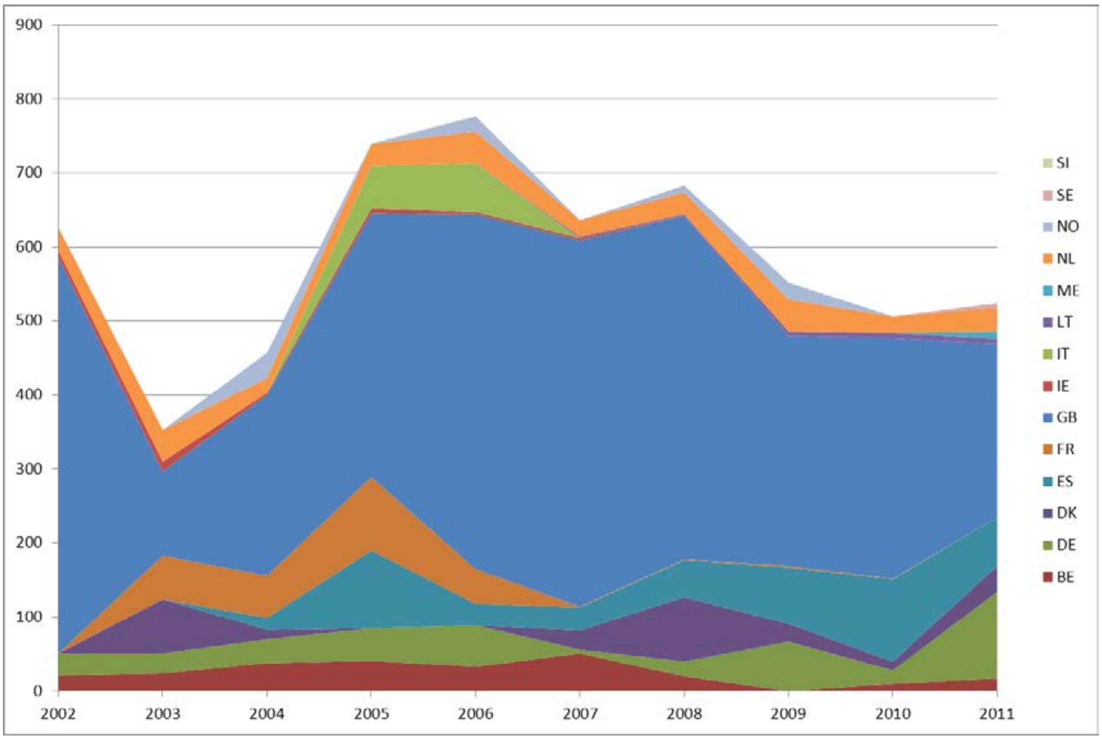


Fig. 3.2.6 Number of measurements of benzo(k)fluoranthene in sediments divided by country submitting data to Eionet CDR or ICES.

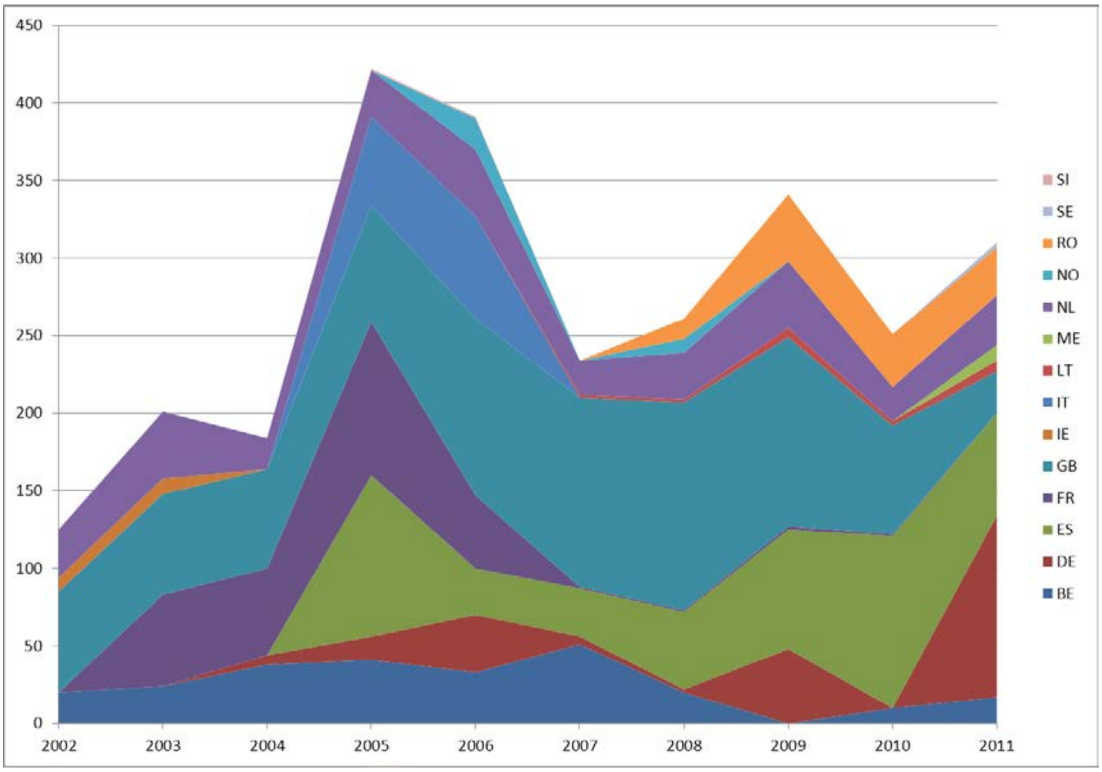


Fig. 3.2.7 Number of measurements of cadmium in sediments divided by country submitting data to Eionet CDR or ICES.

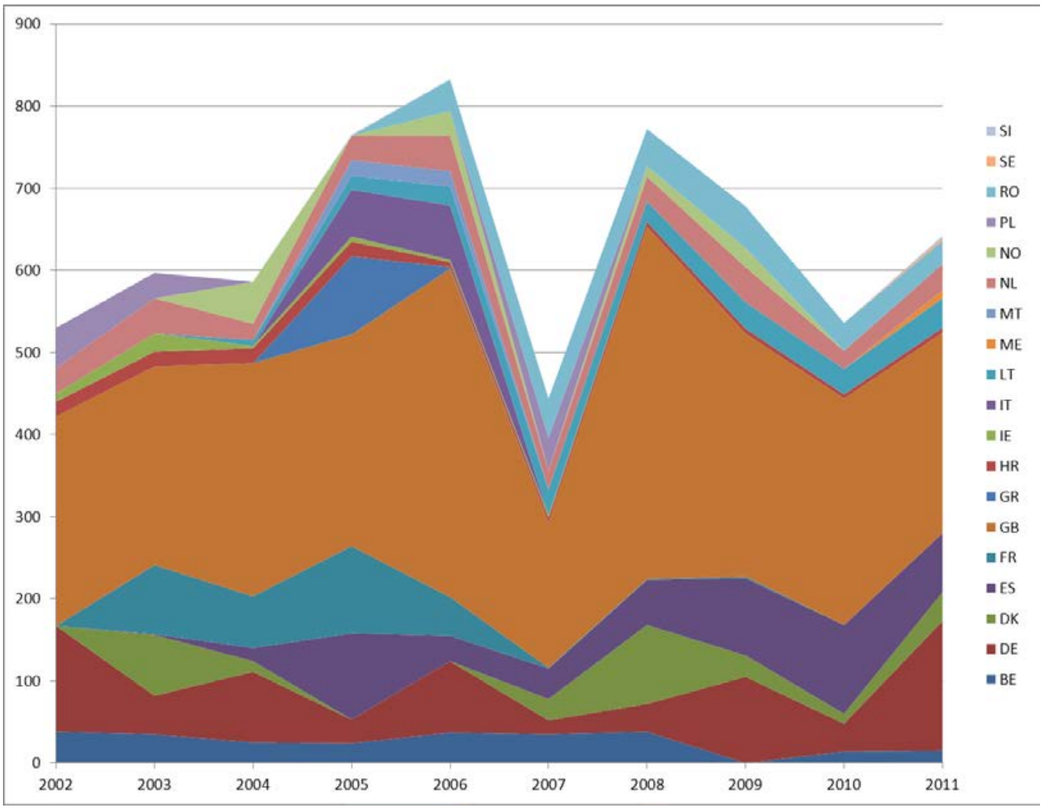


Fig. 3.2.8 Number of measurements of chromium in sediments divided by country submitting data to Eionet CDR or ICES.

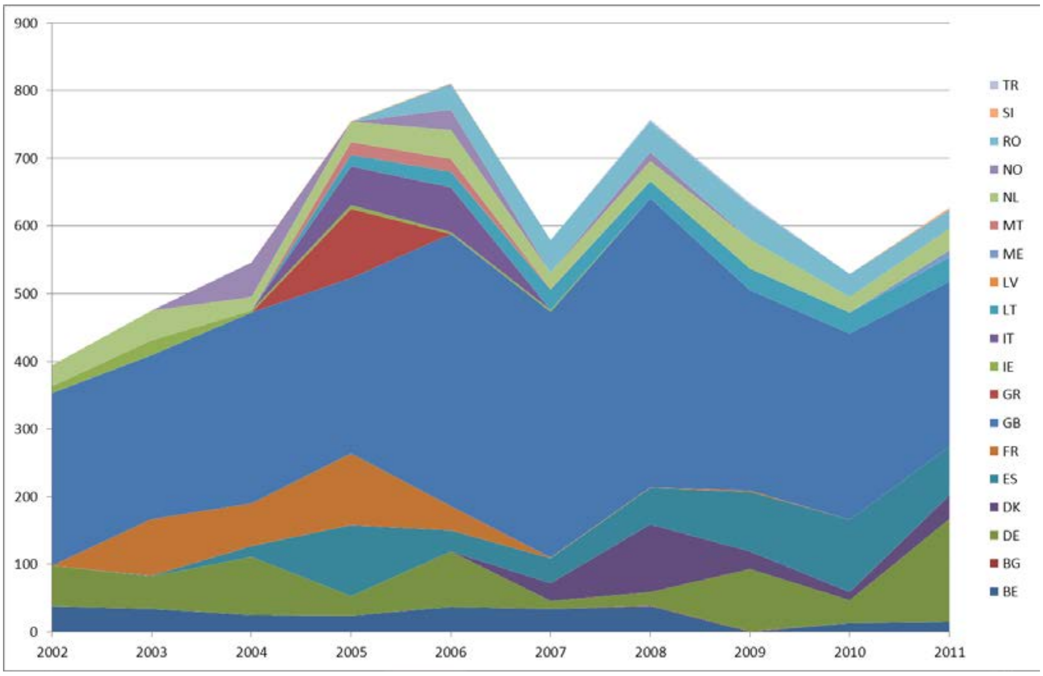


Fig. 3.2.9 Number of measurements of chrysene in sediments divided by country submitting data to Eionet CDR or ICES.

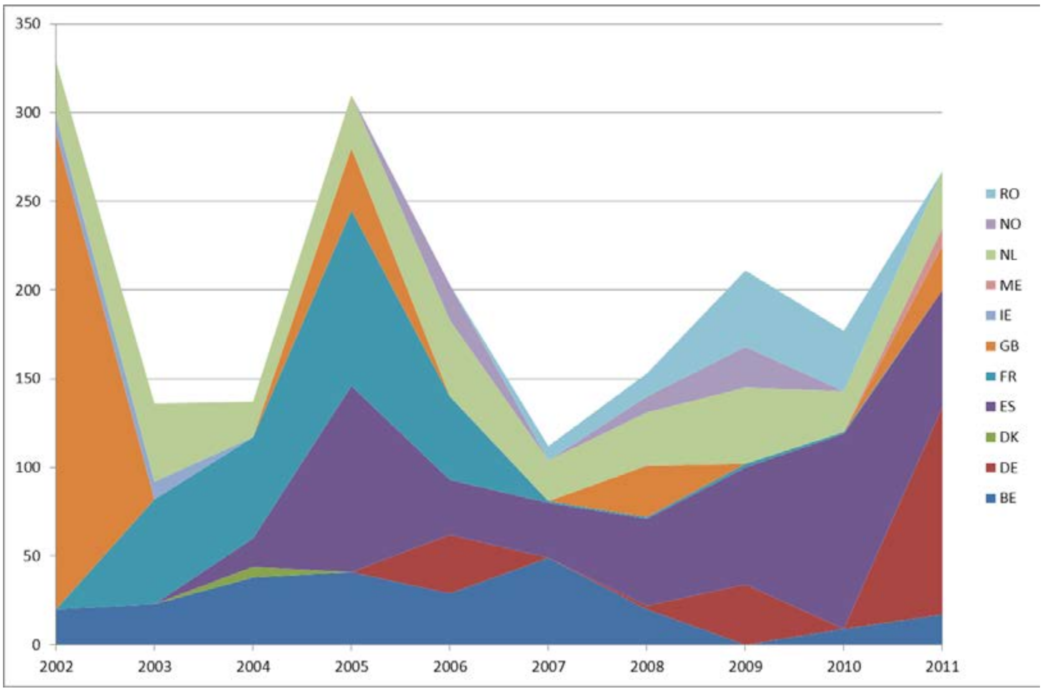


Fig. 3.2.10 Number of measurements of copper in sediments divided by country submitting data to Eionet CDR or ICES.

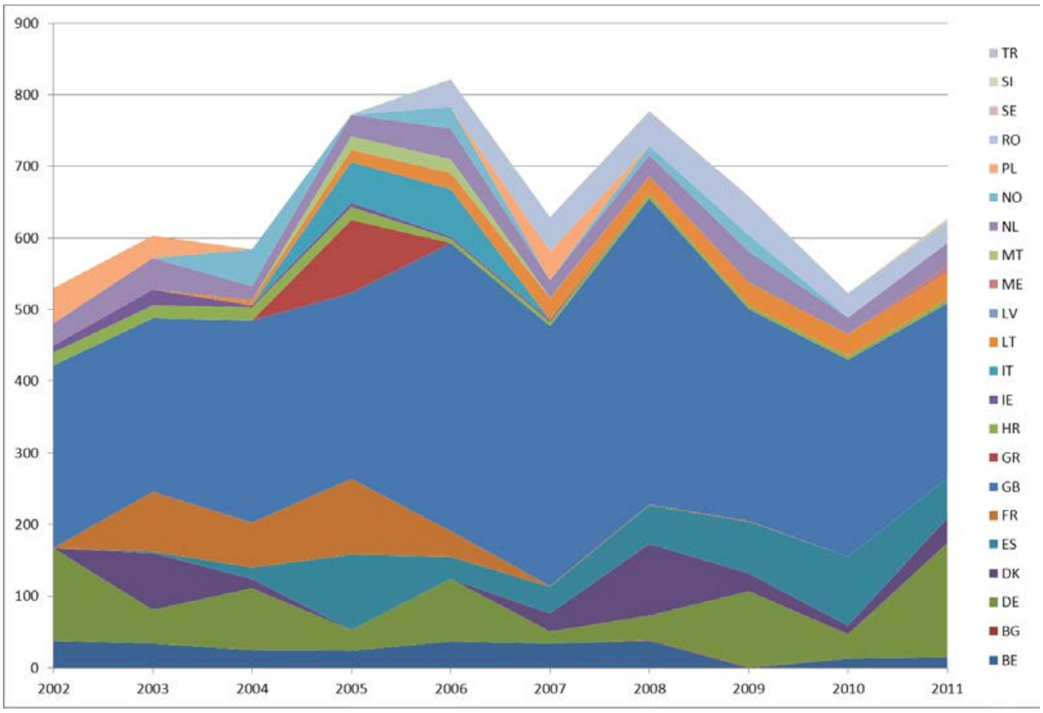


Fig. 3.2.11 Number of measurements of DDT o,p' in sediments divided by country submitting data to Eionet CDR or ICES.

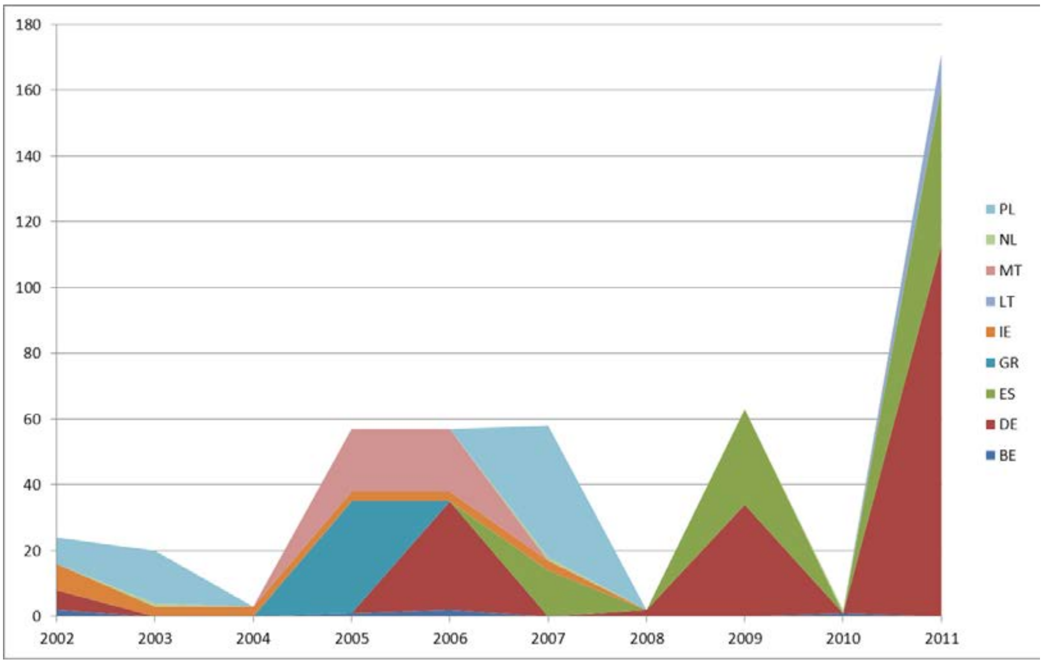


Fig. 3.2.12 Number of measurements of DDT p,p' in sediments divided by country submitting data to Eionet CDR or ICES.

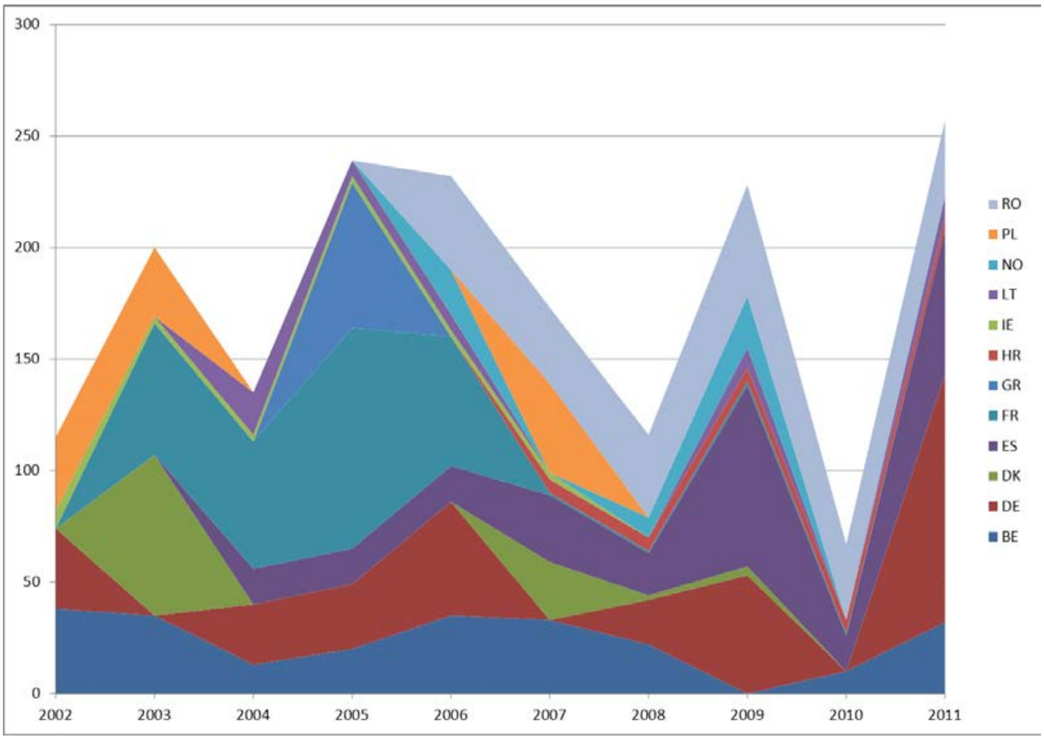


Fig. 3.2.13 Number of measurements of fluoranthene in sediments divided by country submitting data to Eionet CDR or ICES.

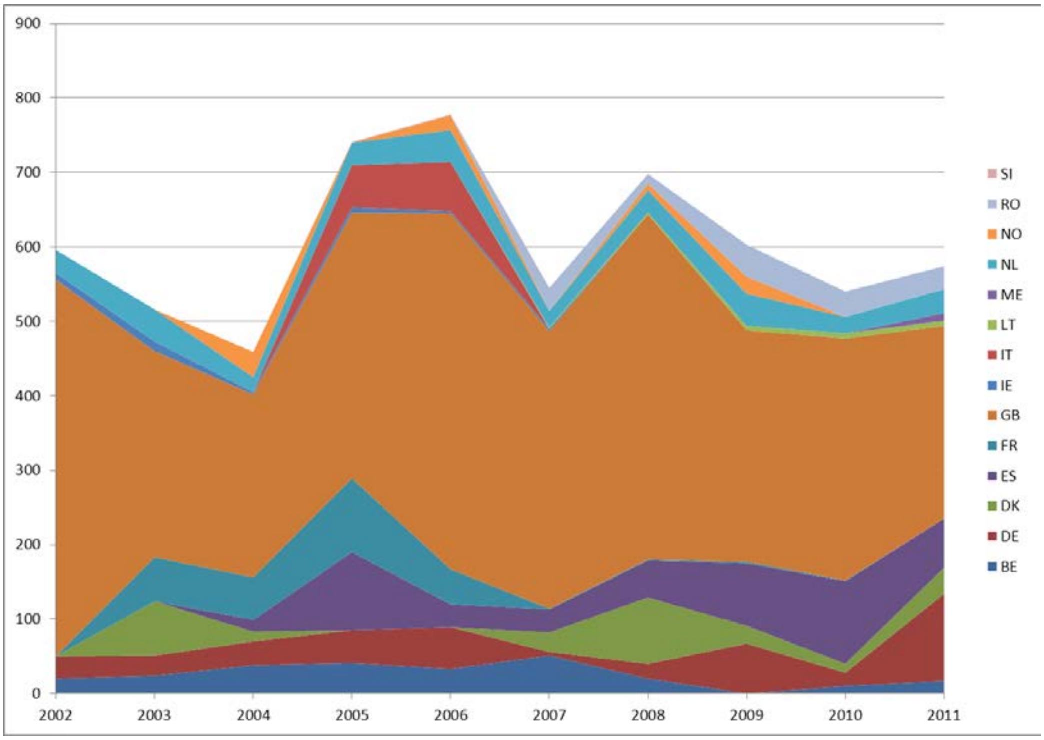


Fig. 3.2.14 Number of measurements of gamma-HCH in sediments divided by country submitting data to Eionet CDR or ICES.

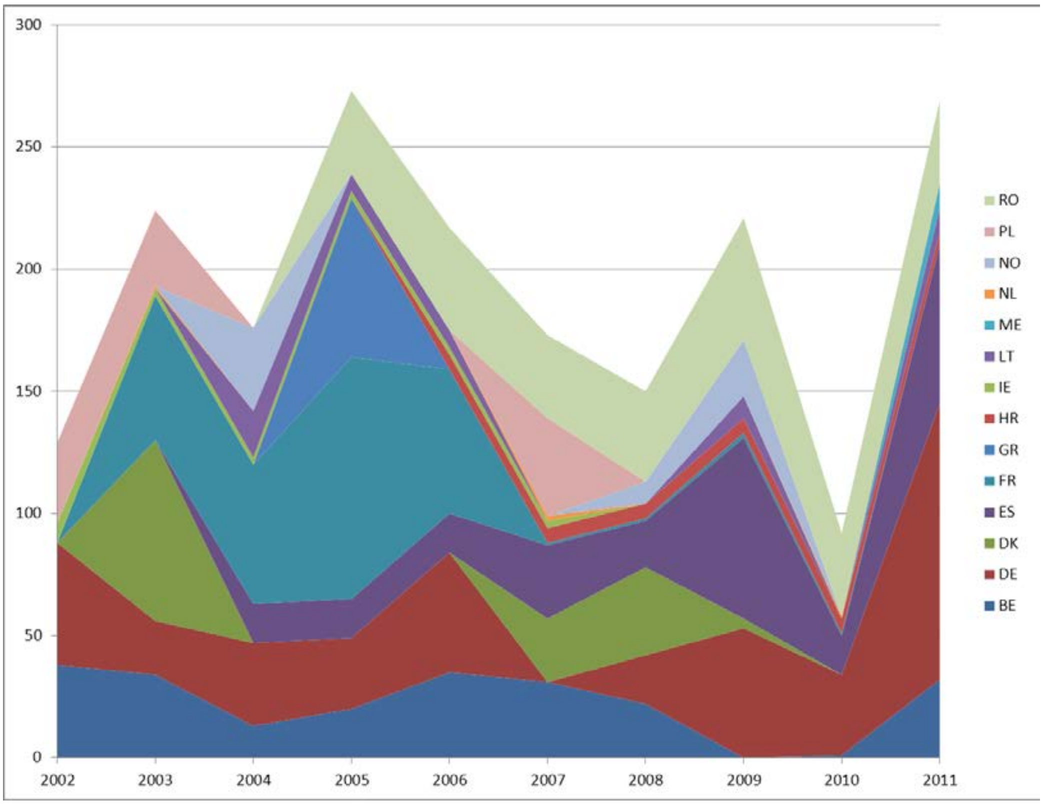


Fig. 3.2.15 Number of measurements of hexachlorobenzene in sediments divided by country submitting data to Eionet CDR or ICES.

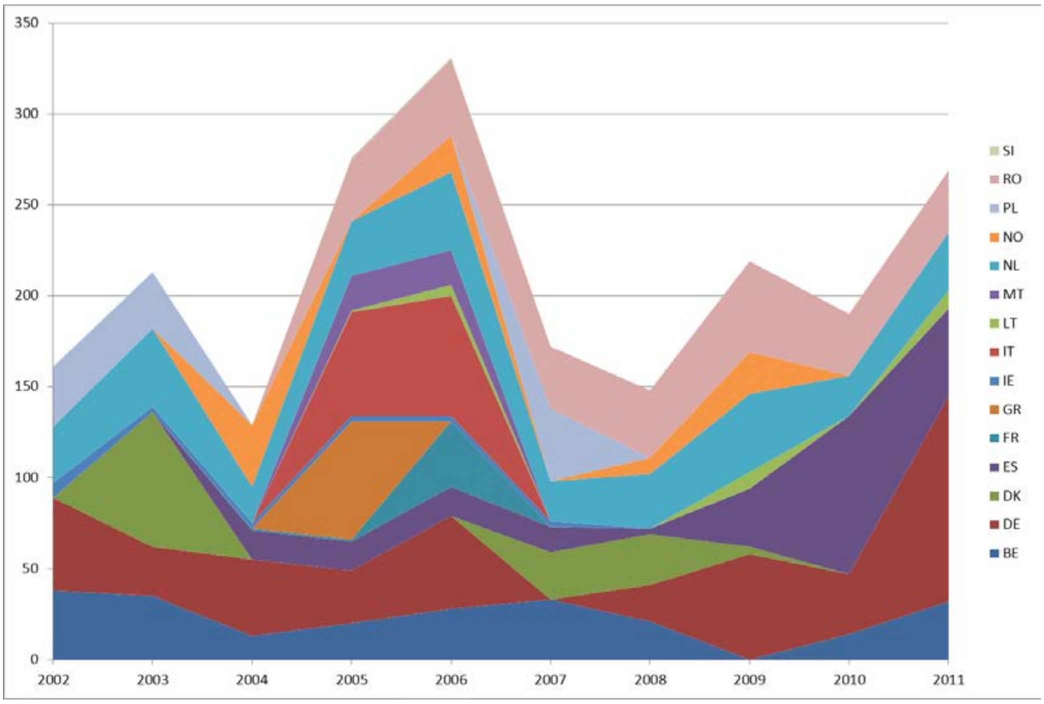


Fig. 3.2.16 Number of measurements of lead in sediments divided by country submitting data to Eionet CDR or ICES.

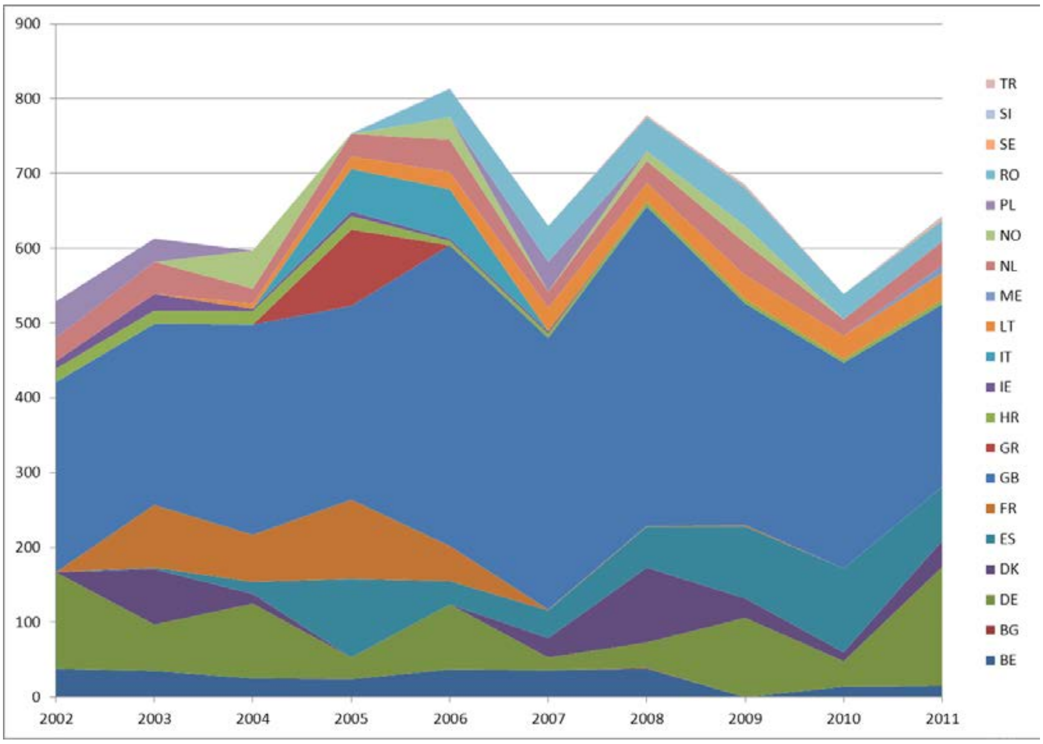


Fig. 3.2.17 Number of measurements of mercury in sediments divided by country submitting data to Eionet CDR or ICES.

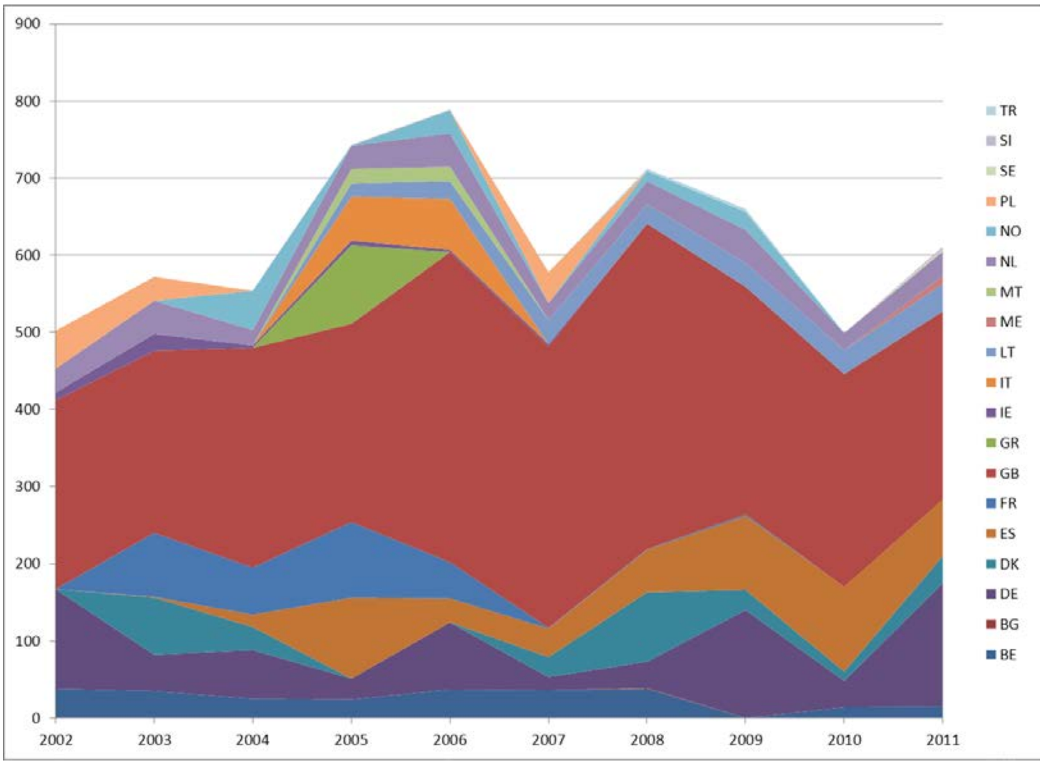


Fig. 3.2.18 Number of measurements of naphtalene in sediments divided by country submitting data to Eionet CDR or ICES.

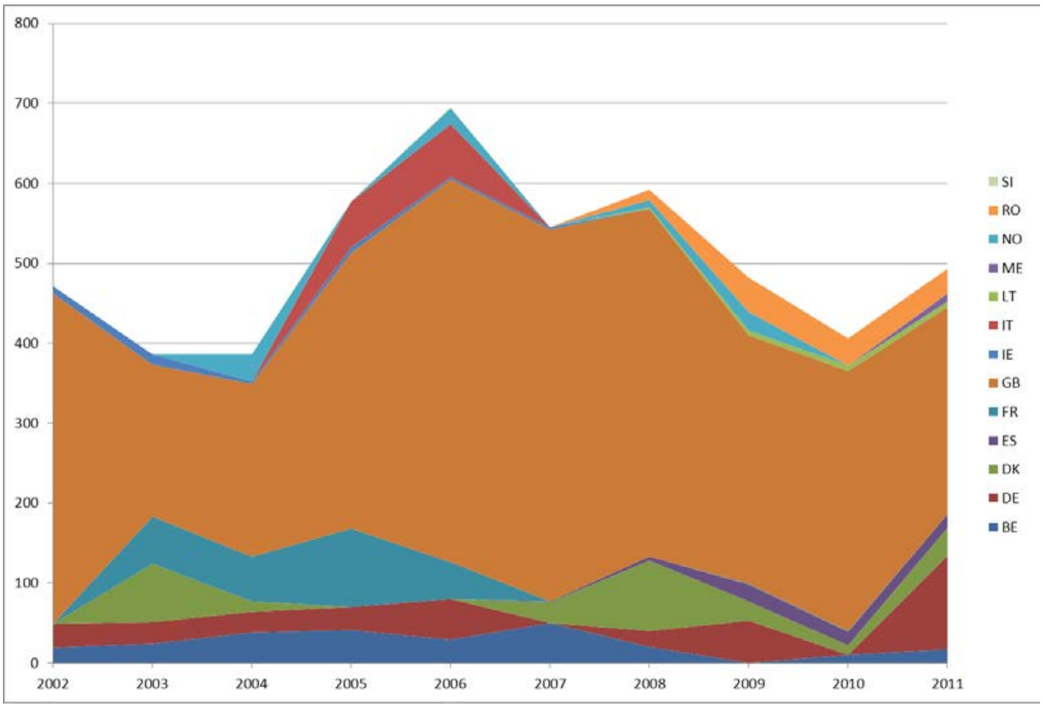


Fig. 3.2.19 Number of measurements of nickel in sediments divided by country submitting data to Eionet CDR or ICES.

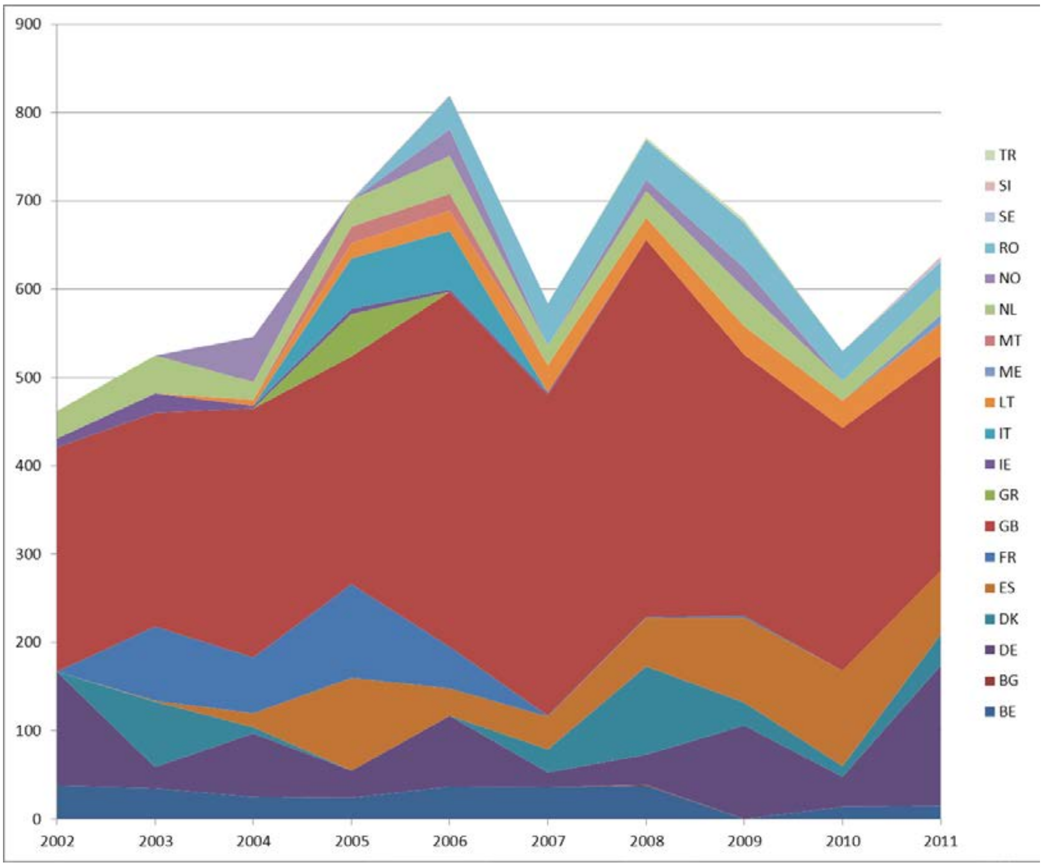


Fig. 3.2.20 Number of measurements of PCB28 in sediments divided by country submitting data to Eionet CDR or ICES.

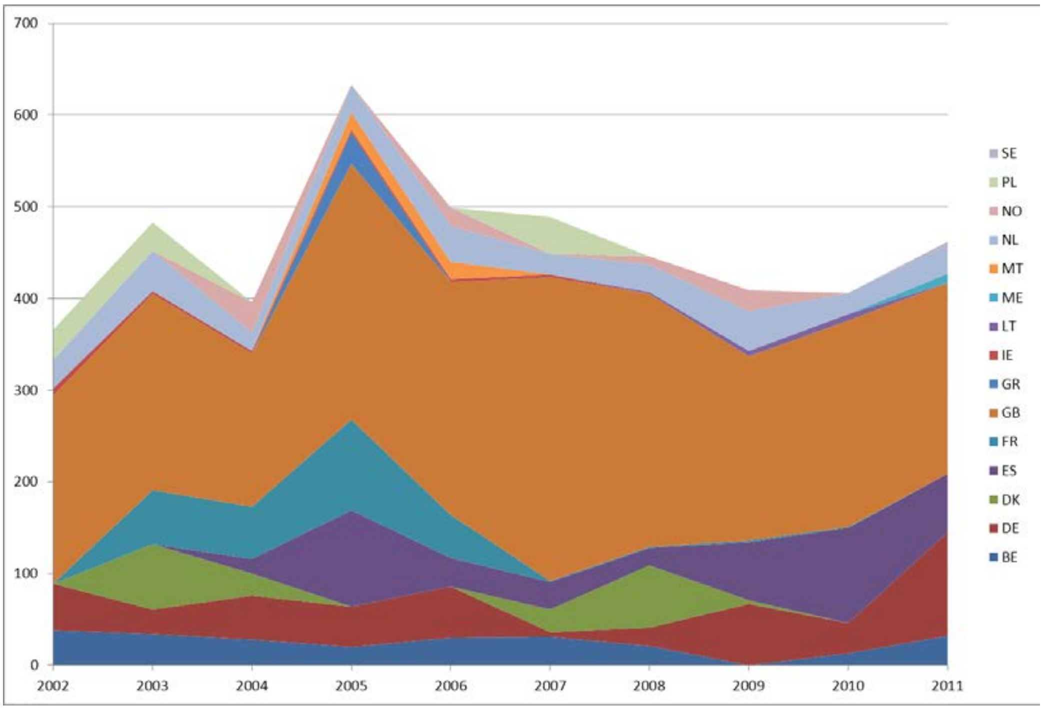


Fig. 3.2.21 Number of measurements of PCB52 in sediments divided by country submitting data to Eionet CDR or ICES.

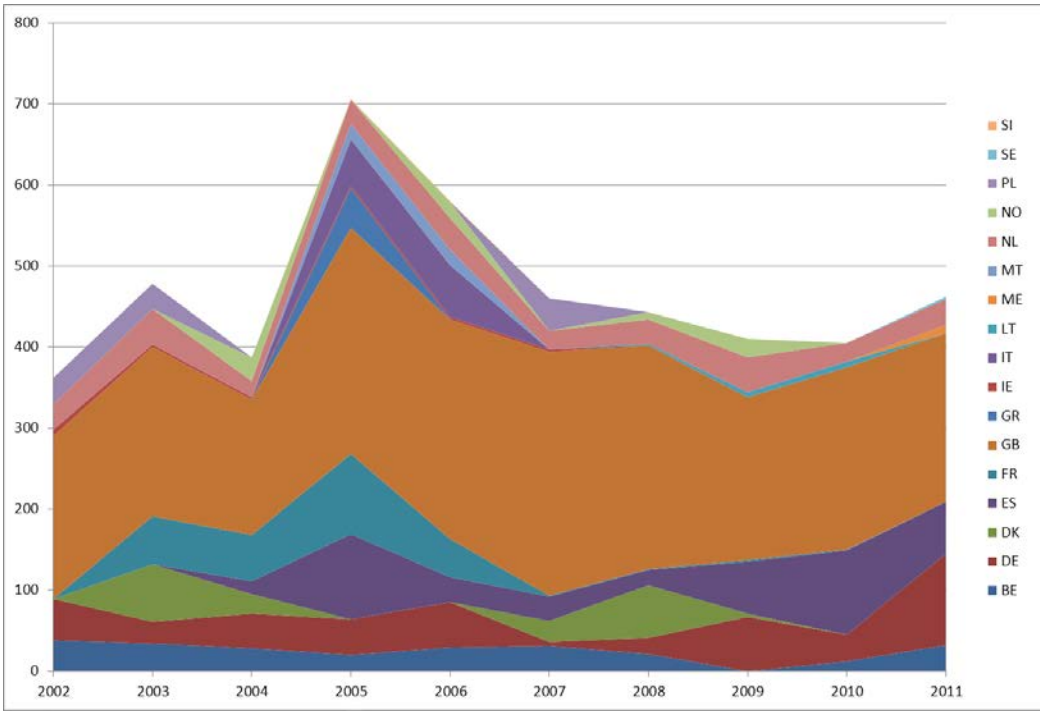


Fig. 3.2.22 Number of measurements of PCB101 in sediments divided by country submitting data to Eionet CDR or ICES.

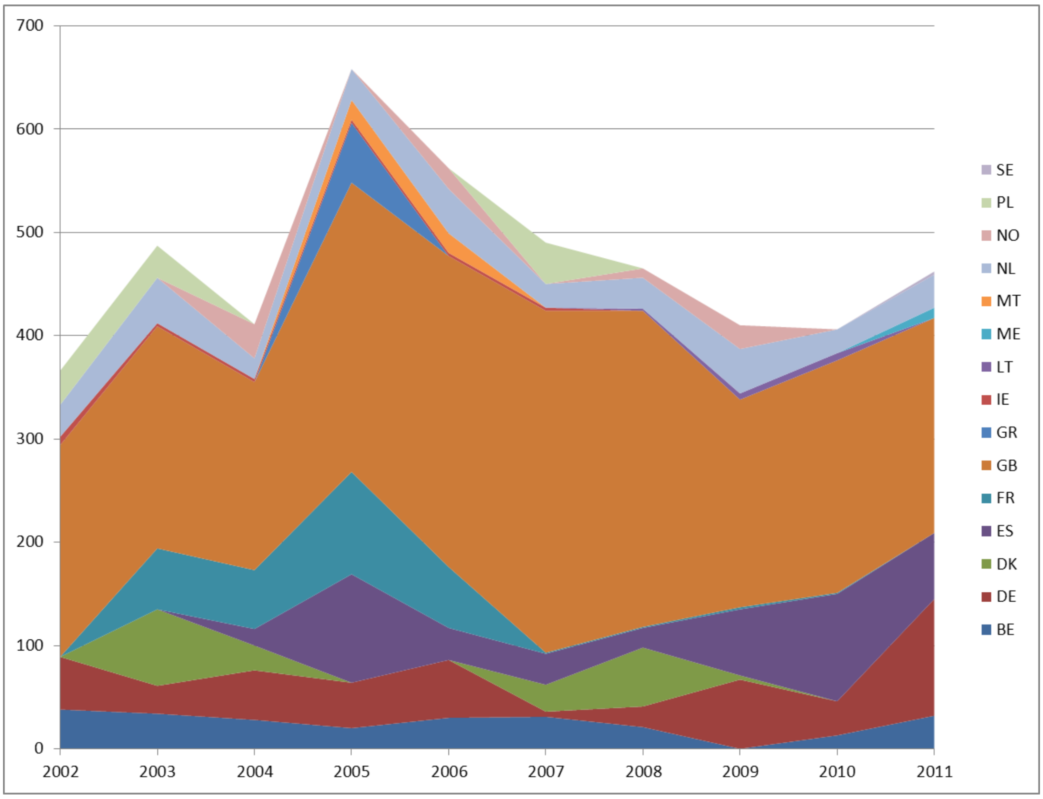


Fig. 3.2.23 Number of measurements of PCB118 in sediments divided by country submitting data to Eionet CDR or ICES.

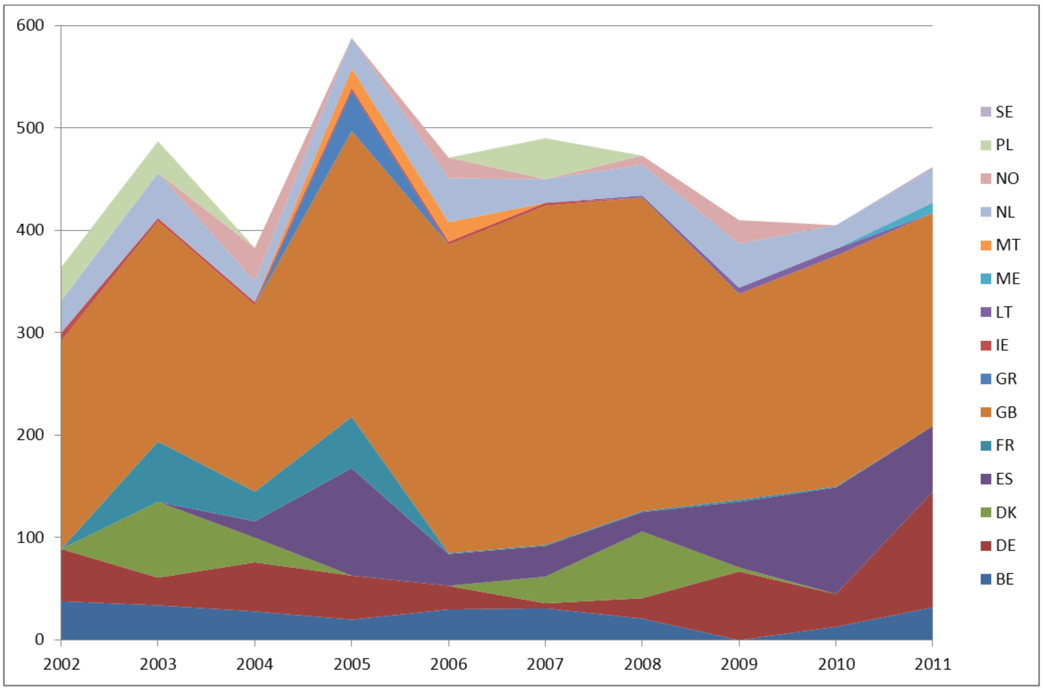


Fig. 3.2.24 Number of measurements of PCB138 in sediments divided by country submitting data to Eionet CDR or ICES.

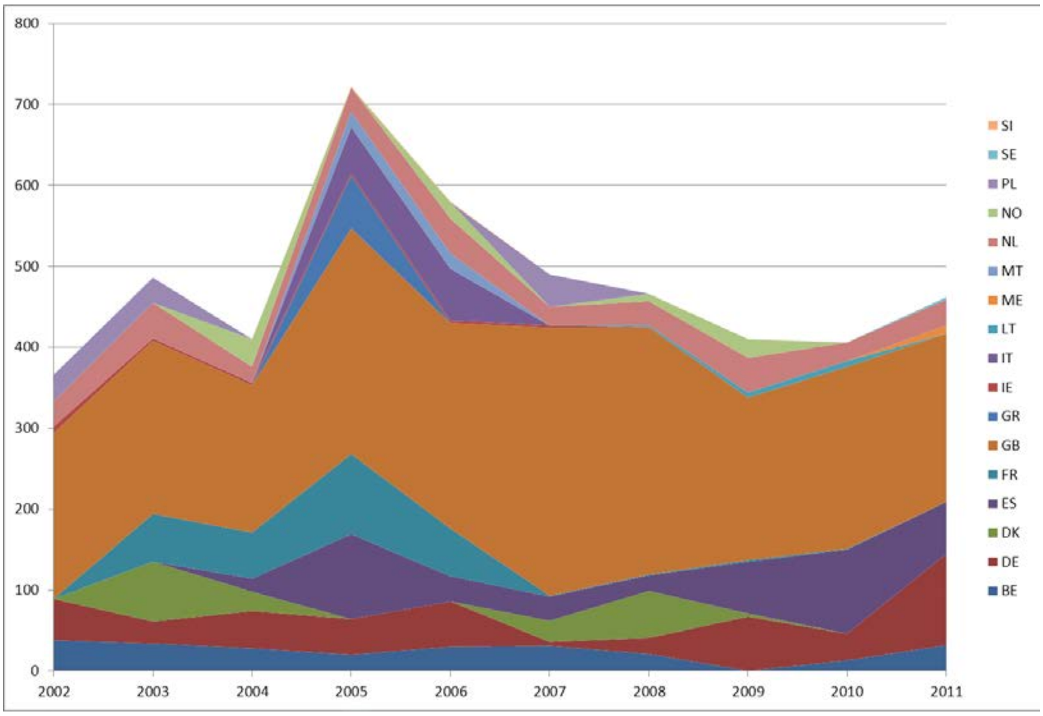


Fig. 3.2.25 Number of measurements of PCB153 in sediments divided by country submitting data to Eionet CDR or ICES.

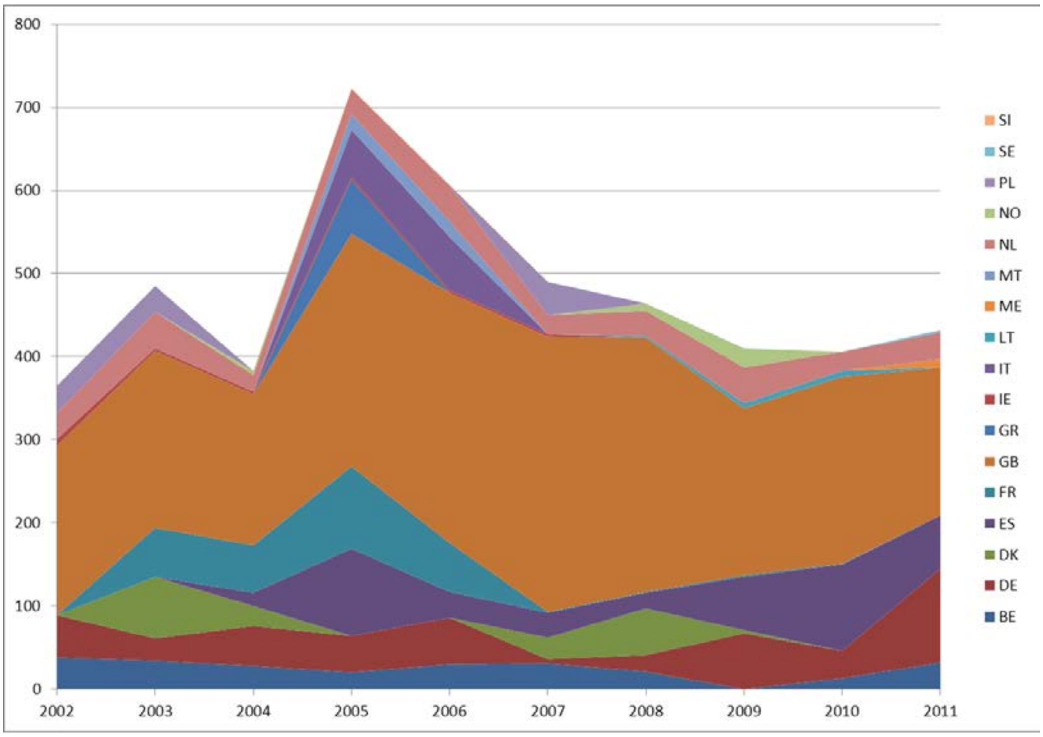


Fig. 3.2.26 Number of measurements of PCB180 in sediments divided by country submitting data to Eionet CDR or ICES.

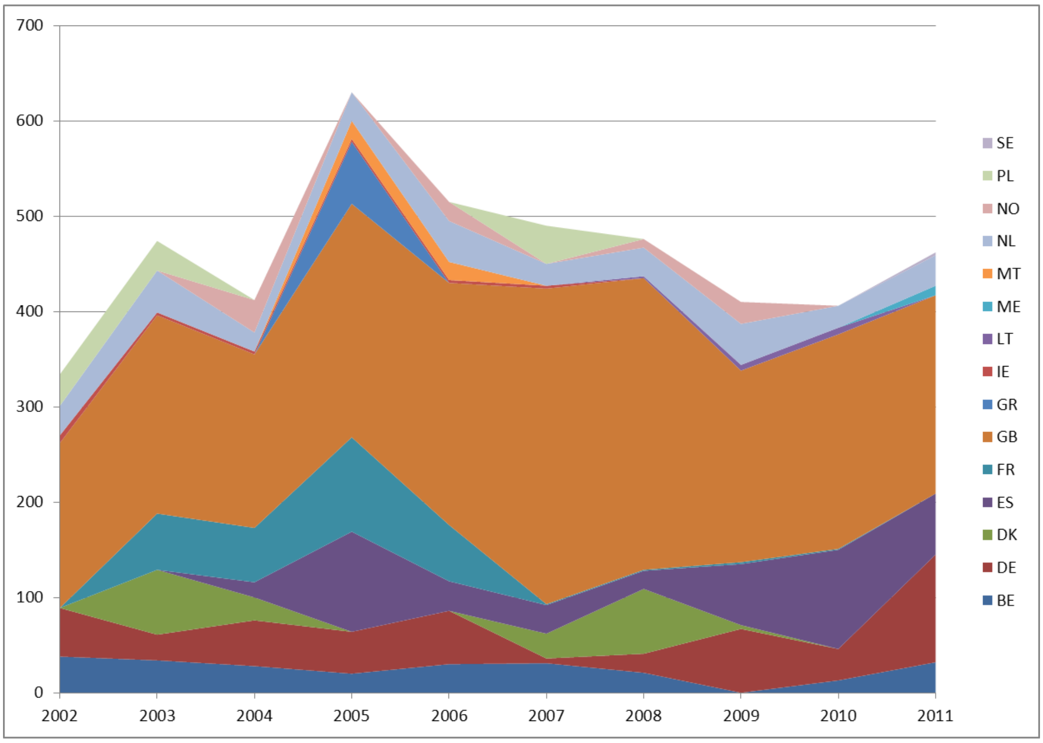


Fig. 3.2.27 Number of measurements of phenanthrene in sediments divided by country submitting data to Eionet CDR or ICES.

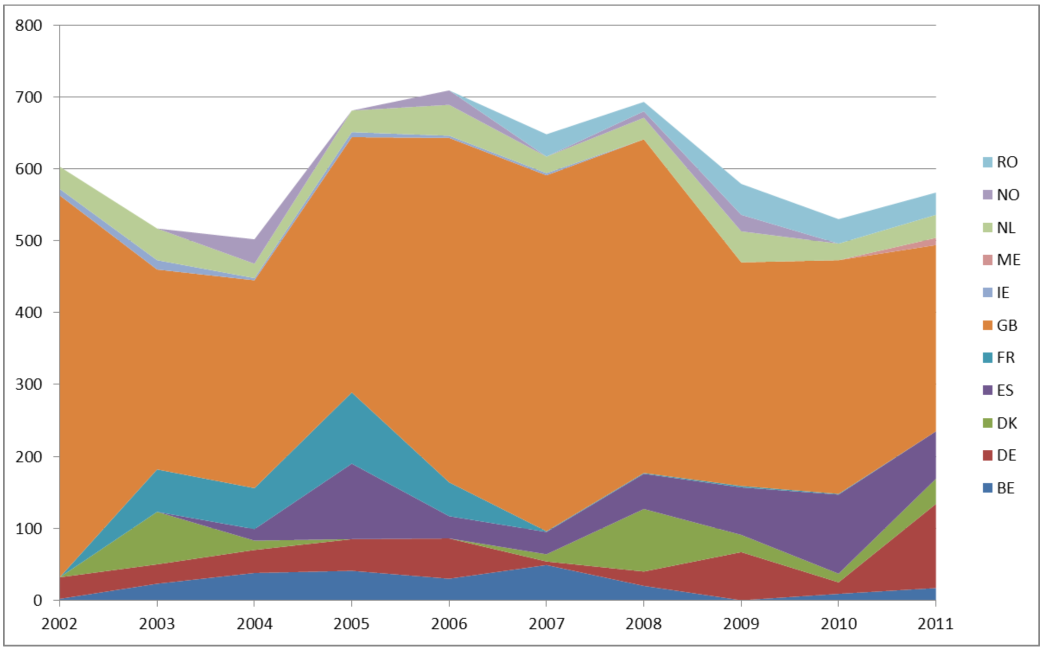


Fig. 3.2.28 Number of measurements of pyrene in sediments divided by country submitting data to Eionet CDR or ICES.

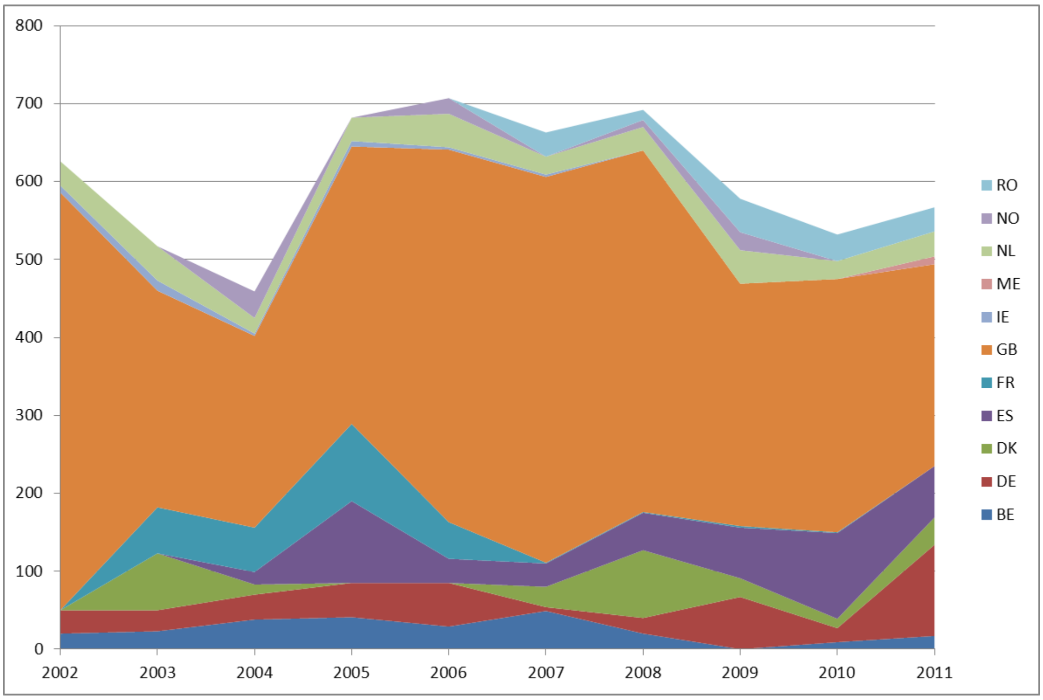


Fig. 3.2.29 Number of measurements of zinc in sediments divided by country submitting data to Eionet CDR or ICES.

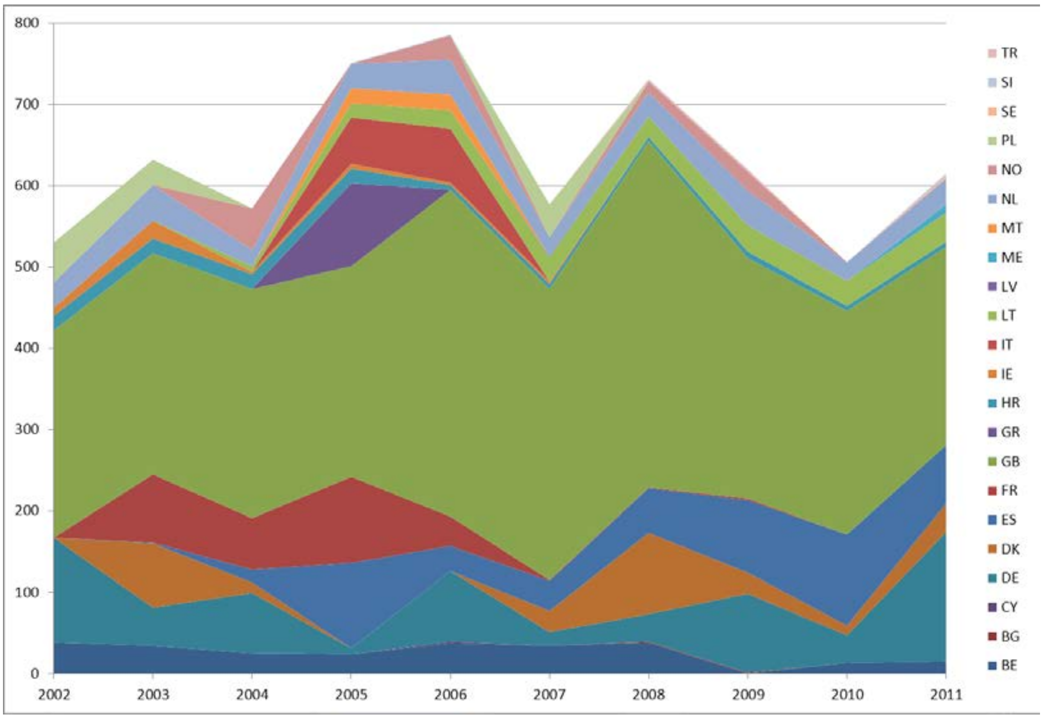


Fig. 3.2.30 Number of measurements of alpha-HCH in biota [Clupea] divided by country submitting data to Eionet CDR or ICES.

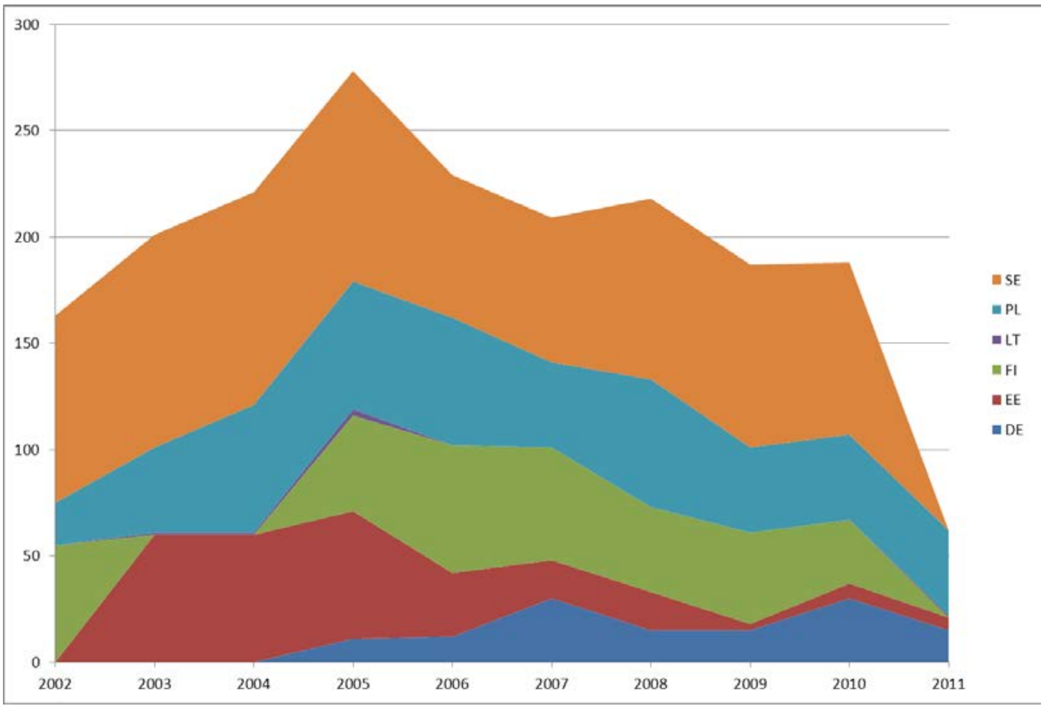


Fig. 3.2.31 Number of measurements of cadmium in biota [Clupea] divided by country submitting data to Eionet CDR or ICES.

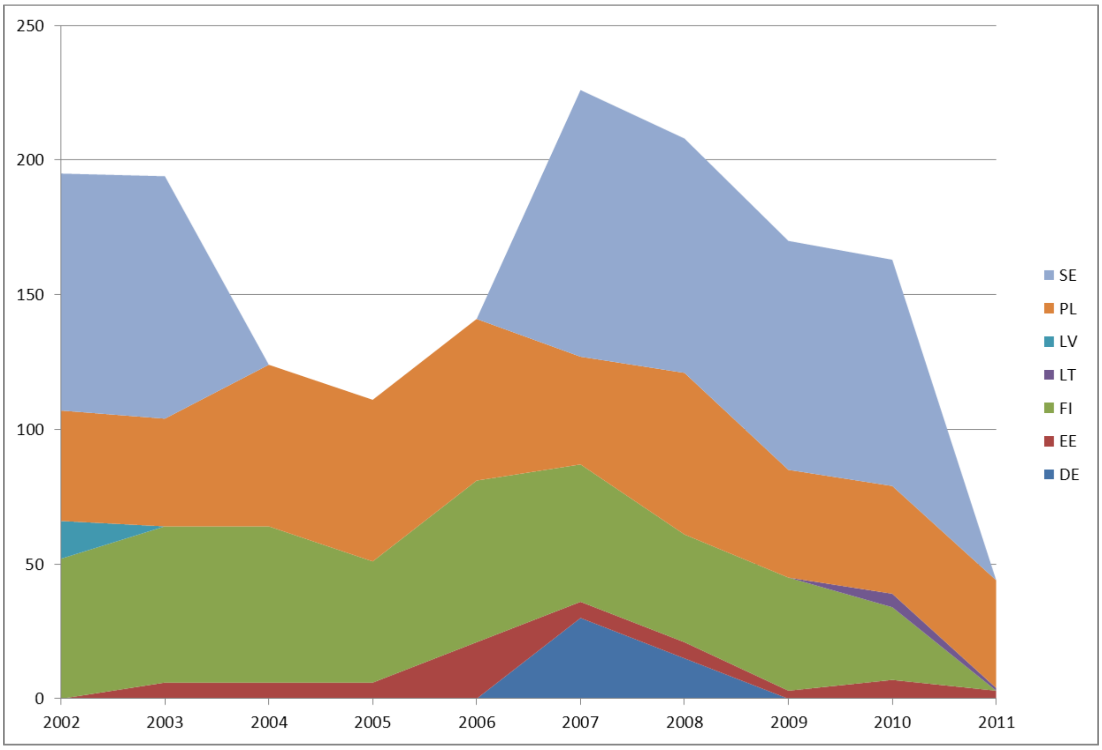


Fig. 3.2.32 Number of measurements of copper in biota [Clupea] divided by country submitting data to Eionet CDR or ICES.

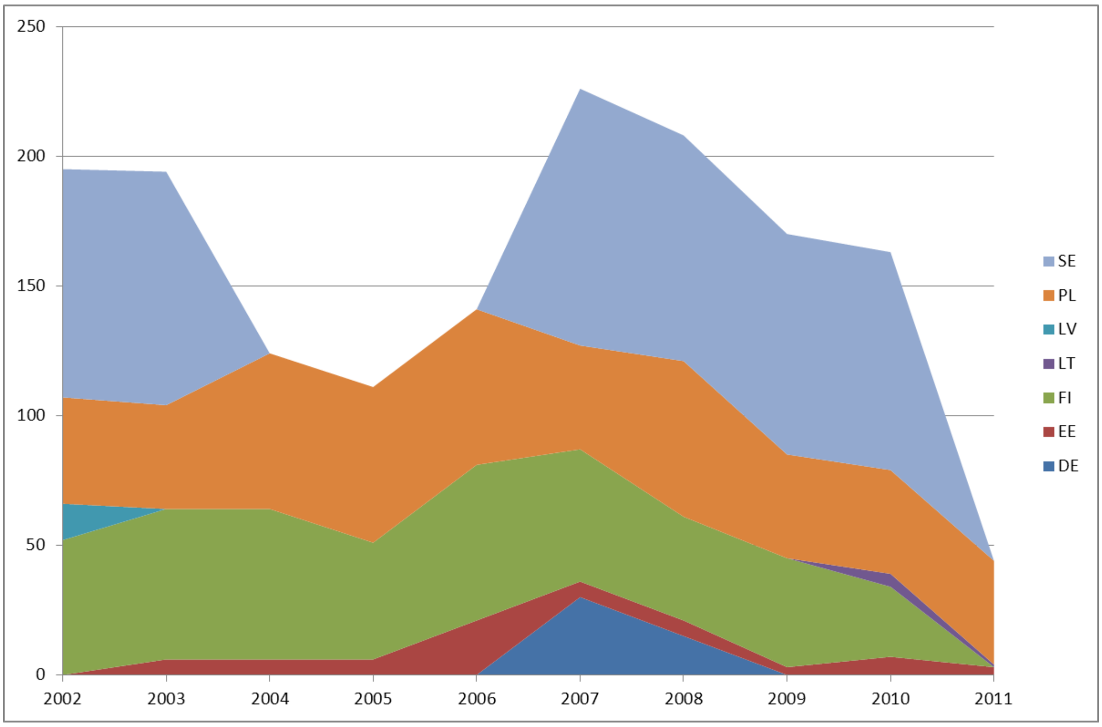


Fig. 3.2.33 Number of measurements of DDD p,p' in biota [Clupea] divided by country submitting data to Eionet CDR or ICES.

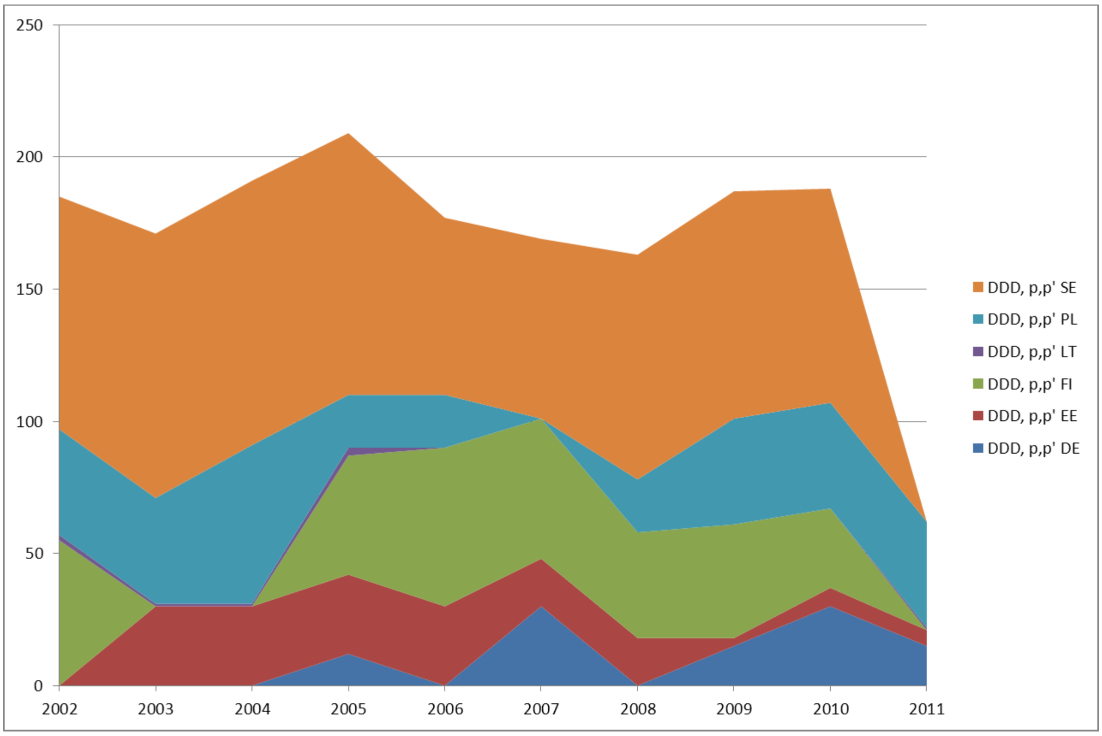


Fig. 3.2.34 Number of measurements of DDE p,p' in biota [Clupea] divided by country submitting data to Eionet CDR or ICES.

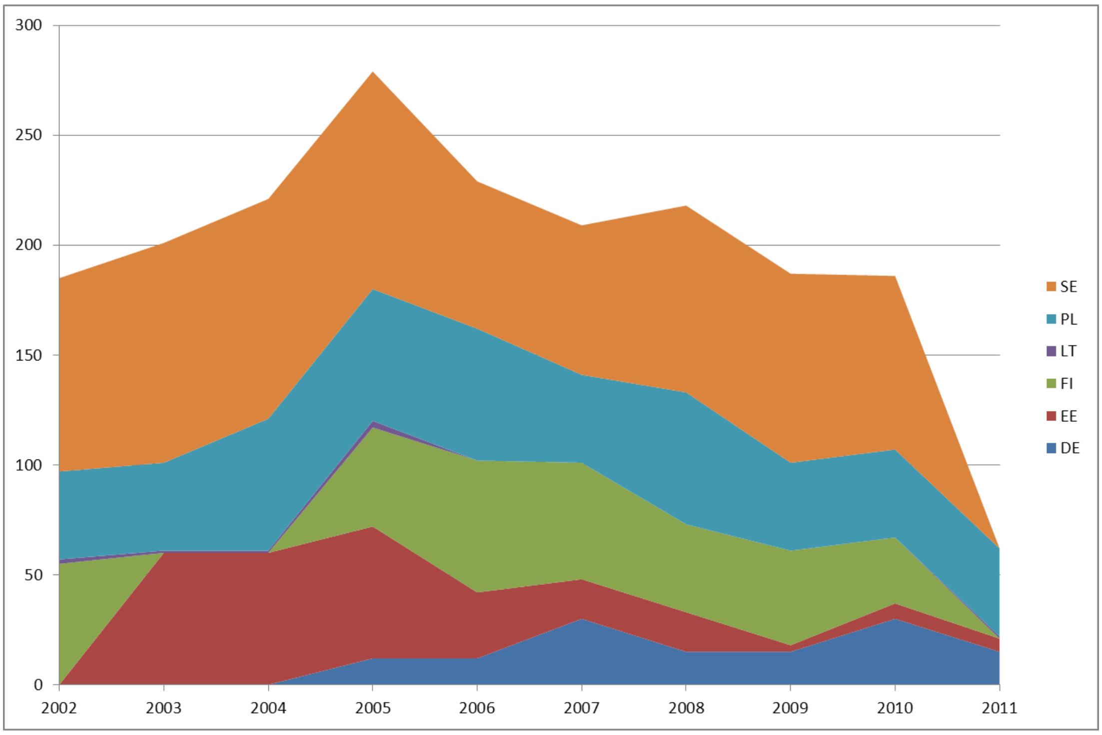


Fig. 3.2.35 Number of measurements of DDT p,p' in biota [Clupea] divided by country submitting data to Eionet CDR or ICES.

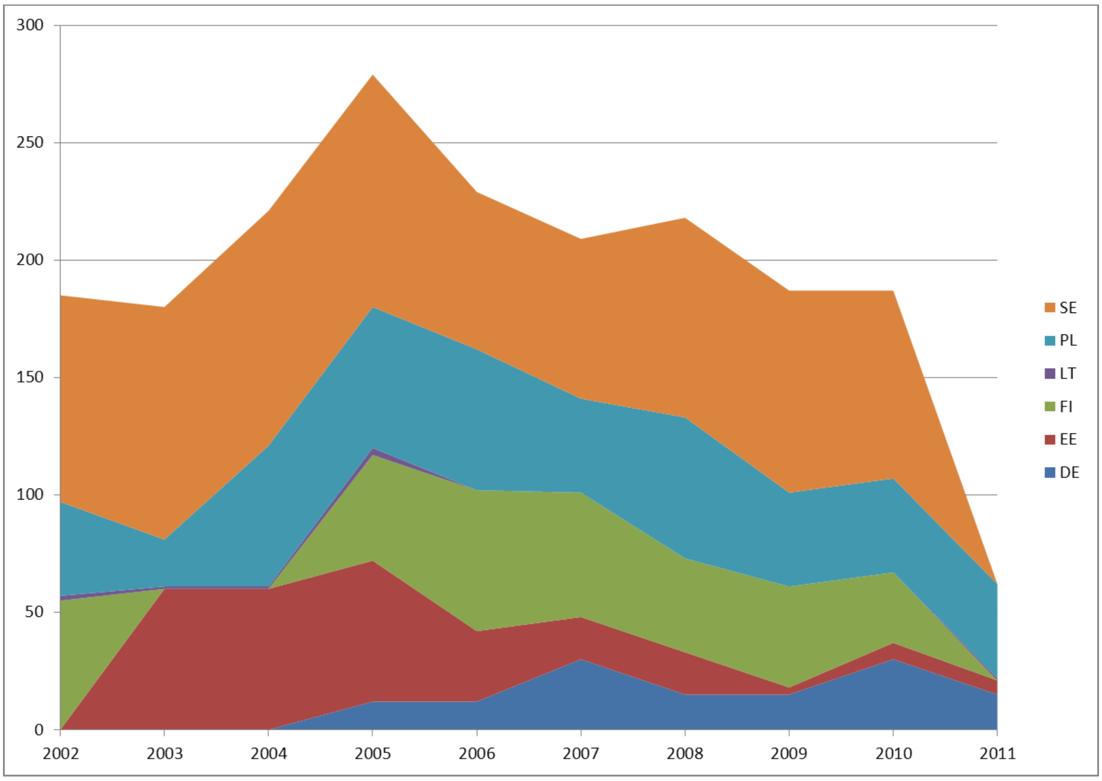


Fig. 3.2.36 Number of measurements of gamma-HCH in biota [Clupea] divided by country submitting data to Eionet CDR or ICES.

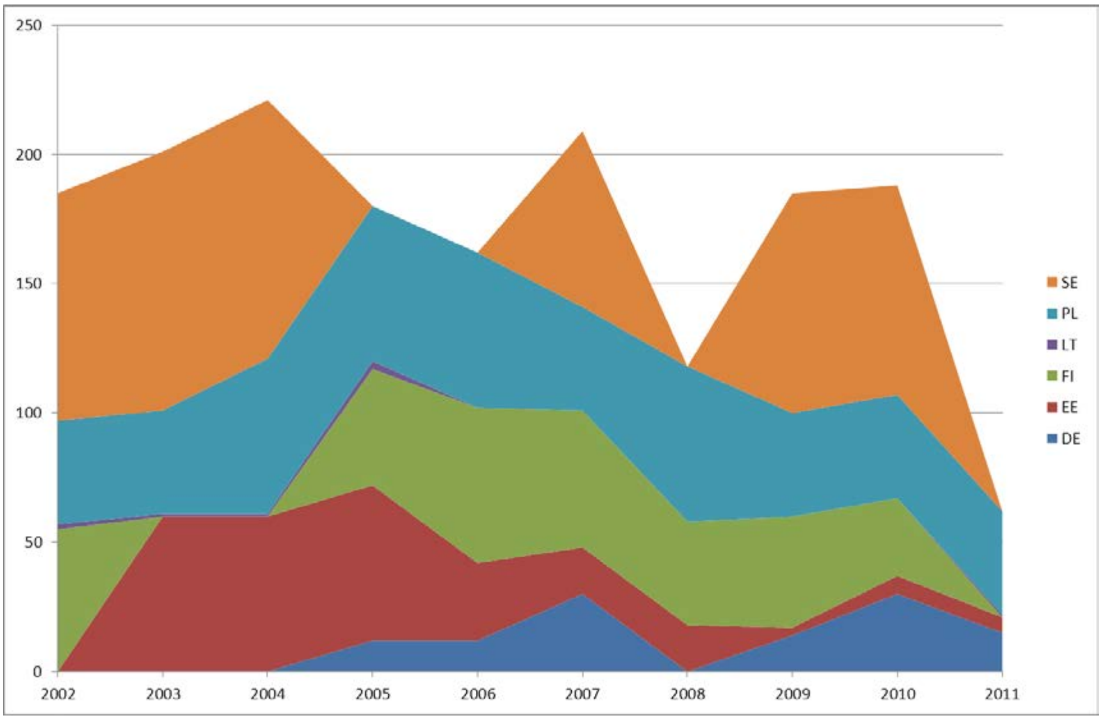


Fig. 3.2.37 Number of measurements of hexachlorobenzene in biota [Clupea] divided by country submitting data to Eionet CDR or ICES.

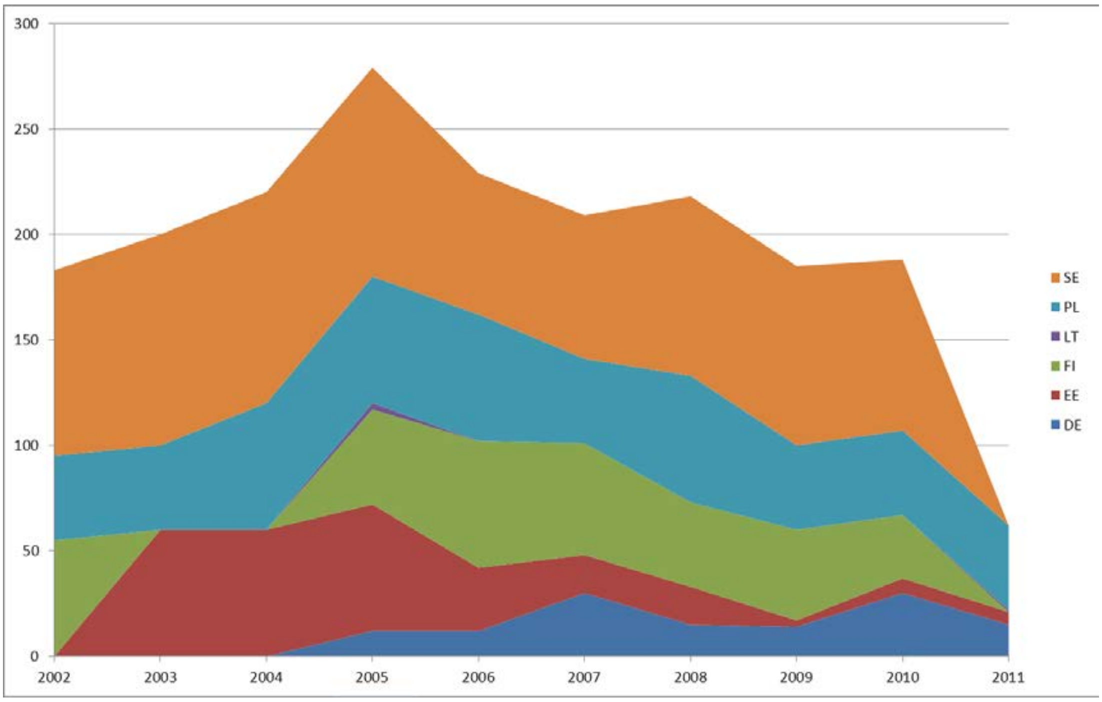


Fig. 3.2.38 Number of measurements of lead in biota [Clupea] divided by country submitting data to Eionet CDR or ICES.

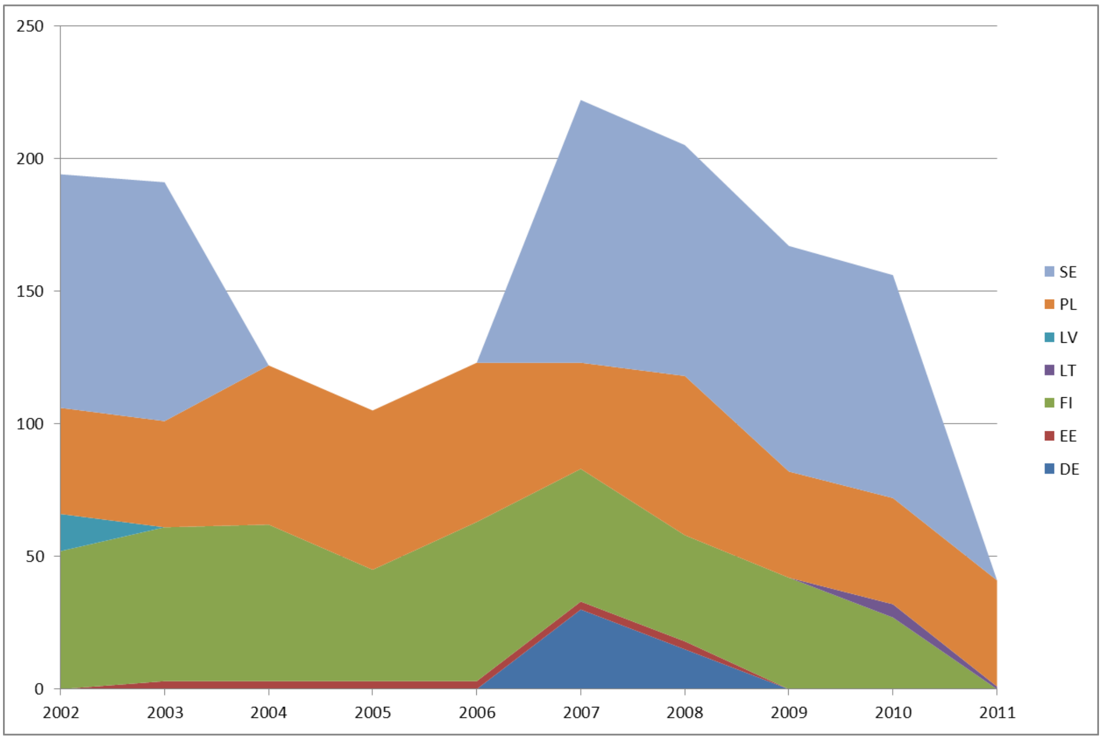


Fig. 3.2.39 Number of measurements of mercury in biota [Clupea] divided by country submitting data to Eionet CDR or ICES.

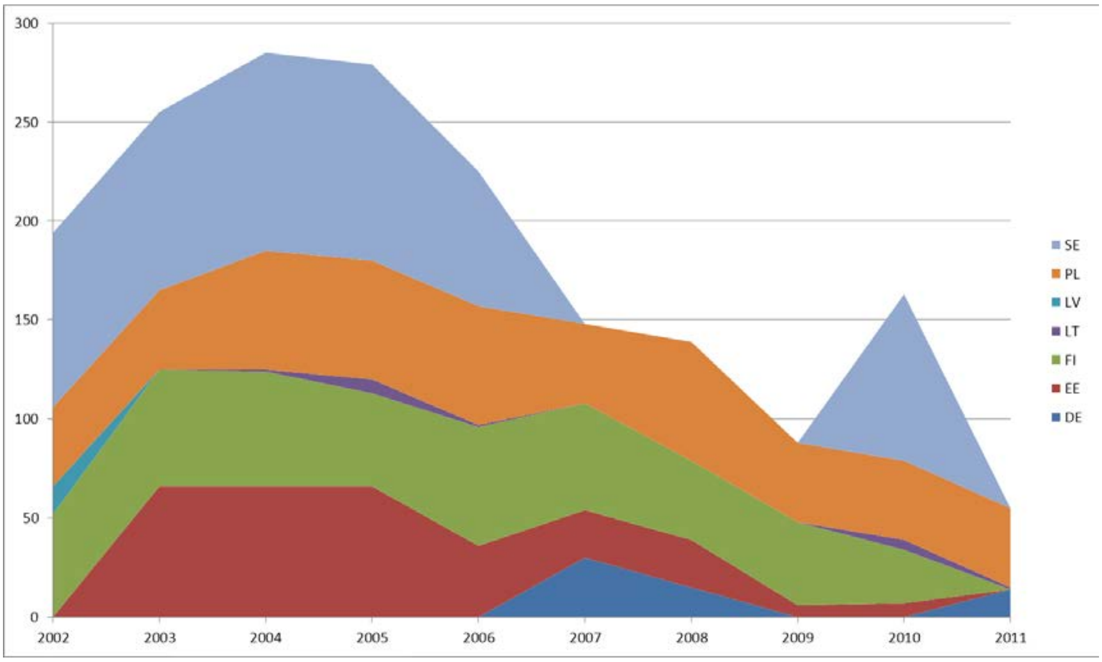


Fig. 3.2.40 Number of measurements of PCB52 in biota [Clupea] divided by country submitting data to Eionet CDR or ICES.

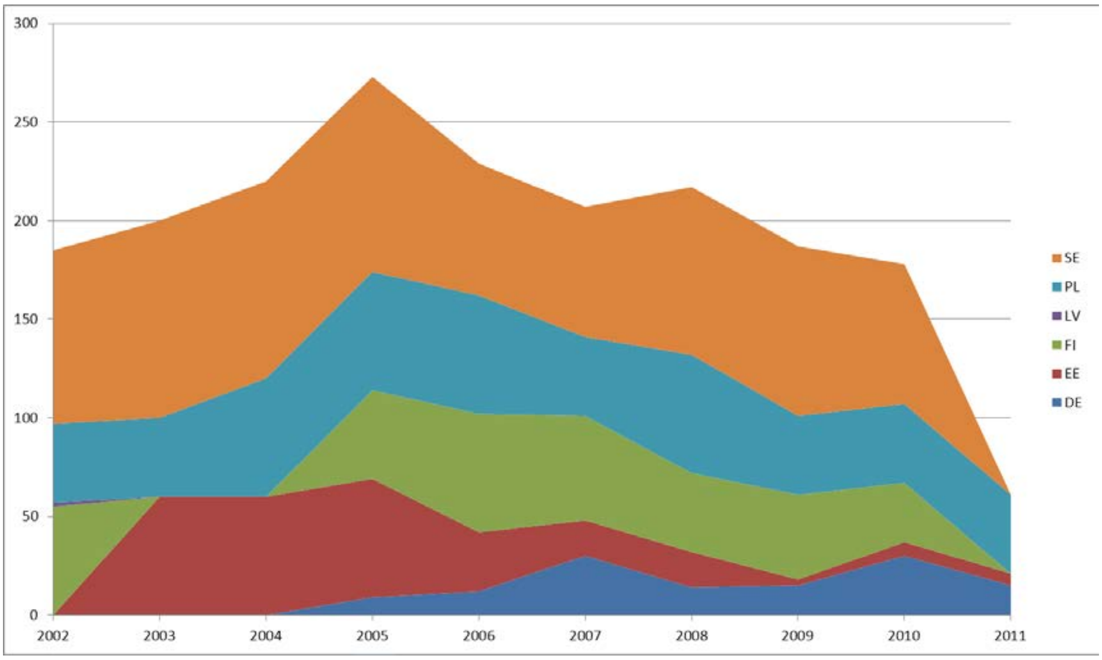


Fig. 3.2.41 Number of measurements of PCB101 in biota [Clupea] divided by country submitting data to Eionet CDR or ICES.

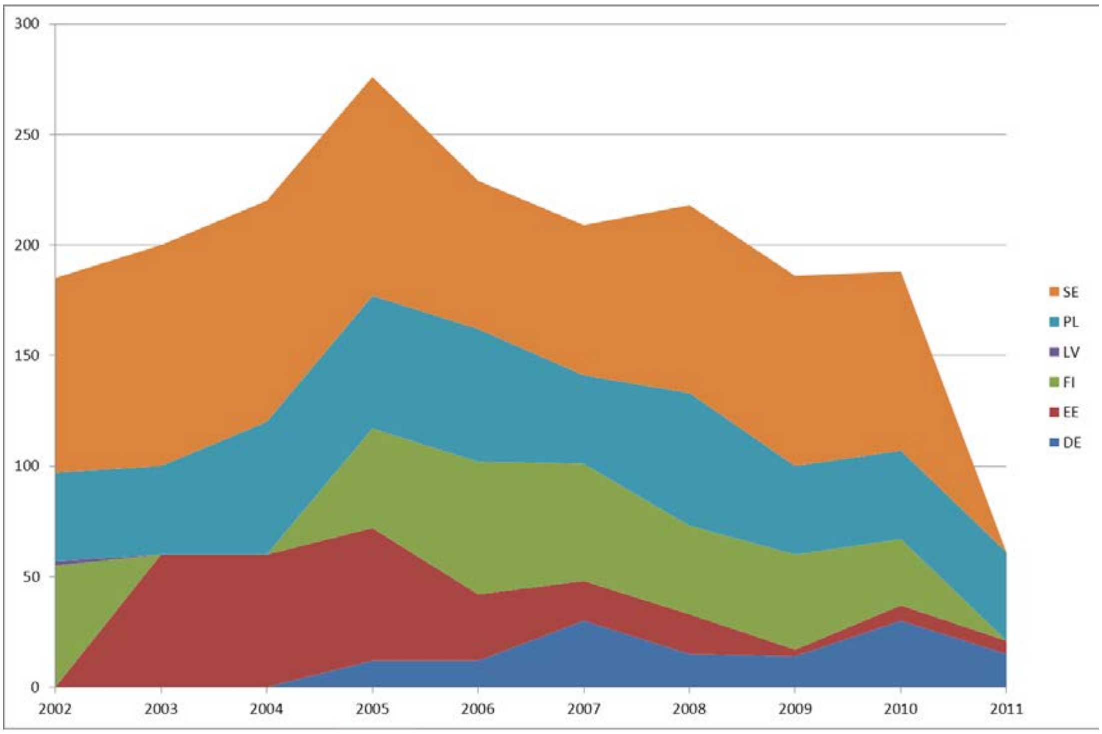


Fig. 3.2.42 Number of measurements of PCB118 in biota [Clupea] divided by country submitting data to Eionet CDR or ICES.

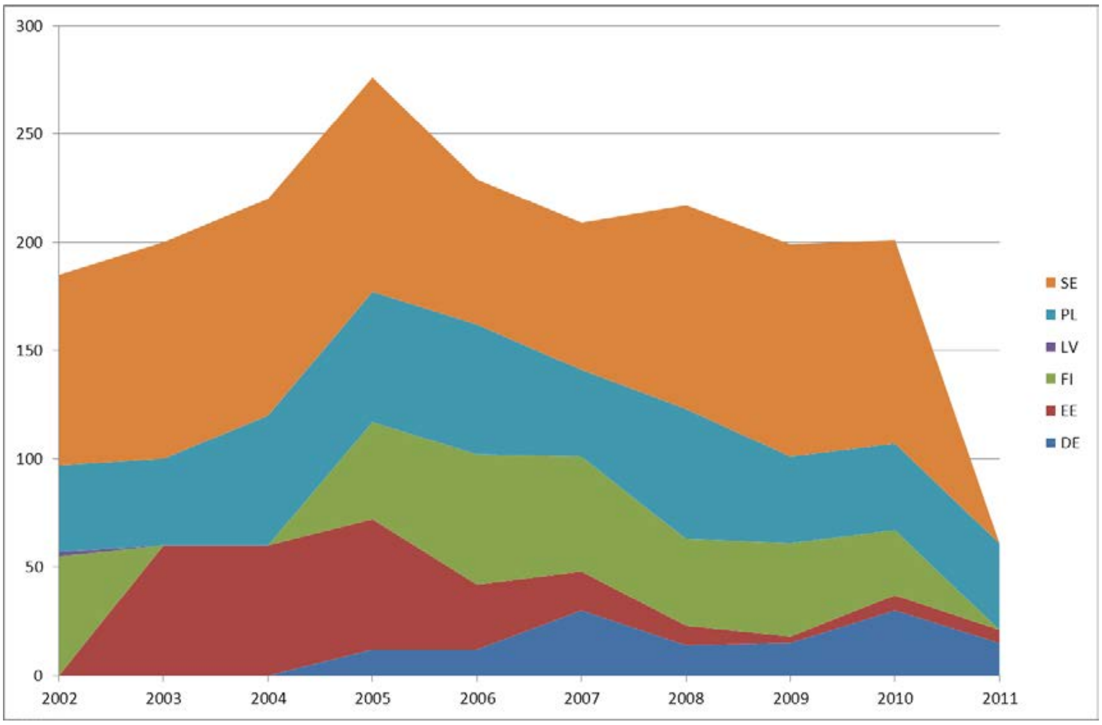


Fig. 3.2.43 Number of measurements of PCB138 in biota [Clupea] divided by country submitting data to Eionet CDR or ICES.

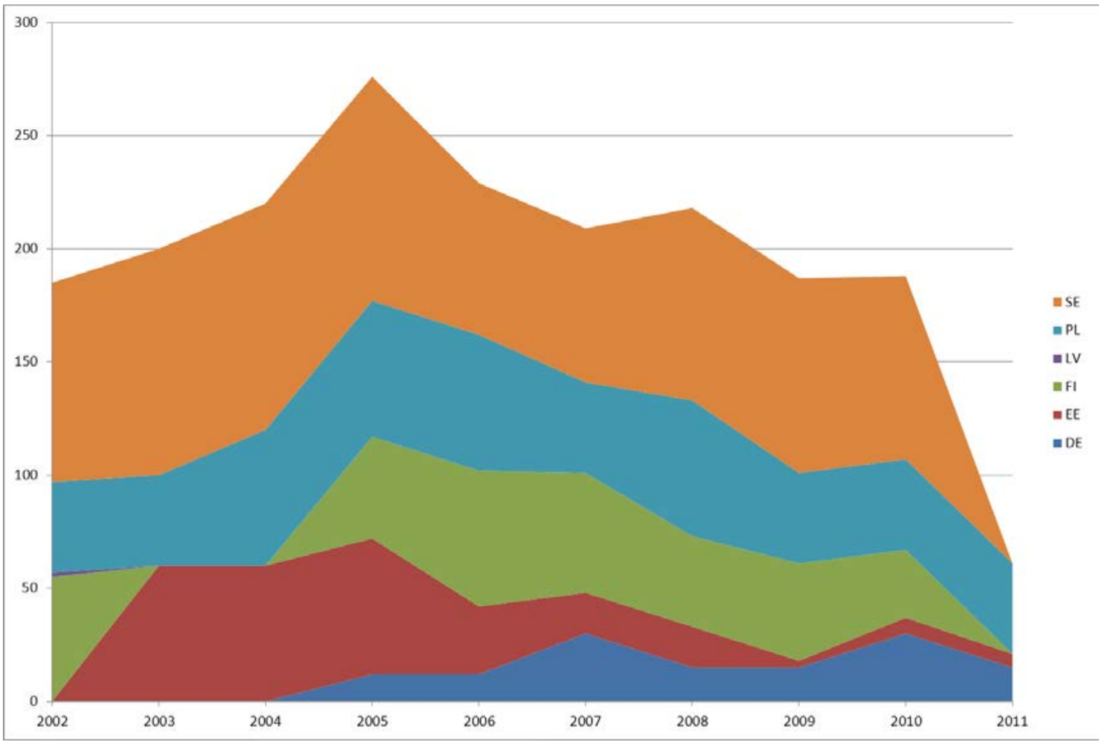


Fig. 3.2.44 Number of measurements of PCB153 in biota [Clupea] divided by country submitting data to Eionet CDR or ICES.

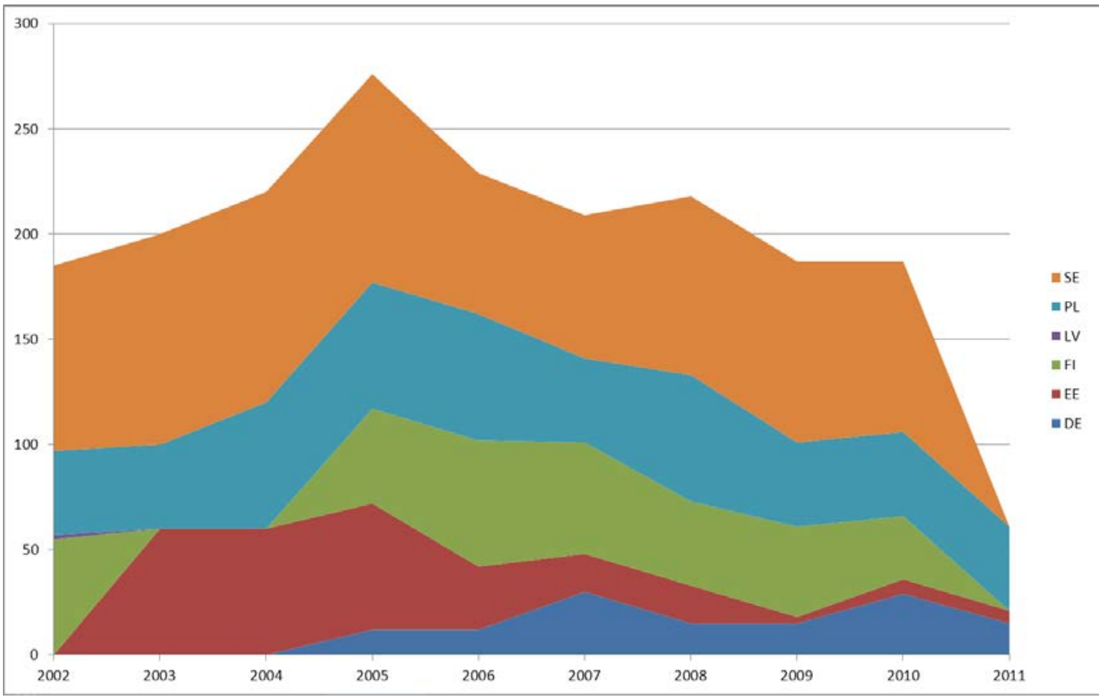


Fig. 3.2.45 Number of measurements of PCB180 in biota [Clupea] divided by country submitting data to Eionet CDR or ICES.

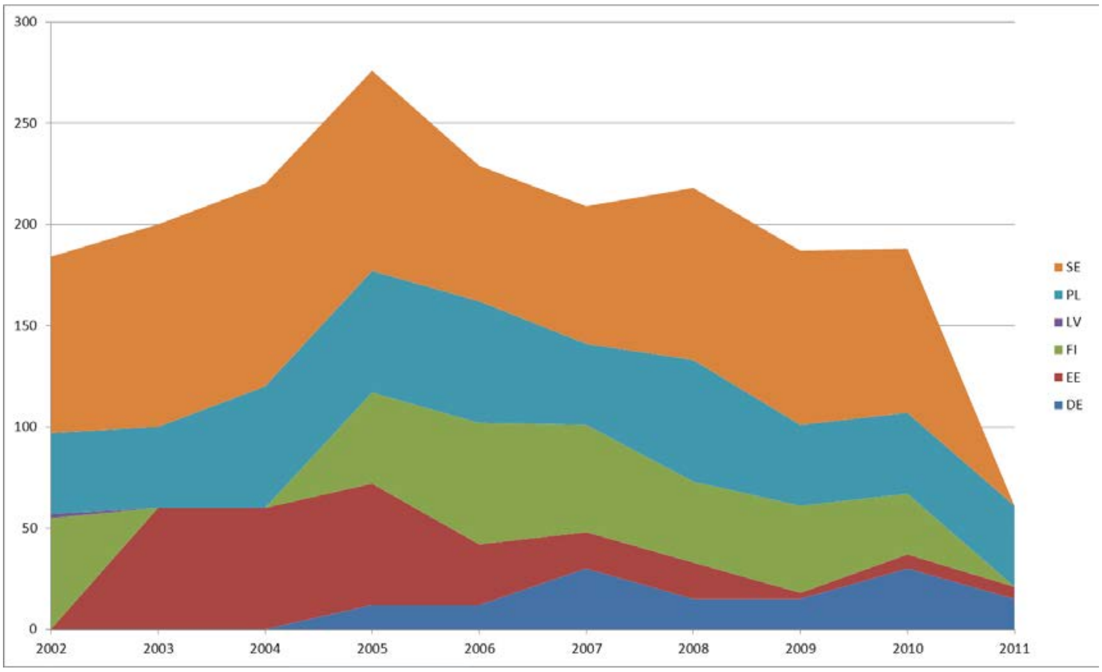


Fig. 3.2.46 Number of measurements of zinc in biota [Clupea] divided by country submitting data to Eionet CDR or ICES.

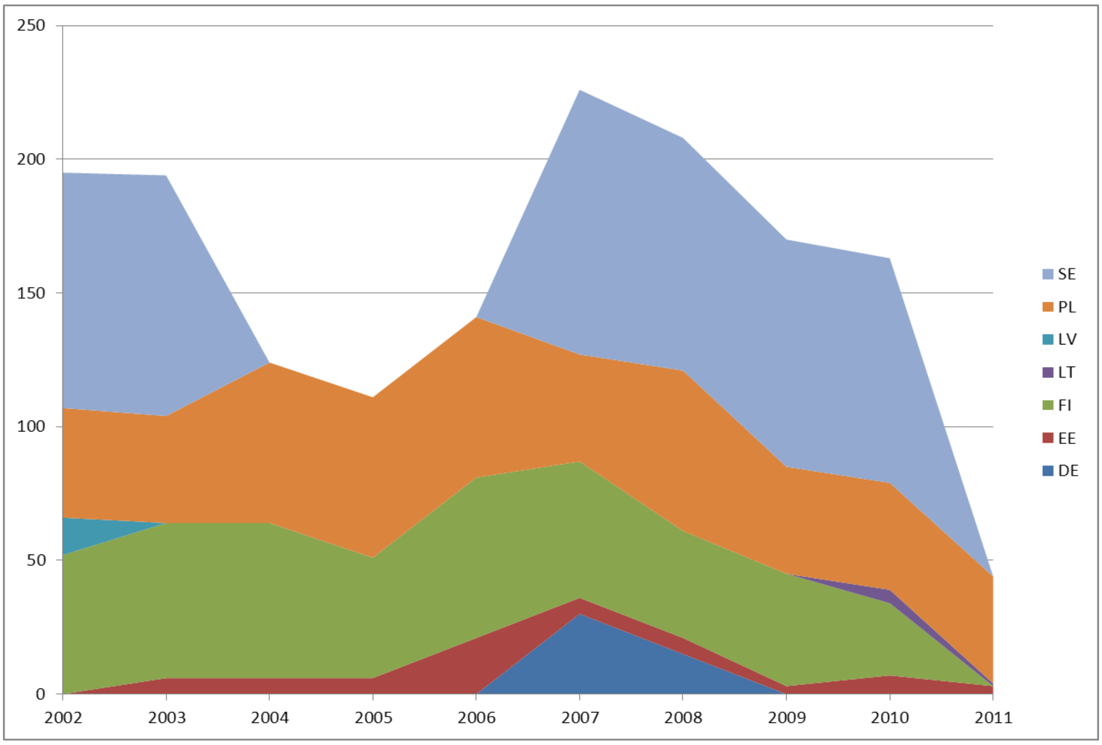


Fig. 3.2.47 Number of measurements of alpha-HCH in biota [Gadus] divided by country submitting data to Eionet CDR or ICES.

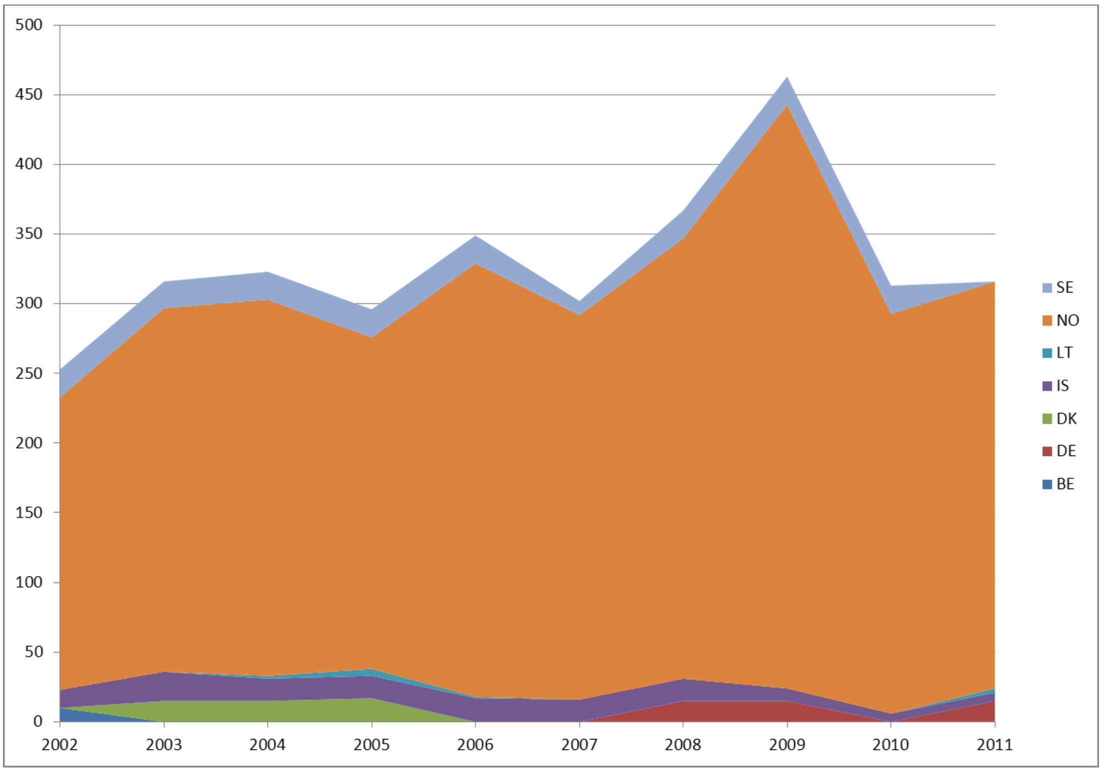


Fig. 3.2.48 Number of measurements of cadmium in biota [Gadus] divided by country submitting data to Eionet CDR or ICES.

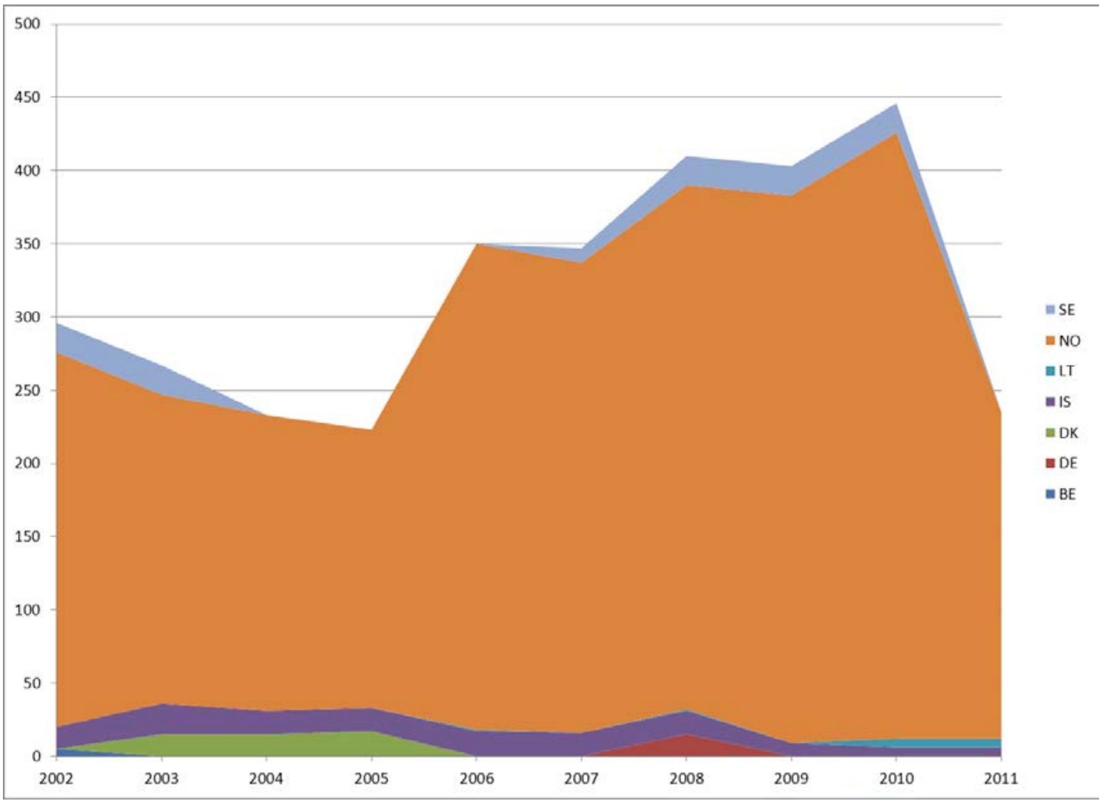


Fig. 3.2.49 Number of measurements of copper in biota [Gadus] divided by country submitting data to Eionet CDR or ICES.

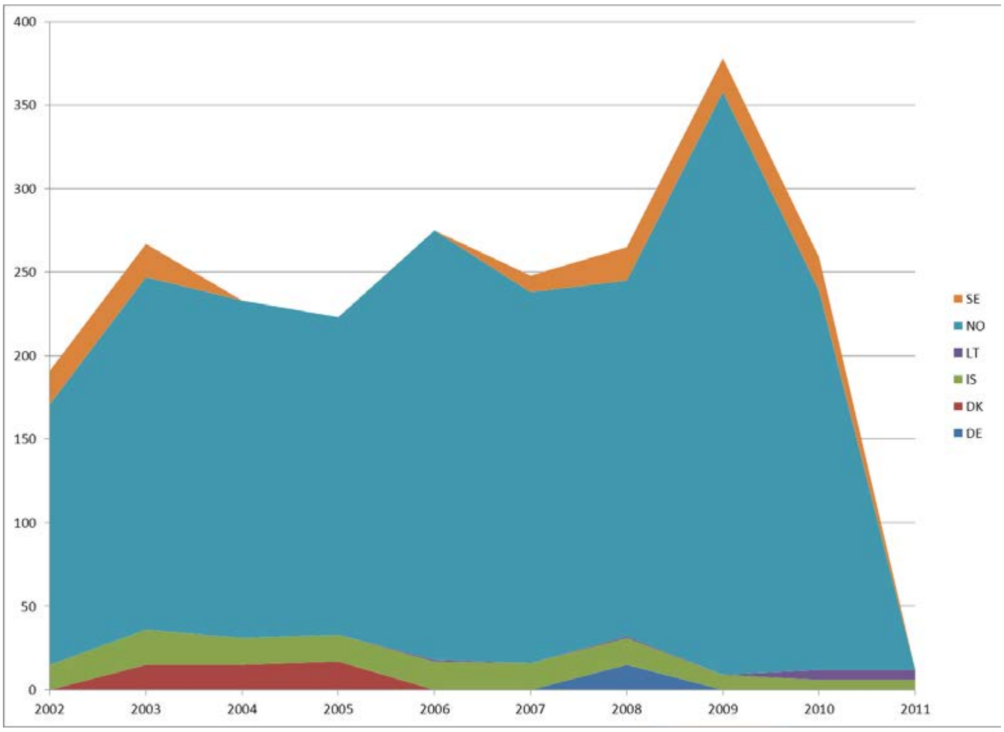


Fig. 3.2.50 Number of measurements of DDD p,p' in biota [Gadus] divided by country submitting data to Eionet CDR or ICES.

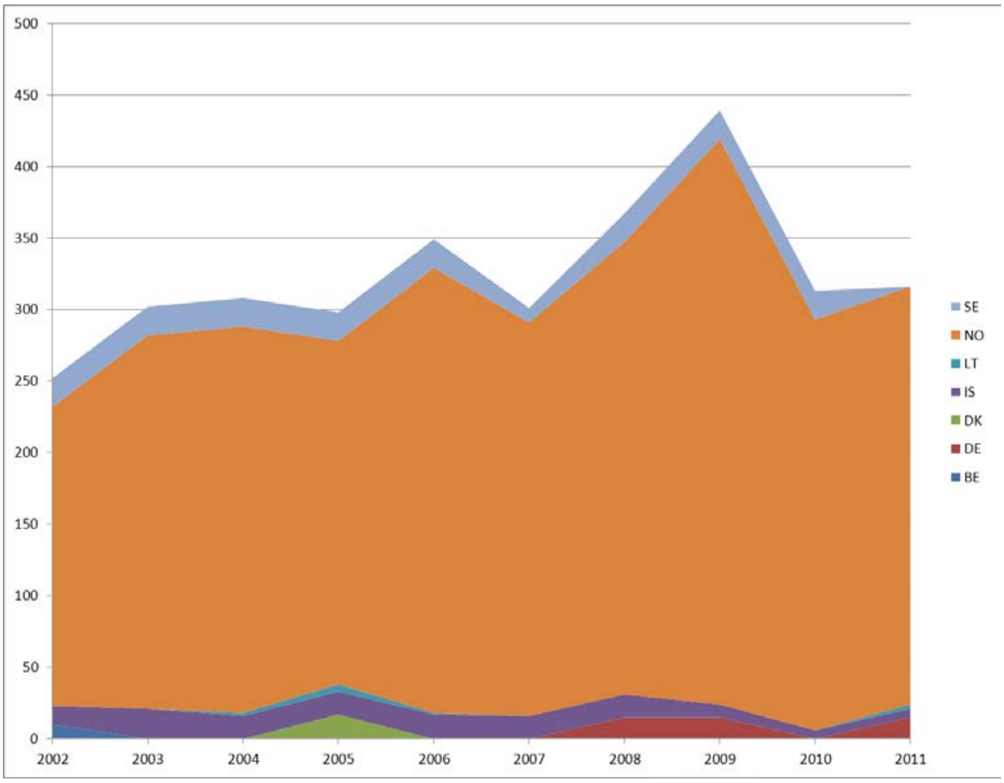


Fig. 3.2.51 Number of measurements of DDE p,p' in biota [Gadus] divided by country submitting data to Eionet CDR or ICES.

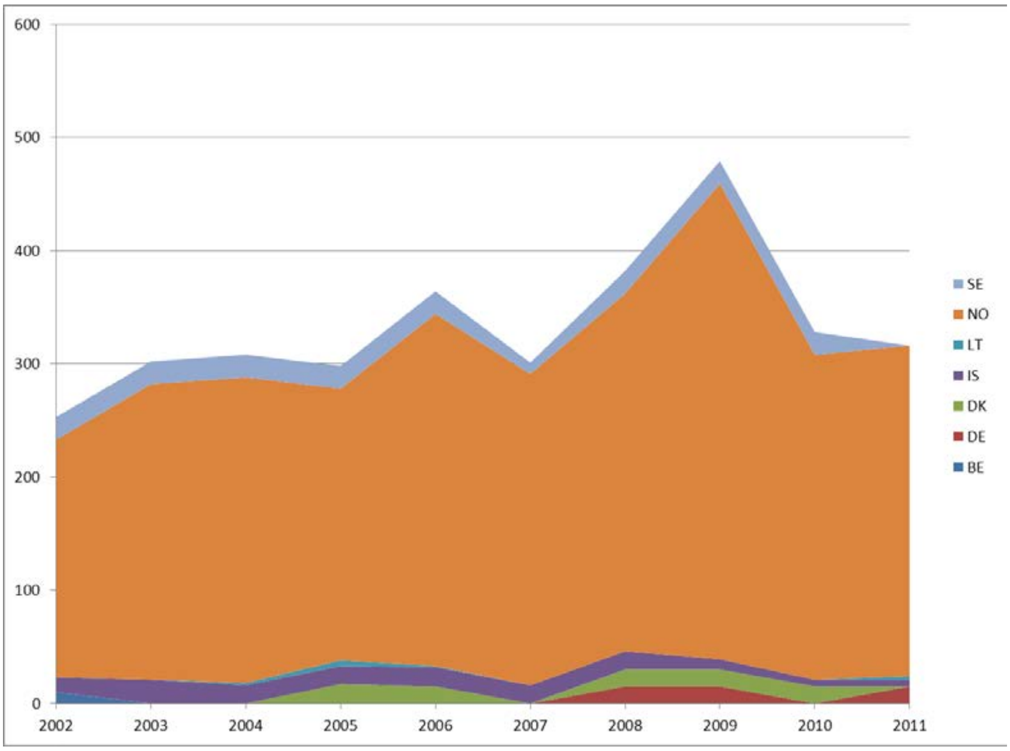


Fig. 3.2.52 Number of measurements of DDT p,p' in biota [Gadus] divided by country submitting data to Eionet CDR or ICES.

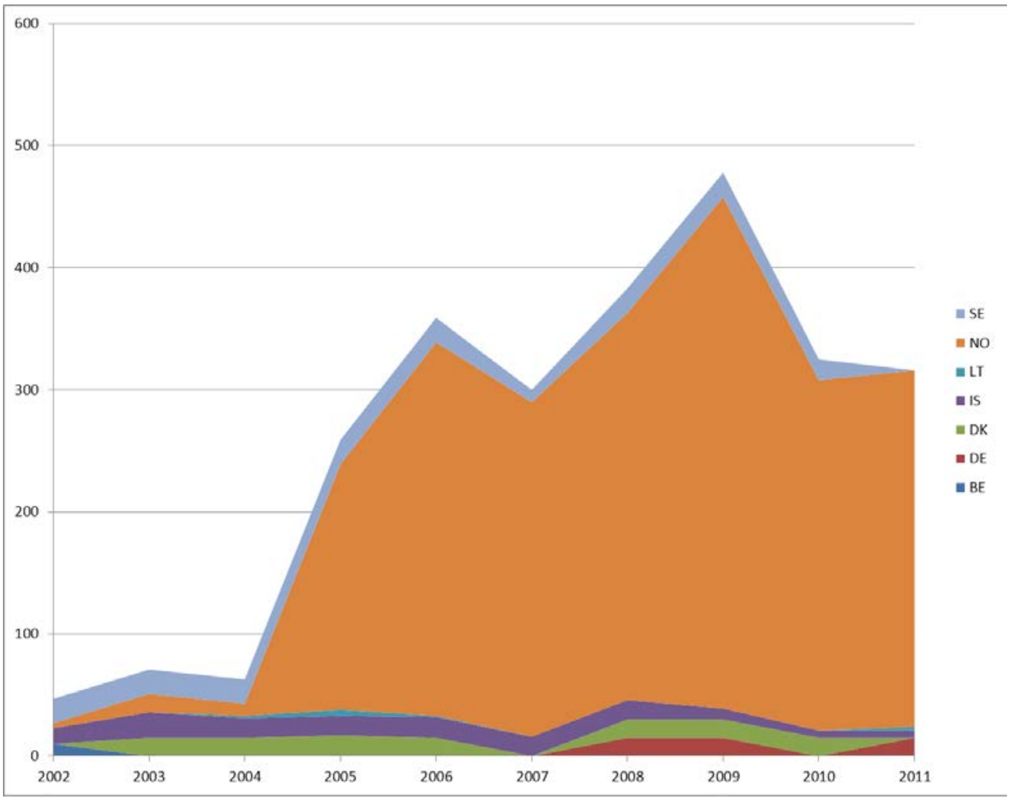


Fig. 3.2.53 Number of measurements of gamma-HCH in biota [Gadus] divided by country submitting data to Eionet CDR or ICES.

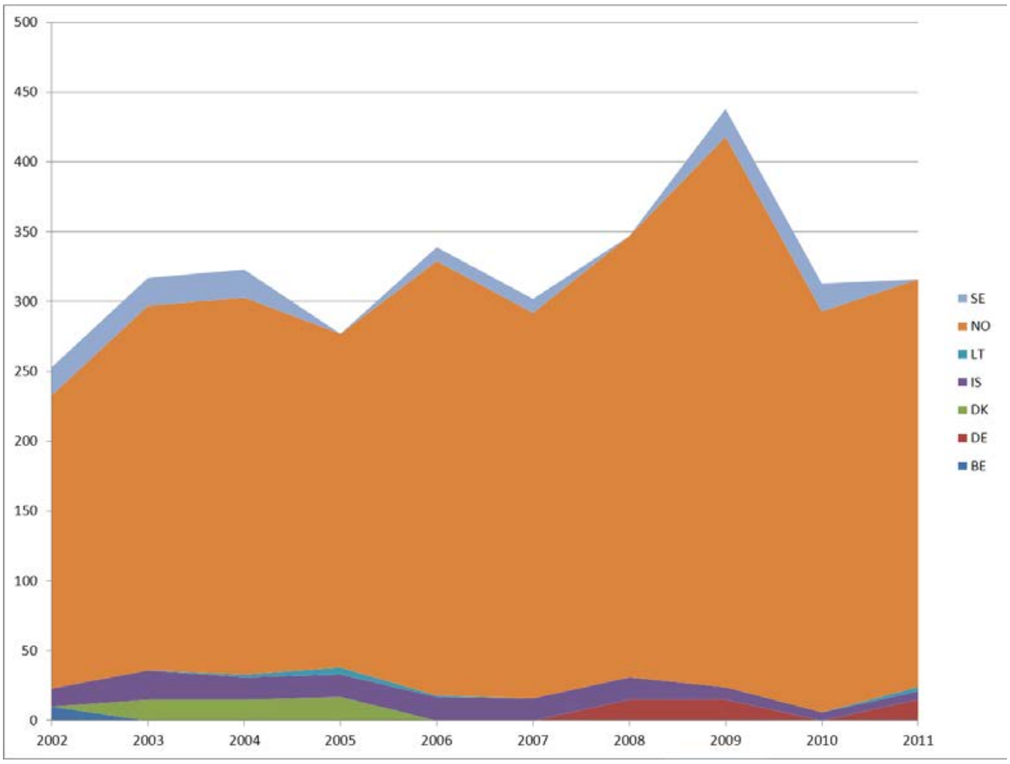


Fig. 3.2.54 Number of measurements of hexachlorobenzene in biota [Gadus] divided by country submitting data to Eionet CDR or ICES.

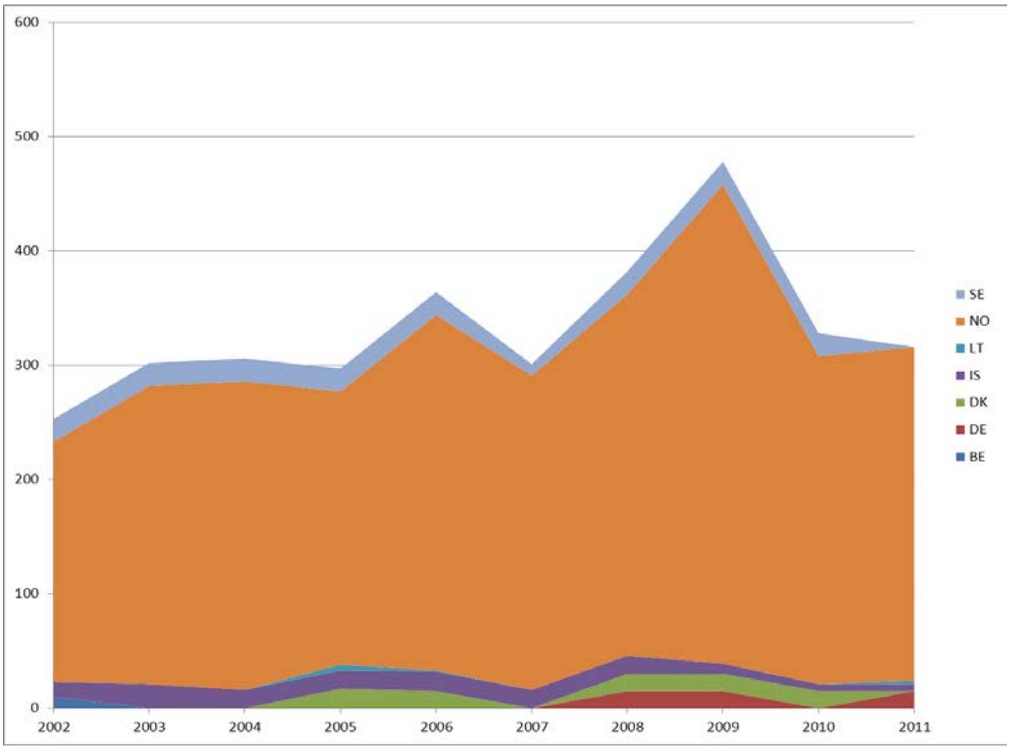


Fig. 3.2.55 Number of measurements of lead in biota [Gadus] divided by country submitting data to Eionet CDR or ICES.

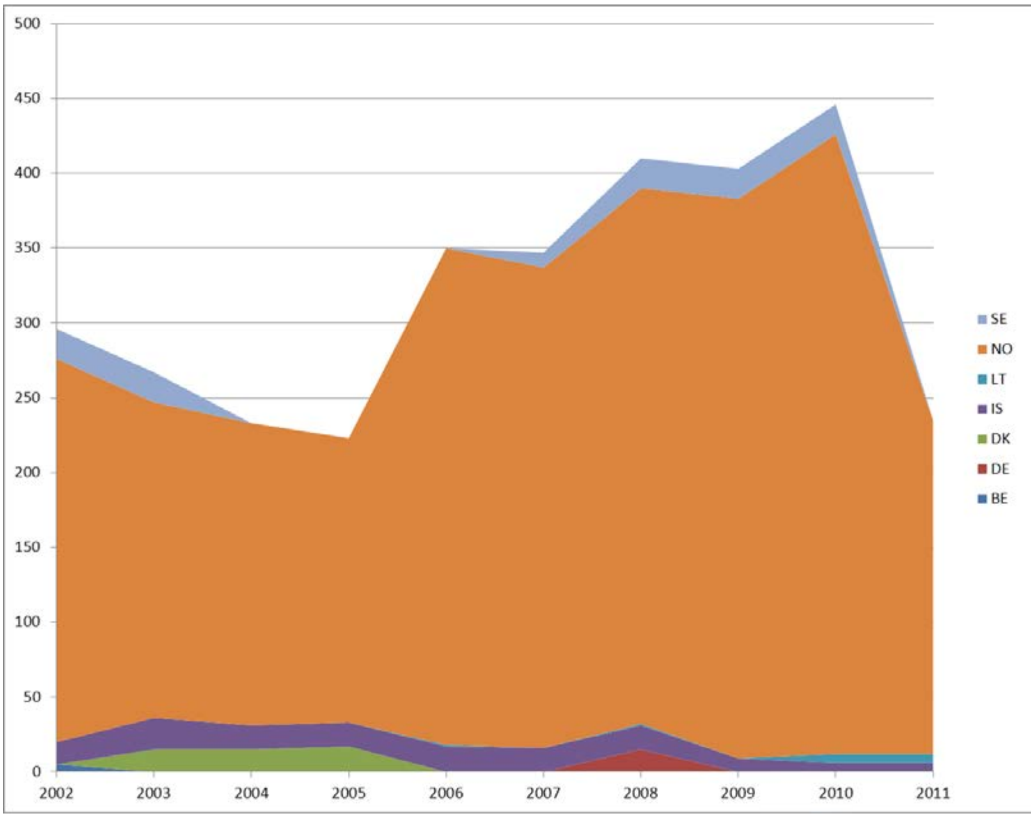


Fig. 3.2.56 Number of measurements of mercury in biota [Gadus] divided by country submitting data to Eionet CDR or ICES.

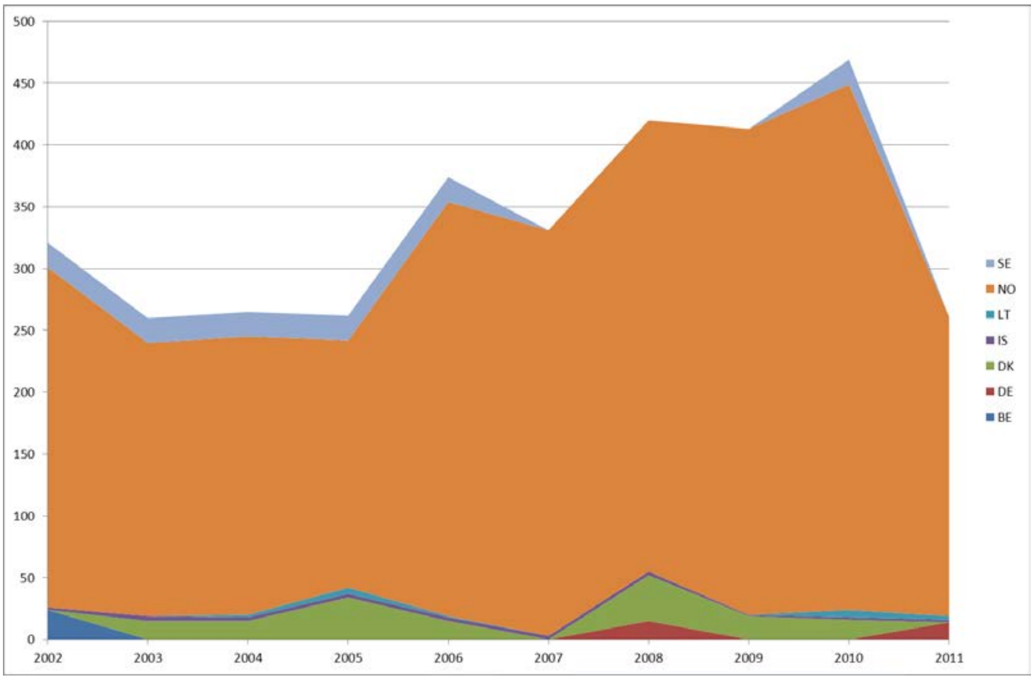


Fig. 3.2.57 Number of measurements of PCB28 in biota [Gadus] divided by country submitting data to Eionet CDR or ICES.

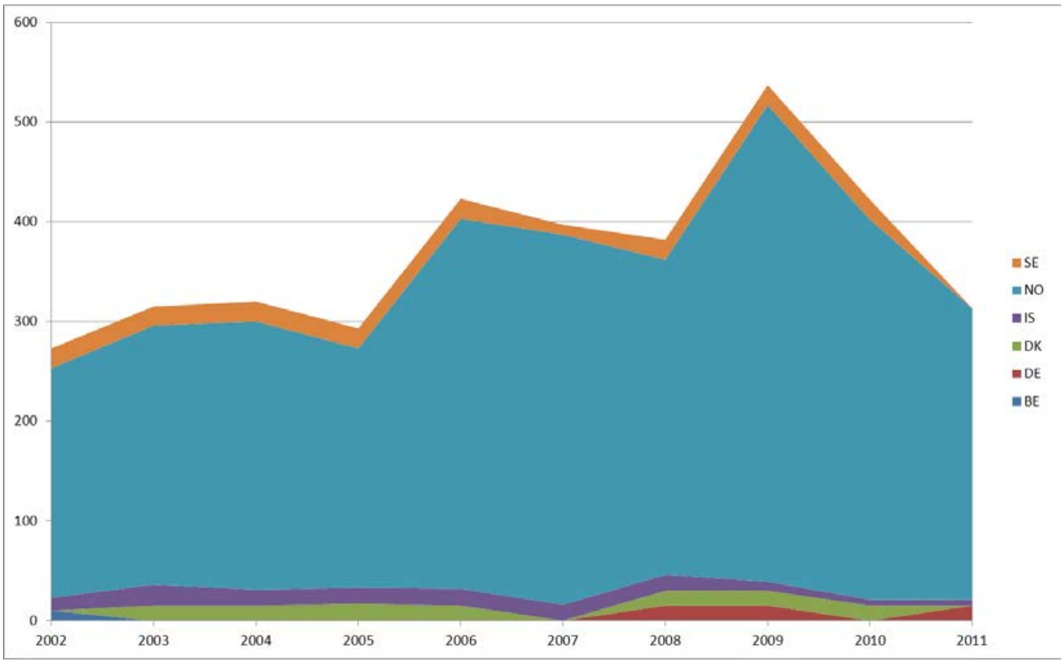


Fig. 3.2.58 Number of measurements of PCB52 in biota [Gadus] divided by country submitting data to Eionet CDR or ICES.

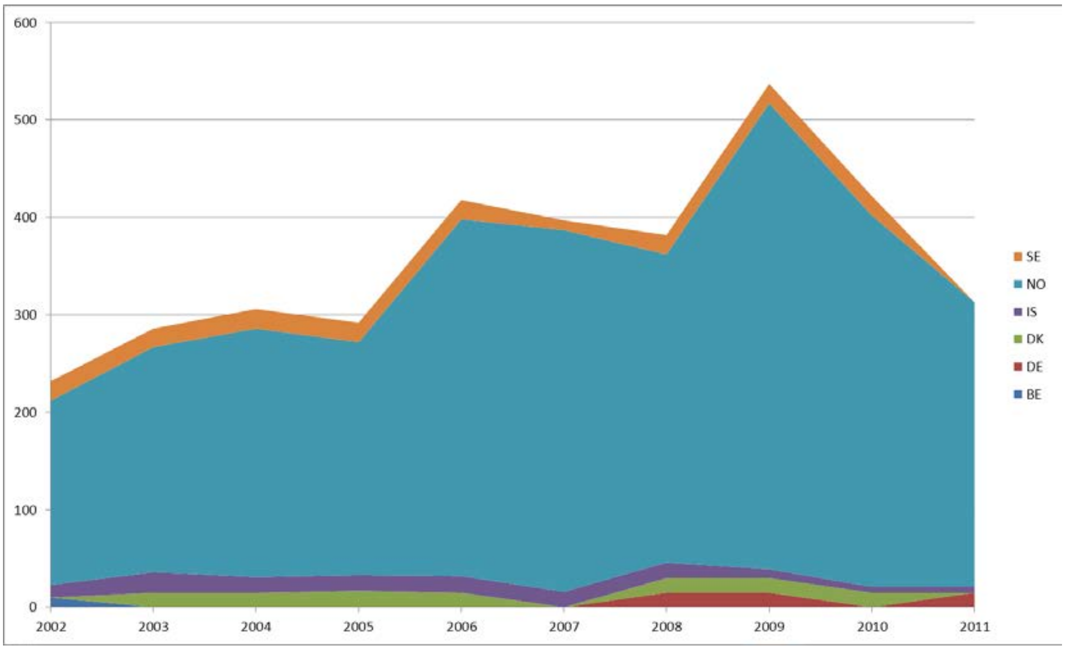


Fig. 3.2.59 Number of measurements of PCB101 in biota [Gadus] divided by country submitting data to Eionet CDR or ICES.

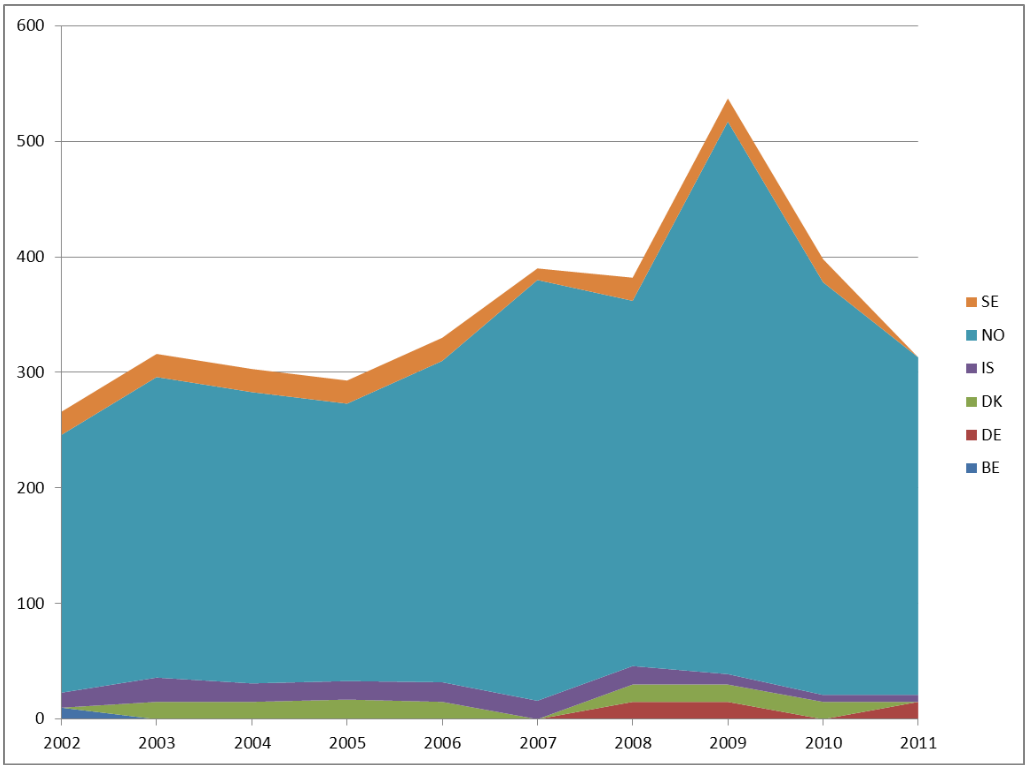


Fig. 3.2.60 Number of measurements of PCB118 in biota [Gadus] divided by country submitting data to Eionet CDR or ICES.

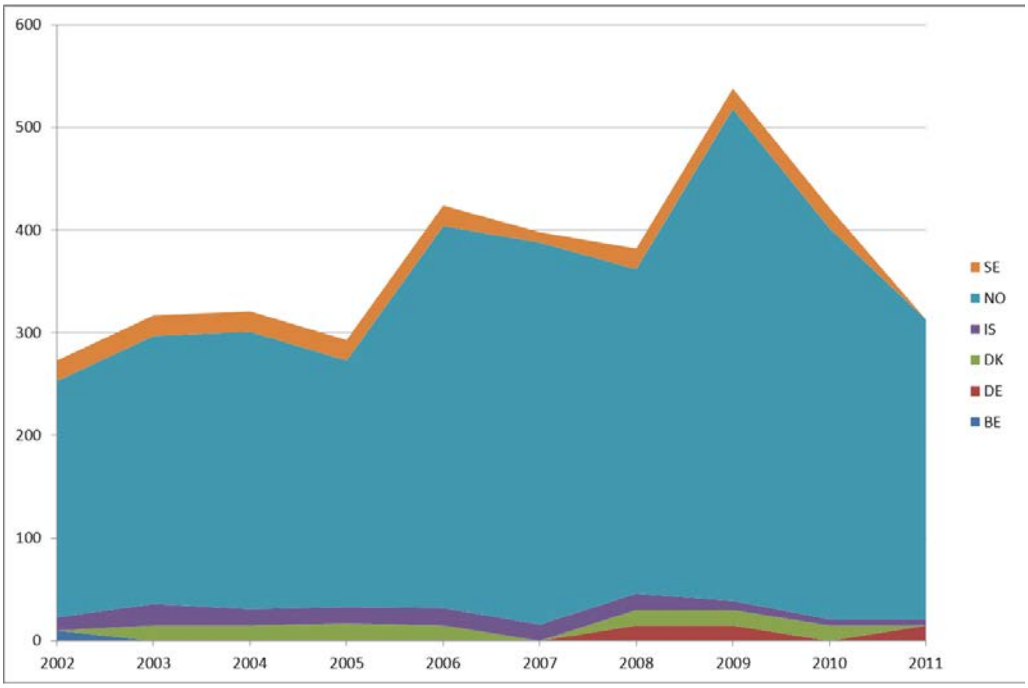


Fig. 3.2.61 Number of measurements of PCB138 in biota [Gadus] divided by country submitting data to Eionet CDR or ICES.

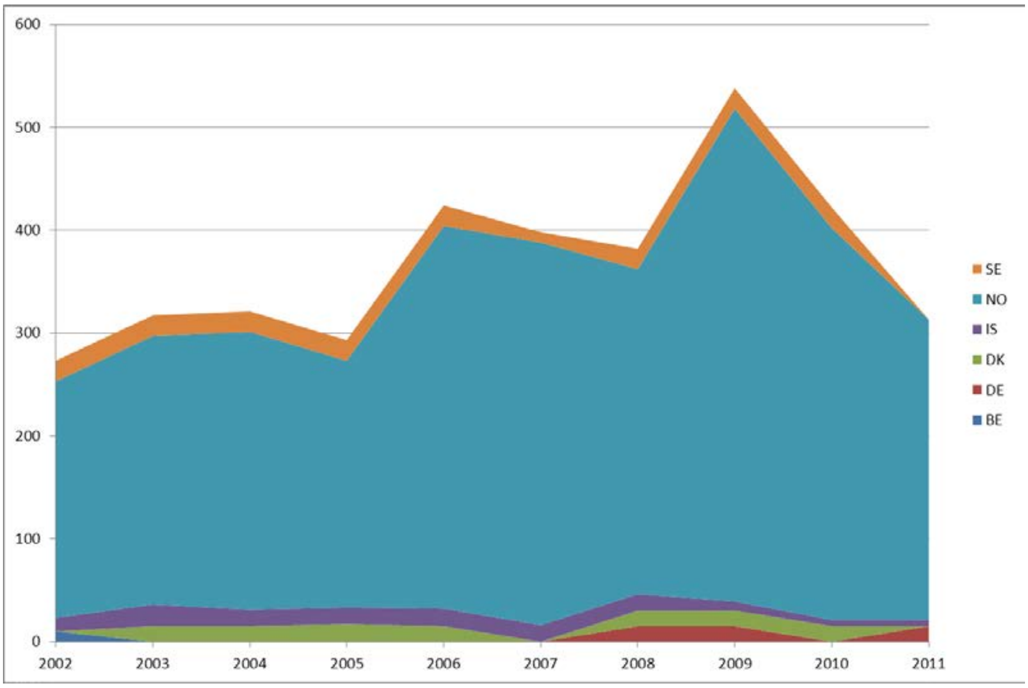


Fig. 3.2.62 Number of measurements of PCB153 in biota [Gadus] divided by country submitting data to Eionet CDR or ICES.

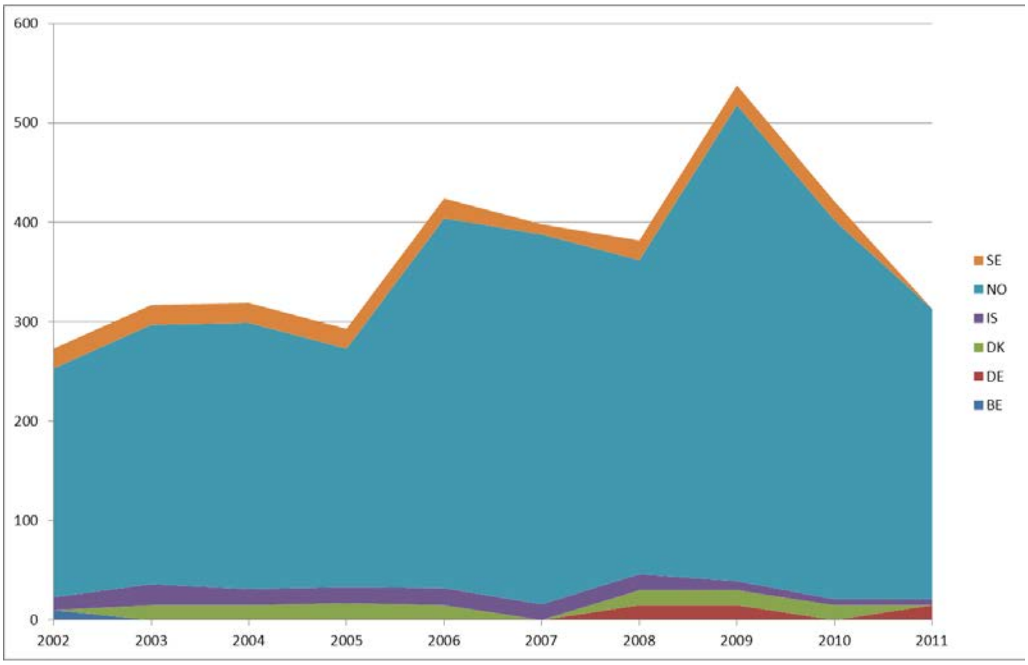


Fig. 3.2.63 Number of measurements of PCB180 in biota [Gadus] divided by country submitting data to Eionet CDR or ICES.

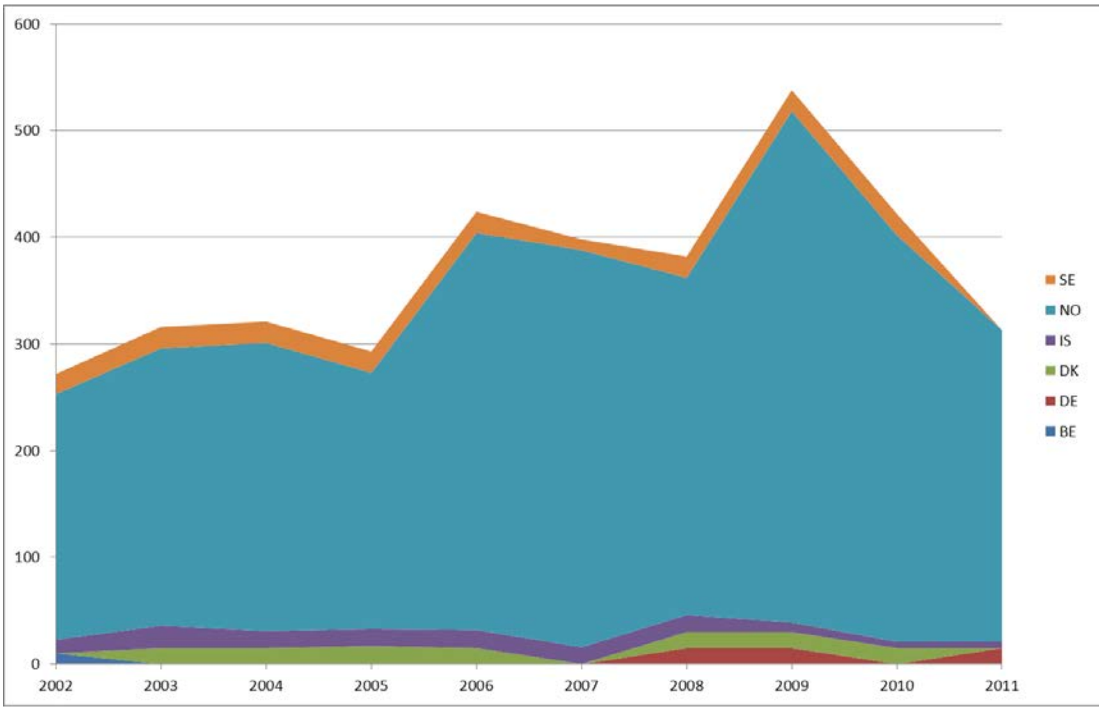


Fig. 3.2.64 Number of measurements of zinc in biota [Gadus] divided by country submitting data to Eionet CDR or ICES.

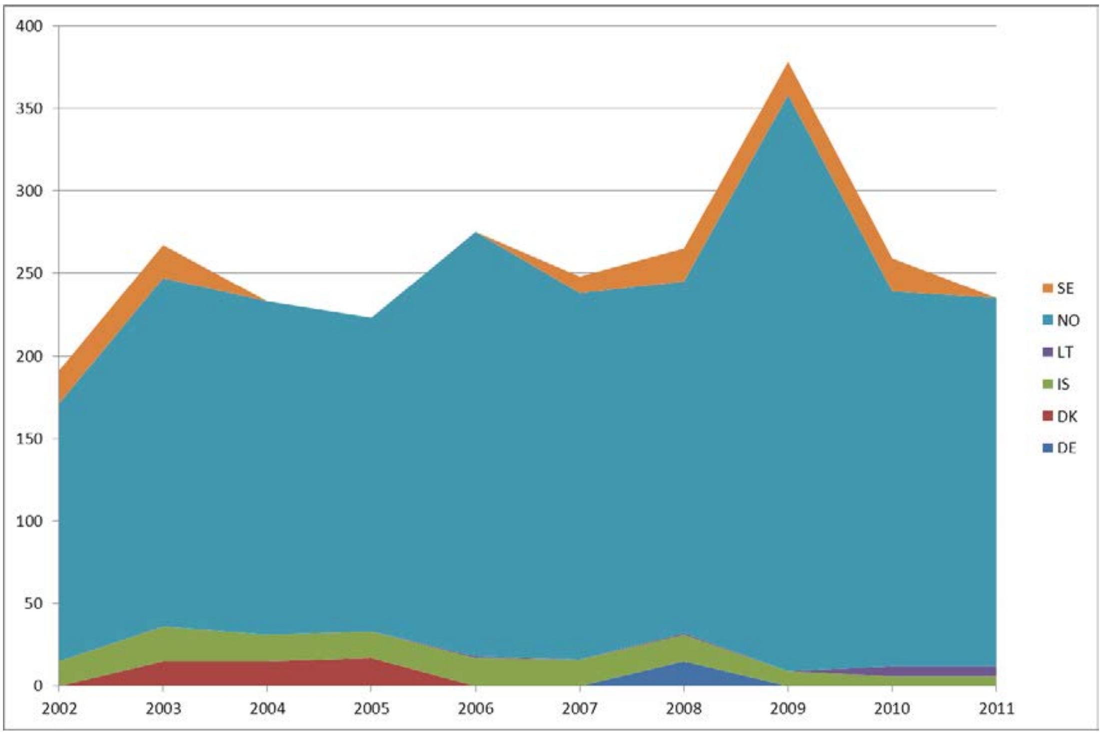


Fig. 3.2.65 Number of measurements of alpha-HCH in biota [Mytilus] divided by country submitting data to Eionet CDR or ICES.

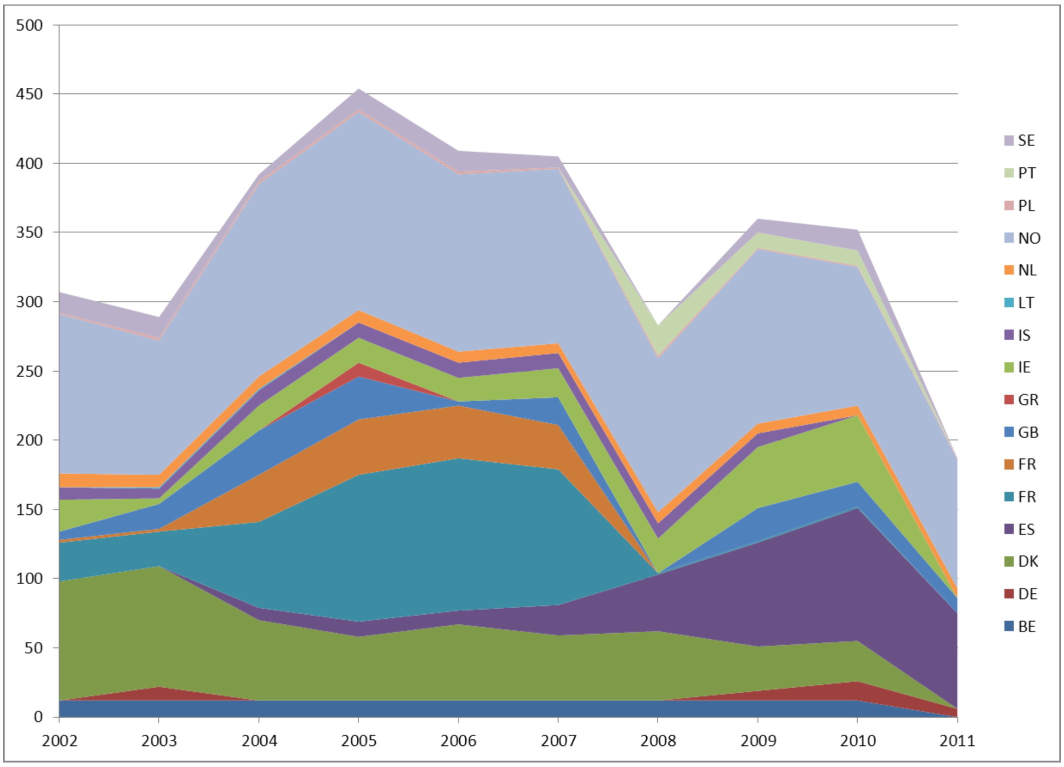


Fig. 3.2.66 Number of measurements of anthracene in biota [Mytilus] divided by country submitting data to Eionet CDR or ICES.

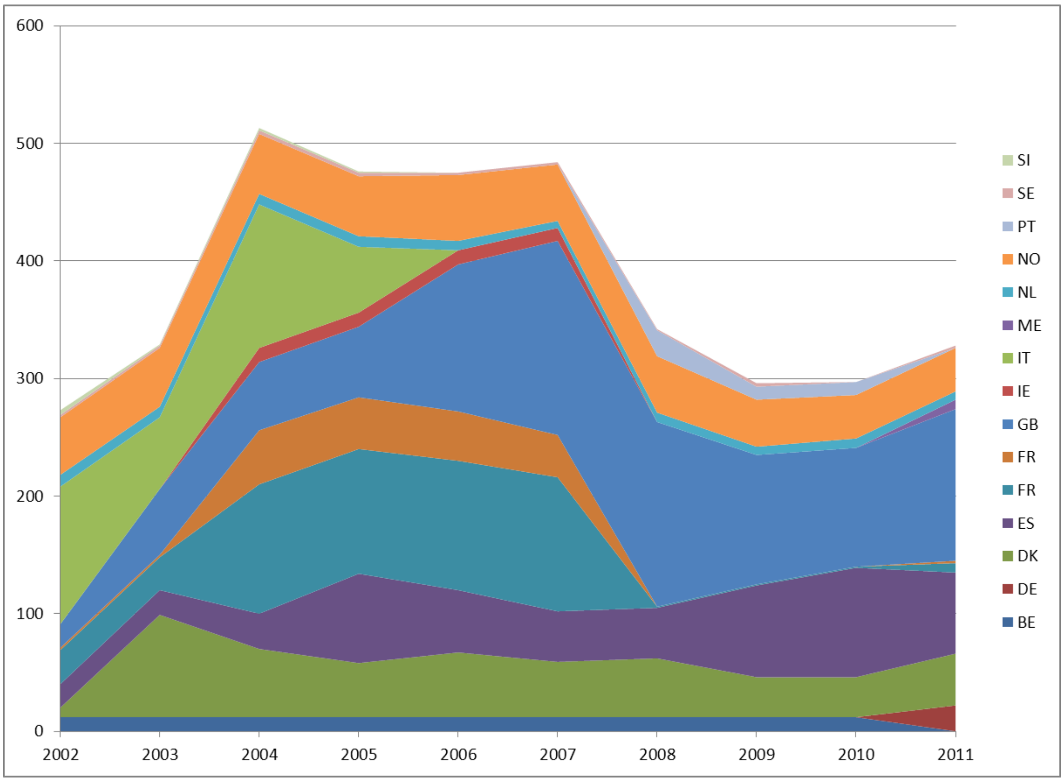


Fig. 3.2.67 Number of measurements of arsenic in biota [Mytilus] divided by country submitting data to Eionet CDR or ICES.

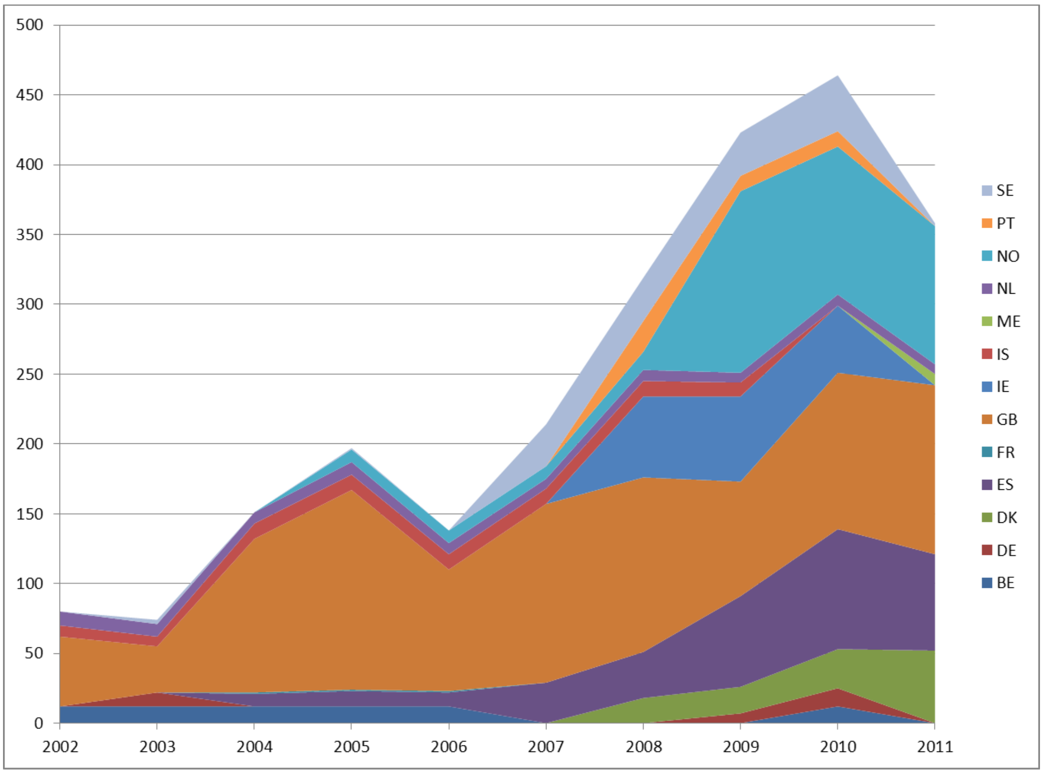


Fig. 3.2.68 Number of measurements of benzo(a)anthracene in biota [Mytilus] divided by country submitting data to Eionet CDR or ICES.

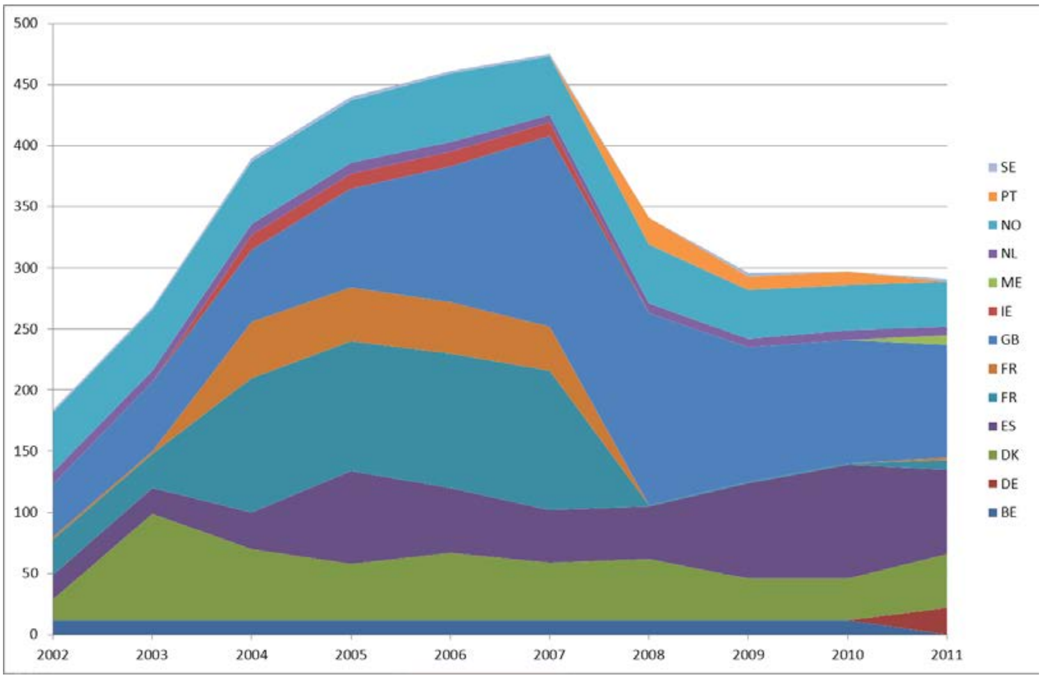


Fig. 3.2.69 Number of measurements of benzo(a)pyrene in biota [Mytilus] divided by country submitting data to Eionet CDR or ICES.

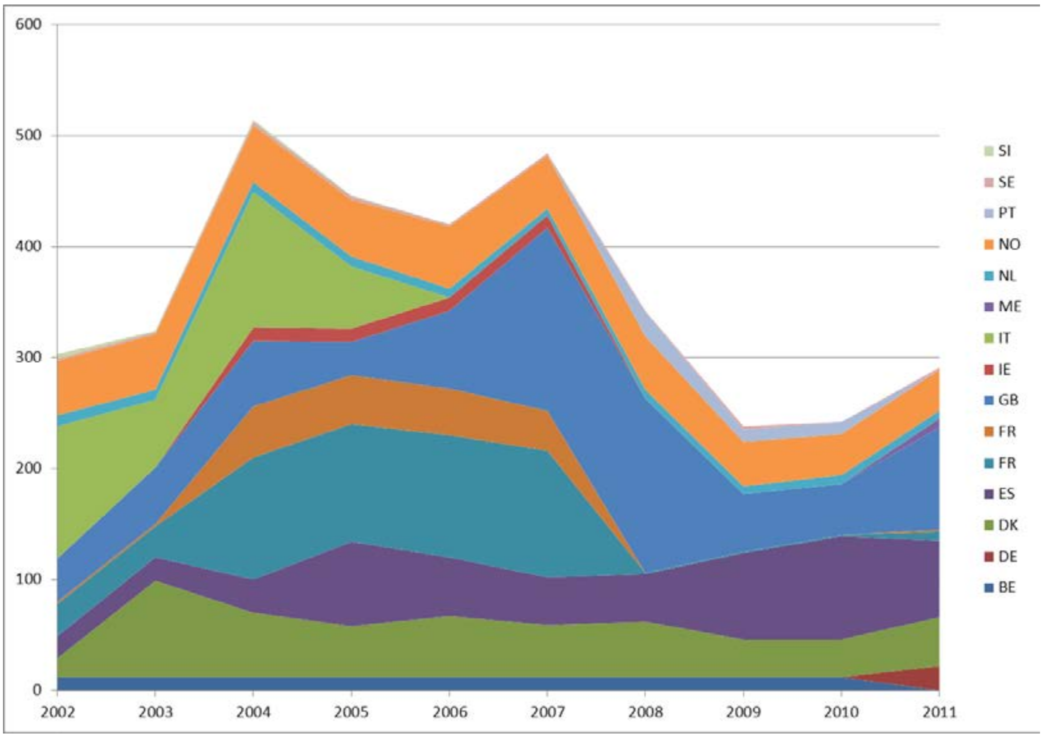


Fig. 3.2.70 Number of measurements of benzo(b)fluoranthene in biota [Mytilus] divided by country submitting data to Eionet CDR or ICES.

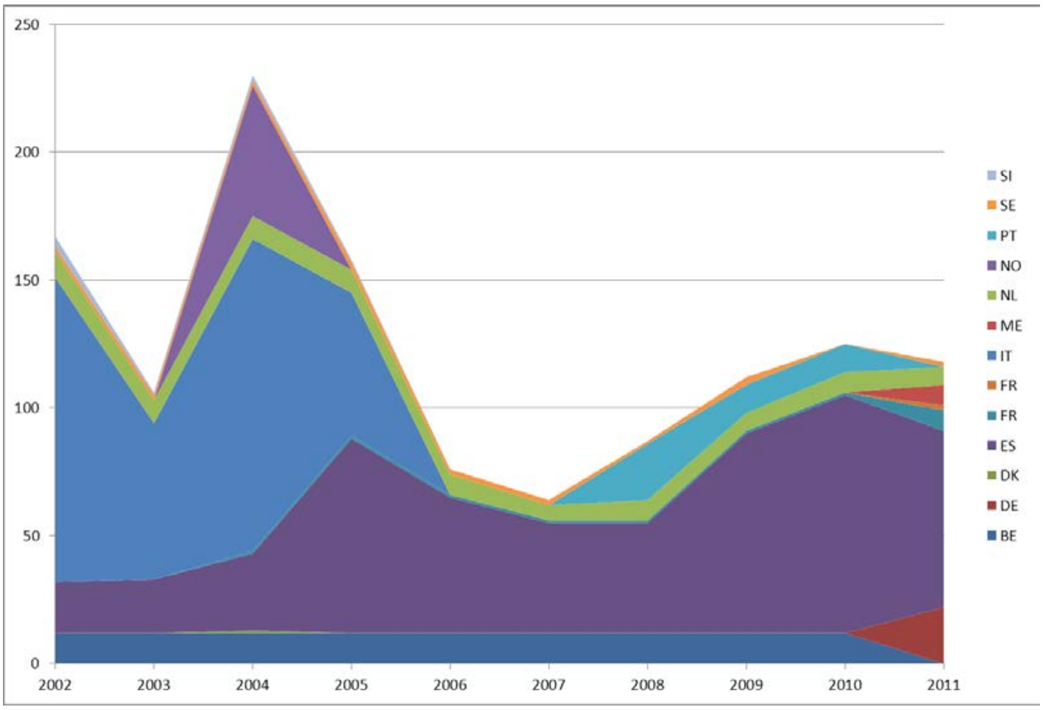


Fig. 3.2.71 Number of measurements of benzo(g,h,i)perylene in biota [Mytilus] divided by country submitting data to Eionet CDR or ICES.

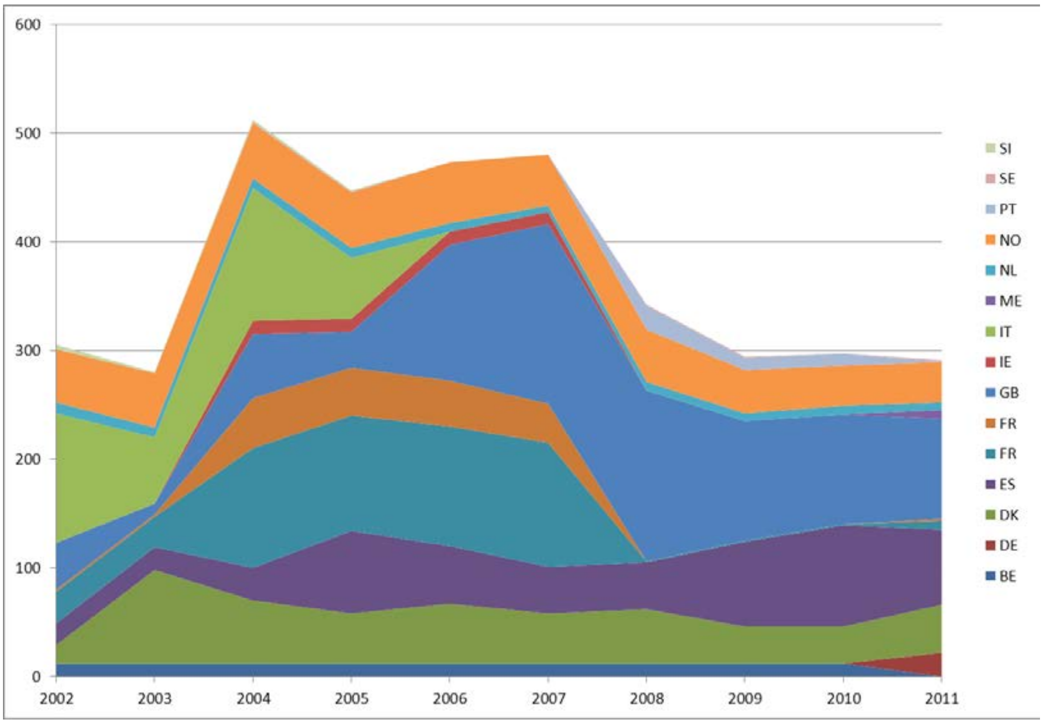


Fig. 3.2.72 Number of measurements of benzo(k)fluoranthene in biota [Mytilus] divided by country submitting data to Eionet CDR or ICES.

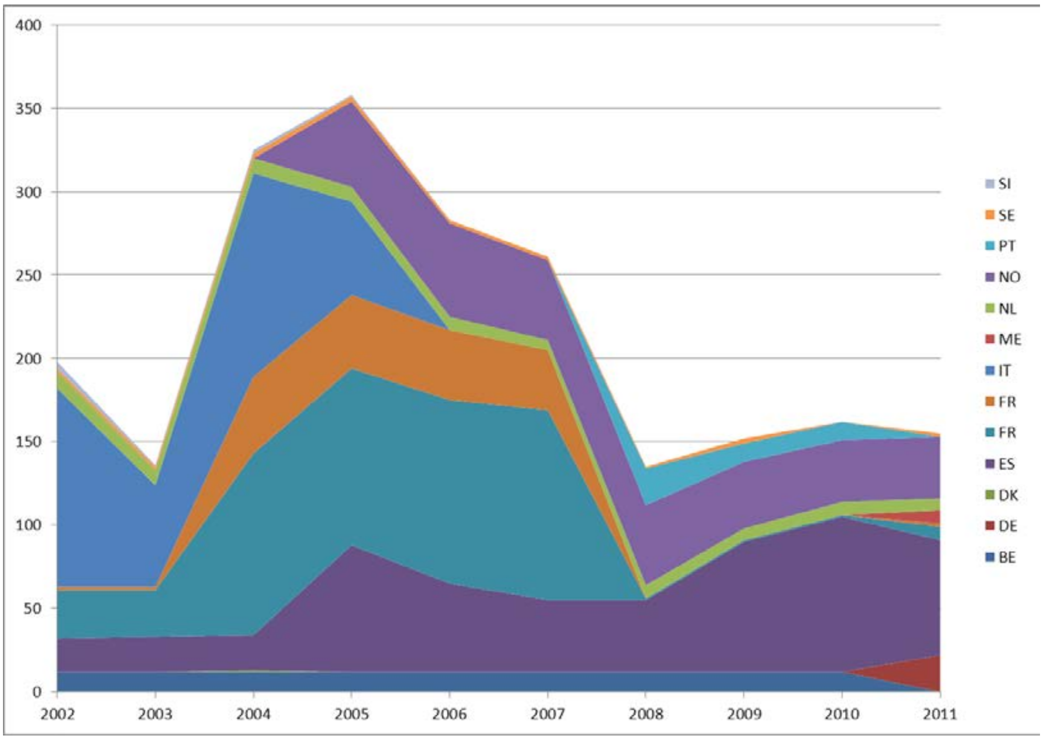


Fig. 3.2.73 Number of measurements of beta-HCH in biota [Mytilus] divided by country submitting data to Eionet CDR or ICES.

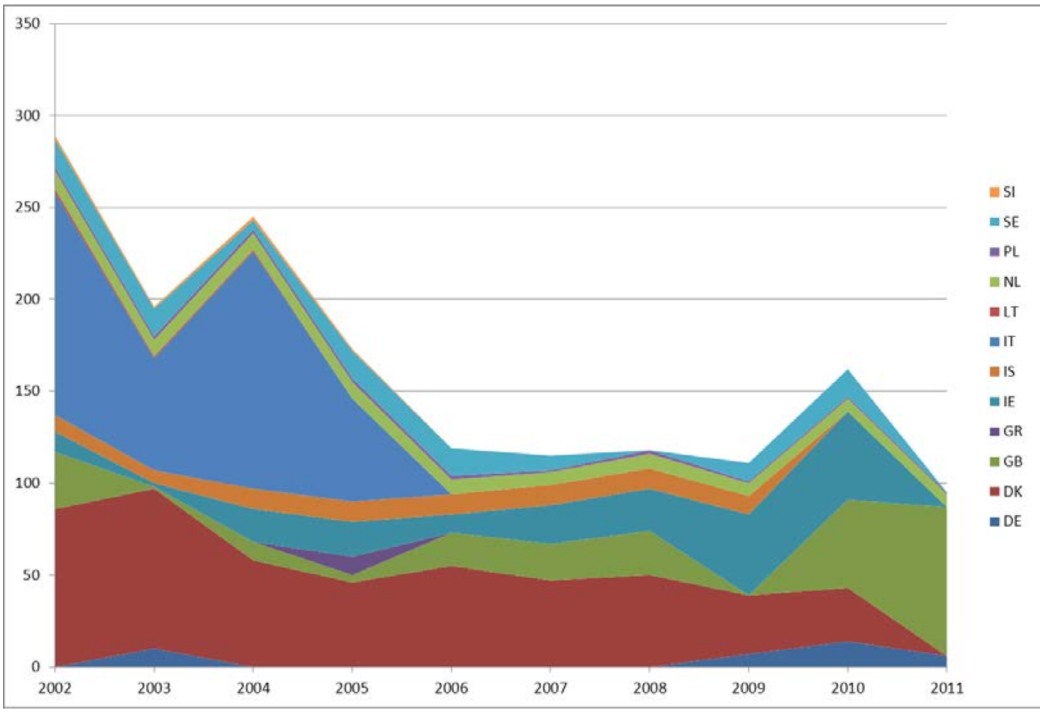


Fig. 3.2.74 Number of measurements of cadmium in biota [Mytilus] divided by country submitting data to Eionet CDR or ICES.

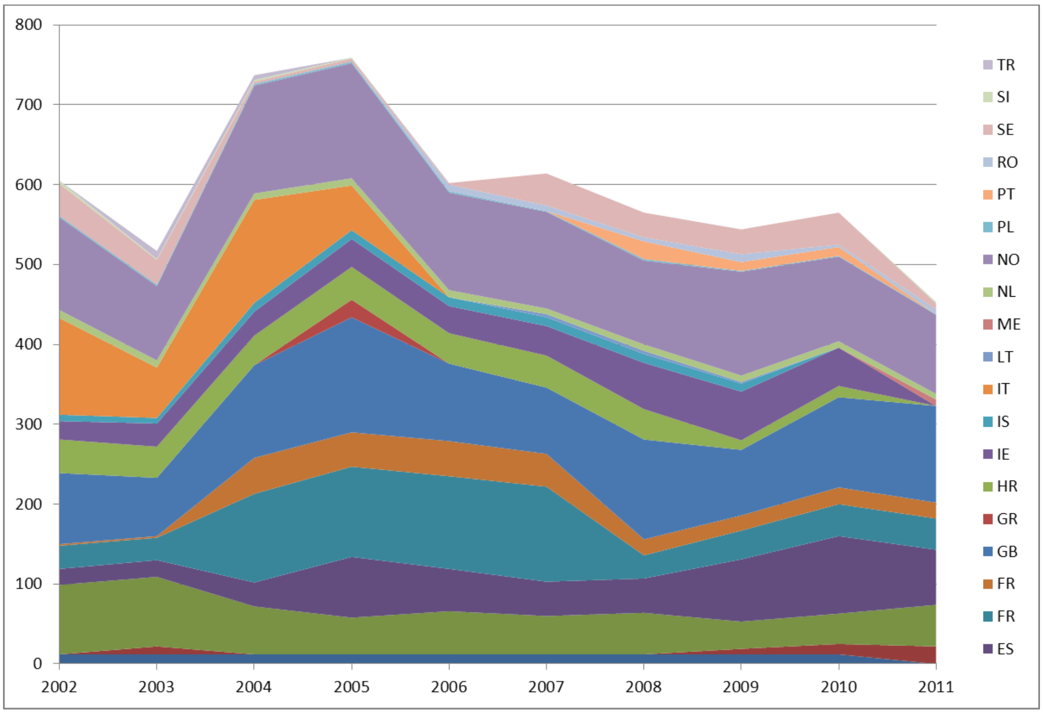


Fig. 3.2.75 Number of measurements of chromium in biota [Mytilus] divided by country submitting data to Eionet CDR or ICES.

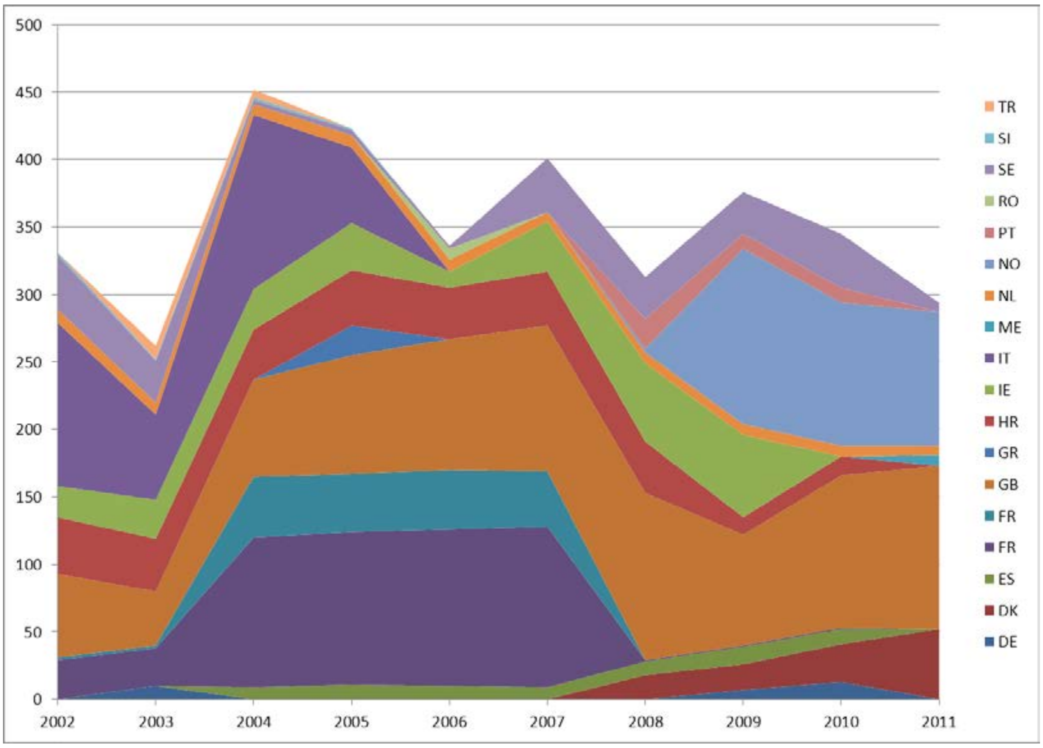


Fig. 3.2.76 Number of measurements of copper in biota [Mytilus] divided by country submitting data to Eionet CDR or ICES.

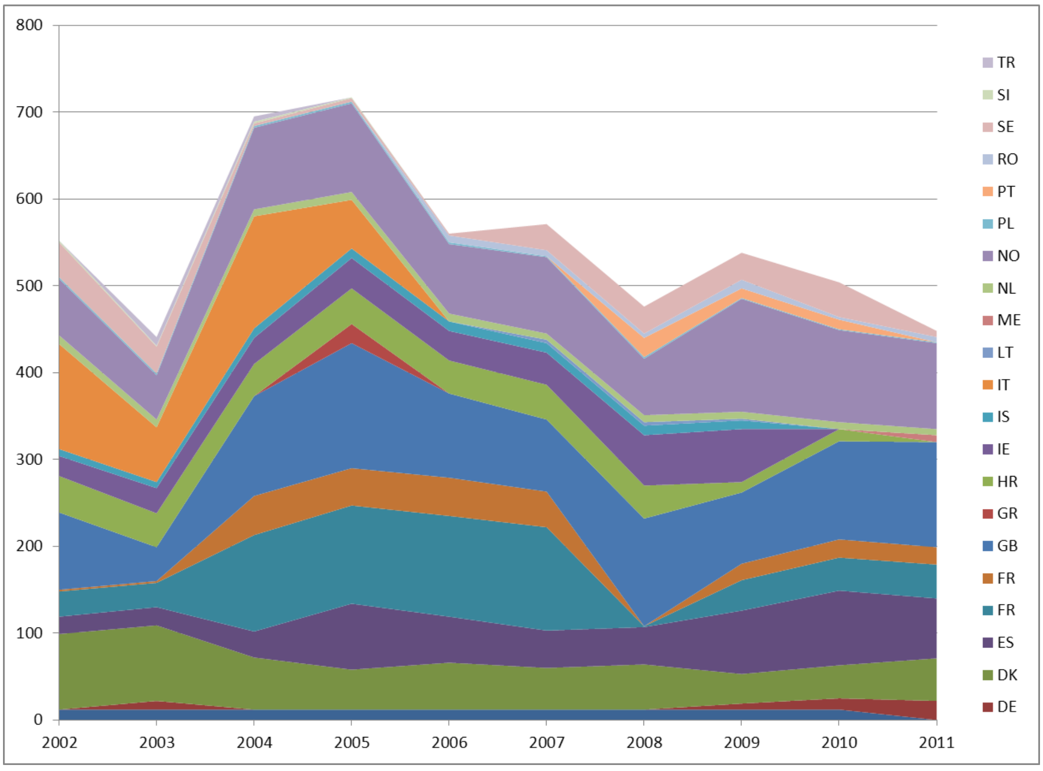


Fig. 3.2.77 Number of measurements of DDD p,p' in biota [Mytilus] divided by country submitting data to Eionet CDR or ICES.

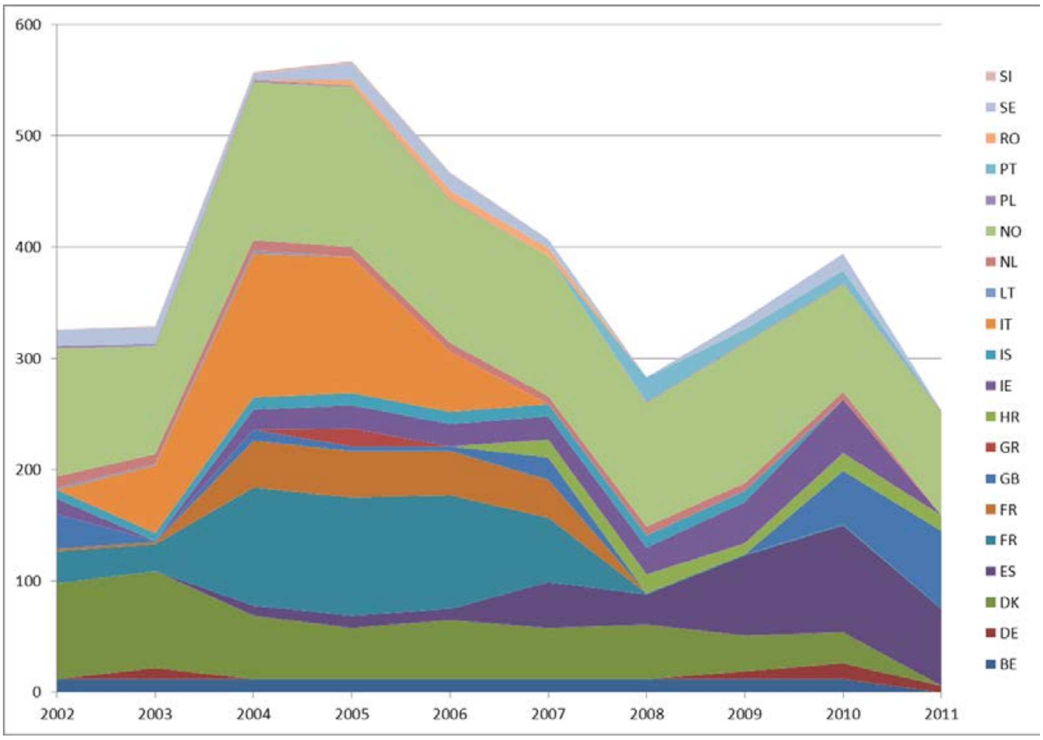


Fig. 3.2.78 Number of measurements of DDE p,p' in biota [Mytilus] divided by country submitting data to Eionet CDR or ICES.

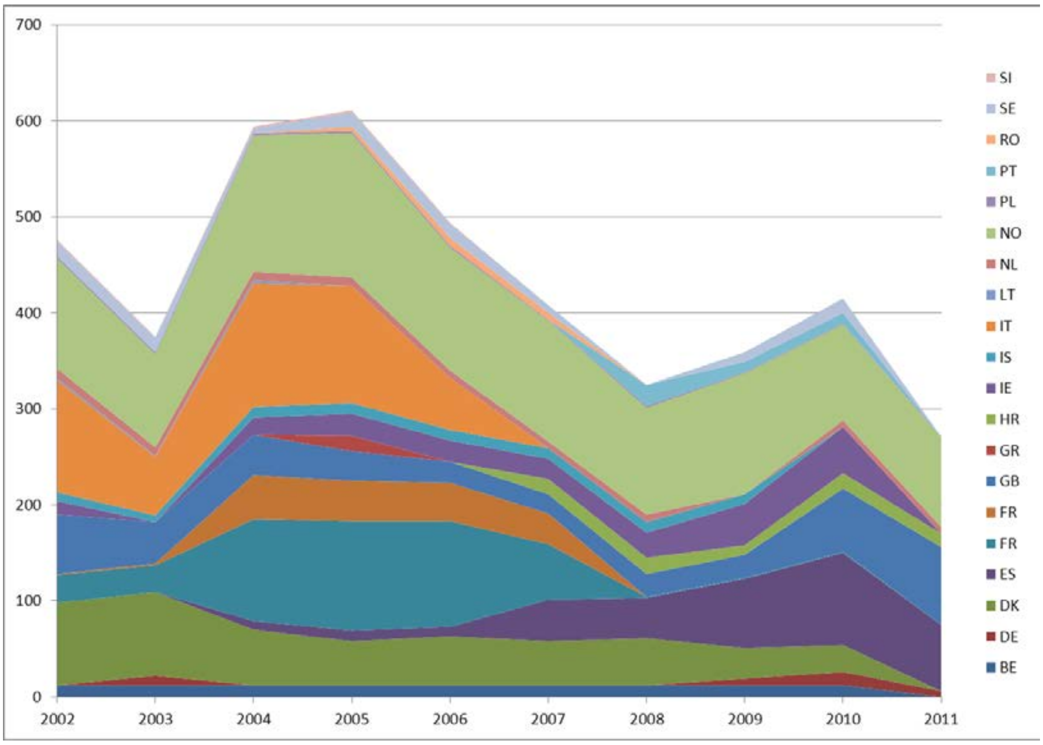


Fig. 3.2.79 Number of measurements of DDT p,p' in biota [Mytilus] divided by country submitting data to Eionet CDR or ICES.

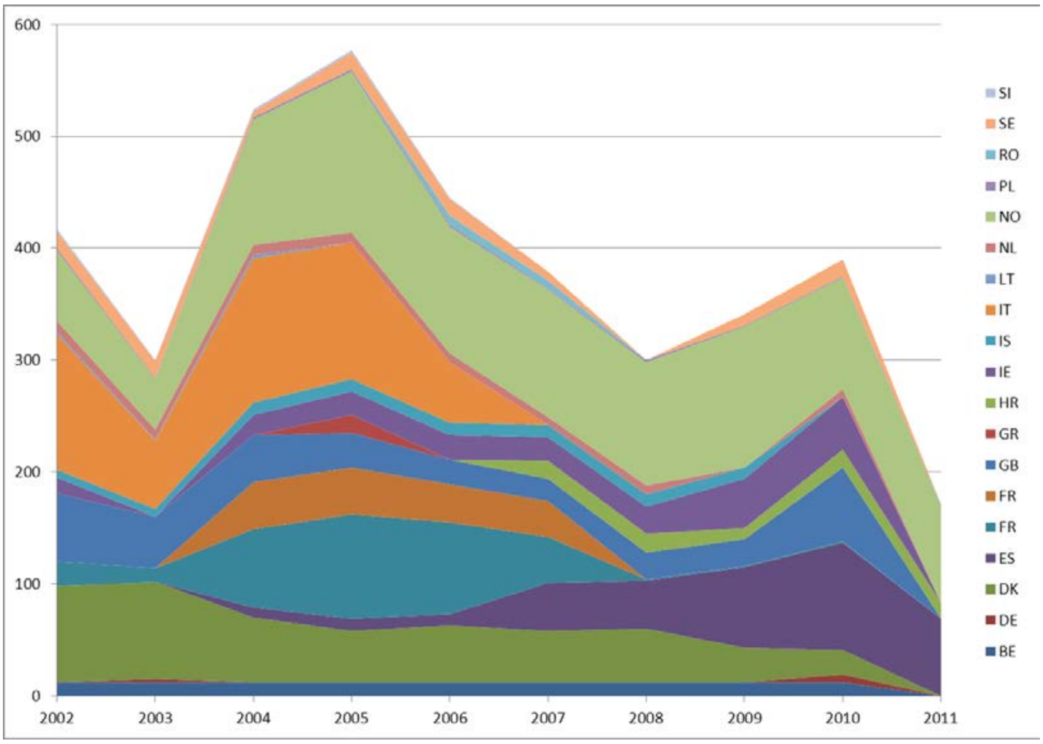


Fig. 3.2.80 Number of measurements of dieldrin in biota [Mytilus] divided by country submitting data to Eionet CDR or ICES.

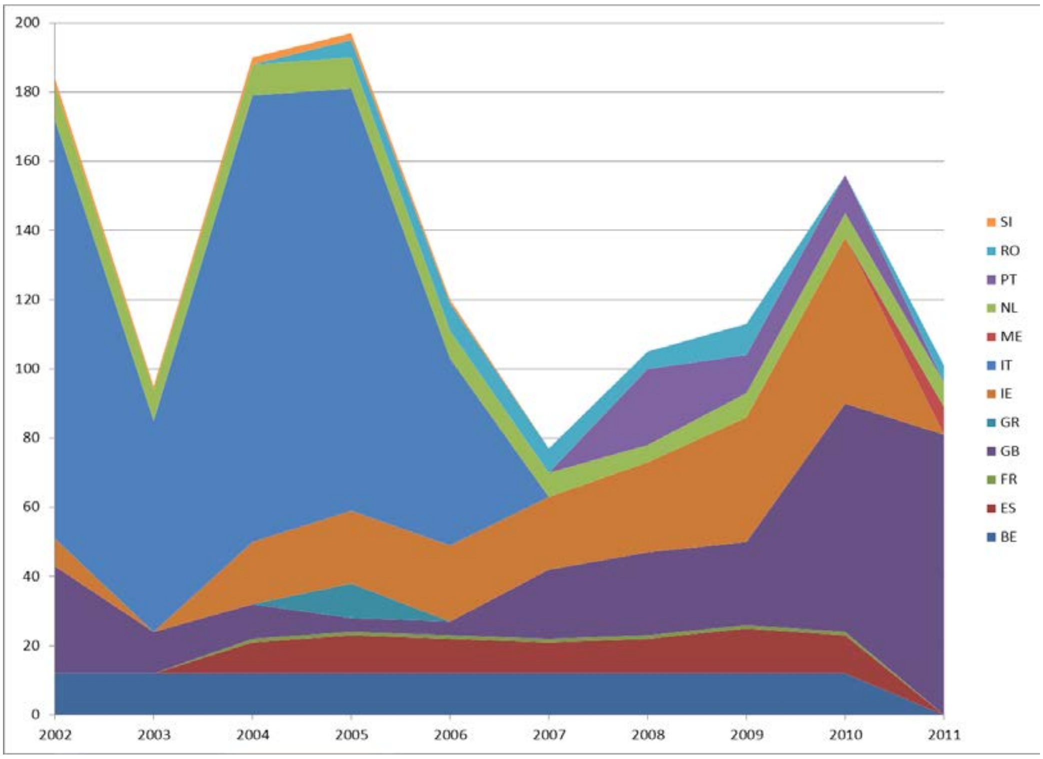


Fig. 3.2.81 Number of measurements of fluoranthene in biota [Mytilus] divided by country submitting data to Eionet CDR or ICES.

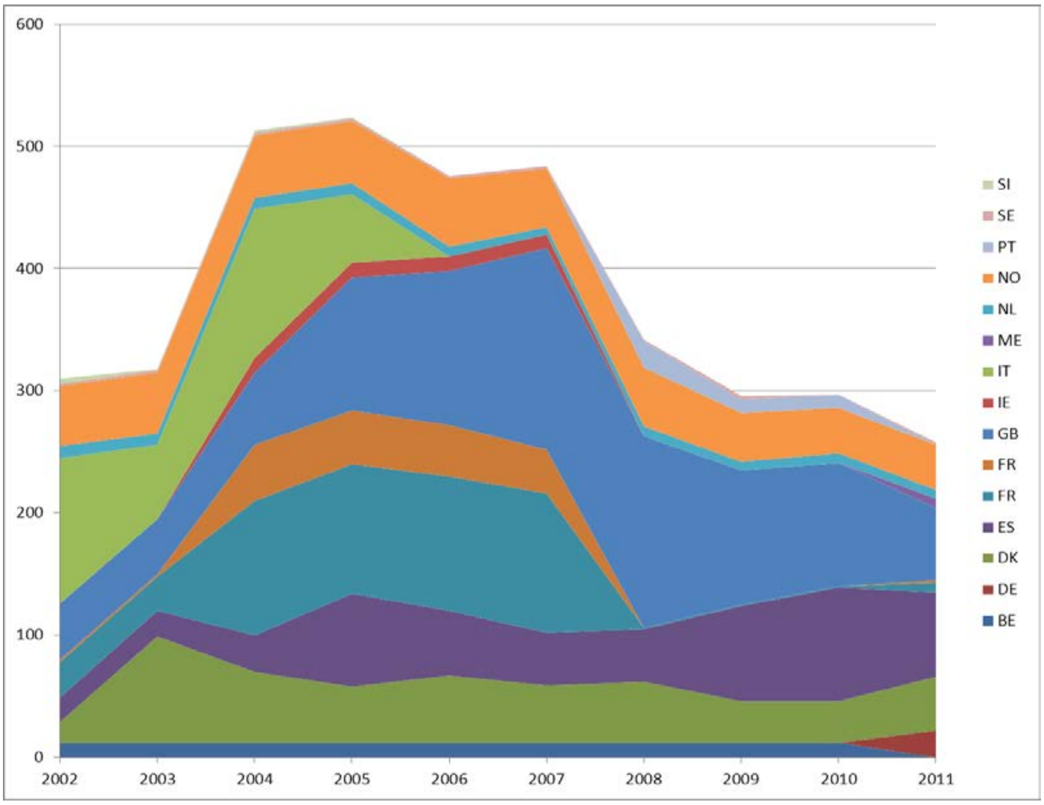


Fig. 3.2.82 Number of measurements of gamma-HCH in biota [Mytilus] divided by country submitting data to Eionet CDR or ICES.

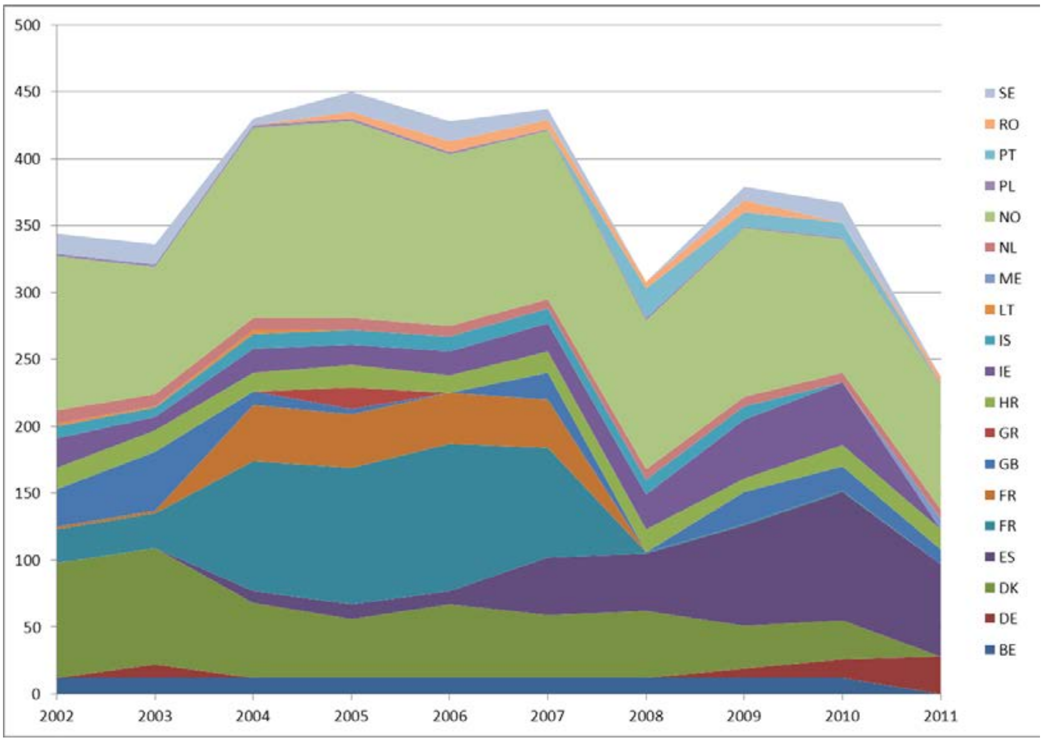


Fig. 3.2.83 Number of measurements of hexachlorobenzene in biota [Mytilus] divided by country submitting data to Eionet CDR or ICES.

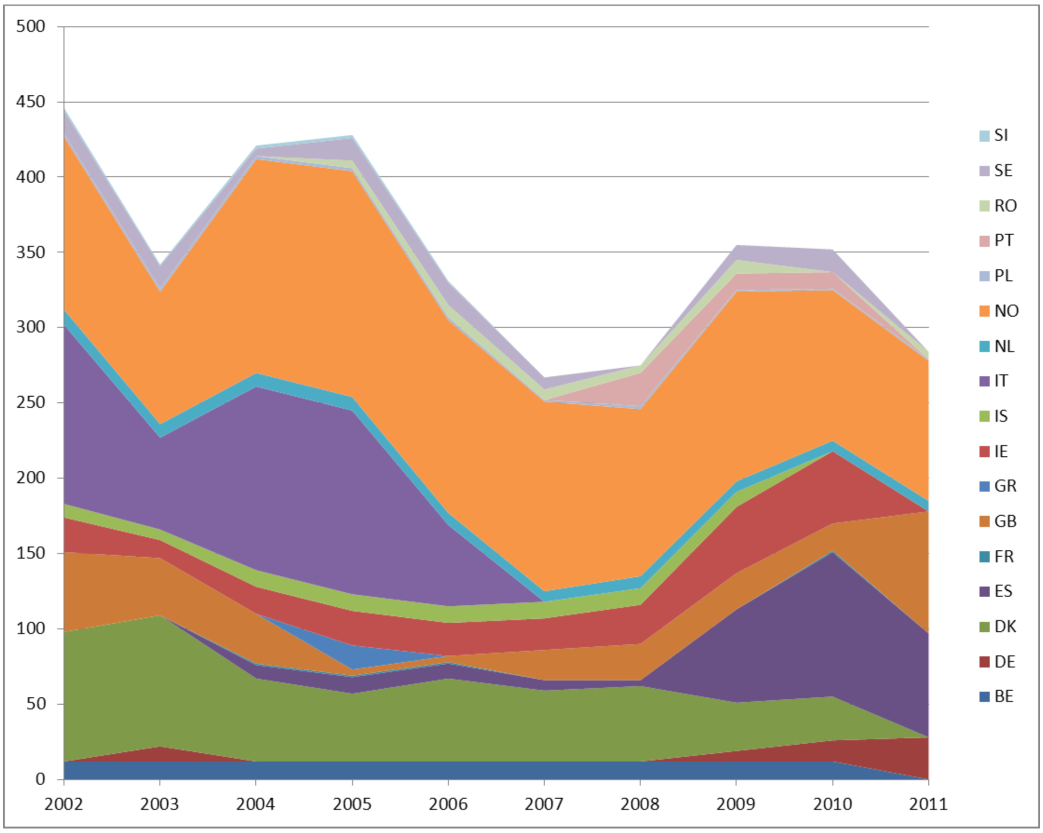


Fig. 3.2.84 Number of measurements of indeno(1,2,3-cd)pyrene in biota [Mytilus] divided by country submitting data to Eionet CDR or ICES.

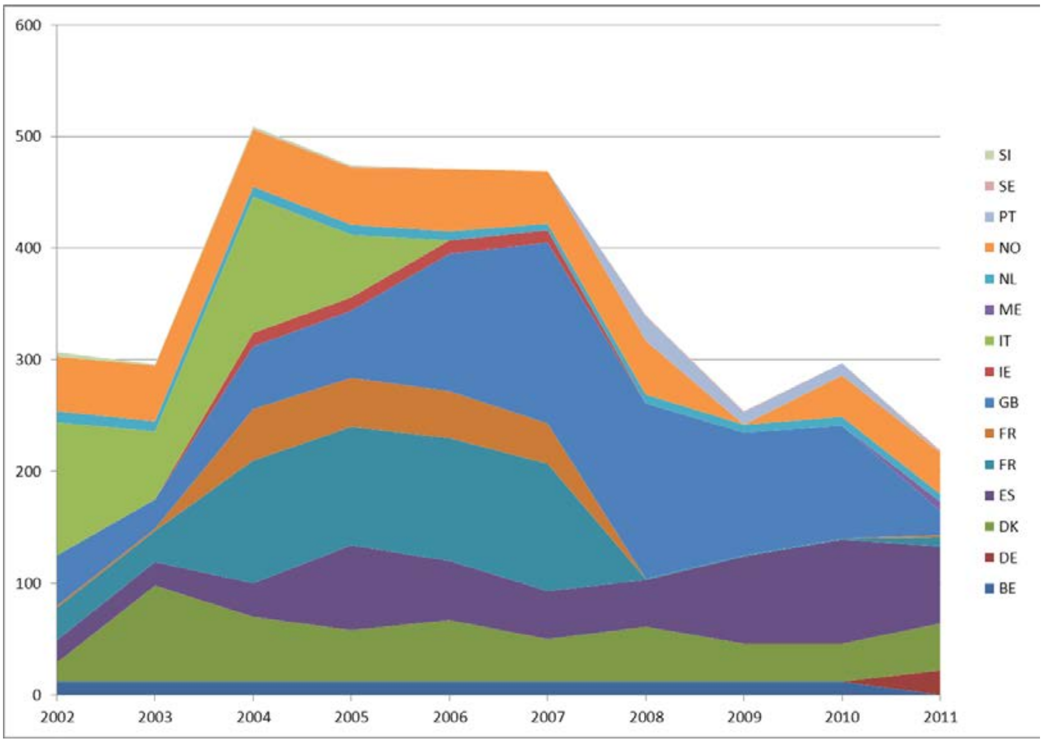


Fig. 3.2.85 Number of measurements of lead in biota [Mytilus] divided by country submitting data to Eionet CDR or ICES.

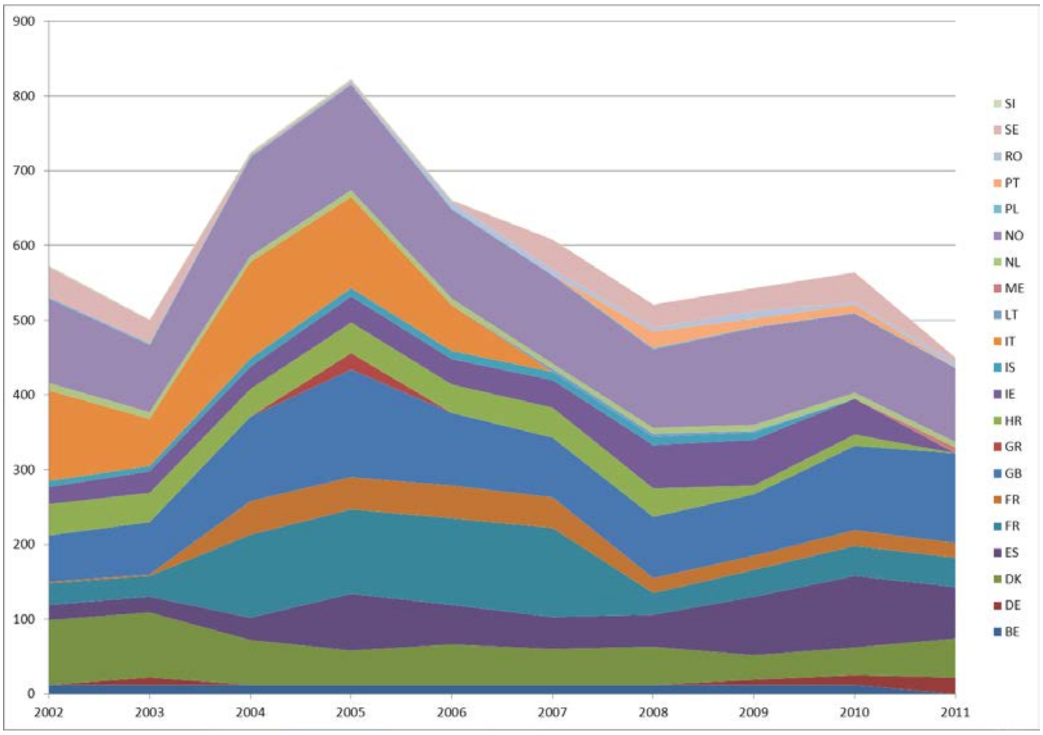


Fig. 3.2.86 Number of measurements of mercury in biota [Mytilus] divided by country submitting data to Eionet CDR or ICES.

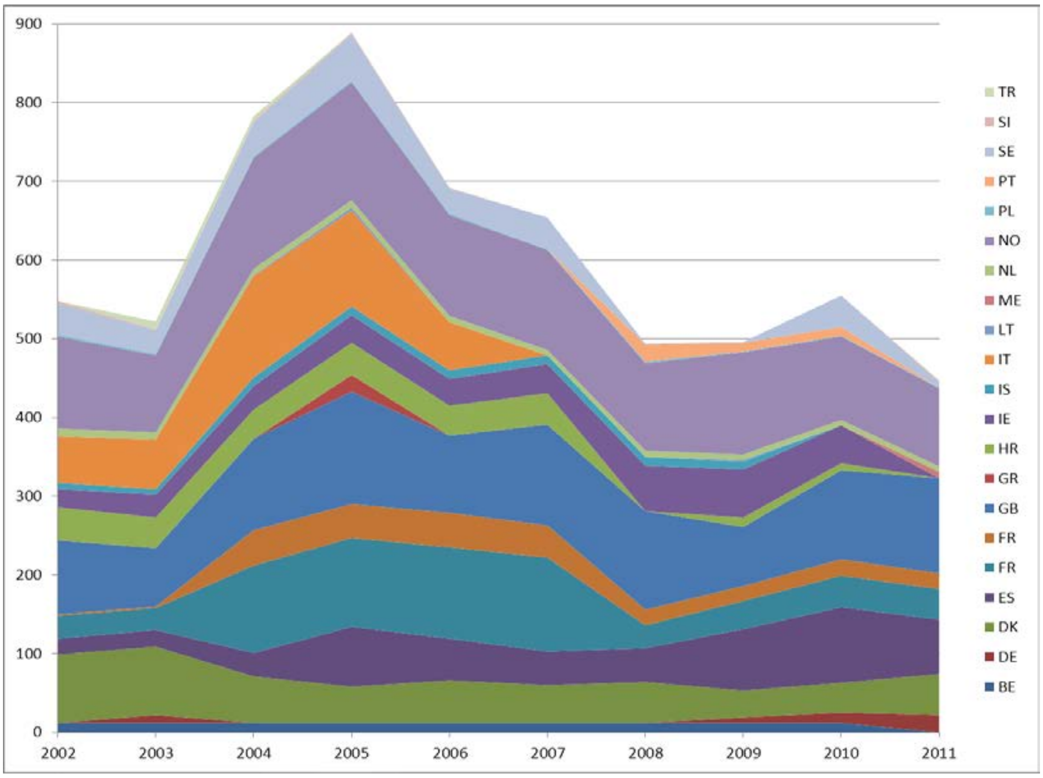


Fig. 3.2.87 Number of measurements of nickel in biota [Mytilus] divided by country submitting data to Eionet CDR or ICES.

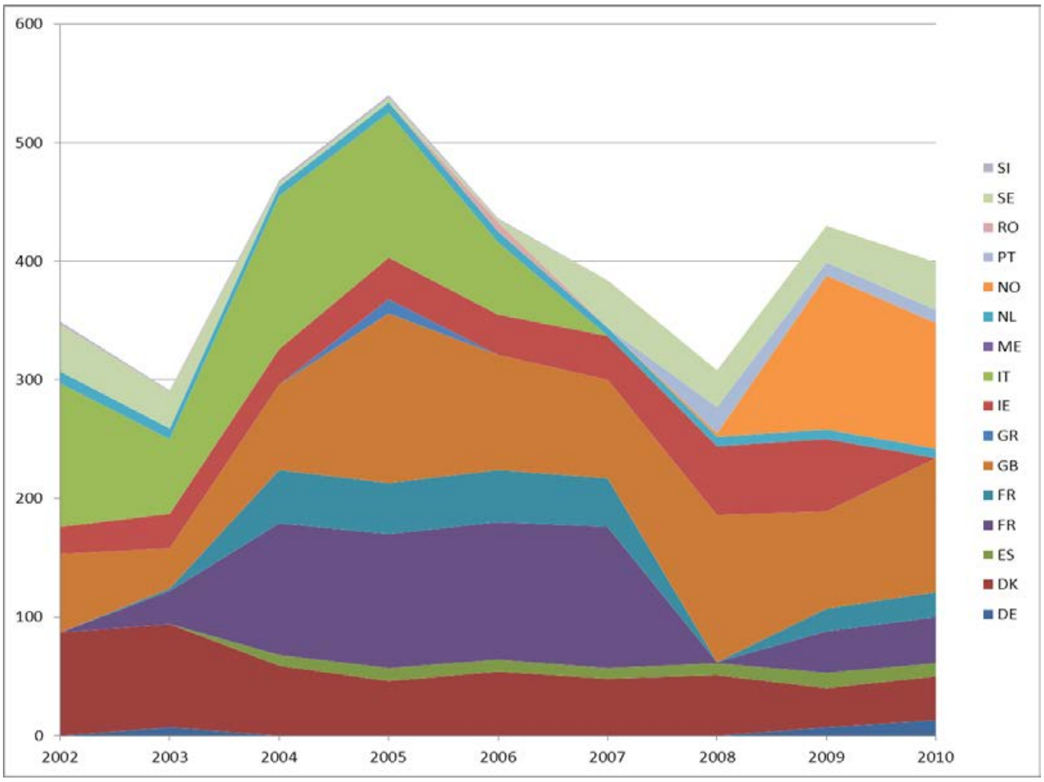


Fig. 3.2.88 Number of measurements of PCB28 in biota [Mytilus] divided by country submitting data to Eionet CDR or ICES.

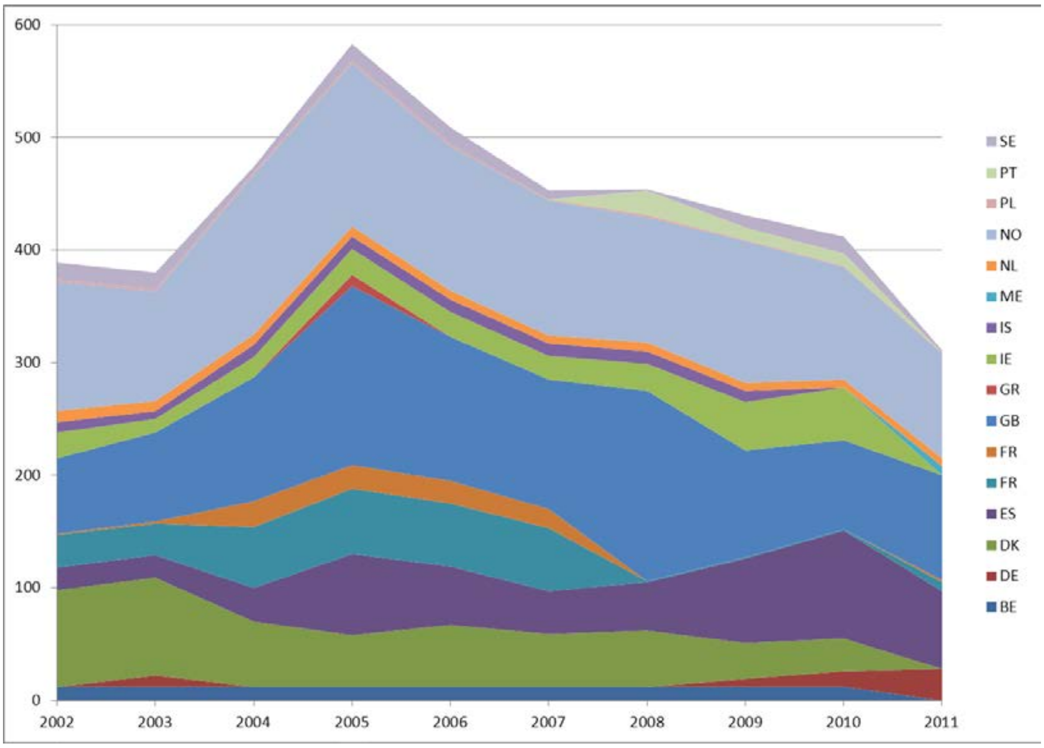


Fig. 3.2.89 Number of measurements of PCB52 in biota [Mytilus] divided by country submitting data to Eionet CDR or ICES.

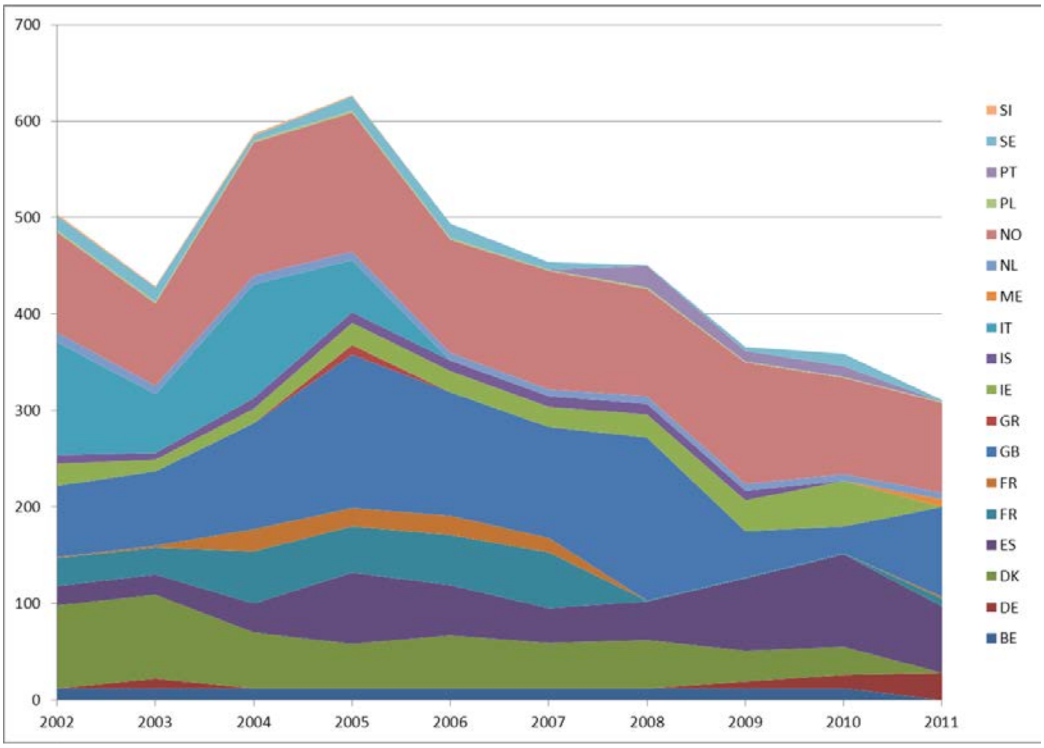


Fig. 3.2.90 Number of measurements of PCB101 in biota [Mytilus] divided by country submitting data to Eionet CDR or ICES.

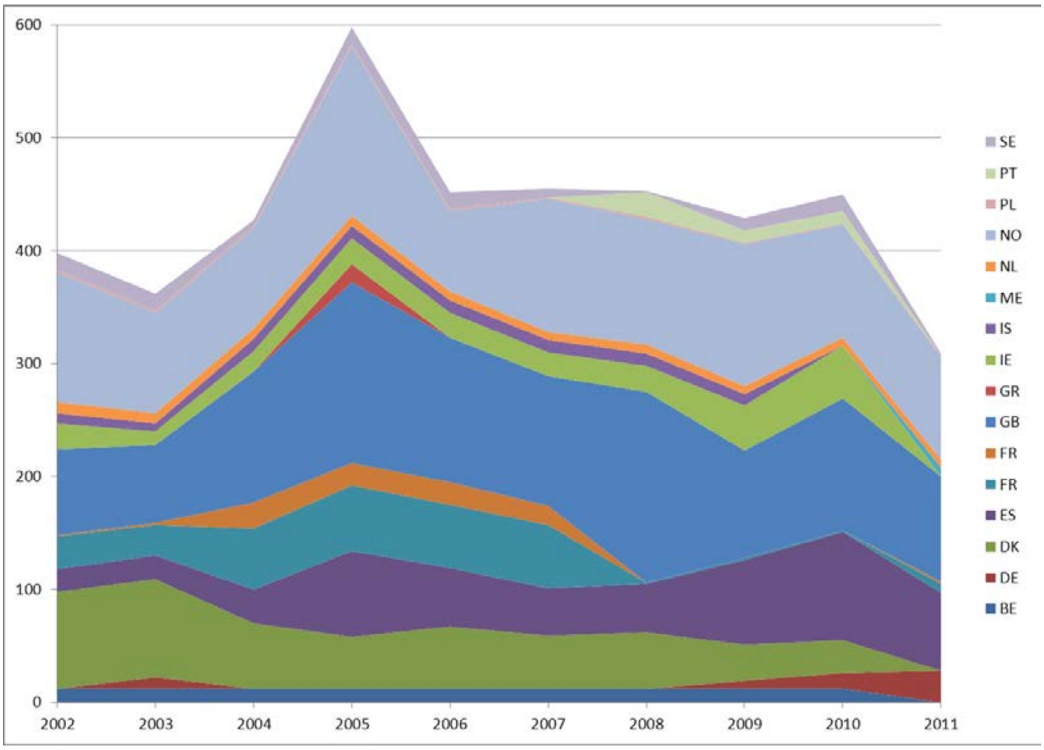


Fig. 3.2.91 Number of measurements of PCB118 in biota [Mytilus] divided by country submitting data to Eionet CDR or ICES.

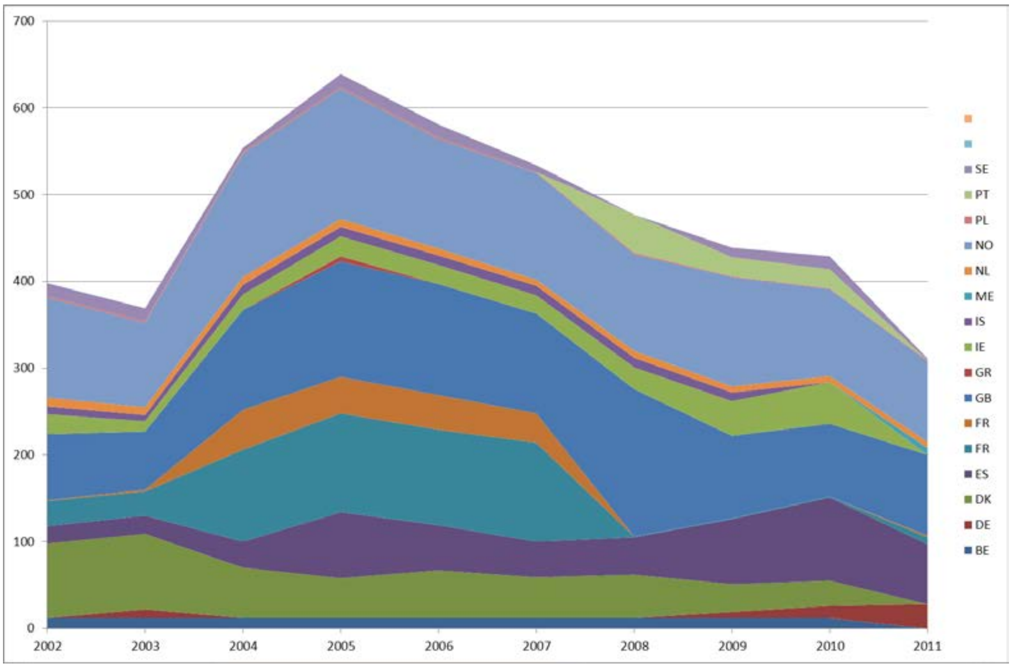


Fig. 3.2.92 Number of measurements of PCB138 in biota [Mytilus] divided by country submitting data to Eionet CDR or ICES.

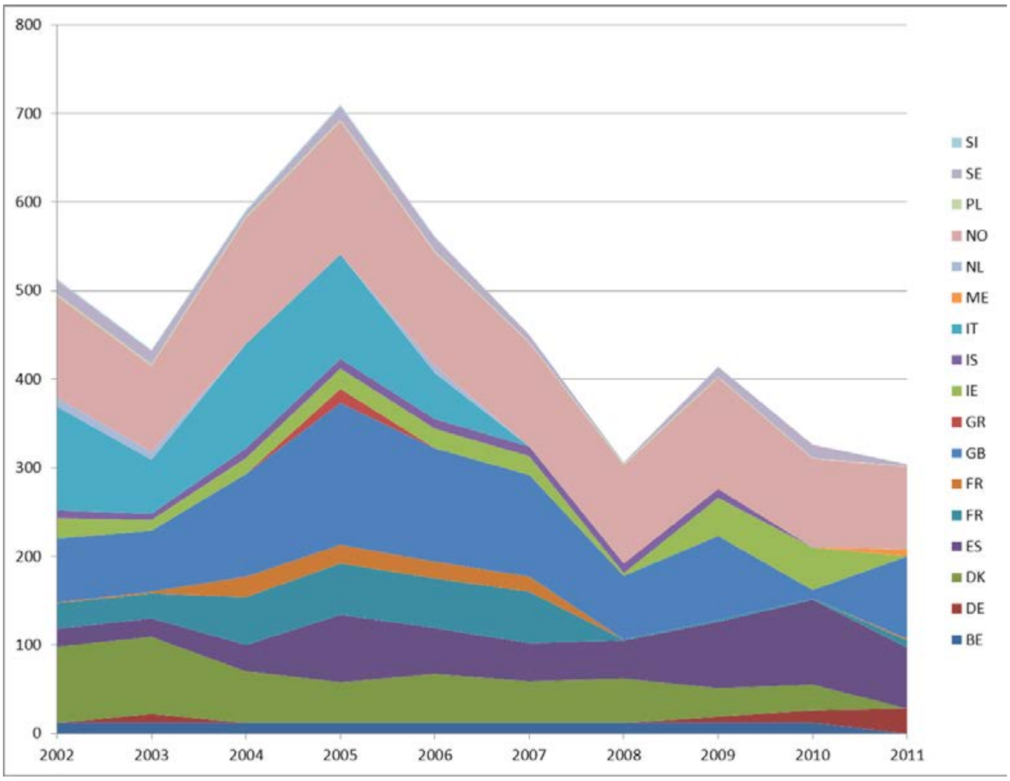


Fig. 3.2.93 Number of measurements of PCB153 in biota [Mytilus] divided by country submitting data to Eionet CDR or ICES.

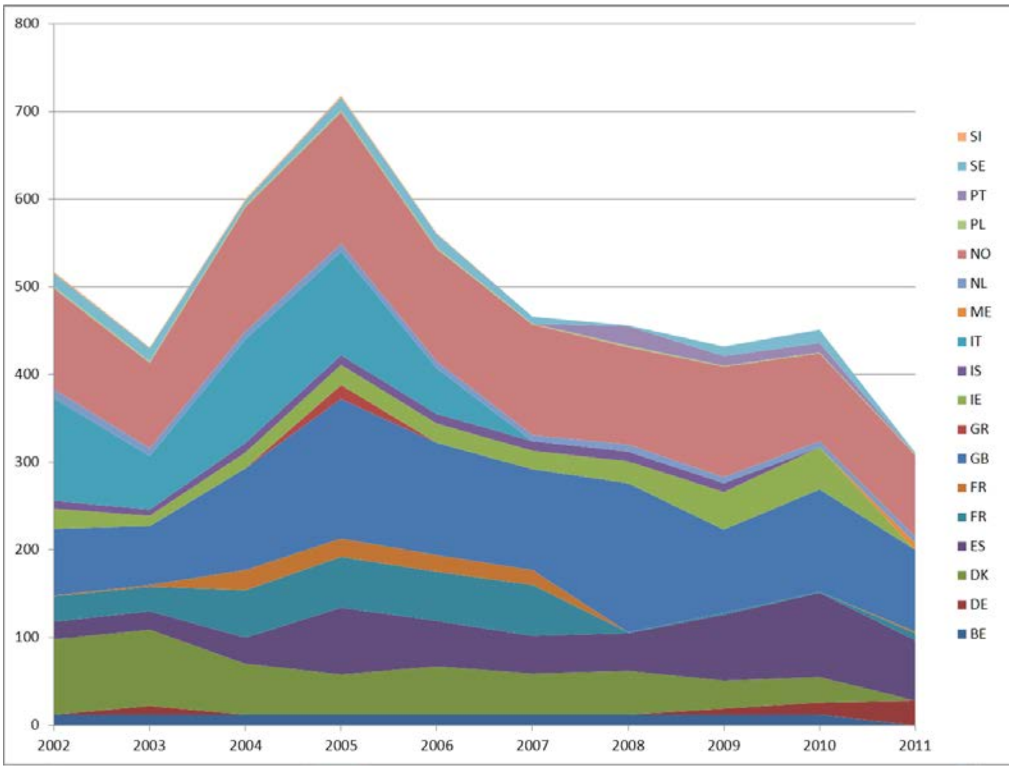


Fig. 3.2.94 Number of measurements of PCB180 in biota [Mytilus] divided by country submitting data to Eionet CDR or ICES.

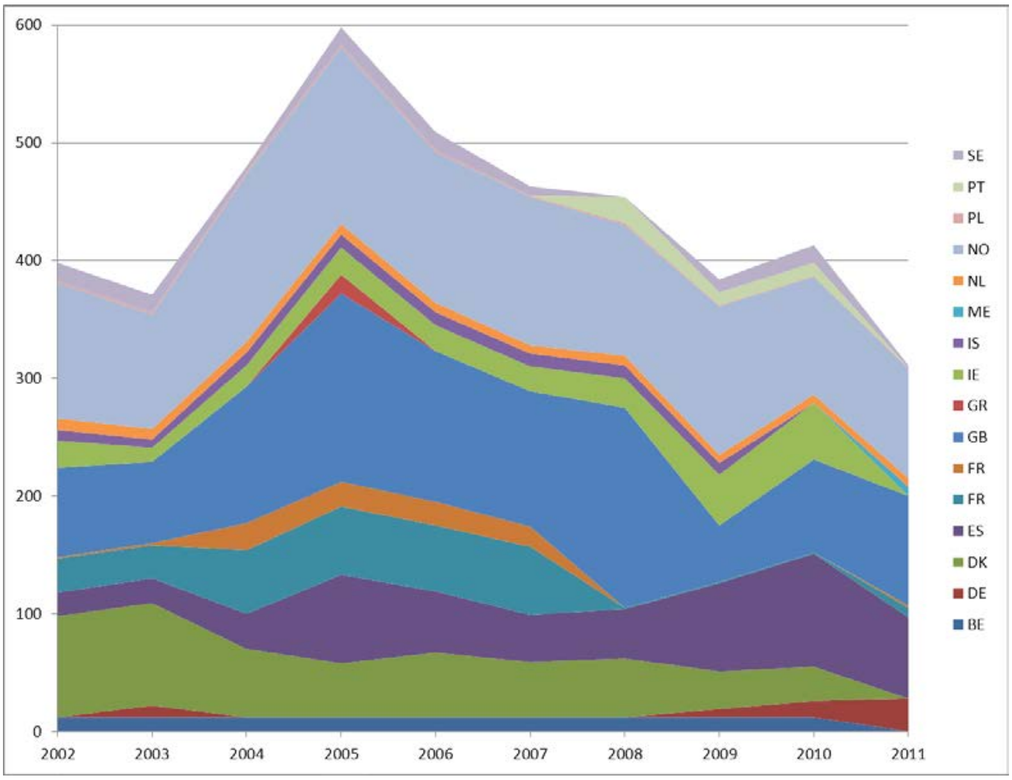


Fig. 3.2.95 Number of measurements of phenanthrene in biota [Mytilus] divided by country submitting data to Eionet CDR or ICES.

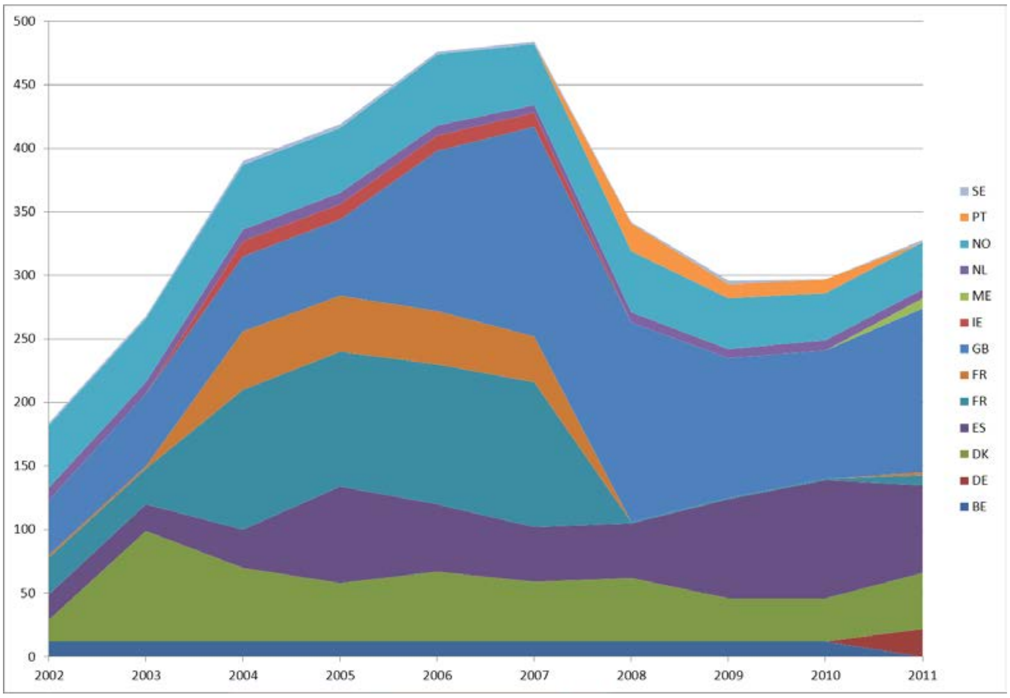


Fig. 3.2.96 Number of measurements of pyrene in biota [Mytilus] divided by country submitting data to Eionet CDR or ICES.

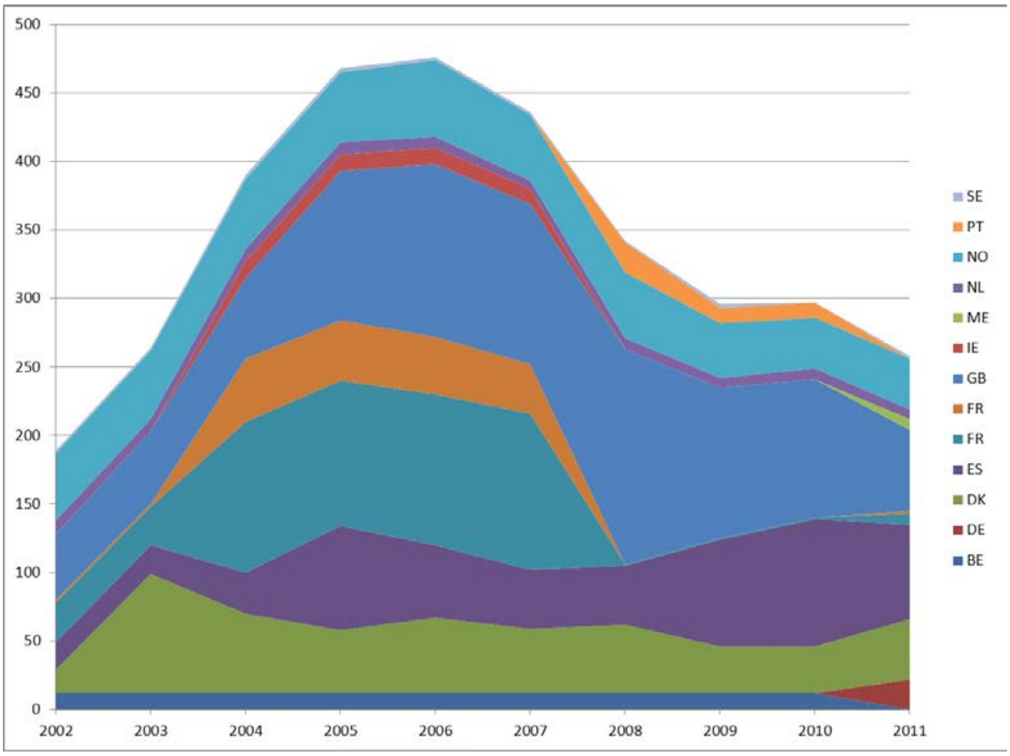


Fig. 3.2.97 Number of measurements of zinc in biota [Mytilus] divided by country submitting data to Eionet CDR or ICES.

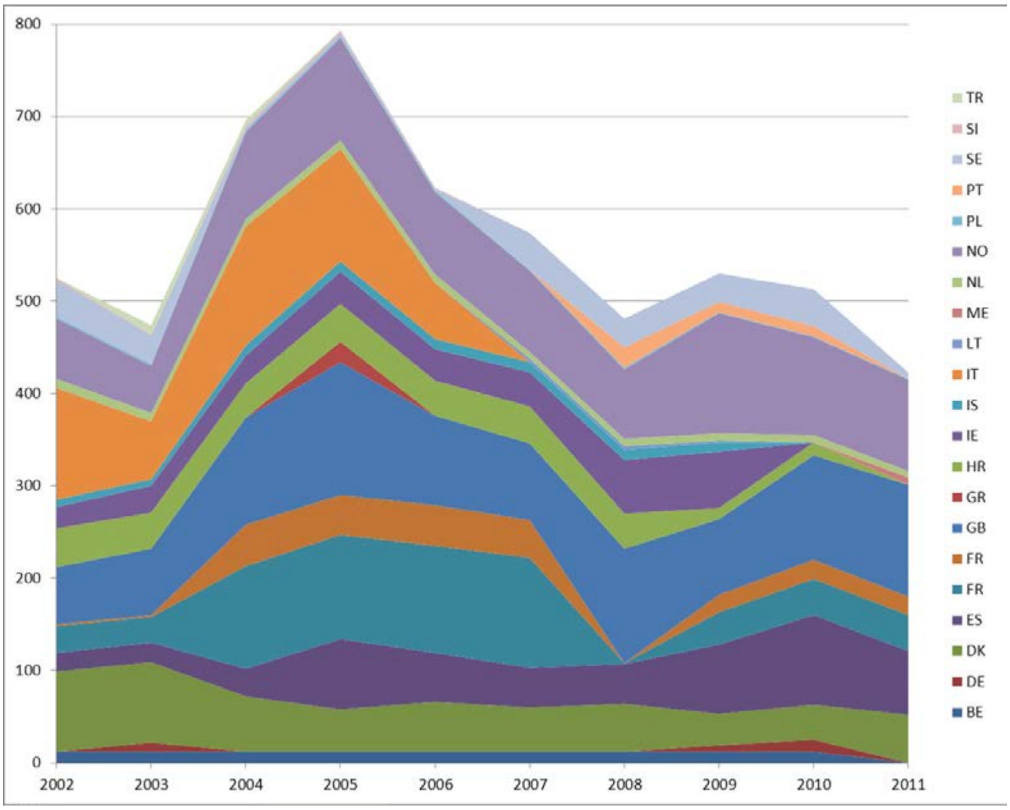


Fig. 3.2.98 Number of measurements of cadmium in biota [Platichthys] divided by country submitting data to Eionet CDR or ICES.

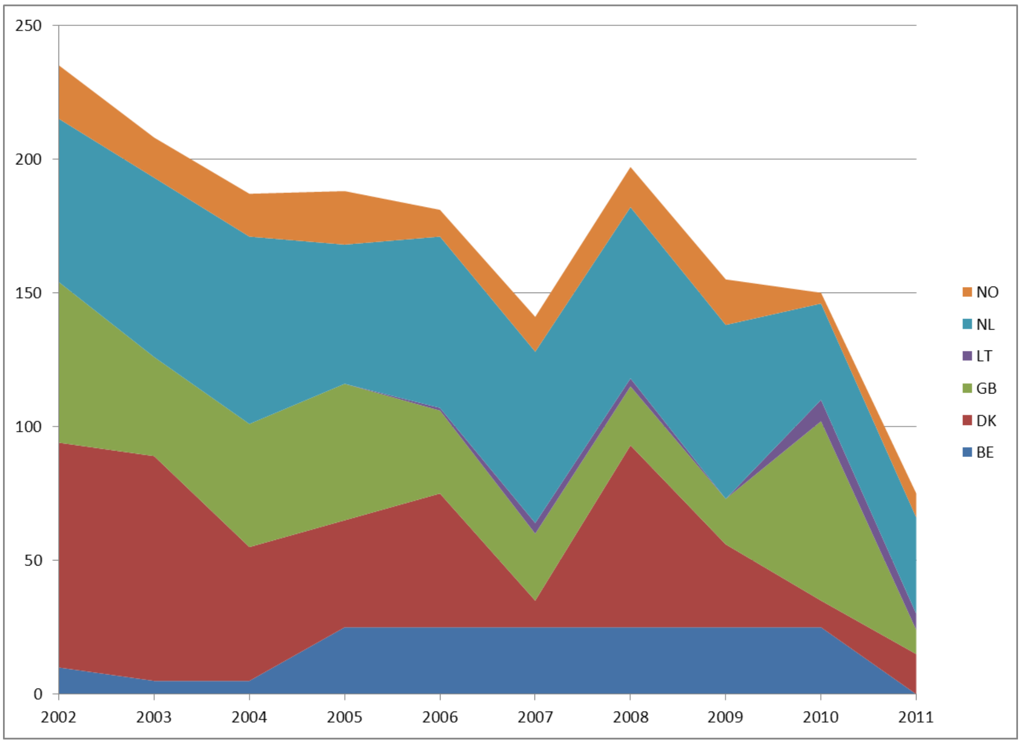


Fig. 3.2.99 Number of measurements of lead in biota [Platichthys] divided by country submitting data to Eionet CDR or ICES.

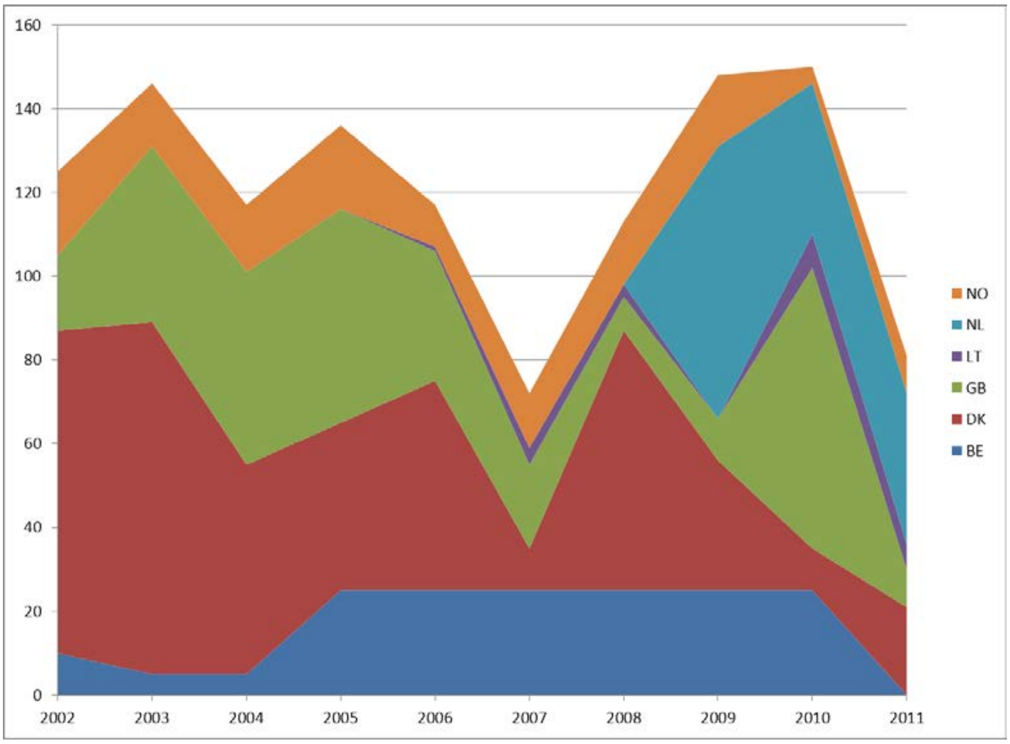
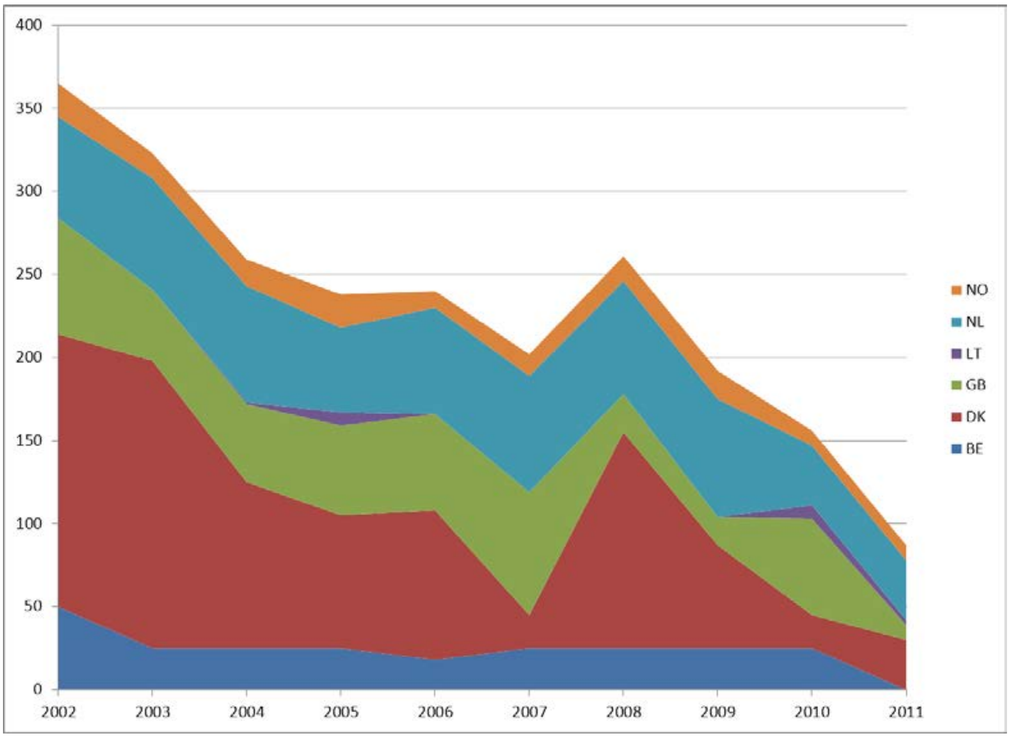


Fig. 3.2.100 Number of measurements of mercury in biota [Platichthys] divided by country submitting data to Eionet CDR or ICES.



3.3 Rivers

The number of samples and monitoring stations has increased substantially from 2002 to 2011. Reported data on pesticides and metals were most abundant, and the data stretches back for the longest amount of time, more or less continuously from 2002. Measurements of the selected hazardous substances in rivers have been conducted in several of the countries, but as shown in the following tables, high variations between the countries in the numbers of substances reported, length of time the monitoring has been performed, and numbers of stations included are depicted. France is by far the country that has submitted the most extensive set of data. A temporal availability of river SoE data for selected hazardous substances in the period 2002–2011 is shown in Tables 3.3.1 to 3.3.7. Most of the substances have been reported for 10 years throughout Europe.

Table 3.3.1 Temporal availability of SoE river data for selected hazardous substances in the 2002–2011 period.

Substance	No. of years	Period
1,1,2,2-tetrachloroethene	10	2002 - 2011
1,2-dichloroethane	10	2002 - 2011
4-nonylphenol	9	2003 - 2011
Alachlor	10	2002 - 2011
Anthracene	10	2002 - 2011
Atrazine	10	2002 - 2011
Benzene	10	2002 - 2011
Benzo(a)pyrene	10	2002 - 2011
Cadmium	10	2002 - 2011
Cadmium dissolved	4	2008 - 2011
Chlorfenvinphos	10	2002 - 2011
Chlorpyrifos	10	2002 - 2011
DDT, p,p'	10	2002 - 2011
Di (2-ethylhexyl) phthalate (DEHP)	9	2003 - 2011
Dichloromethane	10	2002 - 2011
Diuron	10	2002 - 2011
Endosulfan	10	2002 - 2011
Fluoranthene	10	2002 - 2011
Hexachlorobenzene (HCB)	10	2002 - 2011
Hexachlorobutadiene (HCBD)	10	2002 - 2011
Hexachlorocyclohexane (HCH)	7	2002 - 2011
Isoproturon	10	2002 - 2011
Lead	10	2002 - 2011
Lead dissolved	4	2008 - 2011
Mercury	10	2002 - 2011
Mercury dissolved	4	2008 - 2011
Naphthalene	10	2002 - 2011
Nickel	10	2002 - 2011
Nickel dissolved	4	2008 - 2011
Para-tert-octylphenol	9	2003 - 2011
Pentachlorobenzene	10	2002 - 2011
Pentachlorophenol	10	2002 - 2011
SUM Cyclodienes: Aldrin, Endrin, Dieldrin, Isodrin	10	2002 - 2011
SUM DDT Total: DDD, p,p', DDE, p,p', DDT, o,p', DDT, p,p'	10	2002 - 2011
SUM HCH	10	2002 - 2011
SUM PAH1: Benzo(b)fluoranthene, Benzo(k)fluoranthene	10	2002 - 2011
SUM PAH2: Benzo(g,h,i)perylene, Indeno(1,2,3-cd)pyrene	10	2002 - 2011
Simazine	10	2002 - 2011
Tributyltin cation	6	2005 - 2011
Trichloromethane	10	2002 - 2011
Trifluralin	10	2002 - 2011

Table 3.3.2 No. of years with available river data for countries within the 2002–2011 period

Substance	AL	AT	BA	BE	BG	CY	CZ	DE	EE	ES	FI	FR	GB	GR	HR	HU	CH	IE	IS	IT	LT	LU	LV	MK	MT	NL	NO	PL	PT	RO	RS	SE	SI	SK	XK
1,1,2,2-tetrachloroethene			1	3		2		8		3		8	9		2			1		1	3	3			1	4		2		2				4	
1,2-dichloroethane		5	2	9		3	5	8		3		1	9		2			4		8	2	5			1	4		3		1			2	5	
4-nonylphenol			2	8						2	4	8						3		3	1	2			1					2			2	4	
Alachlor		7	3	9		1	5	2		3	5	1			2			3	1	1		5			1	4		3	2	3	3	9	1	4	
Anthracene		1	5	9		2		8		3	3	1	6	1	2			4		7	4	4	2		1	4		4	2	3	1		5	7	
Atrazine		7	5	9	2	8	5	7		3	5	1	9	4	8	6		4	1	1	2	4			1	4		3	2	3	6	9	1	7	
Benzene		2	3	9		4	5	7		3		1	9	1	2	1		4		7	2	5	2		1	4		3	1	2			6	5	
Benzo(a)pyrene		1	5	9		2	5	7		3	3	1	6		2			2		1	4	5	2		1	4		4	2	3	4		4	7	
Cadmium	1	1	9	9	7	6	5	5	9	2	1	1	1	3	8	6	9	6	3	1	8	1	1	9	1	7	7	4	5	5	4	1	8	5	
Cadmium dissolved		2		3				3		1		2	2		2		1			3						3				3	4		2	3	2
DDT, p,p'			1	7		3	5	7		2	3	9	6	2	8	6			1	1	6	1	6		1	4		3		3	6		7	5	
Di (2-ethylhexyl) phthalate (DEHP)		1	4	3		3		2		3	4	8	5					3		3	1	5			1	4		3					2	7	
Dichloromethane		3	3	8		2		7		3		1	6		2			4		6	3	5			1	4		3		2			7	4	
Diuron		1	4	9		4	4	7		3	5	1	9	1	1			4		7		5			1	4		4	2	2	3	1	3	6	
Endosulfan			5	5		3	5				5	8	7		2			3	1	1	2	3	6		1	3		4			3	7	6	4	
Fluoranthene		1	5	9		2	5	7		3	3	1	6	1	2			4		1	4	5	2		1	4		4	2	3	4		5	7	
Hexachlorobenzene (HCB)		2	3	8		7	5	7		3	3	1	7		2			3	1	1	2	2	5		1	4		3		3	6		1	5	
Hexachlorobutadiene (HCBD)		2	2	7		4	5	7		3	3	1	7		2			5	1	5		5			1	4		3		2	2		6	4	
Hexachlorocyclohexane (HCH)				1		3						3			2					5	1				1			3					3		
Chlorfenvinphos			4	4		4		2		3	5	9	7		2			3	1	1		4			1	4		3	1	2	3	9	9	5	

Table 3.3.2 continued

Substance	AL	AT	BA	BE	BG	CY	CZ	DE	EE	ES	FI	FR	GB	GR	HR	HU	CH	IE	IS	IT	LT	LU	LV	MK	MT	NL	NO	PL	PT	RO	RS	SE	SI	SK	XK
Chlorpyrifos		1	4	9	1	3	5	2		3	5	8	3	1	2			2		1		3			1	4		2		2	3	9	2	6	
Isoproturon		1	3	9		4	4	7		3	5	9	8	1	1			4		6		4			1	4		2		2	3	1	3	5	
Lead	1	1	9	9	8	7	5	2	9	2	1	9	1	3	8	6	9	6	4	1	8	1	1	9	1	7	7	3	4	5	4	1	8	5	
Lead dissolved		3		3				3		1		2	3		2		1			3						3				3	4		2	3	2
Mercury	1	9	7	9	2	5	5	5	6	2	1	9	1	3	2	6	3	6	3	1	8	1	6		1	6	6	4	5	5	4	8	8	5	
Mercury dissolved		2		3				3		1		2	2		2		1			1						3				2	4		2	2	2
Naphthalene		1	3	6		3		7		3	3	9	5	1	2			4		7		2	2		1	4		4	2	3			2	6	
Nickel	1	1	1	9	8	6	5	2	5	2	1	9	1	3	8	6	3	6		1	8	1	9	9	1	7	7	4	1	5	4	1	8	5	
Nickel dissolved		2		3				3		1		2	3		2		1			3						3				3	4		2	2	
Para-tert-octylphenol			2	8				2			4	8	4					3		3	1	3			1	4		2		2	2		2	3	
Pentachlorobenzene		2	2	9				2		2	5	9	2		2			3	1	6		4			1	4		3		3	2		3	5	
Pentachlorophenol		2	4	9				7		3		9	7		2	3		5		8	6	5			1	4		3	1		3		9	4	
Simazine		7	3	9	1	8	5	7		3	5	9	7	2	2			4	1	1	2	4			1	4		4		2	6	9	1	8	
Σ Cyclodienes		1	3	6	3	7	5				5	9	7		8	1		3	1	1	3	1	6		1	4		3			6		8	4	
Σ DDT			1	4		3	5				3	1	5	1	8	6			1	1	6	1	6		1	4		4			6		3	4	
Σ HCH			2	5	2	1	5				3	1	5		8	6			1	1	6	2	5			4	6	1			6	9	3	4	
Σ Benzo(b)fluoranthene, Benzo(k)fluoranthene			5	6		2	5				3	1	2		2			2		1	4	3	2		1	4		4			4		1	6	
Σ Benzo(g,h,i)perylene, Indeno(1,2,3-cd)pyrene			4	6		2	5				3	1	2		2			2		1	4	3	2		1	4		4			4		4	6	
Tributyltin cation				3				5		1		5	4									3			1	1		2					1	3	
Trifluralin		2	2	9		4	5	7		3	5	9	7	1				2		1		3			1	4		3		2	3	9	9	5	
Trichloromethane		5	3	9		3		7		3		8	9		2	2		1		5	2	3	2		1	4		4		2			5	5	

Table 3.3.3 No. of years with available river data for countries within the 2010–2011 period

Substance	AL	AT	BA	BE	BG	CY	CZ	DE	EE	ES	FI	FR	GB	GR	HR	HU	CH	IE	IS	IT	LT	LU	LV	MK	MT	NL	NO	PL	PT	RO	RS	SE	SI	SK	XK
1,1,2,2-tetrachloroethene			1	2		1		2		2		2	2		2			1		2	1	2			1	2		1		2				2	
1,2-dichloroethane			2	2		2		2		2		2	2		2			2		2		2			1	2		1		1			1	2	
4-nonylphenol			2	2						2		2								2	1	2			1					2			1	2	
Alachlor			2	2		2		2		2	2	2			2				1	2		2			1	2		1	1	2	2	2	2	2	
Anthracene			2	2				2		2	1	2	2		2			1		2	2	2			1	2		2	1	2	1		1	2	
Atrazine			2	2	2	2		2		2	2	2	2		2			1	1	2		1			1	2		1	1	2	2	2	2	2	
Benzene			2	2		2		2		2		2	2		2			2		2		2			1	2		1		2			1	2	
Benzo(a)pyrene			2	2				2		2	1	2	2		2			1		2	2	2			1	2		2		2	1		1	2	
Cadmium	1	2	2	2	2	1			2	1	2	2	2		2		2	2	2	2	2	1	2	2	1	2	2	2	1	2	2	2			
Cadmium dissolved		2		2				2		1		2	2		2		1			2						2				2	2		2	2	1
DDT, p,p'				1		1		2		2	1	2	2		2				1	2		1	2		1	2		1		2	2		2	2	
Di (2-ethylhexyl) phthalate (DEHP)			2	2				2		2		2	2					2		2	1	2			1	2		1					1	2	
Dichloromethane			2	2		1		2		2		2	2		2			2		2	1	2			1	2		1		2			1	2	
Diuron			2	2		1		2		2	2	2	2		1			1		2		2			1	2		2	1	2	2	2	1	2	
Endosulfan			2	1		1					2	2	2		2				1	2		1	2		1	2		2			2	2	2	2	
Fluoranthene			2	2				2		2	1	2	2		2			1		2	2	2			1	2		2	1	2	1		1	2	
Hexachlorobenzene (HCB)			2	1		2		2		2	1	2	2		2				1	2		1	2		1	2		1		2	2		2	2	
Hexachlorobutadiene (HCBD)			2			2		2		2	1	2	2		2			2	1	2		2			1	2		1		2	2		2	2	
Hexachlorocyclohexane (HCH)				1		1									2					2					1			1							
Chlorfenvinphos			2	1		2		2		2	2	2	2		2				1	2		2			1	2		1		2	2	2	2	2	

Table 3.3.3 continued

Substance	AL	AT	BA	BE	BG	CY	CZ	DE	EE	ES	FI	FR	GB	GR	HR	HU	CH	IE	IS	IT	LT	LU	LV	MK	MT	NL	NO	PL	PT	RO	RS	SE	SI	SK	XK
Chlorpyrifos			2	2	1	1		2		2	2	2	2		2			2		2		2			1	2		1		2	2	2	1	2	
Isoproturon			2	2		1		2		2	2	2	2		1			1		2		2			1	2		1		2	2	2	1	2	
Lead	1	2	2	2	2	2			2	1	2	2	2		2		2	2	2	2	2	1	2	2	1	2	2	2	1	2	2	2			
Lead dissolved		2		2				2		1		2	2		2		1			2						2				2	2		2	2	1
Mercury	1	1	2	2	1	1				1	2	2	2		2		1	2	2	2	2	1	1		1	2	2	2	1	2	2	1			
Mercury dissolved		1		2				2		1		2	2		2		1			1						2				2	2		2	2	
Naphthalene			2	2		2		2		2	1	2	2		2			2		2		2			1	2		2	1	2			1	2	
Nickel	1	2	2	2	2	2			2	1	2	2	2		2		2	2		2	2	1	2	2	1	2	2	2		2	2	2		1	
Nickel dissolved		2		2				2		1		2	2		2		1			2						2				2	2		2	2	1
Para-tert-octylphenol			2	2				2			1	2	2							2	1	2			1	2		1		2	2		1	2	
Pentachlorobenzene			2	2				2		1	2	2	2		2				1	2		2			1	2		1		2	2		2	2	
Pentachlorophenol			2	2				2		2		2	2		2			2		2	1	2			1	2		1			2		2	2	
Simazine			2	2	1	2		2		2	2	2	2		2			1	1	2		1			1	2		2		2	2	2	2	2	
Σ Cyclodienes			2	2	2	2					2	2	2		2				1	2		1	2		1	2		1			2		2	2	
Σ DDT				1		1					1	2	2		2				1	2		1	2		1	2		1			2		2	2	
Σ HCH			2	1	2	1					1	2	2		2				1	2			2			2	2				2	2	2	2	
Σ Benzo(b)fluoranthene, Benzo(k)fluoranthene			2	2							1	2	2		2			1		2	2	1			1	2		2			1		1	2	
Σ Benzo(g,h,i)perylene, Indeno(1,2,3-cd)pyrene			2	2							1	2	2		2			1		2	2	1			1	2		2			1		1	2	
Tributyltin cation				2				2		1		2	2									2			1	1		1					1	2	
Trifluralin			2	2		2		2		2	2	2	2							2		2			1	2		1		2	2	2	2	2	
Trichloromethane			2	2		1		2		2		2	2		2			1		2		2			1	2		2		2			1	2	

Table 3.3.4 Available river samples within the 2002–2011 period

Substance	AL	AT	BA	BE	BG	CY	CZ	DE	EE	ES	FI	FR	GB	GR	HR	HU	CH	IE	IS	IT	LT	LU	LV	MK	MT	NL	NO	PL	PT	RO	RS	SE	SI	SK	XK
1,1,2,2-tetrachloroethene			5	1723		106		8413		1929		41827	2255		474			249		19821	412	72			9	573		2592		60			0	880	
1,2-dichloroethane		519	116	3433		143	2581	8461		2124		41860	3027		424			1444		14118	446	93			9	573		2520		30			155	1033	
4-nonylphenol			116	2849						146	173	16104						1751		722	1	51			9					34			84	997	
Alachlor		13907	121	3247		267	2269	2544		1604	225	56285			383			1751	1	20769		90			9	693		1322	80	293	431	160	579	1285	
Anthracene		194	173	3243		105		5000		1394	98	42367	870	21	261			2038		7463	339	78	101		9	740		2932	25	277	26		249	1186	
Atrazine		13971	233	3148	112	213	2268	9164		2196	225	54636	2839	449	883	2149		2040	1	20764	453	57			9	693		1908	85	389	1176	168	574	1269	
Benzene		507	129	3324		148	2579	7299		1999		41514	1897	20	371	556		1443		15731	447	93	67		9	571		2670	6	93			447	998	
Benzo(a)pyrene		172	174	3326		25	2302	4565		693	97	42244	3660		262			959		8197	347	96	101		9	736		3504	92	241	99		225	1185	
Cadmium	4	13677	890	4067	1731	217	3200	11134	483	1218	5309	29059	16912	483	1648	10156	216	2278	36	54292	1001	44	1409	1507	9	1342	2146	3392	388	1511	351	12125	1116	1004	
Cadmium dissolved		829		2024				5703		1132		12178	3184		564		13			1122						682				861	2208		267	816	124
DDT, p,p'		0	12	1843		155	2427	3852		1584	134	43985	4358	206	1336	1038			1	6858	803	33	84		9	740		2690		453	1177		255	1258	
Di (2-ethylhexyl) phthalate (DEHP)		362	137	1749		142		828		374	218	23208	695					736		838	126	90			9	677		1196					108	1267	
Dichloromethane		423	122	3244		106		8175		1576		41902	1180		424			1230		10425	435	93			9	574		2502		43			529	1005	
Diuron		452	154	3376		64	730	8493		1154	221	54753	1473	20	270			2042		7397		93			9	549		1273	84	30	407	170	254	1696	
Endosulfan			135	1380		139	2213				225	36242	869		455			1751	1	19010	167	54	76		9	384		2143			432	124	318	874	
Fluoranthene		172	171	3323		105	2301	4211		1636	98	42059	3761	21	262			2038		7592	306	96	101		9	738		3156	55	163	99		435	1189	
Hexachlorobenzene (HCB)		167	128	1604		216	2424	4916		958	134	48178	2323		457			1751	1	17001	454	51	81		9	740		2420		234	1176		516	1288	
Hexachlorobutadiene (HCBD)		167	116	1450		192	2487	5423		901	134	43468	2106		420			2329	1	14881		90			9	740		2334		66	110		318	633	
Hexachlorocyclohexane (HCH)				41		155						7261			34					10565	211				9			2940					226		
Chlorfenvinphos			135	1187		144		2219		1032	225	54002	1747		171			1751	1	12073		87			9	651		1620	3	115	427	160	563	639	
Chlorpyrifos		364	136	2277	49	124	2071	2125		1787	225	52928	810	2	171			143		19554		69			9	651		1284		141	431	160	64	1691	
Isoproturon		469	122	3363		64	761	8912		1207	221	53356	1362	19	270			2041		5695		92			9	548		945		27	407	207	254	1685	
Lead	4	13548	673	4076	2508	220	3103	4622	472	5077	5309	28915	16174	483	1646	10206	217	2262	39	49321	864	44	1422	1524	9	1341	2146	3336	279	1627	354	12126	1051	1010	
Lead dissolved		930		2047				5273		1136		12321	4669		567		13			7203						682				980	2202		267	794	123
Mercury	4	13399	788	3206	248	181	2878	10483	347	1742	3024	28797	9654	483	95	10010	47	2187	36	43493	771	44	561		9	1140	1907	3132	139	650	342	5131	1121	768	
Mercury dissolved		839		1143				3760		988		11255	2847		530		13			510						466				595	2209		263	427	
Naphthalene		194	148	2127		150		5748		2030	98	41731	597	20	261			1444		7780		57	68		9	739		3051	30	298			83	764	
Nickel	4	13219	804	4017	2112	263	3384	4588	43	6527	5329	28572	16230	483	1613	10078	104	2246		47826	1046	44	791	1480	9	1342	2150	3509	3	1622	350	12021	1213	666	
Nickel dissolved		843		2003				5187		856		12364	4486		555		13			6909						681				965	2179		267	468	124
Para-tert-octylphenol			116	3150				910			178	32895	253					1751		1234	1	69			9	611		1097		34	267		84	628	
Pentachlorobenzene		190	116	2425				1144		439	225	46469	177		337			1751	1	7103		87			9	739		1868		242	110		88	1277	
Pentachlorophenol		189	134	3102				2954		1599		47029	2175		155	62		1894		5924	650	90			9	611		1619	3		377		606	784	
Simazine		14066	148	3361	28	211	2268	9044		1382	225	53966	2764	173	345			2042	1	21422	453	57			9	693		1906		236	1175	171	574	1735	
Σ Cyclodienes		744	354	8317	256	648	7903				715	189035	13151		2599	1015		7004	4	55740	633	132	225		36	2910		10444			3959		869	3027	
Σ DDT			36	1953		511	7230				536	163626	9131	1	3533	1419			4	19064	1123	33	304		9	2948		5362			3529		352	3345	
Σ HCH			116	1255	101	27	2404				134	52324	3346		1391	1418			1	11896	498	21	73			738	307	2			1175	129	92	905	
Σ Benzo(b)fluoranthene, Benzo(k)fluoranthene		0	348	5259		50	4487				196	84796	5799		524			1917		15447	425	98	135		18	1476		6821			198		144	1503	
Σ Benzo(g,h,i)perylene, Indeno(1,2,3-cd)pyrene		0	319	4893		50	4602				196	84822	5660		523			1916		15856	334	120	136		18	1478		6998			198		496	1503	
Tributyltin cation				1358				2166		67		12210	1747									67			9	187		758					72	596	
Trifluralin		190	116	2551		137	2112	5522		1673	225	51405	1635	13				1079		19172		63			9	690		1399		61	432	174	563	1238	
Trichloromethane		519	142	3306		111		8714		2105		41291	3050		474	199		249		17449	409	72	18		9	574		2670		19			299	1038	

Table 3.3.5 Available river samples for countries within the 2010–2011 period

Substance	AL	AT	BA	BE	BG	CY	CZ	DE	EE	ES	FI	FR	GB	GR	HR	HU	CH	IE	IS	IT	LT	LU	LV	MK	MT	NL	NO	PL	PT	RO	RS	SE	SI	SK	XK
1,1,2,2-tetrachloroethene			5	1042		49		2548		1451		12623	1132		474			249		10611	5	54			9	285		2407		60			0	276	
1,2-dichloroethane		0	116	1385		86	0	2600		1646		12622	1760		424			462		7057	0	54			9	286		2284		30			84	275	
4-nonylphenol			116	1111						146	0	8970						0		617	1	51			9					34			72	245	
Alachlor		0	115	1279		81	0	2544		1482	77	16780			383			0	1	10832		51			9	339		1262	6	287	285	36	84	503	
Anthracene		0	136	1328		0		1705		1211	23	12891	529	0	261			287		5254	21	57	0		9	361		2484	3	249	26		72	316	
Atrazine		0	136	1180	112	66	0	3069		1877	77	16650	1733	0	346	0		289	1	11021	0	18			9	339		1809	5	353	285	36	84	503	
Benzene		0	117	1257		86	0	2385		1521		12623	959	0	371	0		461		9923	0	54	0		9	286		2313	0	93			96	243	
Benzo(a)pyrene		0	136	1368		0	0	2122		509	23	12891	2880		262			287		5720	19	57	0		9	357		2825	0	231	26		72	316	
Cadmium	4	834	276	1137	537	81	0	0	91	2	830	603	4398	0	110	0	78	1146	24	21457	13	44	26	422	9	430	527	2840	9	376	97	1650	0	0	
Cadmium dissolved		829		1726				4067		1132		12178	3184		564		13			863						455				824	1062		267	426	47
DDT, p,p'		0	0	756		50	0	1390		1584	47	13882	3197	0	416	0			1	4463	0	33	18		9	361		2464		413	285		84	493	
Di (2-ethylhexyl) phthalate (DEHP)		0	120	1228		0		828		359	0	1299	176					64		427	126	51			9	338		1141					72	423	
Dichloromethane		0	116	1436		49		2553		1292		12623	678		424			462		6264	2	54			9	286		2341		43			84	275	
Diuron		0	136	1404		19	0	3086		1100	77	16711	1234	0	270			291		3570		54			9	273		1219	4	30	285	36	32	503	
Endosulfan			117	228		50	0				77	13793	579		455			0	1	11375	0	33	18		9	186		1960			285	36	84	491	
Fluoranthene		0	136	1366		0	0	1746		1525	23	12891	2894	0	262			287		5262	10	57	0		9	360		2491	1	127	26		72	316	
Hexachlorobenzene (HCB)		0	116	152		77	0	1975		702	47	13950	1276		457			0	1	10299	0	33	18		9	361		2244		222	285		84	493	
Hexachlorobutadiene (HCBD)		0	116	0		86	0	2060		552	47	12960	1272		420			462	1	8097		51			9	361		2164		66	110		80	275	
Hexachlorocyclohexane (HCH)				41		50						0			34					8492	0				9			2480					0		
Chlorfenvinphos			118	604		66		2219		994	77	16737	1074		171			0	1	6706		51			9	325		1582	0	115	285	36	84	493	
Chlorpyrifos		0	119	522	49	46	0	2125		1625	77	16748	808	0	171			143		11104		51			9	325		1247		141	285	36	24	493	
Isoproturon		0	116	1391		19	0	3530		1153	77	16723	1177	0	270			290		3006		56			9	273		923		27	285	36	32	503	
Lead	4	849	318	1142	748	96	0	0	91	4652	829	603	4036	0	106	0	78	1157	24	16618	10	44	29	422	9	430	527	2839	8	400	97	1650	0	0	
Lead dissolved		835		1749				3614		1136		12321	3625		567		13			6751						455				864	1053		267	416	47
Mercury	4	827	236	809	187	81	0	0	0	1400	561	574	3723	0	95	0	26	1096	24	20141	13	44	10		9	340	524	2830	9	370	96	521	0	0	
Mercury dissolved		827		845				2624		988		11255	2847		530		13			510						311				595	1061		263	427	
Naphthalene		0	136	1353		86		2328		1618	23	12891	585	0	261			462		5153		57	0		9	361		2454	6	250			72	316	
Nickel	4	850	148	1119	713	148	0	0	19	5332	830	603	3679	0	48	0	78	1144		15668	121	44	28	422	9	430	527	2867	0	401	97	1650	0	30	
Nickel dissolved		843		1719				3533		856		12364	3568		555		13			6460						455				845	1056		267	468	47
Para-tert-octylphenol			116	1405				910			17	14767	237					0		1070	1	51			9	312		1077		34	267		72	246	
Pentachlorobenzene		0	116	973				1144		424	77	13625	177		337			0	1	5908		51			9	360		1721		218	110		84	489	
Pentachlorophenol		0	116	1177				758		1309		15387	1151		155	0		143		3679	7	51			9	312		1463	0		281		124	256	
Simazine		0	136	1393	28	66	0	3066		1066	77	16736	1679	0	345			291	1	11452	0	18			9	339		1811		236	284	36	84	503	
Σ Cyclodienes		0	348	3905	164	231	0				248	59273	9178		1820	0		0	4	32807	0	132	54		36	1435		9464			1139		336	1972	
Σ DDT			0	1212		150	0				188	59257	7996	0	1248	0			4	10911	0	33	72		9	1444		4818			855		336	1972	
Σ HCH			116	289	101	27	0				47	16816	2885		433	0			1	3535	0	0	18			360	71	0			283	36	84	493	
Σ Benzo(b)fluoranthene, Benzo(k)fluoranthene		0	272	2620		0	0				46	25782	5799		524			573		10905	62	56	0		18	720		5630			52		144	632	
Σ Benzo(g,h,i)perylene, Indeno(1,2,3-cd)pyrene		0	272	2247		0	0				46	25782	5660		523			572		11086	3	78	0		18	722		5986			52		144	631	
Tributyltin cation				1034				1305		67		6162	1644									51			9	187		748					72	224	
Trifluralin		0	116	1049		59	0	2138		1519	77	14677	640	0				0		10502		51			9	339		1339		61	285	36	84	445	
Trichloromethane		0	130	1258		49		2565		1627		12623	1736		474	0		249		9693	0	54	0		9	286		2326		19			84	275	

Table 3.3.6 Available river stations with data within the 2002–2011 period

Substance	AL	AT	BA	BE	BG	CH	CY	CZ	DE	DK	EE	ES	FI	FR	GB	GR	HR	HU	IE	IS	IT	LI	LT	LU	LV	ME	MK	NL	NO	PL	PT	RO	RS	SE	SI	SK	TR	XK
1,1,2,2-tetrachloroethene	0	0	5	83	0	0	22	0	172	0	0	292	0	1472	116	0	29	0	25	0	871	0	52	3	0	0	0	13	0	234	0	8	0	0	0	38	0	0
1,2-dichloroethane	0	33	10	87	0	0	22	63	190	0	0	302	0	1461	363	0	27	0	177	0	966	0	49	3	0	0	0	13	0	243	0	4	0	0	19	41	0	0
4-nonylphenol	0	0	10	87	0	0	0	0	0	0	0	20	10	1038	0	0	0	0	179	0	90	0	1	3	0	0	0	0	0	0	0	3	0	0	7	47	0	0
Alachlor	0	379	11	89	0	0	32	58	125	0	0	331	9	1540	0	0	26	0	179	1	1013	0	0	3	0	0	0	14	0	140	19	39	66	2	32	45	0	0
Anthracene	0	24	26	90	0	0	14	0	163	0	0	302	9	1450	145	20	16	0	204	0	595	0	55	3	16	0	0	15	0	269	17	36	3	0	24	51	0	0
Atrazine	0	379	26	89	13	0	32	55	194	0	0	375	9	1541	143	73	25	199	204	1	983	0	49	3	0	0	0	14	0	196	19	37	69	3	32	51	0	0
Benzene	0	33	20	87	0	0	22	63	176	0	0	298	0	1468	315	19	24	82	177	0	805	0	49	3	8	0	0	13	0	252	3	19	0	0	25	40	0	0
Benzo(a)pyrene	0	19	26	90	0	0	9	59	169	0	0	218	9	1464	237	0	16	0	81	0	649	0	52	3	16	0	0	15	0	305	19	35	30	0	23	51	0	0
Cadmium	4	384	49	66	115	5	32	67	219	0	57	173	65	1462	559	72	36	253	146	3	1906	0	73	3	126	0	20	29	53	327	50	83	22	170	31	46	0	0
Cadmium dissolved	0	66	0	90	0	1	0	0	200	0	0	294	0	786	240	0	31	0	0	0	110	0	0	0	0	0	0	14	0	0	0	73	73	0	19	40	0	48
Chlorfenvinphos	0	0	21	69	0	0	21	0	111	0	0	214	9	1527	94	0	15	0	179	1	739	0	0	3	0	0	0	14	0	217	2	15	66	2	32	32	0	0
Chlorpyrifos	0	32	21	54	11	0	21	57	105	0	0	337	9	1525	46	2	15	0	18	0	904	0	0	3	0	0	0	14	0	204	0	19	66	2	9	51	0	0
DDT, p,p'	0	0	12	87	0	0	22	65	137	0	0	381	8	1243	378	34	39	118	0	1	542	0	89	3	22	0	0	15	0	251	0	44	69	0	26	46	0	0
Di (2-ethylhexyl) phthalate (DEHP)	0	32	20	82	0	0	19	0	52	0	0	76	10	1422	61	0	0	0	73	0	221	0	16	3	0	0	0	14	0	205	0	0	0	0	8	53	0	0
Dichloromethane	0	33	11	87	0	0	22	0	192	0	0	276	0	1461	265	0	27	0	141	0	501	0	49	3	0	0	0	13	0	241	0	5	0	0	25	38	0	0
Diuron	0	44	26	89	0	0	19	38	201	0	0	160	9	1543	89	19	24	0	204	0	565	0	0	3	0	0	0	11	0	144	18	6	66	3	20	51	0	0
Endosulfan	0	0	21	47	0	0	22	61	0	0	0	0	9	1309	55	0	29	0	179	1	847	0	15	3	22	0	0	15	0	188	0	0	66	3	20	42	0	0
Fluoranthene	0	19	26	90	0	0	14	59	145	0	0	358	9	1464	252	20	16	0	204	0	591	0	50	3	16	0	0	15	0	276	15	29	30	0	27	51	0	0
Hexachlorobenzene (HCB)	0	23	19	47	0	0	29	65	160	0	0	231	8	1466	161	0	28	0	179	1	911	0	49	3	22	0	0	15	0	238	0	29	69	0	30	46	0	0
Hexachlorobutadiene (HCBD)	0	23	10	47	0	0	24	62	172	0	0	205	8	1456	158	0	26	0	232	1	765	0	0	3	0	0	0	15	0	226	0	13	61	0	21	39	0	0
Hexachlorocyclohexane (HCH)	0	0	0	28	0	0	22	0	0	0	0	0	0	718	0	0	17	0	0	0	483	0	54	0	0	0	0	0	0	268	0	0	0	0	19	0	0	0
Isoproturon	0	44	11	89	0	0	19	42	214	0	0	174	9	1537	75	19	24	0	204	0	371	0	0	3	0	0	0	11	0	109	0	5	66	3	20	51	0	0
Lead	4	384	47	66	116	5	32	65	134	0	56	797	67	1462	504	72	36	253	146	4	1608	0	73	3	128	0	20	29	53	290	51	89	22	170	31	45	0	0
Lead dissolved	0	66	0	90	0	1	0	0	171	0	0	257	0	786	360	0	31	0	0	0	499	0	0	0	0	0	0	14	0	0	0	74	73	0	19	40	0	48
Mercury	4	291	47	65	44	3	30	69	204	0	19	97	33	1459	479	72	9	254	146	3	1760	0	62	3	88	0	0	18	46	328	26	52	22	109	31	47	0	0
Mercury dissolved	0	66	0	59	0	1	0	0	142	0	0	268	0	774	199	0	30	0	0	0	70	0	0	0	0	0	0	8	0	0	0	55	73	0	19	28	0	0
Naphthalene	0	24	17	89	0	0	23	0	175	0	0	343	9	1447	135	20	16	0	177	0	601	0	0	3	16	0	0	15	0	266	18	38	0	0	12	49	0	0
Nickel	4	291	48	66	112	3	31	70	134	0	14	807	70	1447	508	72	36	252	146	0	1590	0	79	3	93	0	20	29	53	372	1	84	22	170	31	45	0	0
Nickel dissolved	0	66	0	90	0	1	0	0	170	0	0	158	0	786	361	0	31	0	0	0	498	0	0	0	0	0	0	14	0	0	0	77	73	0	19	27	0	48
Para-tert-octylphenol	0	0	10	87	0	0	0	0	55	0	0	0	9	1231	31	0	0	0	179	0	168	0	1	3	0	0	0	14	0	196	0	3	65	0	7	36	0	0
Pentachlorobenzene	0	27	10	87	0	0	0	0	62	0	0	173	9	1462	24	0	23	0	179	1	460	0	0	3	0	0	0	15	0	182	0	32	61	0	7	45	0	0
Pentachlorophenol	0	27	19	87	0	0	0	0	128	0	0	313	0	1462	154	0	15	5	197	0	318	0	67	3	0	0	0	14	0	167	2	0	66	0	26	36	0	0
Σ Cyclodienes	0	23	11	84	17	0	29	61	0	0	0	0	9	1489	211	0	38	84	179	1	878	0	15	3	22	0	0	15	0	263	0	0	69	0	29	44	0	0
Σ DDT	0	0	12	84	0	0	22	64	0	0	0	0	8	1213	370	1	39	119	0	1	535	0	63	3	22	0	0	15	0	277	0	0	69	0	7	45	0	0
Σ HCH	0	0	10	46	18	0	7	64	0	0	0	0	8	1503	179	0	39	143	0	1	704	0	63	3	21	0	0	15	11	2	0	0	69	3	7	45	0	0
Σ Benzo(b)fluoranthene, Benzo(k)fluoranthene	0	0	26	85	0	0	9	59	0	0	0	0	9	1461	224	0	16	0	81	0	644	0	26	3	10	0	0	15	0	302	0	0	30	0	6	49	0	0
Σ Benzo(g,h,i)perylene, Indeno(1,2,3-cd)pyrene	0	0	26	85	0	0	9	59	0	0	0	0	9	1461	220	0	16	0	81	0	643	0	14	3	10	0	0	15	0	301	0	0	30	0	25	49	0	0
Simazine	0	379	26	89	14	0	33	55	199	0	0	242	9	1541	137	34	19	0	204	1	1054	0	49	3	0	0	0	14	0	196	0	34	69	3	32	57	0	0
Tributyltin cation	0	0	0	82	0	0	0	0	105	0	0	13	0	1127	292	0	0	0	0	0	0	0	0	3	0	0	0	14	0	178	0	0	0	0	6	35	0	0
Trichloromethane	0	33	26	87	0	0	22	0	191	0	0	296	0	1461	345	0	29	21	25	0	870	0	49	3	2	0	0	13	0	256	0	5	0	0	22	40	0	0
Trifluralin	0	27	10	89	0	0	21	58	177	0	0	330	9	1533	97	13	0	0	123	0	909	0	0	3	0	0	0	14	0	211	0	10	66	3	32	44	0	0

Table 3.3.7 Available river stations with data within the 2010–2011 period

Substance	AL	AT	BA	BE	BG	CH	CY	CZ	DE	DK	EE	ES	FI	FR	GB	GR	HR	HU	IE	IS	IT	LI	LT	LU	LV	ME	MK	NL	NO	PL	PT	RO	RS	SE	SI	SK	TR	XK
1,1,2,2-tetrachloroethene	0	0	5	68	0	0	12	0	122	0	0	278	0	786	99	0	29	0	25	0	539	0	3	3	0	0	0	10	0	223	0	8	0	0	0	22	0	0
1,2-dichloroethane	0	0	10	78	0	0	12	0	121	0	0	288	0	786	330	0	27	0	52	0	504	0	0	3	0	0	0	10	0	221	0	4	0	0	7	22	0	0
4-nonylphenol	0	0	10	81	0	0	0	0	0	0	0	20	0	608	0	0	0	0	0	0	67	0	1	3	0	0	0	0	0	0	0	3	0	0	6	20	0	0
Alachlor	0	0	10	78	0	0	13	0	125	0	0	329	5	1109	0	0	26	0	0	1	642	0	0	3	0	0	0	13	0	127	4	36	65	2	14	30	0	0
Anthracene	0	0	17	84	0	0	0	0	104	0	0	301	6	786	130	0	16	0	25	0	482	0	12	3	0	0	0	14	0	232	3	36	3	0	6	23	0	0
Atrazine	0	0	17	83	13	0	13	0	144	0	0	373	5	1109	87	0	20	0	25	1	635	0	0	3	0	0	0	13	0	177	3	37	65	2	14	30	0	0
Benzene	0	0	11	75	0	0	12	0	114	0	0	284	0	786	274	0	24	0	52	0	582	0	0	3	0	0	0	10	0	215	0	19	0	0	8	21	0	0
Benzo(a)pyrene	0	0	17	84	0	0	0	0	142	0	0	196	6	786	212	0	16	0	25	0	528	0	10	3	0	0	0	14	0	265	0	35	3	0	6	23	0	0
Cadmium	4	66	30	59	51	3	18	0	0	0	53	2	43	60	352	0	9	0	68	3	1031	0	9	3	5	0	20	14	46	261	3	38	8	72	0	0	0	0
Cadmium dissolved	0	66	0	90	0	1	0	0	191	0	0	294	0	786	240	0	31	0	0	0	110	0	0	0	0	0	0	14	0	0	0	70	72	0	19	28	0	47
Chlorfenvinphos	0	0	12	54	0	0	13	0	111	0	0	213	5	1108	55	0	15	0	0	1	508	0	0	3	0	0	0	13	0	206	0	15	65	2	14	29	0	0
Chlorpyrifos	0	0	12	35	11	0	13	0	105	0	0	335	5	1108	44	0	15	0	18	0	668	0	0	3	0	0	0	13	0	193	0	19	65	2	6	29	0	0
DDT, p,p'	0	0	0	68	0	0	13	0	80	0	0	381	5	834	334	0	28	0	0	1	384	0	0	3	3	0	0	14	0	238	0	43	65	0	7	29	0	0
Di (2-ethylhexyl) phthalate (DEHP)	0	0	11	82	0	0	0	0	52	0	0	76	0	233	54	0	0	0	17	0	110	0	16	3	0	0	0	13	0	193	0	0	0	0	6	28	0	0
Dichloromethane	0	0	10	81	0	0	12	0	122	0	0	262	0	786	254	0	27	0	52	0	387	0	2	3	0	0	0	10	0	222	0	5	0	0	7	22	0	0
Diuron	0	0	17	83	0	0	6	0	147	0	0	154	5	1108	73	0	24	0	25	0	331	0	0	3	0	0	0	10	0	127	2	6	65	2	6	30	0	0
Endosulfan	0	0	11	23	0	0	13	0	0	0	0	0	5	835	36	0	29	0	0	1	628	0	0	3	3	0	0	14	0	175	0	0	65	2	7	29	0	0
Fluoranthene	0	0	17	84	0	0	0	0	106	0	0	357	6	786	215	0	16	0	25	0	483	0	5	3	0	0	0	14	0	232	1	26	3	0	6	23	0	0
Hexachlorobenzene (HCB)	0	0	10	14	0	0	13	0	124	0	0	215	5	841	115	0	28	0	0	1	659	0	0	3	3	0	0	14	0	218	0	29	65	0	7	29	0	0
Hexachlorobutadiene (HCBD)	0	0	10	0	0	0	12	0	106	0	0	167	5	799	115	0	26	0	52	1	474	0	0	3	0	0	0	14	0	207	0	13	61	0	7	22	0	0
Hexachlorocyclohexane (HCH)	0	0	0	28	0	0	13	0	0	0	0	0	0	0	0	0	17	0	0	0	438	0	0	0	0	0	0	0	0	231	0	0	0	0	0	0	0	0
Isoproturon	0	0	10	83	0	0	6	0	184	0	0	168	5	1108	67	0	24	0	25	0	228	0	0	3	0	0	0	10	0	97	0	5	65	2	6	30	0	0
Lead	4	66	30	59	64	3	18	0	0	0	53	796	42	60	329	0	9	0	67	3	694	0	9	3	5	0	20	14	46	262	3	38	8	72	0	0	0	0
Lead dissolved	0	66	0	90	0	1	0	0	153	0	0	257	0	786	334	0	31	0	0	0	499	0	0	0	0	0	0	14	0	0	0	68	72	0	19	26	0	47
Mercury	4	66	30	36	29	1	18	0	0	0	0	73	27	61	227	0	9	0	69	3	1033	0	10	3	5	0	0	14	46	261	3	35	8	54	0	0	0	0
Mercury dissolved	0	66	0	36	0	1	0	0	135	0	0	268	0	774	199	0	30	0	0	0	70	0	0	0	0	0	0	8	0	0	0	55	72	0	19	28	0	0
Naphthalene	0	0	17	84	0	0	12	0	112	0	0	329	6	786	135	0	16	0	52	0	457	0	0	3	0	0	0	14	0	232	4	37	0	0	6	23	0	0
Nickel	4	66	21	59	58	3	18	0	0	0	8	784	43	60	308	0	5	0	67	0	668	0	23	3	5	0	20	14	46	259	0	38	8	72	0	3	0	0
Nickel dissolved	0	66	0	90	0	1	0	0	152	0	0	158	0	786	334	0	31	0	0	0	498	0	0	0	0	0	0	14	0	0	0	70	72	0	19	27	0	47
Para-tert-octylphenol	0	0	10	79	0	0	0	0	55	0	0	0	5	926	31	0	0	0	0	0	144	0	1	3	0	0	0	13	0	185	0	3	65	0	6	20	0	0
Pentachlorobenzene	0	0	10	69	0	0	0	0	62	0	0	168	5	816	24	0	23	0	0	1	421	0	0	3	0	0	0	14	0	165	0	28	61	0	7	29	0	0
Pentachlorophenol	0	0	10	76	0	0	0	0	44	0	0	300	0	943	91	0	15	0	18	0	232	0	4	3	0	0	0	13	0	148	0	0	65	0	10	19	0	0
Σ Cyclodienes	0	0	10	70	17	0	13	0	0	0	0	0	5	969	135	0	29	0	0	1	600	0	0	3	3	0	0	14	0	240	0	0	65	0	7	29	0	0
Σ DDT	0	0	0	68	0	0	13	0	0	0	0	0	5	974	334	0	28	0	0	1	378	0	0	3	3	0	0	14	0	251	0	0	65	0	7	29	0	0
Σ HCH	0	0	10	27	18	0	7	0	0	0	0	0	5	1110	141	0	28	0	0	1	347	0	0	0	3	0	0	14	10	0	0	0	64	2	7	29	0	0
Σ Benzo(b)fluoranthene, Benzo(k)fluoranthene	0	0	17	84	0	0	0	0	0	0	0	0	6	786	224	0	16	0	25	0	522	0	17	3	0	0	0	14	0	266	0	0	3	0	6	23	0	0
Σ Benzo(g,h,i)perylene, Indeno(1,2,3-cd)pyrene	0	0	17	84	0	0	0	0	0	0	0	0	6	786	220	0	16	0	25	0	516	0	2	3	0	0	0	14	0	275	0	0	3	0	6	23	0	0
Simazine	0	0	17	83	14	0	13	0	144	0	0	224	5	1109	84	0	19	0	25	1	706	0	0	3	0	0	0	13	0	177	0	34	65	2	14	30	0	0
Tributyltin cation	0	0	0	75	0	0	0	0	97	0	0	13	0	689	279	0	0	0	0	0	0	0	0	3	0	0	0	14	0	168	0	0	0	0	6	19	0	0
Trichloromethane	0	0	17	75	0	0	12	0	122	0	0	282	0	786	317	0	29	0	25	0	547	0	0	3	0	0	0	10	0	225	0	5	0	0	7	22	0	0
Trifluralin	0	0	10	76	0	0	13	0	116	0	0	328	5	946	49	0	0	0	0	0	625	0	0	3	0	0	0	13	0	198	0	10	65	2	14	29	0	0

3.4 Lakes

The number of samples and monitoring stations has increased substantially from 2002 to 2011. Reported data on pesticides and metals were most abundant, and the data stretches back for the longest amount of time, more or less continuously from 2002. Measurements of the selected hazardous substances in lakes have been conducted in several of the countries, but as shown in the following tables, high variations between the countries in the numbers of substances reported, length of time the monitoring has been performed, and numbers of stations included are depicted. A temporal availability of lakes SoE data for selected hazardous substances in the period 2002–2011 is shown in Tables 3.4.1 to 3.4.7. Most of the substances have been reported for 10 years throughout Europe.

Table 3.4.1 Temporal availability of SoE lake data for selected hazardous substances in the 2002–2011 period.

Substance	No. of years	Period
1,1,2,2-tetrachloroethene	10	2002-2011
1,2-dichloroethane	9	2003-2011
4-nonylphenol	5	2006-2011
Alachlor	10	2002-2011
Anthracene	7	2003-2011
Atrazine	10	2002-2011
Benzene	7	2004-2011
Benzo(a)pyrene	9	2003-2011
Cadmium	10	2002-2011
Cadmium dissolved	3	2009-2011
Chlorfenvinphos	10	2002-2011
Chlorpyrifos	10	2002-2011
DDT, p,p'	10	2002-2011
Di (2-ethylhexyl) phthalate (DEHP)	5	2006-2011
Dichloromethane	5	2007-2011
Diuron	10	2002-2011
Endosulfan	6	2002-2011
Fluoranthene	9	2003-2011
Hexachlorobenzene (HCB)	10	2002-2011
Hexachlorobutadiene (HCBD)	6	2005-2011
Hexachlorocyclohexane (HCH)	6	2002-2011

Substance	No. of years	Period
Isoproturon	9	2003-2011
Lead	10	2002-2011
Lead dissolved	3	2009-2011
Mercury	10	2002-2011
Mercury dissolved	3	2009-2011
Naphthalene	5	2007-2011
Nickel	10	2002-2011
Nickel dissolved	3	2009-2011
Para-tert-octylphenol	5	2007-2011
Pentachlorobenzene	5	2007-2011
Pentachlorophenol	10	2002-2011
∑ Cyclodienes	10	2002-2011
∑ DDT	10	2002-2011
∑ HCH	10	2002-2011
∑ Benzo(b)fluoranthene, Benzo(k)fluoranthene	9	2003-2011
∑ Benzo(g,h,i)perylene, Indeno(1,2,3-cd)pyrene	9	2003-2011
Simazine	10	2002-2011
Tributyltin cation	2	2010-2011
Trichloromethane	9	2003-2011
Trifluralin	10	2002-2011

Table 3.4.2 No. of years with available lake data for countries within the 2002–2011 period

Substance	BA	BE	BG	CH	CY	DE	EE	ES	FI	FR	GB	GR	HR	HU	IE	IS
1,1,2,2-tetrachloroethene		3			2			2		2			2		2	
1,2-dichloroethane		3			4			2		2	6		3		2	
4-nonylphenol		2						2	1	3						
Alachlor		3			10			2	1	3			3			
Anthracene		3			3			2		3	2		1		1	
Atrazine		3	1	4	8			2	1	5	6	3	2	4	1	
Benzene		3			4			2		3	5		1	1	3	
Benzo(a)pyrene		3			3	2		2		3	2		1		1	
Cadmium	4	3	6		8	1	10		10	3	9	1	7	5	3	4
Cadmium dissolved		2						1		1	2		2			
Chlorfenvinphos					4			2	1	3	6		3			
Chlorpyrifos		3	1		3			2	1	3	5		3		2	
DDT, p,p'		1			2			2	1	2	4		7	1		
Di (2-ethylhexyl) phthalate (DEHP)	1	2			2	2		2	1	1	2				2	
Dichloromethane		3			3			2		2	1		3		3	
Diuron		3			7			2	1	4	8		1		1	
Endosulfan		3			3				1	2	5		2			
Fluoranthene		3			3	3		2		3	3		1		1	
Hexachlorobenzene (HCB)		1			7			1	1	2	1		3			
Hexachlorobutadiene (HCBD)					4			1	1	2	1		3		2	
Hexachlorocyclohexane (HCH)		1			2						1		1			
Isoproturon		3		1	4			2	1	3	6		1		1	
Lead	3	3	7	2	9	2	9	1	10	3	8	1	5	5	3	4
Lead dissolved		2						1			3		3			
Mercury	5	3	2	2	7	4	10	1	10	3	9	1	7	5	3	4
Mercury dissolved		2						1			2		2			
Mercury dissolved																
Naphthalene		3			3	2		2		3			1		3	
Nickel	3	3	7	2	9	4	1	1	10	3	9	1	6	5	3	4
Nickel dissolved		2						1			3		3			
Para-tert-octylphenol		3								3	2					
Pentachlorobenzene		1						1	1	2			1			
Pentachlorophenol		3						2		2	6		3		2	
Simazine		3		3	8			2	1	3	6	1	2		1	
Σ Cyclodienes		1	2		6				1	3	10		8	1		
Σ DDT		1			3				1	2	4		7	1		
Σ HCH		3			1				1	3	4		7	4		
Σ Benzo(b)fluoranthene, Benzo(k)fluoranthene		3			3					3	2		1		1	
Σ Benzo(g,h,i)perylene, Indeno(1,2,3-cd)pyrene		3			3					3	2		1		1	
Tributyltin cation		2								1	1					
Trichloromethane		3			3			2		3	7		3		1	
Trifluralin		3		4	4			2	1	3	6					

Table 3.4.2 continued

Substance	IT	LT	LV	MK	MT	NL	NO	PL	PT	RO	RS	SE	SI	SK	XK
1,1,2,2-tetrachloroethene	10				1	5		3						2	
1,2-dichloroethane	6				1	5		3						3	
4-nonylphenol	2				1	2		1						2	
Alachlor	10				1	5		3	2	2			3	2	
Anthracene	4				1	5		3	3	2				2	
Atrazine	10	1			1	5		3	2		3		2	2	
Benzene	4				1	5		3	1					2	
Benzo(a)pyrene	9				1	3		3	4	2	1			3	
Cadmium	10	4	7		1	3	7	3	3	2	1	10	2	1	
Cadmium dissolved	1					3			1	2	2		1	1	3
Chlorfenvinphos	10				1	5		3					2	1	
Chlorpyrifos	10				1	5		3	1				2	2	
DDT, p,p'	10	3			1	5		2		2	3		1	1	
Di (2-ethylhexyl) phthalate (DEHP)	2			1	1	3		3						2	
Dichloromethane	4				1	5		3	1					3	
Diuron	7				1	5		3	2					2	
Endosulfan	10				1	3		2						1	
Fluoranthene	8				1	5		3	3	2	1			2	
Hexachlorobenzene (HCB)	10				1	5		3	1	2	3			1	
Hexachlorobutadiene (HCBD)	4				1	5		3	1					2	
Hexachlorocyclohexane (HCH)	4	1			1			2							
Isoproturon	4				1	5		3						2	
Lead	10	4	7		1	3	7	3	3	2	1	10	2	1	
Lead dissolved	3					3			1	2	3		1		3
Mercury	10	4	3		1	3		2	2	1	2	6	2	1	
Mercury dissolved	1					3			1	2			1	1	
Mercury dissolved											2				
Naphthalene	4				1	5		3	3	2				3	
Nickel	10	4	4	1	1	5	7	3		2	1	10	2	1	
Nickel dissolved	3					3			1	2	3		1		3
Para-tert-octylphenol	2				1	5		1						1	
Pentachlorobenzene	4				1	5		3	1	2				1	
Pentachlorophenol	5	2			1	5		3	1					2	
Simazine	10	1			1	5		3			3		2	2	
Σ Cyclodienes	10	1			1	5		2			3		1	2	
Σ DDT	10	3			1	5		2			3		1	2	
Σ HCH	10	2		1		3					3			1	
Σ Benzo(b)fluoranthene, Benzo(k)fluoranthene	9				1	5		2			1			3	
Σ Benzo(g,h,i)perylene, Indeno(1,2,3-cd)pyrene	9				1	5		2			1			3	
Tributyltin cation					1	1								1	
Trichloromethane	4				1	5		3						2	
Trifluralin	10				1	5		3	1				2	2	

Table 3.4.3 No. of years with available lake data for countries within the 2010–2011 period

Substance	BA	BE	BG	CH	CY	DE	EE	ES	FI	FR	GB	GR	HR	HU	IE	IS
1,1,2,2-tetrachloroethene		2			1			2		2			2		2	
1,2-dichloroethane		2			2			2		2	1		2		2	
4-nonylphenol		1						2		2						
Alachlor		2			2			2		2			2			
Anthracene		2			1			2		2					1	
Atrazine		2	1		2			2		2					1	
Benzene		2			2			2		2	1				2	
Benzo(a)pyrene		2			1	2		2		2	2				1	
Cadmium	2	2	2		1		2		2	2	2				2	2
Cadmium dissolved		2						1		1	2		2			
Cadmium dissolved																
Chlorfenvinphos					2			2		2			2			
Chlorpyrifos		2	1		1			2		2			2		2	
DDT, p,p'					1			2		2	1		1			
Di (2-ethylhexyl) phthalate (DEHP)	1	2				1		2		1	2				2	
Dichloromethane		2			1			2		2	1		2		2	
Diuron		2			2			2		2	2				1	
Endosulfan		2			1					2			1			
Fluoranthene		2			1	2		2		2	2				1	
Hexachlorobenzene (HCB)					2			1		2			2			
Hexachlorobutadiene (HCBD)					2			1		2			2		2	
Hexachlorocyclohexane (HCH)		1			1											
Isoproturon		2			2			2		2					1	
Lead	2	2	2		2	1	2	1	2	2	2				2	2
Lead dissolved		2						1			2		2			
Mercury	2	2	1		1	2	2	1	2	2	2				2	2
Mercury dissolved		2						1			2		2			
Mercury dissolved																
Naphthalene		2			2	2		2		2					2	
Nickel		2	2		2	2	1	1	2	2	2				2	2
Nickel dissolved		2						1			2		2			
Para-tert-octylphenol		2								2	2					
Pentachlorobenzene								1		2						
Pentachlorophenol		2						2		2			2		2	
Simazine		2			2			2		2					1	
Σ Cyclodienes			2		2					2	2		2			
Σ DDT					1					2	1		1			
Σ HCH		2			1					2	2		1			
Σ Benzo(b)fluoranthene, Benzo(k)fluoranthene		2			1					2	2				1	
Σ Benzo(g,h,i)perylene, Indeno(1,2,3-cd)pyrene		2			1					2	2				1	
Tributyltin cation		2								1	1					
Trichloromethane		2			1			2		2	2		2		1	
Trifluralin		2			2			2		2						

Table 3.4.3 continued

Substance	IT	LT	LV	MK	MT	NL	NO	PL	PT	RO	RS	SE	SI	SK	XK
1,1,2,2-tetrachloroethene	2				1	2		2						2	
1,2-dichloroethane	2				1	2		2						2	
4-nonylphenol	2				1									1	
Alachlor	2				1	2		2	2	2			2	1	
Anthracene	2				1	2		2	2	2				2	
Atrazine	2				1	2		2	2				1	1	
Benzene	2				1	2		2	1					1	
Benzo(a)pyrene	2				1	2		2	2	2				2	
Cadmium	2				1	2	2	2	1	2		2	1		
Cadmium dissolved	1					2			1	2			1	1	2
Cadmium dissolved											2				
Chlorfenvinphos	2				1	2		2					1	1	
Chlorpyrifos	2				1	2		2	1				1	1	
DDT, p,p'	2				1	2		2		2			1	1	
Di (2-ethylhexyl) phthalate (DEHP)	2			1	1	2		2						2	
Dichloromethane	2				1	2		2	1					2	
Diuron	2				1	2		2	1					1	
Endosulfan	2				1	2		1						1	
Fluoranthene	2				1	2		2	2	2				2	
Hexachlorobenzene (HCB)	2				1	2		2	1	2				1	
Hexachlorobutadiene (HCBD)	2				1	2		2	1					2	
Hexachlorocyclohexane (HCH)	2				1			1							
Isoproturon	2				1	2		2						1	
Lead	2				1	2	2	2	1	1		2	1		
Lead dissolved	2					2			1	2	2		1		2
Mercury	2				1	2		2		1		2	1		
Mercury dissolved	1					2			1	2			1	1	
Mercury dissolved											2				
Naphthalene	2				1	2		2	2	2				2	
Nickel	2			1	1	2	2	2		1		2	1		
Nickel dissolved	2					2			1	2	2		1		2
Para-tert-octylphenol	2				1	2								1	
Pentachlorobenzene	2				1	2		2	1	2				1	
Pentachlorophenol	2				1	2		2	1					1	
Simazine	2				1	2		2					1	1	
Σ Cyclodienes	2				1	2		1					1	1	
Σ DDT	2				1	2		1					1	1	
Σ HCH	2			1		2								1	
Σ Benzo(b)fluoranthene, Benzo(k)fluoranthene	2				1	2		1						2	
Σ Benzo(g,h,i)perylene, Indeno(1,2,3-cd)pyrene	2				1	2		1						2	
Tributyltin cation					1	1								1	
Trichloromethane	2				1	2		2						2	
Trifluralin	2				1	2		2	1				1	1	

Table 3.4.4 Available lakes samples within the 2002–2011 period

Substance	BA	BE	BG	CH	CY	DE	EE	ES	FI	FR	GB	GR	HR	HU	IE	IS	IT	LT	LV	MK	MT	NL	NO	PL	PT	RO	RS	SE	SI	SK	XK
1,1,2,2-tetrachloroethene		28			79			247		273			16		237		980				12	873		1077						48	
1,2-dichloroethane		28			154			298		273	170		52		237		911				12	874		1021						324	
4-nonylphenol		15						42	8	340							115				12	43		12						287	
Alachlor		28			280			383	4	323			44				1384				12	1049		526	7	8			69	288	
Anthracene		27			111			332		309	3		36		140		581				12	1053		1079	41	7				96	
Atrazine		28	6	15	166			439	4	327	178	16	37	88	138		1386	32			12	1025		692	5		372		45	288	
Benzene		28			154			279		307	184		36	82	293		756				12	867		613	3					288	
Benzo(a)pyrene		27			72	58		155		309	6		36		140		649				12	663		1078	47	7	203			372	
Cadmium	120	94	177		194	1	56		616	139	1025	6	144	642	396	16	2325	53	48		12	607	189	1095	16	24	81	1360	16	6	
Cadmium dissolved		46						226		1	81		17				4					621			3	79	454		11	24	24
Chlorfenvinphos					111			157	4	339	177		44				871				12	1018		258					45	12	
Chlorpyrifos		27	12		95			401	4	289	130		44		127		1298				12	1041		260	2				45	288	
DDT, p,p'		4			78			405	4	272	170		62	53			471	45			12	1033		1000		7	372		24	12	
Di (2-ethylhexyl) phthalate (DEHP)	9	12			84	16		37	17	50	8				58		108			15	12	653		317						286	
Dichloromethane		28			90			257		273	134		52		279		639				12	847		1071	3					324	
Diuron		28			52			391	4	316	202		36		138		530				12	975		242	19					288	
Endosulfan		28			81				4	302	53		40				816				12	667		495						12	
Fluoranthene		27			111	52		447		309	17		36		140		618				12	1052		1097	39	12	203			96	
Hexachlorobenzene (HCB)		4			181			113	4	273	13		44				1039				12	1033		958	2	7	372			12	
Hexachlorobutadiene (HCBD)					156			96	4	289	2		52		237		850				12	1033		646	3					48	
Hexachlorocyclohexane (HCH)		12			77						14		36				557	9			12			584							
Isoproturon		28		1	34			296	4	306	153		36		138		340				12	975		164						287	
Lead	83	94	283	6	214	27	50	552	585	317	535	13	73	634	367	16	1921	51	46		12	607	191	1095	19	32	81	1359	16	18	
Lead dissolved		46						238			110		61				779					621			3	73	681		11		12
Mercury	161	89	20	6	163	6	54	182	408	184	513	2	124	640	263	16	1921	51	19		12	442		940	11	8	75	26	28	9	
Mercury dissolved		46						209			53		17				4					568			3	68			11	12	
Mercury dissolved																											462				
Naphthalene		27			113	51		282		309			36		293		433				12	1013		1059	19	12				372	
Nickel	172	94	213	6	258	59	8	1030	916	317	937	11	77	642	396	16	1794	53	30	15	12	990	187	1092		32	81	1360	16	12	
Nickel dissolved		46						221			103		61				777					621			3	69	678		11		11
Para-tert-octylphenol		27								318	7						133				12	878		12						12	
Pentachlorobenzene		4						126	4	271			36				577				12	1033		896	2	8				12	
Pentachlorophenol		27						129		273	146		44		127		722	13			12	907		784	3					288	
Simazine		28		8	170			291	4	307	180	2	37		138		1360	32			12	1025		690			372		45	288	
Σ Cyclodienes		16	37		417				16	1226	854		186	135			4541	96			48	4079		768			1116		24	876	
Σ DDT		16			232				16	1090	482		178	131			1416	71			12	3752		589			1116		51	600	
Σ HCH		28			26				4	307	32		62	52			879	36		13		671					372			12	
Σ Benzo(b)fluoranthene, Benzo(k)fluoranthene		54			142					618	12		72		280		1279				24	2106		457			406			744	
Σ Benzo(g,h,i)perylene, Indeno(1,2,3-cd)pyrene		54			142					618	12		72		280		1314				24	2107		379			406			744	
Tributyltin cation		23								100	134										12	220								12	
Trichloromethane		28			120			271		307	177		52		122		1043				12	873		1025						48	
Trifluralin		28		12	96			383	4	307	169						1090				12	1046		287	2				45	288	

Table 3.4.5 Available lakes samples for countries within the 2010–2011 period

Substance	BA	BE	BG	CH	CY	DE	EE	ES	FI	FR	GB	GR	HR	HU	IE	IS	IT	LT	LV	MK	MT	NL	NO	PL	PT	RO	RS	SE	SI	SK	XK
1,1,2,2-tetrachloroethene		24			34			247		273			16		237		563				12	376		1025						48	
1,2-dichloroethane		24			68			298		273	135		16		237		492				12	377		966						48	
4-nonylphenol		12						42		291							115				12									11	
Alachlor		24			62			383		289			8				653				12	454		518	7	8			44	12	
Anthracene		23			25			332		275					140		397				12	454		1018	37	7				96	
Atrazine		24	6		46			439		273					138		657				12	454		682	5				20	12	
Benzene		24			68			279		273	135				237		431				12	377		588	3					12	
Benzo(a)pyrene		23			25	58		155		275	6				140		435				12	447		1013	35	7				96	
Cadmium	47	46	131		34		14		106	97	152				264	8	1178				12	441	22	1030	10	24		202	4		
Cadmium dissolved		46						226		1	81		17				4					420			3	79			11	24	16
Cadmium dissolved																											454				
Chlorfenvinphos					46			157		289			8				354				12	428		257					20	12	
Chlorpyrifos		23	12		30			401		273			8		127		621				12	428		259	2				20	12	
DDT, p,p'					34			405		272	135		4				301				12	454		1000		7			24	12	
Di (2-ethylhexyl) phthalate (DEHP)	9	12				15		37		50	8				58		108			15	12	454		306						286	
Dichloromethane		24			34			257		273	134		16		237		345				12	377		1010	3					48	
Diuron		24			24			391		273	9				138		238				12	403		234	17					12	
Endosulfan		24			34					302			4				412				12	453		439						12	
Fluoranthene		23			25	51		447		275	16				140		421				12	454		1036	35	12				96	
Hexachlorobenzene (HCB)					60			113		273			8				540				12	454		899	2	7				12	
Hexachlorobutadiene (HCBD)					68			96		289			16		237		486				12	454		632	3					48	
Hexachlorocyclohexane (HCH)		12			34												313				12			524							
Isoproturon		24			24			296		272					138		126				12	403		162						11	
Lead	58	46	138		55	26	14	552	88	267	137				264	8	691				12	441	22	1033	10	31		202	4		
Lead dissolved		46						238			74		17				715					420			3	73	464		11		10
Mercury	29	46	17		30	3	14	182	89	147	77				242	8	1139				12	308		940		8		10	4		
Mercury dissolved		46						209			53		17				4					394			3	68			11	12	
Mercury dissolved																											462				
Naphthalene		23			68	51		282		275					237		324				12	454		1002	17	12				96	
Nickel		46	114		72	56	8	1030	159	267	137				264	8	686			15	12	441	22	1032		31		202	4		
Nickel dissolved		46						221			74		17				713					420			3	69	461		11		10
Para-tert-octylphenol		24								303	7						133				12	391								12	
Pentachlorobenzene								126		271							427				12	454		832	2	8				12	
Pentachlorophenol		24						129		273			8		127		425				12	391		735	3					12	
Simazine		24			46			291		273					138		653				12	454		680					20	12	
Σ Cyclodienes			37		180					1090	6		20				2322				48	1809		530					24	48	
Σ DDT					102					1090	405		12				823				12	1816		539					51	48	
Σ HCH		24			26					273	6		4				444			13		454								12	
Σ Benzo(b)fluoranthene, Benzo(k)fluoranthene		46			50					550	12				280		859				24	908		332						192	
Σ Benzo(g,h,i)perylene, Indeno(1,2,3-cd)pyrene		46			50					550	12				280		886				24	908		330						192	
Tributyltin cation		23								100	134										12	220								12	
Trichloromethane		24			34			271		273	143		16		122		620				12	377		971						48	
Trifluralin		24			31			383		273							384				12	456		273	2				20	12	

Table 3.4.6 Available lakes stations with data within the 2002–2011 period

Substance	AL	AT	BA	BE	BG	CH	CY	CZ	DE	DK	EE	ES	FI	FR	GB	GR	HR	HU	IE	IS	IT	LI	LT	LU	LV	ME	MK	NL	NO	PL	PT	RO	RS	SE	SI	SK	TR	XK
1,1,2,2-tetrachloroethene	0	0	0	1	0	0	10	0	0	0	0	37	0	71	0	0	1	0	22	0	64	0	0	0	0	0	0	18	0	91	0	0	0	0	0	4	0	0
1,2-dichloroethane	0	0	0	1	0	0	10	0	0	0	0	52	0	71	60	0	3	0	22	0	73	0	0	0	0	0	0	18	0	89	0	0	0	0	0	23	0	0
4-nonylphenol	0	0	0	1	0	0	0	0	0	0	0	9	1	83	0	0	0	0	0	0	17	0	0	0	0	0	0	2	0	3	0	0	0	0	0	23	0	0
Alachlor	0	0	0	1	0	0	16	0	0	0	0	95	1	85	0	0	4	0	0	0	73	0	0	0	0	0	0	20	0	51	4	5	0	0	6	23	0	0
Anthracene	0	0	0	1	0	0	10	0	0	0	0	89	0	82	2	0	3	0	12	0	38	0	0	0	0	0	0	20	0	93	8	4	0	0	0	8	0	0
Atrazine	0	0	0	1	1	1	16	0	0	0	0	115	1	83	11	7	3	13	12	0	73	0	8	0	0	0	0	20	0	67	1	0	78	0	5	23	0	0
Benzene	0	0	0	1	0	0	10	0	0	0	0	52	0	81	70	0	3	11	34	0	72	0	0	0	0	0	0	18	0	61	2	0	0	0	0	23	0	0
Benzo(a)pyrene	0	0	0	1	0	0	10	0	4	0	0	28	0	82	3	0	3	0	12	0	43	0	0	0	0	0	0	20	0	92	13	4	68	0	0	23	0	0
Cadmium	0	0	11	4	14	0	16	0	1	0	14	0	19	32	62	4	7	35	45	1	130	0	17	0	12	0	0	20	137	91	8	3	73	146	3	1	0	0
Cadmium dissolved	0	0	0	3	0	0	0	0	0	0	0	48	0	1	5	0	3	0	0	0	1	0	0	0	0	0	0	20	0	0	2	7	78	0	1	2	0	5
Chlorfenvinphos	0	0	0	0	0	0	10	0	0	0	0	39	1	85	11	0	4	0	0	0	55	0	0	0	0	0	0	20	0	24	0	0	0	0	5	1	0	0
Chlorpyrifos	0	0	0	1	1	0	10	0	0	0	0	98	1	75	7	0	4	0	17	0	67	0	0	0	0	0	0	20	0	25	1	0	0	0	5	23	0	0
DDT, p,p'	0	0	0	1	0	0	10	0	0	0	0	103	1	71	56	0	5	12	0	0	44	0	13	0	0	0	0	20	0	88	0	5	78	0	6	1	0	0
Di (2-ethylhexyl) phthalate (DEHP)	0	0	1	1	0	0	9	0	3	0	0	17	2	14	1	0	0	0	17	0	17	0	0	0	0	0	5	19	0	28	0	0	0	0	0	23	0	0
Dichloromethane	0	0	0	1	0	0	10	0	0	0	0	32	0	71	52	0	3	0	30	0	61	0	0	0	0	0	0	18	0	91	2	0	0	0	0	23	0	0
Diuron	0	0	0	1	0	0	16	0	0	0	0	47	1	82	18	0	3	0	12	0	38	0	0	0	0	0	0	19	0	28	7	0	0	0	0	23	0	0
Endosulfan	0	0	0	1	0	0	10	0	0	0	0	0	1	76	4	0	4	0	0	0	61	0	0	0	0	0	0	20	0	44	0	0	0	0	0	1	0	0
Fluoranthene	0	0	0	1	0	0	10	0	4	0	0	98	0	82	11	0	3	0	12	0	40	0	0	0	0	0	0	20	0	93	8	5	68	0	0	8	0	0
Hexachlorobenzene (HCB)	0	0	0	1	0	0	16	0	0	0	0	24	1	71	2	0	4	0	0	0	60	0	0	0	0	0	0	20	0	80	1	5	78	0	0	1	0	0
Hexachlorobutadiene (HCBD)	0	0	0	0	0	0	10	0	0	0	0	19	1	75	2	0	3	0	22	0	54	0	0	0	0	0	0	20	0	61	2	0	0	0	0	4	0	0
Hexachlorocyclohexane (HCH)	0	0	0	1	0	0	10	0	0	0	0	0	0	0	2	0	3	0	0	0	31	0	5	0	0	0	0	0	0	53	0	0	0	0	0	0	0	0
Isoproturon	0	0	0	1	0	1	10	0	0	0	0	48	1	81	14	0	3	0	12	0	28	0	0	0	0	0	0	19	0	22	0	0	0	0	0	23	0	0
Lead	0	0	7	4	24	4	16	0	5	0	13	109	18	76	29	9	7	35	38	1	134	0	16	0	11	0	0	20	137	94	11	4	73	146	3	3	0	0
Lead dissolved	0	0	0	3	0	0	0	0	0	0	0	45	0	0	10	0	6	0	0	0	24	0	0	0	0	0	0	20	0	0	2	7	78	0	1	0	0	5
Mercury	0	0	15	4	4	4	16	0	4	0	13	8	27	46	40	2	6	35	24	1	134	0	16	0	4	0	0	20	0	80	8	3	71	3	4	2	0	0
Mercury dissolved	0	0	0	3	0	0	0	0	0	0	0	40	0	0	3	0	3	0	0	0	1	0	0	0	0	0	0	17	0	0	2	8	78	0	1	1	0	0
Naphthalene	0	0	0	1	0	0	10	0	4	0	0	52	0	82	0	0	3	0	34	0	37	0	0	0	0	0	0	20	0	90	8	5	0	0	0	23	0	0
Nickel	0	0	11	4	20	4	16	0	5	0	5	154	22	76	50	8	7	35	45	1	130	0	18	0	8	0	5	20	136	94	0	4	73	146	3	2	0	0
Nickel dissolved	0	0	0	3	0	0	0	0	0	0	0	32	0	0	10	0	6	0	0	0	24	0	0	0	0	0	0	20	0	0	2	7	78	0	1	0	0	4
Para-tert-octylphenol	0	0	0	1	0	0	0	0	0	0	0	0	0	76	1	0	0	0	0	0	20	0	0	0	0	0	0	18	0	3	0	0	0	0	0	1	0	0
Pentachlorobenzene	0	0	0	1	0	0	0	0	0	0	0	23	1	71	0	0	3	0	0	0	28	0	0	0	0	0	0	20	0	74	1	5	0	0	0	1	0	0
Pentachlorophenol	0	0	0	1	0	0	0	0	0	0	0	33	0	71	9	0	4	0	17	0	41	0	5	0	0	0	0	18	0	66	2	0	0	0	0	23	0	0
Σ Cyclodienes	0	0	0	1	3	0	16	0	0	0	0	0	1	81	30	0	5	13	0	0	68	0	8	0	0	0	0	20	0	36	0	0	78	0	6	23	0	0
Σ DDT	0	0	0	1	0	0	10	0	0	0	0	0	1	71	56	0	5	12	0	0	45	0	13	0	0	0	0	20	0	57	0	0	78	0	6	23	0	0
Σ HCH	0	0	0	1	0	0	8	0	0	0	0	0	1	81	5	0	5	9	0	0	53	0	10	0	0	0	5	20	0	0	0	0	78	0	0	1	0	0
Σ Benzo(b)fluoranthene, Benzo(k)fluoranthene	0	0	0	1	0	0	10	0	0	0	0	0	0	82	3	0	3	0	12	0	43	0	0	0	0	0	0	20	0	48	0	0	68	0	0	23	0	0
Σ Benzo(g,h,i)perylene, Indeno(1,2,3-cd)pyrene	0	0	0	1	0	0	10	0	0	0	0	0	0	82	3	0	3	0	12	0	43	0	0	0	0	0	0	20	0	42	0	0	68	0	0	23	0	0
Simazine	0	0	0	1	0	1	16	0	0	0	0	32	1	81	11	2	3	0	12	0	72	0	8	0	0	0	0	20	0	66	0	0	78	0	5	23	0	0
Tributyltin cation	0	0	0	1	0	0	0	0	0	0	0	0	0	25	52	0	0	0	0	0	0	0	0	0	0	0	0	17	0	0	0	0	0	0	0	1	0	0
Trichloromethane	0	0	0	1	0	0	10	0	0	0	0	41	0	81	60	0	3	0	12	0	70	0	0	0	0	0	0	18	0	90	0	0	0	0	0	4	0	0
Trifluralin	0	0	0	1	0	1	10	0	0	0	0	95	1	81	11	0	0	0	0	0	63	0	0	0	0	0	0	20	0	30	1	0	0	0	5	23	0	0

Table 3.4.7 Available lakes stations with data within the 2010–2011 period

Substance	AL	AT	BA	BE	BG	CH	CY	CZ	DE	DK	EE	ES	FI	FR	GB	GR	HR	HU	IE	IS	IT	LI	LT	LU	LV	ME	MK	NL	NO	PL	PT	RO	RS	SE	SI	SK	TR	XK
1,1,2,2-tetrachloroethene	0	0	0	1	0	0	8	0	0	0	0	37	0	71	0	0	1	0	22	0	53	0	0	0	0	0	0	16	0	88	0	0	0	0	0	4	0	0
1,2-dichloroethane	0	0	0	1	0	0	8	0	0	0	0	52	0	71	52	0	1	0	22	0	49	0	0	0	0	0	0	16	0	85	0	0	0	0	0	4	0	0
4-nonylphenol	0	0	0	1	0	0	0	0	0	0	0	9	0	73	0	0	0	0	0	0	17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Alachlor	0	0	0	1	0	0	8	0	0	0	0	95	0	75	0	0	1	0	0	0	51	0	0	0	0	0	0	19	0	50	4	5	0	0	6	1	0	0
Anthracene	0	0	0	1	0	0	8	0	0	0	0	89	0	72	0	0	0	0	12	0	32	0	0	0	0	0	0	19	0	88	8	4	0	0	0	8	0	0
Atrazine	0	0	0	1	1	0	8	0	0	0	0	115	0	71	0	0	0	0	12	0	51	0	0	0	0	0	0	19	0	67	1	0	0	0	5	1	0	0
Benzene	0	0	0	1	0	0	8	0	0	0	0	52	0	71	52	0	0	0	22	0	45	0	0	0	0	0	0	16	0	57	2	0	0	0	0	1	0	0
Benzo(a)pyrene	0	0	0	1	0	0	8	0	4	0	0	28	0	72	3	0	0	0	12	0	35	0	0	0	0	0	0	19	0	87	8	4	0	0	0	8	0	0
Cadmium	0	0	5	3	9	0	8	0	0	0	10	0	12	24	13	0	0	0	22	1	99	0	0	0	0	0	0	19	17	85	4	3	0	102	1	0	0	0
Cadmium dissolved	0	0	0	3	0	0	0	0	0	0	0	48	0	1	5	0	3	0	0	0	1	0	0	0	0	0	0	18	0	0	2	7	78	0	1	2	0	4
Chlorfenvinphos	0	0	0	0	0	0	8	0	0	0	0	39	0	75	0	0	1	0	0	0	41	0	0	0	0	0	0	18	0	24	0	0	0	0	5	1	0	0
Chlorpyrifos	0	0	0	1	1	0	8	0	0	0	0	98	0	71	0	0	1	0	17	0	51	0	0	0	0	0	0	18	0	25	1	0	0	0	5	1	0	0
DDT, p,p'	0	0	0	0	0	0	8	0	0	0	0	103	0	71	52	0	1	0	0	0	34	0	0	0	0	0	0	19	0	88	0	5	0	0	6	1	0	0
Di (2-ethylhexyl) phthalate (DEHP)	0	0	1	1	0	0	0	0	2	0	0	17	0	14	1	0	0	0	17	0	17	0	0	0	0	0	5	19	0	28	0	0	0	0	0	23	0	0
Dichloromethane	0	0	0	1	0	0	8	0	0	0	0	32	0	71	52	0	1	0	22	0	40	0	0	0	0	0	0	16	0	87	2	0	0	0	0	4	0	0
Diuron	0	0	0	1	0	0	8	0	0	0	0	47	0	71	2	0	0	0	12	0	30	0	0	0	0	0	0	17	0	28	7	0	0	0	0	1	0	0
Endosulfan	0	0	0	1	0	0	8	0	0	0	0	0	0	76	0	0	1	0	0	0	41	0	0	0	0	0	0	19	0	37	0	0	0	0	0	1	0	0
Fluoranthene	0	0	0	1	0	0	8	0	4	0	0	98	0	72	11	0	0	0	12	0	32	0	0	0	0	0	0	19	0	88	8	5	0	0	0	8	0	0
Hexachlorobenzene (HCB)	0	0	0	0	0	0	8	0	0	0	0	24	0	71	0	0	1	0	0	0	50	0	0	0	0	0	0	19	0	76	1	5	0	0	0	1	0	0
Hexachlorobutadiene (HCBD)	0	0	0	0	0	0	8	0	0	0	0	19	0	75	0	0	1	0	22	0	36	0	0	0	0	0	0	19	0	60	2	0	0	0	0	4	0	0
Hexachlorocyclohexane (HCH)	0	0	0	1	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	16	0	0	0	0	0	0	0	0	45	0	0	0	0	0	0	0	0
Isoproturon	0	0	0	1	0	0	8	0	0	0	0	48	0	71	0	0	0	0	12	0	22	0	0	0	0	0	0	17	0	22	0	0	0	0	0	1	0	0
Lead	0	0	5	3	12	0	8	0	4	0	10	109	11	66	12	0	0	0	22	1	96	0	0	0	0	0	0	19	17	88	4	4	0	102	1	0	0	0
Lead dissolved	0	0	0	3	0	0	0	0	0	0	0	45	0	0	6	0	3	0	0	0	24	0	0	0	0	0	0	18	0	0	2	7	78	0	1	0	0	4
Mercury	0	0	5	3	2	0	8	0	3	0	10	8	10	38	11	0	0	0	22	1	97	0	0	0	0	0	0	17	0	80	0	3	0	3	1	0	0	0
Mercury dissolved	0	0	0	3	0	0	0	0	0	0	0	40	0	0	3	0	3	0	0	0	1	0	0	0	0	0	0	17	0	0	2	8	78	0	1	1	0	0
Naphthalene	0	0	0	1	0	0	8	0	4	0	0	52	0	72	0	0	0	0	22	0	29	0	0	0	0	0	0	19	0	85	6	5	0	0	0	8	0	0
Nickel	0	0	0	3	8	0	8	0	4	0	5	154	14	66	10	0	0	0	22	1	92	0	0	0	0	0	5	19	17	88	0	4	0	102	1	0	0	0
Nickel dissolved	0	0	0	3	0	0	0	0	0	0	0	32	0	0	6	0	3	0	0	0	24	0	0	0	0	0	0	18	0	0	2	7	78	0	1	0	0	4
Para-tert-octylphenol	0	0	0	1	0	0	0	0	0	0	0	0	0	76	1	0	0	0	0	0	20	0	0	0	0	0	0	17	0	0	0	0	0	0	0	1	0	0
Pentachlorobenzene	0	0	0	0	0	0	0	0	0	0	0	23	0	71	0	0	0	0	0	0	25	0	0	0	0	0	0	19	0	69	1	5	0	0	0	1	0	0
Pentachlorophenol	0	0	0	1	0	0	0	0	0	0	0	33	0	71	0	0	1	0	17	0	26	0	0	0	0	0	0	17	0	63	2	0	0	0	0	1	0	0
Σ Cyclodienes	0	0	0	0	3	0	8	0	0	0	0	0	0	71	3	0	1	0	0	0	48	0	0	0	0	0	0	19	0	24	0	0	0	0	6	1	0	0
Σ DDT	0	0	0	0	0	0	8	0	0	0	0	0	0	71	52	0	1	0	0	0	35	0	0	0	0	0	0	19	0	51	0	0	0	0	6	1	0	0
Σ HCH	0	0	0	1	0	0	8	0	0	0	0	0	0	71	3	0	1	0	0	0	34	0	0	0	0	0	5	19	0	0	0	0	0	0	0	1	0	0
Σ Benzo(b)fluoranthene, Benzo(k)fluoranthene	0	0	0	1	0	0	8	0	0	0	0	0	0	72	3	0	0	0	12	0	35	0	0	0	0	0	0	19	0	35	0	0	0	0	0	8	0	0
Σ Benzo(g,h,i)perylene, Indeno(1,2,3-cd)pyrene	0	0	0	1	0	0	8	0	0	0	0	0	0	72	3	0	0	0	12	0	35	0	0	0	0	0	0	19	0	35	0	0	0	0	0	8	0	0
Simazine	0	0	0	1	0	0	8	0	0	0	0	32	0	71	0	0	0	0	12	0	51	0	0	0	0	0	0	19	0	66	0	0	0	0	5	1	0	0
Tributyltin cation	0	0	0	1	0	0	0	0	0	0	0	0	0	25	52	0	0	0	0	0	0	0	0	0	0	0	0	17	0	0	0	0	0	0	0	1	0	0
Trichloromethane	0	0	0	1	0	0	8	0	0	0	0	41	0	71	53	0	1	0	12	0	50	0	0	0	0	0	0	16	0	86	0	0	0	0	0	4	0	0
Trifluralin	0	0	0	1	0	0	8	0	0	0	0	95	0	71	0	0	0	0	0	0	41	0	0	0	0	0	0	19	0	28	1	0	0	0	5	1	0	0

4 Current State

4.1 Hazardous substances in groundwater across Europe in 2002–2011

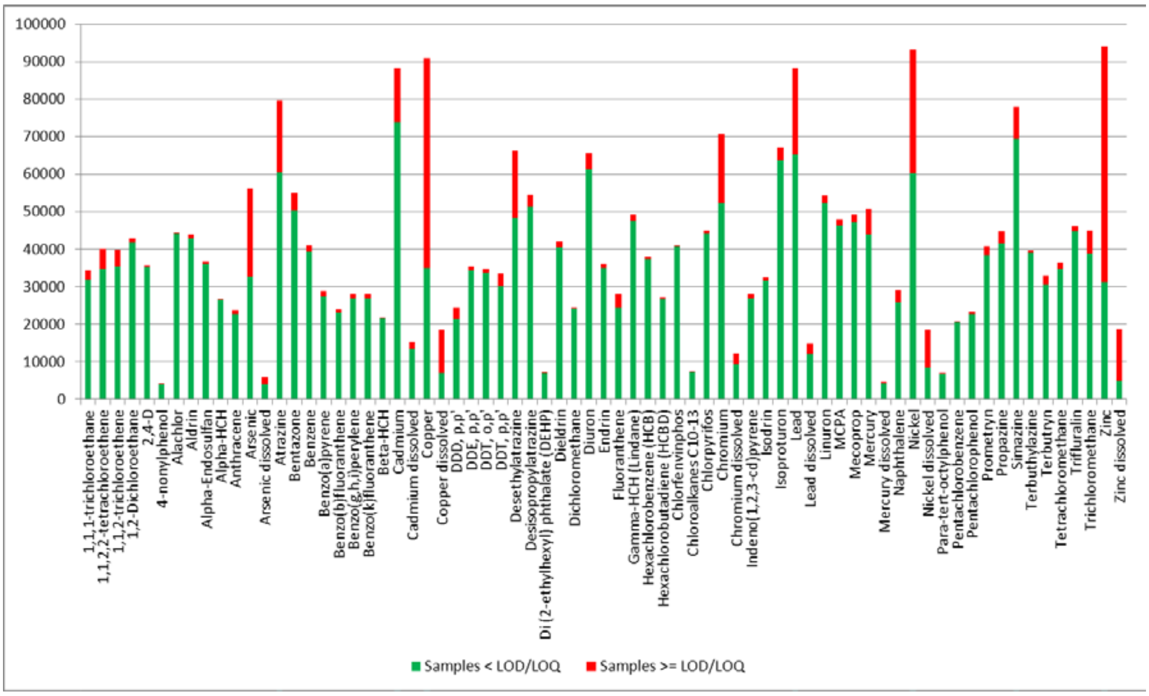
4.1.1 Overview

For each hazardous substance in groundwater, the number and percentage of samples with negative (samples < LOQ) and positive (samples >= LOQ) findings within the 2002–2011 period are shown in figures 4.1.1.1 and 4.1.1.2. The number and percentage of monitoring stations with negative (all samples in station < LOQ within 2002–2011 period) and positive findings (at least one sample in station >= LOQ within the 2002–2011 period) are shown in figures 4.1.1.3 and 4.1.1.4. Most substances are quantified in less than 10% of samples and only metals, some pesticides and 3 chlorinated compounds are quantified in higher proportion. As a higher percentage of stations is found in all cases, it is probable that many stations have rare quantification.

The maximum concentrations in groundwater are shown in figure 4.1.1.5. Metals and metalloids (As, Cu, Pb, Ni, Zn), 1,1,2,2-tetrachloroethene, pentachlorophenol, PAHs (anthracene, fluoranthene) and bentazone were reported in concentrations higher than 1000 µg/l.

Pesticides, polycyclic aromatic hydrocarbons (PAHs), volatile organic compounds (VOCs), metals and metalloids are substances most frequently occurring and exceeding drinking water standards in groundwater across Europe. The most significant pollutants are triazine pesticides, especially atrazine and its metabolites, benzo(a)pyrene and lead. Those substances have exceeded the drinking water standards in more than 2% of monitoring stations during the last ten years.

Figure 4.1.1.1 Number of negative/positive samples in groundwater in 2002–2011



Note: The figures 4.1.1.1 – 4.1.1.4 do not reflect Austrian data. Contrary to the WISE-SoE dataset definition, Austrian data were reported as stations' annual averages (in order to avoid bias due to risk-based monitoring frequency). No specification of how many samples had been used for the annual average calculations and how many samples had been found below and above the LOD/LOQ have been provided to the ETC/ICM.

Figure 4.1.1.2 Percentage of negative/positive samples in groundwater in 2002–2011

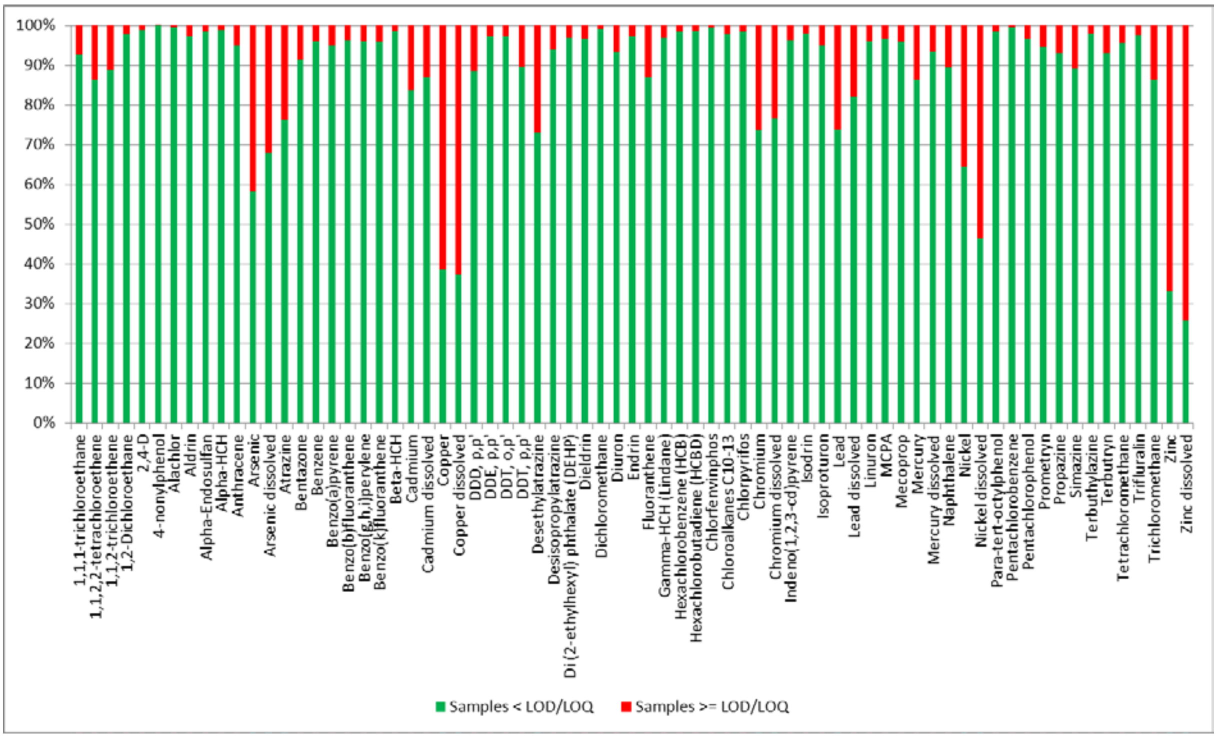


Figure 4.1.1.3 Number of stations with negative/positive findings in groundwater in 2002–2011

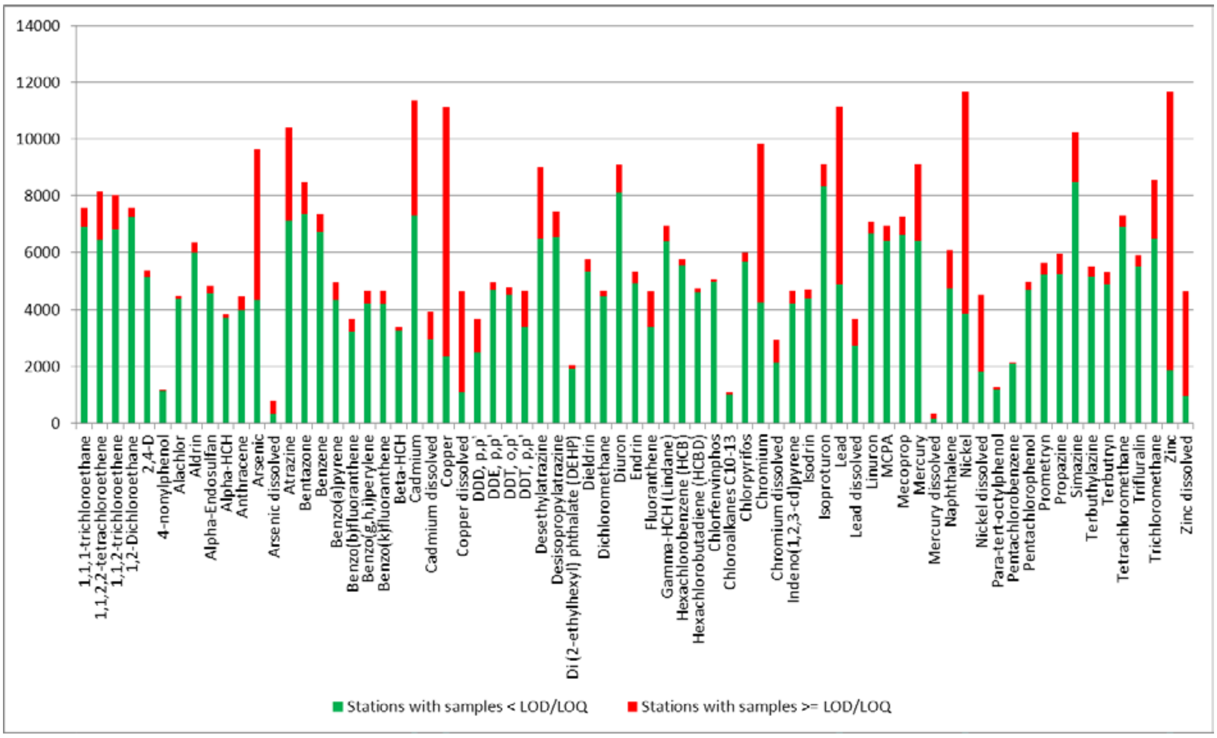


Figure 4.1.1.4 Percentage of stations with negative/positive findings in groundwater in 2002–2011

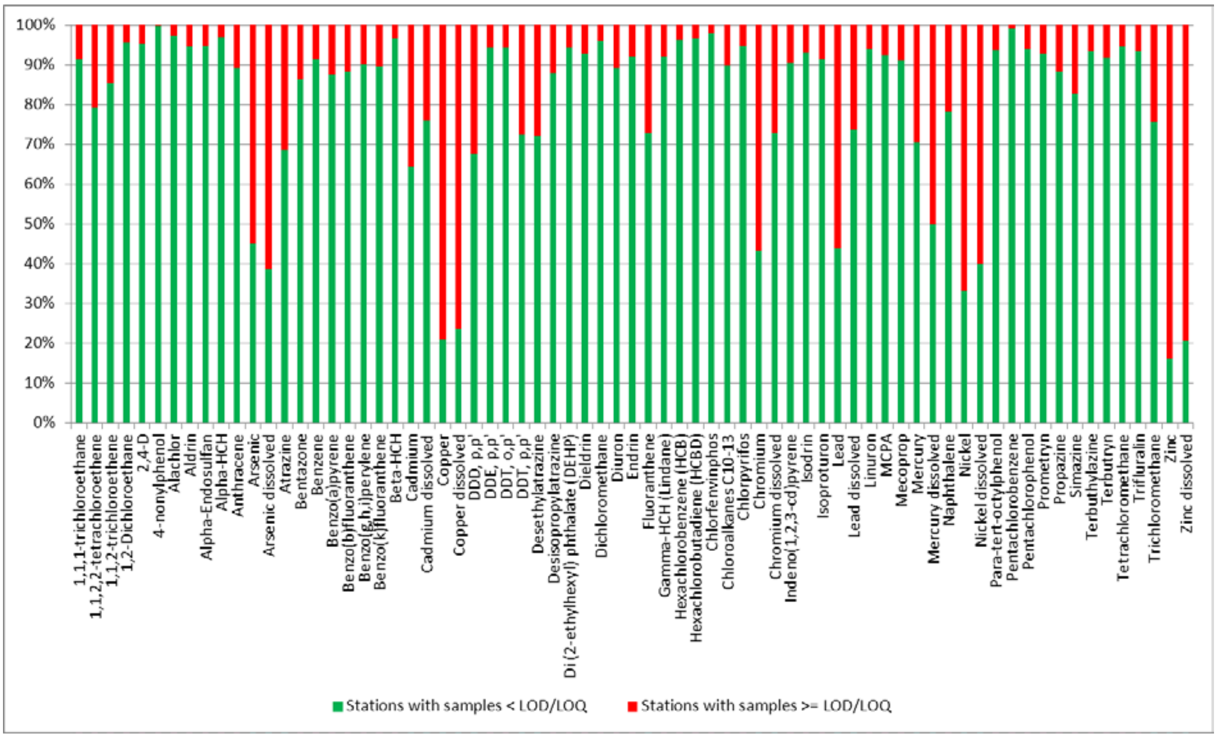


Figure 4.1.1.5 Maximum reported groundwater concentrations in the 2002 –2011 period

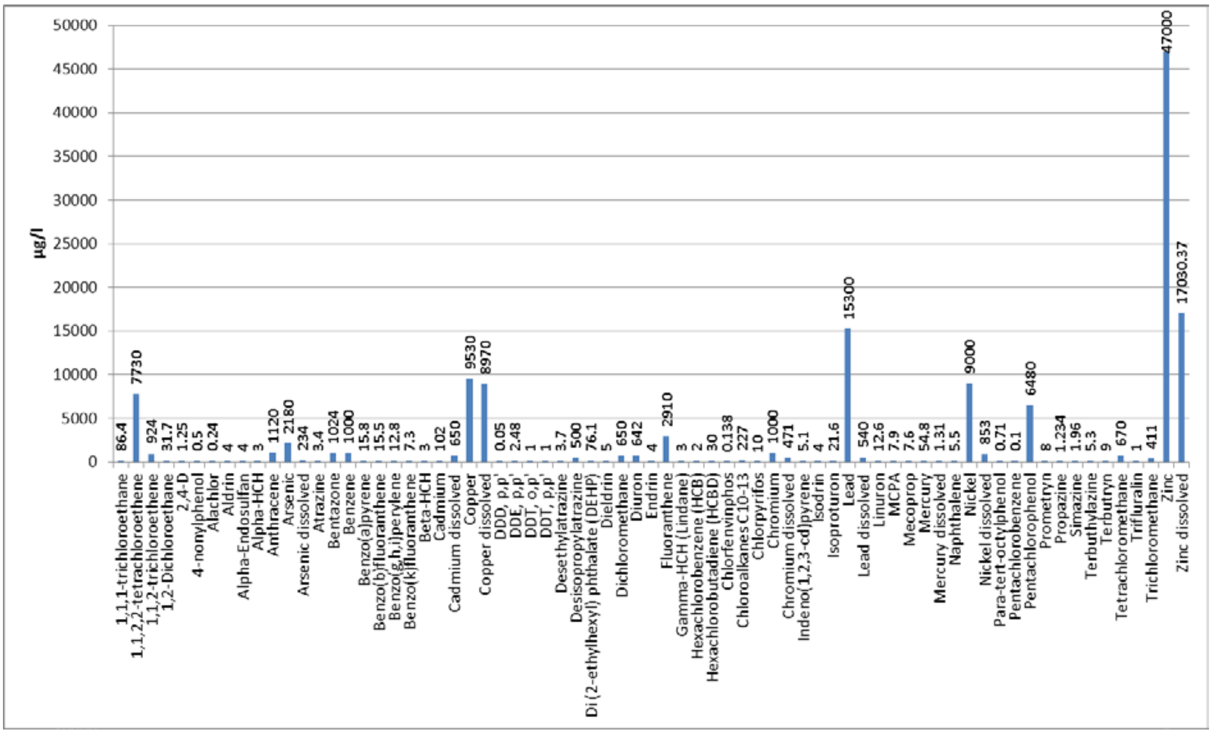


Table 4.1.1.1 Maximum concentrations (µg/l) reported by countries in the 2002–2011

Country	1,1,1-trichloroethane	1,1,2,2-tetrachloroethene	1,1,2-trichloroethene	1,2-dichloroethane	2,4-D	4-nonylphenol	Alachlor	Aldrin	Alpha-Endosulfan	Alpha-HCH	Anthracene	Arsenic
AL												
AT				5			0.05	0.02				
BA	<0.01	<0.01						0.005	0.005			0.37
BE	4.8	29.6	9.69	13	0.029		<0.005	<0.007			0.124	32.59
BG		33	2.38		0.01		0.04	0.01	0.01	0.01		400
CY		45.6	1.05				0.24					48
CZ		80.4	64.5	6.58	0.45		0.045	0.0041	0.032	0.035	1.2	76
DE	3.5			0.5	<0.10		<0.02	<0.001	<0.001	<0.005	<0.02	252
DK	0.4	0.83	0.36	<0.02	0.02							34
EE												10.5
ES												
FI												
FR	31	63.4	184	2.7	0.57	0.5	0.2	0.03	0.14	0.07	5.2	1000
GB	86.4	7730	924	6.62	1.25	0.461		4	4	3	1120	1790
GR												170
HR	0.2	1.74		<5.00			<0.10	<0.01		<0.01	<0.005	7.1
HU												
CH	0.8	4.7	1.24		<0.02		<0.01					8.2
IE	0.8	0.253	<1.00	<1.00	0.1						0.03	234
IS				<1.00							0.0176	
IT	55	250	35	0.38	<0.05		0.09	<0.10	<0.05	<0.10		309
LI												
LT								<0.005	<0.004	<0.005		29
LU												
LV		<0.10	<0.10	<1.00								12
ME												
MK												
MT												
NL												
NO												
PL								<0.002	<0.001	<0.01	0.026	24.21
PT									<0.02			24
RO												
RS								0.002		<0.001		
SE												
SI	4.64	180	66	<1.00	0.011		<0.05	<0.01	0.04	<0.003		2
SK	76	116	40	31.7	<0.01	<1.00	<0.025	<0.025			0.086	2180
TR												
XK												

Table 4.1.1.1 continued

Country	Arsenic dissolved	Atrazine	Bentazone	Benzene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Beta-HCH	Cadmium	Cadmium dissolved	Copper
AL												48
AT		2.8	5.105							12.284		110
BA										2.42		240
BE		0.935	1024	0.23	0.098	0.103	0.092	0.054		2.29		1613
BG		0.711							0.01	5	5	184
CY		0.399								2.84		2147
CZ		2.3	0.945	2.7	1.58	3.5	1.3	3.2	0.169	7.3		891
DE	164	0.33	3.97	<1.00	<0.01	<0.01	<0.01	<0.01	<0.005	13.2	650	1010
DK		0.43	0.71	0.66	<0.01		<0.01			14		1300
EE				<0.20						<0.20		
ES												
FI												
FR		1.48	1.267	3.7	15.8	15.5	12.8	7.3	1.2	9		1000
GB		3	306	1000	2.61	0.027	1.22	1.19	3	102	11	9530
GR										47		3400
HR	51.4	0.13		<0.50	<0.005	<0.005	<0.005	<0.005	<0.01	1.9	0.084	28.8
HU												
CH		0.14	0.095	<0.10						<0.20		4.3
IE	234	0.07	0.19	<1.00	<0.09					1.8	8.6	491
IS	<0.05			<0.20	<0.005	<0.005	<0.005	<0.005		0.0053	<0.002	0.902
IT		1.32	1.82	0.3	0.02	<0.01	<0.01	<0.01	0.05	1.42	2.1	1180
LI												
LT		3.4							<0.005	<0.30	<0.30	25
LU					0.002	0.002	0.002	0.002				
LV										0.44		<1.90
ME												
MK											0.206	
MT												
NL												
NO												
PL					0.215	0.276	0.18	0.114	<0.01	5.12	43.81	20
PT										0.7		130
RO												
RS	194.5	3.009							0.014	21	1.2	320
SE											0.153	
SI		0.64	1.09	<1.00					<0.004	2.3		60
SK		0.68	0.25	55.8	0.31	0.35	0.33	0.19		5.3		397
TR												
XK												

Table 4.1.1.1 continued

Country	Copper dissolved	DDD, p,p'	DDE, p,p'	DDT, o,p'	DDT, p,p'	Desethylatrazine	Desisopropylatrazine	Di (2-ethylhexyl) phthalate	Dieldrin	Dichloromethane	Diuron	Endrin
AL												
AT						3.175				43	3.7	
BA								0.06	0.005			0.005
BE			<0.014		0.001	0.695	0.278		<0.007		0.834	<0.01
BG	46	0.05	0.01	0.05	0.01	<0.005	<0.005		0.01		0.04	0.01
CY												
CZ		0.002	0.0045	0.003	0.003	0.635	1.5	26.9	0.0087	3.1	0.78	0.036
DE	100			<0.0008	<0.0012	0.49	0.32		<0.001	50	1.1	<0.001
DK	1100					3.7	0.33	3.7		0.041	0.057	
EE												
ES												
FI												
FR		0.011	<0.10	0.022	0.085	1.67	0.73	19	0.14	176	6.9	2
GB	8970	0.01	0.055	1	1	1.25	500	76.1	5	650	642	4
GR												
HR	15.8	<0.05	<0.05	<0.003	<0.05			0.25	<0.05	<1.50		<0.05
HU												
CH						0.27	0.26				0.021	
IE	506				<0.05				<0.05		3.06	
IS	0.497									<6.00		
IT	782	<0.05	<0.10	<0.10	<0.10	0.47	<0.05		<0.10	15	0.08	<0.10
LI												
LT	8								<0.005			<0.005
LU												
LV												
ME												
MK	7.05											
MT												
NL												
NO												
PL	53.77	<0.001	<0.001		<0.01				<0.001			<0.005
PT	72											
RO												
RS	337.3	0.027		0.027	0.006				0.028			0.024
SE	15											
SI		<0.004	<0.004	<0.01	<0.005	0.44	0.05		0.005	7.4	0.005	<0.005
SK			2.48		<0.025	0.26	0.14	<5.00	<0.025	8.4	0.09	<0.025
TR												
XK	0.1											

Table 4.1.1.1 continued

Country	Fluoranthene	Gamma-HCH	Hexachlorobenzene	Hexachlorobutadiene	Chlorfenvinphos	Chloroalkanes C10-13	Chlorpyrifos	Chromium	Chromium dissolved	Indeno(1,2,3-cd)pyrene	Isodrin	Isoproturon
AL								63.5				
AT		0.05	0.025									0.18375
BA								10.31				
BE	0.333	0.386	<5.00	<1.00	0.001			10.4	7.8	0.07		0.825
BG		0.01	0.015		0.01		0.05	52.7		0.0004	0.01	
CY					<0.02		0.22	87.6				
CZ	8.9	0.013	0.006	<100.00		12.4	1.34	991		1.7	0.01	0.569
DE	0.08	0.05	<0.001	<0.01	<0.01		<0.01	32	25.8	<0.01	<0.001	21.6
DK	<0.01							9		<0.01		0.01
EE												
ES												
FI												
FR	32.9	0.13	0.013	30	0.02	227	0.02	1000		5.1	2	1.2
GB	2910	3	2	7	0.138		10	297	471	1.64	4	7.58
GR												
HR	<0.005	<0.01	<0.01	<0.09	<0.03		<0.03	13.4	10.7	<0.005	<0.05	
HU												
CH								4.8				<0.05
IE		0.03						36	36			0.08
IS	0.0338									<0.005		
IT		<0.10		<0.10			<0.10	190		<0.01		<0.05
LI												
LT		<0.005	<0.005		<1.00		<1.00		4			
LU	0.002									0.002		
LV								<1.40				
ME												
MK									5.4			
MT												
NL												
NO												
PL	0.219	<0.01			<0.02			22.47		0.125		
PT		<0.02	<0.02					220				
RO												
RS		0.022	<0.001						20.1			
SE								1.3				
SI		<0.003	<0.003	0.0006	<0.05		<0.05	17				0.24
SK	1.39	0.0125	0.0125	2.9	<0.01		<0.02	67		0.26	<0.0125	0.07
TR												
XK									0.05			

Table 4.1.1.1 continued

Country	Lead	Lead dissolved	Linuron	MCPA	Mecoprop	Mercury	Mercury dissolved	Naphthalene	Nickel	Nickel dissolved	Para-tert-octylphenol	Pentachlorobenzene
AL	140								70			
AT	44		0.4			0.77			74			
BA	3.54					0.3			2.7			
BE	38		0.073	0.028	0.029	2	0.09	0.031	405.8			
BG	69.4	26				2			190	25.5		
CY	33.4					1			158			
CZ	230		12.6	0.72	0.35	54.8		0.65	150			0.1
DE	147	36	<0.05	<0.10	2.116	0.24		<0.10	200	190		
DK	61		<0.01	0.28	7.6	0.0075		0.37	490	490		
EE	5.2					<1.00						
ES												
FI												
FR	360		0.24	7.9	0.77	3.1		0.57	292		0.71	0.1
GB	15300	495	2.22	1.52	5.09	34.6		5.5	9000	253	0.037	<0.0005
GR	2700								560			
HR	57.5	9				<0.10	0.009	0.18	5.1	7		<0.002
HU												
CH	<1.00			<0.02	0.048	<0.50		<0.05	11			
IE	43	84.1		0.33	1.1	1.31	1.31	<0.20	134.3	853		
IS	0.0666	0.019				<0.002	<0.002	<0.20	0.191	0.32		
IT	56.5	540	<0.10	<0.05	<0.05	4			914	189		
LI												
LT	<2.00	2								95		
LU												
LV	21					<0.06			18			
ME												
MK		34.4								29.95		
MT												
NL												
NO												
PL	10	9.12				1.383			189	217		
PT	12	<5.00				<0.50			460	<5.00		
RO												
RS	106	15.8				1.6	0.3		34	41.1		
SE		4.4								7.4		
SI	35		<0.05	<0.05	0.48	0.15			54			
SK	56			<0.02		23.9		0.54	174		<1.00	<0.025
TR												
XK												

Table 4.1.1.1 continued

Country	Pentachlorophenol	Prometryn	Propazine	Simazine	Terbuthylazine	Terbutryn	Tetrachloromethane	Trifluralin	Trichloromethane	Zinc	Zinc dissolved
AL										1160	
AT				0.23625						12000	
BA										1630	
BE	0.034	<0.003	0.026	0.347	1.595	<0.003	0.6	<0.015	22.5	7087	
BG		0.039	0.292	0.229	<0.005	0.0006	0.02	0.04		2001	3930
CY			1.234	0.55				0.15		2242	
CZ	0.025	1.67		0.095	5.3		17.4	0.055	109	1700	
DE	<0.05	0.13	0.04	0.067	0.16	0.03	0.025	<0.01	23	23000	2200
DK	0.12			0.27	0.01		0.07		6.6	2000	2000
EE											
ES											
FI											
FR	2	0.19	0.09	1.3	0.26	<0.10	670	0.1	254	40000	
GB	6480	8	0.093	1.96		9	8.13	1	411	30800	14400
GR										47000	
HR	2			<0.03			<0.30		0.78	5619	4490
HU											
CH			<0.01	0.027	0.014	0.04	<0.05		0.73	30	
IE				<0.025						3783	3783
IS									<1.00	2.16	0.605
IT		0.02	0.03	0.53	1.4	<0.10	2.7	0.015	250	8150	5300
LI											
LT		<1.00	<1.00	<1.00				<1.00		116	590
LU											
LV									<1.00	95	
ME											
MK											960
MT											
NL											
NO											
PL										3046	17030.37
PT										550	160
RO											
RS			0.013	0.29						20	3866
SE											120
SI	<0.10	0.239	<0.05	0.17	0.649	0.18	<0.20	<0.05	12	13000	
SK	271	1.24		0.27	0.34	0.09	0.95	<0.02	31.2	3950	
TR											
XK											0.115

4.1.2 Occurrence and concentrations of hazardous substances in groundwater

Figures of the mean concentrations and numbers of stations with data from the period 2002–2011 based on the indicator are shown in figures 4.1.2.1a – 4.1.2.51a for selected hazardous substances found in groundwaters in Europe

Figures showing the percentage of stations in the 2010–2011 period for each country in each of the indicator categories for selected hazardous substances in groundwater are shown in figures 4.1.2.1b – 4.1.2.51b.

Maps of the maximum concentrations from the 2010–2011 period based on the indicator for selected hazardous substances in groundwater across Europe in individual countries are shown in figures 4.1.2.1c – 4.1.2.51c.

1,1,2,2-tetrachloroethene

The analysis is based on data from 15 countries for the 2002–2011 period and from 13 countries for 2010–2011 period, see tables 3.1.2 and 3.1.3. The substance was found in 13.5 % of samples (Fig. 4.1.1.2) and in 20.8 % of stations (Fig. 4.1.1.4). The number of reported stations has increased since 2002 and lately has been oscillating around 4200 stations (Fig. 4.1.2.1a). 1,1,2,2-tetrachloroethene occurred in 12 of the 13 assessed countries (Fig. 4.1.2.1b) and exceeded the drinking water standard in 8 countries in 2010–2011 (Fig. 4.1.2.1c). The highest concentration of 7730 μg/l was reported by the United Kingdom in the 2002–2011 period, see table 4.1.1.1.

1,1,2-trichloroethene

The analysis is based on data from 13 countries for the 2002–2011 and from 11 countries for 2010–2011 period, see tables 3.1.2 and 3.1.3. The substance was found in 11.2 % of samples (Fig. 4.1.1.2) and in 14.7 % of stations (Fig. 4.1.1.4). The number of reported stations has increased since 2002 and lately has been oscillating around 4200 stations (Fig. 4.1.2.2a). 1,1,2,-trichloroethene occurred in 11 of the 11 assessed countries (Fig. 4.1.2.2b) and exceeded the drinking water standard in 5 countries in 2010–2011 (Fig. 4.1.2.2c). The highest concentration of 924 μg/l was reported by the United Kingdom in the 2002–2011 period, see table 4.1.1.1.

1,2-dichloroethane

The analysis is based on data from 14 countries for the 2002–2011 period and 11 countries for the 2010–2011 period, see tables 3.1.2 and 3.1.3. The substance was found in 2.3 % of samples (Fig. 4.1.1.2) and in 4.5 % of stations (Fig. 4.1.1.4). The number of reported stations has increased since 2002 and lately has been oscillating around 4000 stations (Fig. 4.1.2.3a). 1,2,-dichloroethane occurred in 5 of the 11 assessed countries (Fig. 4.1.2.3b) and exceeded the drinking water standard in 1 country in 2010–2011 (Fig. 4.1.2.3c). The highest concentration of 31.7 μg/l was reported by Slovakia in the 2002–2011 period, see table 4.1.1.1.

2,4-D

The analysis is based on data from 12 countries for the 2002–2011 period and 9 countries for the 2010–2011 period, see tables 3.1.2 and 3.1.3. The substance was found in 1.2 % of samples (Fig. 4.1.1.2) and in 4.8 % of stations (Fig. 4.1.1.4). The number of reported stations has increased since 2002 and lately has been oscillating around 2500 stations (Fig. 4.1.2.4a). 2,4-D occurred in 5 of the 9 assessed countries (Fig. 4.1.2.4b) and exceeded the drinking water standard in 3 countries in 2010–2011 (Fig. 4.1.2.4c). The highest concentration of 1.25 μg/l was reported by the United Kingdom in the 2002–2011 period, see table 4.1.1.1.

Alachlor

The analysis is based on data from 12 countries for the 2002–2011 period and 11 countries for the 2010–2011 period, see tables 3.1.2 and 3.1.3. The substance was found in 0.4 % of samples (Fig. 4.1.1.2) and in 2.8 % of stations (Fig. 4.1.1.4). The number of reported stations has increased since 2002 and lately has been oscillating around 3000 stations (Fig. 4.1.2.5a). Alachlor occurred in 5 of the 11 assessed countries (Fig. 4.1.2.5b) and exceeded the drinking water standard in 2 countries in 2010–2011 (Fig. 4.1.2.5c). The highest concentration of 0.24 μg/l was reported by Cyprus in the 2002–2011 period, see table 4.1.1.1.

Aldrin

The analysis is based on data from 15 countries for the 2002–2011 period and 9 countries for the 2010–2011 period, see tables 3.1.2 and 3.1.3. The substance was found in 5 % of samples (Fig. 4.1.1.2) and in 15.3 % of stations (Fig. 4.1.1.4). The number of reported stations has increased since 2002 and lately has been oscillating around 2400 stations (Fig. 4.1.2.6a). Aldrin occurred in 3 of the 9 assessed countries (Fig. 4.1.2.6b) and exceeded the drinking water standard in 1 country in 2010–2011 (Fig. 4.1.2.6c). The highest concentration of 4 μg/l was reported by the United Kingdom in the 2002–2011 period, see table 4.1.1.1.

Alpha endosulfan

The analysis is based on data from 11 countries for the 2002–2011 period and 6 countries for the 2010–2011 period, see tables 3.1.2 and 3.1.3. The substance was found in 1.7 % of samples (Fig. 4.1.1.2) and in 5.3 % of stations (Fig. 4.1.1.4). The number of reported stations has increased since 2002 and lately has been oscillating around 2000 stations (Fig. 4.1.2.7a). Alpha endosulfan occurred in 2 of the 6 assessed countries (Fig. 4.1.2.7b) and exceeded the drinking water standard in 1 country in 2010–2011 (Fig. 4.1.2.7c). The highest concentration of 4 μg/l was reported by the United Kingdom in the 2002–2011 period, see table 4.1.1.1.

Alpha HCH

The analysis is based on data from 11 countries for the 2002–2011 period and 8 countries for the 2010–2011 period, see tables 3.1.2 and 3.1.3. The substance was found in 1.2 % of samples (Fig. 4.1.1.2) and in 3.1 % of stations (Fig. 4.1.1.4). The number of reported stations has substantially increased since 2002 and lately has been oscillating around 2300 stations (Fig. 4.1.2.8a). Alpha HCH occurred in 4 of the 8 assessed countries (Fig. 4.1.2.8b) and exceeded the drinking water standard in 1 country in 2010–2011 (Fig. 4.1.2.8c). The highest concentration of 3 μg/l was reported by the United Kingdom in the 2002–2011 period, see table 4.1.1.1.

Arsenic

The analysis is based on data from 21 countries for the 2002–2011 period and 19 countries for the 2010–2011 period, see tables 3.1.2 and 3.1.3. The substance was found in 41.8 % of samples (Fig. 4.1.1.2) and in 54.9 % of stations (Fig. 4.1.1.4). The number of reported stations has increased since 2002 and lately has been oscillating around 5000 stations (Fig. 4.1.2.9a). Arsenic occurred in 19 of the 19 assessed countries (Fig. 4.1.2.9b) and exceeded the drinking water standard in 13 countries in 2010–2011 (Fig. 4.1.2.9c). The highest concentration of 2180 μg/l was reported by Slovakia in the 2002–2011 period, see table 4.1.1.1.

Arsenic dissolved

The analysis is based on data from 5 countries for the 2002–2011 period and 5 countries for the 2010–2011 period, see tables 3.1.2 and 3.1.3. The substance was found in 32.1 % of samples (Fig. 4.1.1.2) and in 61.3 % of stations (Fig. 4.1.1.4). The number of reported stations has been increasing since 2002 (Fig. 4.1.2.10a). Dissolved arsenic occurred in 4 of the 5 assessed countries (Fig. 4.1.2.10b) and exceeded the drinking water standard in 4 countries in 2010–2011 (Fig. 4.1.2.10c). The highest concentration of 234 μg/l was reported by Ireland in the 2002–2011 period, see table 4.1.1.1.

Atrazine

The analysis is based on data from 17 countries for the 2002–2011 period and 14 countries for the 2010–2011 period, see tables 3.1.2 and 3.1.3. The substance was found in 23.9 % of samples (Fig. 4.1.1.2) and in 31.5 % of stations (Fig. 4.1.1.4). The number of reported stations has increased since 2002 and lately has been oscillating around 5600 stations (Fig. 4.1.2.11a). Atrazine occurred in 14 of the 14 assessed countries (Fig. 4.1.2.11b) and exceeded the drinking water standard in 9 countries in 2010–2011 (Fig. 4.1.2.11c). The highest concentration of 3.4 μg/l was reported by Lithuania in the 2002–2011 period, see table 4.1.1.1.

Bentazone

The analysis is based on data from 12 countries for the 2002–2011 period and 11 countries for the 2010–2011 period, see tables 3.1.2 and 3.1.3. The substance was found in 8.6 % of samples (Fig. 4.1.1.2) and in 13.6 % of stations (Fig. 4.1.1.4). The number of reported stations has increased since 2002 and lately has been oscillating around 4400 stations (Fig. 4.1.2.12a). Bentazone occurred in 11 of the 11 assessed countries (Fig. 4.1.2.12b) and exceeded the drinking water standard in 10 countries in 2010–2011 (Fig. 4.1.2.12c). The highest concentration of 1024 μg/l was reported by Belgium in the 2002–2011 period, see table 4.1.1.1.

Benzene

The analysis is based on data from 14 countries for the 2002–2011 period and 13 countries for the 2010–2011 period, see tables 3.1.2 and 3.1.3. The substance was found in 4.1 % of samples (Fig. 4.1.1.2) and in 8.7 % of stations (Fig. 4.1.1.4). The number of reported stations has increased since 2002 and lately has been oscillating around 3700 stations (Fig. 4.1.2.13a). Benzene occurred in 5 of the 13 assessed countries (Fig. 4.1.2.13b) and exceeded the drinking water standard in 3 countries in 2010–2011 (Fig. 4.1.2.13c). The highest concentration of 1000 μg/l was reported by the United Kingdom in the 2002–2011 period, see table 4.1.1.1.

Benzo(a)pyrene

The analysis is based on data from 13 countries for the 2002–2011 period and 10 countries for the 2010–2011 period, see tables 3.1.2 and 3.1.3. The substance was found in 5.1 % of samples (Fig. 4.1.1.2) and in 12.4 % of stations (Fig. 4.1.1.4). The number of reported stations has increased since 2002 and lately has been oscillating around 2300 stations (Fig. 4.1.2.14a). Benzo(a)pyrene occurred in 7 of the 10 assessed countries (Fig. 4.1.2.14b) and exceeded the drinking water standard in 7 countries in 2010–2011 (Fig. 4.1.2.14c). The highest concentration of 15.8 μg/l was reported by France in the 2002–2011 period, see table 4.1.1.1.

Beta HCH

The analysis is based on data from 11 countries for the 2002–2011 period and 8 countries for the 2010–2011 period, see tables 3.1.2 and 3.1.3. The substance was found in 1.5 % of samples (Fig. 4.1.1.2) and in 3.4 % of stations (Fig. 4.1.1.4). The number of reported stations has increased since 2002 and lately has been oscillating around 1900 stations (Fig. 4.1.2.15a). Beta HCH occurred in 5 of the 8 assessed countries (Fig. 4.1.2.15b) and exceeded the drinking water standard in 5 countries in 2010–2011 (Fig. 4.1.2.15c). The highest concentration of 3 μg/l was reported by the United Kingdom in the 2002–2011 period, see table 4.1.1.1

Cadmium

The analysis is based on data from 24 countries for the 2002–2011 period and 15 countries for the 2010–2011 period, see tables 3.1.2 and 3.1.3. The substance was found in 16.3 % of samples (Fig. 4.1.1.2) and in 35.7 % of stations (Fig. 4.1.1.4). The number of reported stations has increased since 2002 and lately has been oscillating around 6000 stations (Fig. 4.1.2.16a). Cadmium occurred in 15 of the 15 assessed countries (Fig. 4.1.2.16b) and exceeded the drinking water standard in 4 countries in 2010–2011 (Fig. 4.1.2.16c). The highest concentration of 102 μg/l was reported by the United Kingdom in the 2002–2011 period, see table 4.1.1.1.

Cadmium dissolved

The analysis is based on data from 12 countries for the 2002–2011 period and 11 countries for the 2010–2011 period, see tables 3.1.2 and 3.1.3. The substance was found in 12.9 % of samples (Fig. 4.1.1.2) and in 24 % of stations (Fig. 4.1.1.4). The number of reported stations has rapidly increased since 2002 and lately has been oscillating around 2900 stations (Fig. 4.1.2.17a). Dissolved cadmium occurred in 9 of the 11 assessed countries (Fig. 4.1.2.17b) and exceeded the drinking water standard in 3 countries in 2010–2011 (Fig. 4.1.2.17c). The highest concentration of 650 µg/l was reported by Germany in the 2002–2011 period, see table 4.1.1.1.

Chlorfenvinphos

The analysis is based on data from 11 countries for the 2002–2011 period and 9 countries for the 2010–2011 period, see tables 3.1.2 and 3.1.3. The substance was found in 0.5 % of samples (Fig. 4.1.1.2) and in 2 % of stations (Fig. 4.1.1.4). The number of reported stations has increased since 2002 and lately has been oscillating around 2800 stations (Fig. 4.1.2.18a). Chlorfenvinphos occurred in 1 of the 9 assessed countries (Fig. 4.1.2.18b) and did not exceed the drinking water standard in 2010–2011 (Fig. 4.1.2.18c). The highest concentration of 0.138 µg/l was reported by the United Kingdom in the 2002–2011 period, see table 4.1.1.1.

Chlorpyrifos

The analysis is based on data from 11 countries for the 2002–2011 period and 8 countries for the 2010–2011 period, see tables 3.1.2 and 3.1.3. The substance was found in 1.6 % of samples (Fig. 4.1.1.2) and in 5.2 % of stations (Fig. 4.1.1.4). The number of reported stations has increased since 2002 and lately has been oscillating around 3500 stations (Fig. 4.1.2.19a). Chlorpyrifos occurred in 4 of the 8 assessed countries (Fig. 4.1.2.19b) and exceeded the drinking water standard in 1 country in 2010–2011 (Fig. 4.1.2.19c). The highest concentration of 10 µg/l was reported by the United Kingdom in the 2002–2011 period, see table 4.1.1.1.

Chromium

The analysis is based on data from 20 countries for the 2002–2011 period and 16 countries for the 2010–2011 period, see tables 3.1.2 and 3.1.3. The substance was found in 26.3 % of samples (Fig. 4.1.1.2) and in 56.7 % of stations (Fig. 4.1.1.4). The number of reported stations has rapidly increased since 2002 and lately has been oscillating around 5000 stations (Fig. 4.1.2.20a). Chromium occurred in 16 of the 16 assessed countries (Fig. 4.1.2.20b) and exceeded the drinking water standard in 8 countries in 2010–2011 (Fig. 4.1.2.20c). The highest concentration of 1000 µg/l was reported by France in the 2002–2011 period, see table 4.1.1.1.

Chromium dissolved

The analysis is based on data from 10 countries for the 2002–2011 period and 8 countries for the 2010–2011 period, see tables 3.1.2 and 3.1.3. The substance was found in 23.4 % of samples (Fig. 4.1.1.2) and in 27.2 % of stations (Fig. 4.1.1.4). The number of reported stations has been slightly increased since 2002 and rapidly increased since 2010 (Fig. 4.1.2.21a). Dissolved chromium occurred in 8 of the 8 assessed countries (Fig. 4.1.2.21b) and exceeded the drinking water standard in 1 country in 2010–2011 (Fig. 4.1.2.21c). The highest concentration of 471µg/l was reported by the United Kingdom in the 2002–2011 period, see table 4.1.1.1.

Copper

The analysis is based on data from 24 countries for the 2002–2011 period and 15 countries for the 2010–2011 period, see tables 3.1.2 and 3.1.3. The substance was found in 61.4 % of samples (Fig. 4.1.1.2) and in 79.1 % of stations (Fig. 4.1.1.4). The number of reported stations has increased since 2002 and lately has been oscillating around 5900 stations (Fig. 4.1.2.22a). Copper occurred in 15 of the 15 assessed countries (Fig. 4.1.2.22b) and exceeded the drinking water standard in 2 countries in 2010–2011 (Fig. 4.1.2.22c). The highest concentration of 9530 µg/l was reported by the United Kingdom in the 2002–2011 period, see table 4.1.1.1.

Copper dissolved

The analysis is based on data from 15 countries for the 2002–2011 period and 13 countries for the 2010–2011 period, see tables 3.1.2 and 3.1.3. The substance was found in 62.6 % of samples (Fig. 4.1.1.2) and in 76.2 % of stations (Fig. 4.1.1.4). The number of reported stations has increased since 2002 and lately has been oscillating around 3000 stations (Fig. 4.1.2.23a). Dissolved copper occurred in 13 of the 13 assessed countries (Fig. 4.1.2.23b) and exceeded the drinking water standard in 1 country in 2010–2011 (Fig. 4.1.2.23c). The highest concentration of 8970 μg/l was reported by the United Kingdom in the 2002–2011 period, see table 4.1.1.1.

DDD p,p'

The analysis is based on data from 9 countries for the 2002–2011 period and 7 countries for the 2010–2011 period, see tables 3.1.2 and 3.1.3. The substance was found in 11.4 % of samples (Fig. 4.1.1.2) and in 32.4 % of stations (Fig. 4.1.1.4). The number of reported stations has increased since 2002 and lately has been oscillating around 1400 stations (Fig. 4.1.2.24a). DDD p,p' occurred in 2 of the 7 assessed countries (Fig. 4.1.2.24b) and did not exceed the drinking water standard in 2010–2011 (Fig. 4.1.2.24c). The highest concentration of 0.027μg/l was reported by the Republic of Serbia in the 2002–2011 period, see table 4.1.1.1.

DDE p,p'

The analysis is based on data from 10 countries for the 2002–2011 period and 8 countries for the 2010–2011 period, see tables 3.1.2 and 3.1.3. The substance was found in 2.8 % of samples (Fig. 4.1.1.2) and in 5.6 % of stations (Fig. 4.1.1.4). The number of reported stations has increased since 2002 and lately has been oscillating around 2200 stations (Fig. 4.1.2.25a). DDE p,p' occurred in 2 of the 8 assessed countries (Fig. 4.1.2.25b) and did not exceed the drinking water standard in 2010–2011 (Fig. 4.1.2.25c). The highest concentration of 2.48μg/l was reported by Slovakia in the 2002–2011 period, see table 4.1.1.1.

DDT o,p'

The analysis is based on data from 9 countries for the 2002–2011 period and 7 countries for the 2010–2011 period, see tables 3.1.2 and 3.1.3. The substance was found in 2.7 % of samples (Fig. 4.1.1.2) and in 5.7 % of stations (Fig. 4.1.1.4). The number of reported stations has increased since 2002 and lately has been oscillating around 2200 stations (Fig. 4.1.2.26a). DDT o,p' occurred in 2 of the 7 assessed countries (Fig. 4.1.2.26b) and did not exceed the drinking water standard in 2010–2011 (Fig. 4.1.2.26c). The highest concentration of 1 μg/l was reported by the United Kingdom in the 2002–2011 period, see table 4.1.1.1.

DDT p,p'

The analysis is based on data from 13 countries for the 2002–2011 period and 9 countries for the 2010–2011 period, see tables 3.1.2 and 3.1.3. The substance was found in 10.4 % of samples (Fig. 4.1.1.2) and in 27.7 % of stations (Fig. 4.1.1.4). The number of reported stations has rapidly increased since 2002 and lately has been oscillating around 2200 stations (Fig. 4.1.2.27a). DDT p,p' occurred in 3 of the 9 assessed countries (Fig. 4.1.2.27b) and did not exceed the drinking water standard in 2010–2011 (Fig. 4.1.2.27c). The highest concentration of 1 μg/l was reported by the United Kingdom in the 2002–2011 period, see table 4.1.1.1.

Desethylatrazine

The analysis is based on data from 12 countries for the 2002–2011 period and 11 countries for the 2010–2011 period, see tables 3.1.2 and 3.1.3. The substance was found in 27 % of samples (Fig. 4.1.1.2) and in 28 % of stations (Fig. 4.1.1.4). The number of reported stations has increased since 2002 and lately has been oscillating around 5300 stations (Fig. 4.1.2.28a). Desethylatrazine occurred in 11 of the 11 assessed countries (Fig. 4.1.2.28b) and exceeded the drinking water standard in all 11 countries in 2010–2011 (Fig. 4.1.2.28c). The highest concentration of 3.7 μg/l was reported by Denmark in the 1999–2009 period, see table 4.1.1.1.

Desisopropylatrazine

The analysis is based on data from 11 countries for the 2002–2011 period and 10 countries for the 2010–2011 period, see tables 3.1.2 and 3.1.3. The substance was found in 6.1 % of samples (Fig. 4.1.1.2) and in 12 % of stations (Fig. 4.1.1.4). The number of reported stations has increased since 2002 and lately has been oscillating around 4600 stations (Fig. 4.1.2.29a). Desisopropylatrazine occurred in 8 of the 10 assessed countries (Fig. 4.1.2.29b) and exceeded the drinking water standard in 6 countries in 2010–2011 (Fig. 4.1.2.29c). The highest concentration of 500 μg/l was reported by the United Kingdom in the 2002–2011 period, see table 4.1.1.1.

Dieldrin

The analysis is based on data from 15 countries for the 2002–2011 period and 9 countries for the 2010–2011 period, see tables 3.1.2 and 3.1.3. The substance was found in 3.4 % of samples (Fig. 4.1.1.2) and in 7.3 % of stations (Fig. 4.1.1.4). The number of reported stations has increased since 2002 and lately has been oscillating around 2200 stations (Fig. 4.1.2.30a). Dieldrin occurred in 3 of the 9 assessed countries (Fig. 4.1.2.30b) and exceeded the drinking water standard in 2 countries in 2010–2011 (Fig. 4.1.2.30c). The highest concentration of 5 μg/l was reported by the United Kingdom in the 2002–2011 period, see table 4.1.1.1.

Diuron

The analysis is based on data from 13 countries for the 2002–2011 period and 10 countries for the 2010–2011 period, see tables 3.1.2 and 3.1.3. The substance was found in 6.7 % of samples (Fig. 4.1.1.2) and in 10.9 % of stations (Fig. 4.1.1.4). The number of reported stations has increased since 2002 and lately has been oscillating around 4100 stations (Fig. 4.1.2.31a). Diuron occurred in 7 of the 10 assessed countries (Fig. 4.1.2.31b) and exceeded the drinking water standard in 4 countries in 2010–2011 (Fig. 4.1.2.31c). The highest concentration of 642 μg/l was reported by France in the 2002–2011 period, see table 4.1.1.1.

Endrin

The analysis is based on data from 14 countries for the 2002–2011 period and 9 countries for the 2010–2011 period, see tables 3.1.2 and 3.1.3. The substance was found in 2.6 % of samples (Fig. 4.1.1.2) and in 8 % of stations (Fig. 4.1.1.4). The number of reported stations has been increasing since 2002 and lately has been oscillating around 2200 stations (Fig. 4.1.2.32a). Endrin occurred in 3 of the 9 assessed countries (Fig. 4.1.2.32b) and exceeded the drinking water standard in 1 country in 2010–2011 (Fig. 4.1.2.32c). The highest concentration of 4 μg/l was reported by the United Kingdom in the 2002–2011 period, see table 4.1.1.1.

Gamma HCH

The analysis is based on data from 16 countries for the 2002–2011 period and 11 countries for the 2010–2011 period, see tables 3.1.2 and 3.1.3. The substance was found in 5.2 % of samples (Fig. 4.1.1.2) and in 17.1 % of stations (Fig. 4.1.1.4). The number of reported stations has increased since 2002 and lately has been oscillating around 2700 stations (Fig. 4.1.2.33a). Gamma HCH occurred in 5 of the 11 assessed countries (Fig. 4.1.2.33b) and exceeded the drinking water standard in 1 country in 2010–2011 (Fig. 4.1.2.33c). The highest concentration of 3 μg/l was reported by the United Kingdom in the 2002–2011 period, see table 4.1.1.1.

Hexachlorobenzene

The analysis is based on data from 13 countries for the 2002–2011 period and 6 countries for the 2010–2011 period, see tables 3.1.2 and 3.1.3. The substance was found in 4.3 % of samples (Fig. 4.1.1.2) and in 14.7 % of stations (Fig. 4.1.1.4). The number of reported stations has increased since 2002 and lately has been oscillating around 2000 stations (Fig. 4.1.2.34a). Hexachlorobenzene occurred in 3 of the 6 assessed countries (Fig. 4.1.2.34b) and exceeded the drinking water standard in 1 country in 2010–2011 (Fig. 4.1.2.34c). The highest concentration of 2 µg/l was reported by the United Kingdom in the 2002–2011 period, see table 4.1.1.1.

Isodrin

The analysis is based on data from 7 countries for the 2002–2011 period and 5 countries for the 2010–2011 period, see tables 3.1.2 and 3.1.3. The substance was found in 2 % of samples (Fig. 4.1.1.2) and in 7 % of stations (Fig. 4.1.1.4). The number of reported stations has increased since 2002 and lately has been oscillating around 2000 stations (Fig. 4.1.2.35a). Isodrin occurred in 2 of the 5 assessed countries (Fig. 4.1.2.35b) and exceeded the drinking water standard in 1 country in 2010–2011 (Fig. 4.1.2.35c). The highest concentration of 4 µg/l was reported by the United Kingdom in the 2002–2011 period, see table 4.1.1.1

Isoproturon

The analysis is based on data from 12 countries for the 2002–2011 period and 9 countries for the 2010–2011 period, see tables 3.1.2 and 3.1.3. The substance was found in 6.5 % of samples (Fig. 4.1.1.2) and in 15.5 % of stations (Fig. 4.1.1.4). The number of reported stations has increased since 2002 and lately has been oscillating around 4100 stations (Fig. 4.1.2.36a). Isoproturon occurred in 7 of the 9 assessed countries (Fig. 4.1.2.36b) and exceeded the drinking water standard in 5 countries in 2010–2011 (Fig. 4.1.2.36c). The highest concentration of 21.6 µg/l was reported by Germany in the 2002–2011 period, see table 4.1.1.1.

Lead

The analysis is based on data from 25 countries for the 2002–2011 period and 16 countries for the 2010–2011 period, see tables 3.1.2 and 3.1.3. The substance was found in 26.2 % of samples (Fig. 4.1.1.2) and in 56 % of stations (Fig. 4.1.1.4). The number of reported stations has increased since 2002 and lately has been oscillating around 5500 stations (Fig. 4.1.2.37a). Lead occurred in 15 of the 16 assessed countries (Fig. 4.1.2.37b) and exceeded the drinking water standard in 12 countries in 2010–2011 (Fig. 4.1.2.37c). The highest concentration of 15300 µg/l was reported by the United Kingdom in the 1999–2009 period, see table 4.1.1.1.

Lead dissolved

The analysis is based on data from 13 countries for the 2002–2011 period and 12 countries for the 2010–2011 period, see tables 3.1.2 and 3.1.3. The substance was found in 18 % of samples (Fig. 4.1.1.2) and in 26.2 % of stations (Fig. 4.1.1.4). The number of reported stations has increased since 2002 and lately has been oscillating around 2800 stations (Fig. 4.1.2.38a). Dissolved lead occurred in 11 of the 12 assessed countries (Fig. 4.1.2.38b) and exceeded the drinking water standard in 5 countries in 2010–2011 (Fig. 4.1.2.38c). The highest concentration of 495 µg/l was reported by the United Kingdom in the 1999–2009 period, see table 4.1.1.1.

Linuron

The analysis is based on data from 9 countries for the 2002–2011 period and 7 countries for the 2010–2011 period, see tables 3.1.2 and 3.1.3. The substance was found in 6 % of samples (Fig. 4.1.1.2) and in 14.8 % of stations (Fig. 4.1.1.4). The number of reported stations has increased since 2002 and lately has been oscillating around 3700 stations (Fig. 4.1.2.39a). Linuron occurred in 4 of the 7 assessed countries (Fig. 4.1.2.39b) and exceeded the drinking water standard in 2 countries in 2010–2011 (Fig. 4.1.2.39c). The highest concentration of 12.6 μg/l was reported by the Czech Republic in the 2002–2011 period, see table 4.1.1.1.

MCPA

The analysis is based on data from 11 countries for the 2002–2011 period and 9 countries for the 2010–2011 period, see tables 3.1.2 and 3.1.3. The substance was found in 3.5 % of samples (Fig. 4.1.1.2) and in 7.7 % of stations (Fig. 4.1.1.4). The number of reported stations has increased since 2002 and lately has been oscillating around 3400 stations (Fig. 4.1.2.40a). MCPA occurred in 4 of the 9 assessed countries (Fig. 4.1.2.40b) and exceeded the drinking water standard in 3 countries in 2010–2011 (Fig. 4.1.2.40c). The highest concentration of 7.9 μg/l was reported by France in the 2002–2011 period, see table 4.1.1.1.

Mecoprop

The analysis is based on data from 10 countries for the 2002–2011 period and 8 countries for the 2010–2011 period, see tables 3.1.2 and 3.1.3. The substance was found in 4.3 % of samples (Fig. 4.1.1.2) and in 8.9 % of stations (Fig. 4.1.1.4). The number of reported stations has increased since 2002 and lately has been oscillating around 3300 stations (Fig. 4.1.2.41a). Mecoprop occurred in 5 of the 8 assessed countries (Fig. 4.1.2.41b) and exceeded the drinking water standard in 4 countries in 2010–2011 (Fig. 4.1.2.41c). The highest concentration of 7.6 μg/l was reported by Denmark in the 1999–2009 period, see table 4.1.1.1.

Mercury

The analysis is based on data from 22 countries for the 2002–2011 period and 16 countries for the 2010–2011 period, see tables 3.1.2 and 3.1.3. The substance was found in 13.6 % of samples (Fig. 4.1.1.2) and in 29.5 % of stations (Fig. 4.1.1.4). The number of reported stations has increased since 2002 and lately has been oscillating around 4100 stations (Fig. 4.1.2.42a). Mercury occurred in 11 of the 16 assessed countries (Fig. 4.1.2.42b) and exceeded the drinking water standard in 4 countries in 2010–2011 (Fig. 4.1.2.42c). The highest concentration of 54.8 μg/l was reported by the Czech Republic in the 2002–2011 period, see table 4.1.1.1.

Mercury dissolved

The analysis is based on data from 5 countries for the 2007–2011 period and 5 countries for the 2010–2011 period, see tables 3.1.2 and 3.1.3. The substance was found in 6.5 % of samples (Fig. 4.1.1.2) and in 50.1 % of stations (Fig. 4.1.1.4). The number of reported stations has been slightly increasing since 2007 (Fig. 4.1.2.43a). Dissolved mercury occurred in 4 of the 5 assessed countries (Fig. 4.1.2.43b) and did not exceed the drinking water standard 2010–2011 (Fig. 4.1.2.43c). The highest concentration of 1.31μg/l was reported by Ireland in the 2002–2011 period, see table 4.1.1.1.

Nickel

The analysis is based on data from 23 countries for the 2002–2011 period and 14 countries for the 2010–2011 period, see tables 3.1.2 and 3.1.3. The substance was found in 35.5 % of samples (Fig. 4.1.1.2) and in 67 % of stations (Fig. 4.1.1.4). The number of reported stations has increased since 2002 and lately has been oscillating around 6000 stations (Fig. 4.1.2.44a). Nickel occurred in 14 of the 14 assessed countries (Fig. 4.1.2.44b) and exceeded the drinking water standard in 13 countries in 2010–2011 (Fig. 4.1.2.44c). The highest concentration of 9000 μg/l was reported by the United Kingdom in the 2002–2011 period, see table 4.1.1.1.

Nickel dissolved

The analysis is based on data from 14 countries for the 2002–2011 period and 13 countries for the 2010–2011 period, see tables 3.1.2 and 3.1.3. The substance was found in 53.6 % of samples (Fig. 4.1.1.2) and in 60.2 % of stations (Fig. 4.1.1.4). The number of reported stations has increased since 2002 and lately has been oscillating around 3000 stations (Fig. 4.1.2.45a). Dissolved nickel occurred in 12 of the 13 assessed countries (Fig. 4.1.2.45b) and exceeded the drinking water standard in 9 countries in 2010–2011 (Fig. 4.1.2.45c). The highest concentration of 853 µg/l was reported by Ireland in the 2002–2011 period, see table 4.1.1.1.

Prometryn

The analysis is based on data from 10 countries for the 2002–2011 period and 8 countries for the 2010–2011 period, see tables 3.1.2 and 3.1.3. The substance was found in 5.5 % of samples (Fig. 4.1.1.2) and in 7.3 % of stations (Fig. 4.1.1.4). The number of reported stations has increased since 2002 and lately has been oscillating around 3300 stations (Fig. 4.1.2.46a). Prometryn occurred in 5 of the 8 assessed countries (Fig. 4.1.2.46b) and exceeded the drinking water standard in 3 countries in 2010–2011 (Fig. 4.1.2.46c). The highest concentration of 8 µg/l was reported by the United Kingdom in the 2002–2011 period, see table 4.1.1.1.

Propazine

The analysis is based on data from 11 countries for the 2002–2011 period and 9 countries for the 2010–2011 period, see tables 3.1.2 and 3.1.3. The substance was found in 6.9 % of samples (Fig. 4.1.1.2) and in 11.7 % of stations (Fig. 4.1.1.4). The number of reported stations has increased since 2002 and lately has been oscillating around 3300 stations (Fig. 4.1.2.47a). Propazine occurred in 7 of the 9 assessed countries (Fig. 4.1.2.47b) and exceeded the drinking water standard in 1 country in 2010–2011 (Fig. 4.1.2.47c). The highest concentration of 1.234 µg/l was reported by Cyprus in the 2002–2011 period, see table 4.1.1.1.

Simazine

The analysis is based on data from 17 countries for the 2002–2011 period and 14 countries for the 2010–2011 period, see tables 3.1.2 and 3.1.3. The substance was found in 10.8 % of samples (Fig. 4.1.1.2) and in 17.3 % of stations (Fig. 4.1.1.4). The number of reported stations has increased since 2002 and lately has been oscillating around 5500 stations (Fig. 4.1.2.48a). Simazine occurred in 12 of the 14 assessed countries (Fig. 4.1.2.48b) and exceeded the drinking water standard in 6 countries in 2010–2011 (Fig. 4.1.2.48c). The highest concentration of 1.96 µg/l was reported by the United Kingdom in the 2002–2011 period, see table 4.1.1.1.

Terbuthylazine

The analysis is based on data from 10 countries for the 2002–2011 period and 8 countries for the 2010–2011 period, see tables 3.1.2 and 3.1.3. The substance was found in 2 % of samples (Fig. 4.1.1.2) and in 6.6 % of stations (Fig. 4.1.1.4). The number of reported stations has increased since 2002 and lately has been oscillating around 2800 stations (Fig. 4.1.2.49a). Terbuthylazine occurred in 8 of the 8 assessed countries (Fig. 4.1.2.49b) and exceeded the drinking water standard in 3 countries in 2010–2011 (Fig. 4.1.2.49c). The highest concentration of 5.3 µg/l was reported by the Czech Republic in the 2002–2011 period, see table 4.1.1.1.

Terbutryn

The analysis is based on data from 9 countries for the 2002–2011 period and 7 countries for the 2010–2011 period, see tables 3.1.2 and 3.1.3. The substance was found in 7.1 % of samples (Fig. 4.1.1.2) and in 8.2 % of stations (Fig. 4.1.1.4). The number of reported stations has increased since 2002 and lately has been oscillating around 2500 stations (Fig. 4.1.2.50a). Terbutryn occurred in 3 of the 7 assessed countries (Fig. 4.1.2.50b) and exceeded the drinking water standard in 1 country in 2010–2011 (Fig. 4.1.2.50c). The highest concentration of 9 µg/l was reported by the United Kingdom in the 2002–2011 period, see table 4.1.1.1.

Trifluralin

The analysis is based on data from 11 countries for the 2002–2011 period and 10 countries for the 2010–2011 period, see tables 3.1.2 and 3.1.3. The substance was found in 2.6 % of samples (Fig. 4.1.1.2) and in 6.5 % of stations (Fig. 4.1.1.4). The number of reported stations has increased since 2002 and lately has been oscillating around 3000 stations (Fig. 4.1.2.51a). Trifluralin occurred in 5 of the 10 assessed countries (Fig. 4.1.2.51b) and exceeded the drinking water standard in 2 countries in 2010–2011 (Fig. 4.1.2.51c). The highest concentration of 1 µg/l was reported by the United Kingdom in the 2002–2011 period, see table 4.1.1.1.

Figure 4.1.2.1a Long-term indicator (% of sites within indicator class, number of stations shown in parenthesis) for 1,1,2,2-tetrachloroethene in groundwater

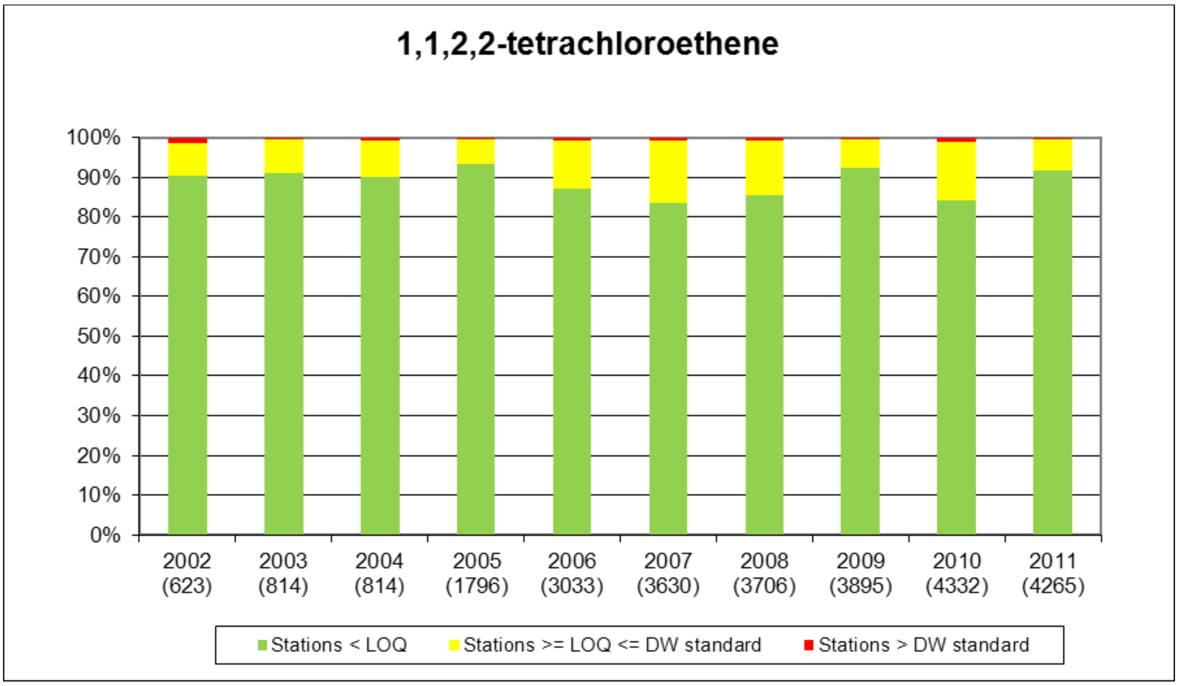


Figure 4.1.2.1b Indicator for 1,1,2,2-tetrachloroethene in groundwater in 2010–2011 (number of stations per country shown in parenthesis)

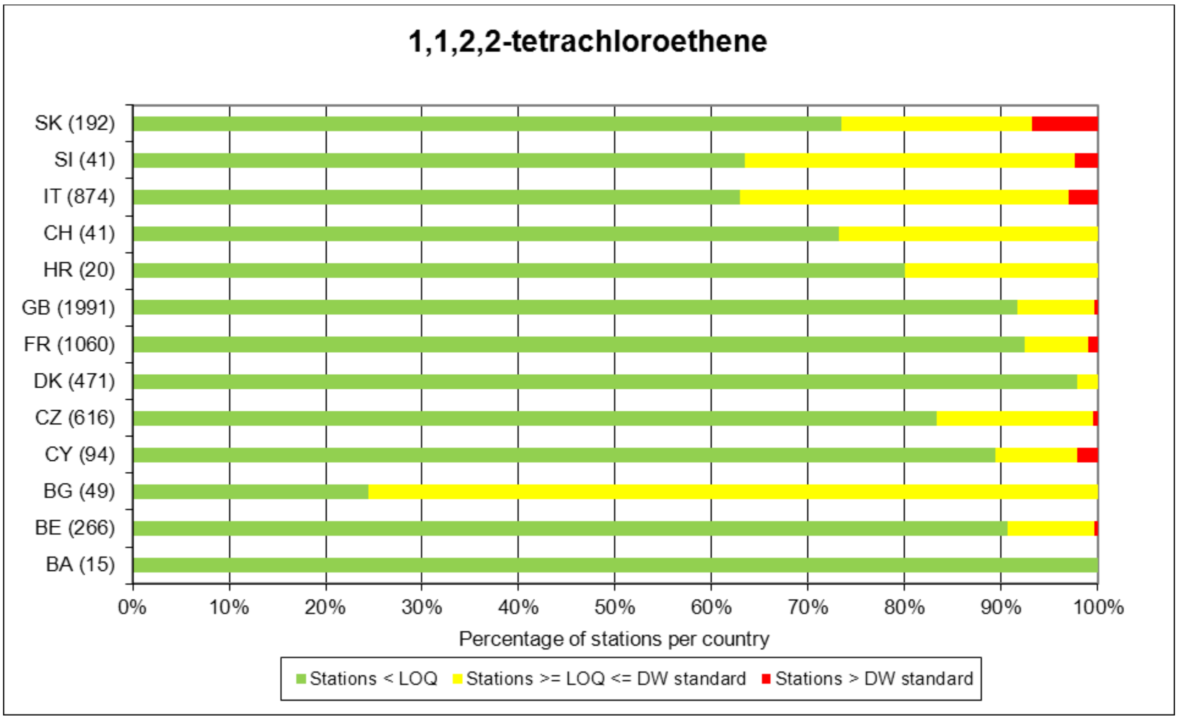


Figure 4.1.2.1c Map of the indicator for 1,1,2,2-tetrachloroethene in groundwater in 2010–2011

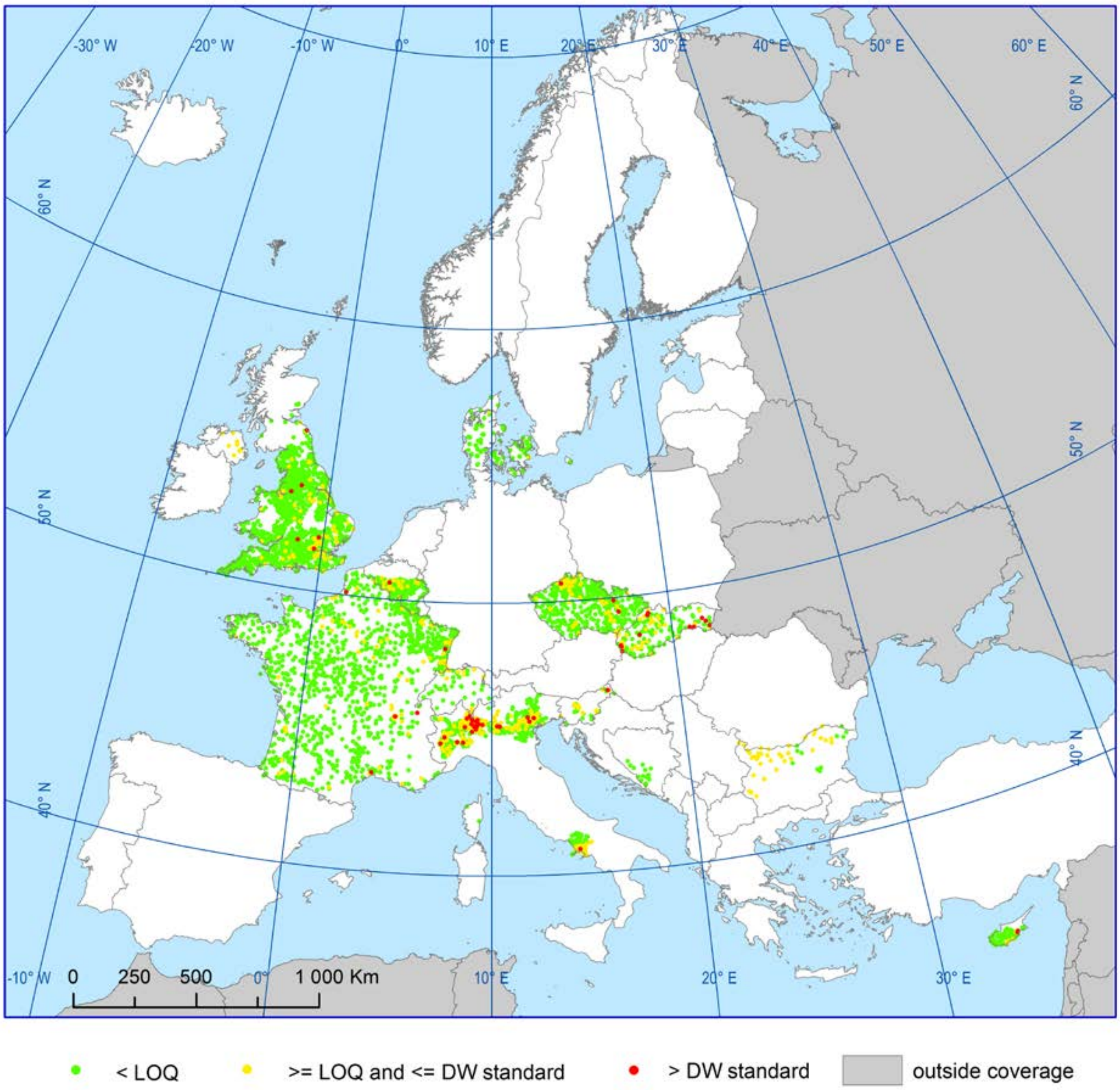


Figure 4.1.2.2a Long-term indicator (% of sites within indicator class, number of stations shown in parenthesis) for 1,1,2-trichloroethene in groundwater

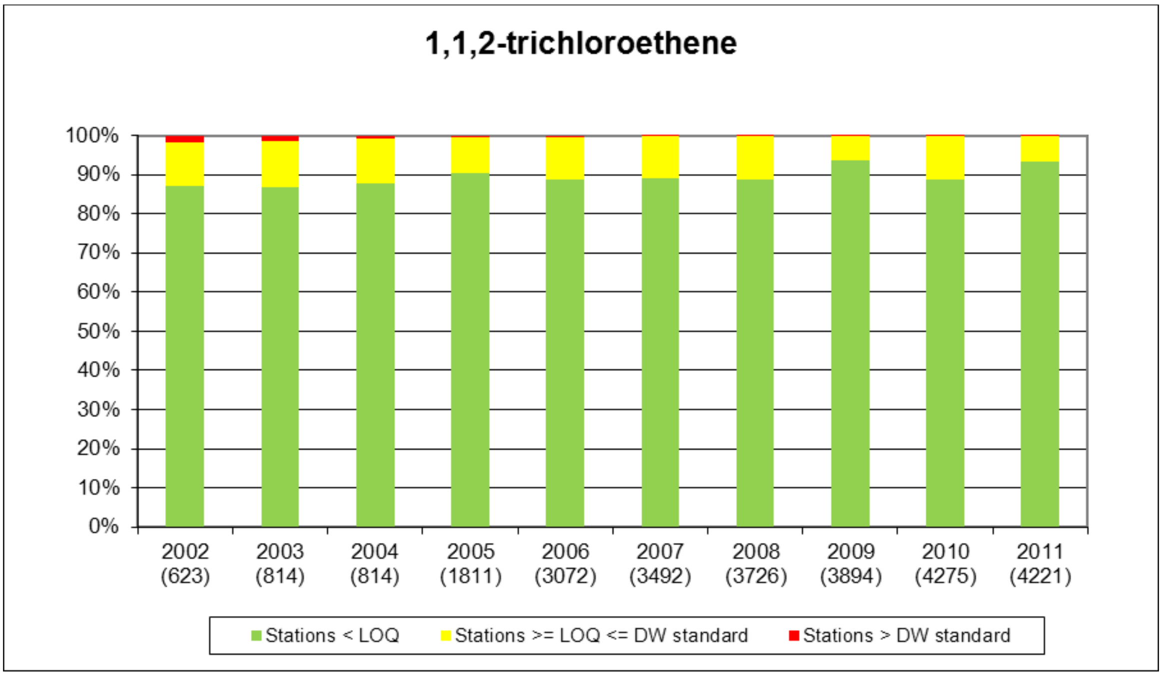


Figure 4.1.2.2b Indicator for 1,1,2-trichloroethene in groundwater in 2010–2011 (number of stations per country shown in parenthesis)

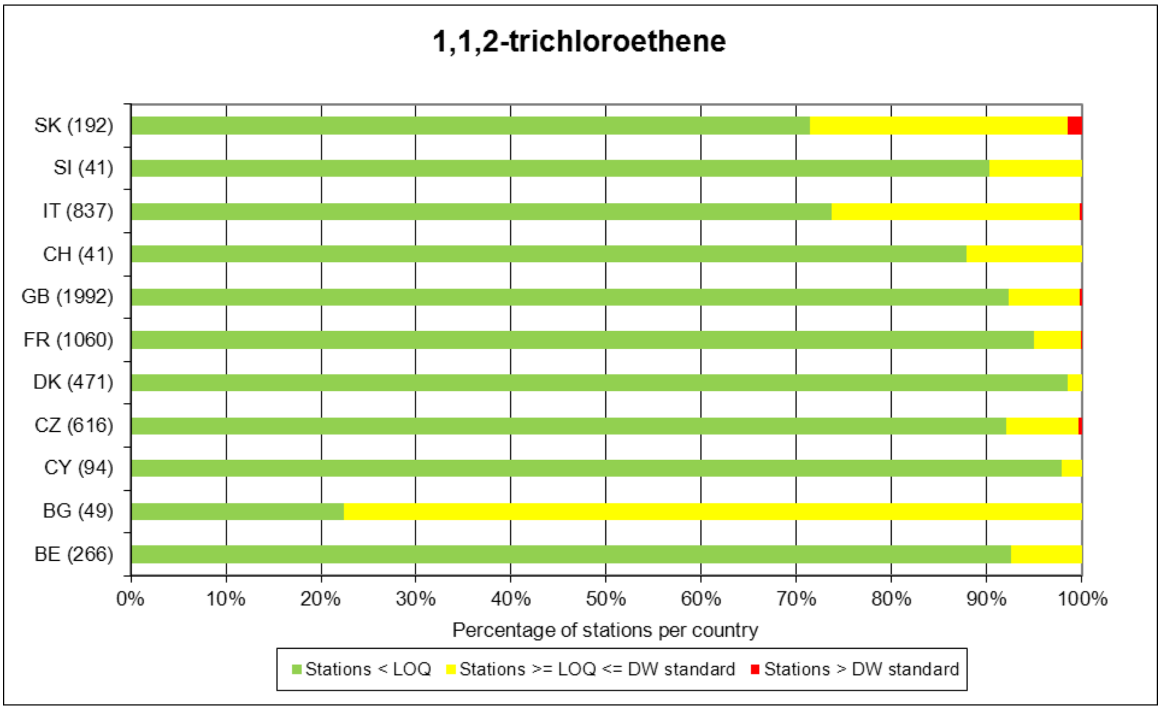


Figure 4.1.2.2c Map of the indicator for 1,1,2-trichloroethene in groundwater in 2010–2011

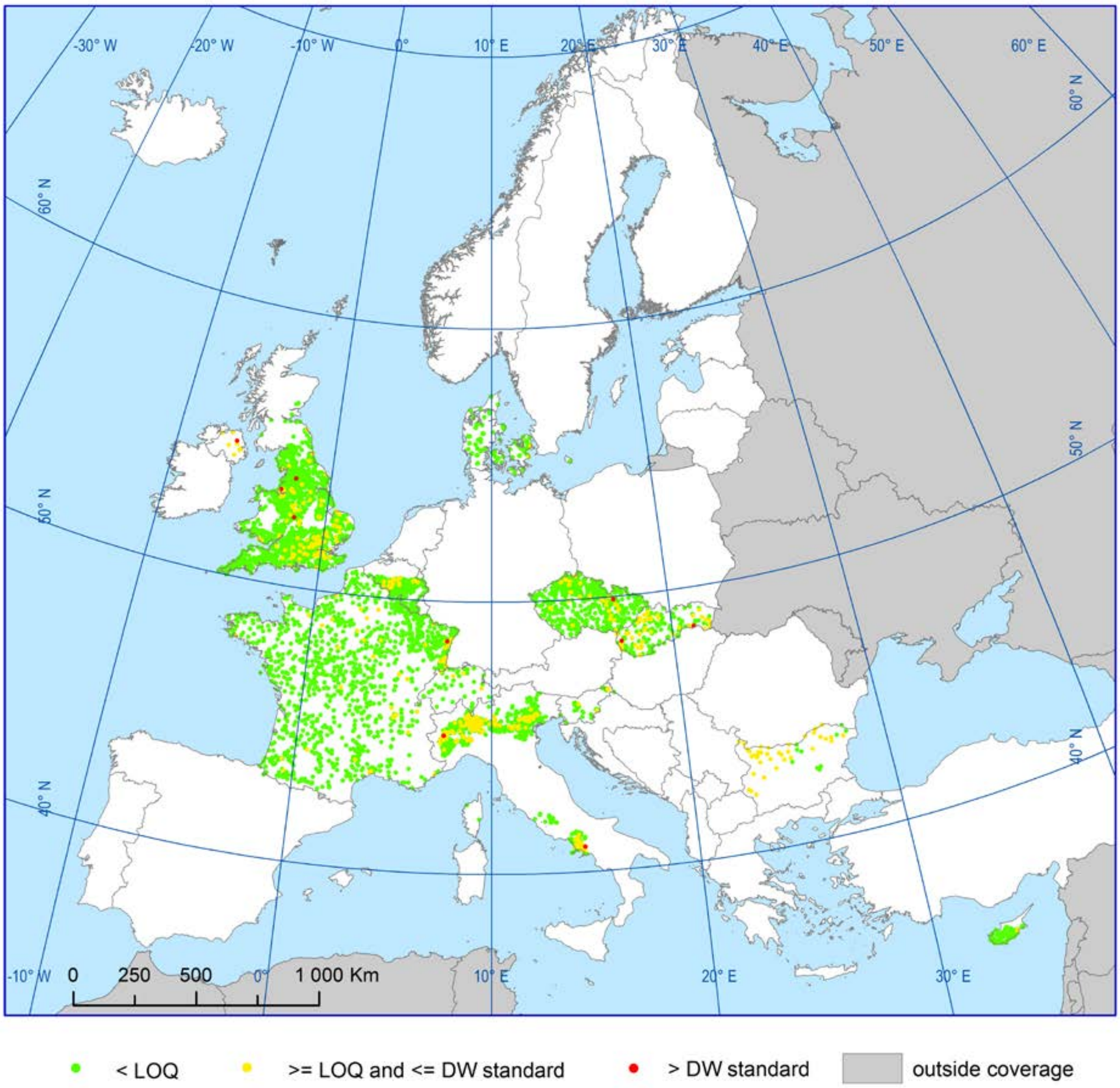


Figure 4.1.2.3a Long-term indicator (% of sites within indicator class, number of stations shown in parenthesis) for 1,2-dichloroethane in groundwater

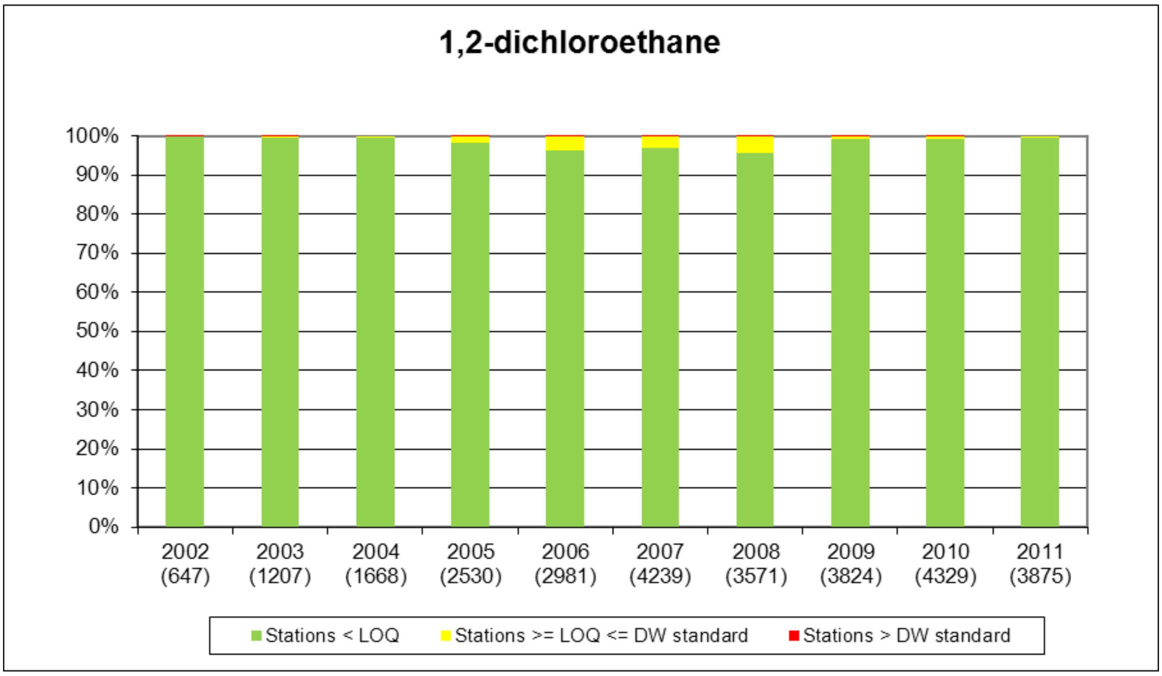


Figure 4.1.2.3b Indicator for 1,2-dichloroethane in groundwater in 2010–2011 (number of stations per country shown in parenthesis)

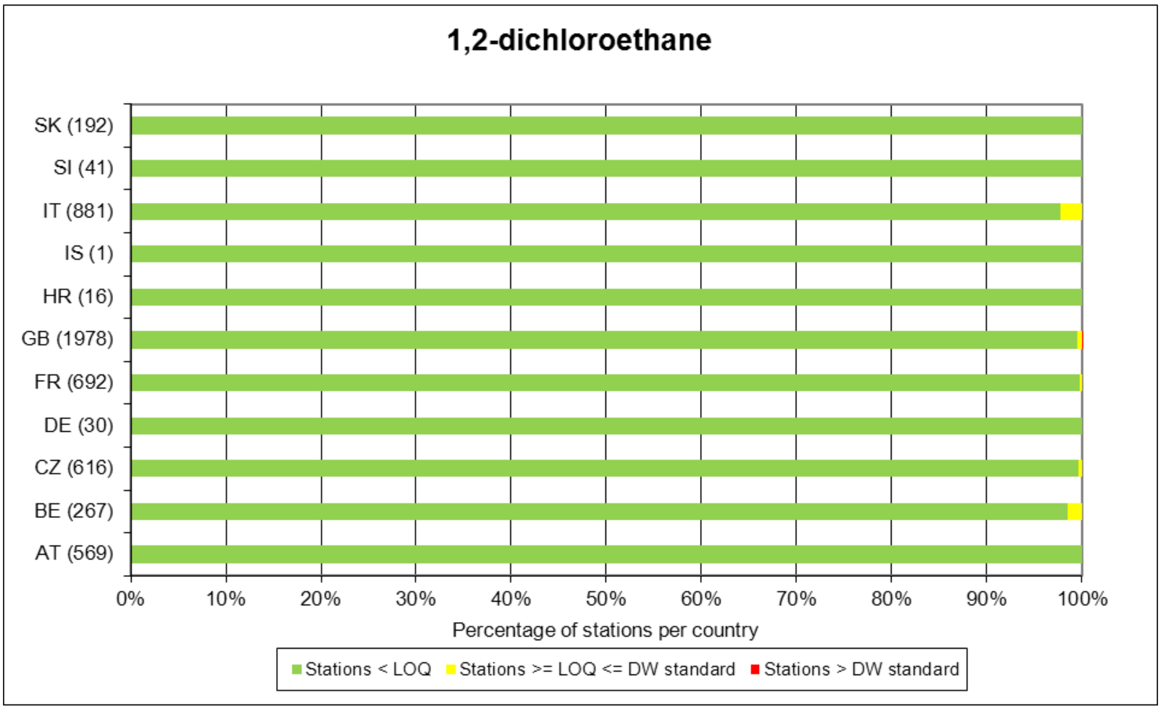


Figure 4.1.2.3c Map of the indicator for 1,2-dichloroethane in groundwater in 2010–2011

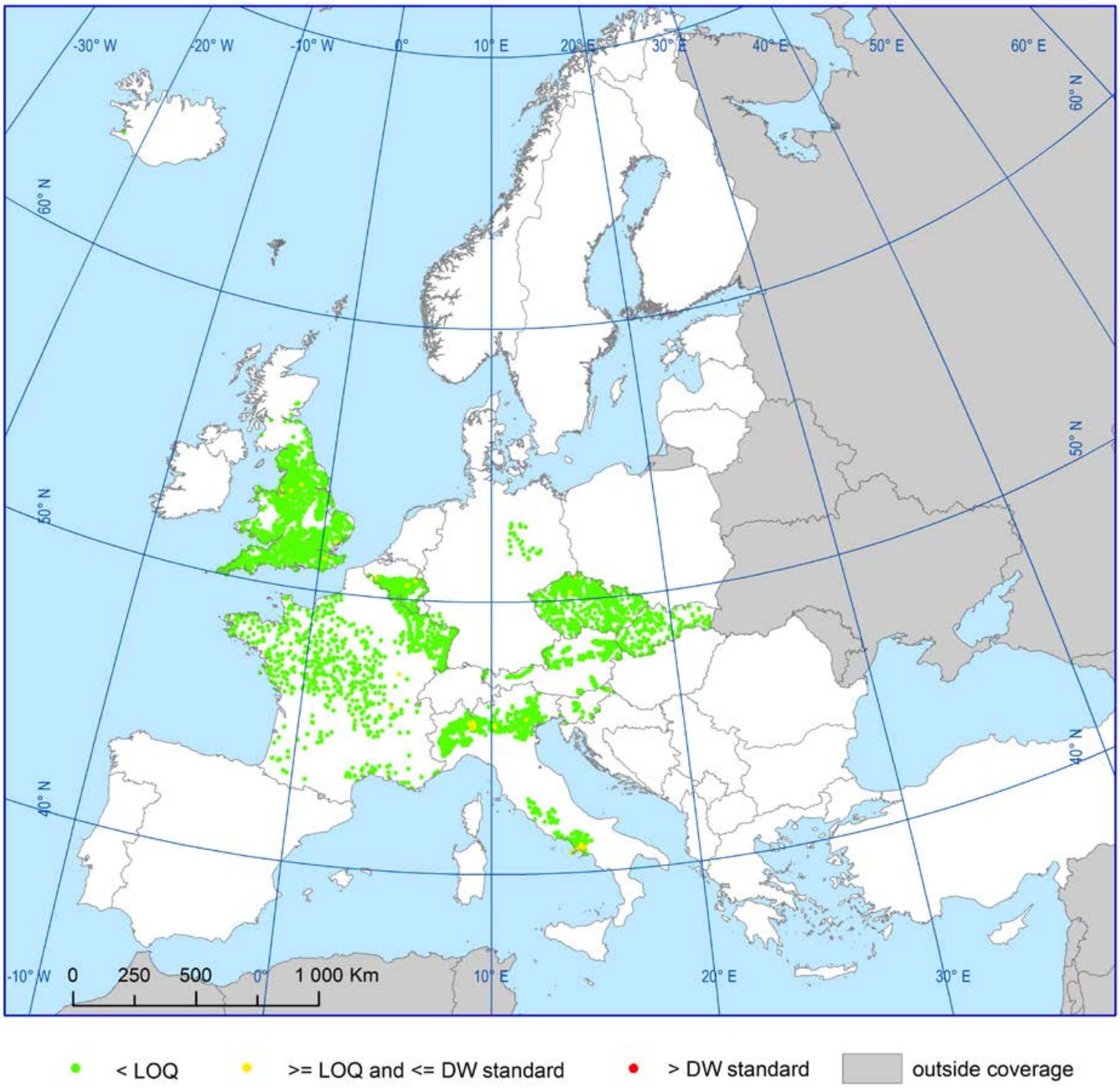


Figure 4.1.2.4a Long-term indicator (% of sites within indicator class, number of stations shown in parenthesis) for 2,4-D in groundwater

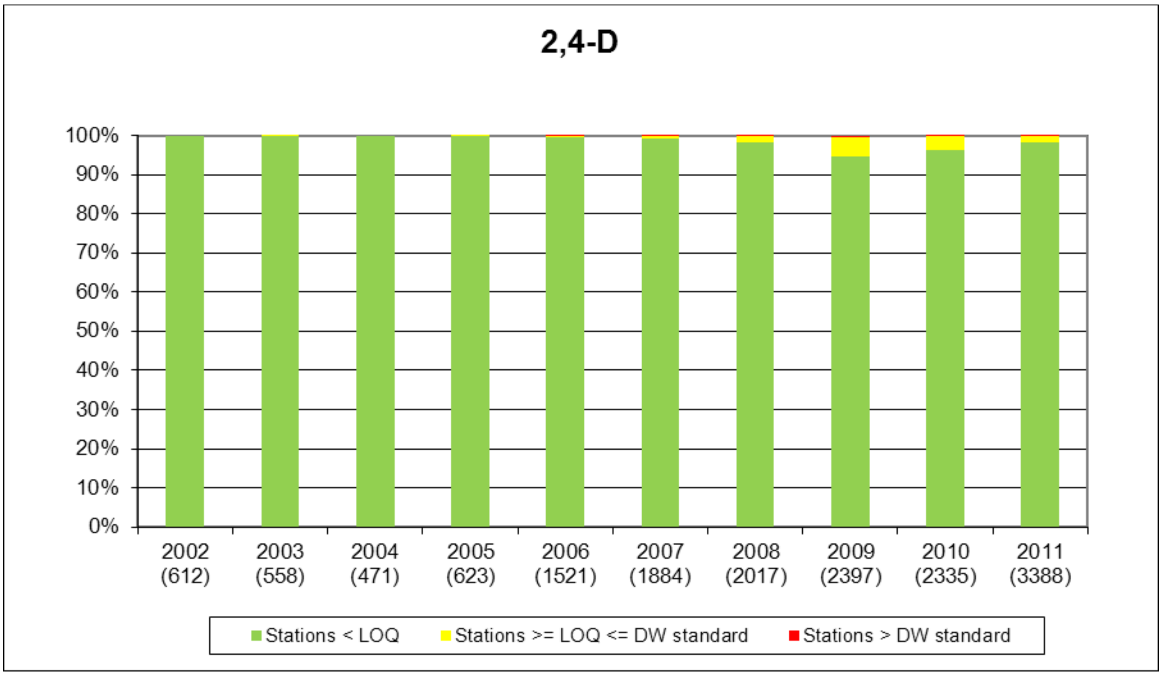


Figure 4.1.2.4b Indicator for 2,4-D in groundwater in 2010–2011 (number of stations per country shown in parenthesis)

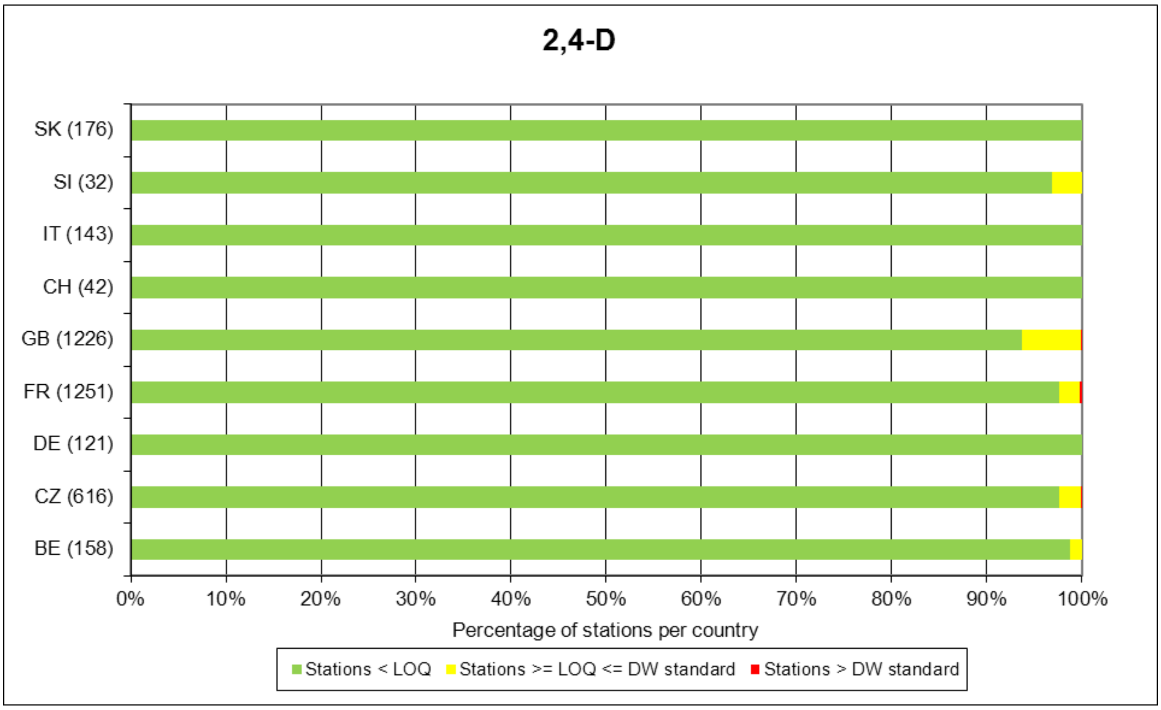


Figure 4.1.2.4c Map of the indicator for 2,4-D in groundwater in 2010–2011

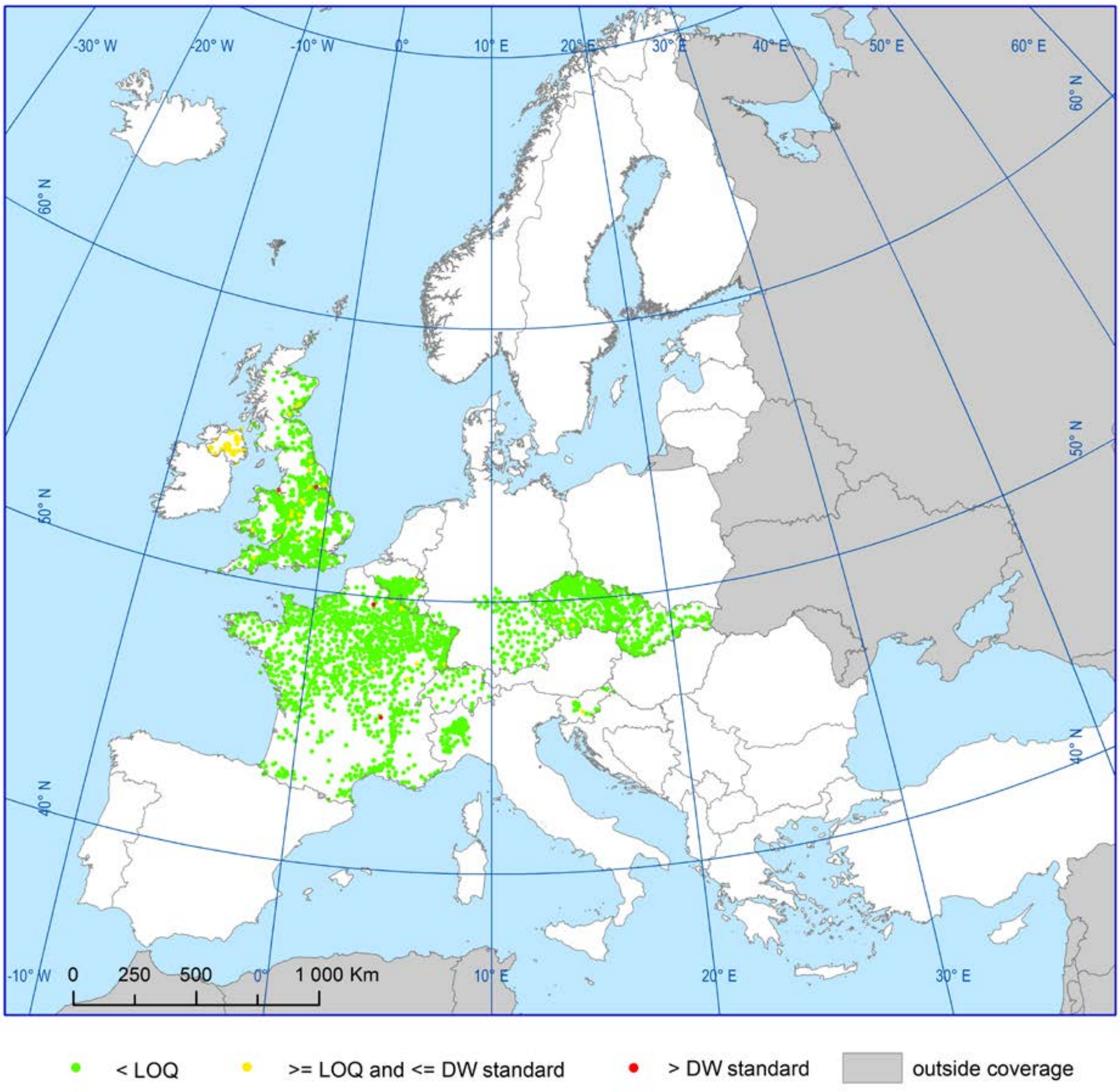


Figure 4.1.2.5a Long-term indicator (% of sites within indicator class, number of stations shown in parenthesis) for alachlor in groundwater

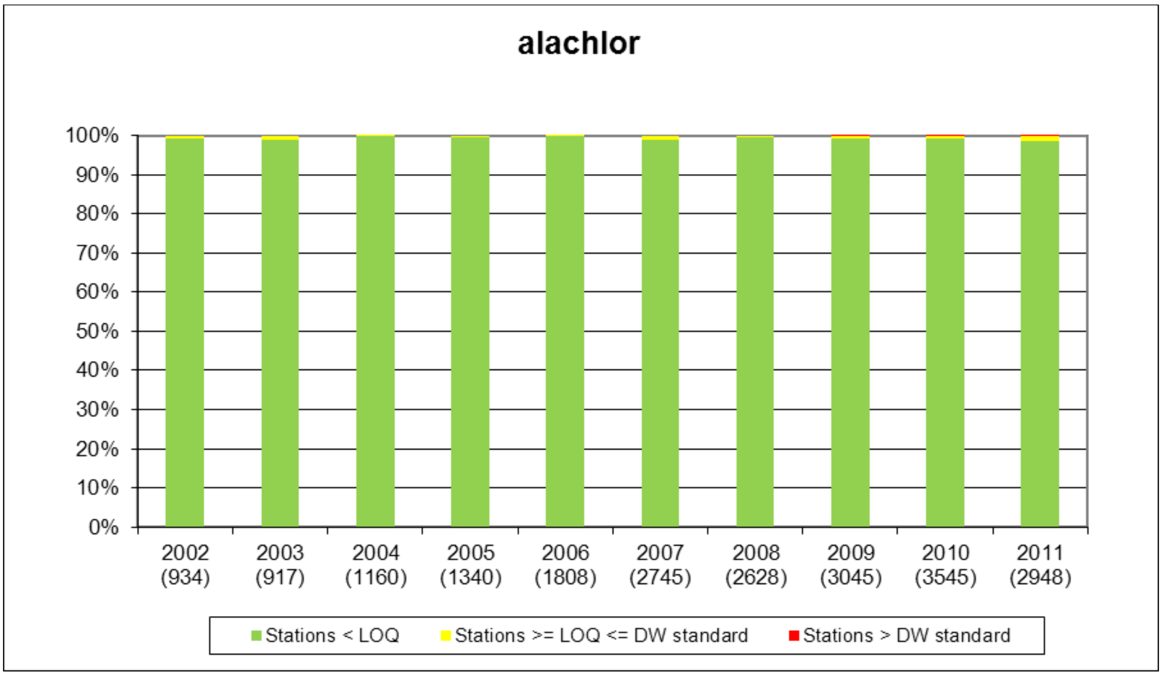


Figure 4.1.2.5b Indicator for alachlor in groundwater in 2010–2011 (number of stations per country shown in parenthesis)

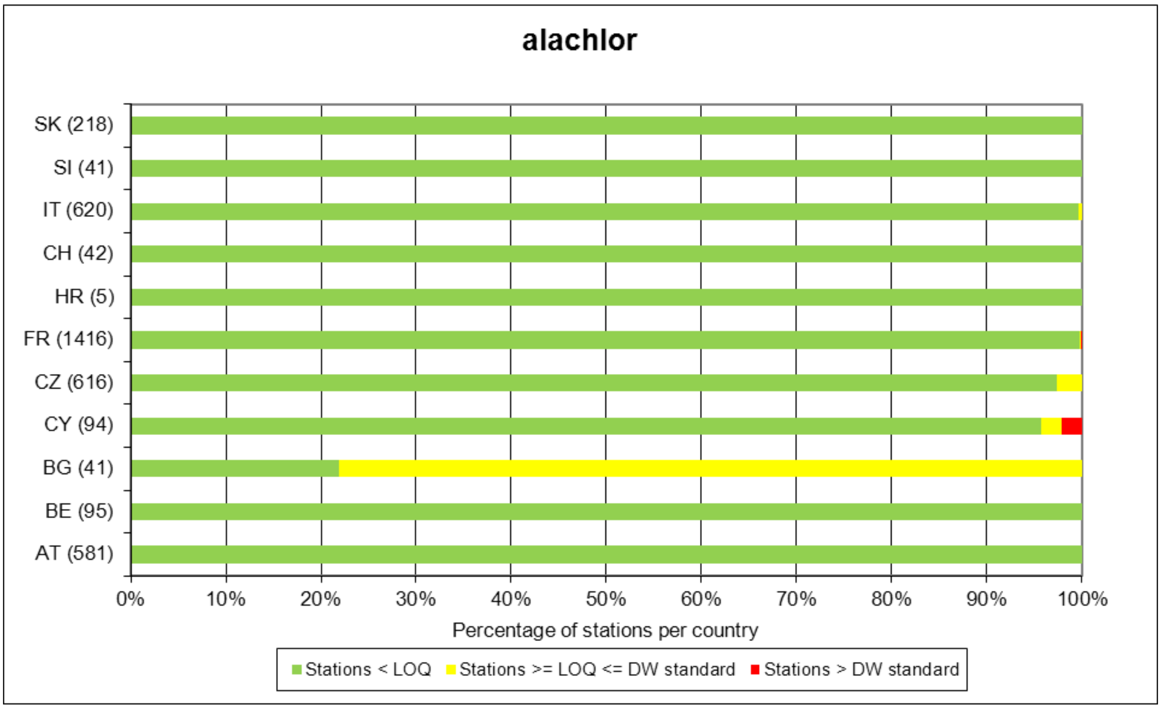


Figure 4.1.2.5c Map of the indicator for alachlor in groundwater in 2010–2011

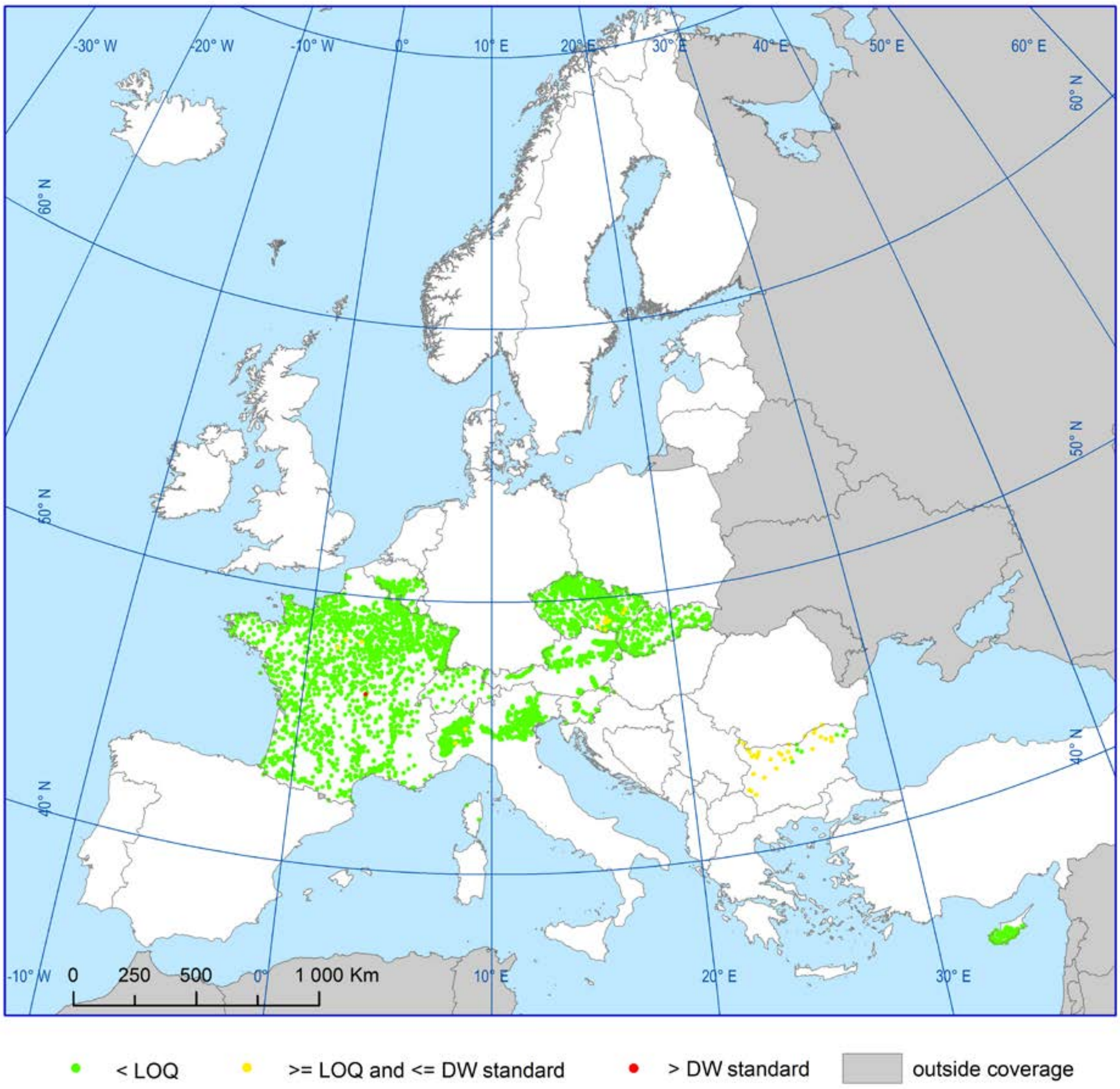


Figure 4.1.2.6a Long-term indicator (% of sites within indicator class, number of stations shown in parenthesis) for aldrin in groundwater

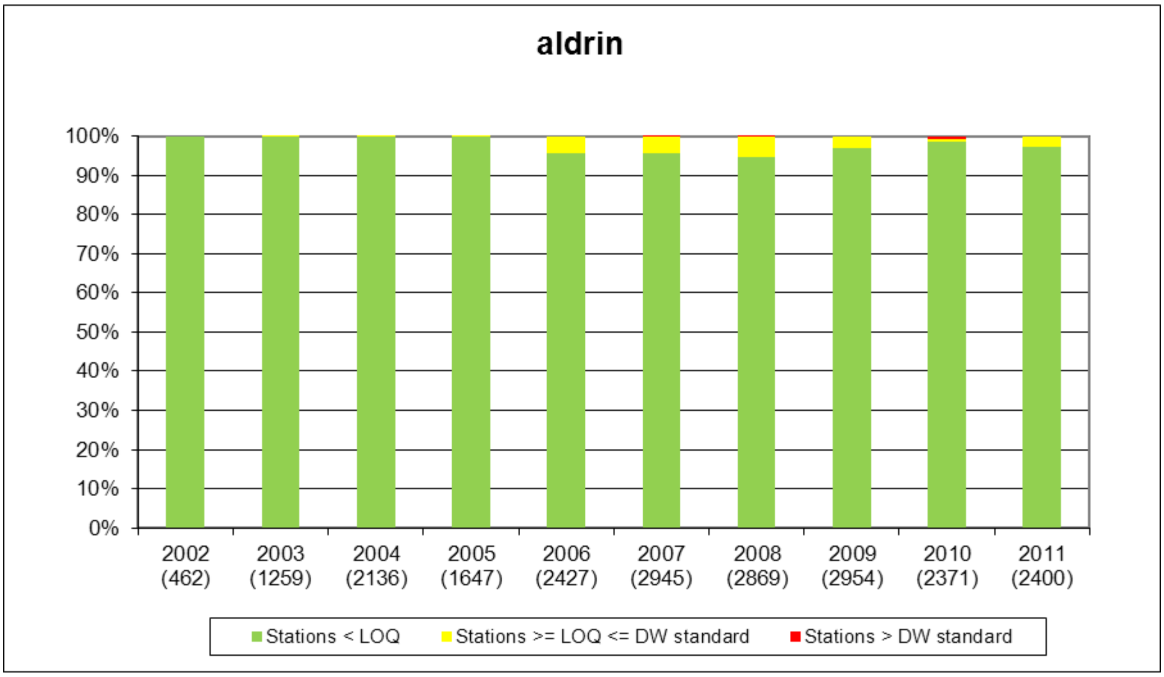


Figure 4.1.2.6b Indicator for aldrin in groundwater in 2010–2011 (number of stations per country shown in parenthesis)

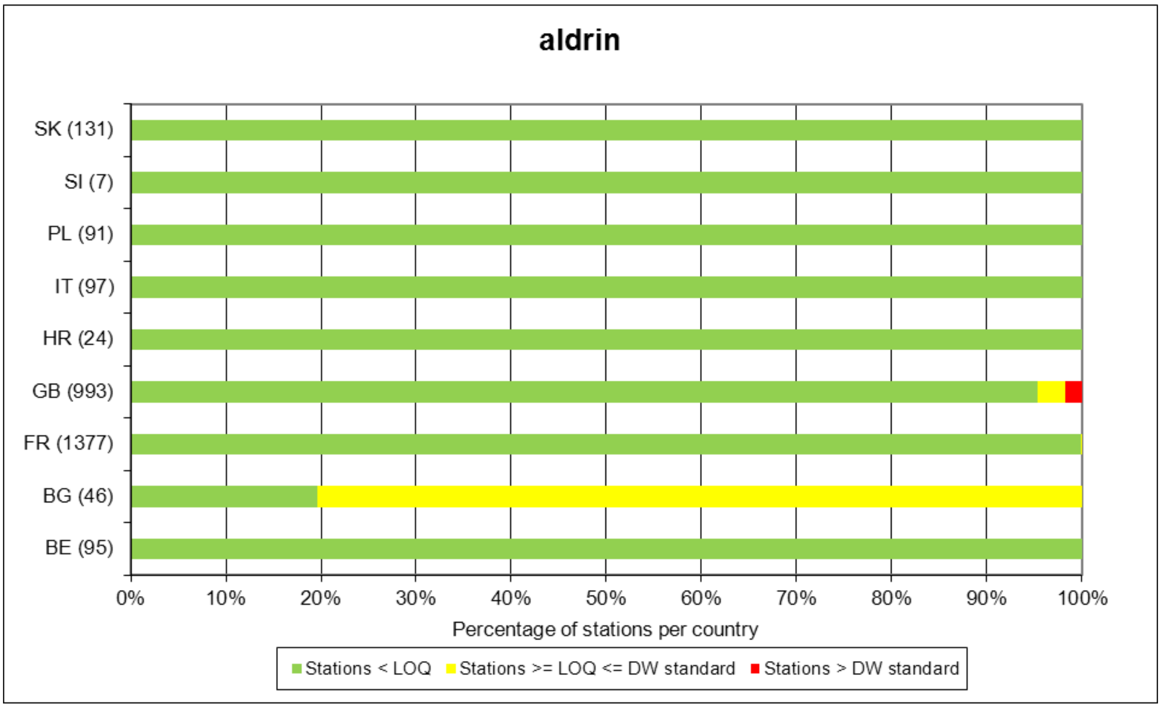


Figure 4.1.2.6c Map of the indicator for aldrin in groundwater in 2010–2011

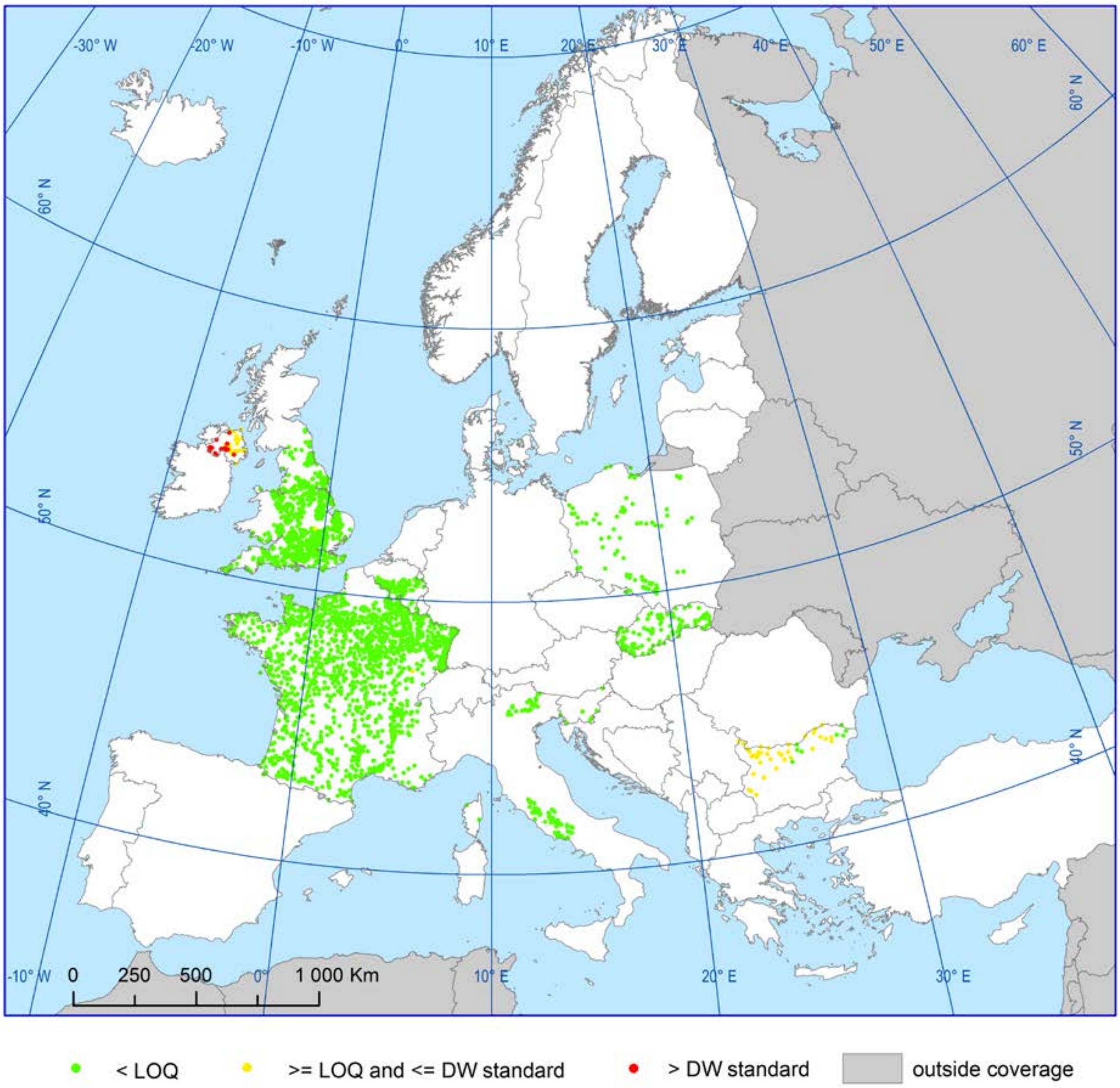


Figure 4.1.2.7a Long-term indicator (% of sites within indicator class, number of stations shown in parenthesis) for alpha endosulfan in groundwater

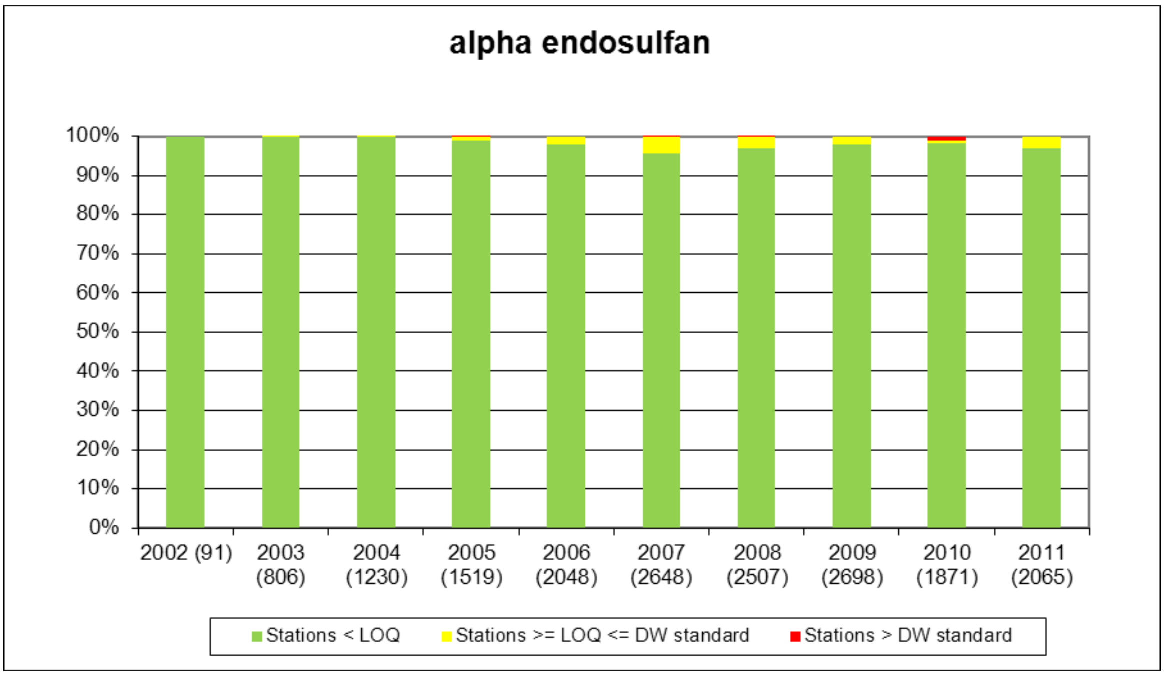


Figure 4.1.2.7b Indicator for alpha endosulfan in groundwater in 2010–2011 (number of stations per country shown in parenthesis)

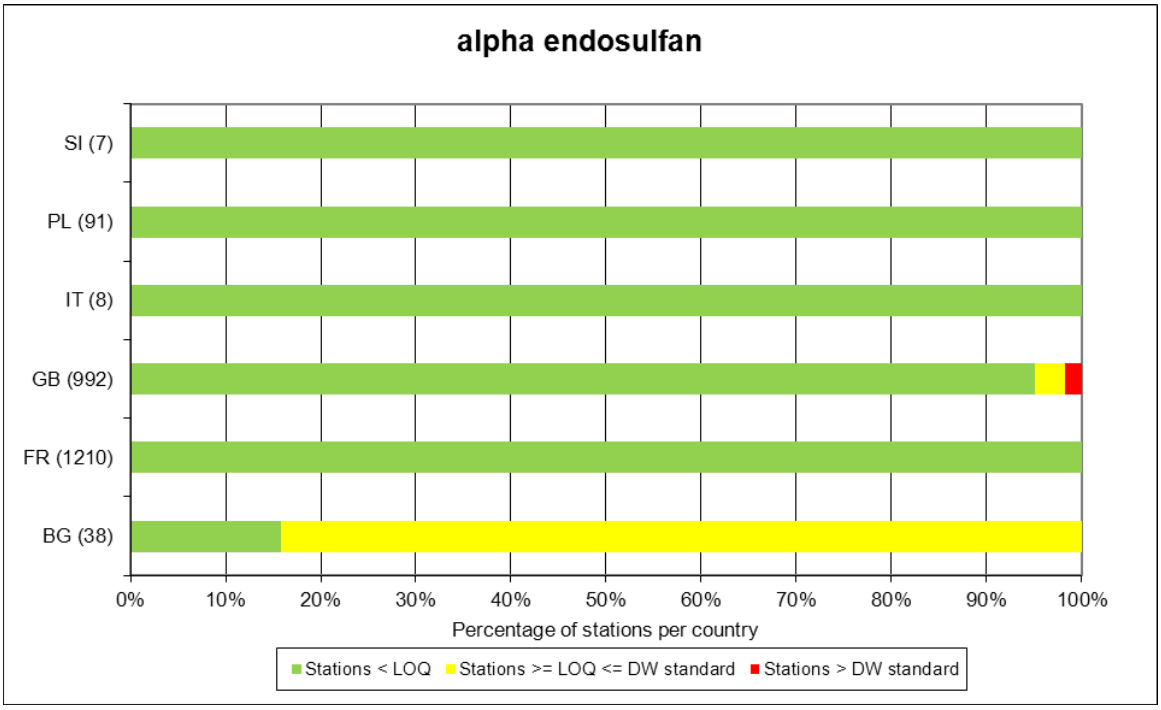


Figure 4.1.2.7c Map of the indicator for alpha endosulfan in groundwater in 2010–2011

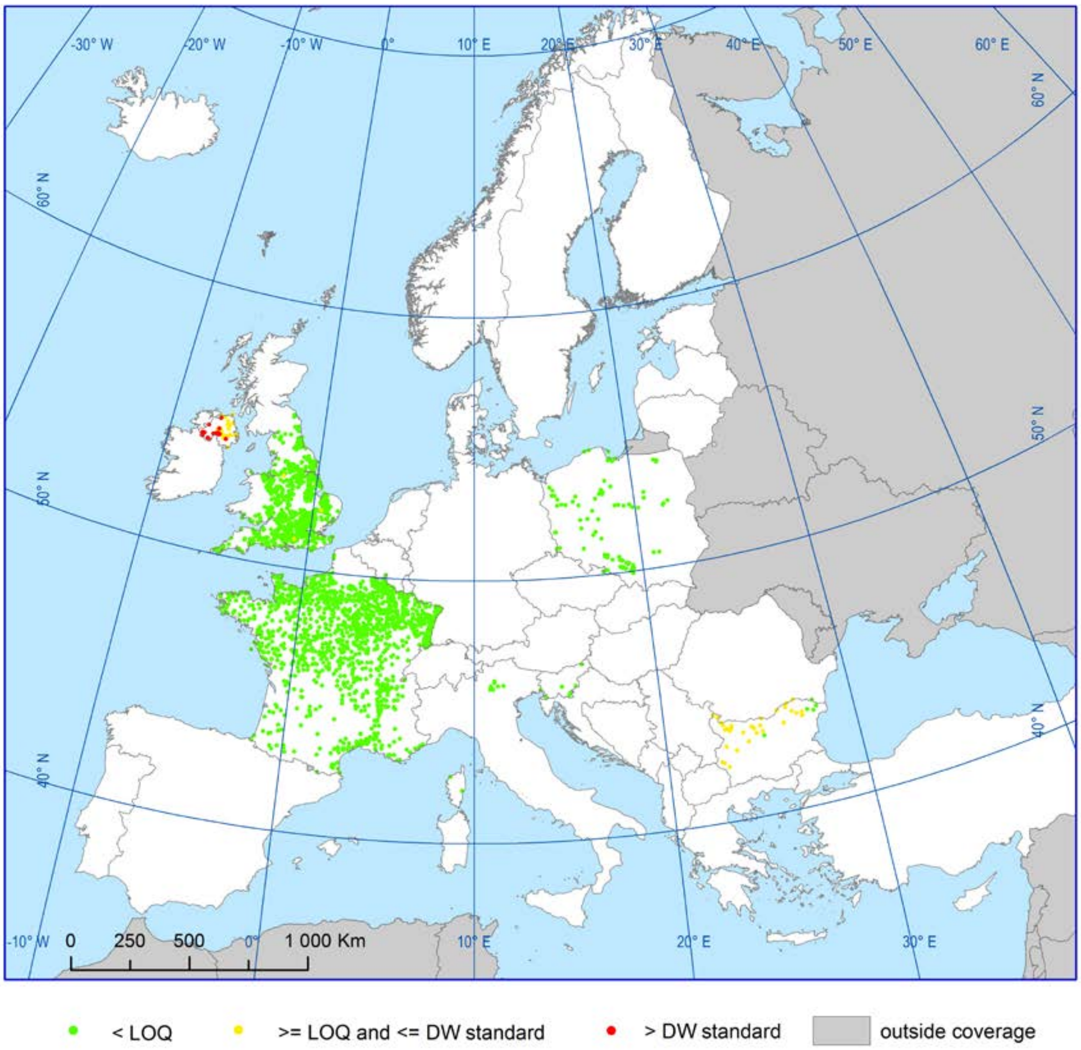


Figure 4.1.2.8a Long-term indicator (% of sites within indicator class, number of stations shown in parenthesis) for alpha HCH in groundwater

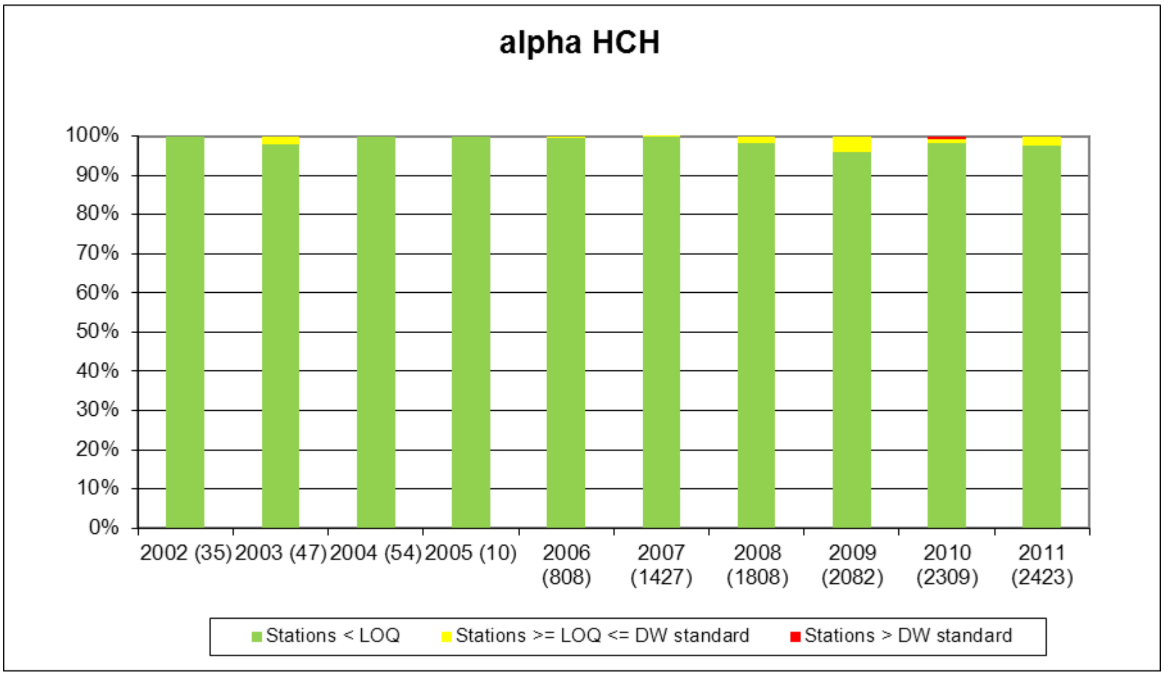


Figure 4.1.2.8b Indicator for alpha HCH in groundwater in 2010–2011 (number of stations per country shown in parenthesis)

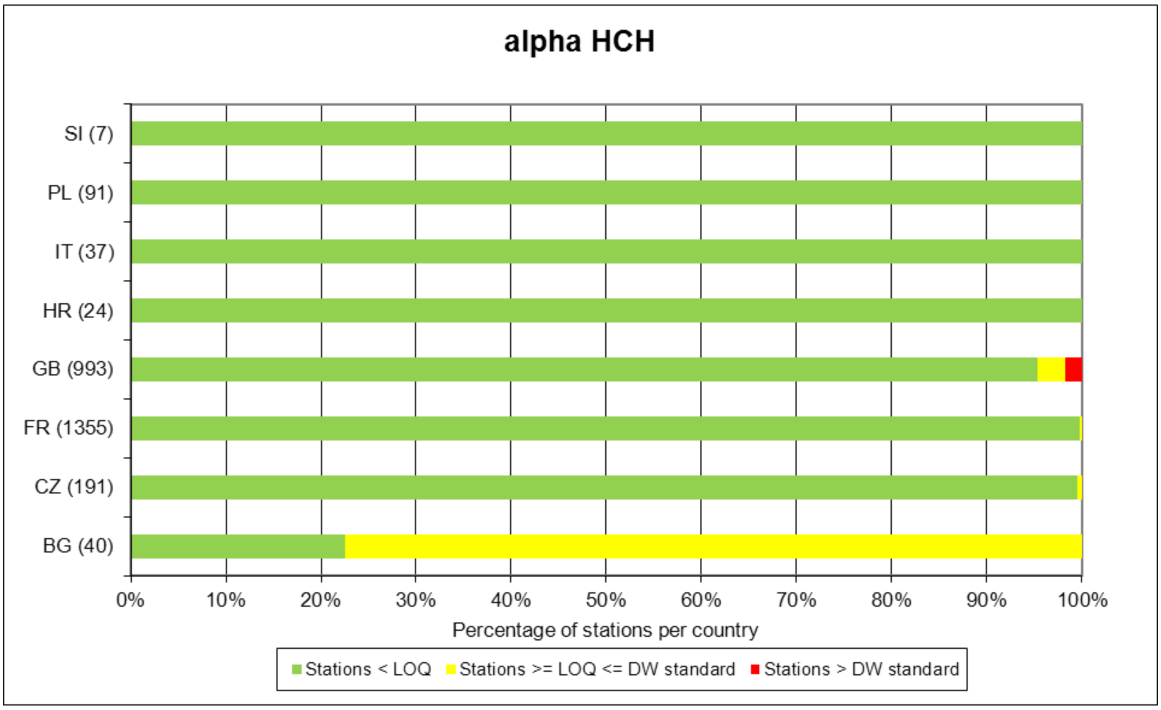


Figure 4.1.2.8c Map of the indicator for alpha HCH in groundwater in 2010–2011

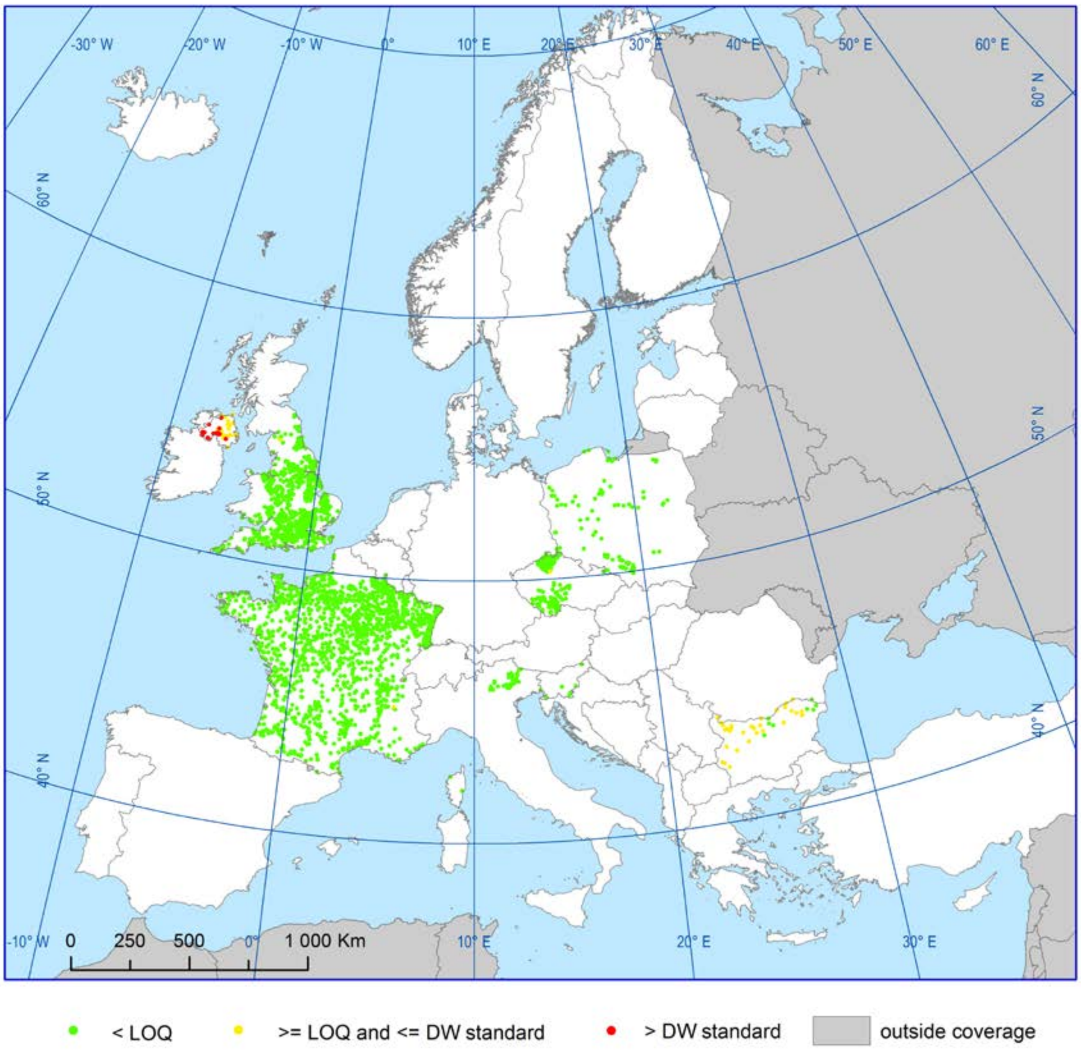


Figure 4.1.2.9a Long-term indicator (% of sites within indicator class, number of stations shown in parenthesis) for arsenic in groundwater

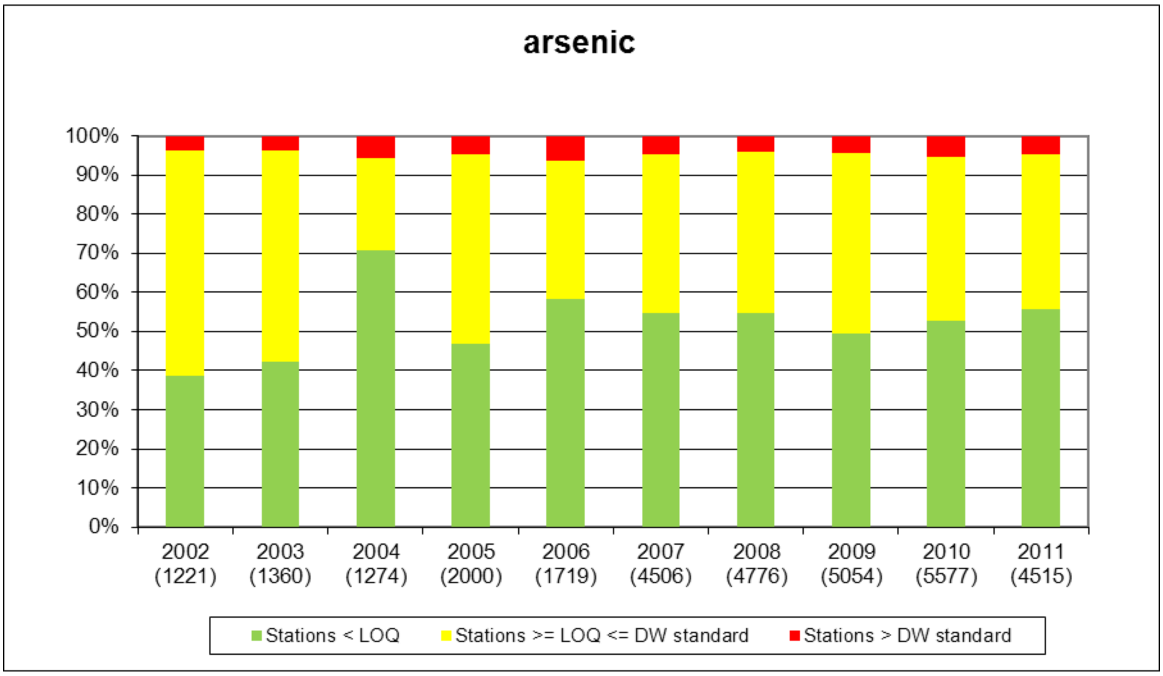


Figure 4.1.2.9b Indicator for arsenic in groundwater in 2010–2011 (number of stations per country shown in parenthesis)

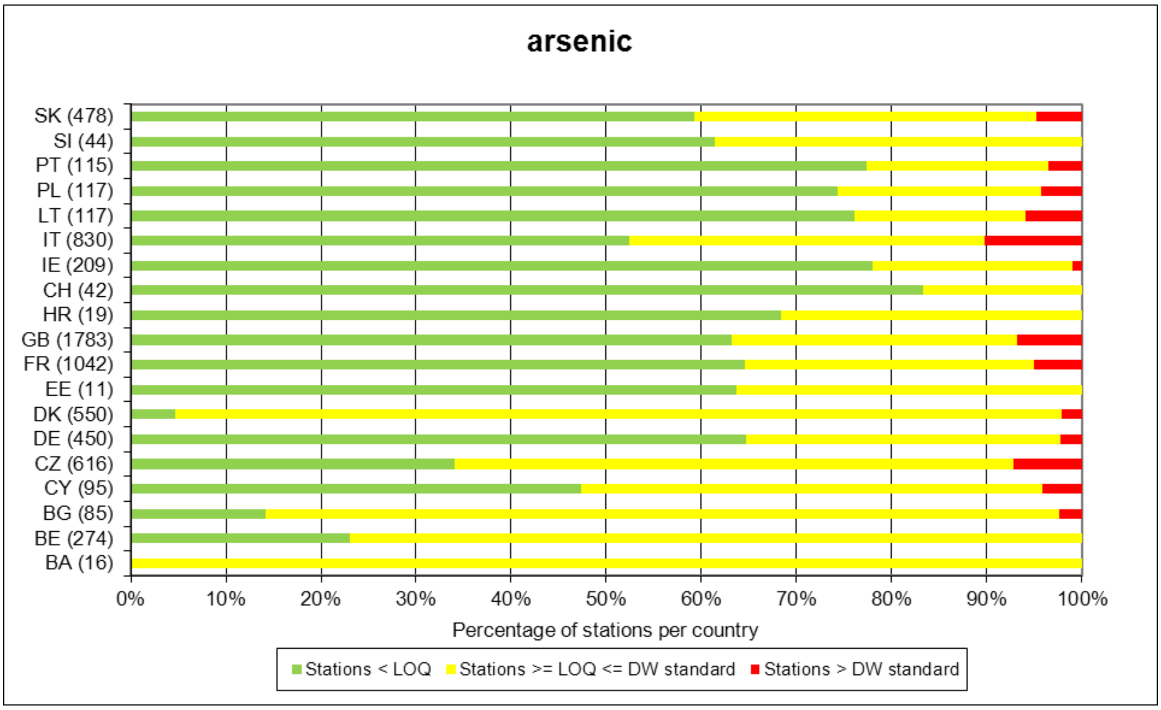


Figure 4.1.2.9c Map of the indicator for arsenic in groundwater in 2010–2011

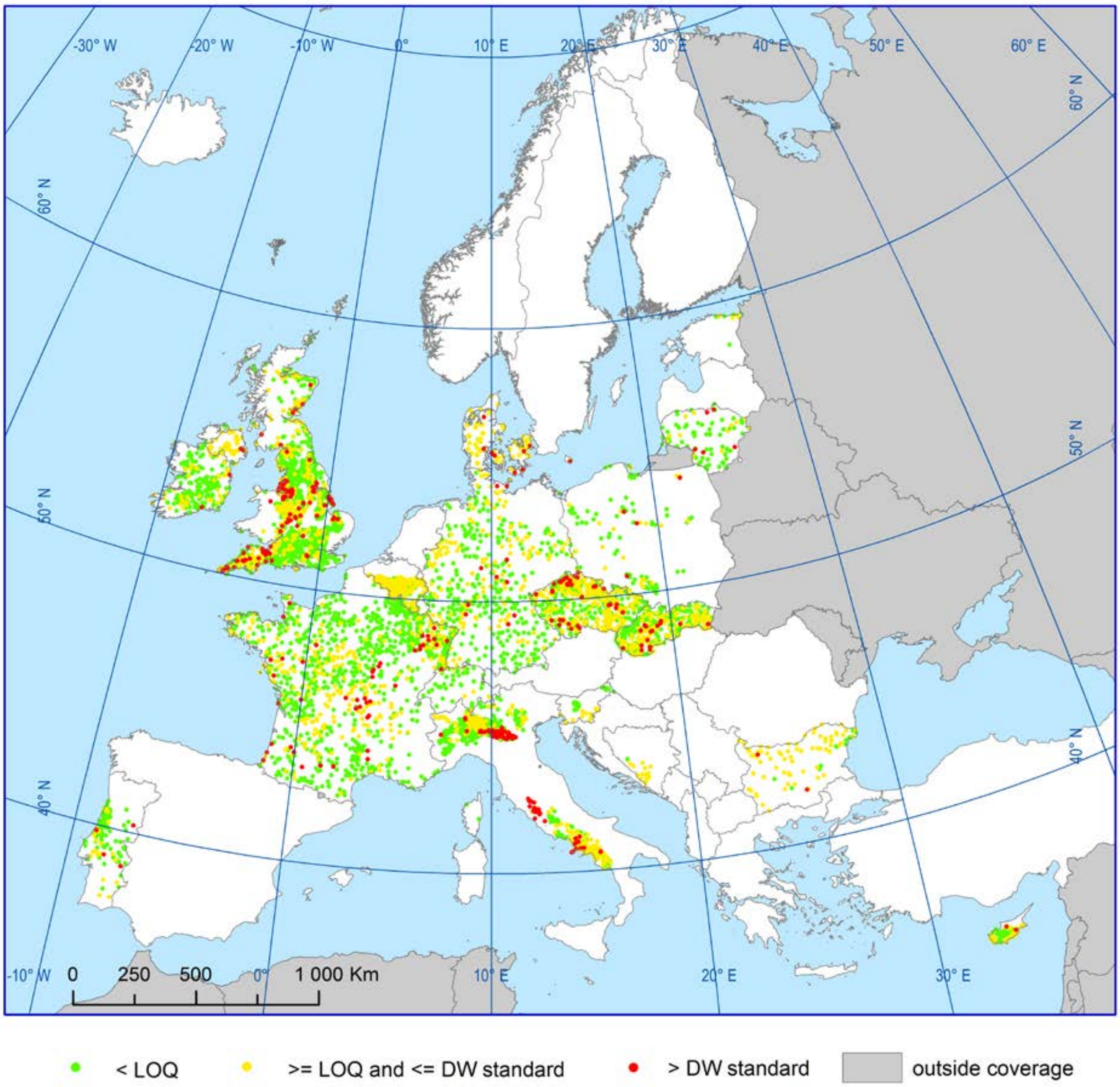


Figure 4.1.2.10a Long-term indicator (% of sites within indicator class, number of stations shown in parenthesis) for dissolved arsenic in groundwater

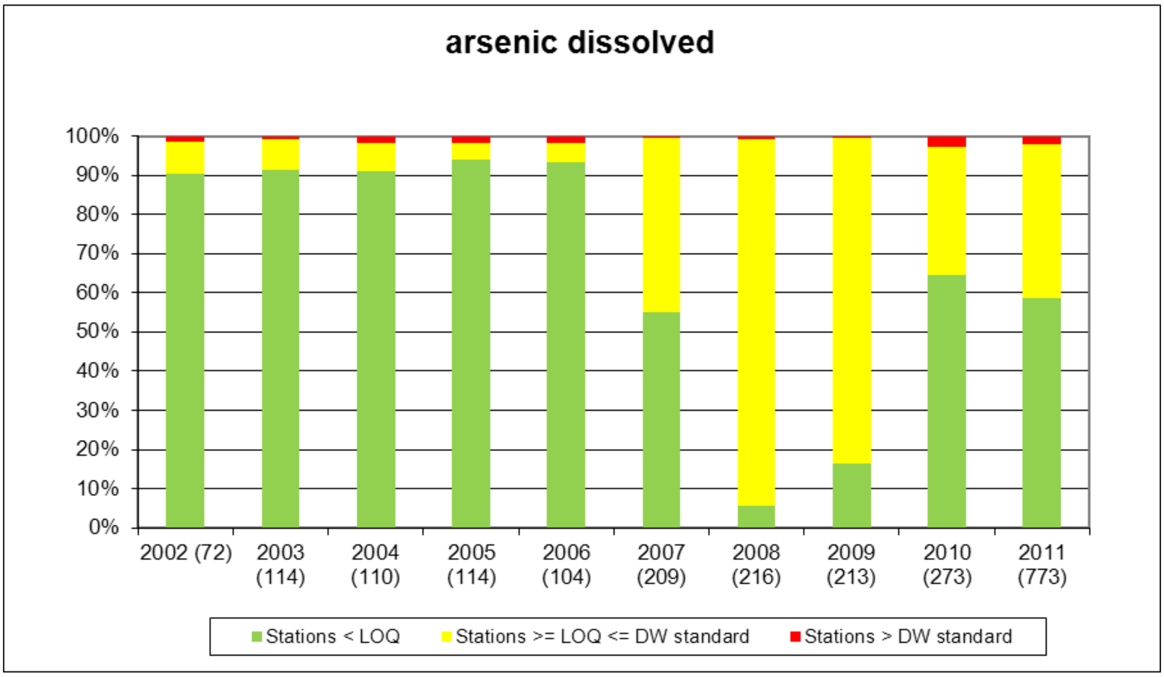


Figure 4.1.2.10b Indicator for dissolved arsenic in groundwater in 2010–2011 (number of stations per country shown in parenthesis)

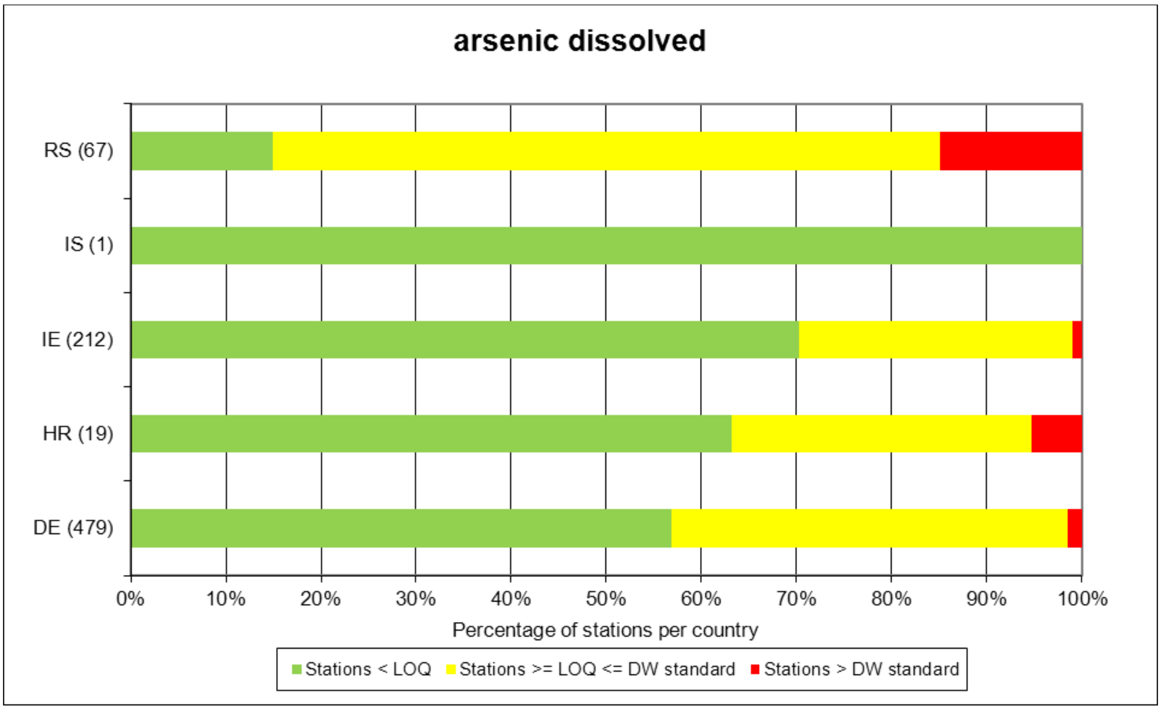


Figure 4.1.2.10c Map of the indicator for dissolved arsenic in groundwater in 2010–2011

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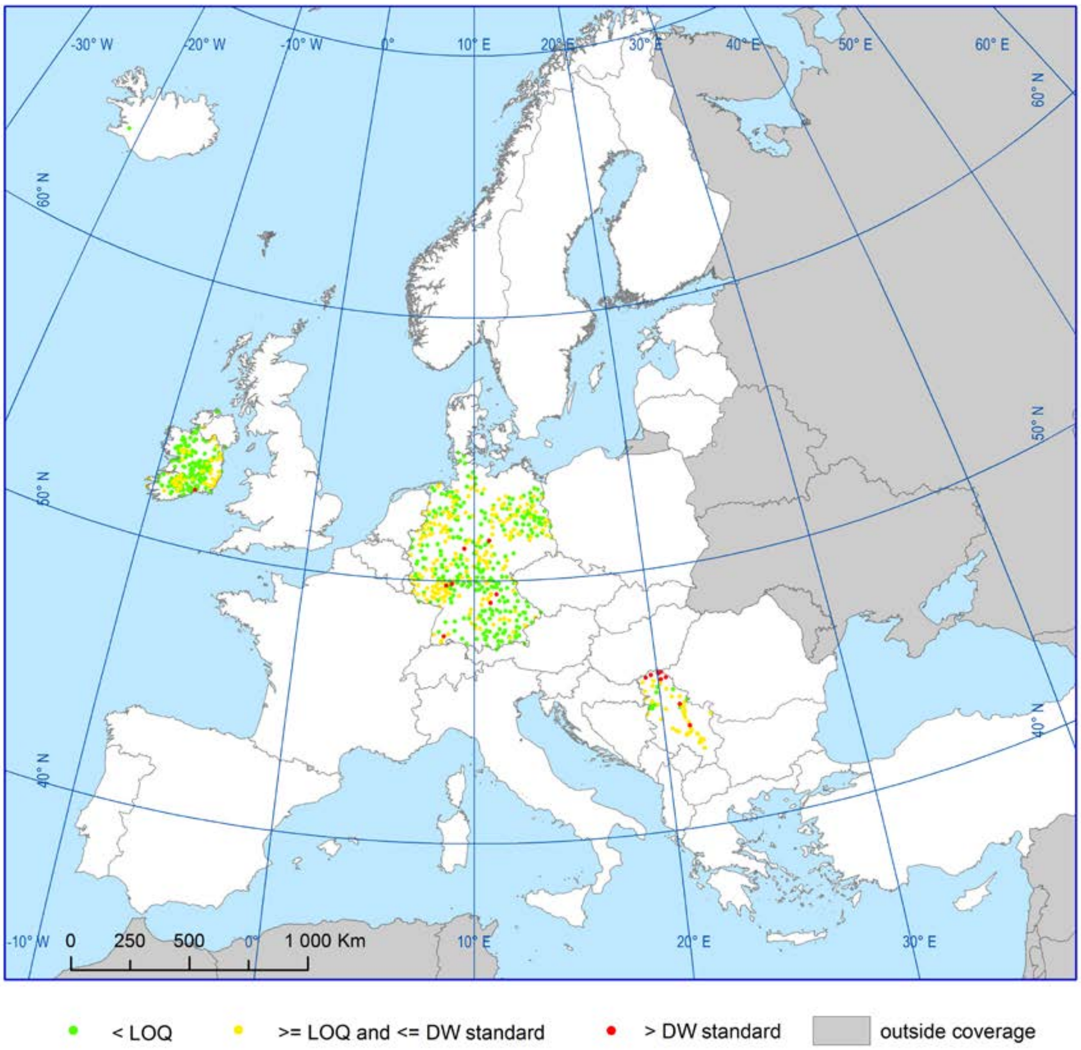


Figure 4.1.2.11a Long-term indicator (% of sites within indicator class, number of stations shown in parenthesis) for atrazine in groundwater

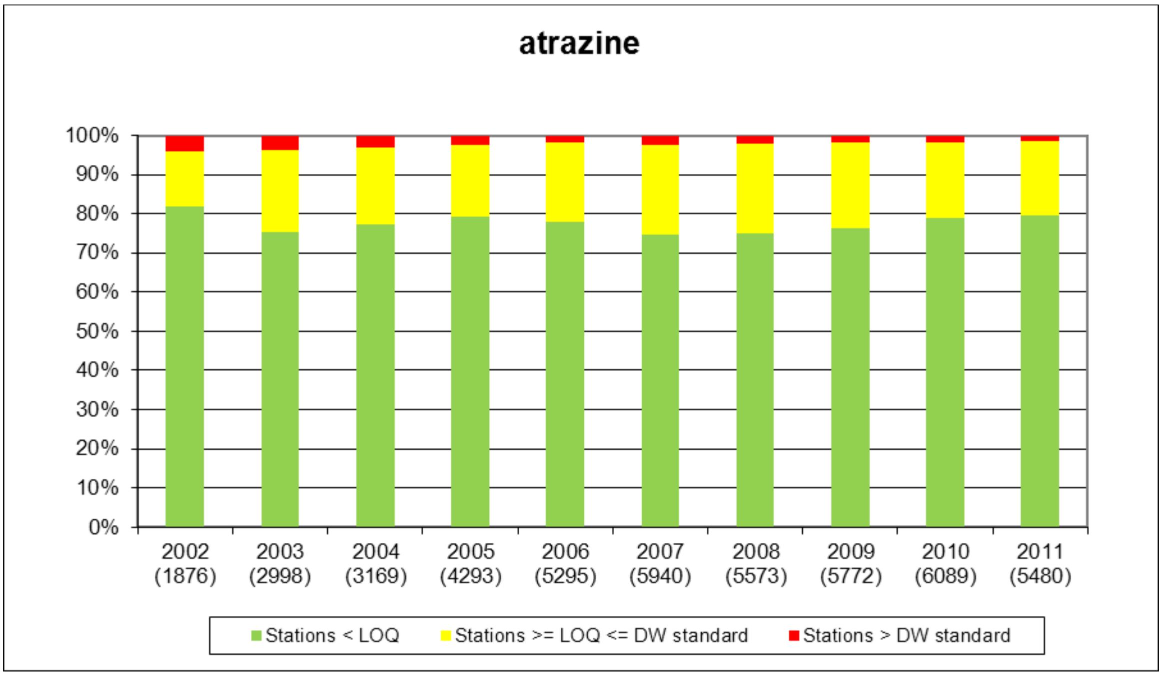


Figure 4.1.2.11b Indicator for atrazine in groundwater in 2010–2011 (number of stations per country shown in parenthesis)

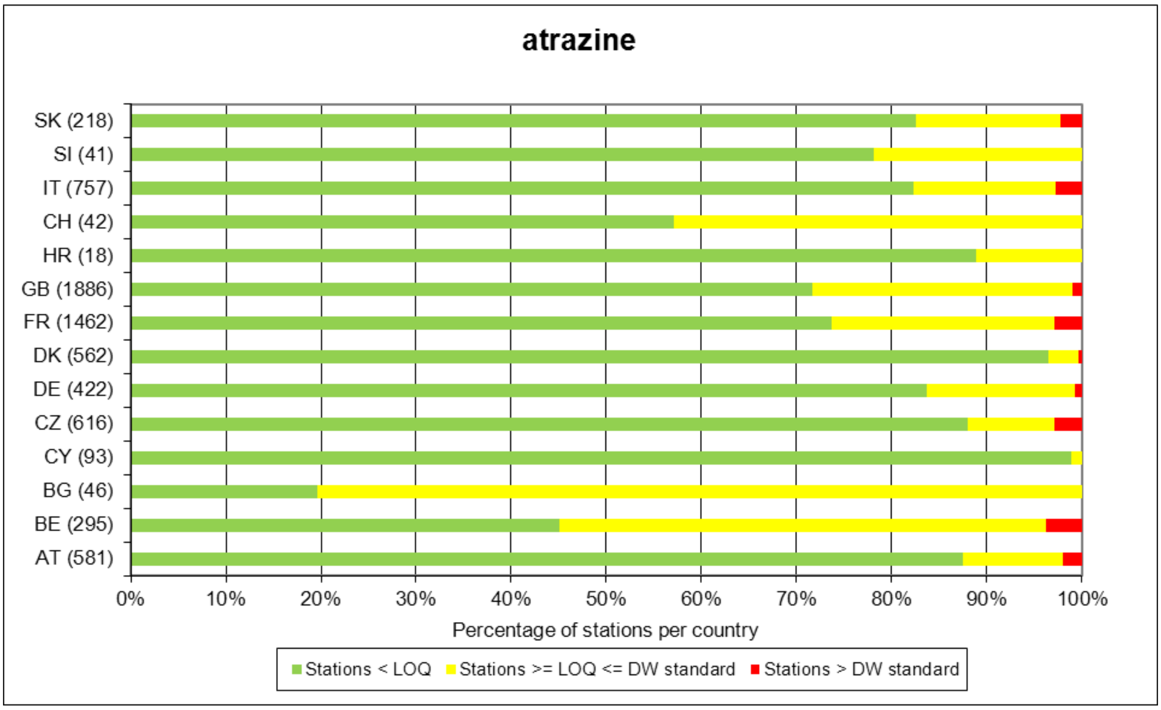


Figure 4.1.2.11c Map of the indicator for atrazine in groundwater in 2010–2011

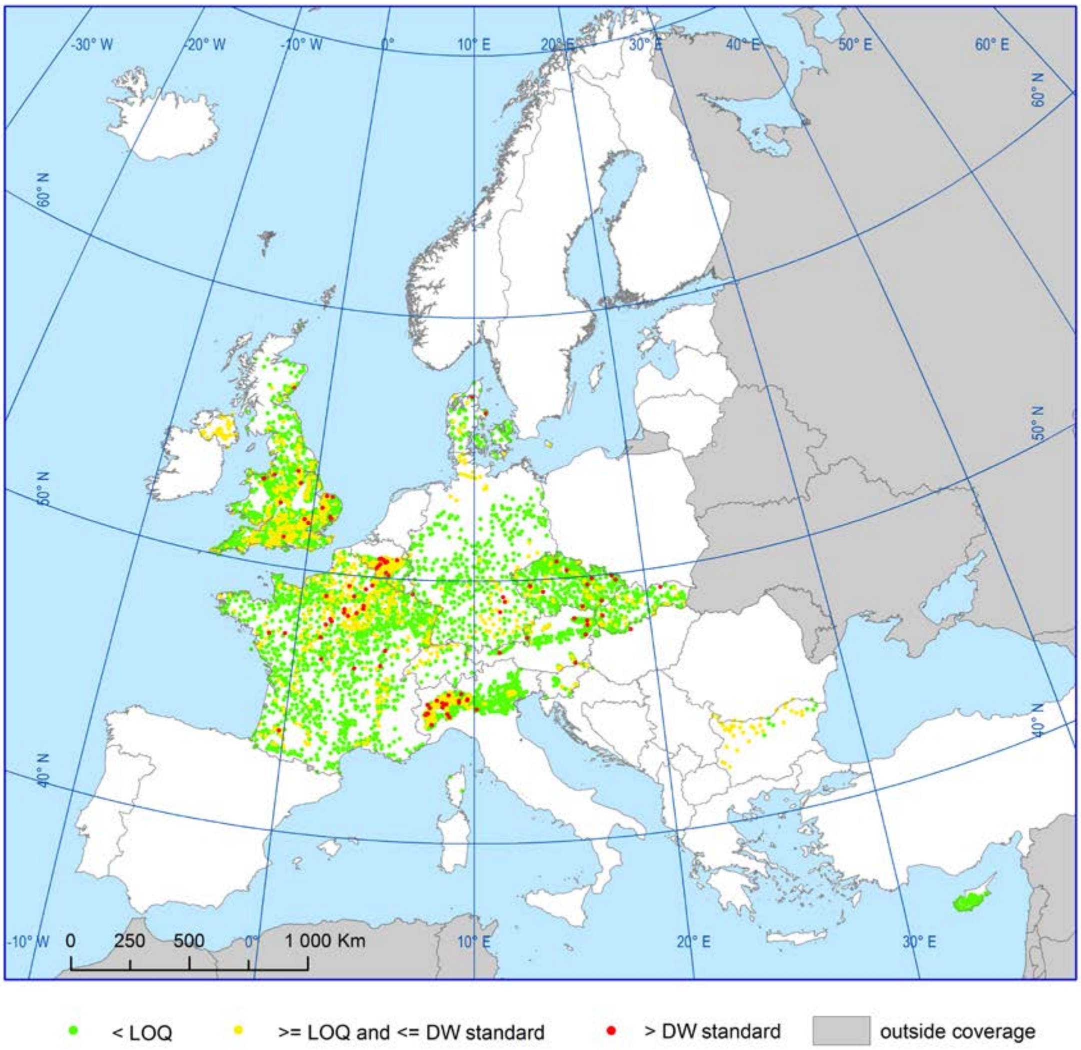


Figure 4.1.2.12a Long-term indicator (% of sites within indicator class, number of stations shown in parenthesis) for bentazone in groundwater

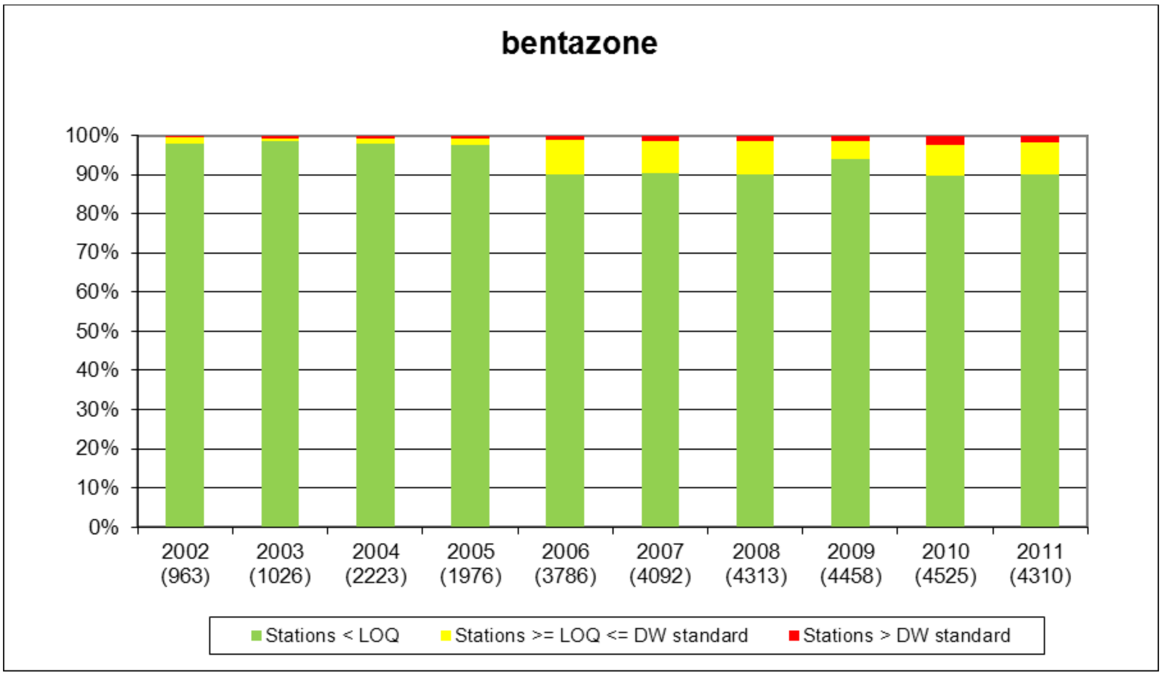


Figure 4.1.2.12b Indicator for bentazone in groundwater in 2010–2011 (number of stations per country shown in parenthesis)

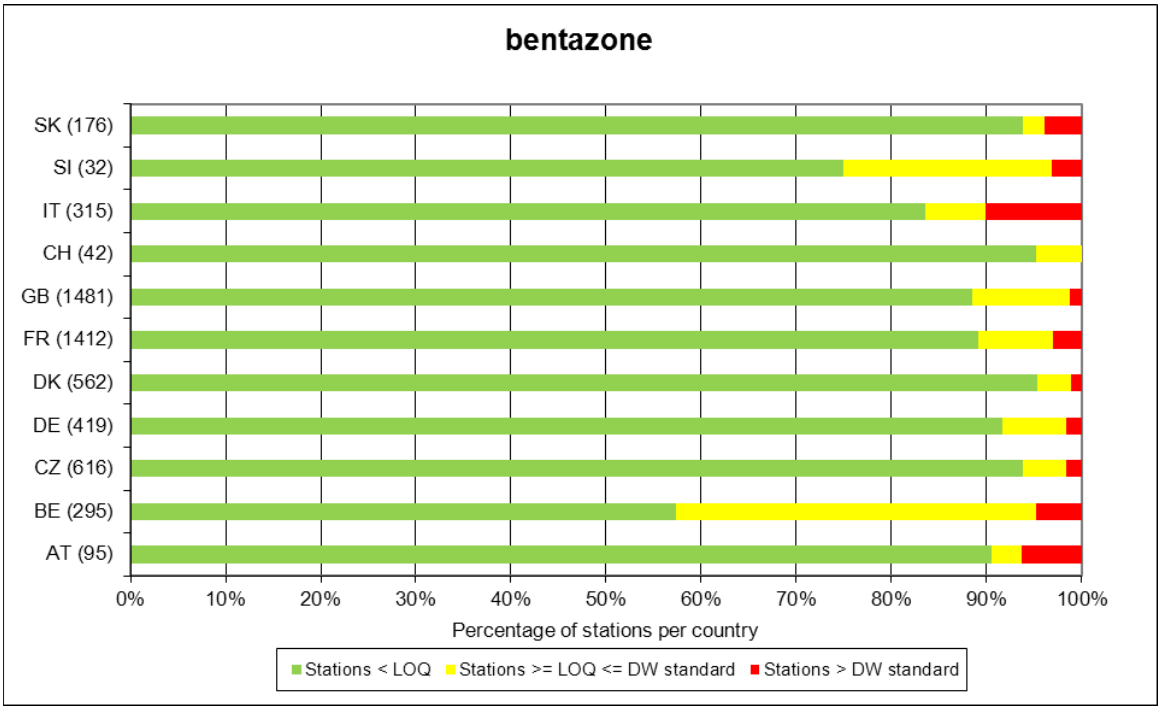


Figure 4.1.2.12c Map of the indicator for bentazone in groundwater in 2010–2011

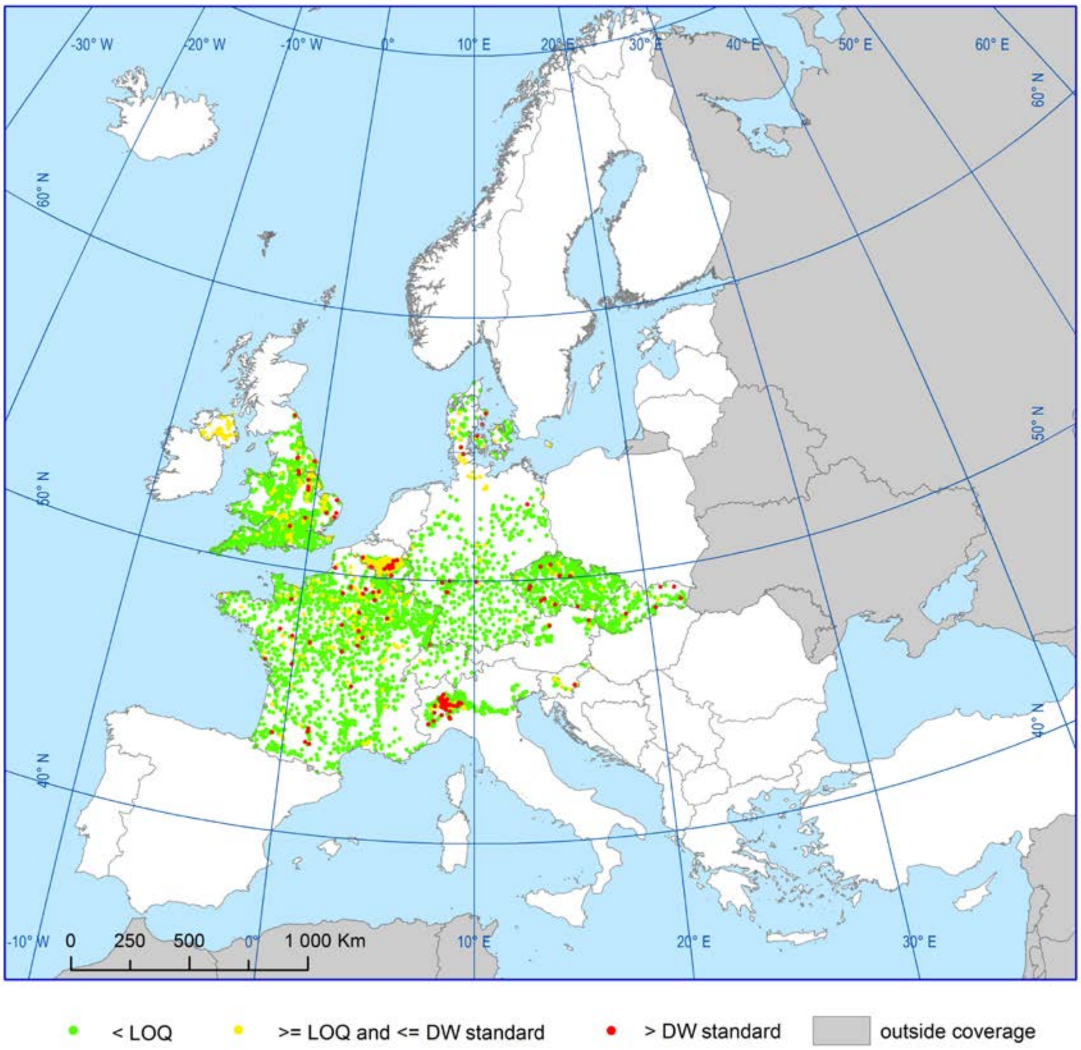


Figure 4.1.2.13a Long-term indicator (% of sites within indicator class, number of stations shown in parenthesis) for benzene in groundwater

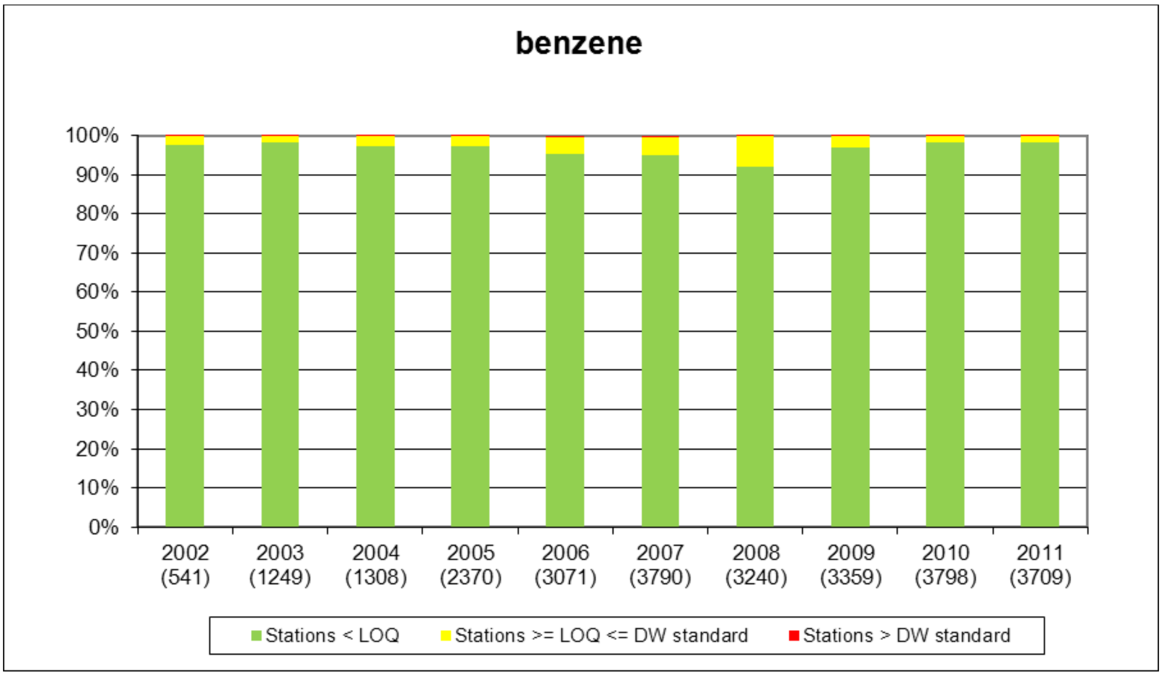


Figure 4.1.2.13b Indicator for benzene in groundwater in 2010–2011 (number of stations per country shown in parenthesis)

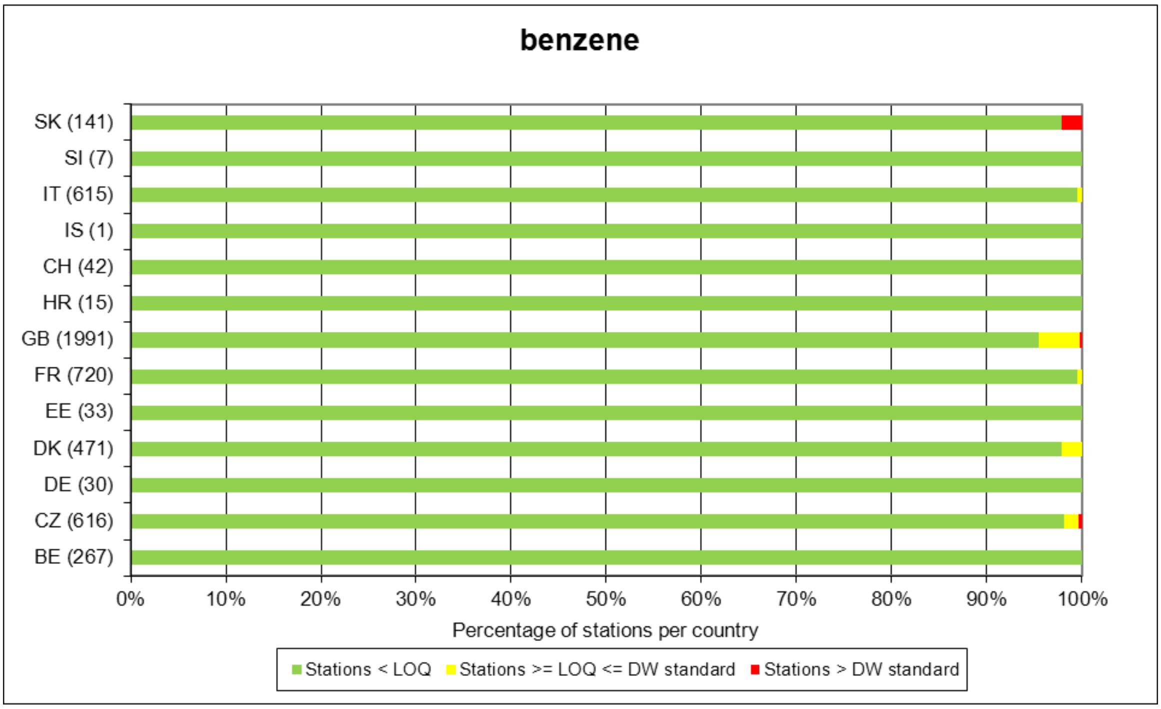


Figure 4.1.2.13c Map of the indicator for benzene in groundwater in 2010–2011

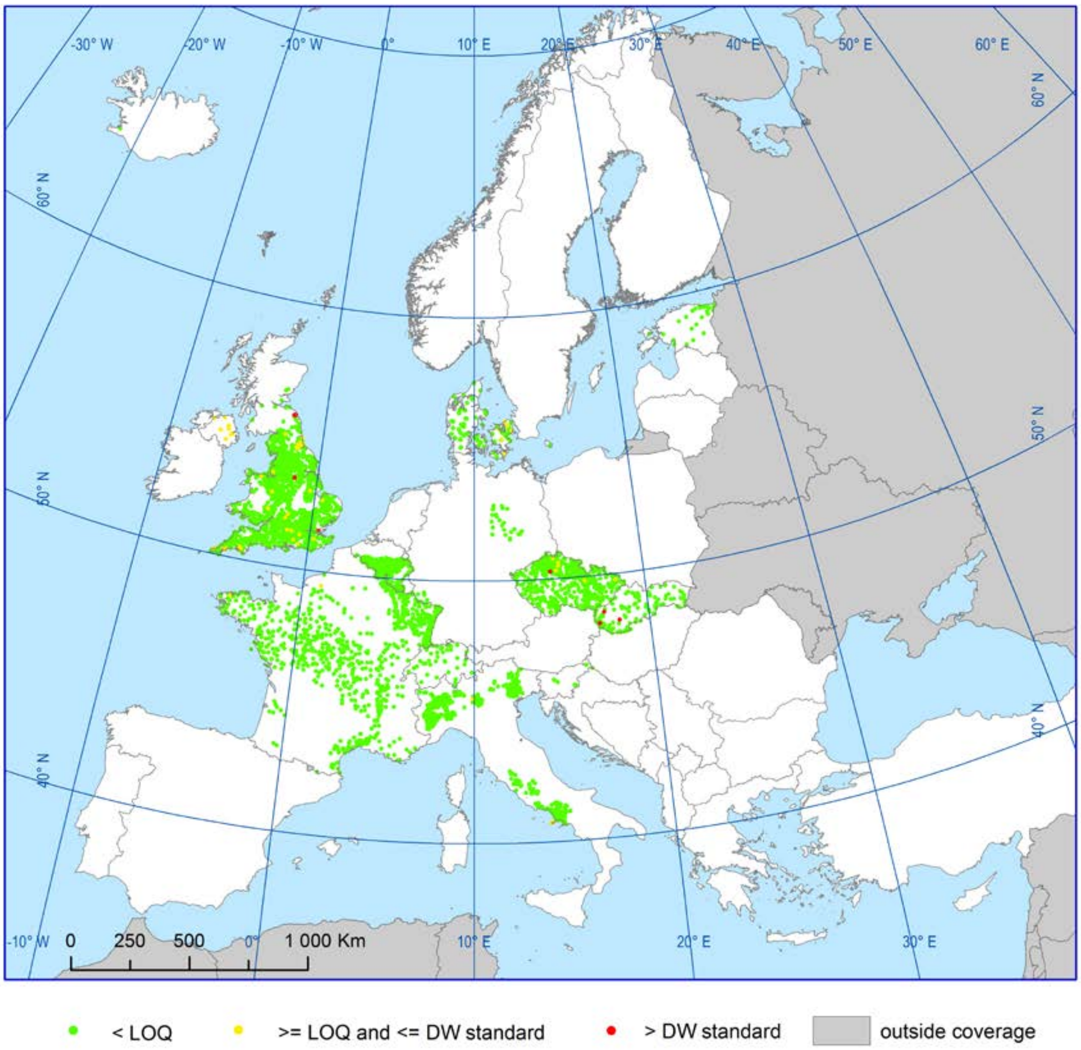


Figure 4.1.2.14a Long-term indicator (% of sites within indicator class, number of stations shown in parenthesis) for benzo(a)pyrene in groundwater

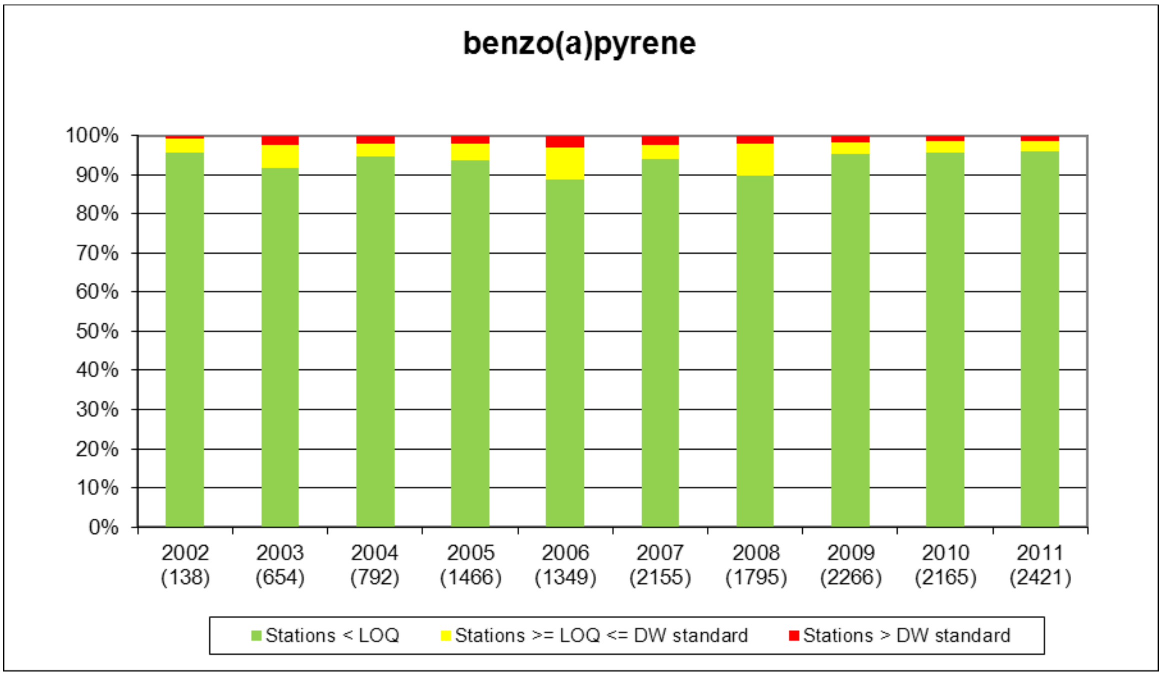


Figure 4.1.2.14b Indicator for benzo(a)pyrene in groundwater in 2010–2011 (number of stations per country shown in parenthesis)

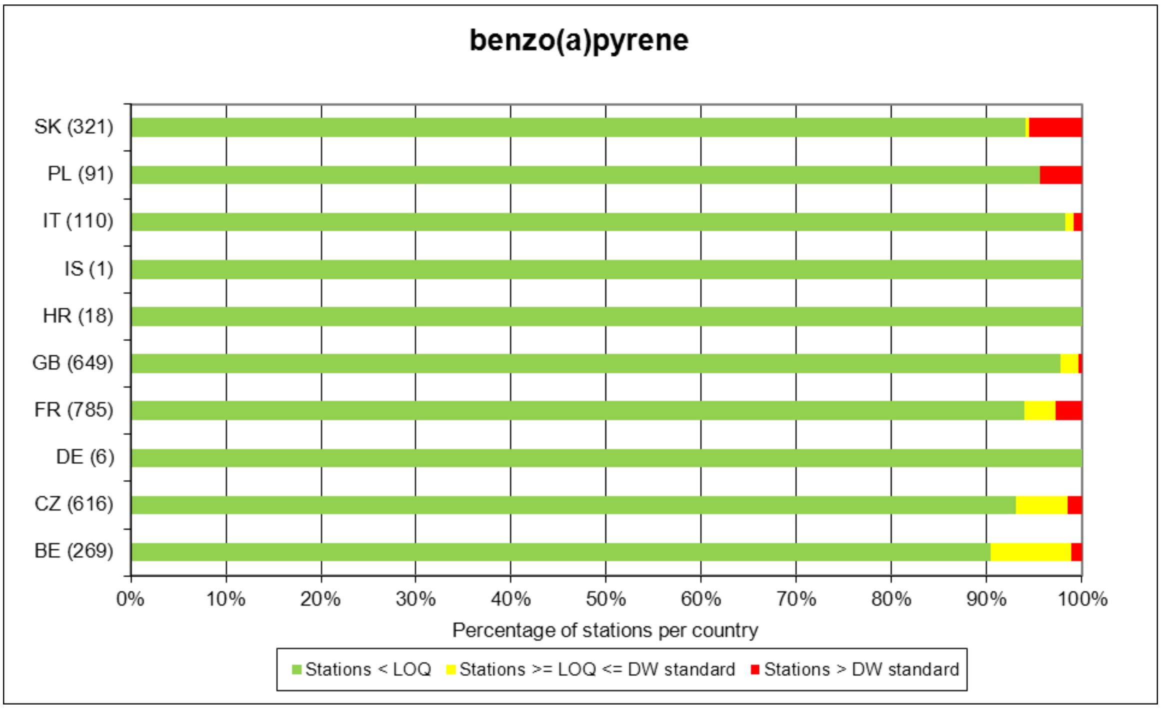


Figure 4.1.2.14c Map of the indicator for benzo(a)pyrene in groundwater in 2010–2011

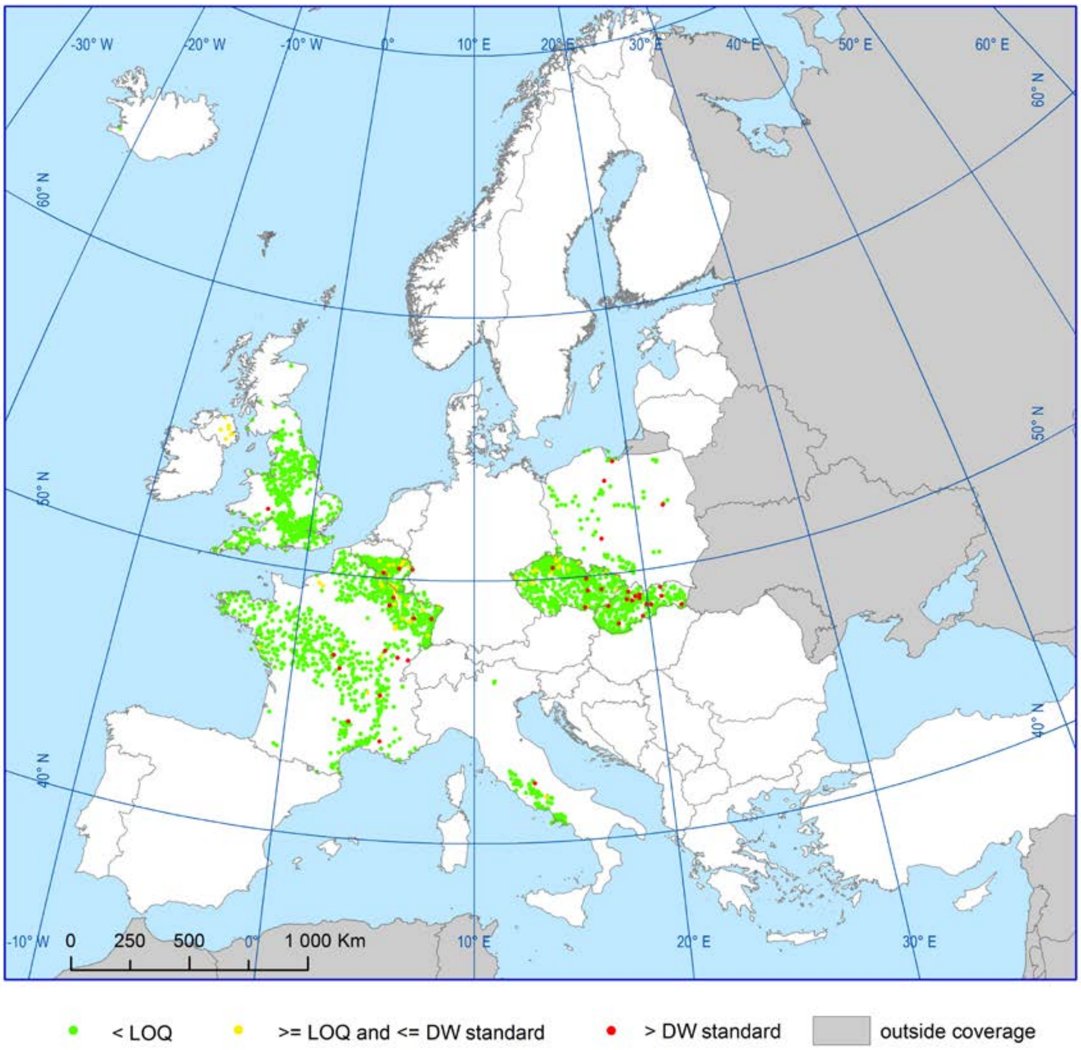


Figure 4.1.2.15a Long-term indicator (% of sites within indicator class, number of stations shown in parenthesis) for beta HCH in groundwater

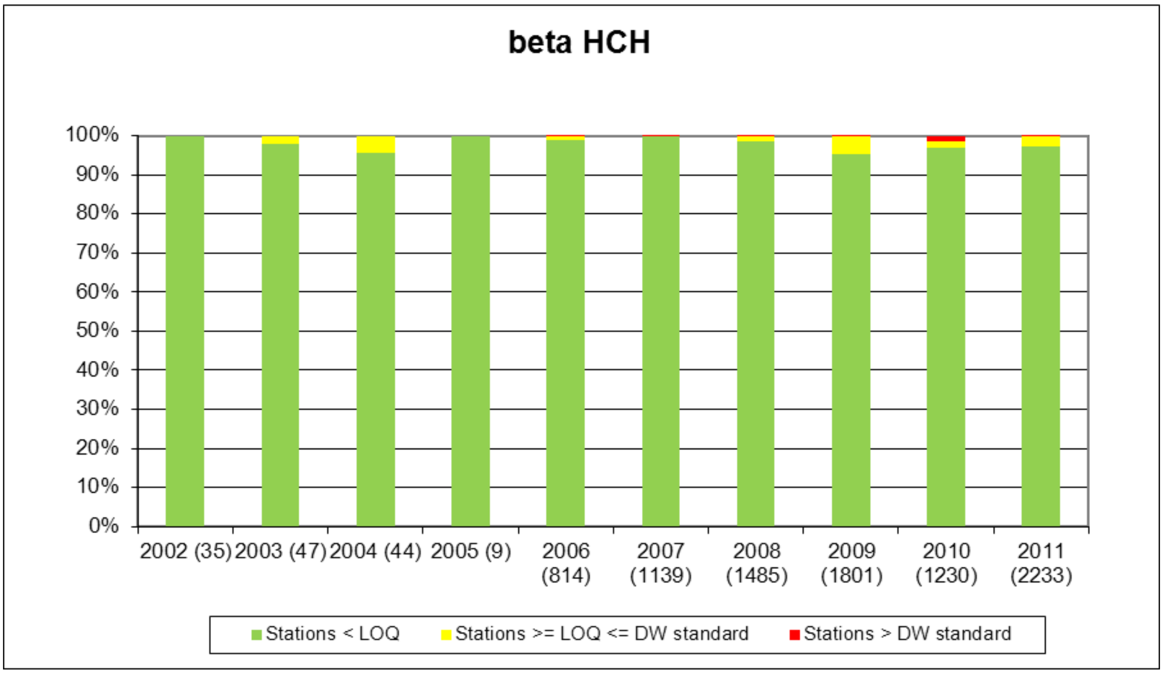


Figure 4.1.2.15b Indicator for beta HCH in groundwater in 2010–2011 (number of stations per country shown in parenthesis)

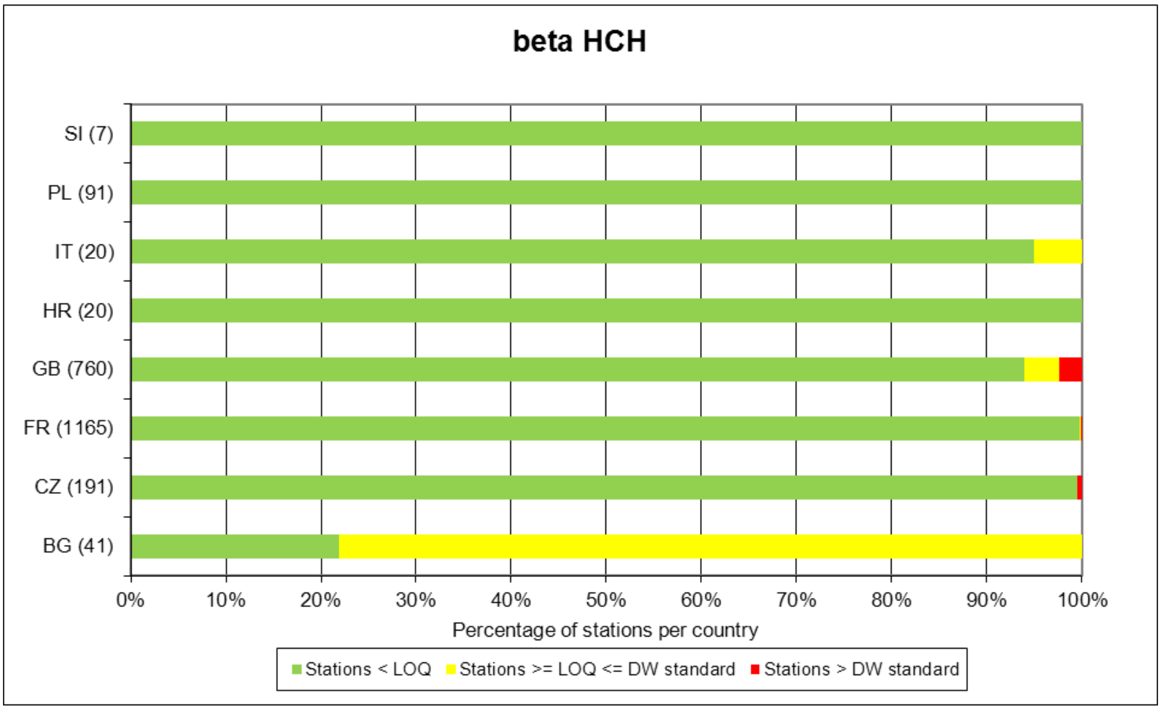


Figure 4.1.2.15c Map of the indicator for beta HCH in groundwater in 2010–2011

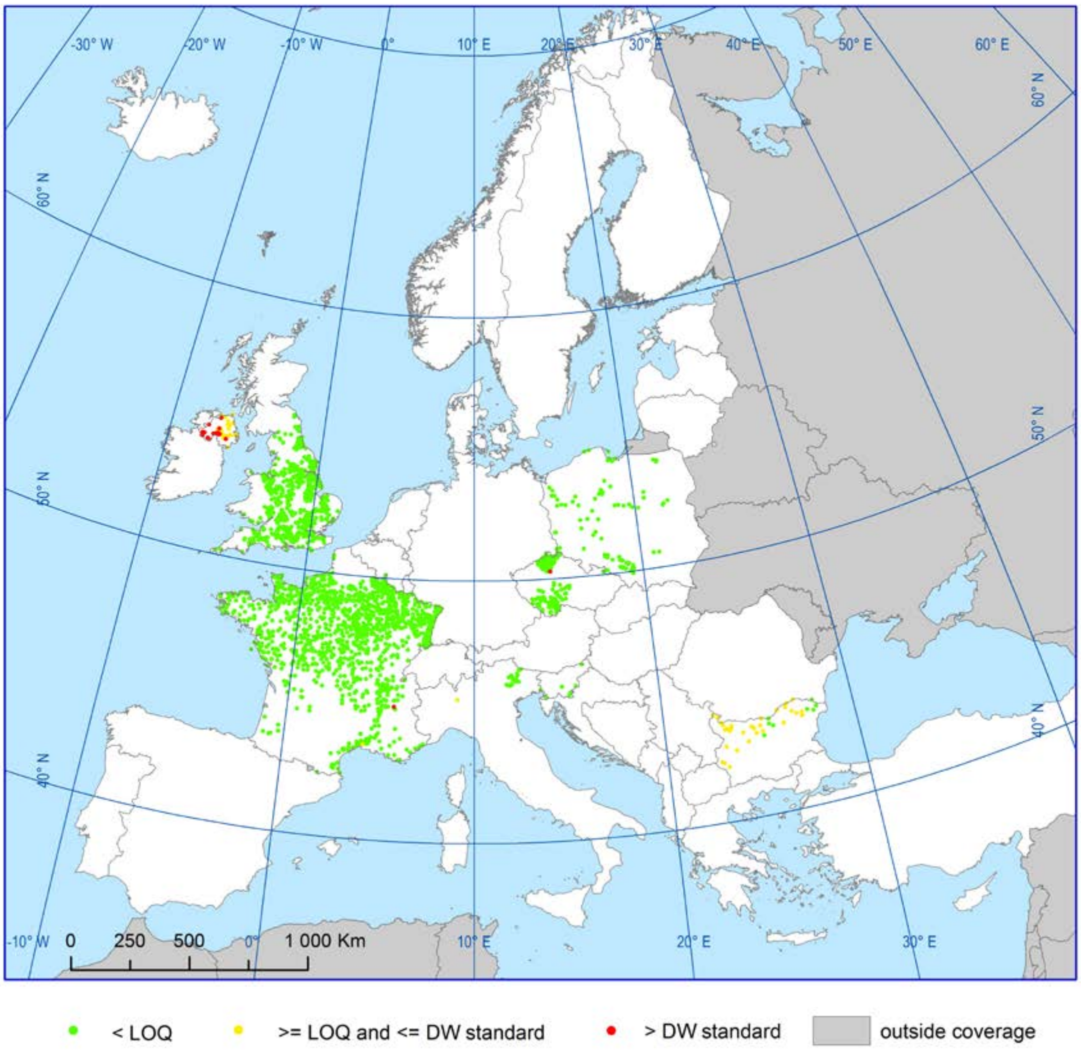


Figure 4.1.2.16 Long-term indicator (% of sites within indicator class, number of stations shown in parenthesis) for cadmium in groundwater

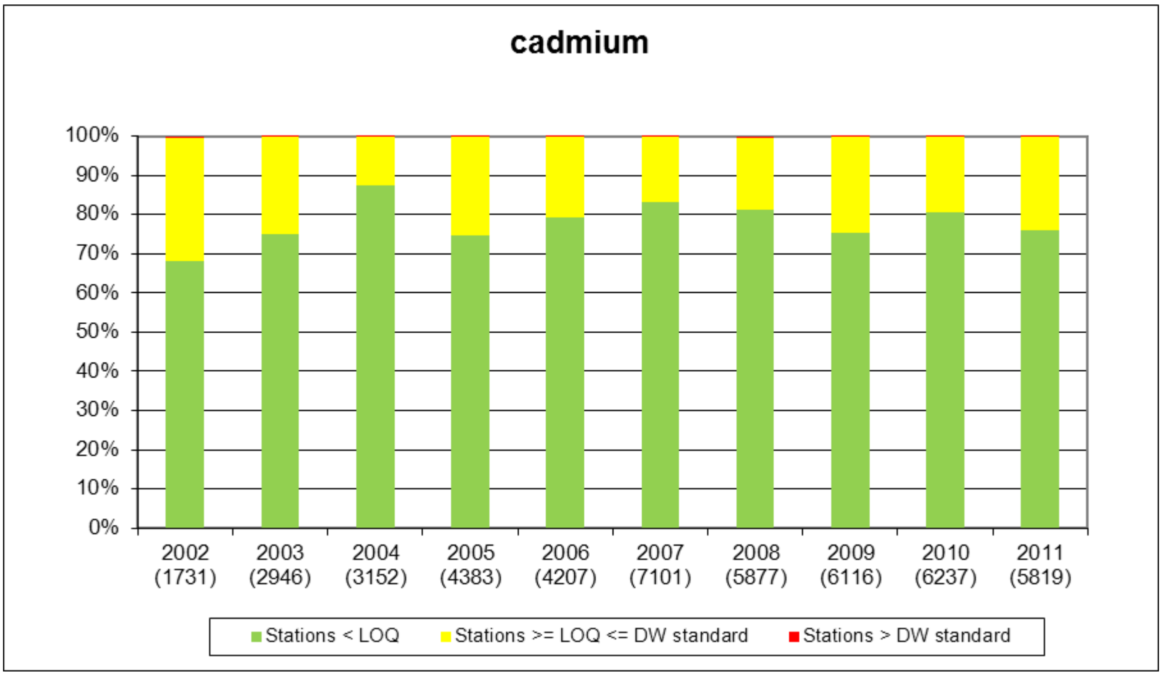


Figure 4.1.2.16b Indicator for cadmium in groundwater in 2010–2011 (number of stations per country shown in parenthesis)

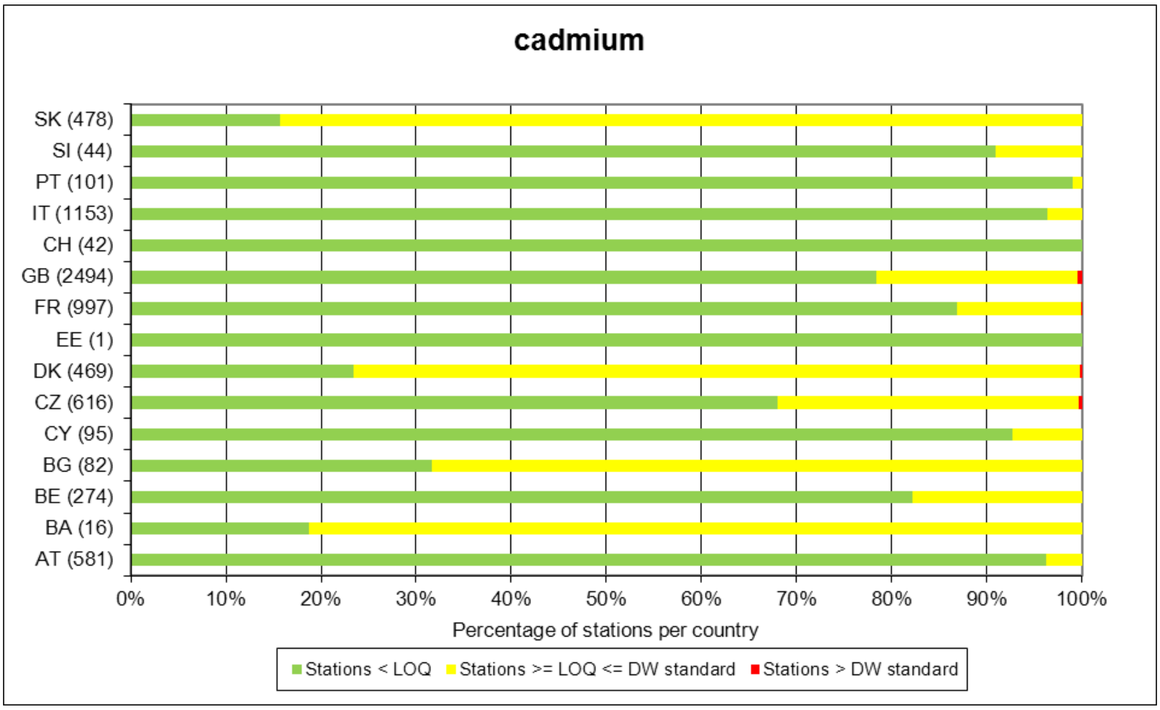


Figure 4.1.2.16c Map of the indicator for cadmium in groundwater in 2010–2011

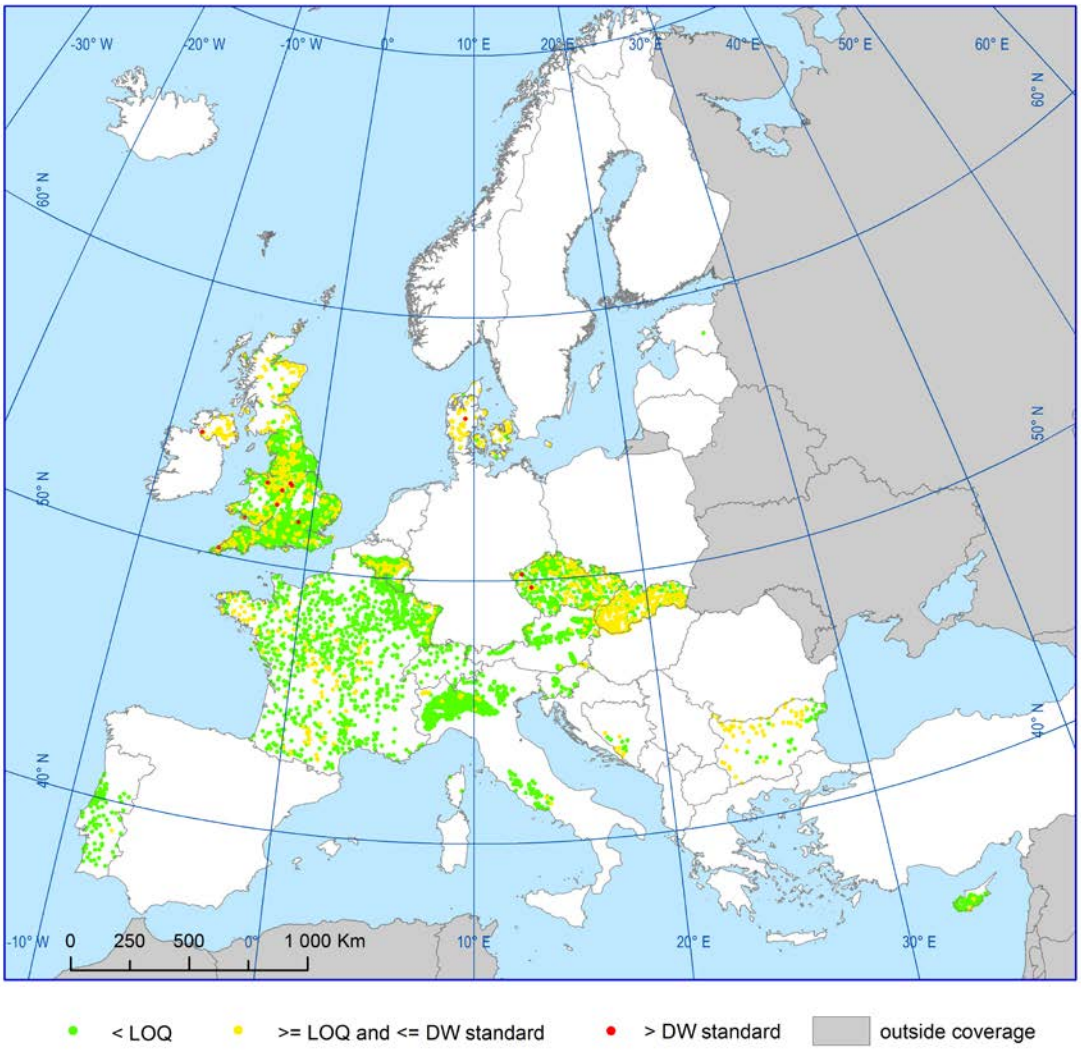


Figure 4.1.2.17 Long-term indicator (% of sites within indicator class, number of stations shown in parenthesis) for dissolved cadmium in groundwater

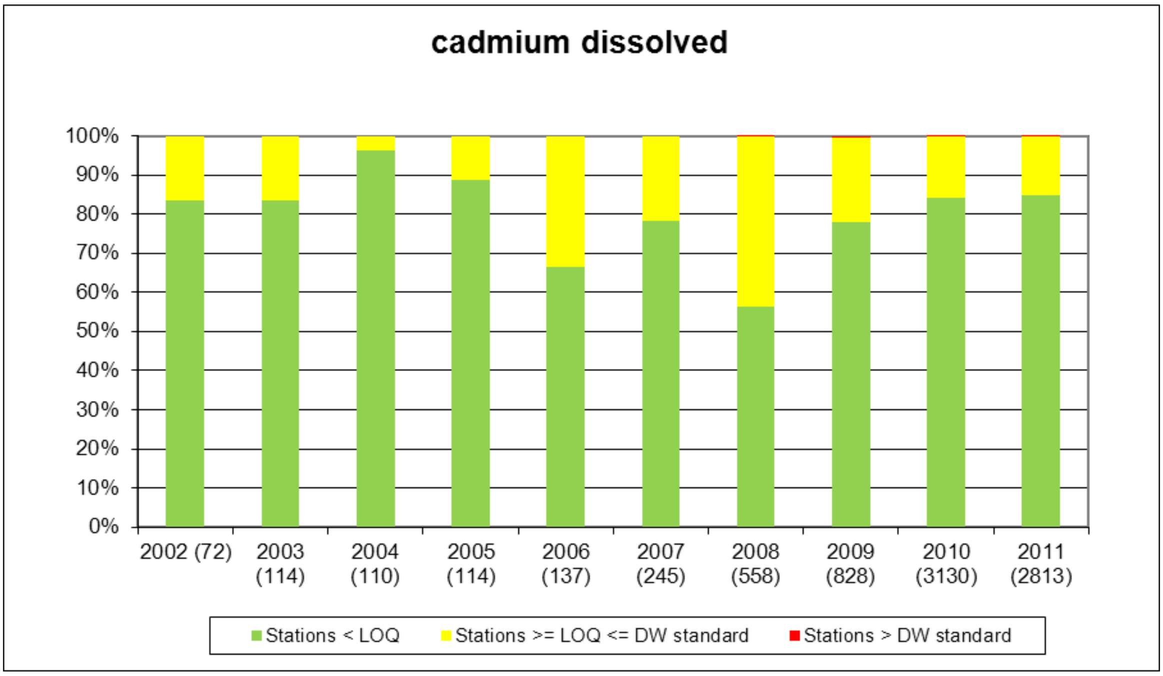


Figure 4.1.2.17b Indicator for dissolved cadmium in groundwater in 2010–2011 (number of stations per country shown in parenthesis)

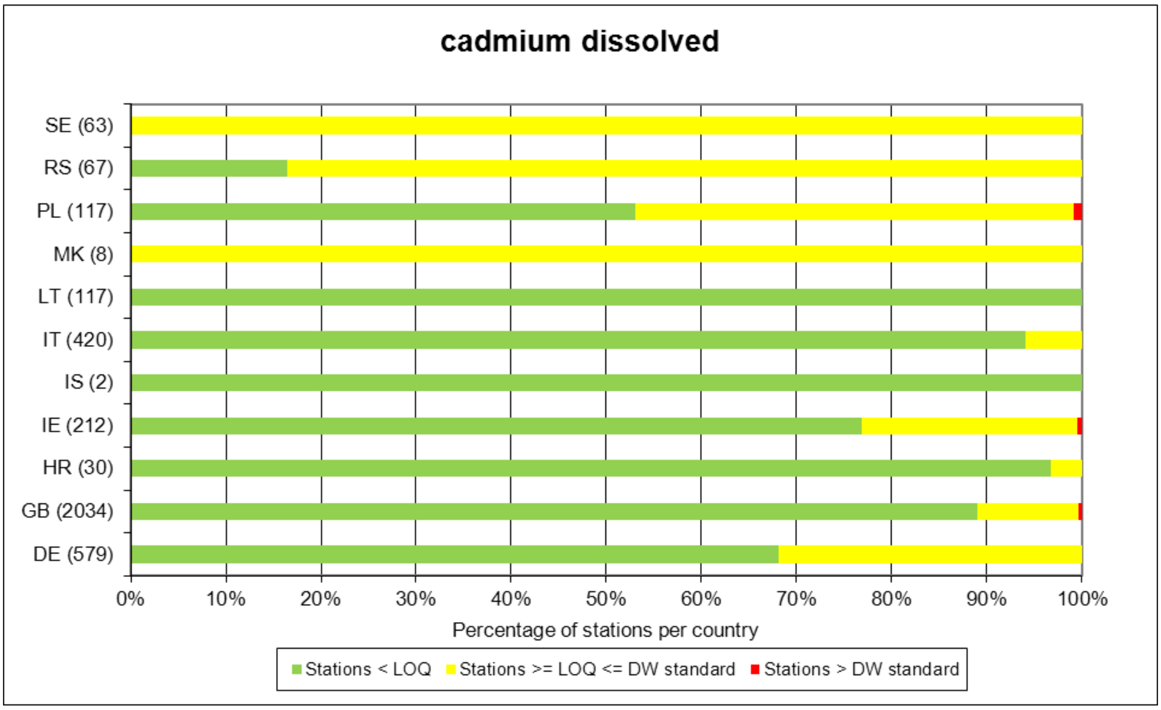


Figure 4.1.2.17c Map of the indicator for dissolved cadmium in groundwater in 2010–2011

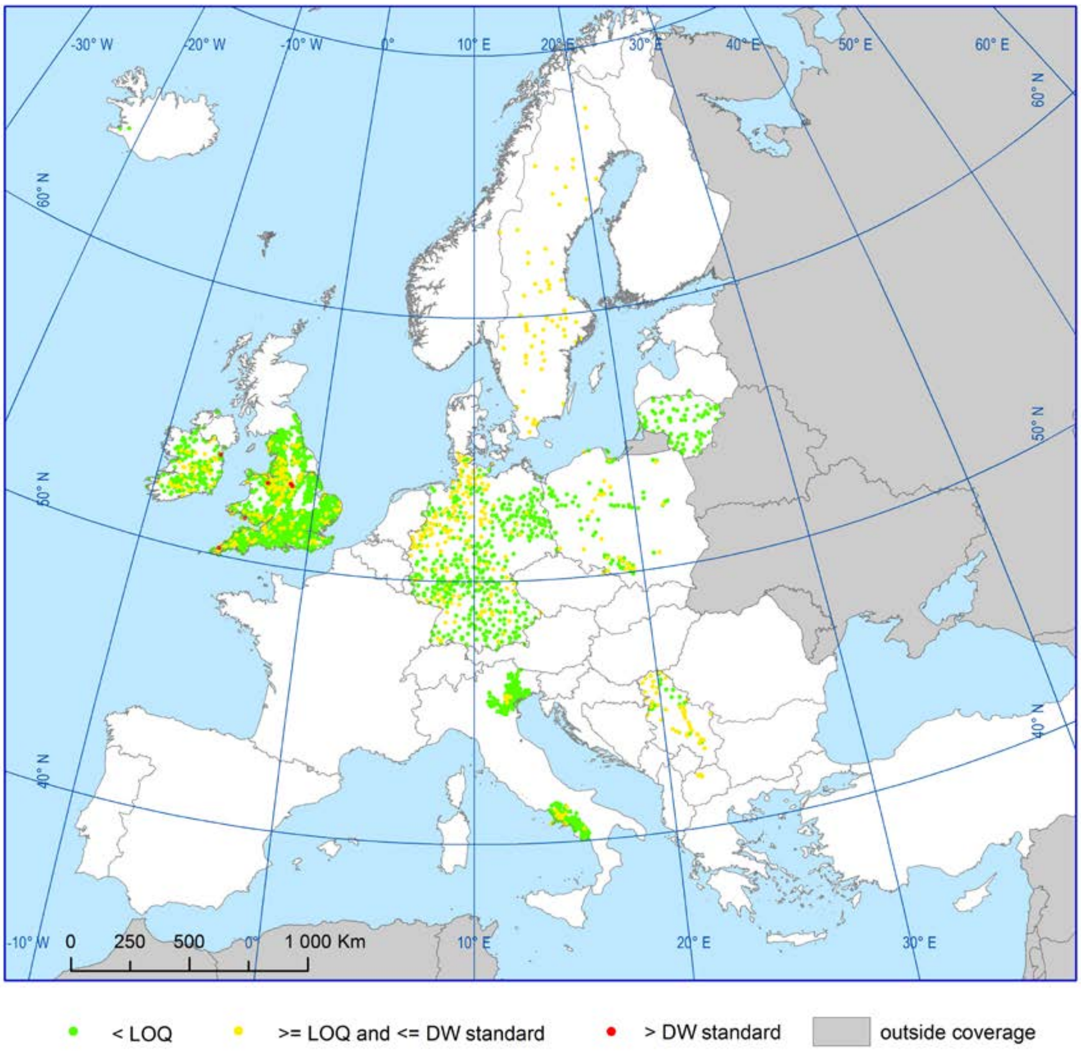


Figure 4.1.2.18a Long-term indicator (% of sites within indicator class, number of stations shown in parenthesis) for chlorfenvinphos in groundwater

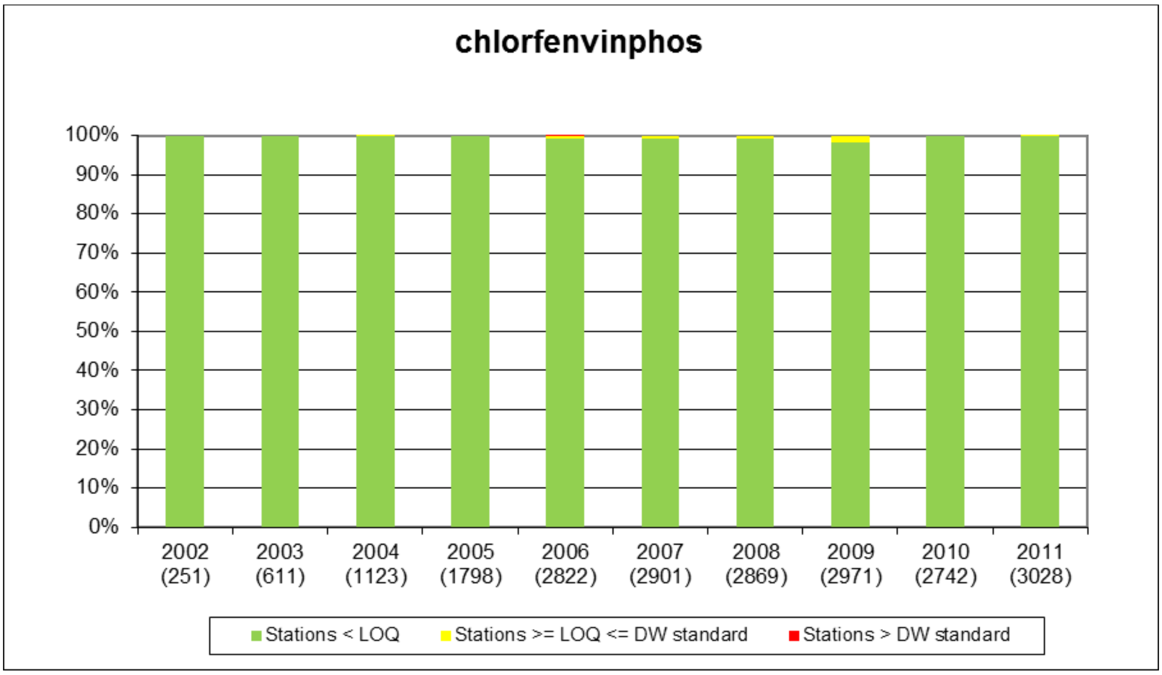


Figure 4.1.2.18b Indicator for chlorfenvinphos groundwater in 2010–2011 (number of stations per country shown in parenthesis)

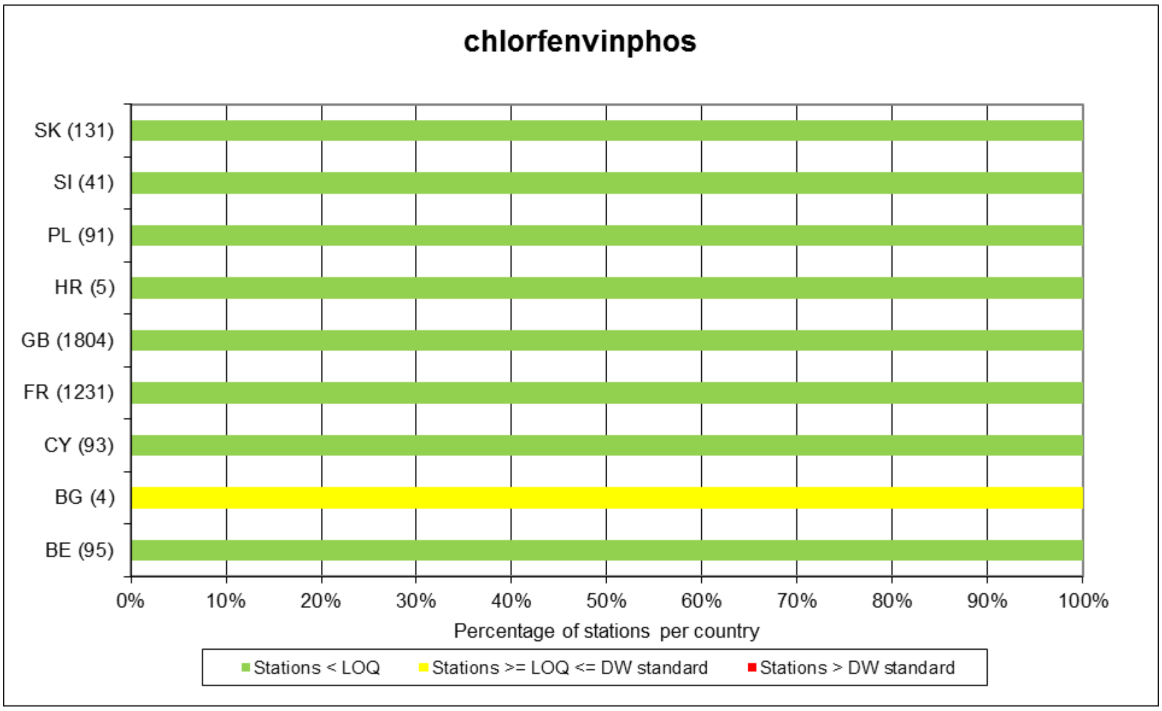


Figure 4.1.2.18c Map of the indicator for chlorfenvinphos in groundwater in 2010–2011

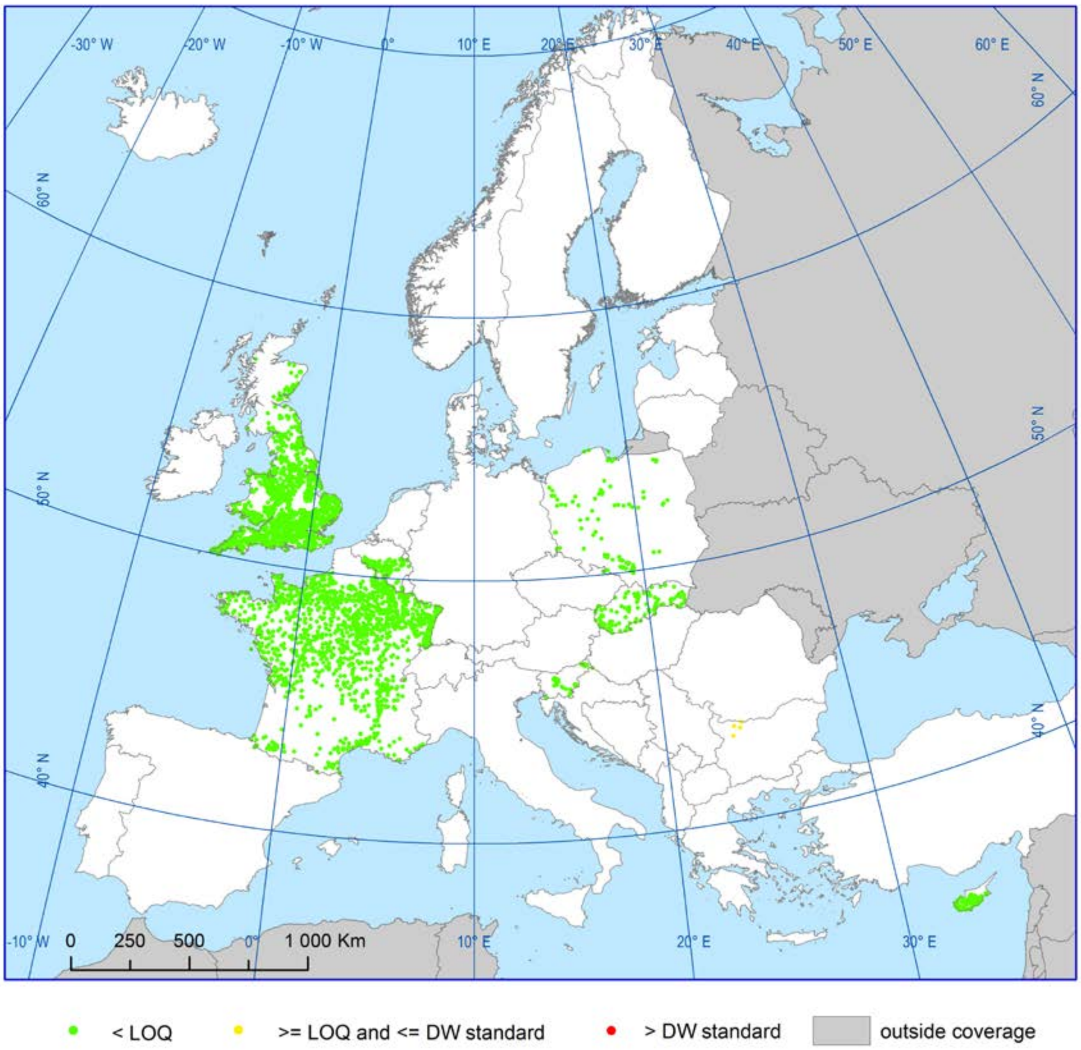


Figure 4.1.2.19a Long-term indicator (% of sites within indicator class, number of stations shown in parenthesis) for chlorpyrifos in groundwater

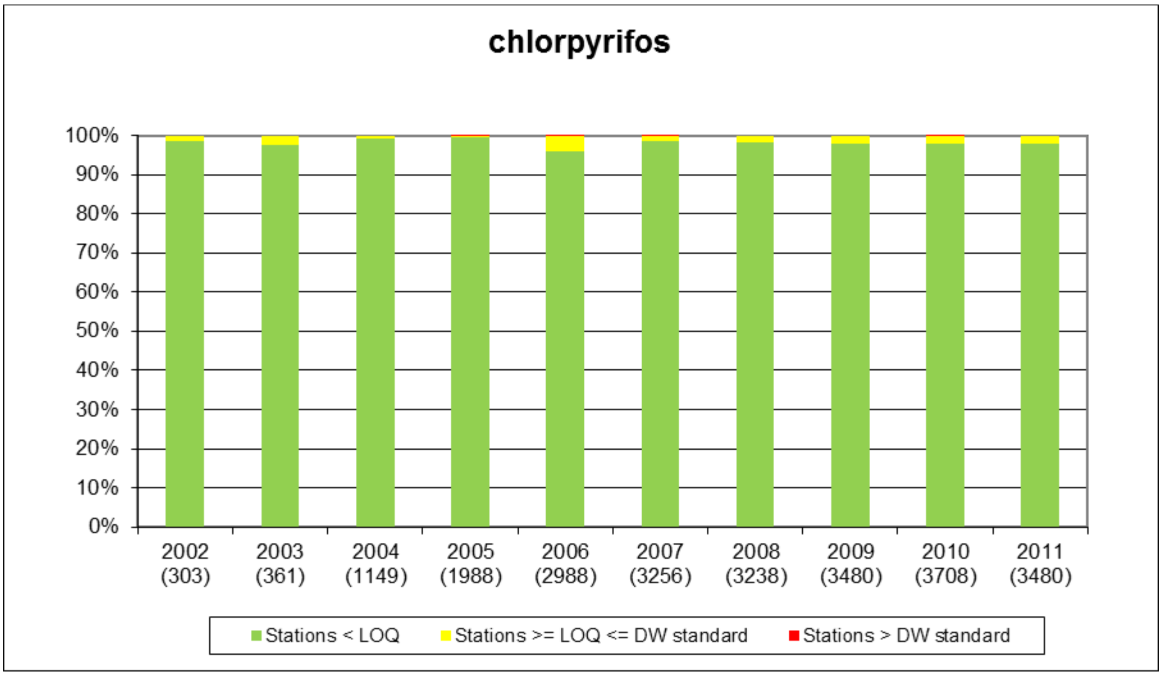


Figure 4.1.2.19b Indicator for chlorpyrifos groundwater in 2010–2011 (number of stations per country shown in parenthesis)

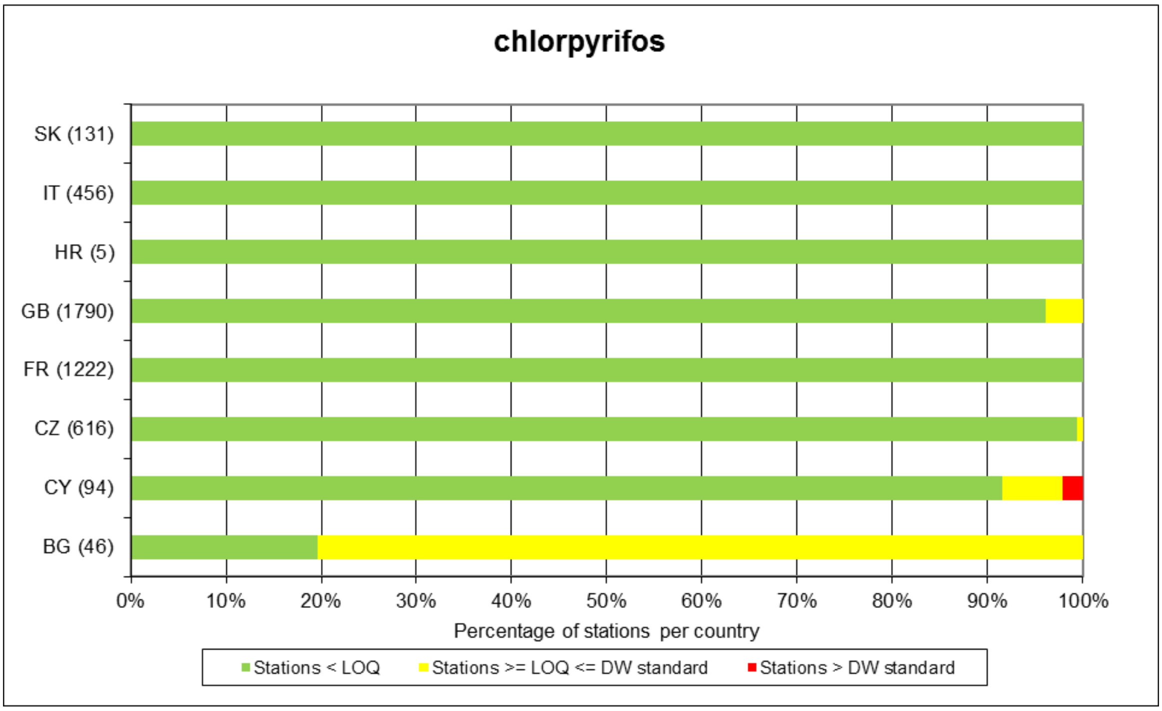


Figure 4.1.2.19c Map of the indicator for chlorpyrifos in groundwater in 2010–2011

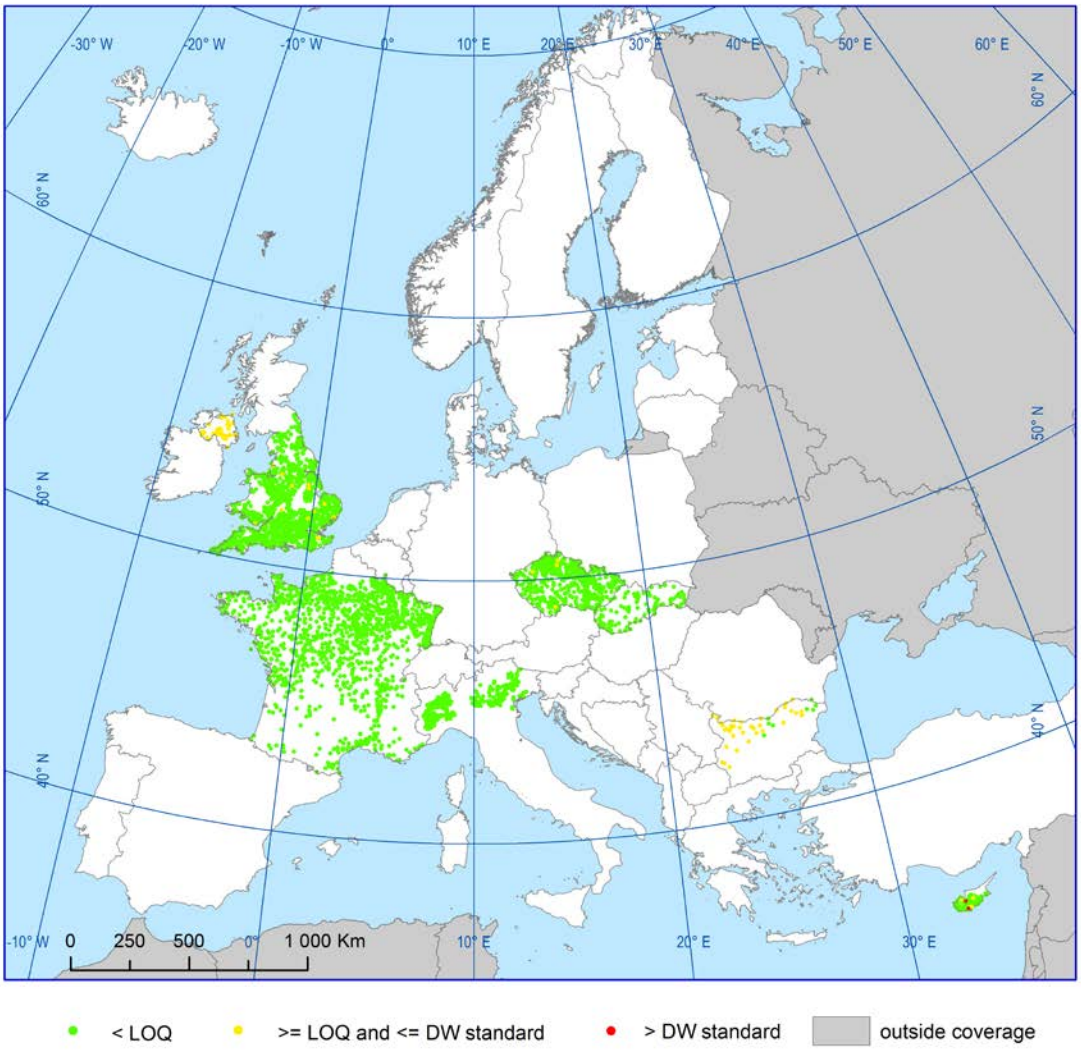


Figure 4.1.2.20a Long-term indicator (% of sites within indicator class, number of stations shown in parenthesis) for chromium in groundwater

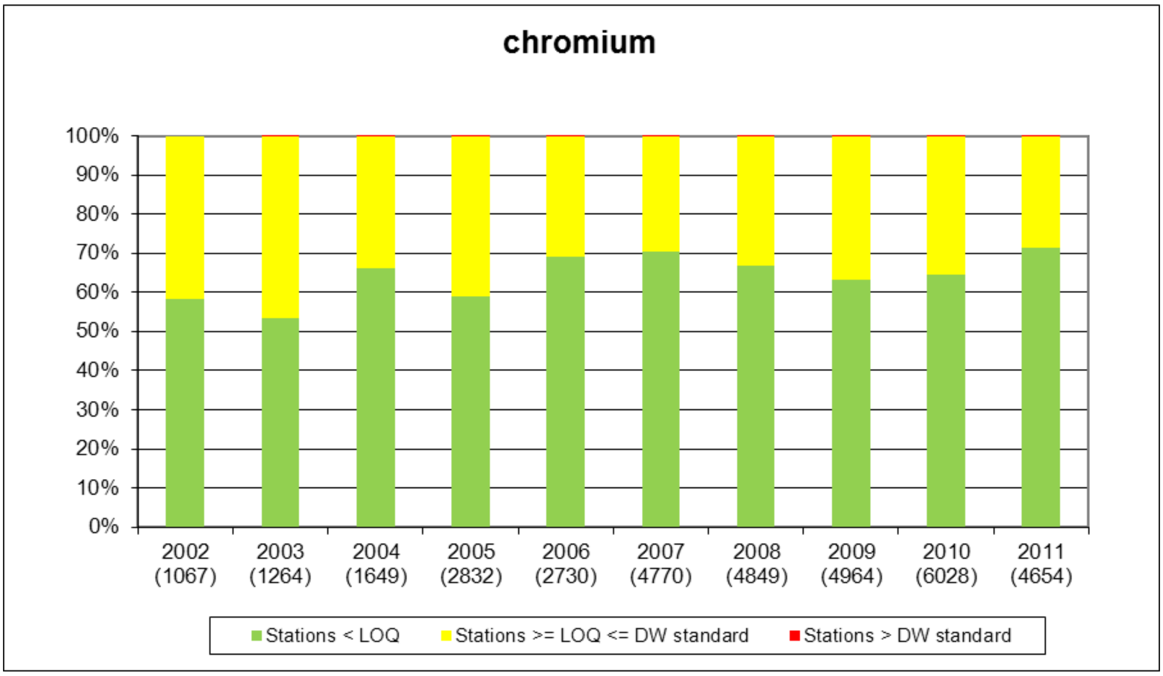


Figure 4.1.2.20b Indicator for chromium groundwater in 2010–2011 (number of stations per country shown in parenthesis)

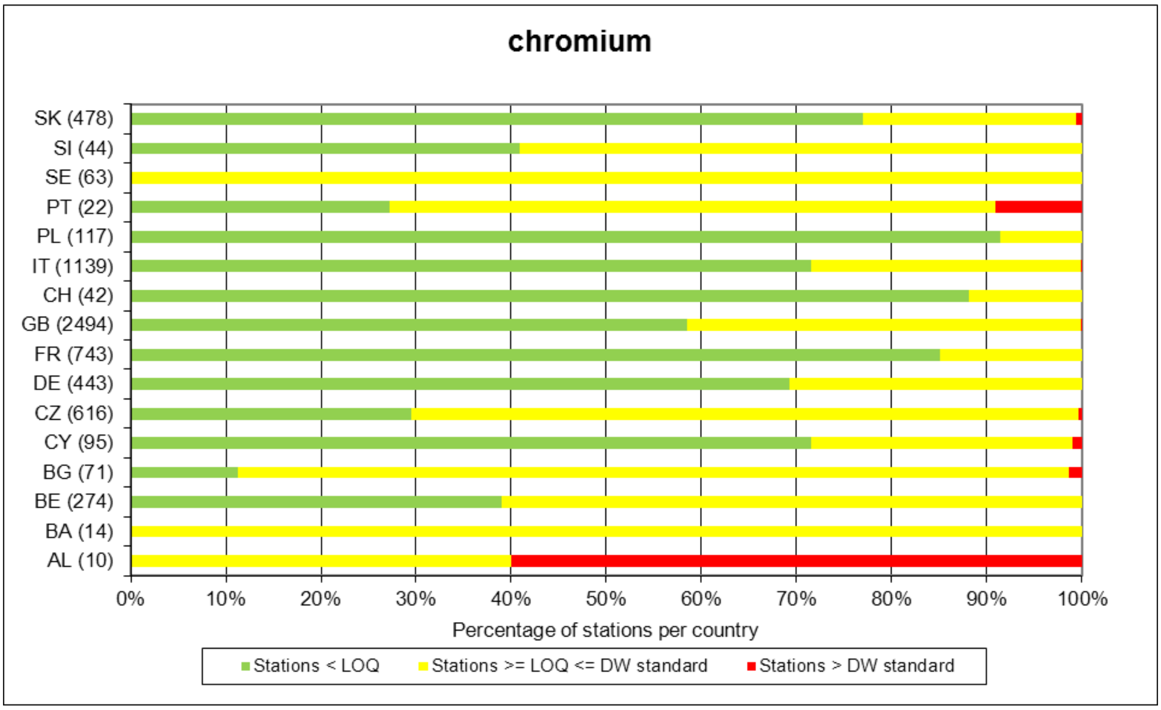


Figure 4.1.2.20c Map of the indicator for chromium in groundwater in 2010–2011

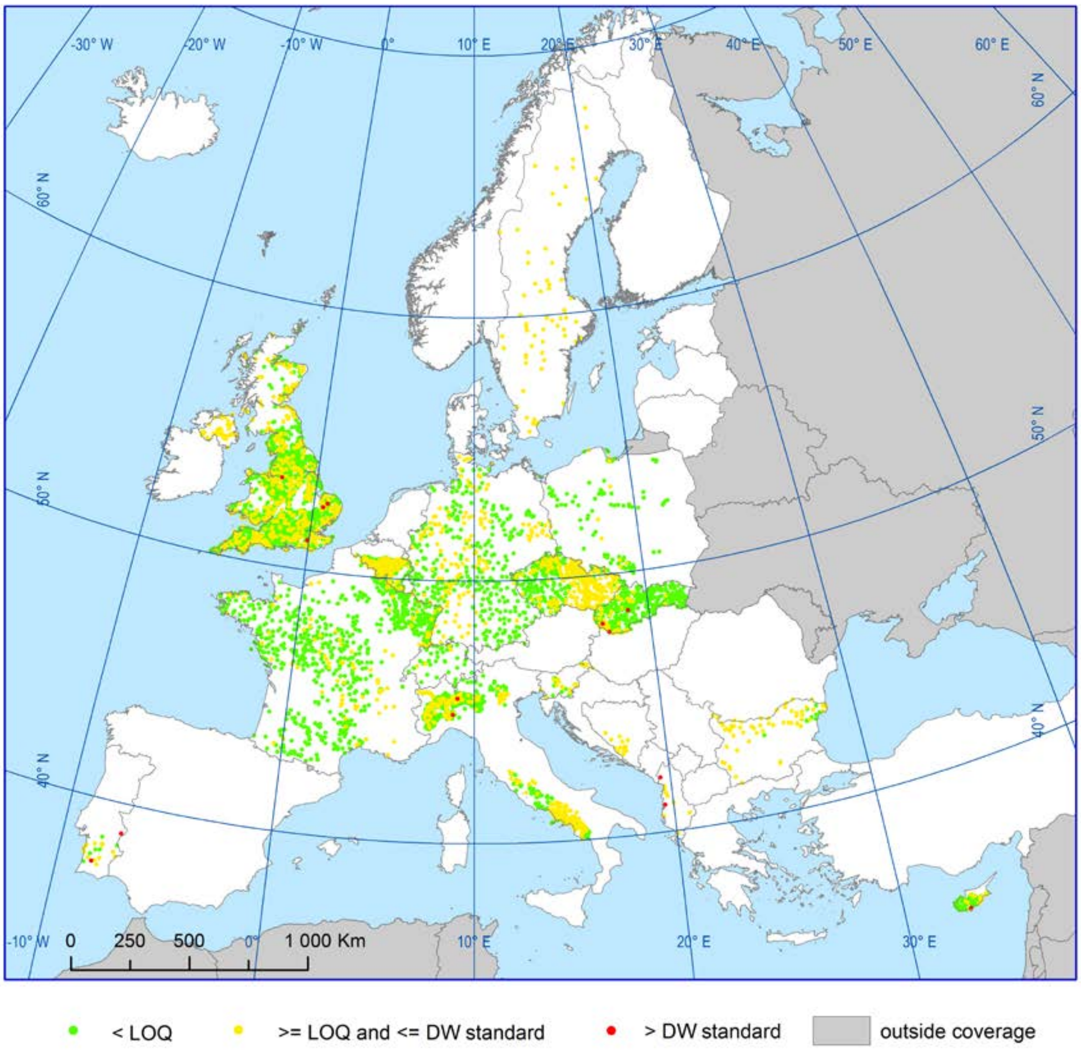


Figure 4.1.2.21a Long-term indicator (% of sites within indicator class, number of stations shown in parenthesis) for dissolved chromium in groundwater

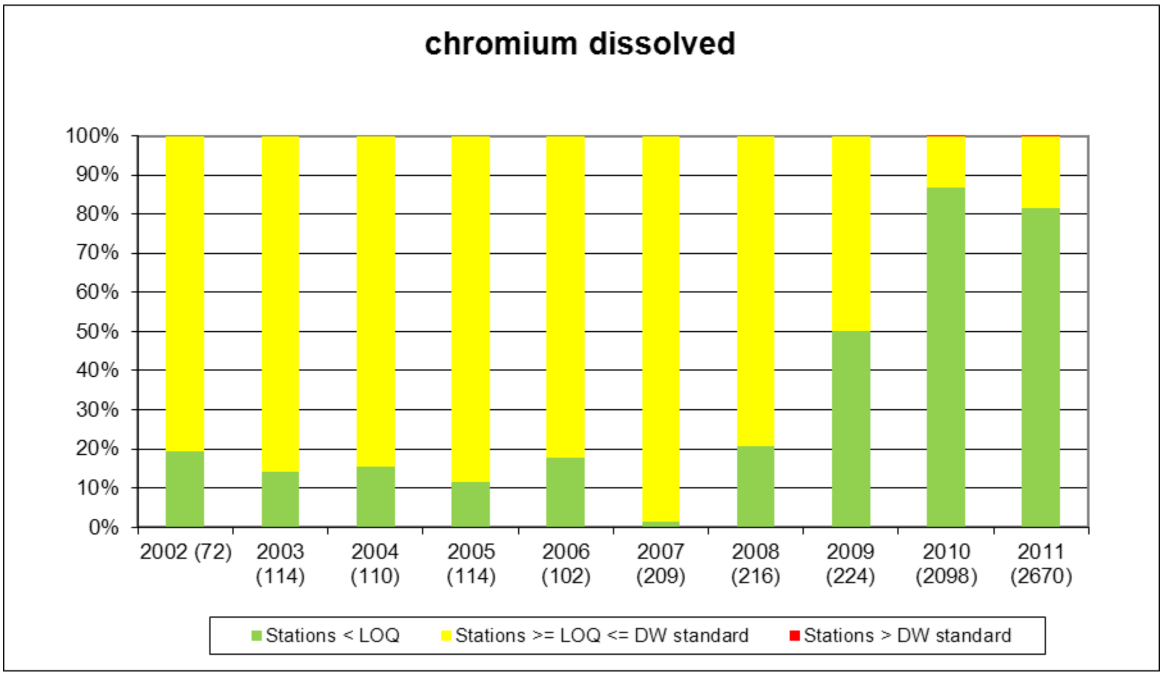


Figure 4.1.2.21b Indicator for dissolved chromium groundwater in 2010–2011 (number of stations per country shown in parenthesis)

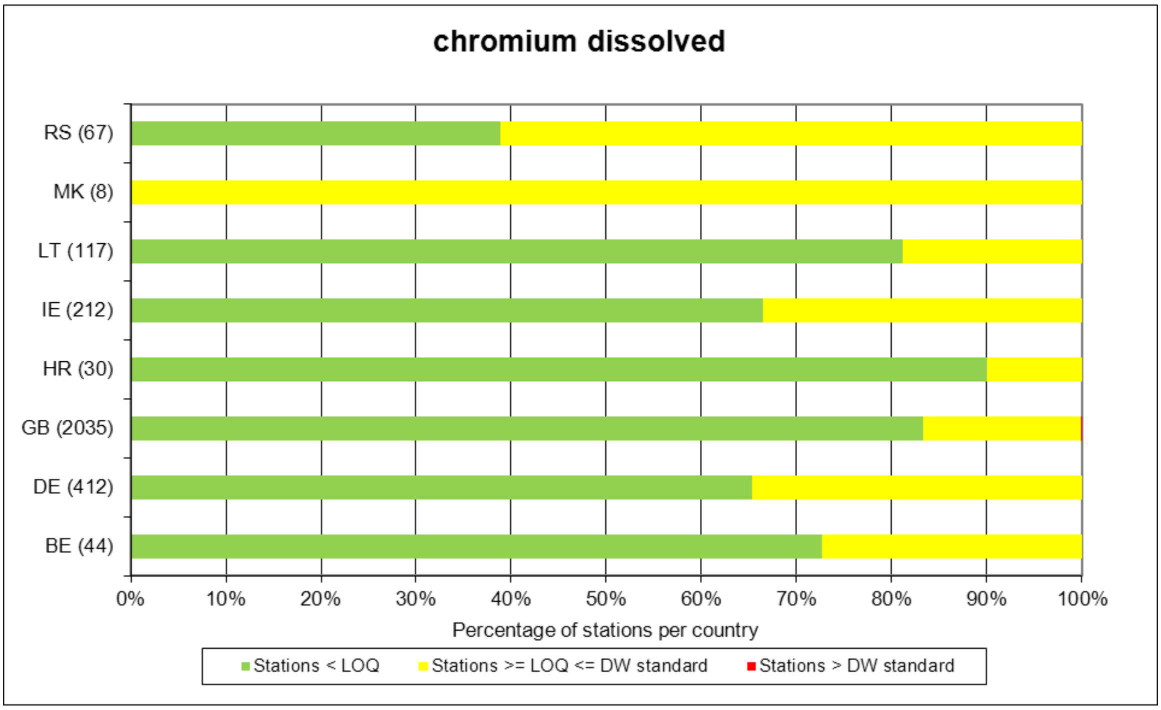


Figure 4.1.2.21c Map of the indicator for dissolved chromium in groundwater in 2010–2011

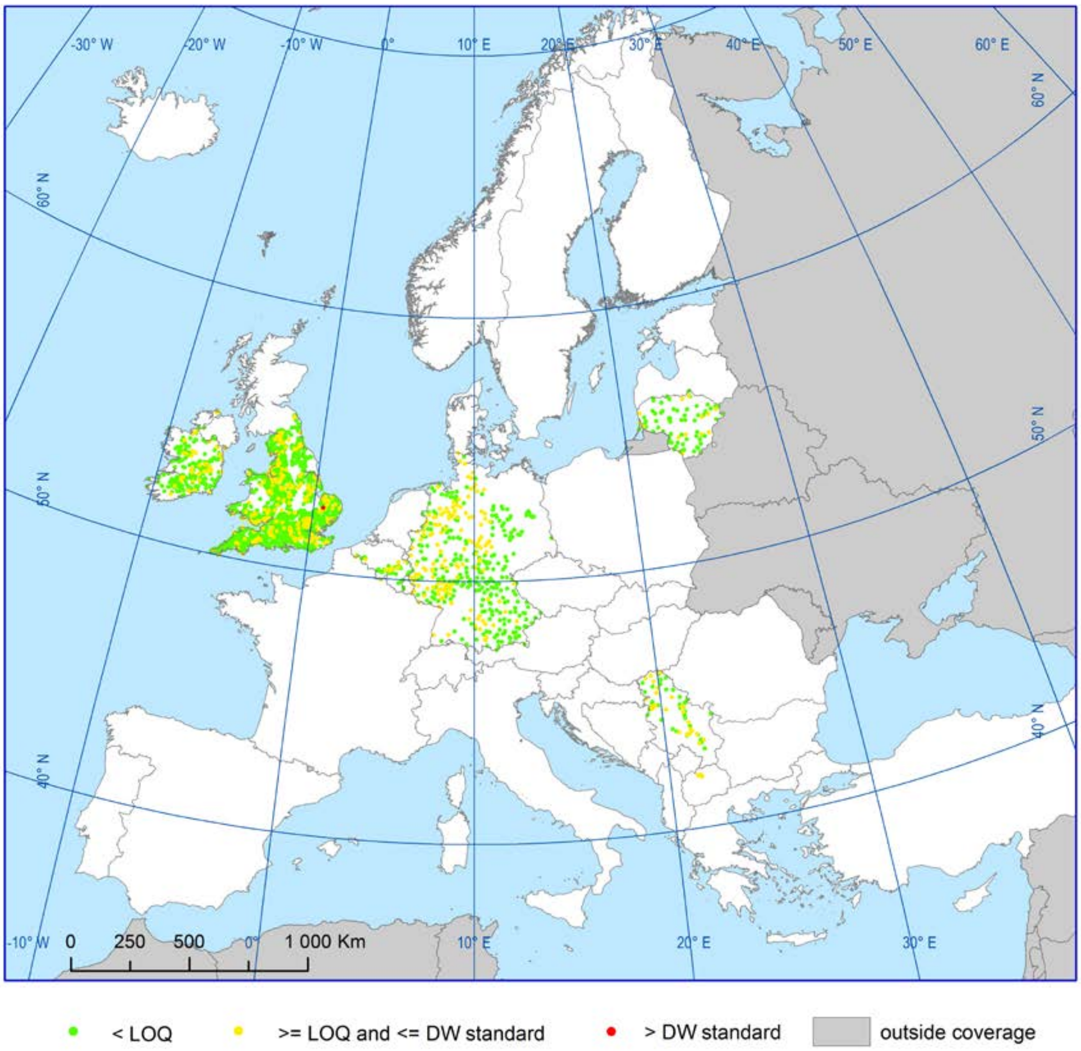


Figure 4.1.2.22a Long-term indicator (% of sites within indicator class, number of stations shown in parenthesis) for copper in groundwater

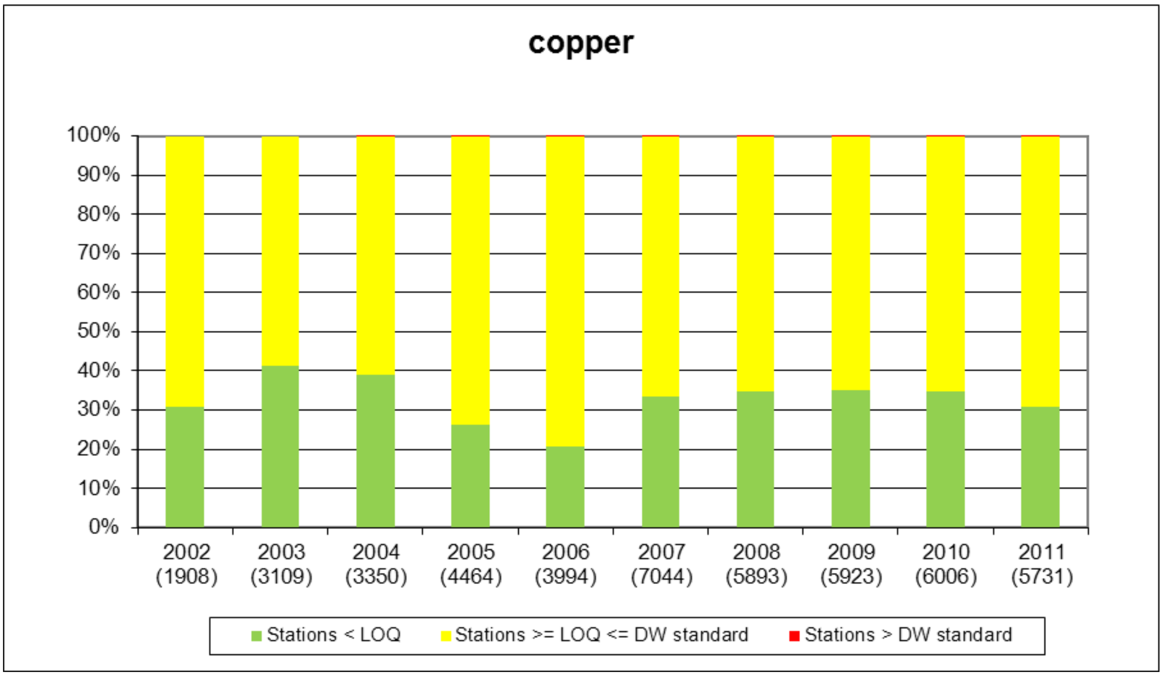


Figure 4.1.2.22b Indicator for copper groundwater in 2010–2011 (number of stations per country shown in parenthesis)

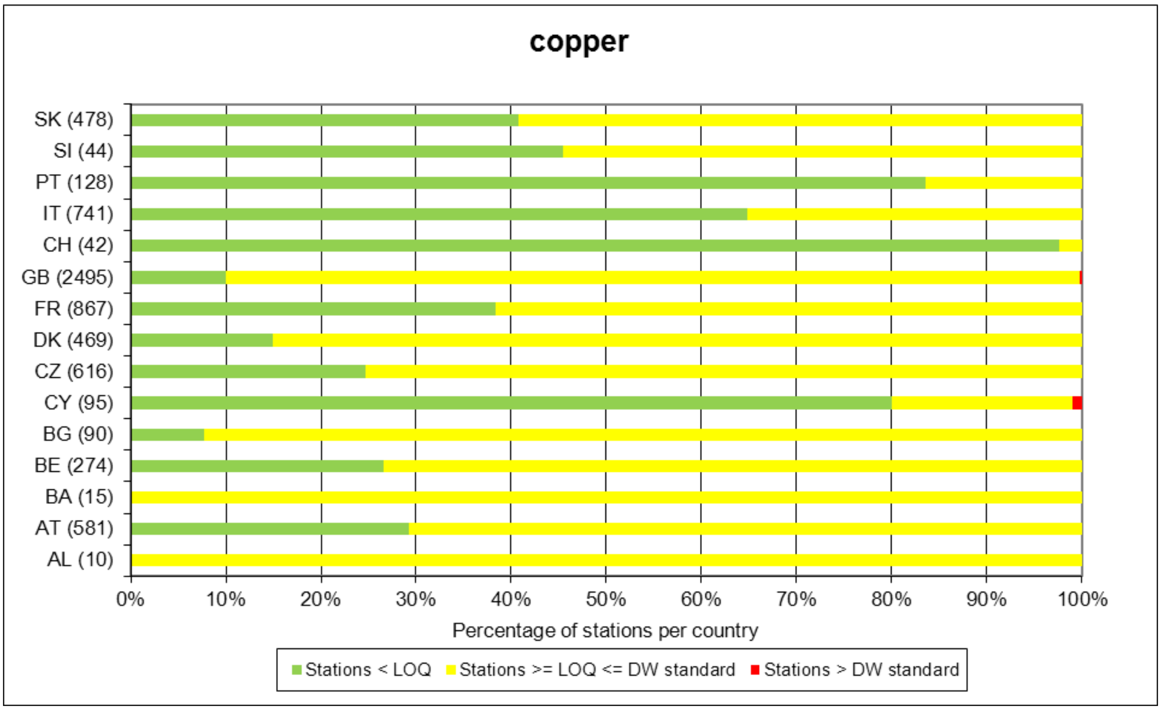


Figure 4.1.2.22c Map of the indicator for copper in groundwater in 2010–2011

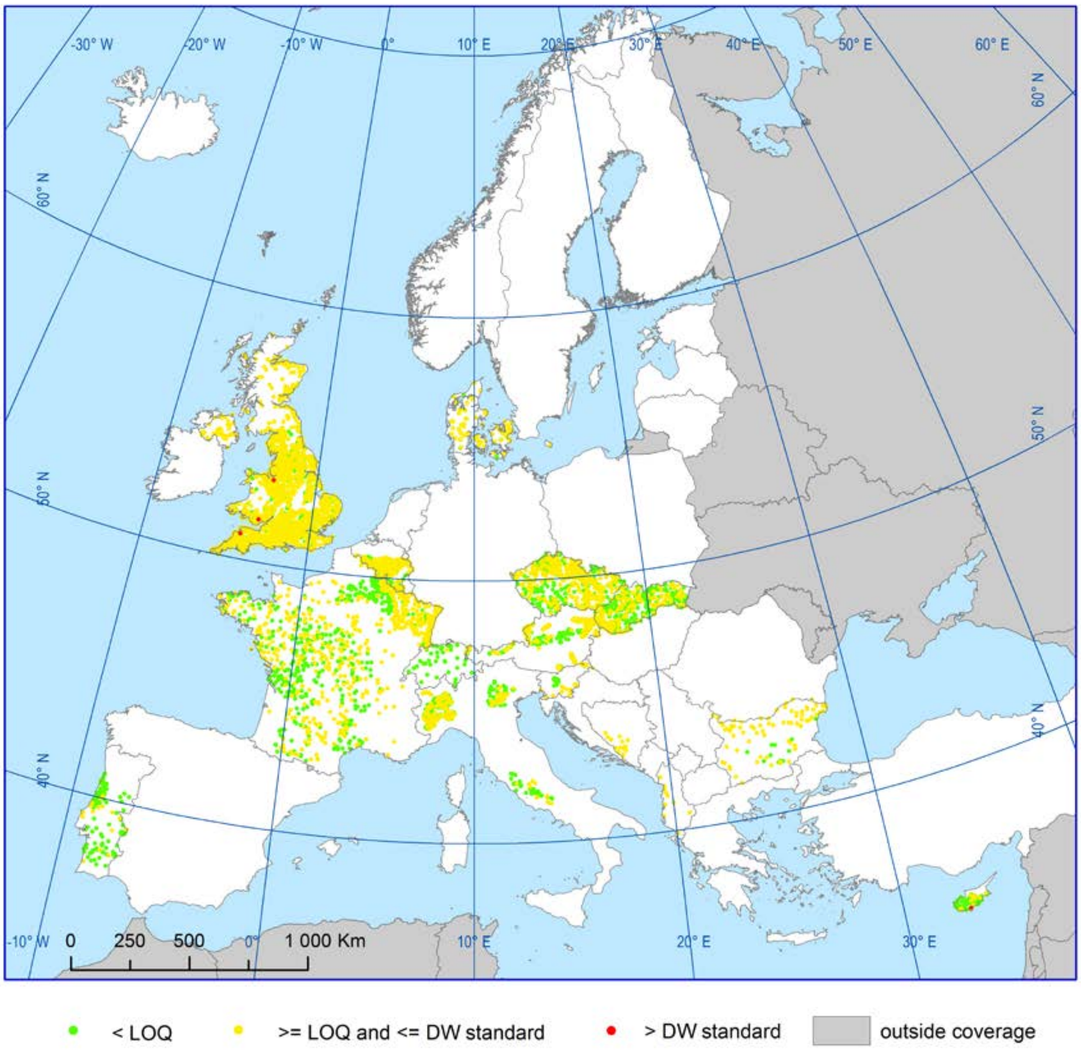


Figure 4.1.2.23a Long-term indicator (% of sites within indicator class, number of stations shown in parenthesis) for dissolved copper in groundwater

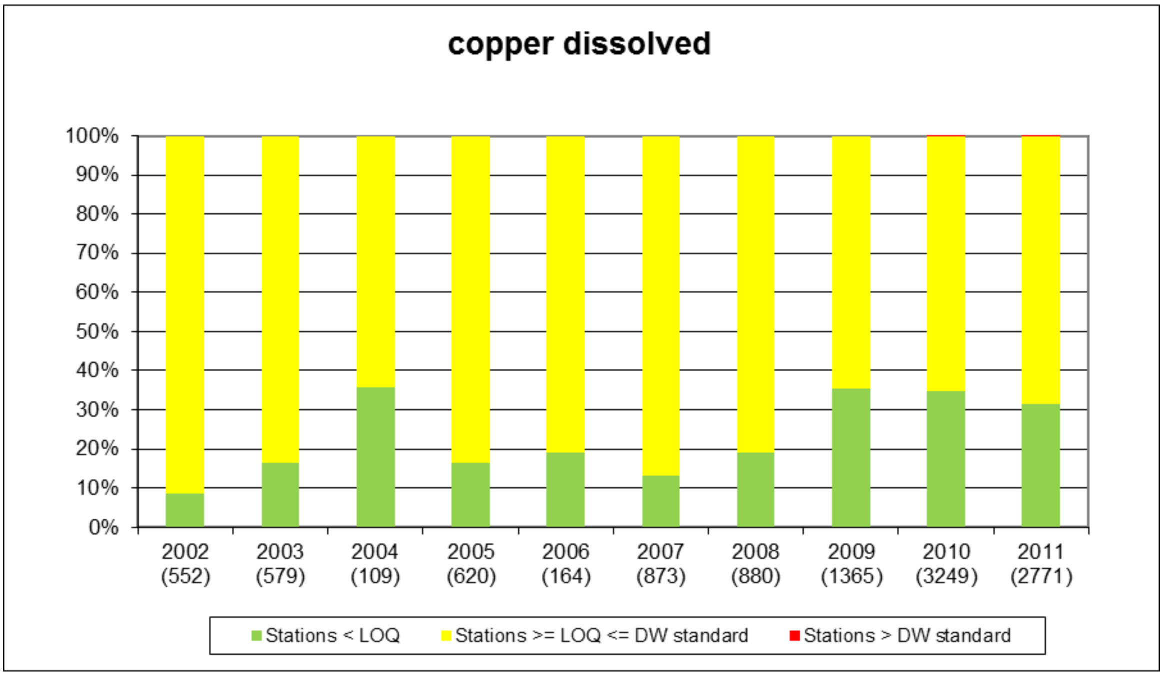


Figure 4.1.2.23b Indicator for dissolved copper groundwater in 2010–2011 (number of stations per country shown in parenthesis)

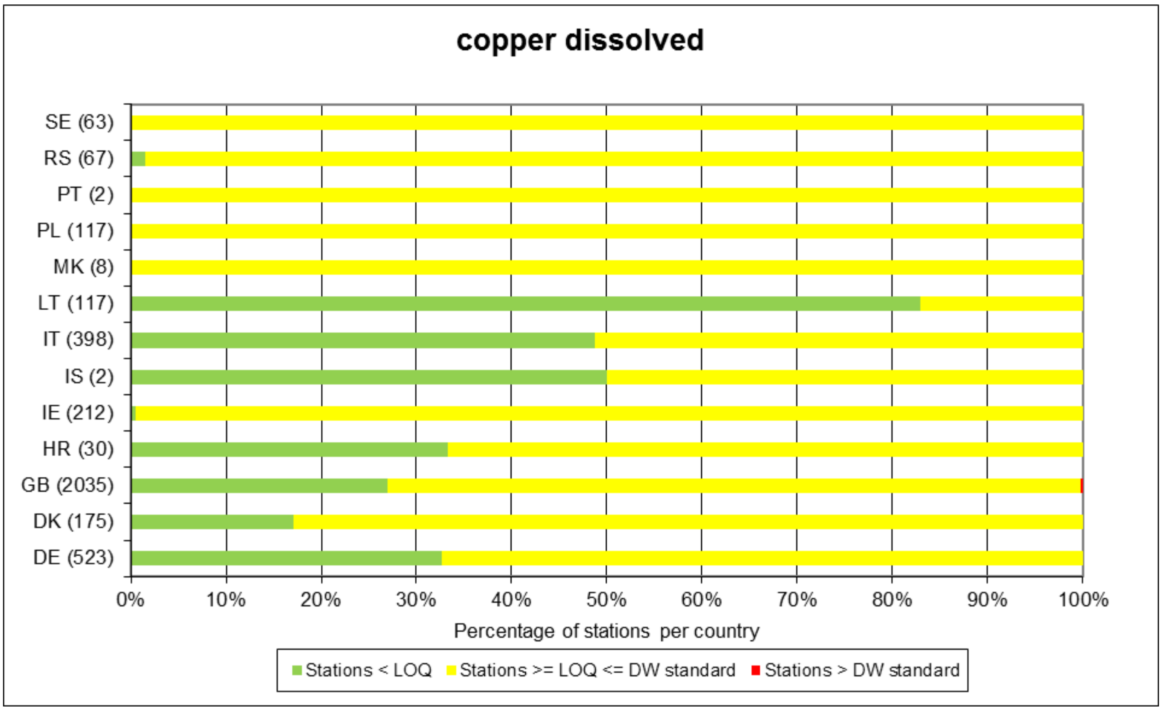


Figure 4.1.2.23c Map of the indicator for dissolved copper in groundwater in 2010–2011

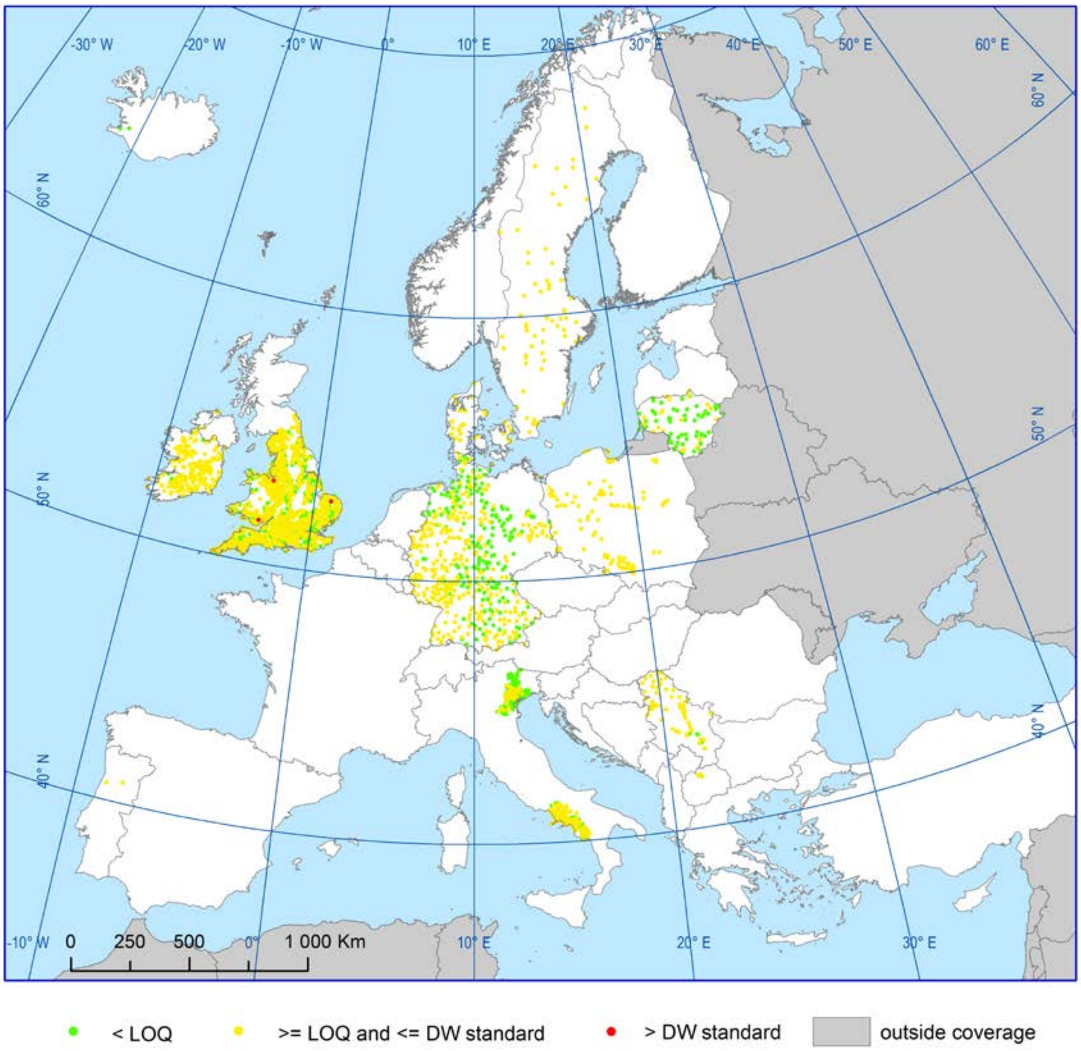


Figure 4.1.2.24a Long-term indicator (% of sites within indicator class, number of stations shown in parenthesis) for DDD p,p´ in groundwater

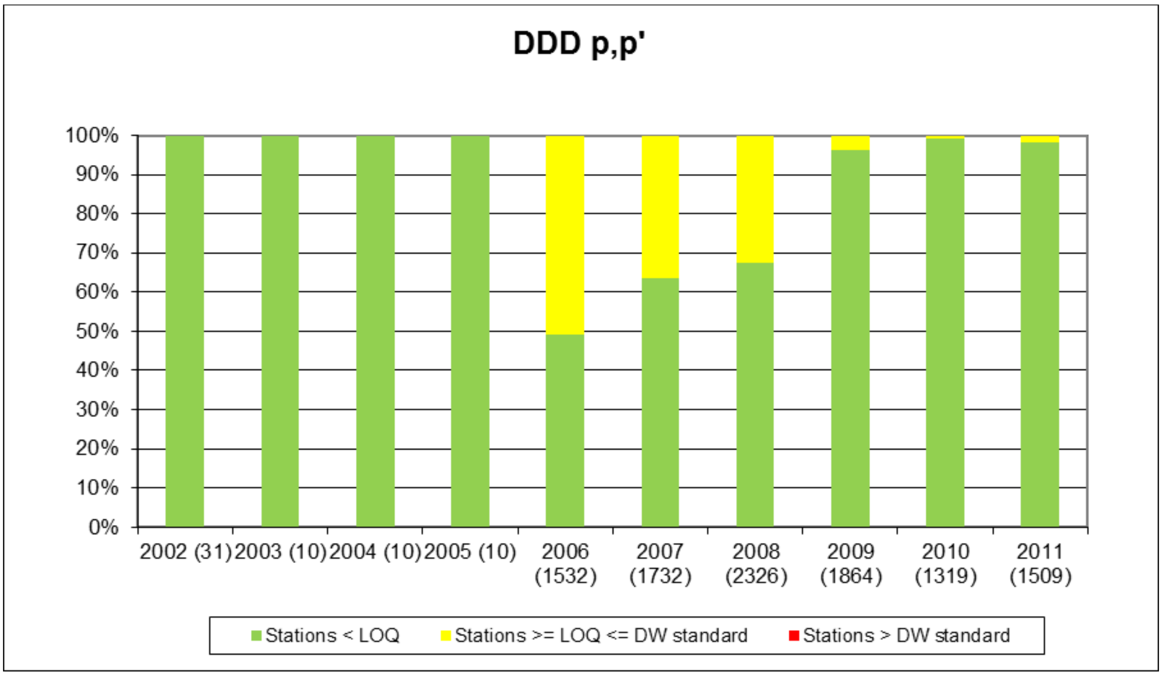


Figure 4.1.2.24b Indicator for DDD p,p´ in groundwater in 2010–2011 (number of stations per country shown in parenthesis)

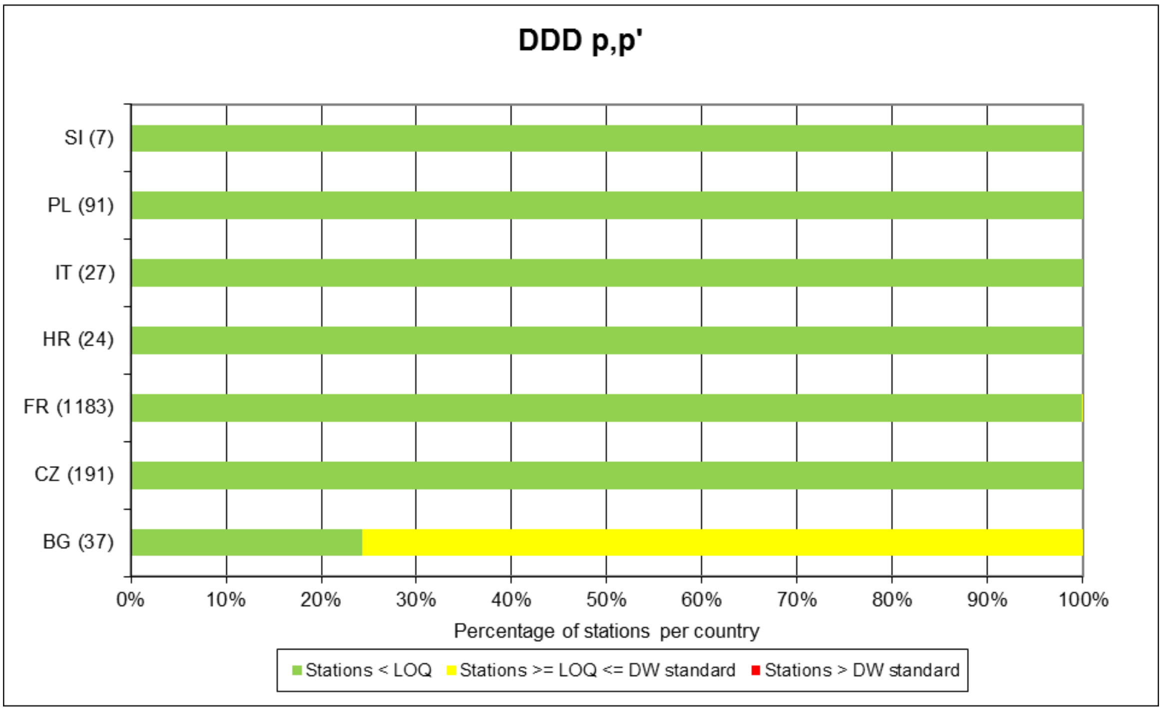


Figure 4.1.2.24c Map of the indicator for DDD p,p´ in groundwater in 2010–2011

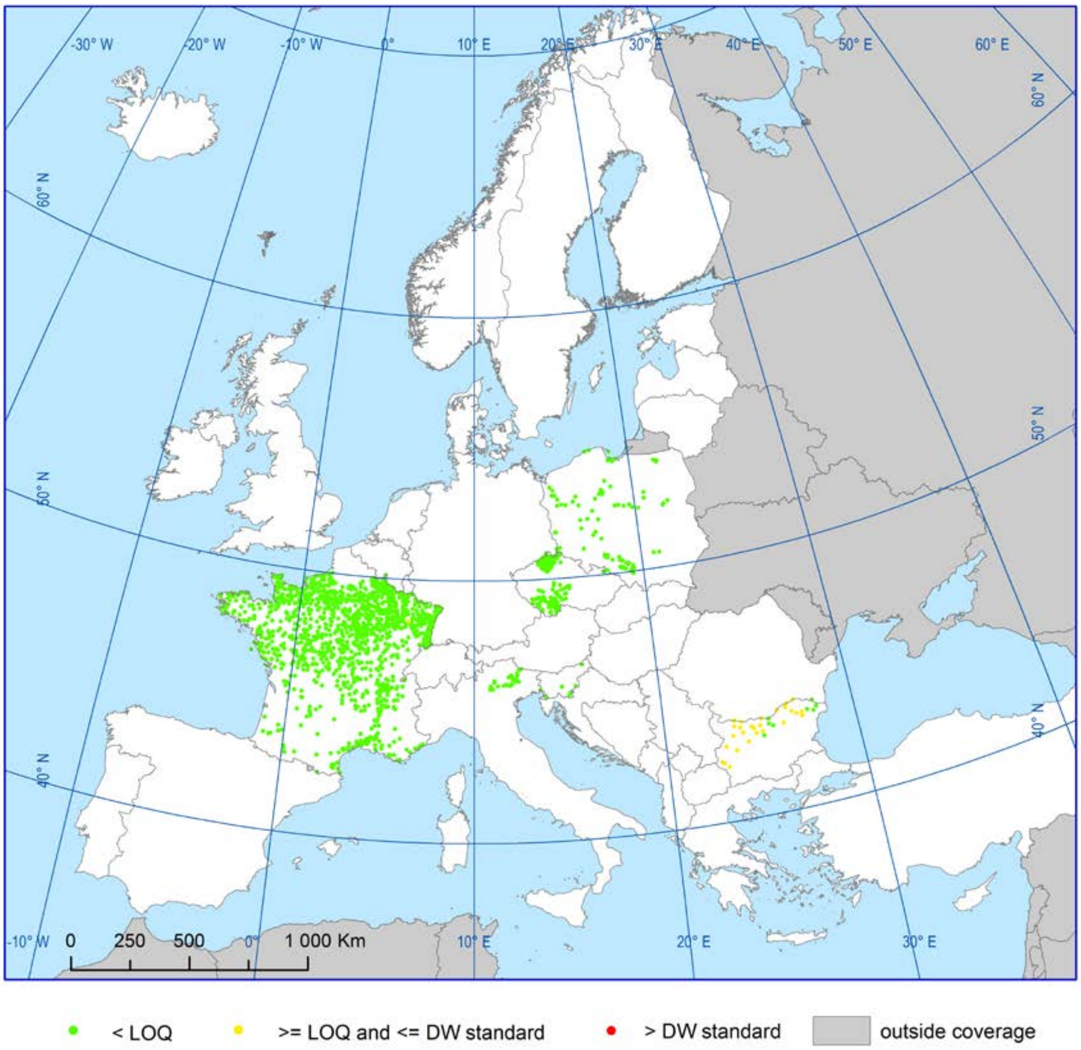


Figure 4.1.2.25a Long-term indicator (% of sites within indicator class, number of stations shown in parenthesis) for DDE p,p´ in groundwater

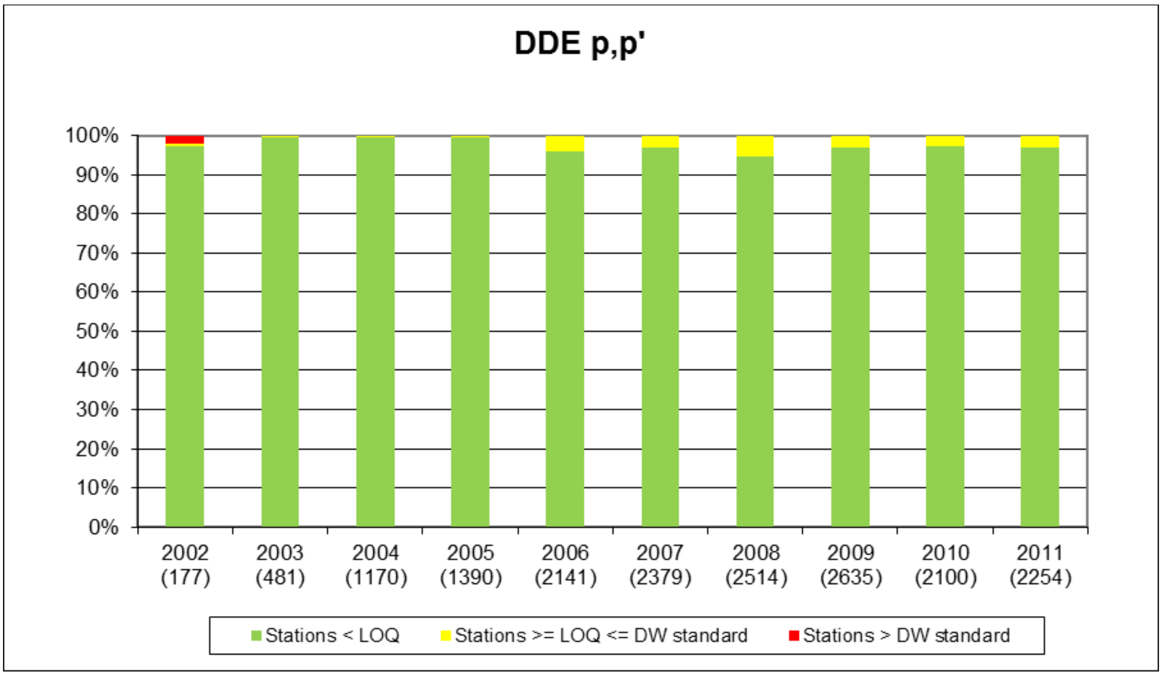


Figure 4.1.2.25b Indicator for DDE p,p´ in groundwater in 2010–2011 (number of stations per country shown in parenthesis)

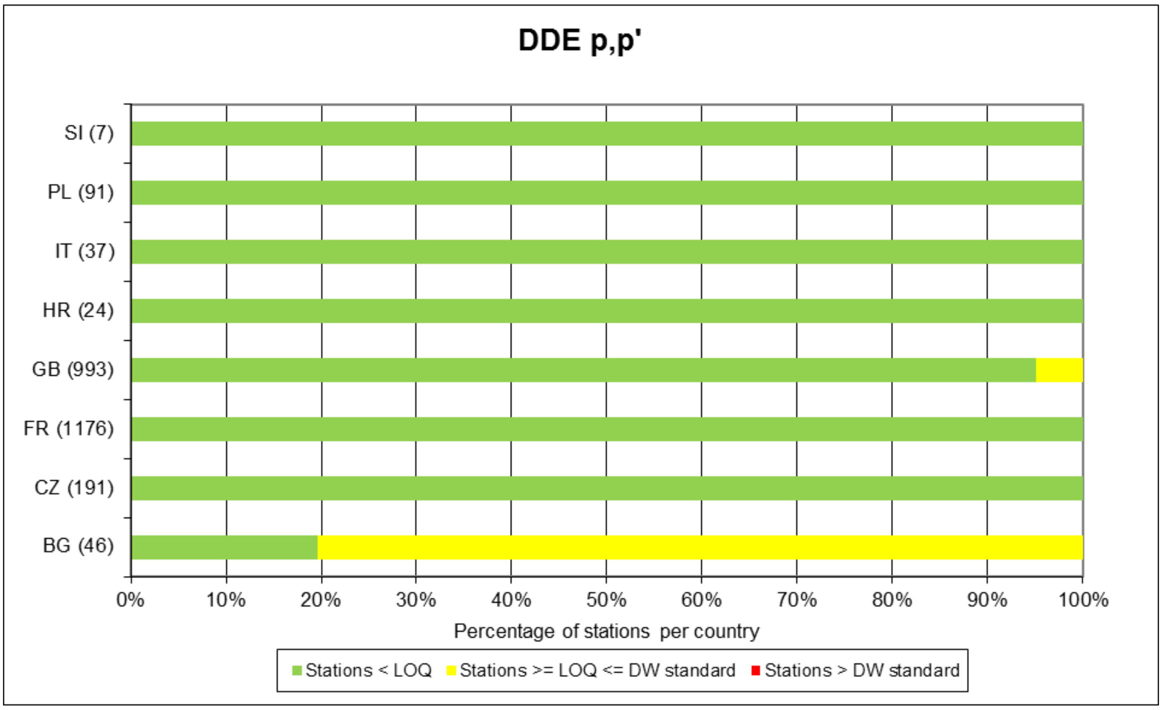


Figure 4.1.2.25c Map of the indicator for DDE p,p´ in groundwater in 2010–2011

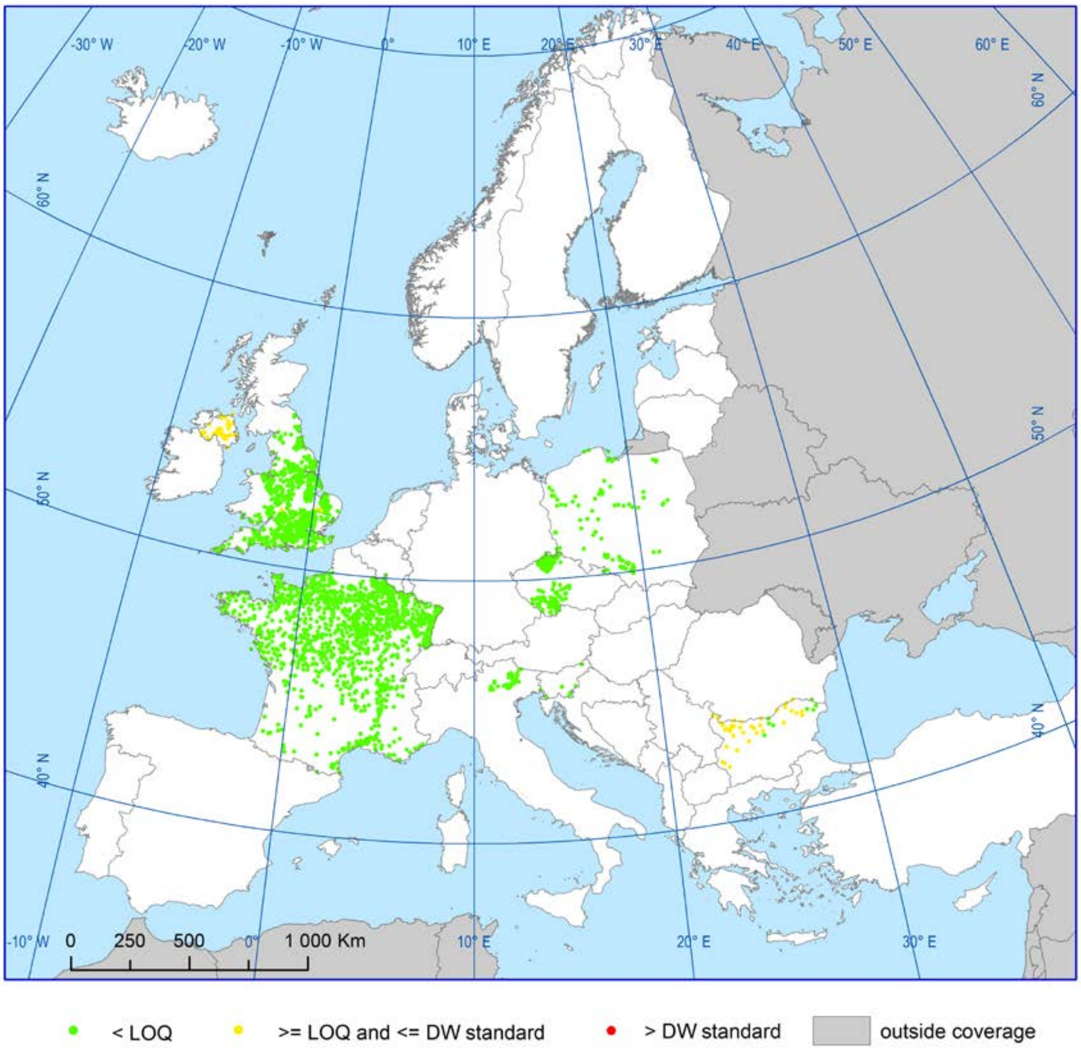


Figure 4.1.2.26a Long-term indicator (% of sites within indicator class, number of stations shown in parenthesis) for DDT o,p´ in groundwater

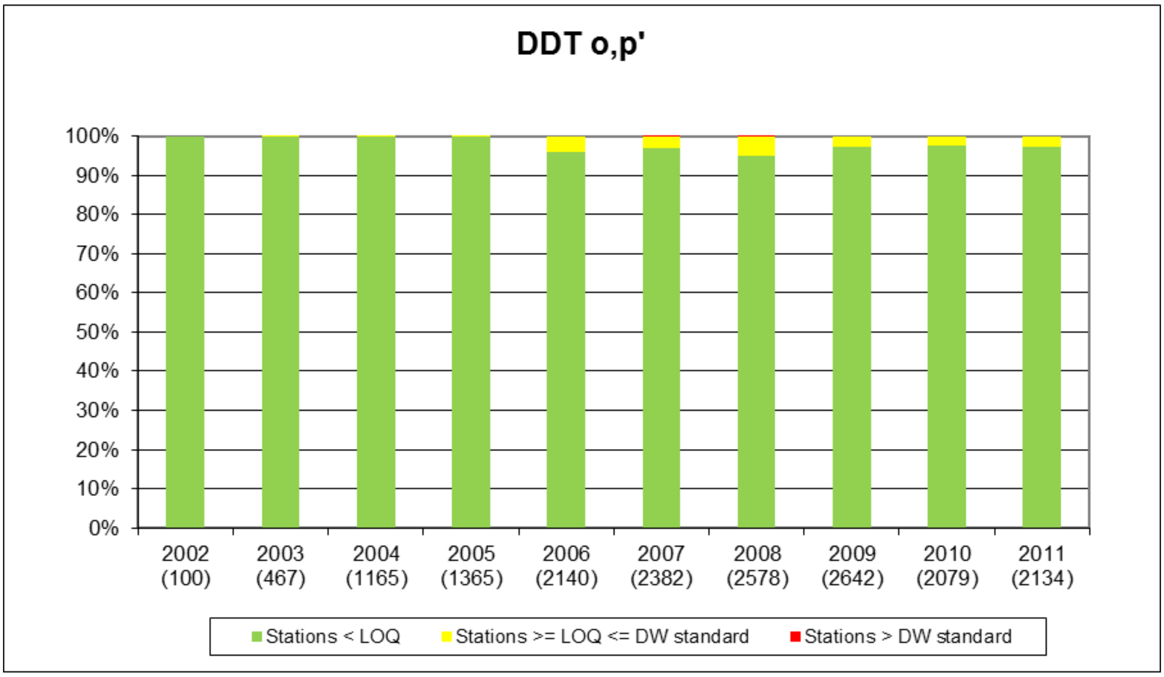


Figure 4.1.2.26b Indicator for DDT o,p´ in groundwater in 2010–2011 (number of stations per country shown in parenthesis)

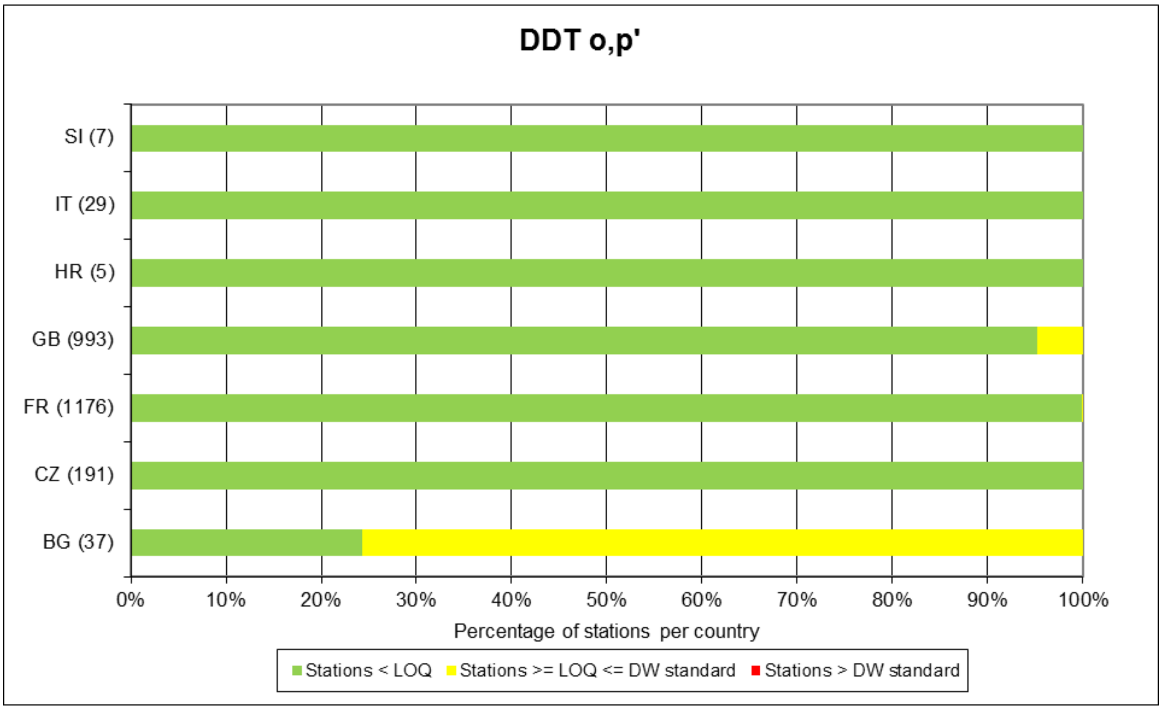


Figure 4.1.2.26c Map of the indicator for DDT o,p´ in groundwater in 2010–2011

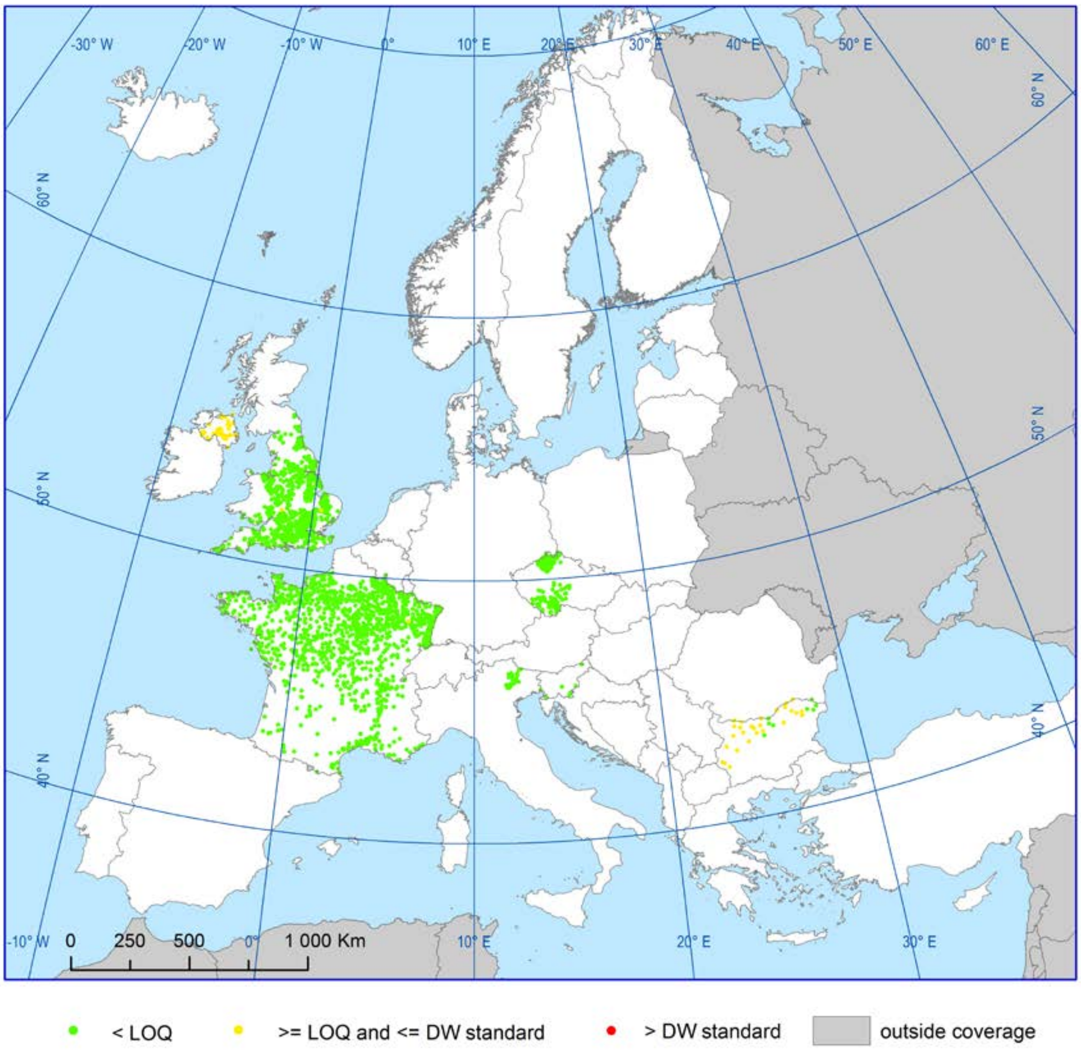


Figure 4.1.2.27a Long-term indicator (% of sites within indicator class, number of stations shown in parenthesis) for DDT p,p´ in groundwater

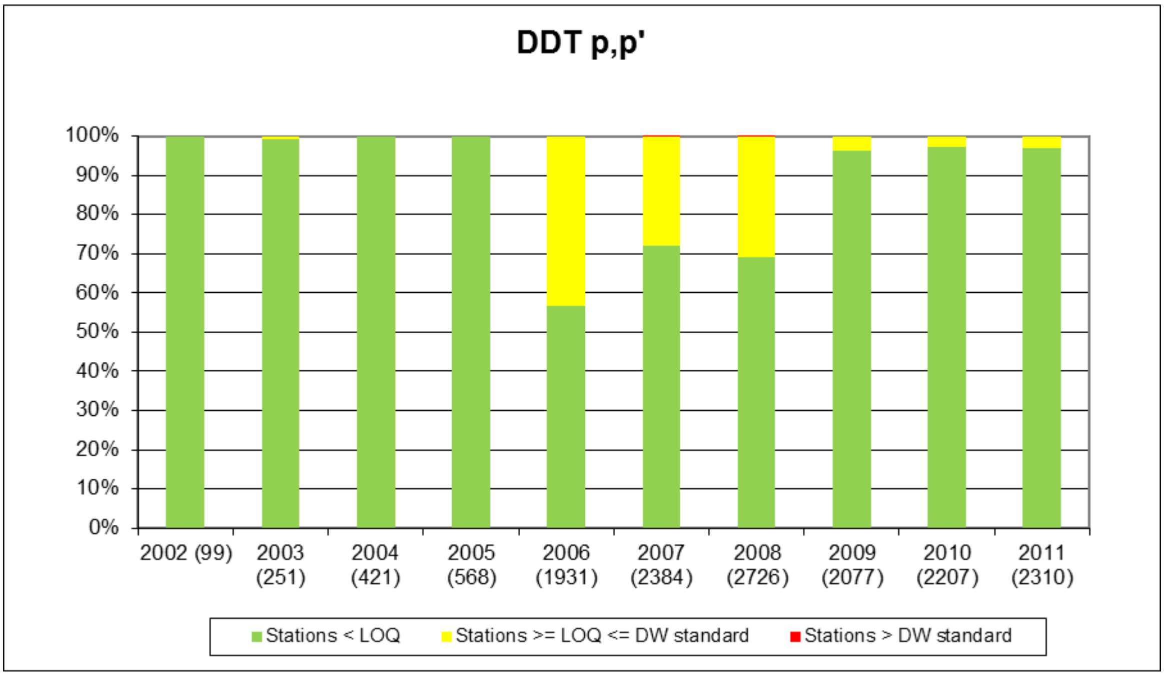


Figure 4.1.2.27b Indicator for DDT p,p´ in groundwater in 2010–2011 (number of stations per country shown in parenthesis)

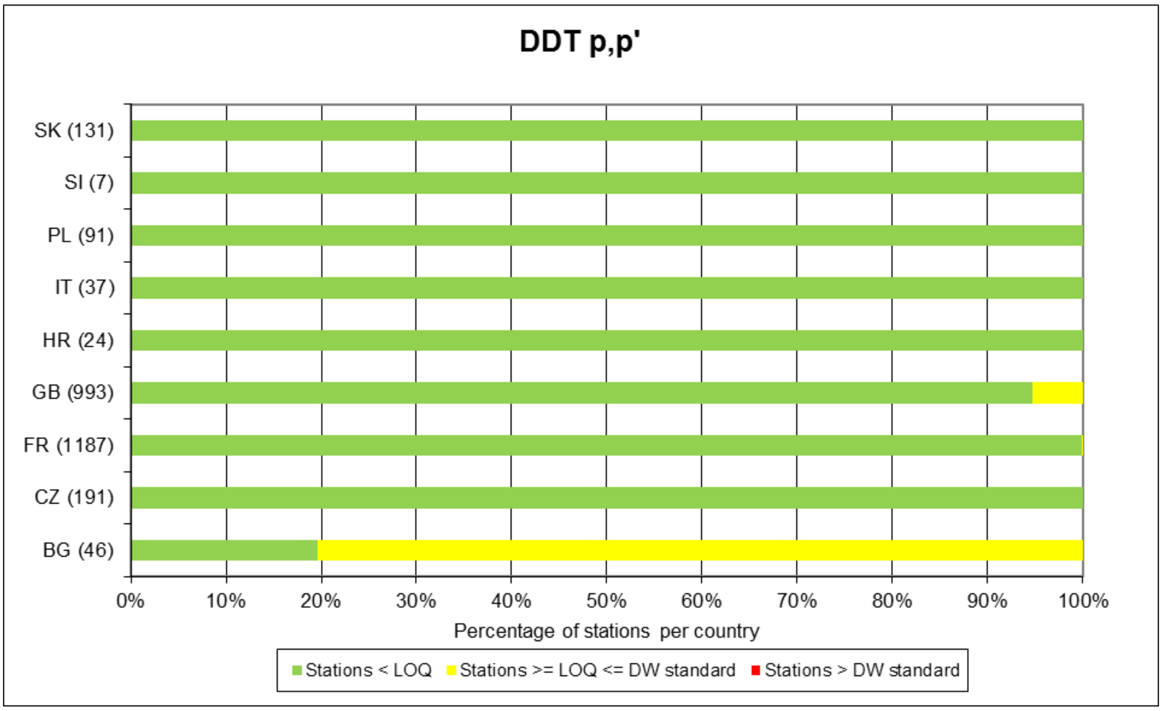


Figure 4.1.2.27c Map of the indicator for DDT p,p´ in groundwater in 2010–2011

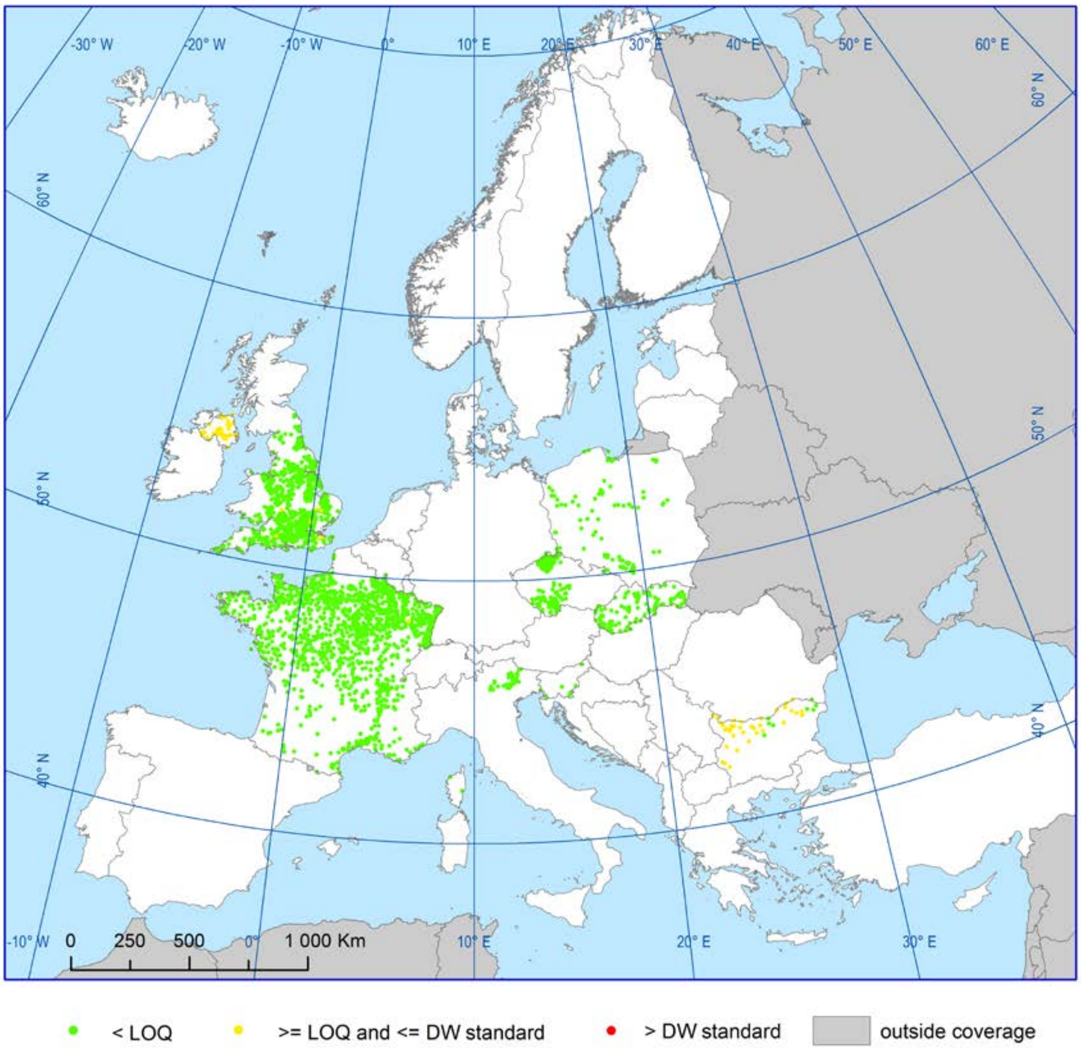


Figure 4.1.2.28a Long-term indicator (% of sites within indicator class, number of stations shown in parenthesis) for desethylatrazine in groundwater

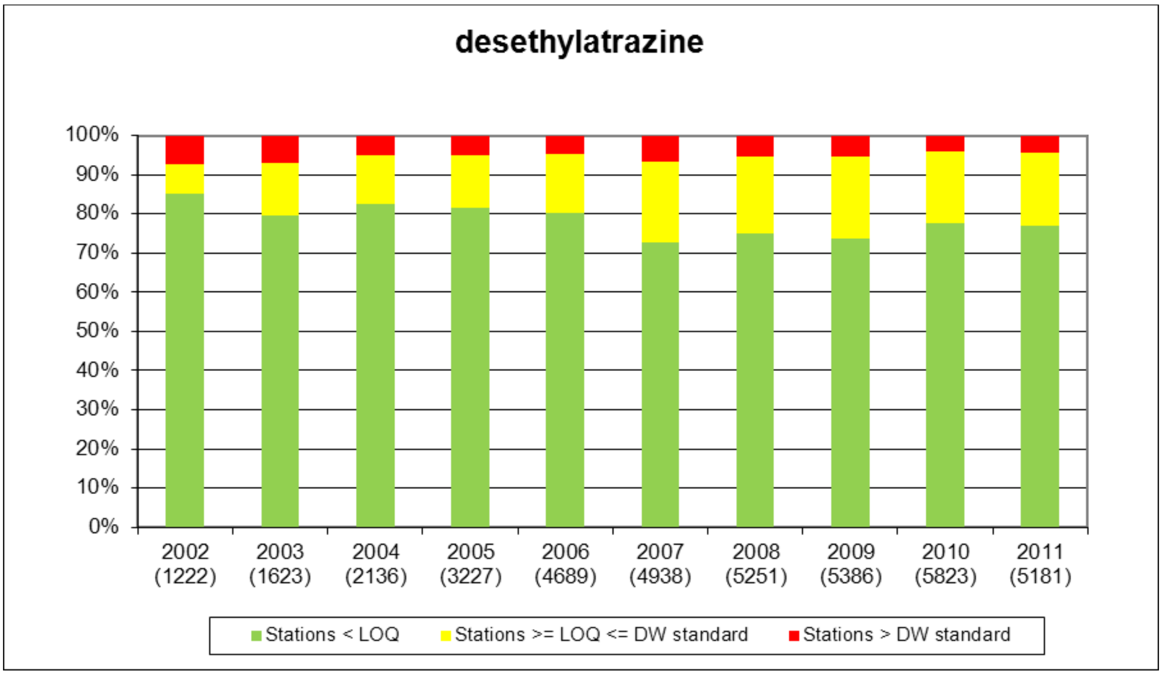


Figure 4.1.2.28b Indicator for desethylatrazine in groundwater in 2010–2011 (number of stations per country shown in parenthesis)

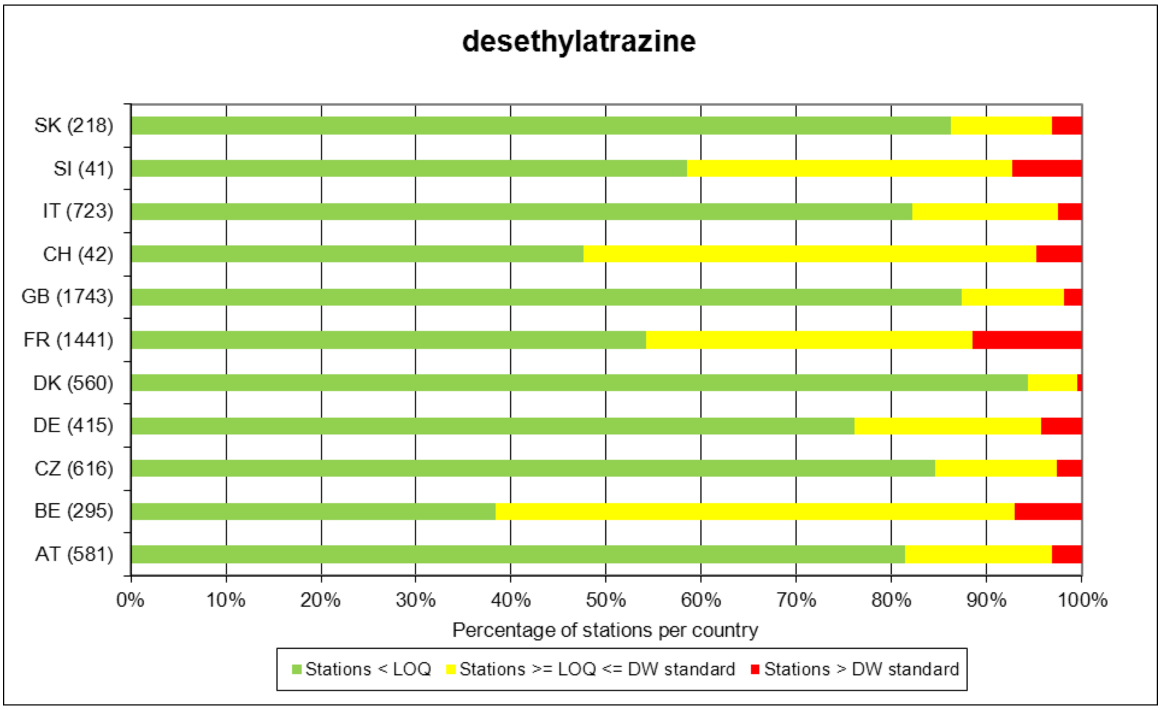


Figure 4.1.2.28c Map of the indicator for desethylatrazine in groundwater in 2010–2011

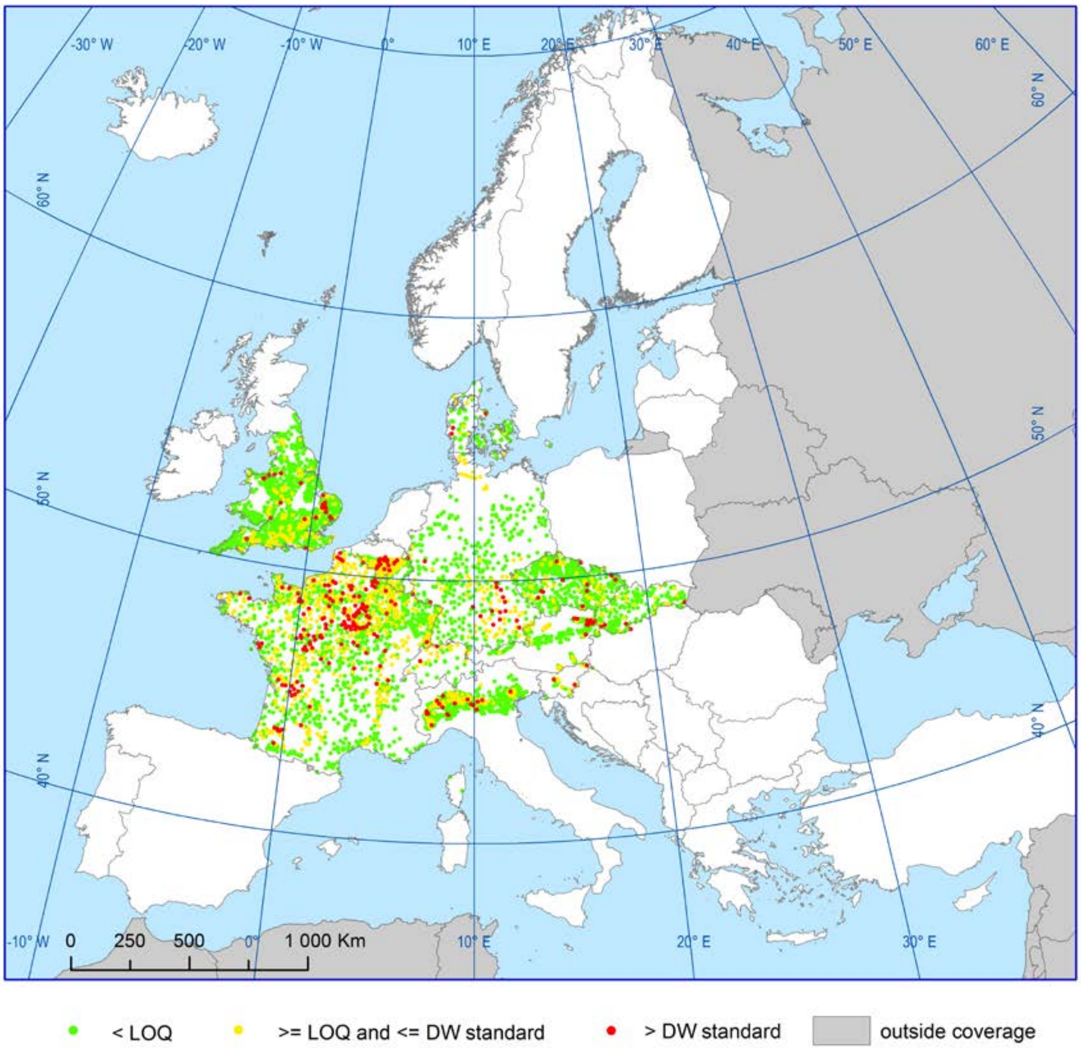


Figure 4.1.2.29a Long-term indicator (% of sites within indicator class, number of stations shown in parenthesis) for desisopropylatrazine in groundwater

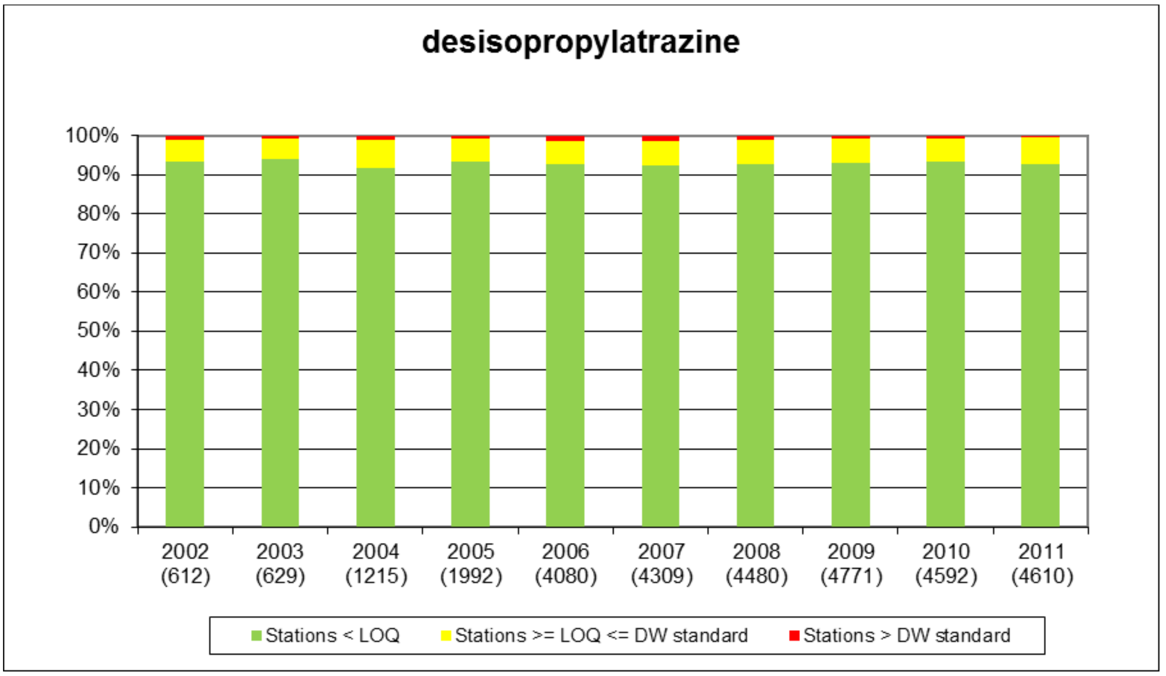


Figure 4.1.2.29b Indicator for desisopropylatrazine in groundwater in 2010–2011 (number of stations per country shown in parenthesis)

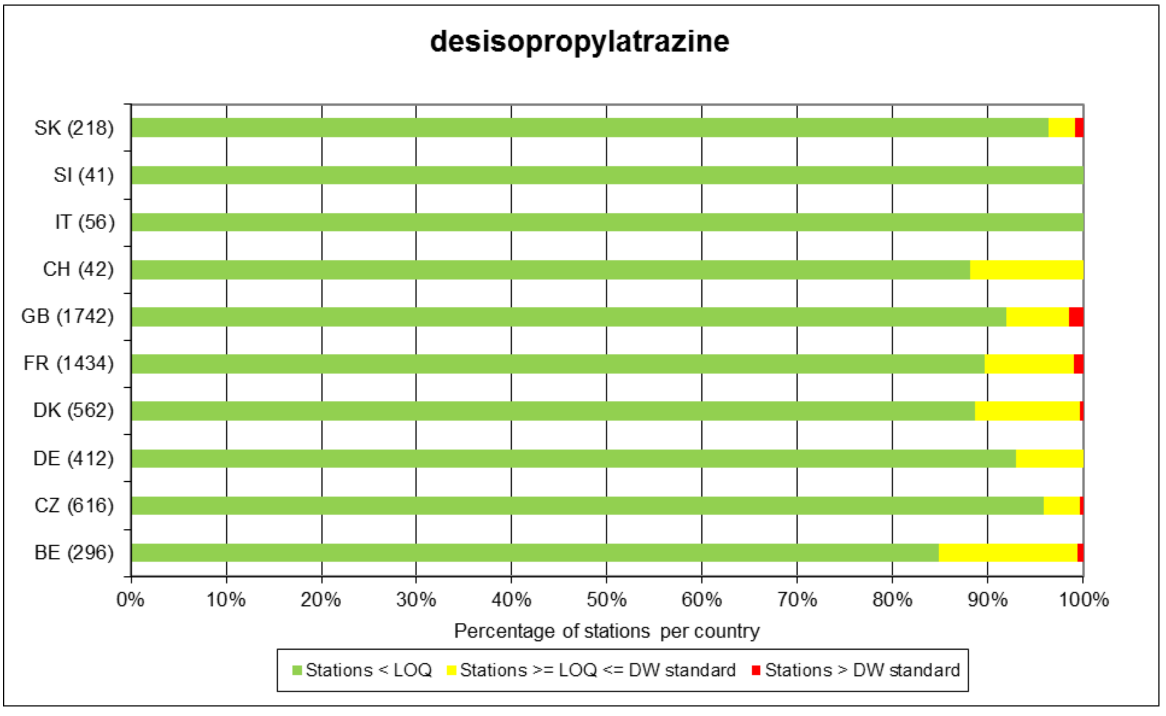


Figure 4.1.2.29c Map of the indicator for desisopropylatrazine in groundwater in 2010–2011

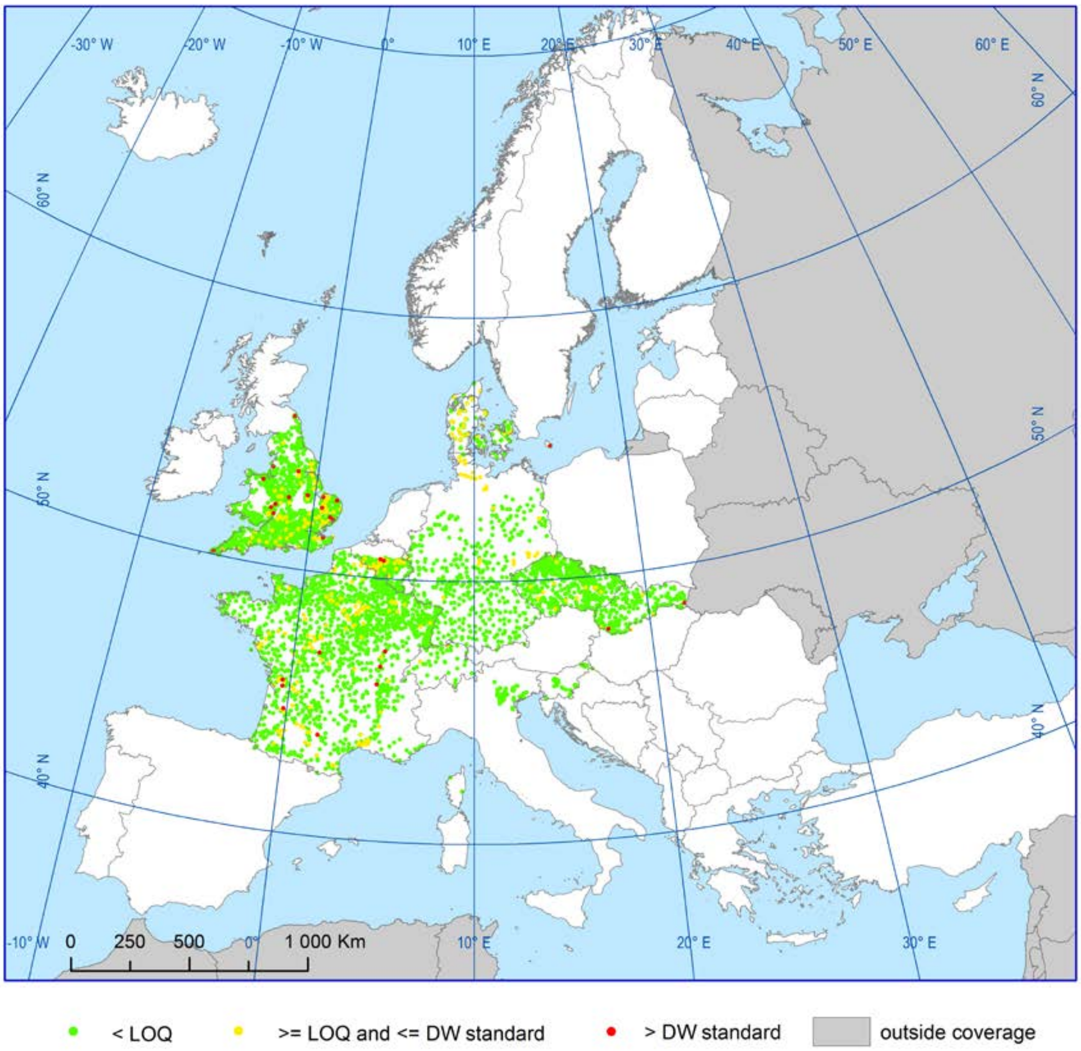


Figure 4.1.2.30a Long-term indicator (% of sites within indicator class, number of stations shown in parenthesis) for dieldrin in groundwater

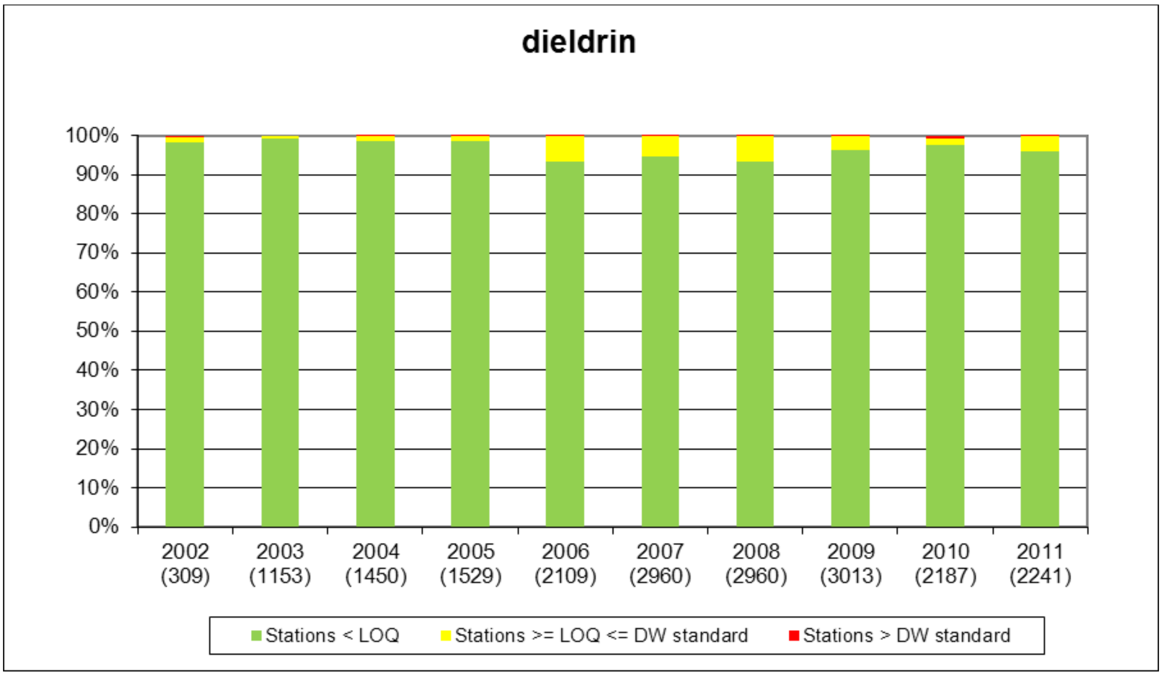


Figure 4.1.2.30b Indicator for dieldrin in groundwater in 2010–2011 (number of stations per country shown in parenthesis)

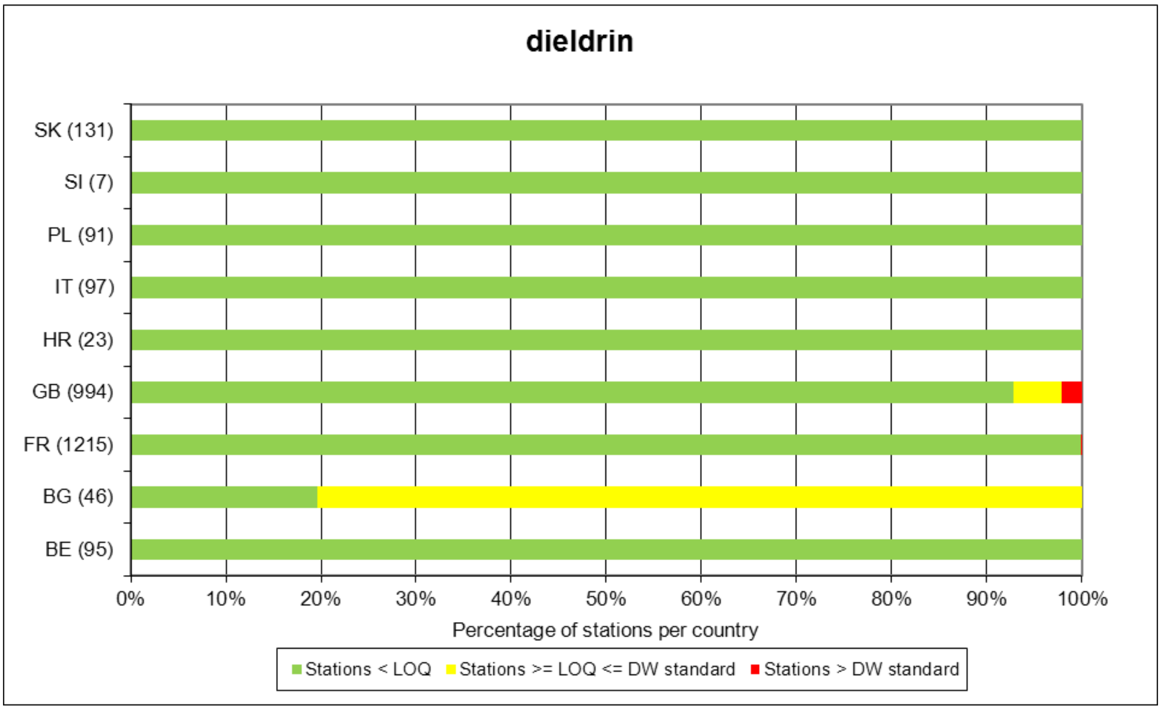


Figure 4.1.2.30c Map of the indicator for dieldrin in groundwater in 2010–2011

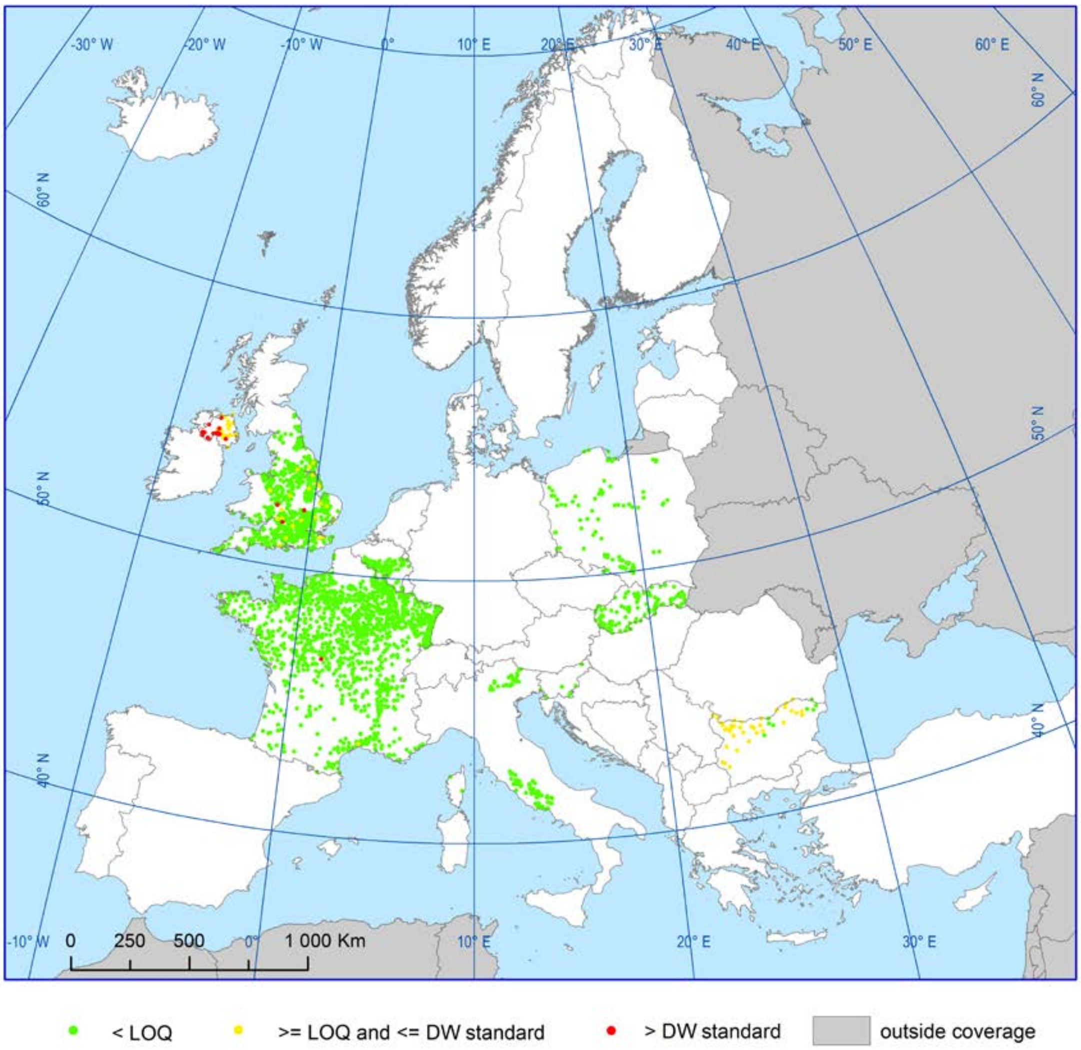


Figure 4.1.2.31a Long-term indicator (% of sites within indicator class, number of stations shown in parenthesis) for diuron in groundwater

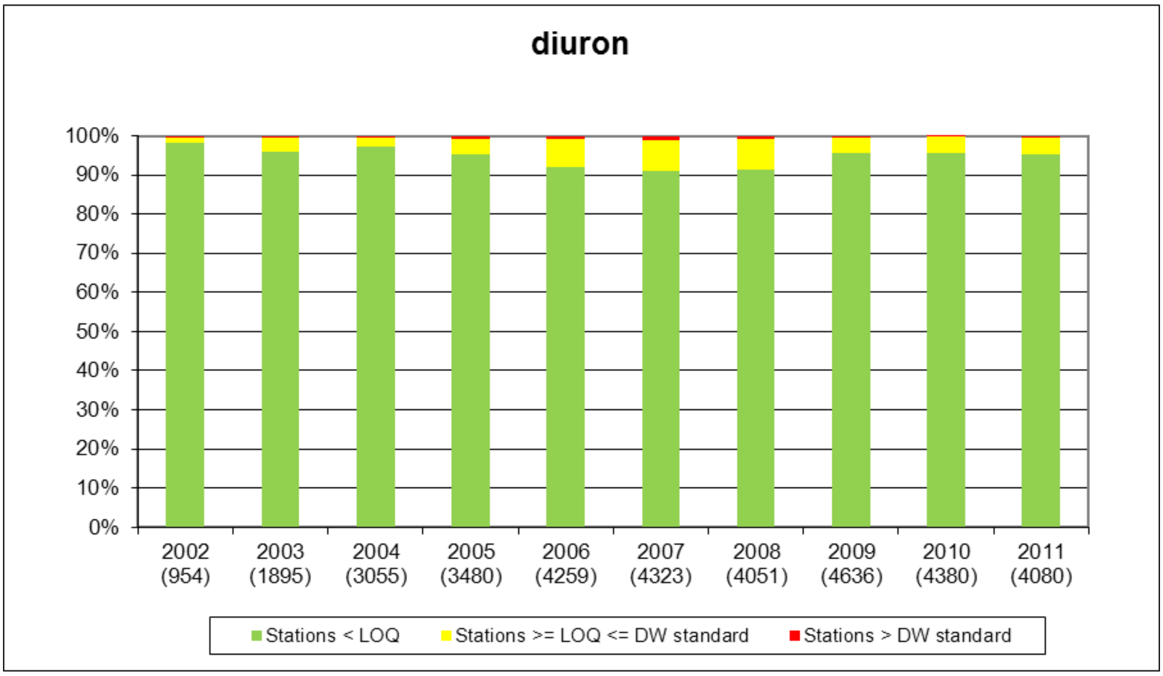


Figure 4.1.2.31b Indicator for diuron in groundwater in 2010–2011 (number of stations per country shown in parenthesis)

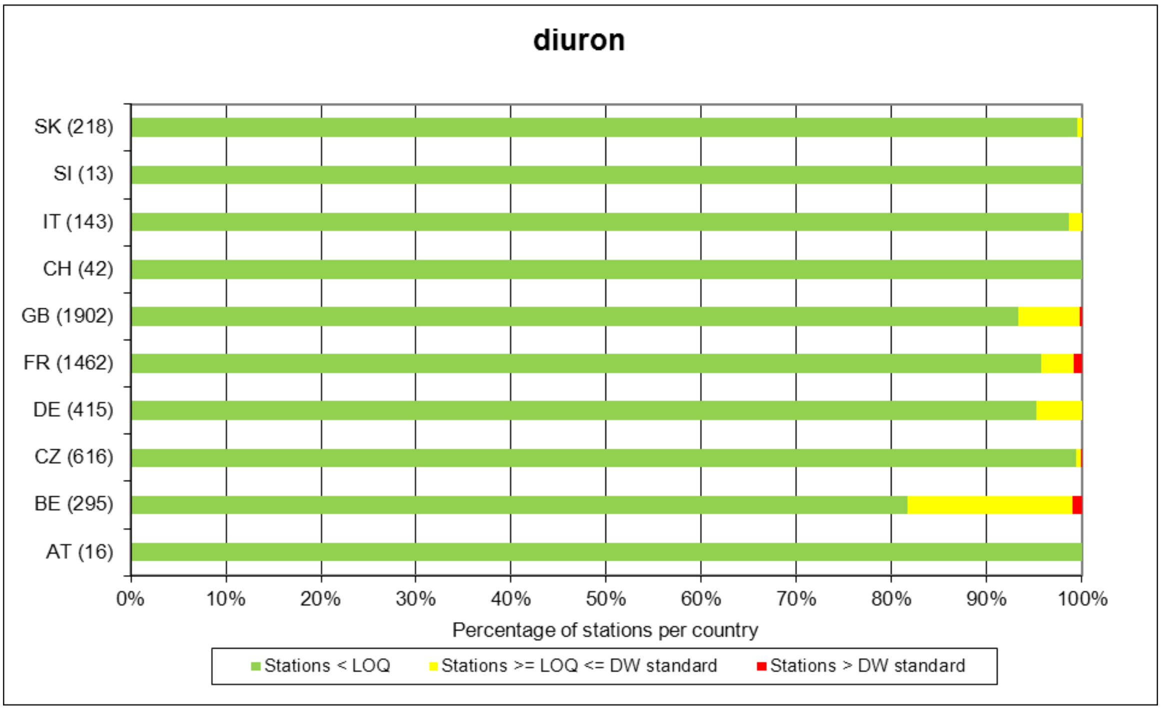


Figure 4.1.2.31c Map of the indicator for diuron in groundwater in 2010–2011

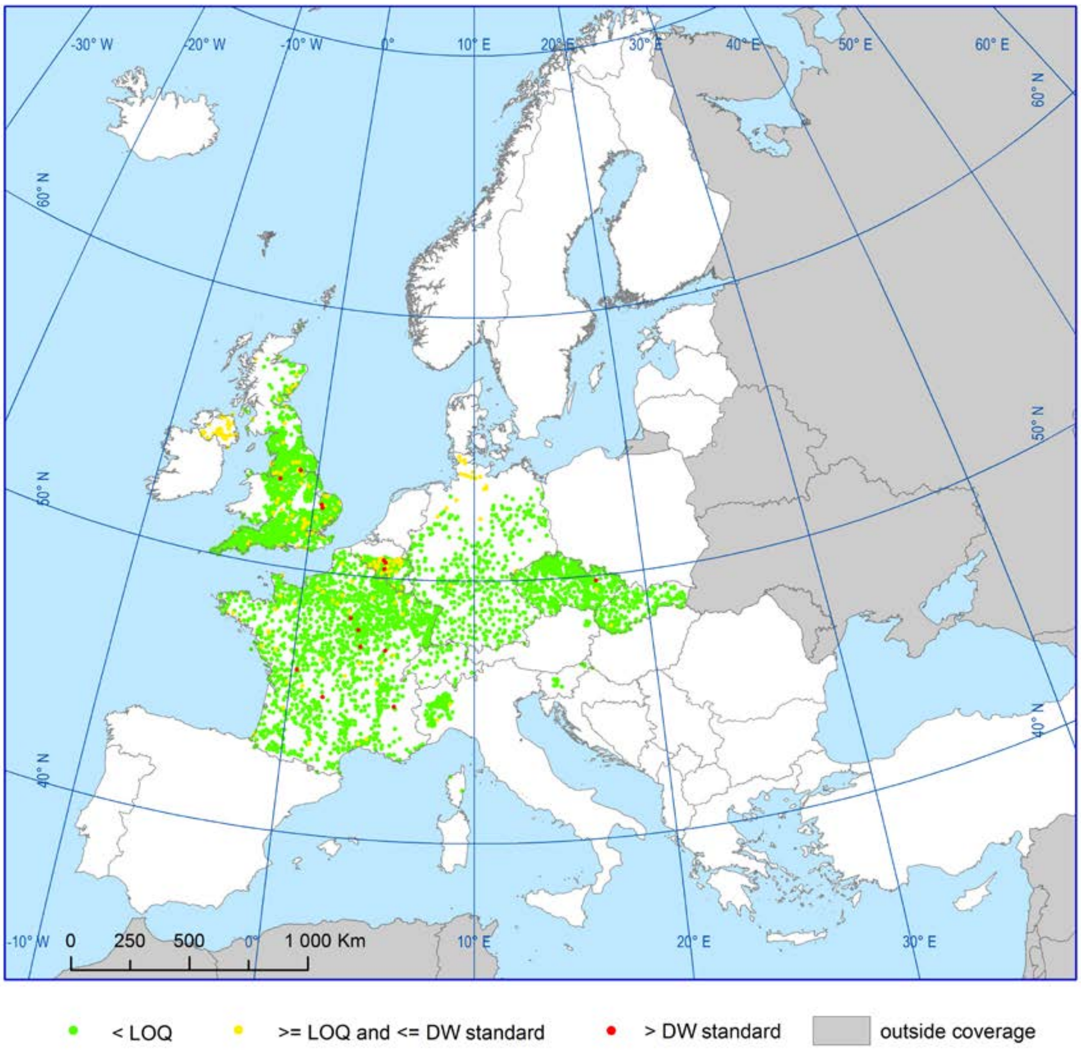


Figure 4.1.2.32a Long-term indicator (% of sites within indicator class, number of stations shown in parenthesis) for endrin in groundwater

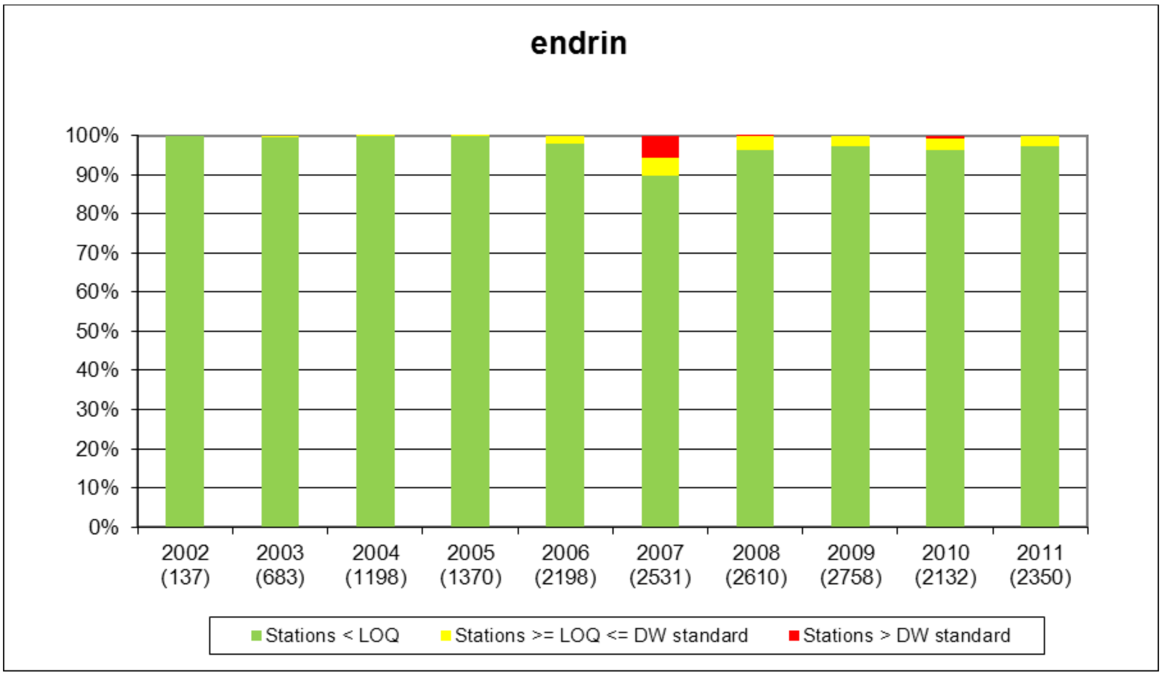


Figure 4.1.2.32b Indicator for endrin in groundwater in 2010–2011 (number of stations per country shown in parenthesis)

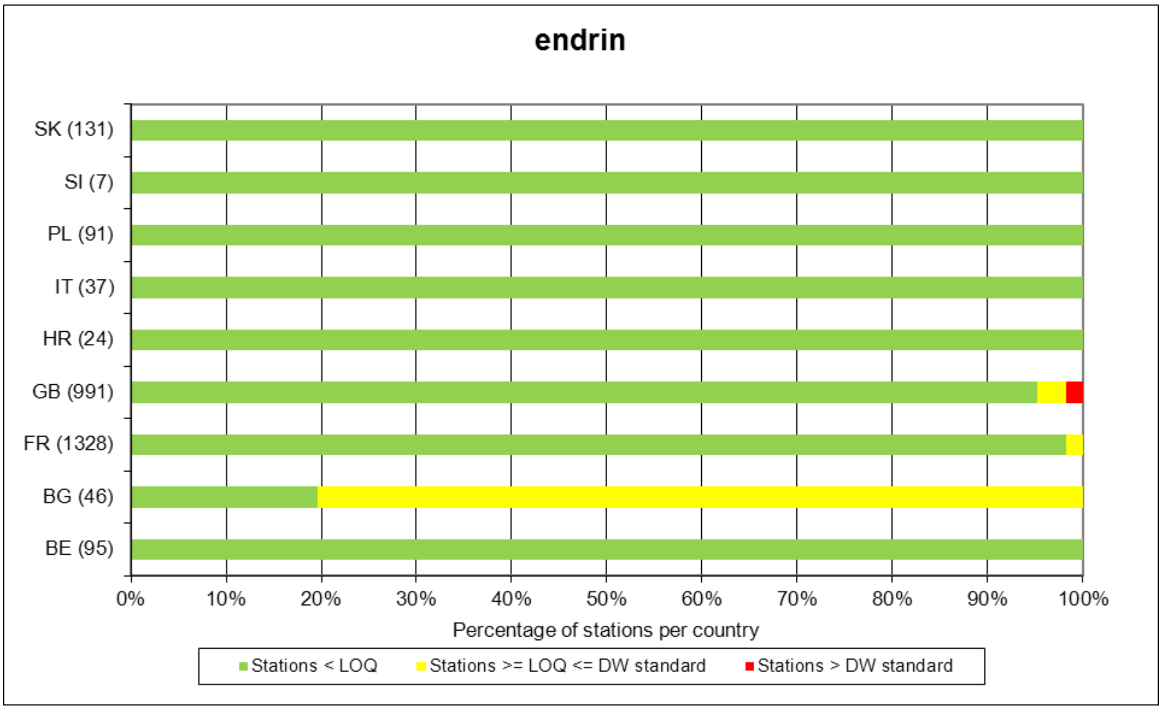


Figure 4.1.2.32c Map of the indicator for endrin in groundwater in 2010–2011

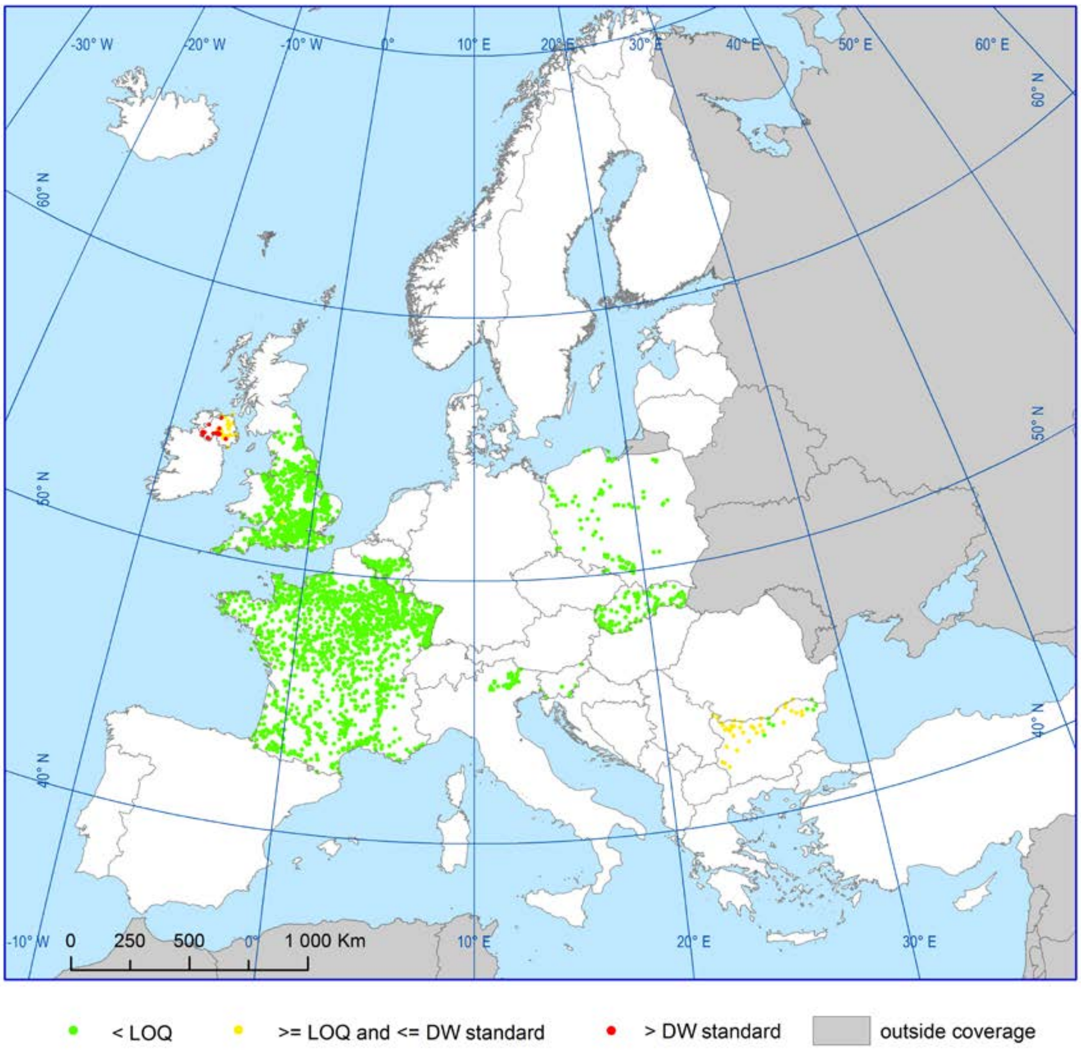


Figure 4.1.2.33a Long-term indicator (% of sites within indicator class, number of stations shown in parenthesis) for gamma-HCH in groundwater

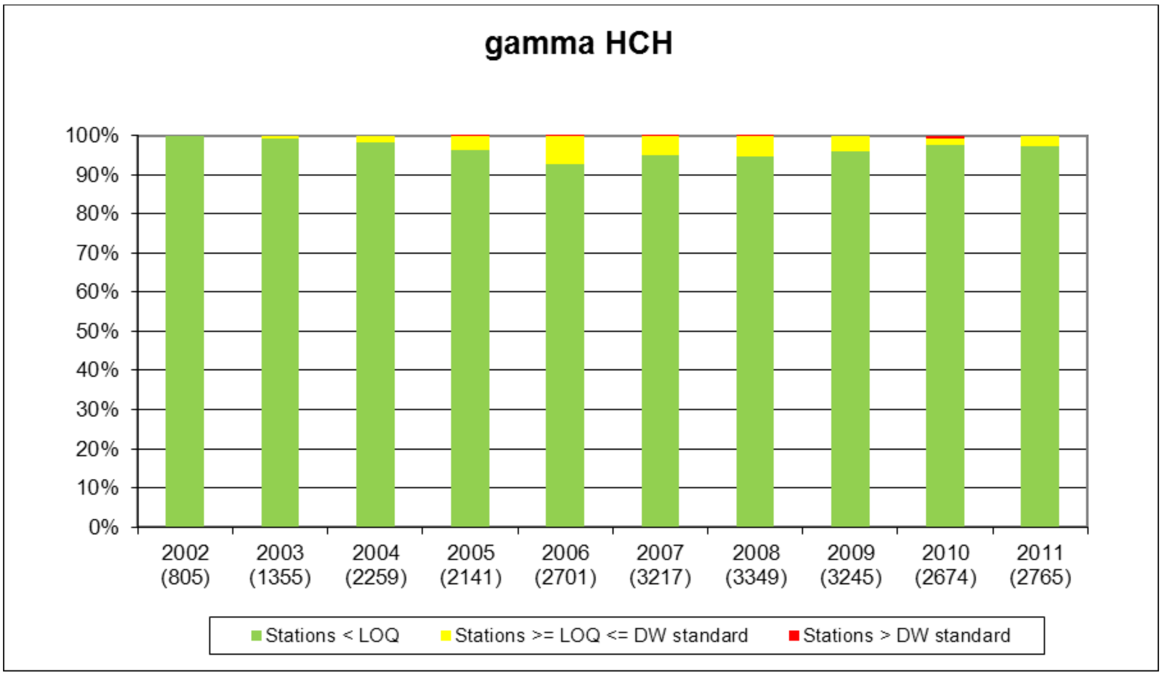


Figure 4.1.2.33b Indicator for gamma-HCH in groundwater in 2010–2011 (number of stations per country shown in parenthesis)

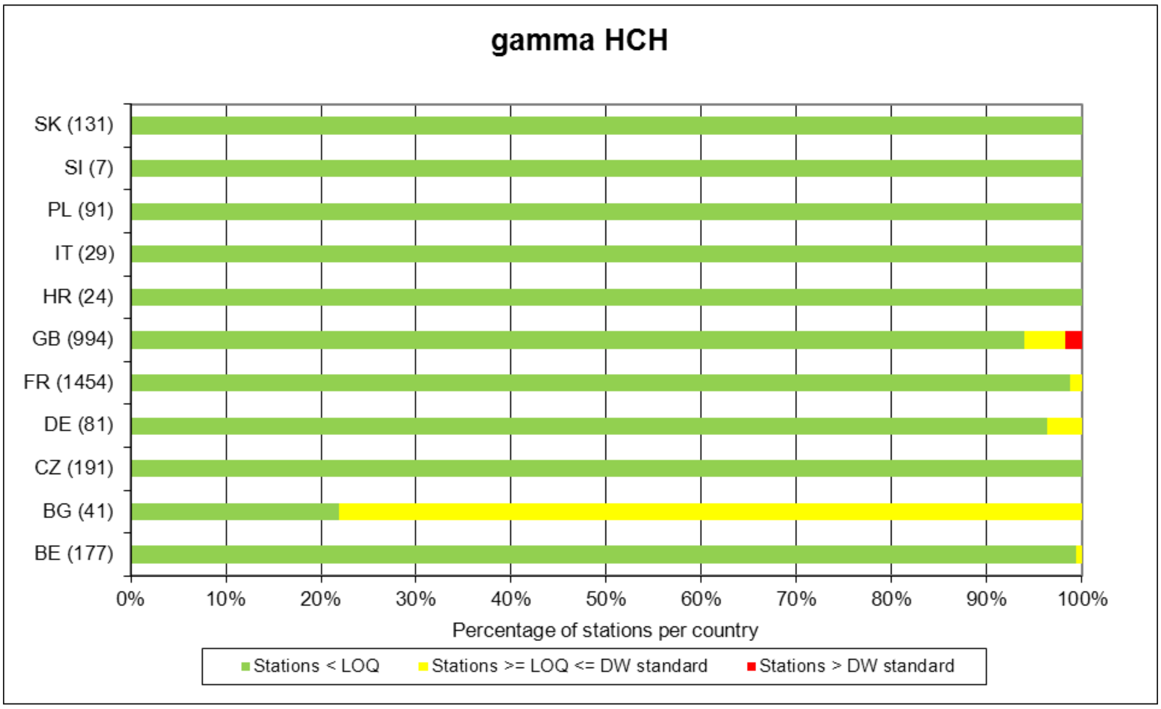


Figure 4.1.2.33c Map of the indicator for gamma-HCH in groundwater in 2010–2011

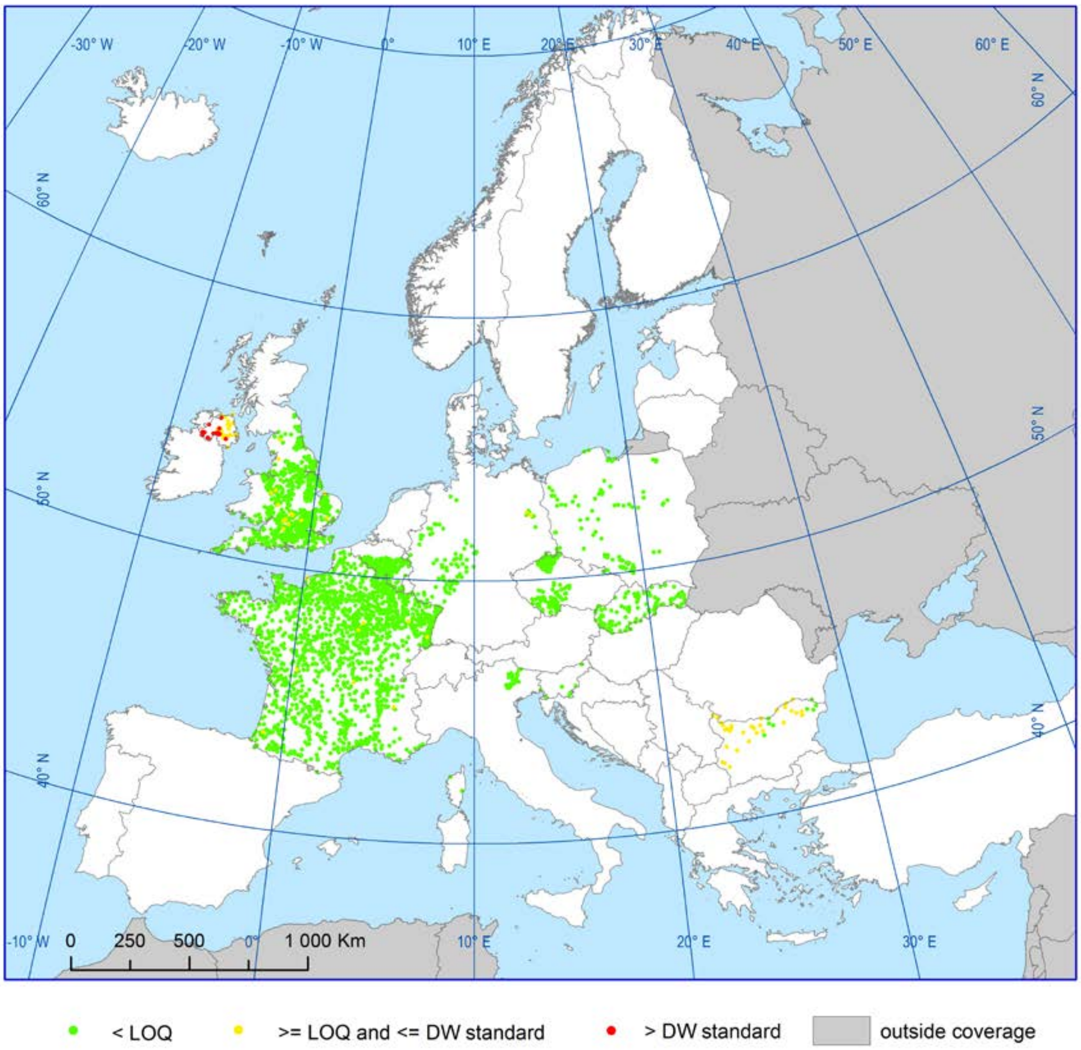


Figure 4.1.2.34a Long-term indicator (% of sites within indicator class, number of stations shown in parenthesis) for hexachlorobenzene in groundwater

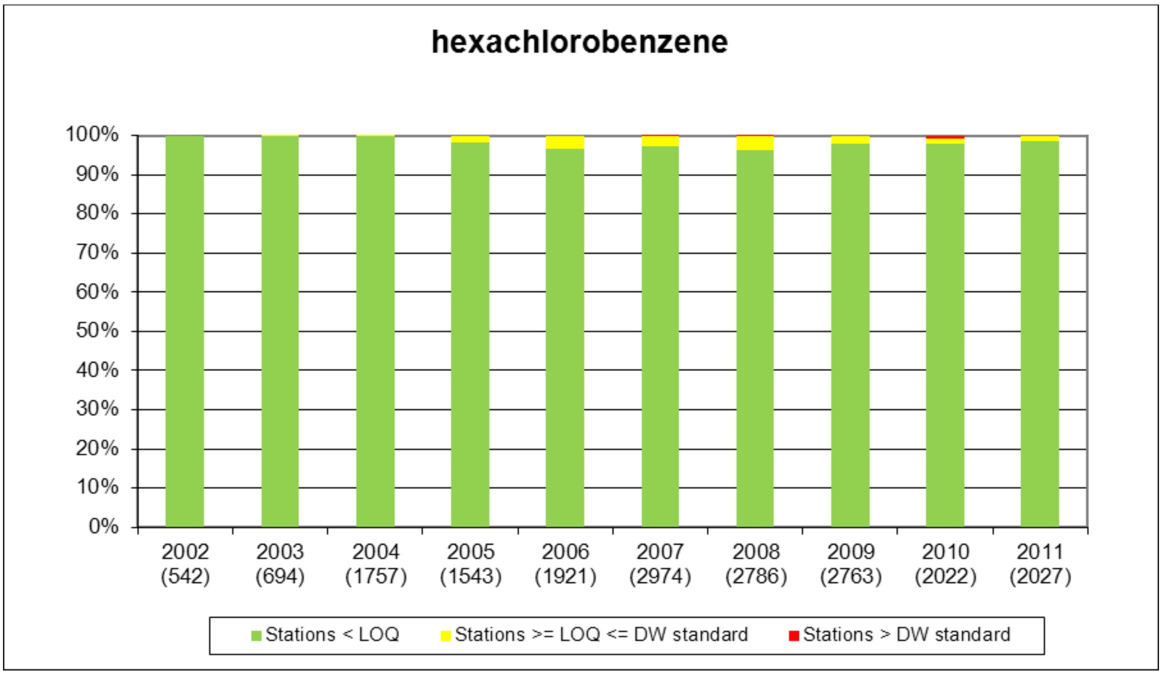


Figure 4.1.2.34b Indicator for hexachlorobenzene in groundwater in 2010–2011 (number of stations per country shown in parenthesis)

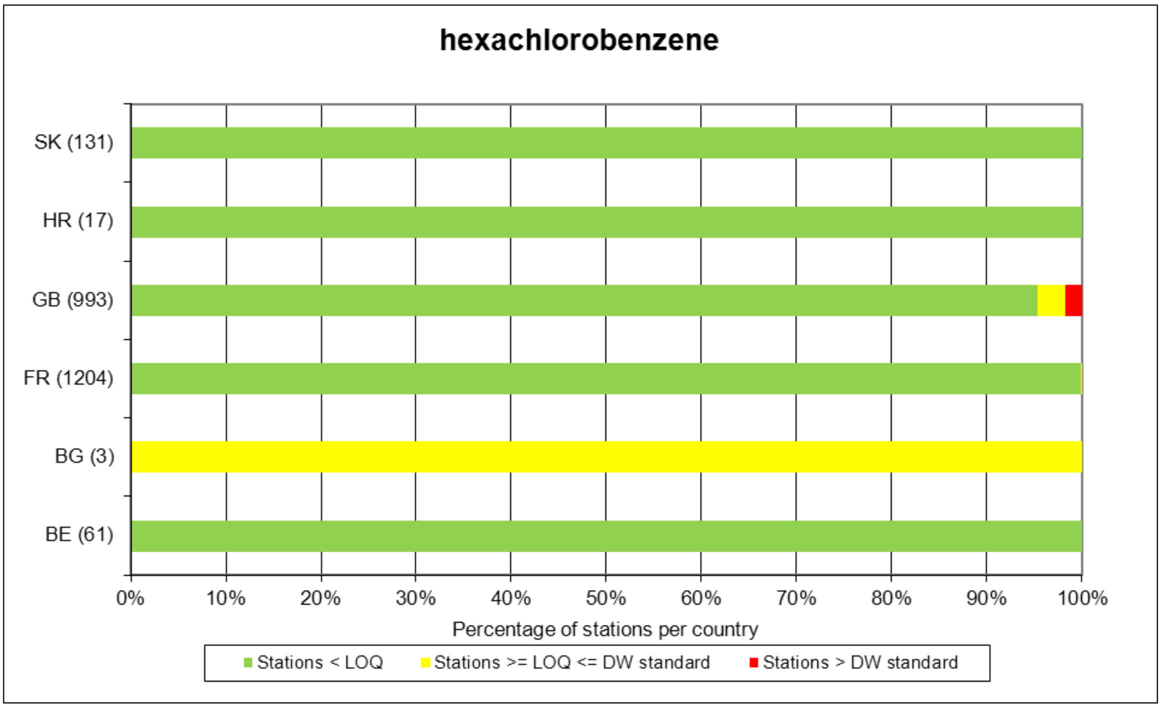
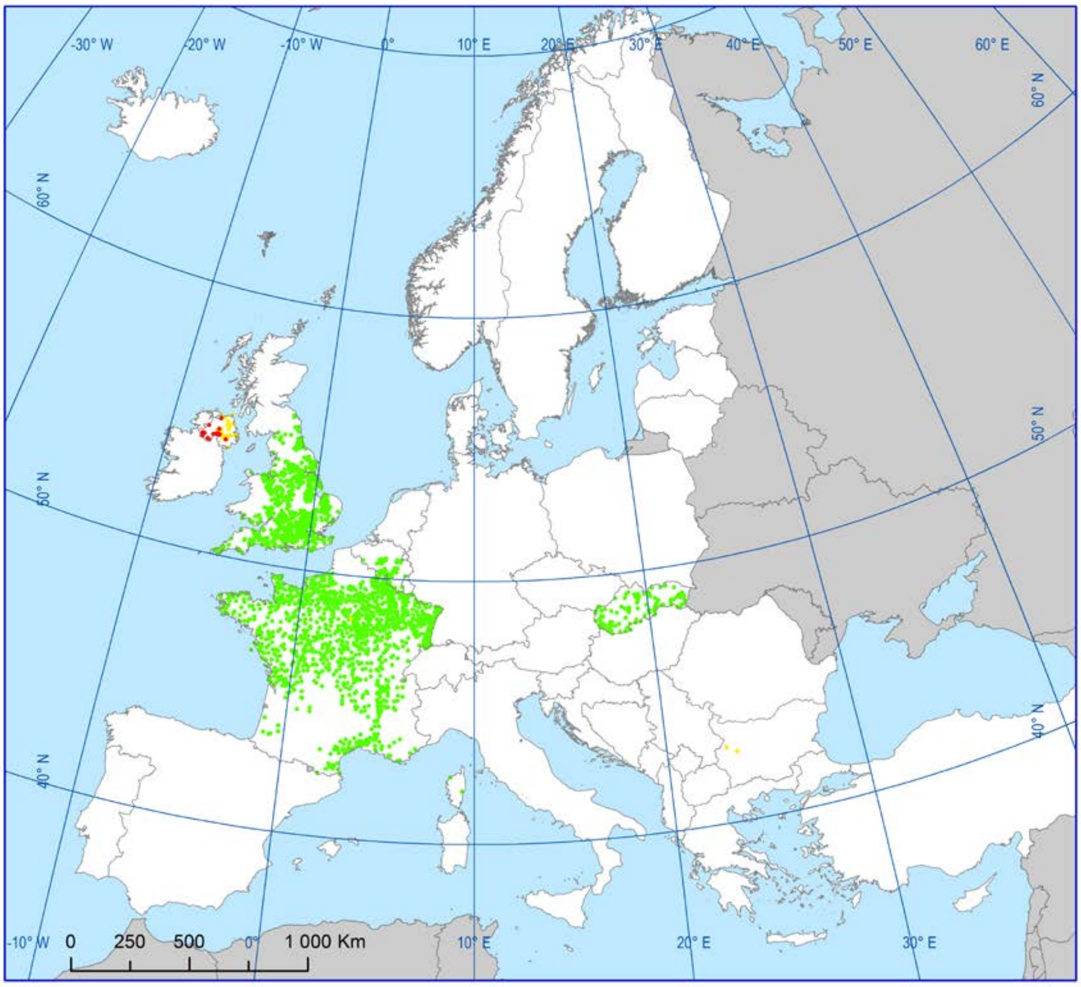


Figure 4.1.2.34c Map of the indicator for hexachlorobenzene in groundwater in 2010–2011



< LOQ   >= LOQ and <= DW standard   > DW standard   outside coverage

Figure 4.1.2.35a Long-term indicator (% of sites within indicator class, number of stations shown in parenthesis) for isodrin in groundwater

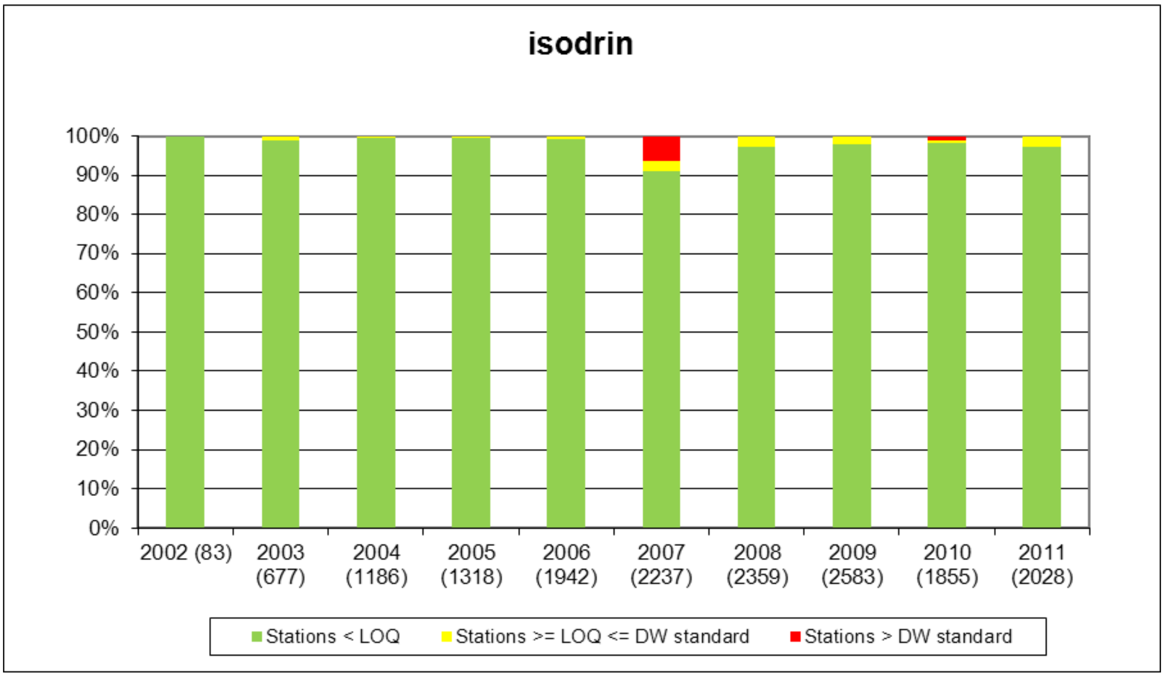


Figure 4.1.2.35b Indicator for isodrin in groundwater in 2010–2011 (number of stations per country shown in parenthesis)

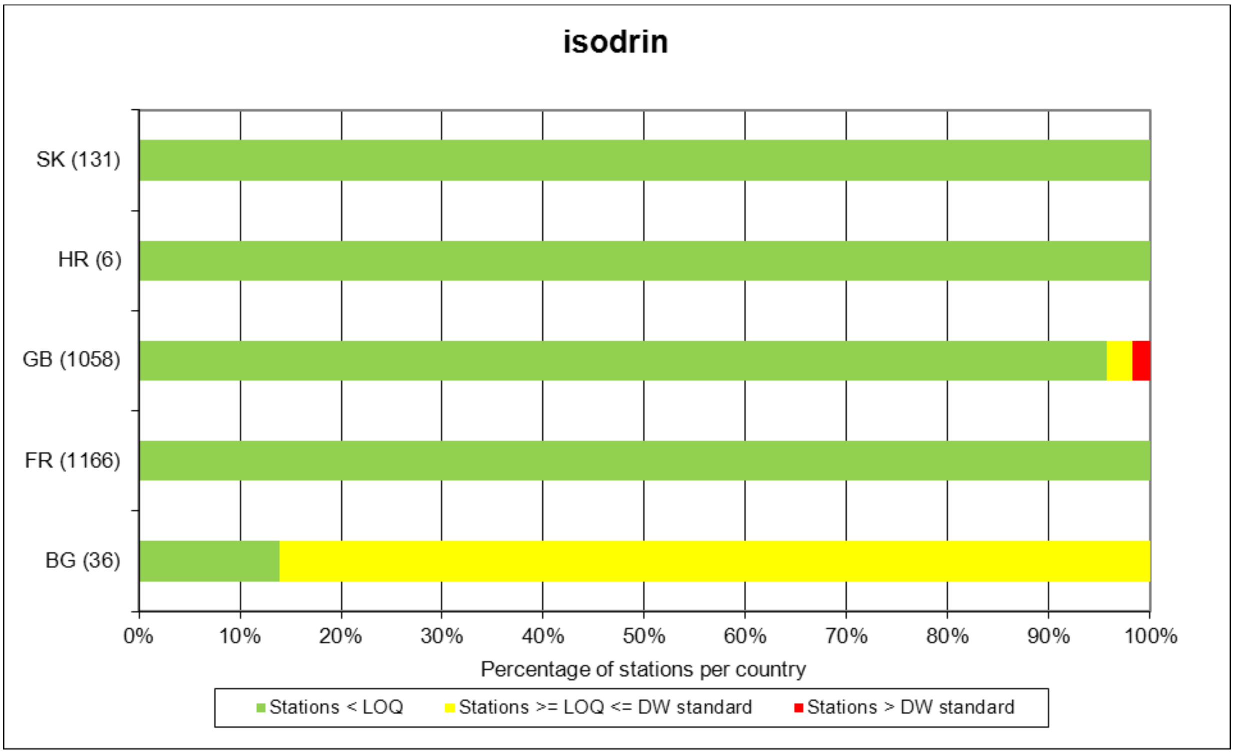


Figure 4.1.2.35c Map of the indicator for isodrin in groundwater in 2010–2011

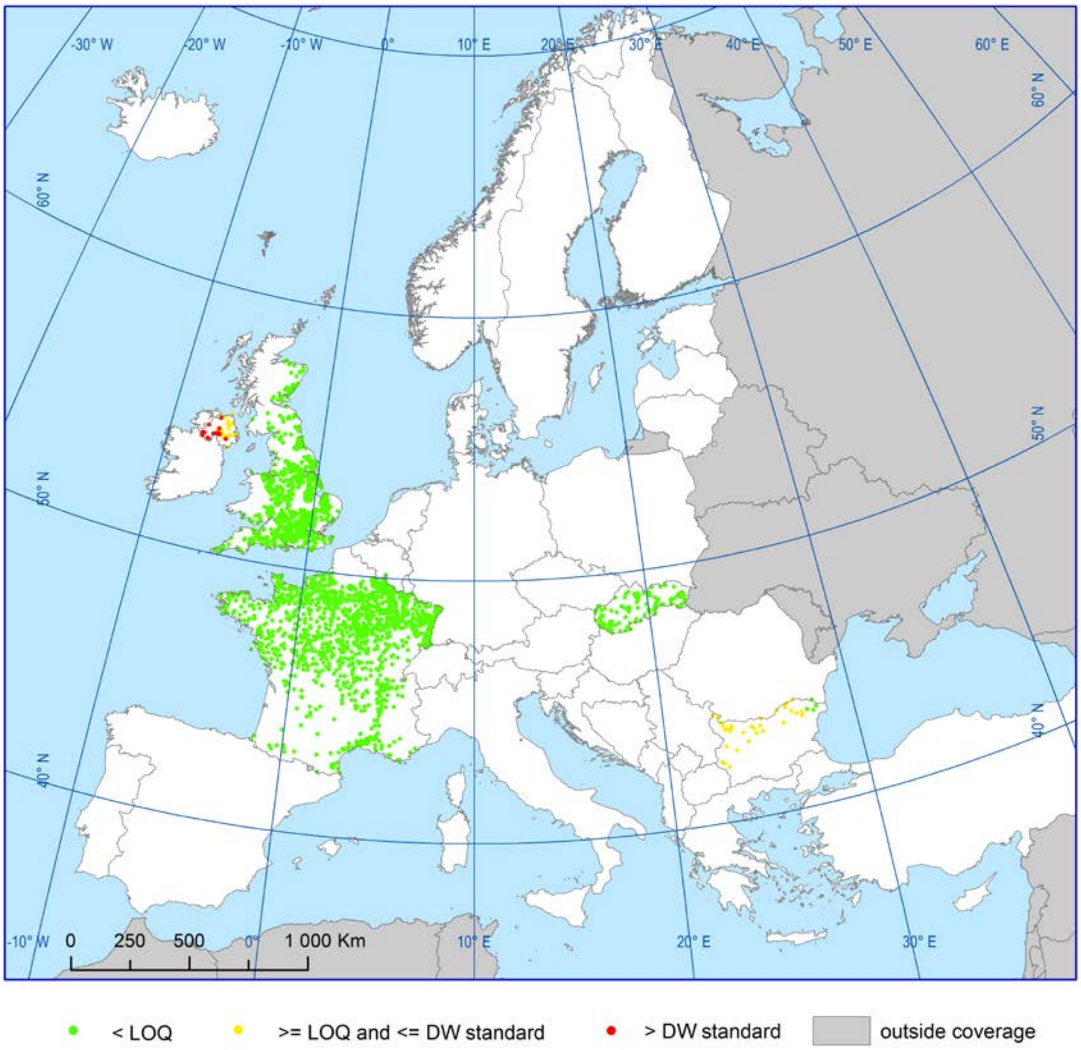


Figure 4.1.2.36a Long-term indicator (% of sites within indicator class, number of stations shown in parenthesis) for isoproturon in groundwater

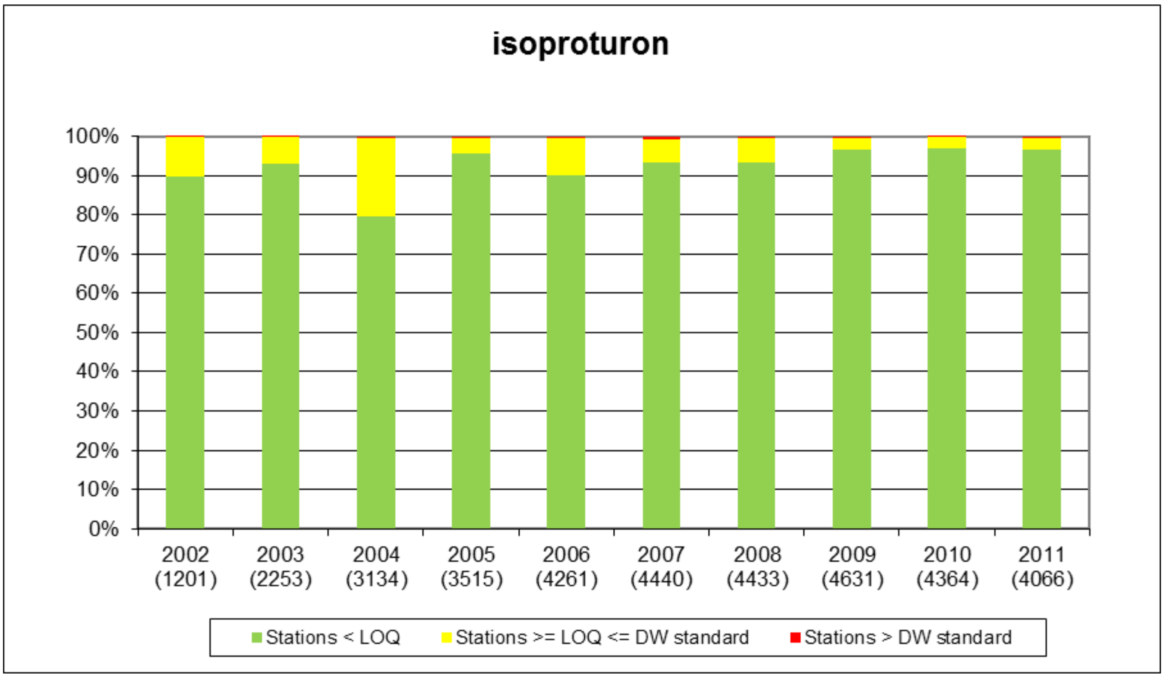


Figure 4.1.2.36b Indicator for isoproturon in groundwater in 2010–2011 (number of stations per country shown in parenthesis)

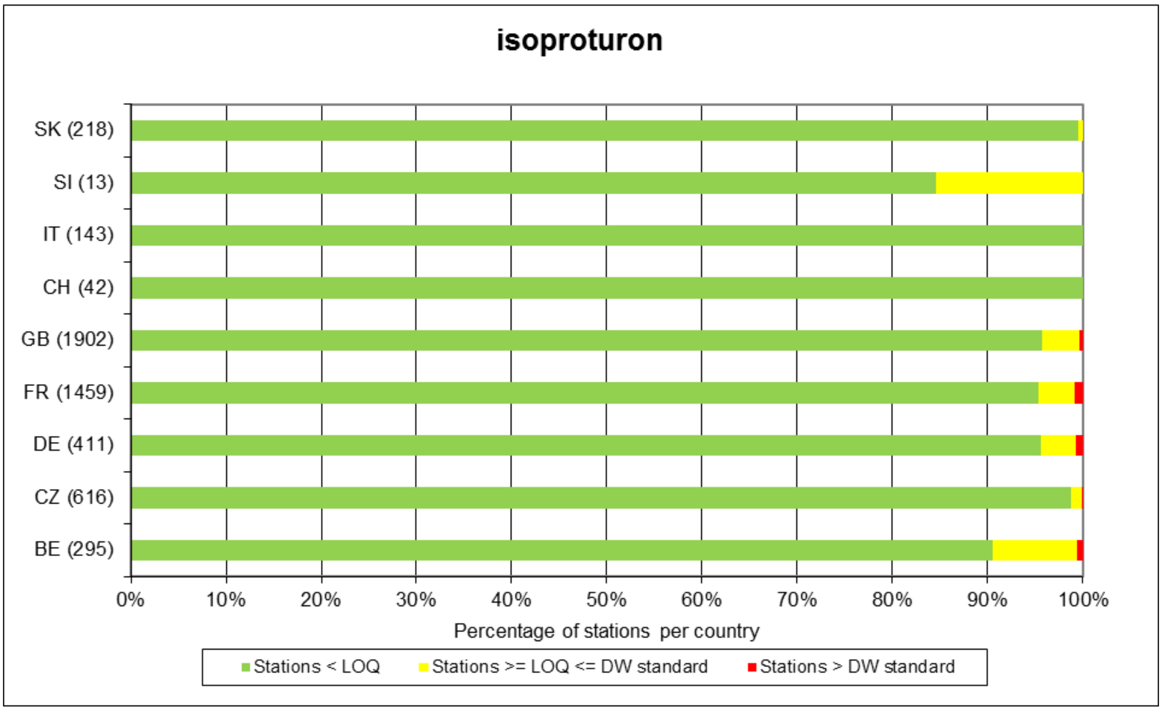


Figure 4.1.2.36c Map of the indicator for isoproturon in groundwater in 2010–2011

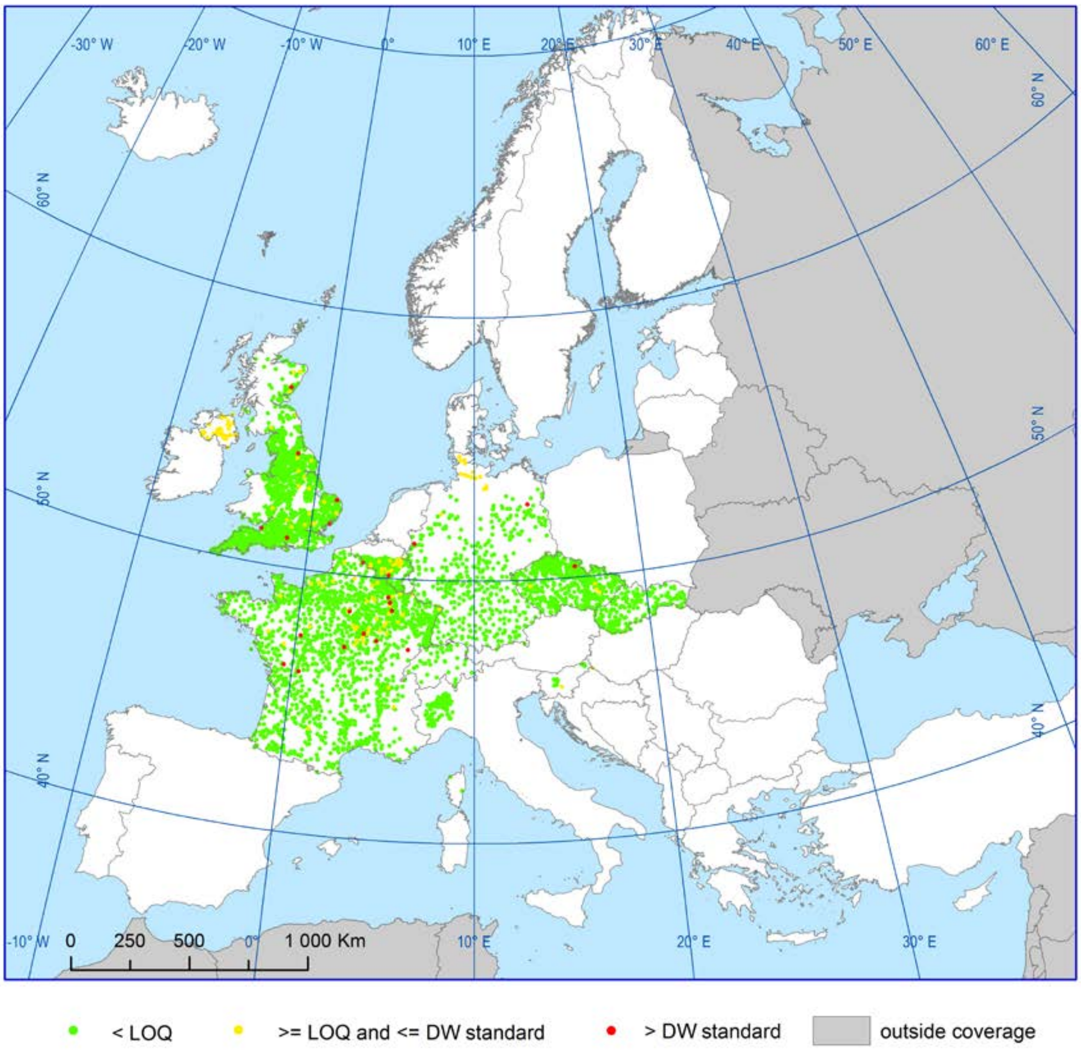


Figure 4.1.2.37a Long-term indicator (% of sites within indicator class, number of stations shown in parenthesis) for lead in groundwater

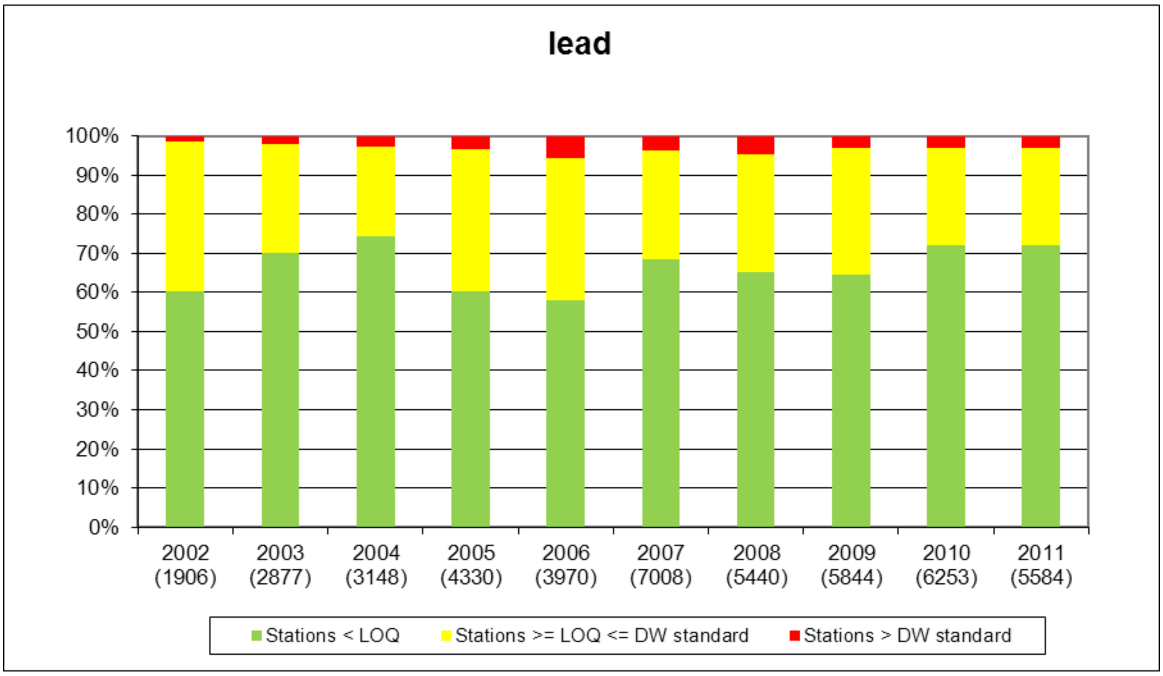


Figure 4.1.2.37b Indicator for lead in groundwater in 2010–2011 (number of stations per country shown in parenthesis)

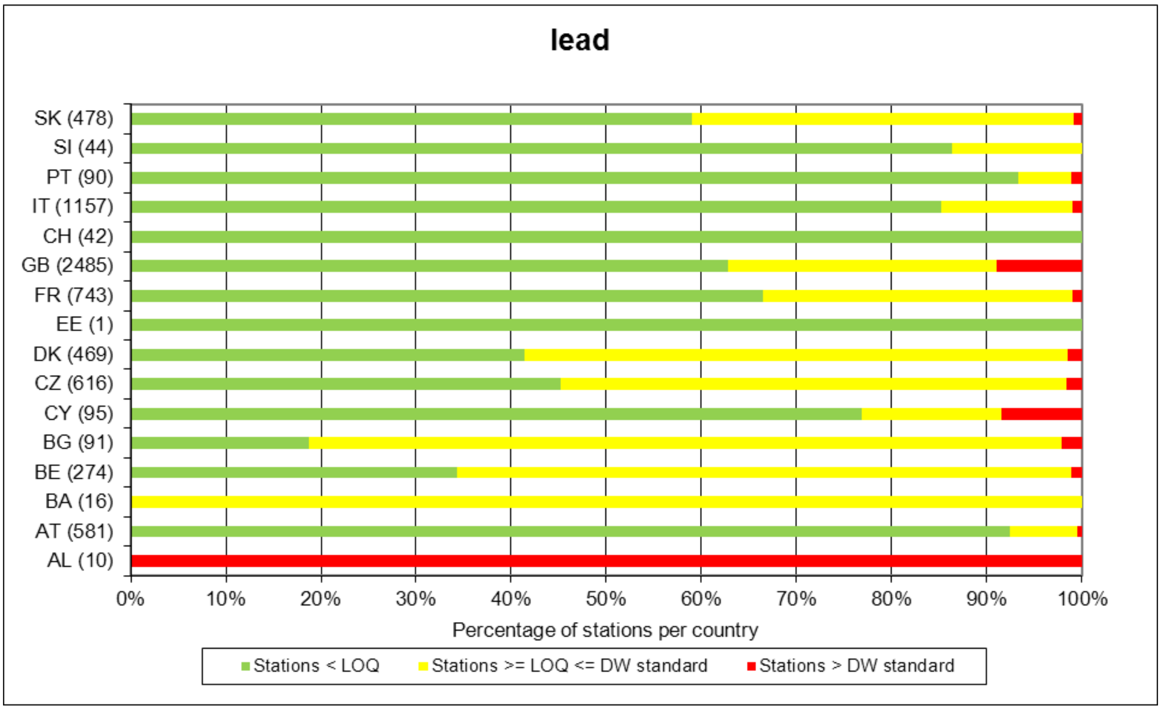


Figure 4.1.2.37c Map of the indicator for lead in groundwater in 2010–2011

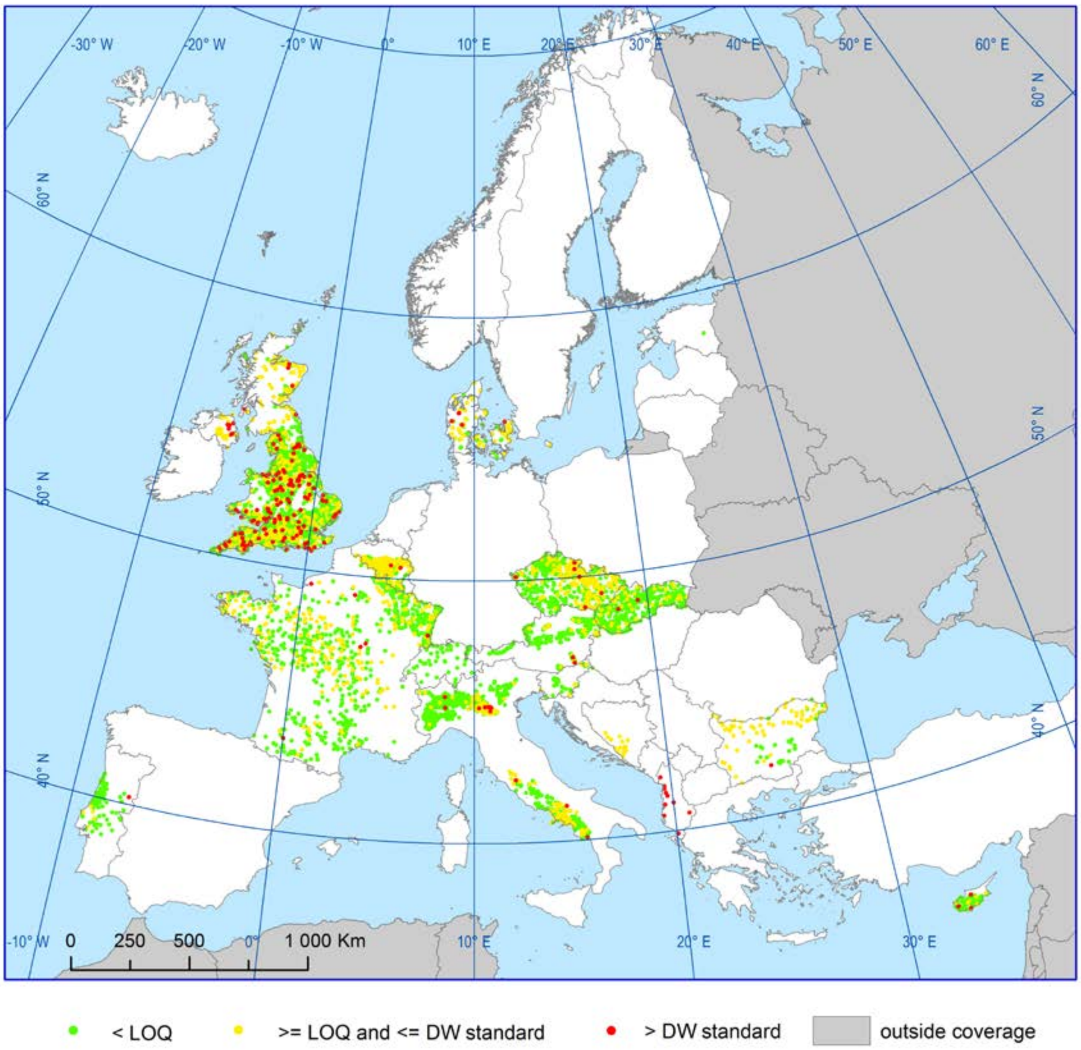


Figure 4.1.2.38a Long-term indicator (% of sites within indicator class, number of stations shown in parenthesis) for dissolved lead in groundwater

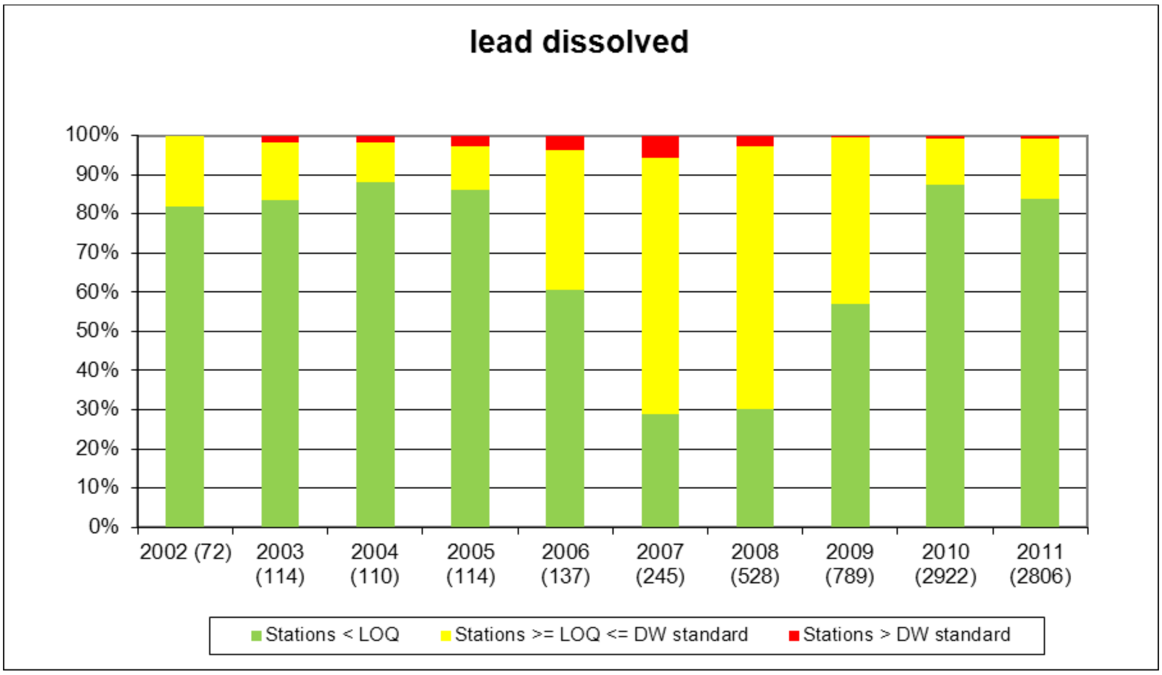


Figure 4.1.2.38b Indicator for dissolved lead in groundwater in 2010–2011 (number of stations per country shown in parenthesis)

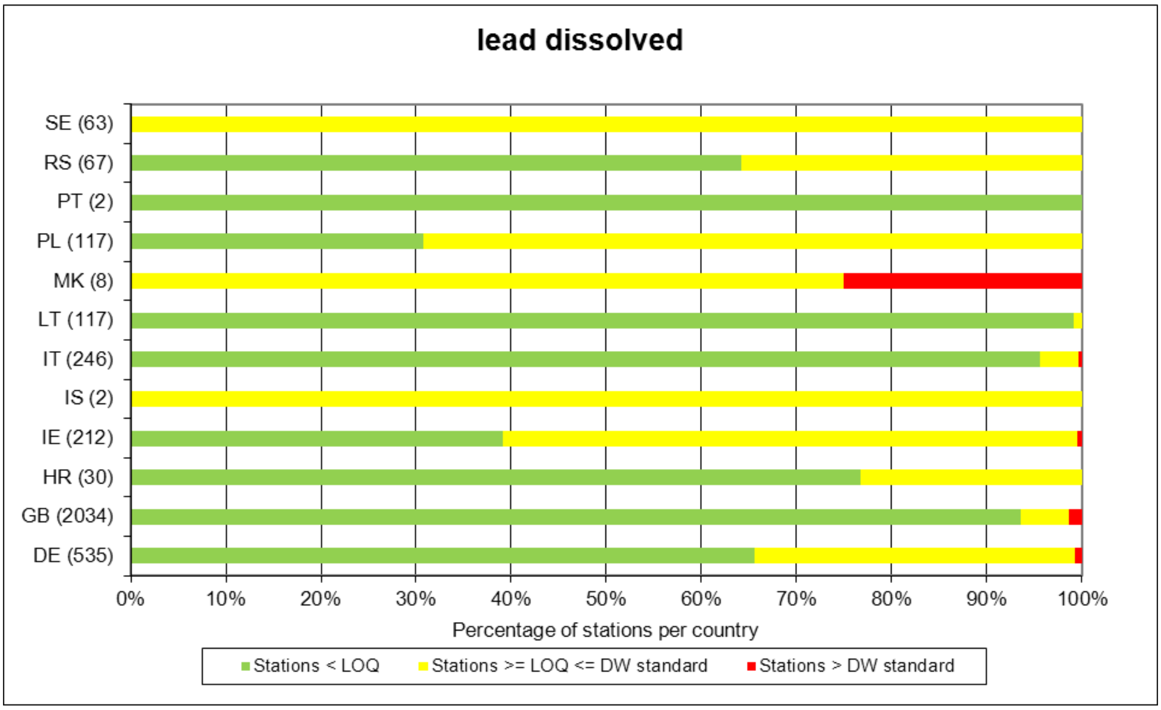


Figure 4.1.2.38c Map of the indicator for dissolved lead in groundwater in 2010–2011

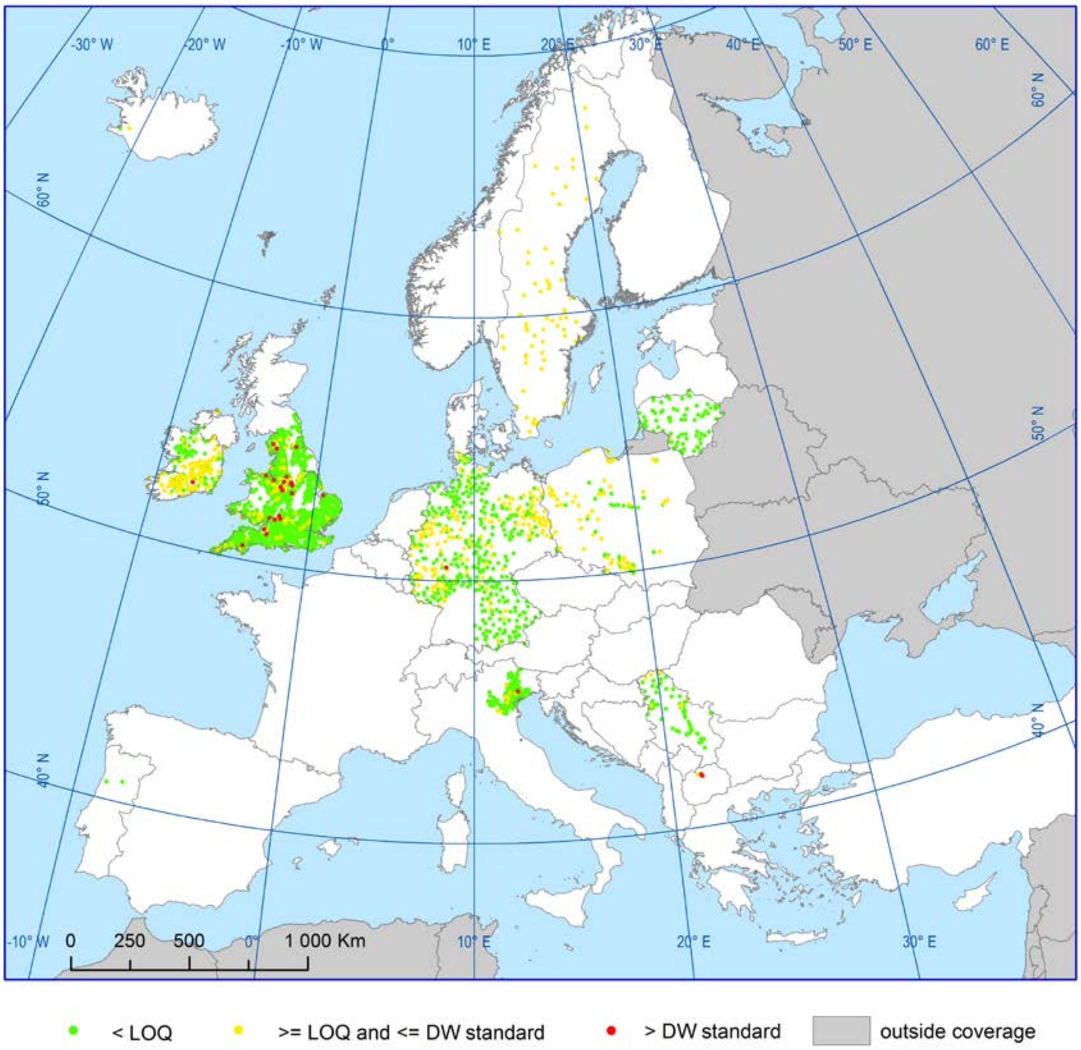


Figure 4.1.2.39a Long-term indicator (% of sites within indicator class, number of stations shown in parenthesis) for linuron in groundwater

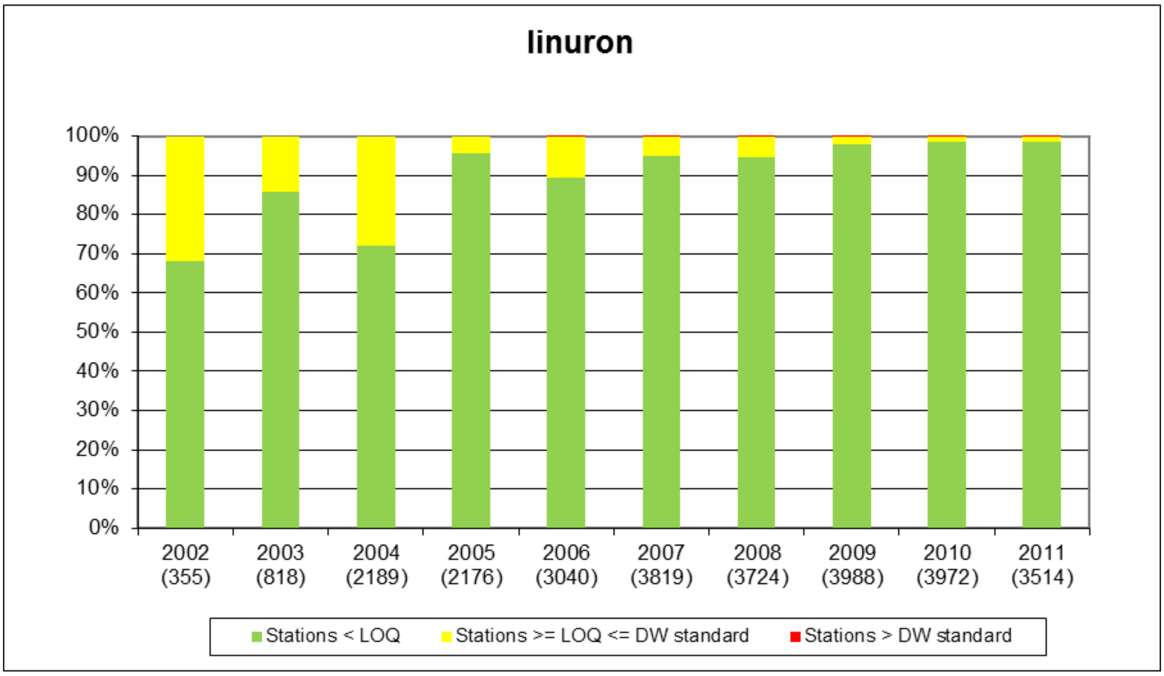


Figure 4.1.2.39b Indicator for linuron in groundwater in 2010–2011 (number of stations per country shown in parenthesis)

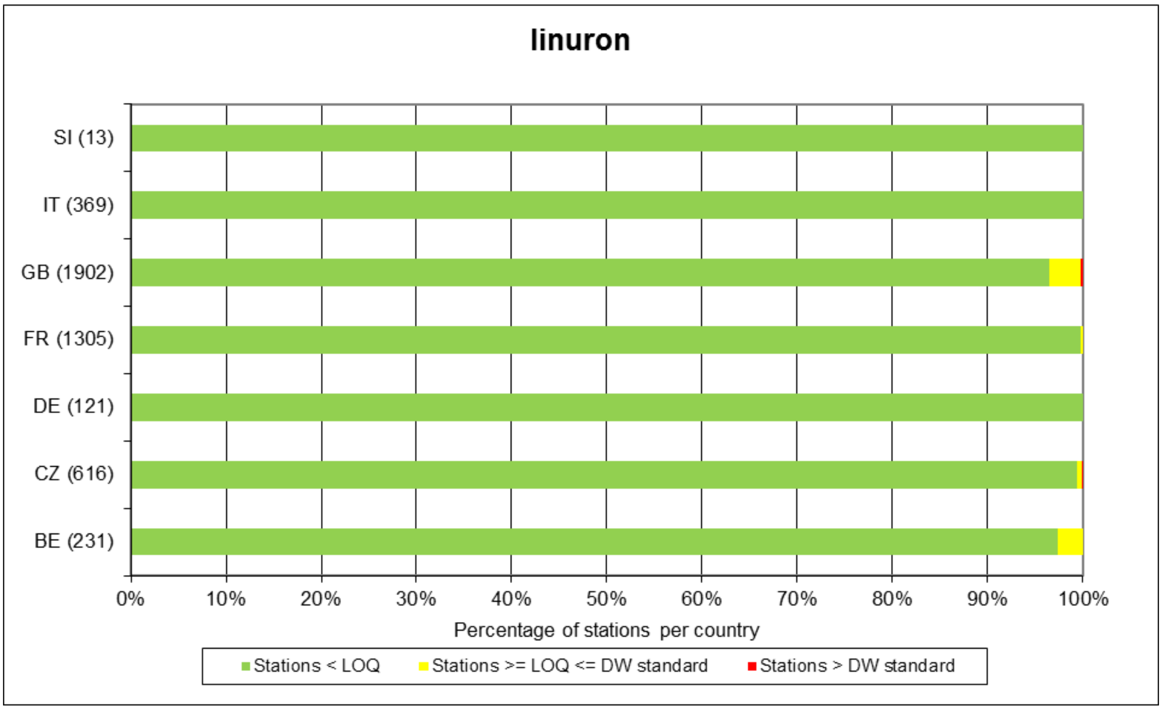


Figure 4.1.2.39c Map of the indicator for linuron in groundwater in 2010–2011

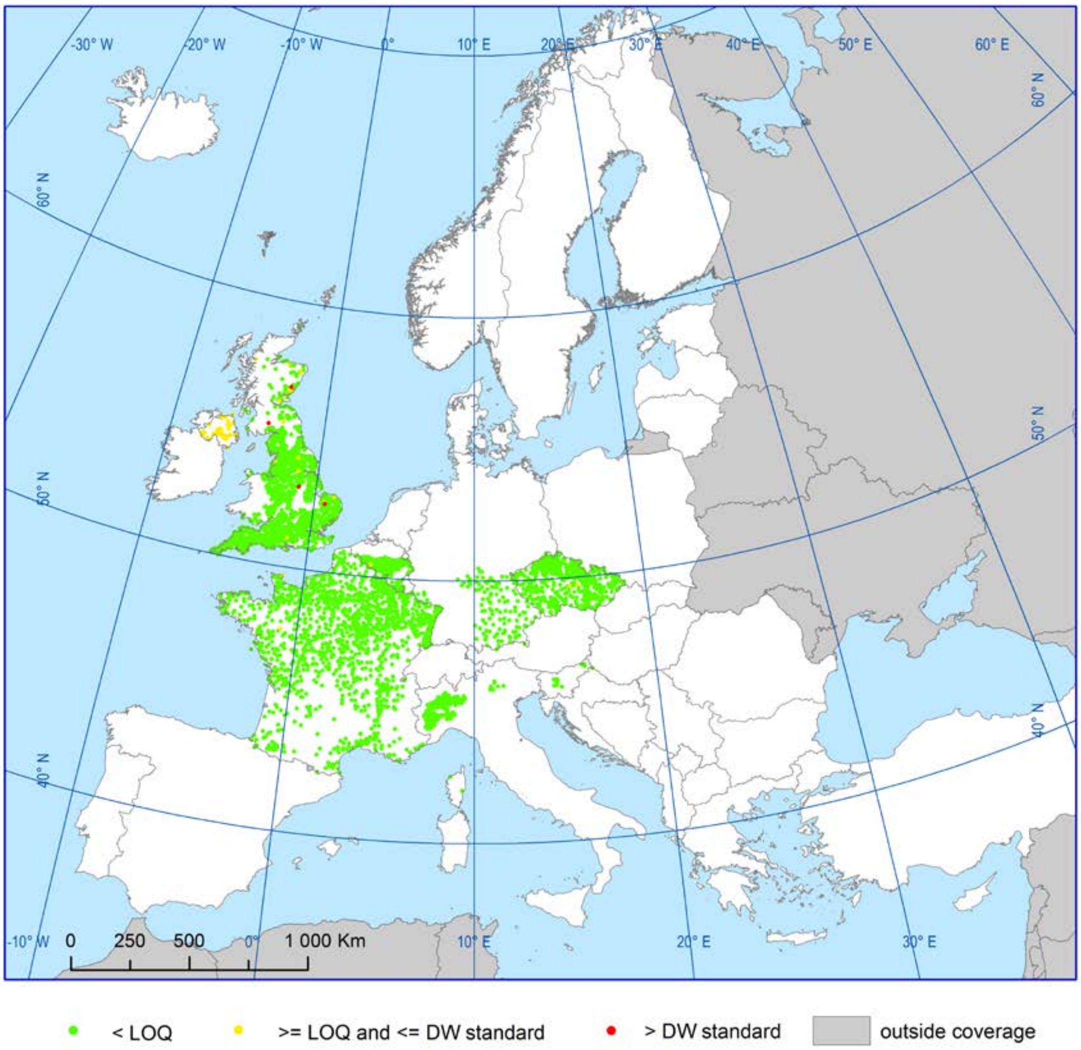


Figure 4.1.2.40a Long-term indicator (% of sites within indicator class, number of stations shown in parenthesis) for MCPA in groundwater

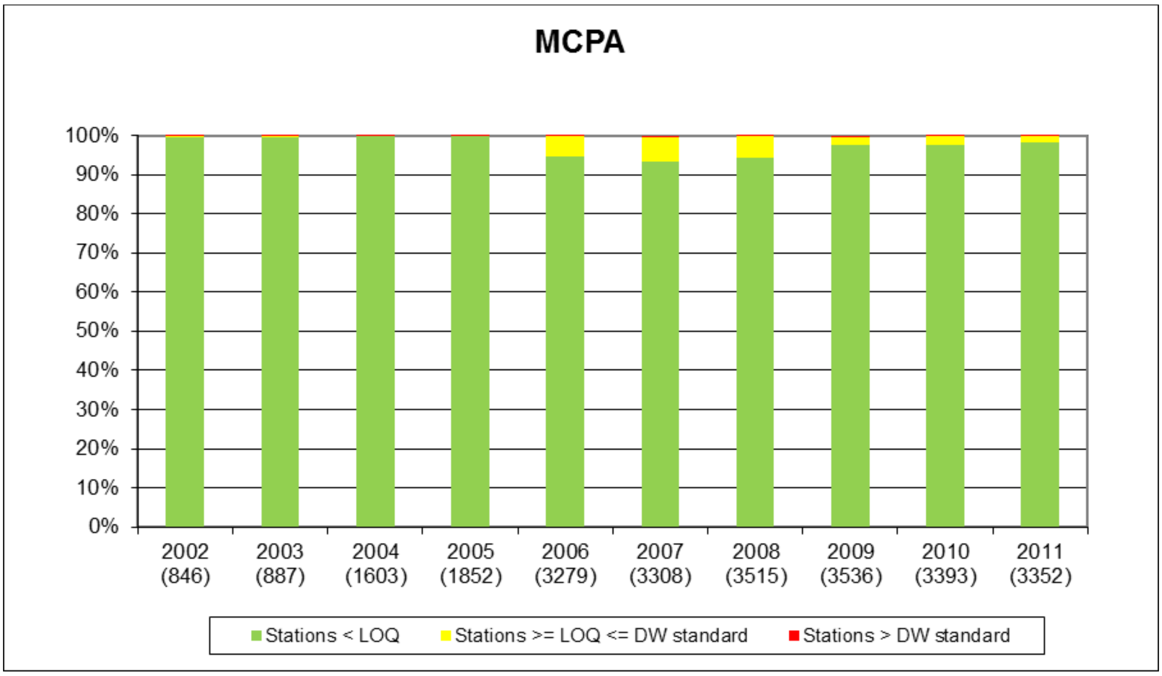


Figure 4.1.2.40b Indicator for MCPA in groundwater in 2010–2011 (number of stations per country shown in parenthesis)

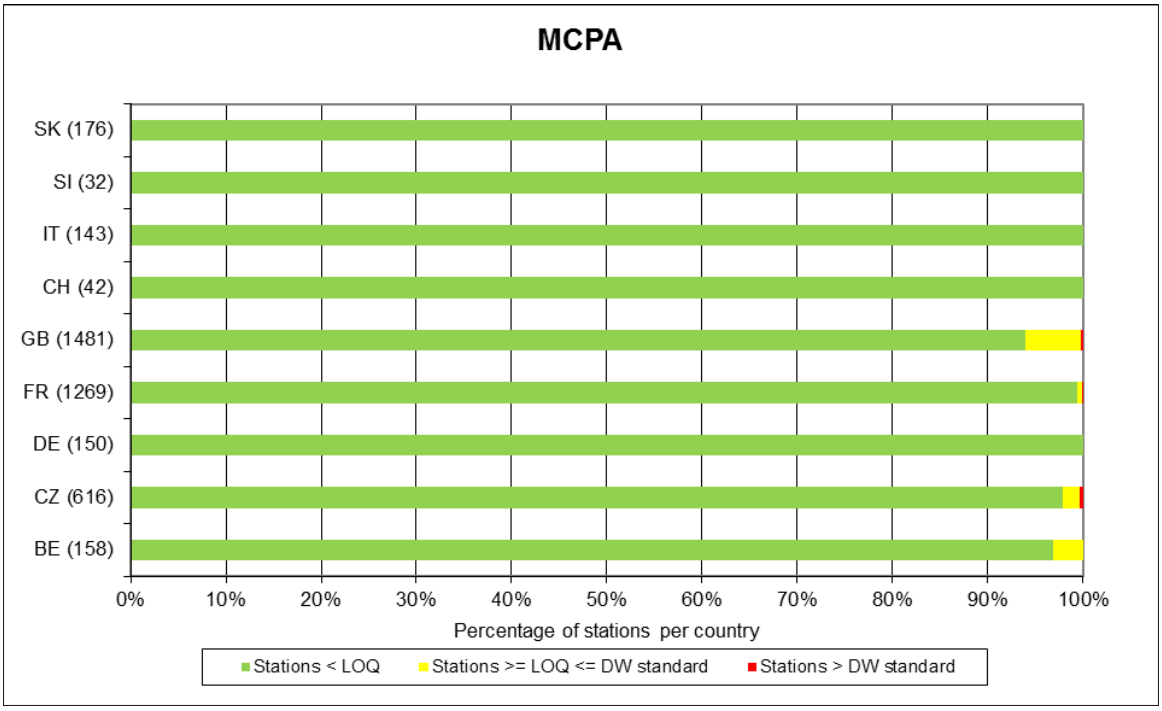


Figure 4.1.2.40c Map of the indicator for MCPA in groundwater in 2010–2011

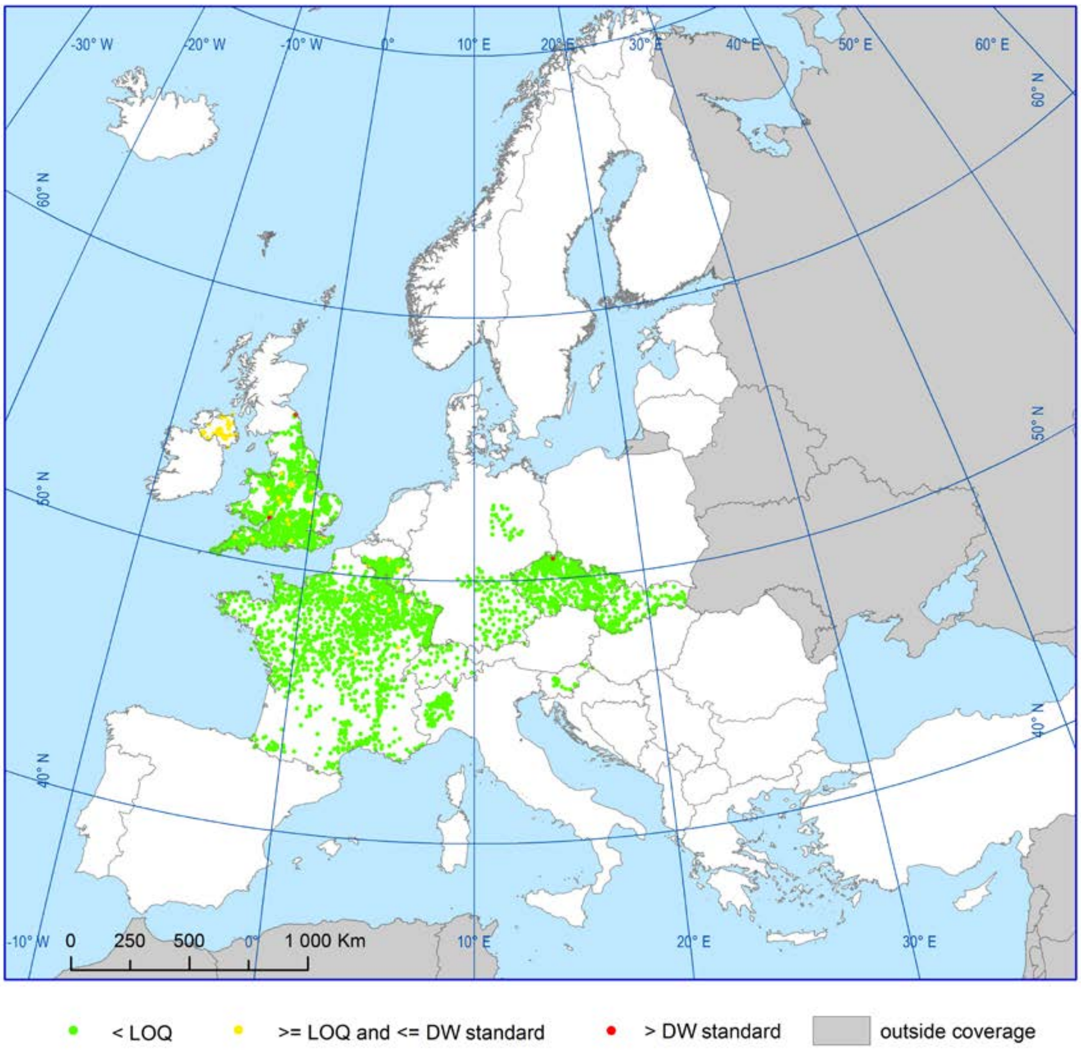


Figure 4.1.2.41a Long-term indicator (% of sites within indicator class, number of stations shown in parenthesis) for mecoprop (MCPP) in groundwater

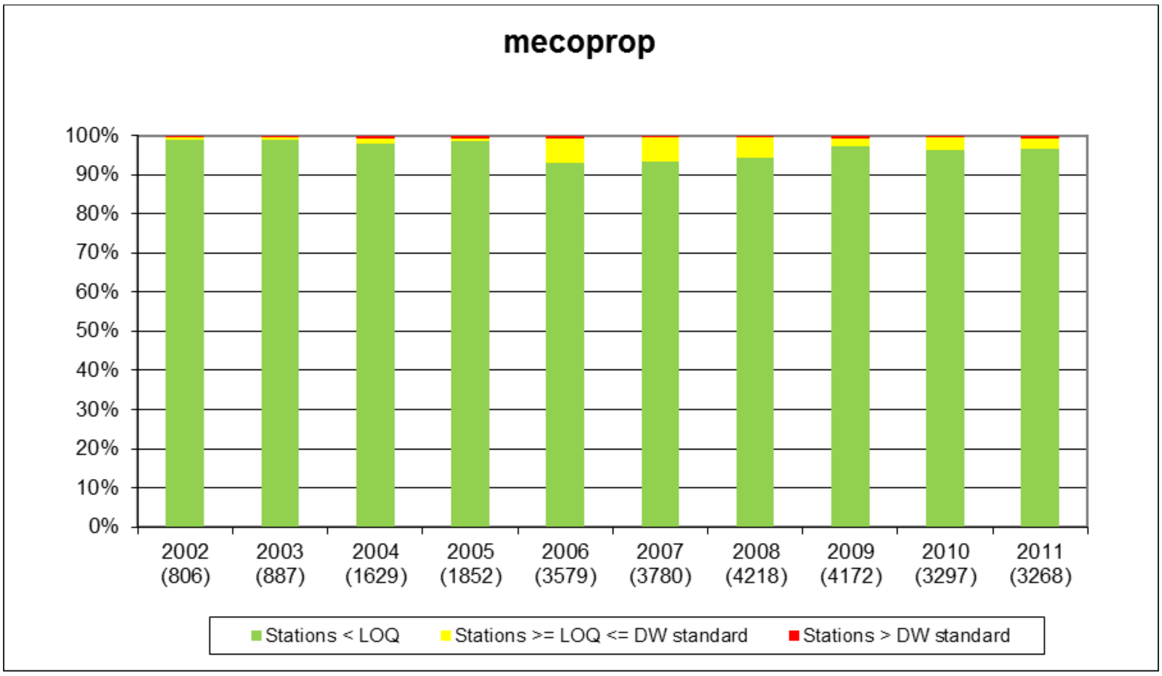


Figure 4.1.2.41b Indicator for mecoprop (MCPP) in groundwater in 2010–2011 (number of stations per country shown in parenthesis)

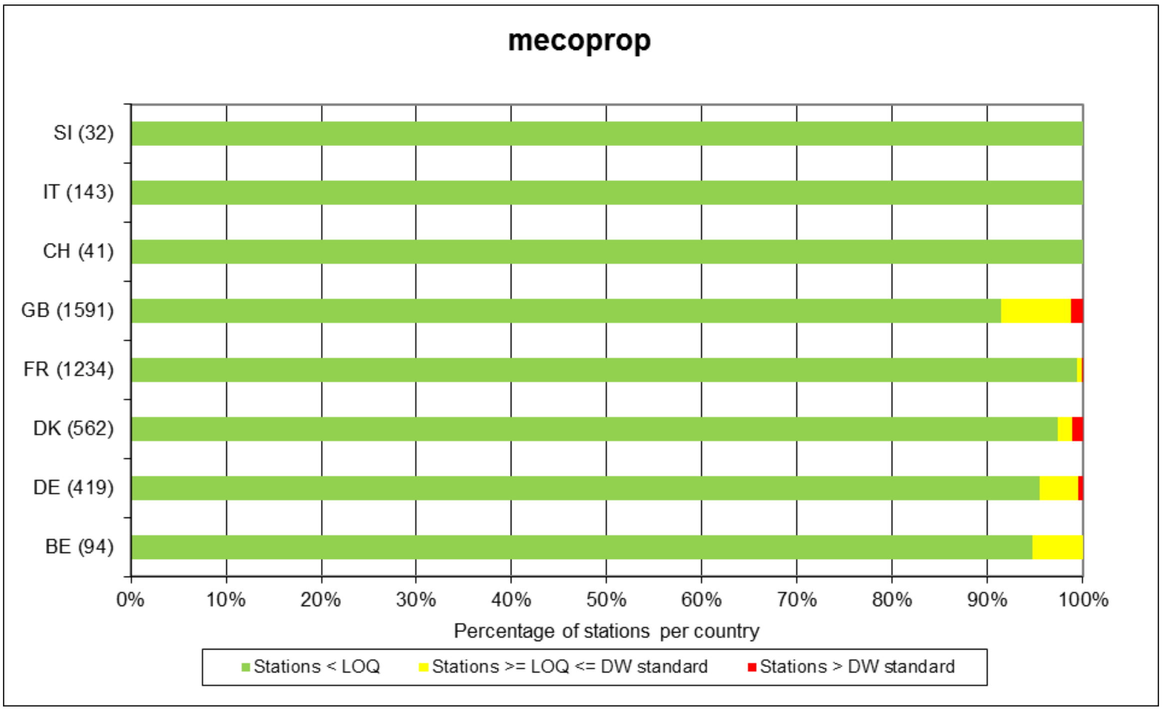


Figure 4.1.2.41c Map of the indicator for mecoprop (MCPP) in groundwater in 2010–2011

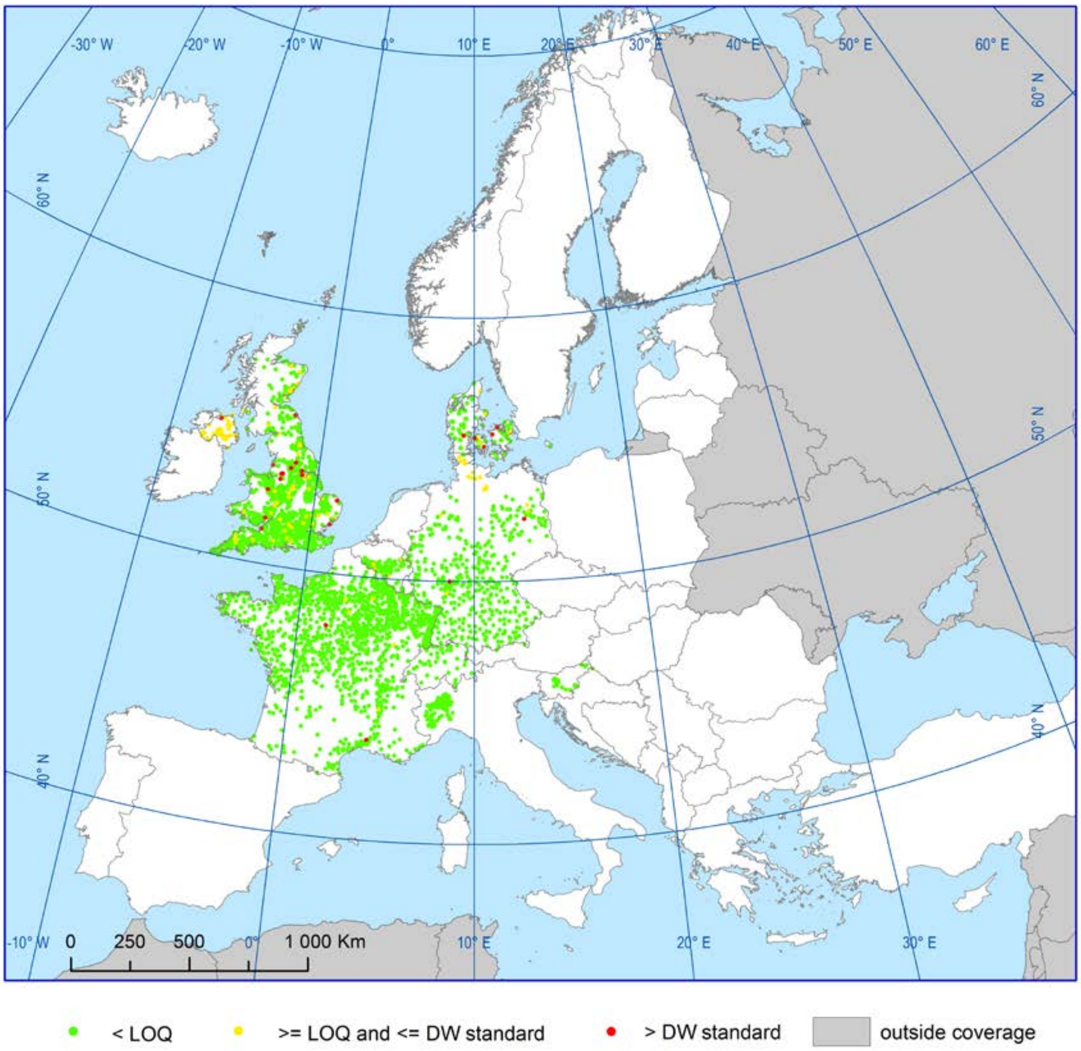


Figure 4.1.2.42a Long-term indicator (% of sites within indicator class, number of stations shown in parenthesis) for mercury in groundwater

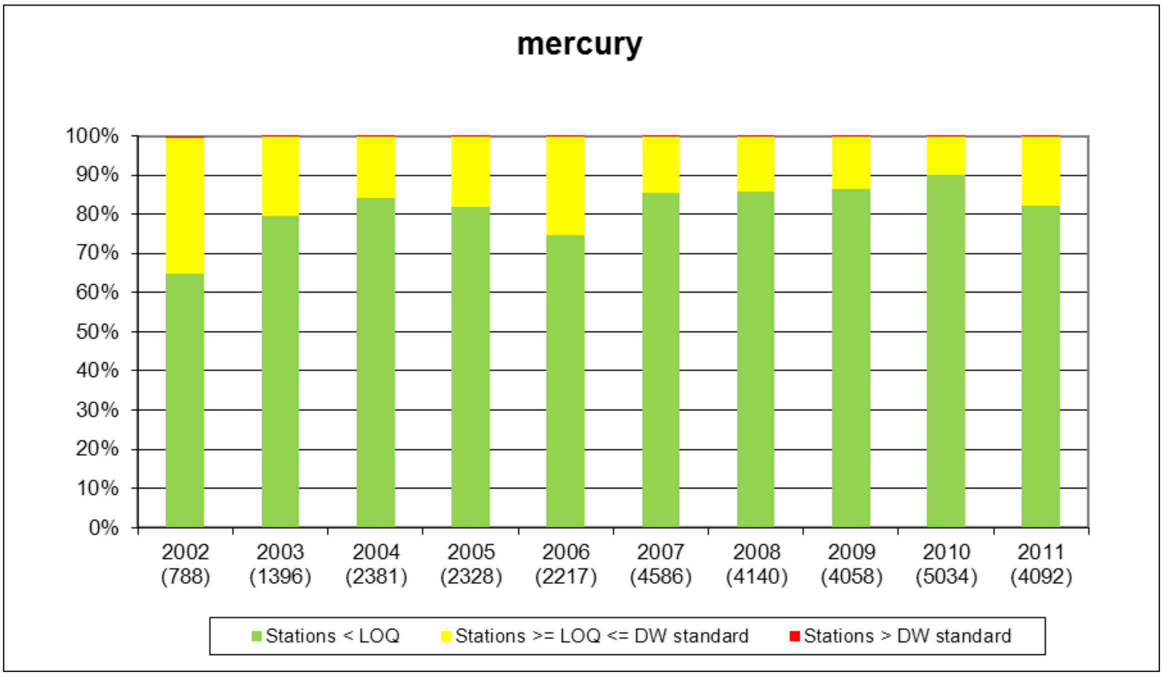


Figure 4.1.2.42b Indicator for mercury in groundwater in 2010–2011 (number of stations per country shown in parenthesis)

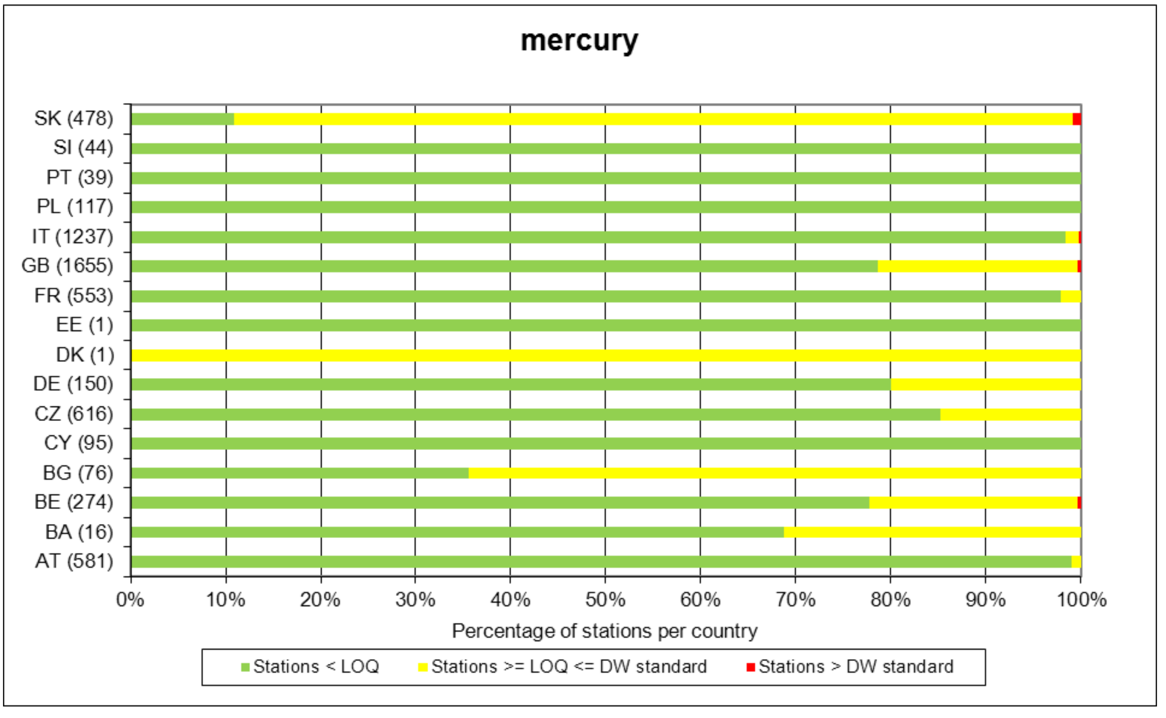


Figure 4.1.2.42c Map of the indicator for mercury in groundwater in 2010–2011

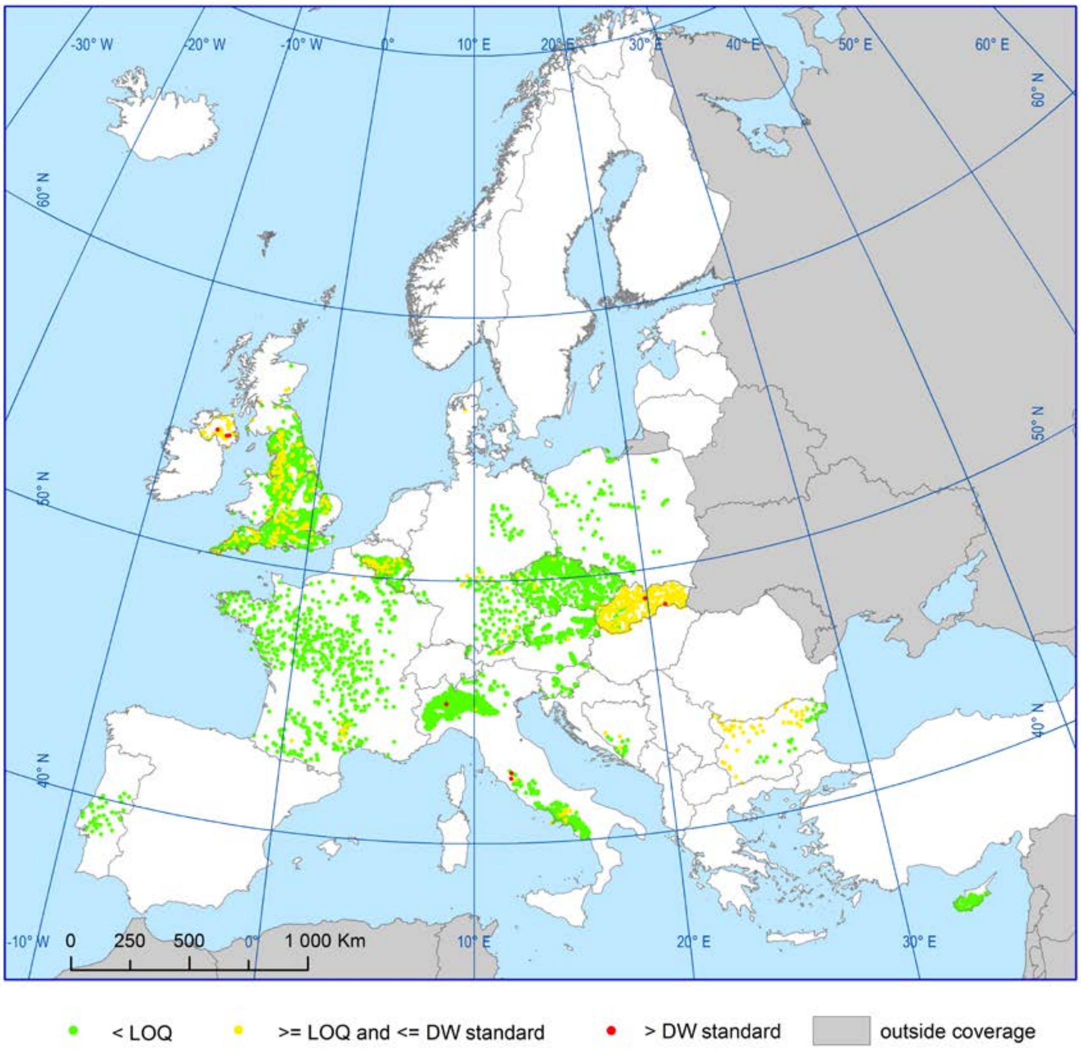


Figure 4.1.2.43a Long-term indicator (% of sites within indicator class, number of stations shown in parenthesis) for dissolved mercury in groundwater

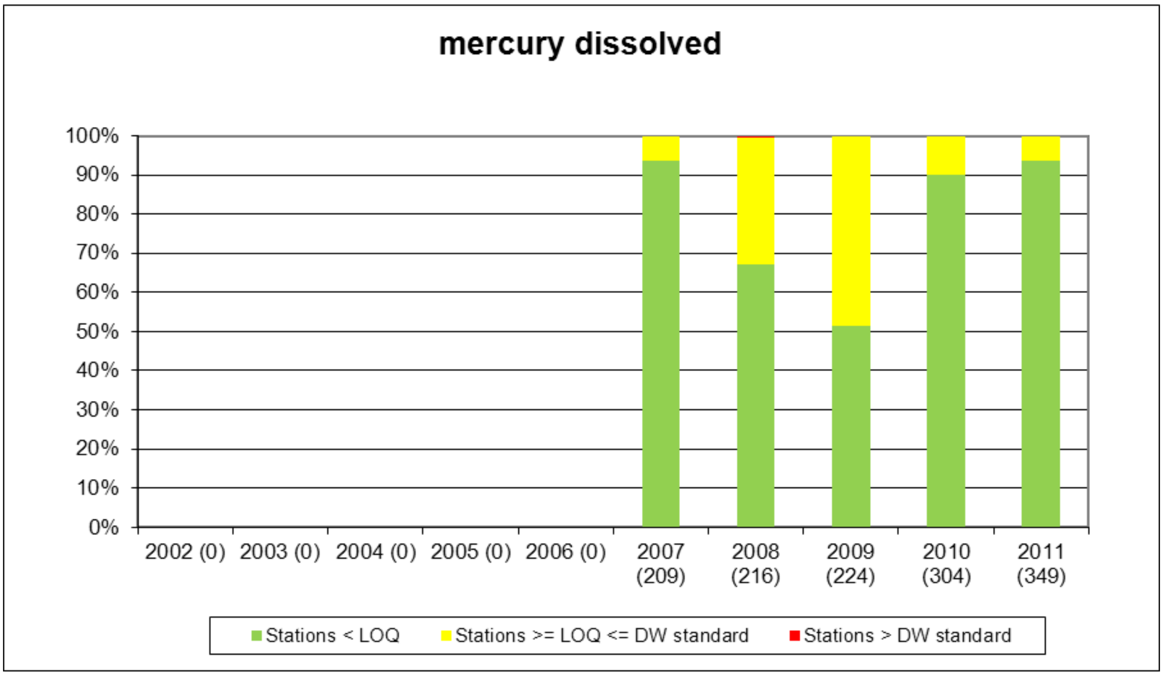


Figure 4.1.2.43b Indicator for dissolved mercury in groundwater in 2010–2011 (number of stations per country shown in parenthesis)

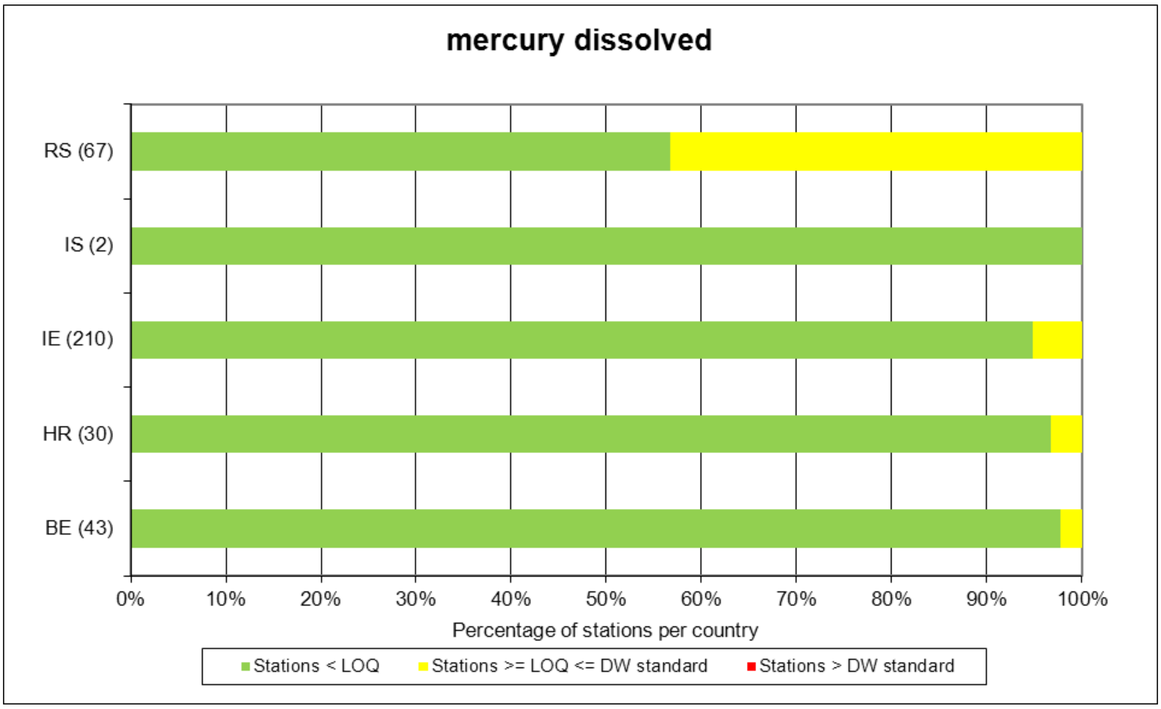


Figure 4.1.2.43c Map of the indicator for dissolved mercury in groundwater in 2010–2011

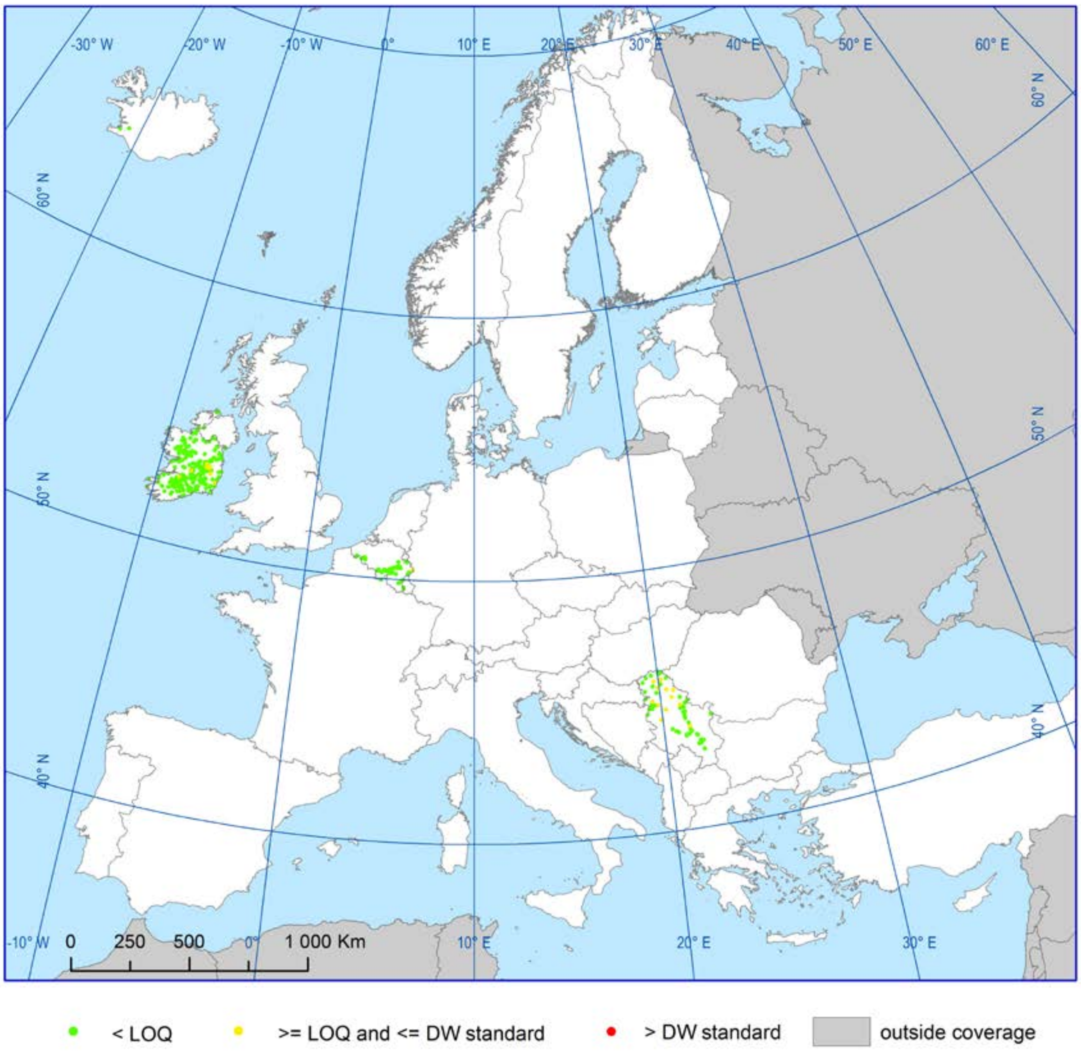


Figure 4.1.2.44a Long-term indicator (% of sites within indicator class, number of stations shown in parenthesis) for nickel in groundwater

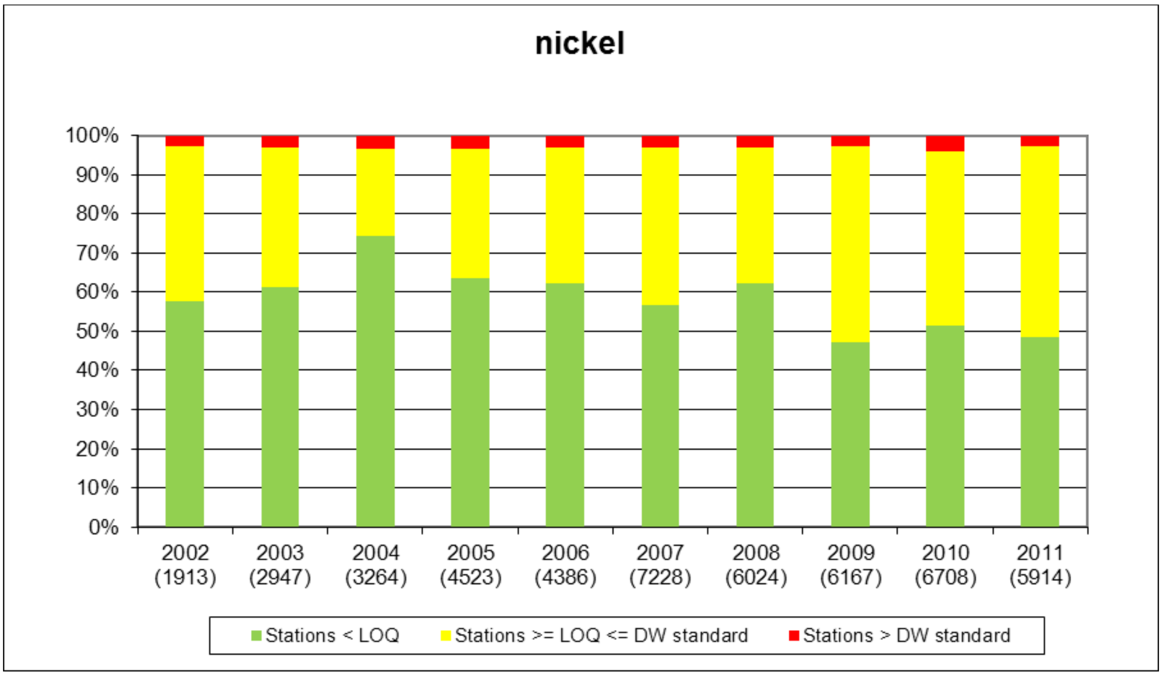


Figure 4.1.2.44b Indicator for nickel in groundwater in 2010–2011 (number of stations per country shown in parenthesis)

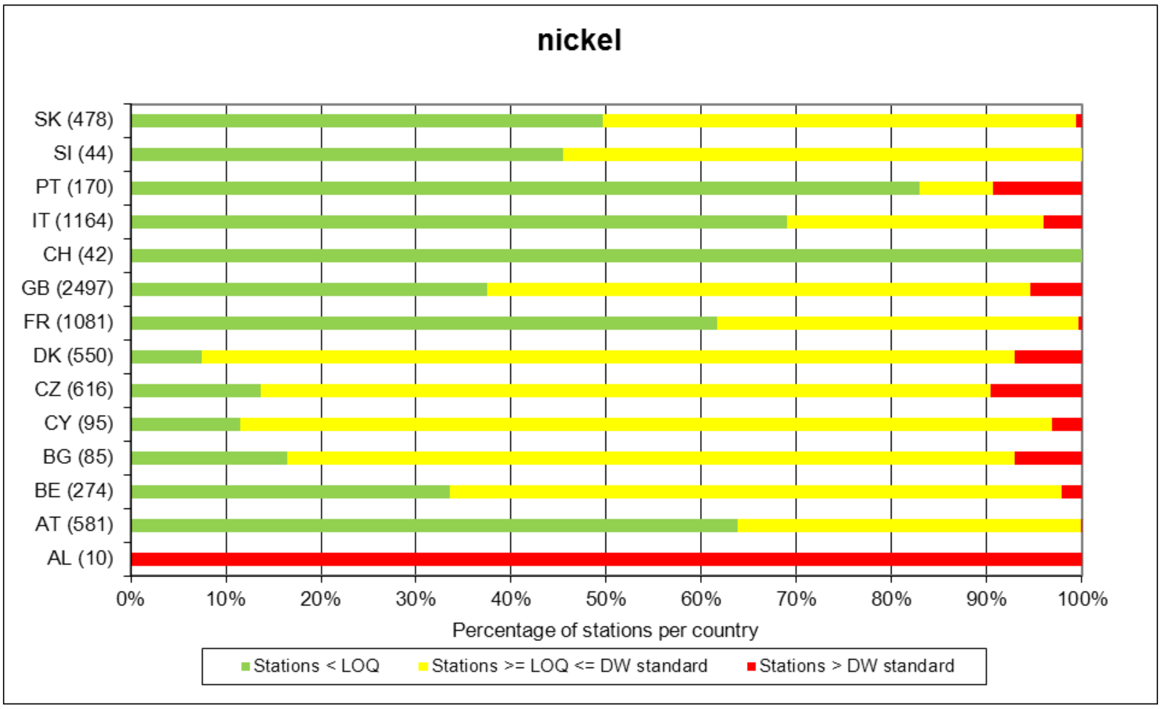


Figure 4.1.2.44c Map of the indicator for nickel in groundwater in 2010–2011

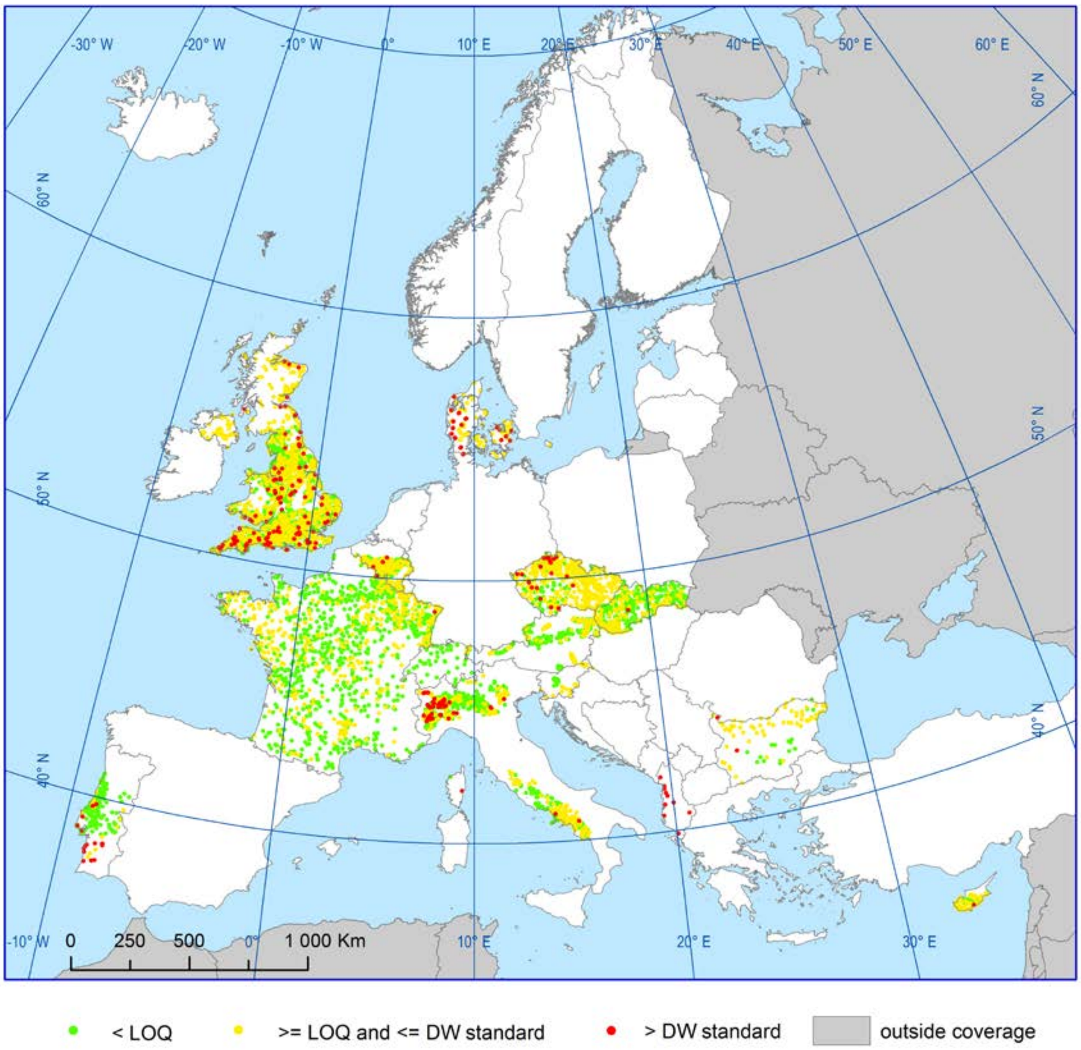


Figure 4.1.2.45a Long-term indicator (% of sites within indicator class, number of stations shown in parenthesis) for dissolved nickel in groundwater

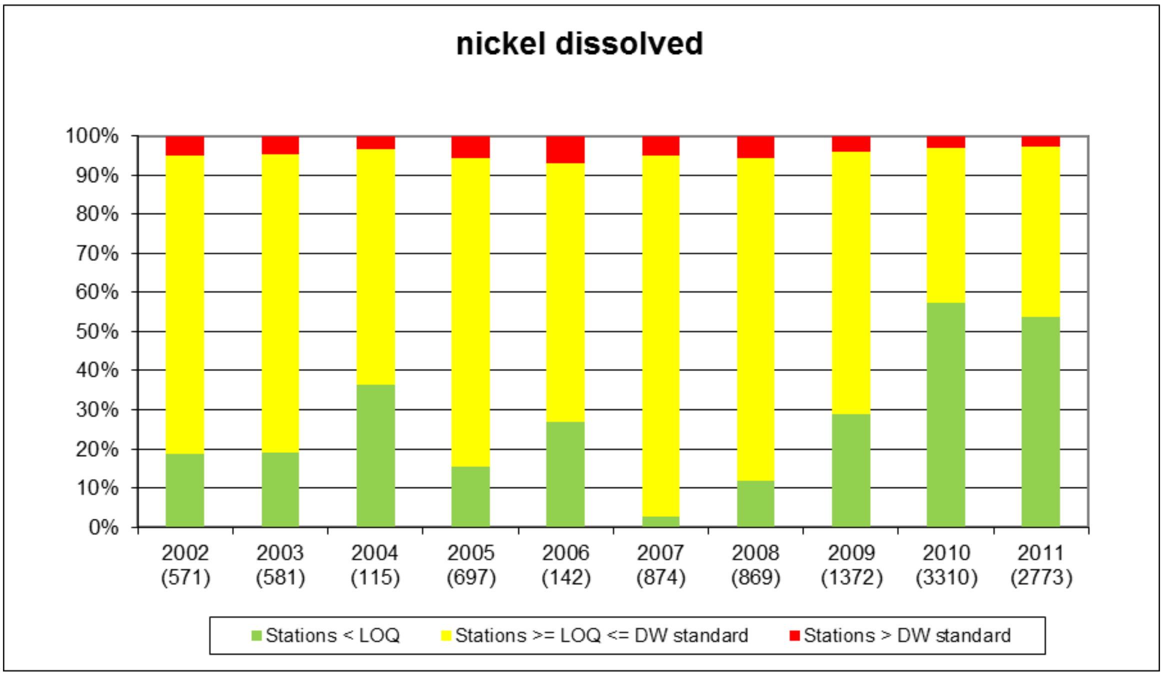


Figure 4.1.2.45b Indicator for dissolved nickel in groundwater in 2010–2011 (number of stations per country shown in parenthesis)

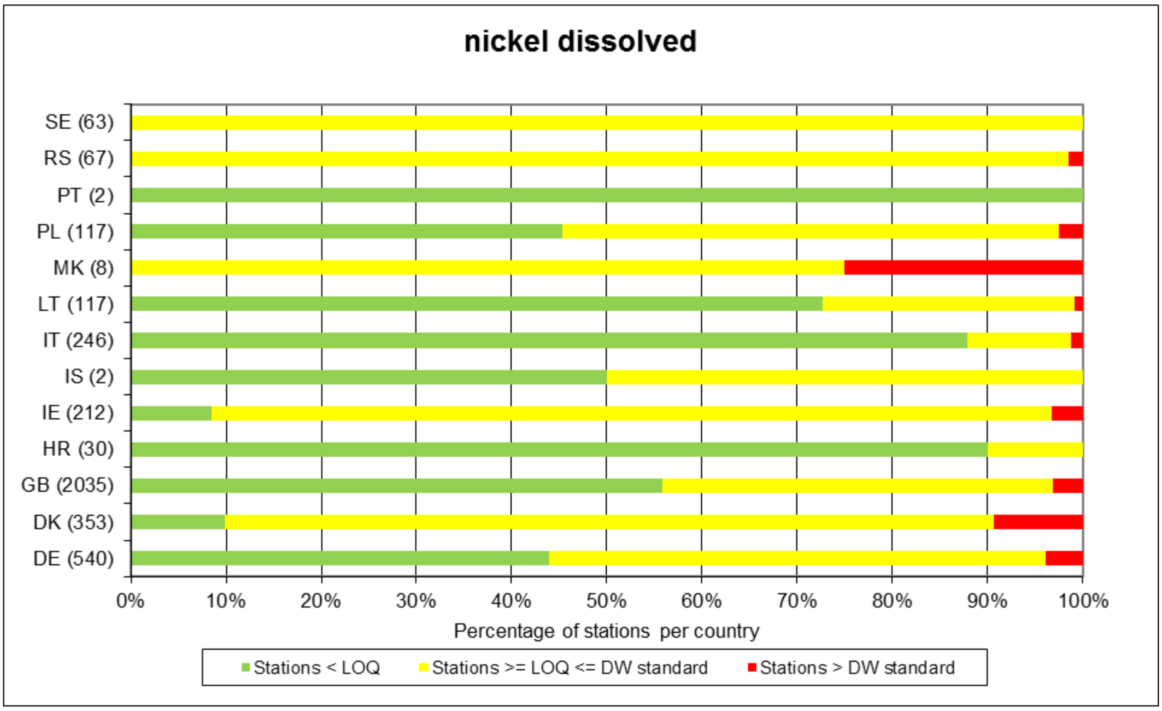


Figure 4.1.2.45c Map of the indicator for dissolved nickel in groundwater in 2010–2011

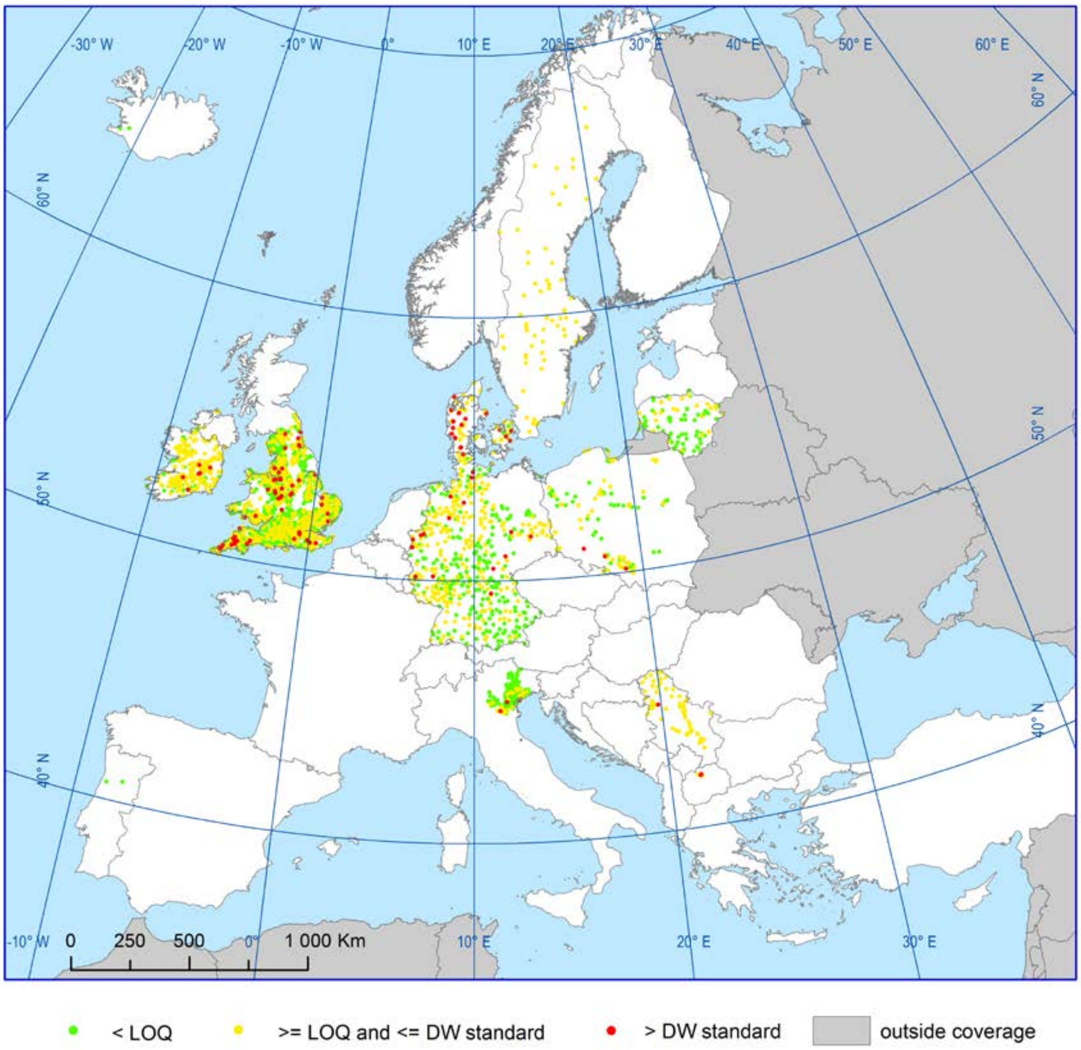


Figure 4.1.2.46a Long-term indicator (% of sites within indicator class, number of stations shown in parenthesis) for prometryn in groundwater

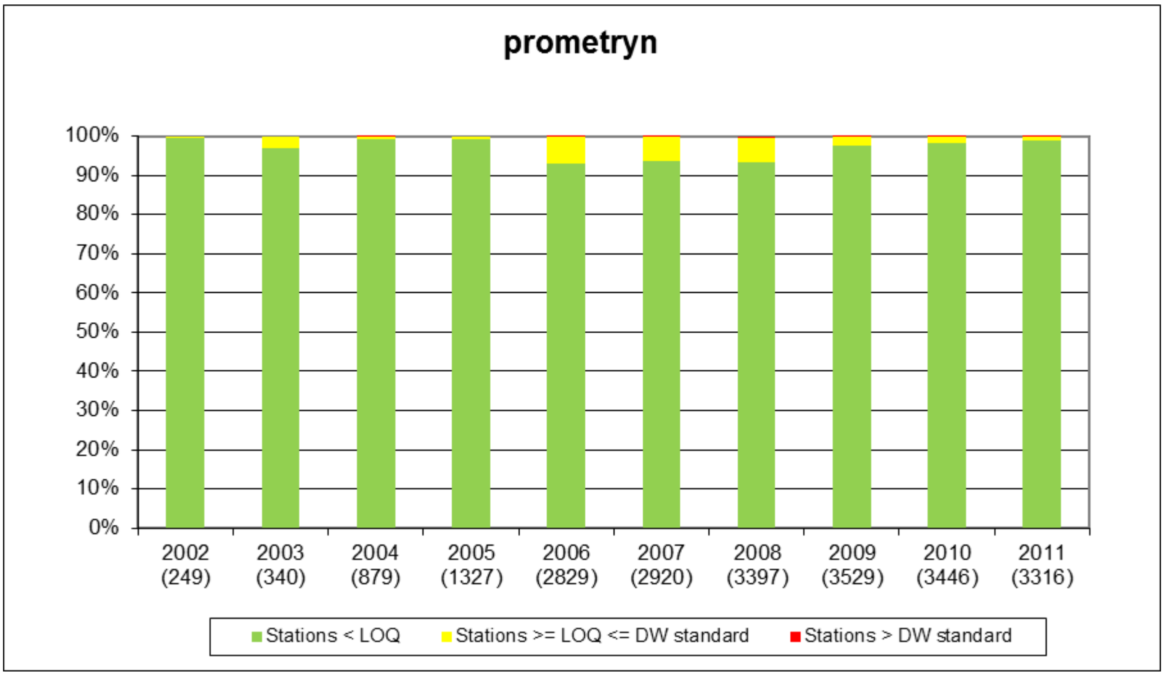


Figure 4.1.2.46b Indicator for prometryn in groundwater in 2010–2011 (number of stations per country shown in parenthesis)

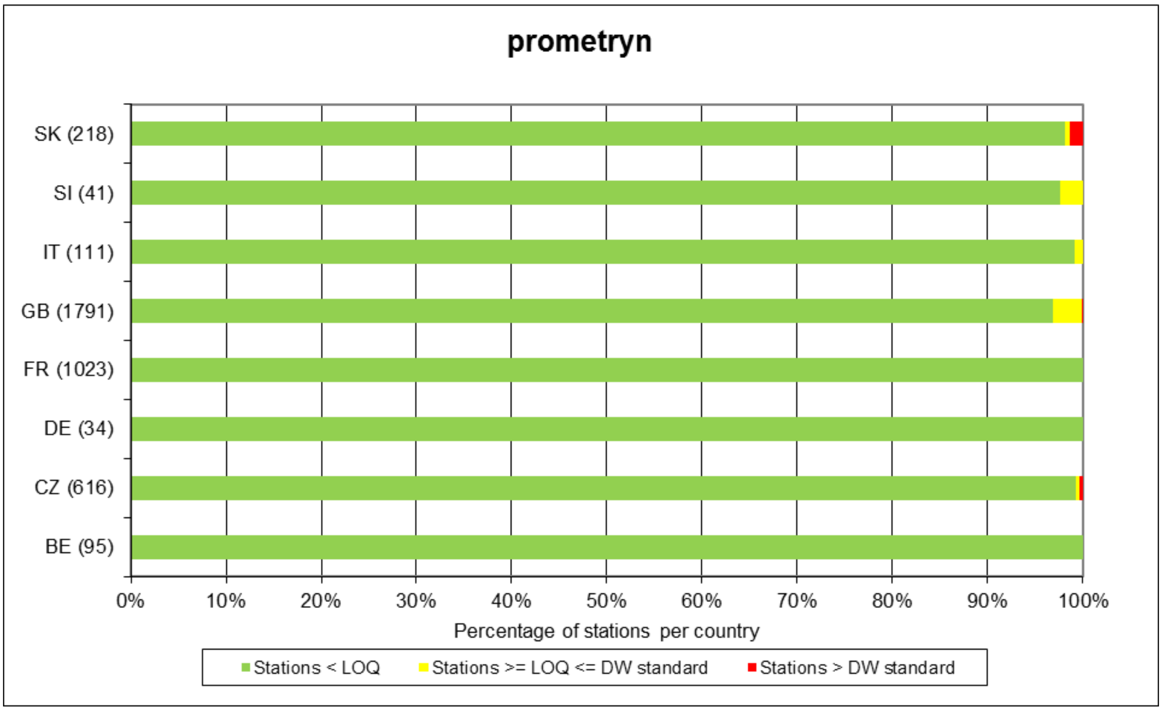


Figure 4.1.2.46c Map of the indicator for prometryn in groundwater in 2010–2011

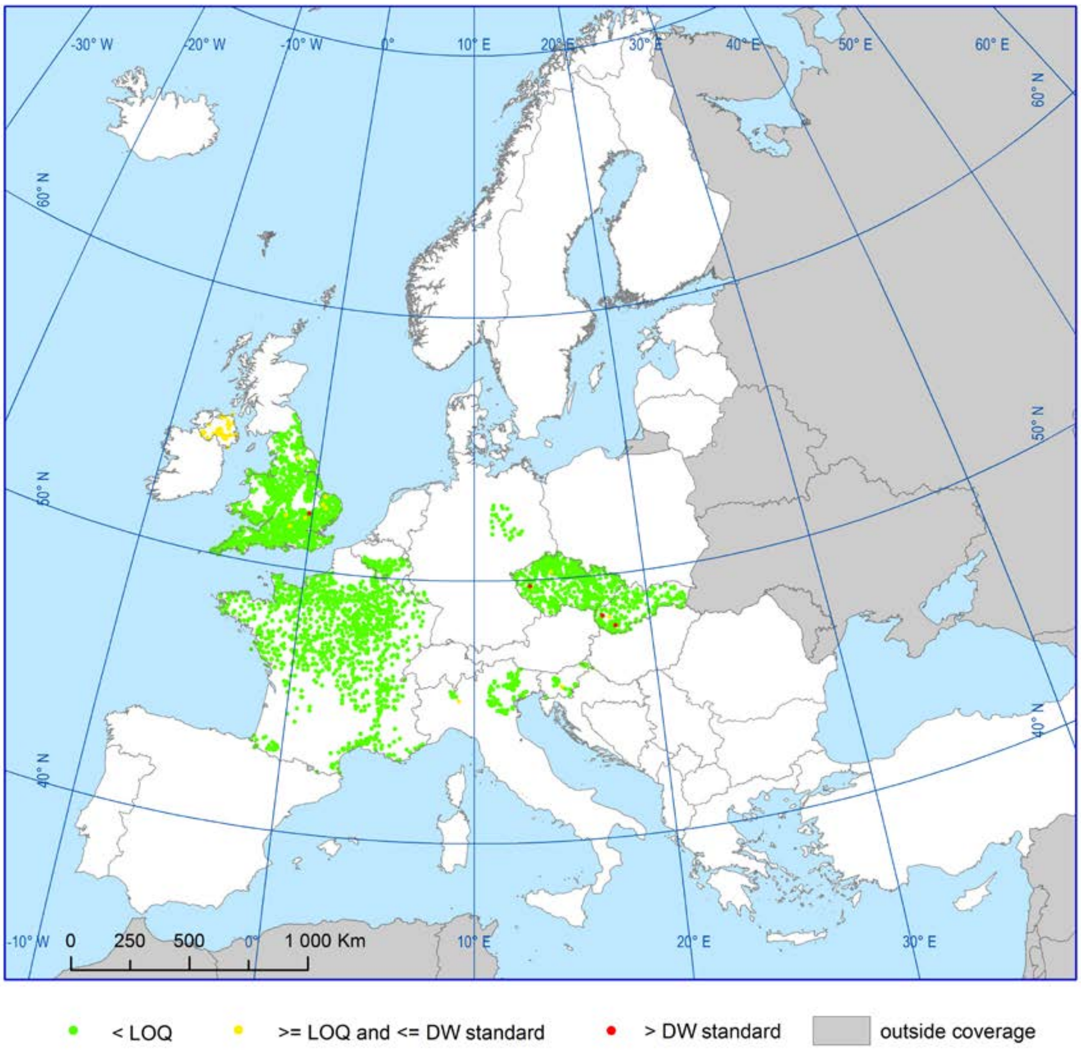


Figure 4.1.2.47a Long-term indicator (% of sites within indicator class, number of stations shown in parenthesis) for propazine in groundwater

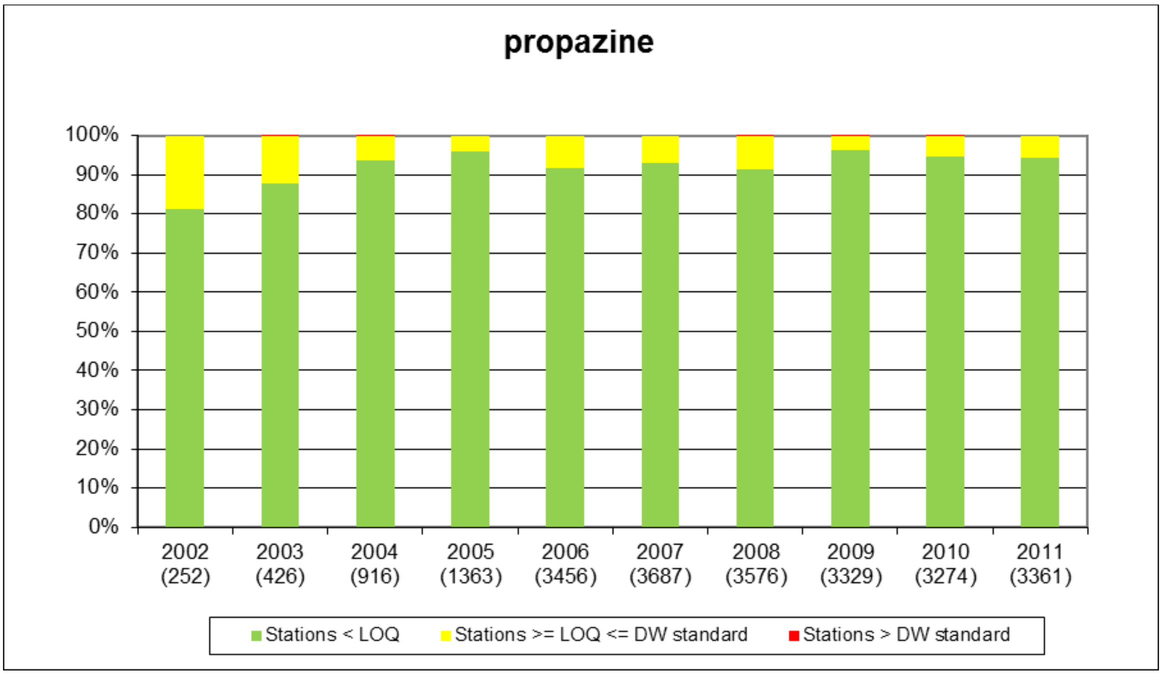


Figure 4.1.2.47b Indicator for propazine in groundwater in 2010–2011 (number of stations per country shown in parenthesis)

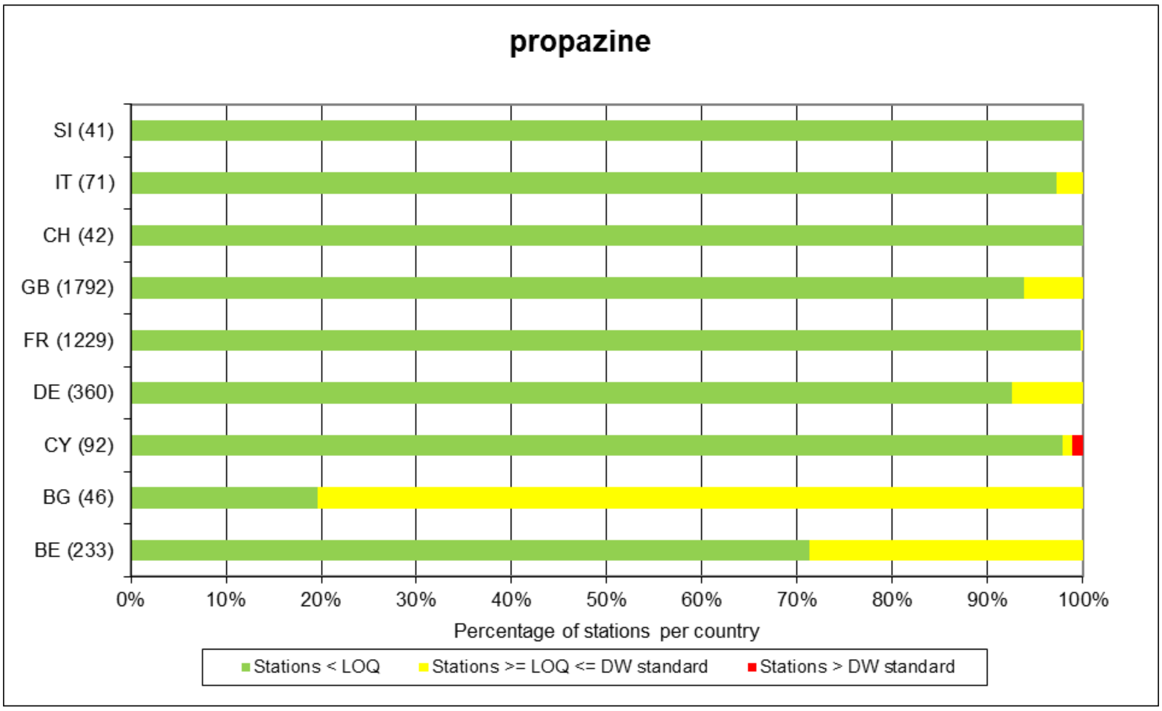


Figure 4.1.2.47c Map of the indicator for propazine in groundwater in 2010–2011

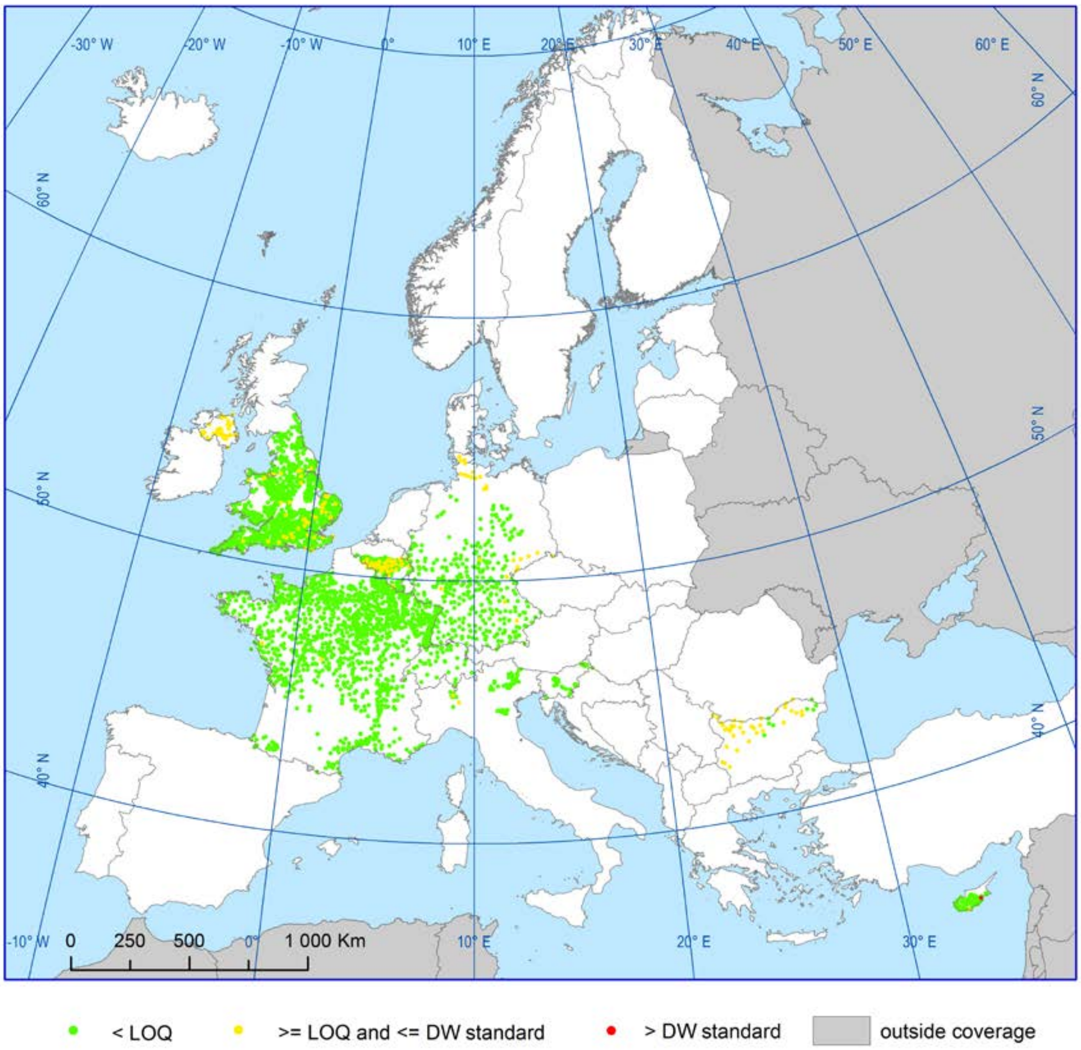


Figure 4.1.2.48a Long-term indicator (% of sites within indicator class, number of stations shown in parenthesis) for simazine in groundwater

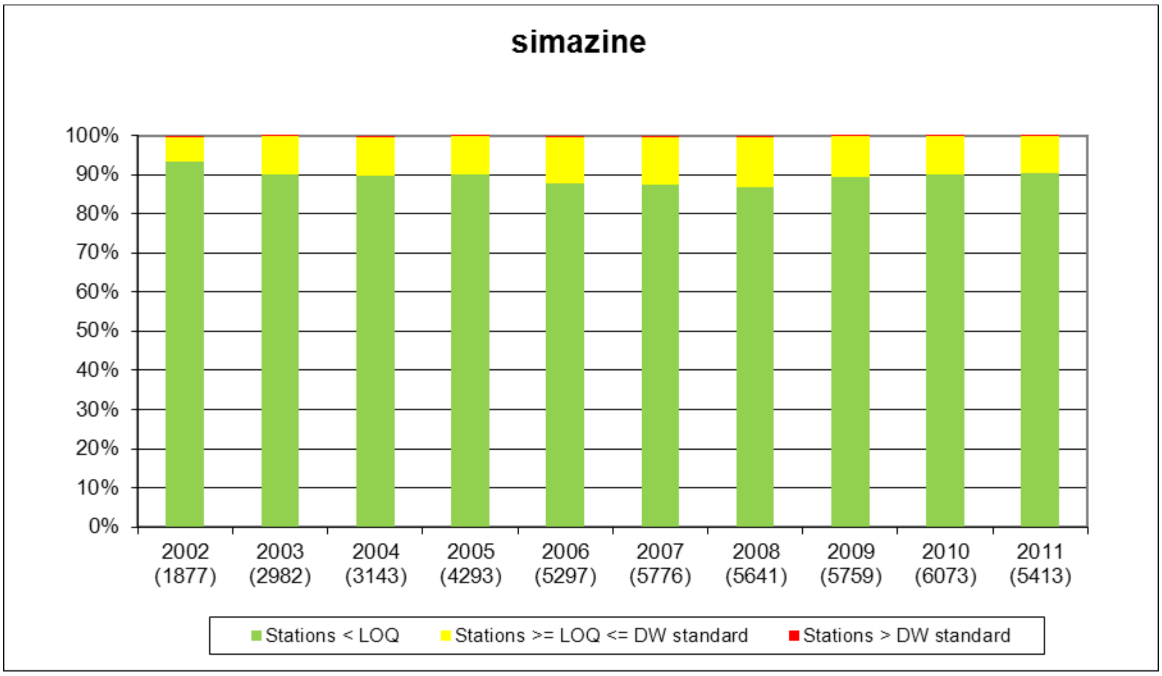


Figure 4.1.2.48b Indicator for simazine in groundwater in 2010–2011 (number of stations per country shown in parenthesis)

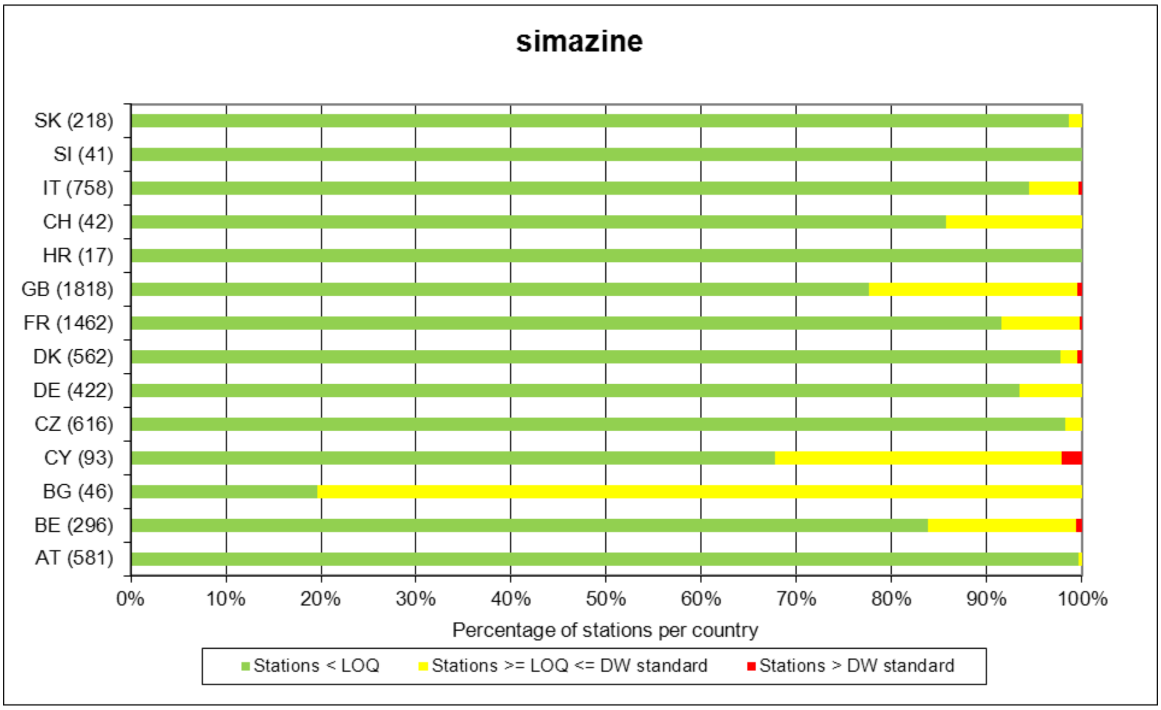


Figure 4.1.2.48c Map of the indicator for simazine in groundwater in 2010–2011

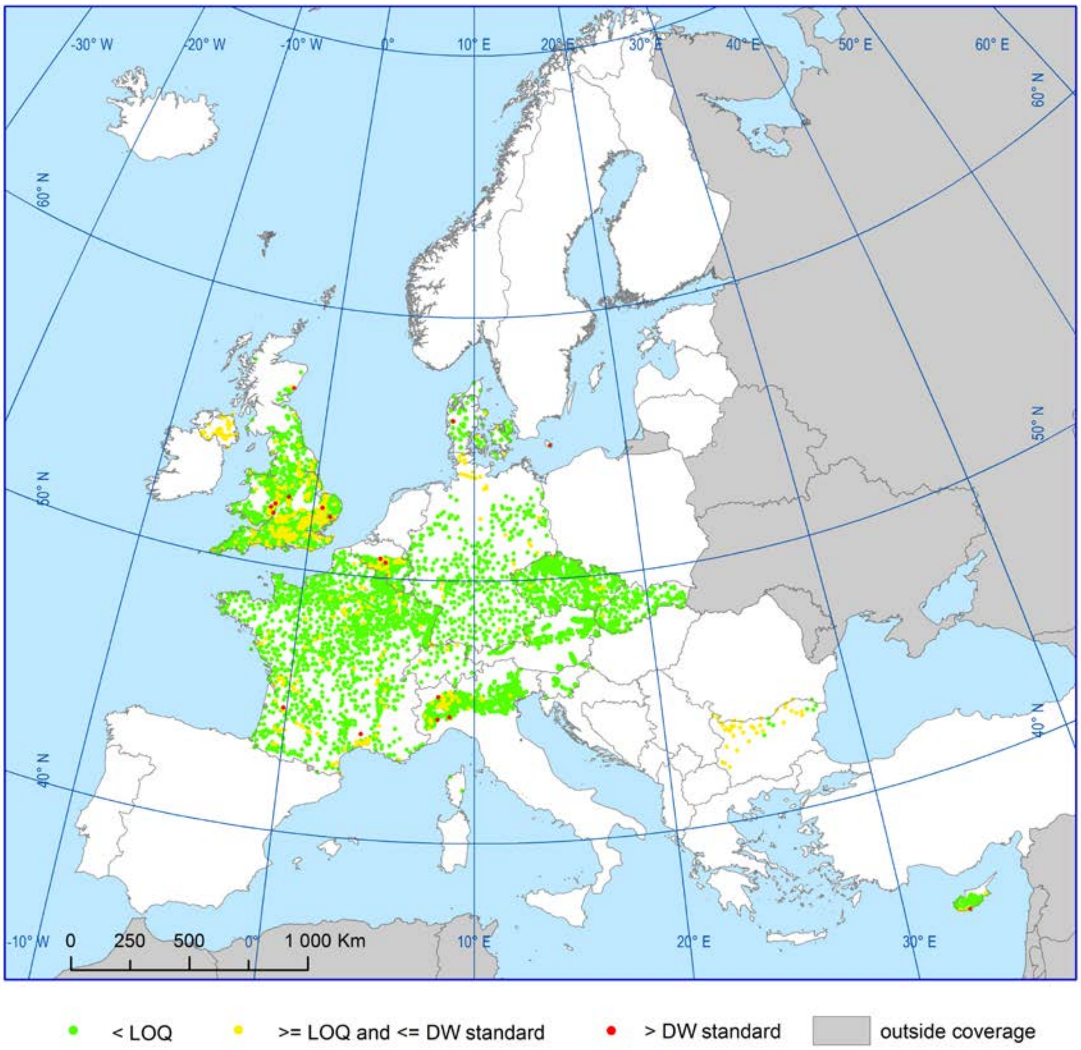


Figure 4.1.2.49a Long-term indicator (% of sites within indicator class, number of stations shown in parenthesis) for terbuthylazine in groundwater

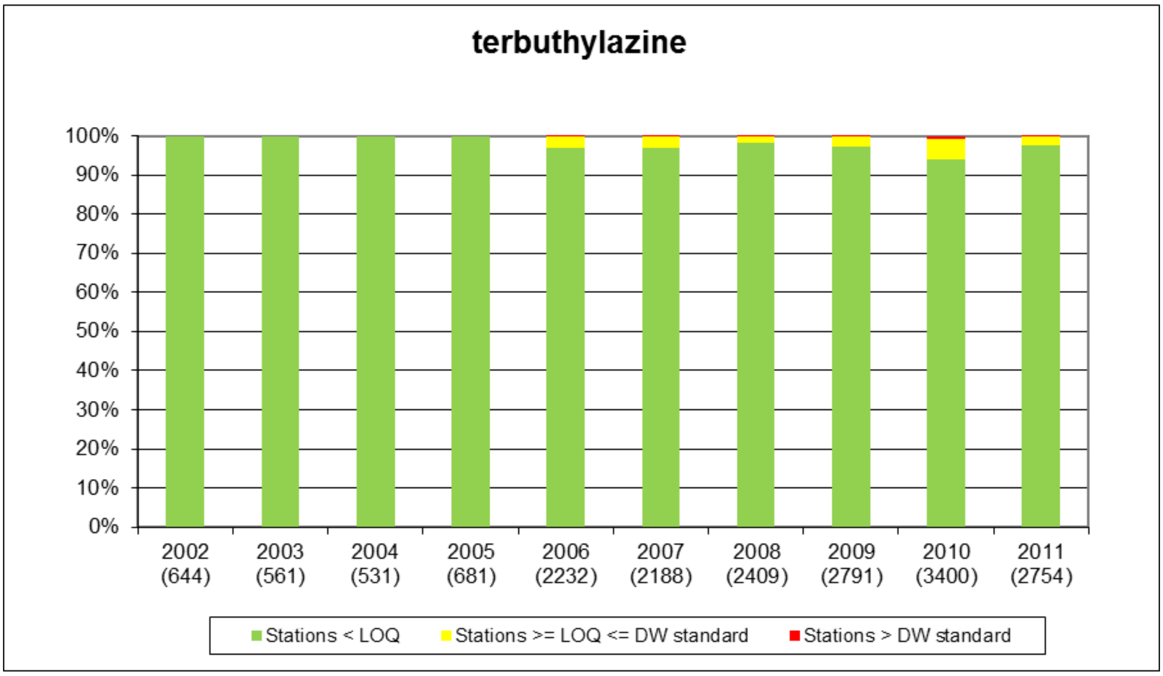


Figure 4.1.2.49b Indicator for terbuthylazine in groundwater in 2010–2011 (number of stations per country shown in parenthesis)

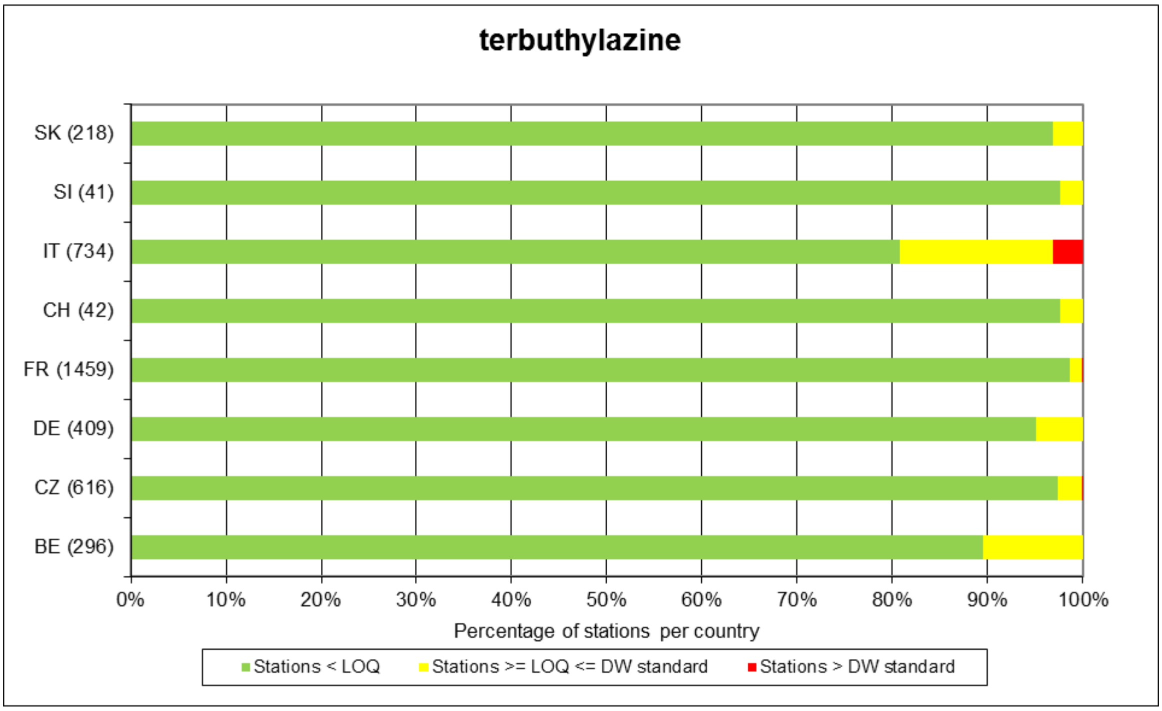


Figure 4.1.2.49c Map of the indicator for terbuthylazine in groundwater in 2010–2011

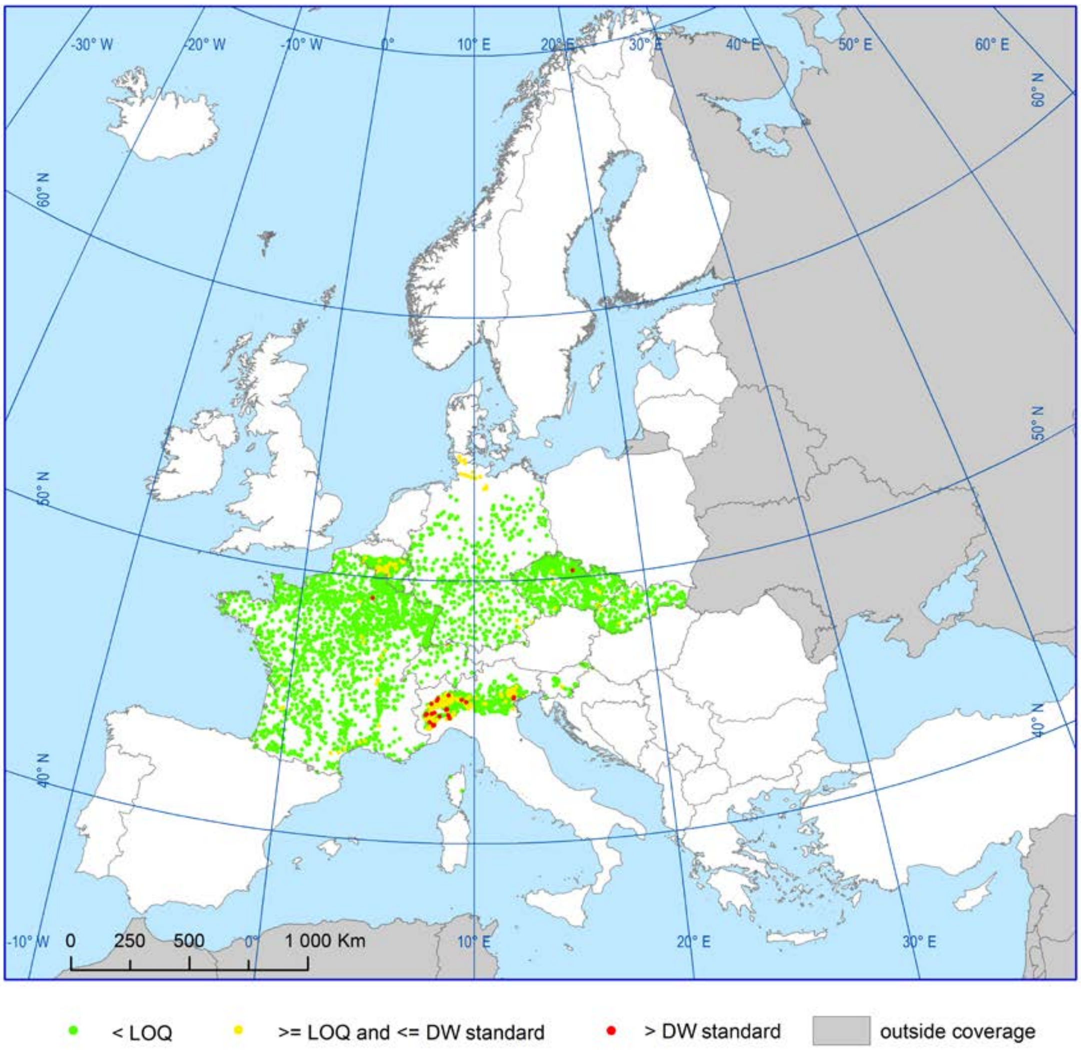


Figure 4.1.2.50a Long-term indicator (% of sites within indicator class, number of stations shown in parenthesis) for terbutryn in groundwater

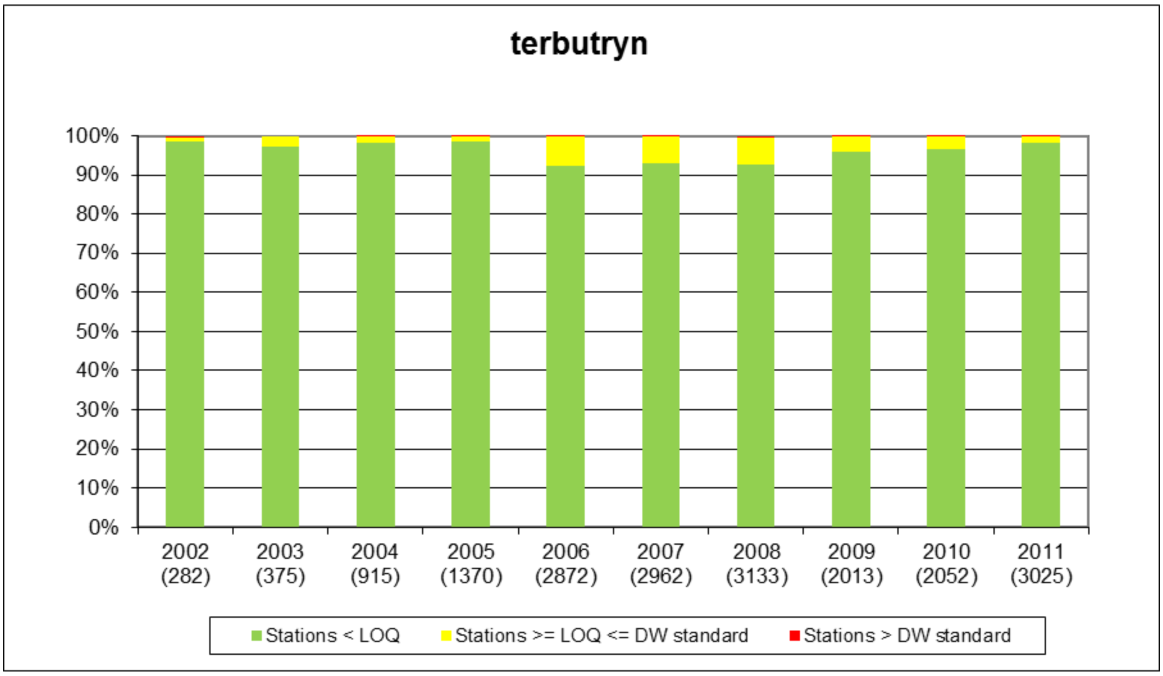


Figure 4.1.2.50b Indicator for terbutryn in groundwater in 2010–2011 (number of stations per country shown in parenthesis)

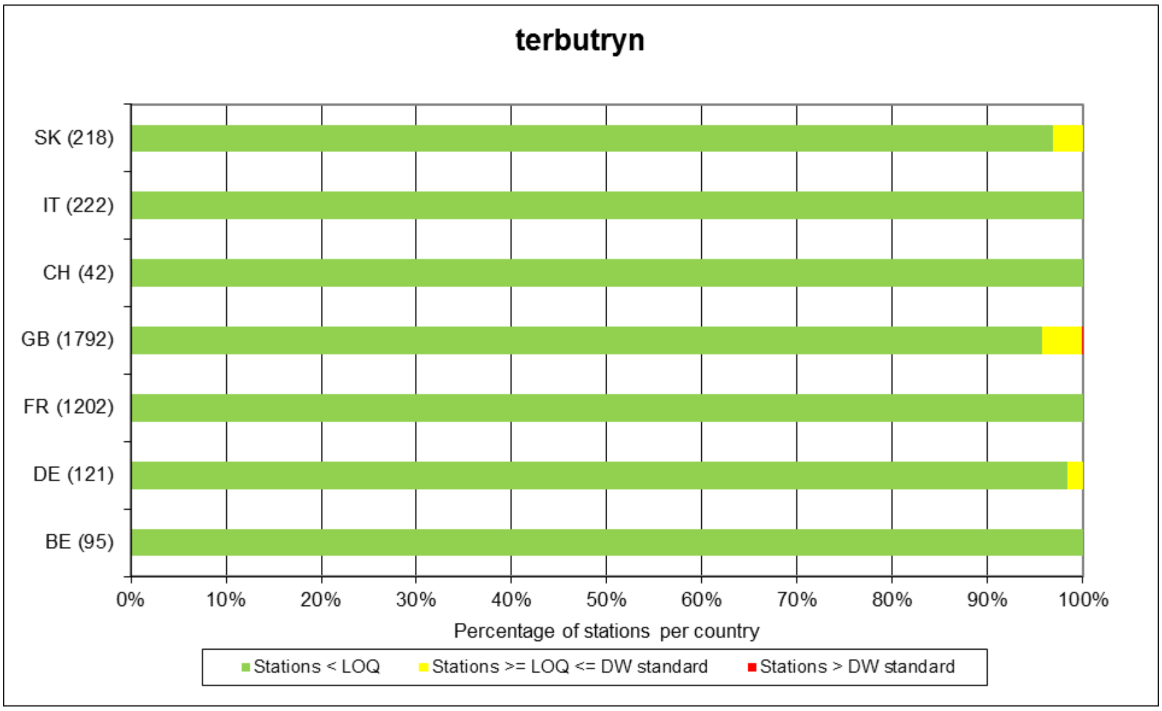


Figure 4.1.2.50c Map of the indicator for terbutryn in groundwater in 2010–2011

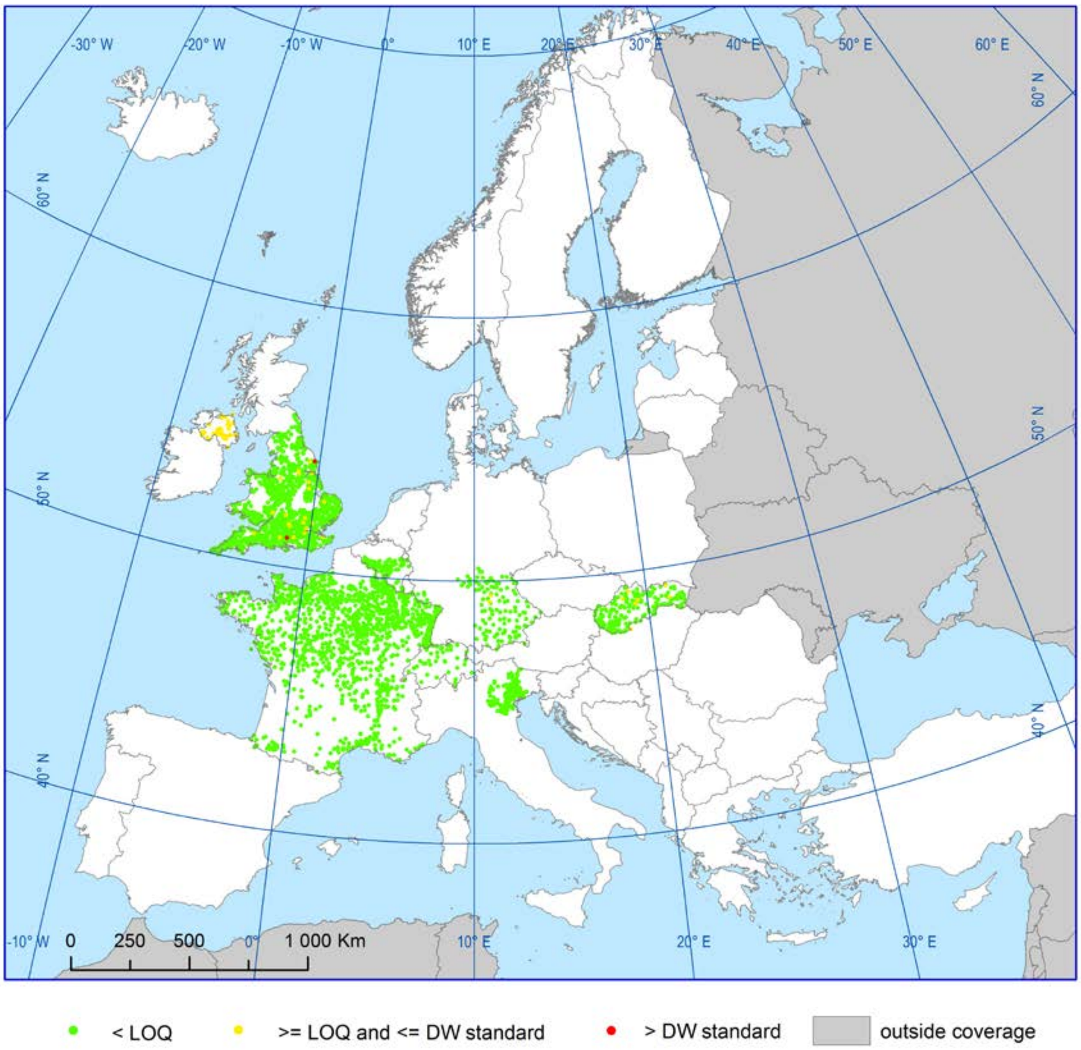


Figure 4.1.2.51a Long-term indicator (% of sites within indicator class, number of stations shown in parenthesis) for trifluralin in groundwater

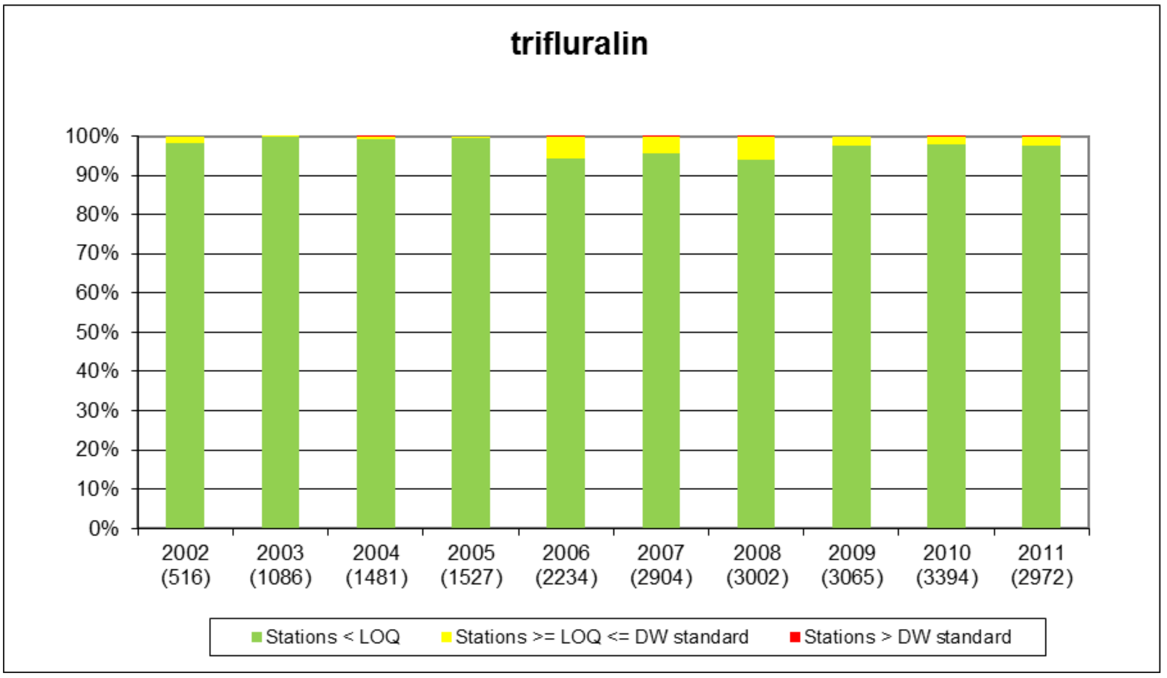


Figure 4.1.2.51b Indicator for trifluralin in groundwater in 2010–2011 (number of stations per country shown in parenthesis)

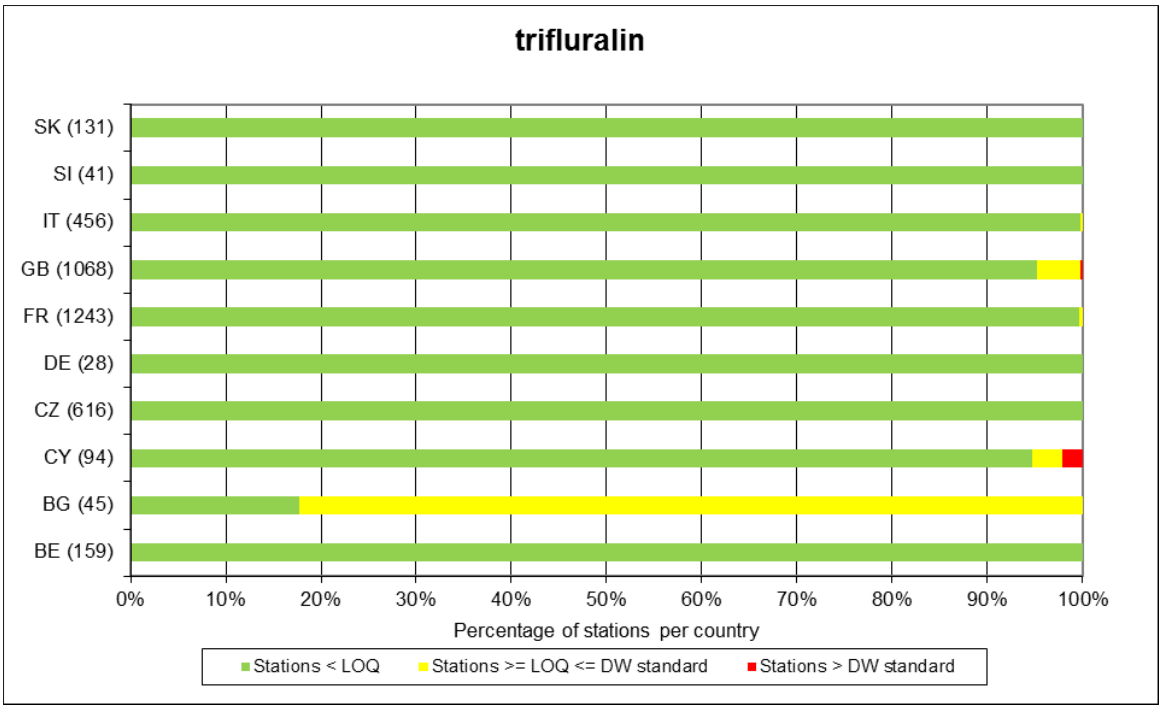
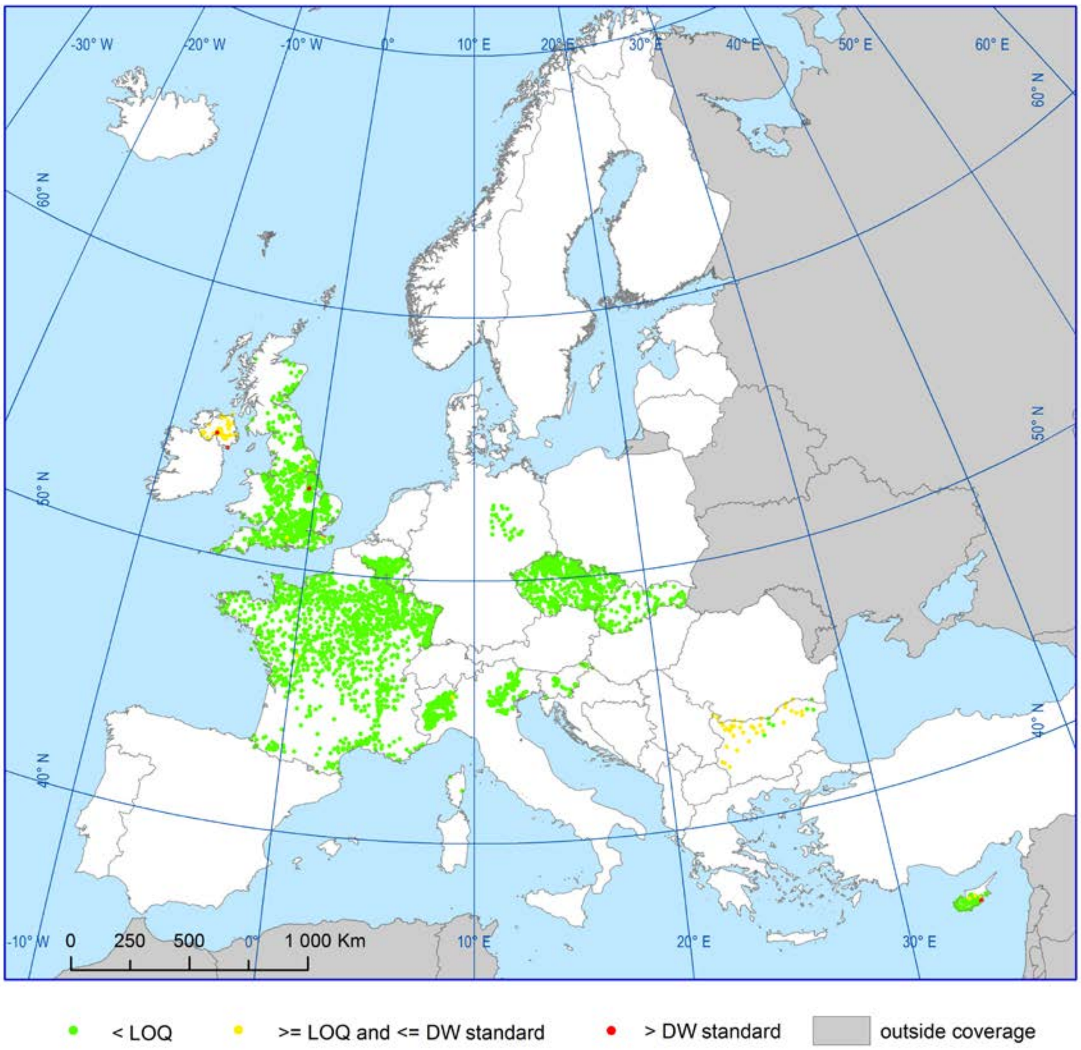


Figure 4.1.2.51c Map of the indicator for trifluralin in groundwater in 2010–2011



4.2 Hazardous substances in the marine environment in 1998–2010

4.2.1 Overview

Hazardous substances are widespread in the marine environment. The pathway of contamination is not always obvious. Although hot spots tend to be directly linked to particular human activities, the substances are also found in organisms that are collected far away from point-sources. Some substances are transported by ocean currents, the atmosphere or by migrating species. Considerable efforts have been made to establish and maintain monitoring programmes to assess the level, trends and effects of hazardous substances in biota and sediment, and to select the preferred indicator matrices. However, there is a lack of reliable and consistent data for many hazardous substances and for several regions. Although basic legislation is in place to combat excessive exposure, specific assessment criteria with respect to levels, trends and effects need to be further developed for the indicator matrices.

The results reveal that concentrations are generally low or moderate for all seven hazardous substances. Cadmium, lead and mercury are found at low concentrations in the earth's crust and occur naturally in seawater. HCB, lindane, PCB and DDT are synthetic substances that are not found naturally in the environment. Human activities have caused a general mobilisation of these hazardous substances in aquatic and terrestrial environments. In the marine environment, they accumulate in fish and shell fish, and because these in return are a food source for marine wildlife and humans the substances are moved to higher levels in the food chain. The contaminants are not needed for any organism (they are not essential) and are toxic. In humans long-term exposure or consumption of contaminated seafoods can be detrimental. The main sources, at least in the North Sea, are from general waste/disposal, burning of fossil fuels and industrial activities, including mining and production.

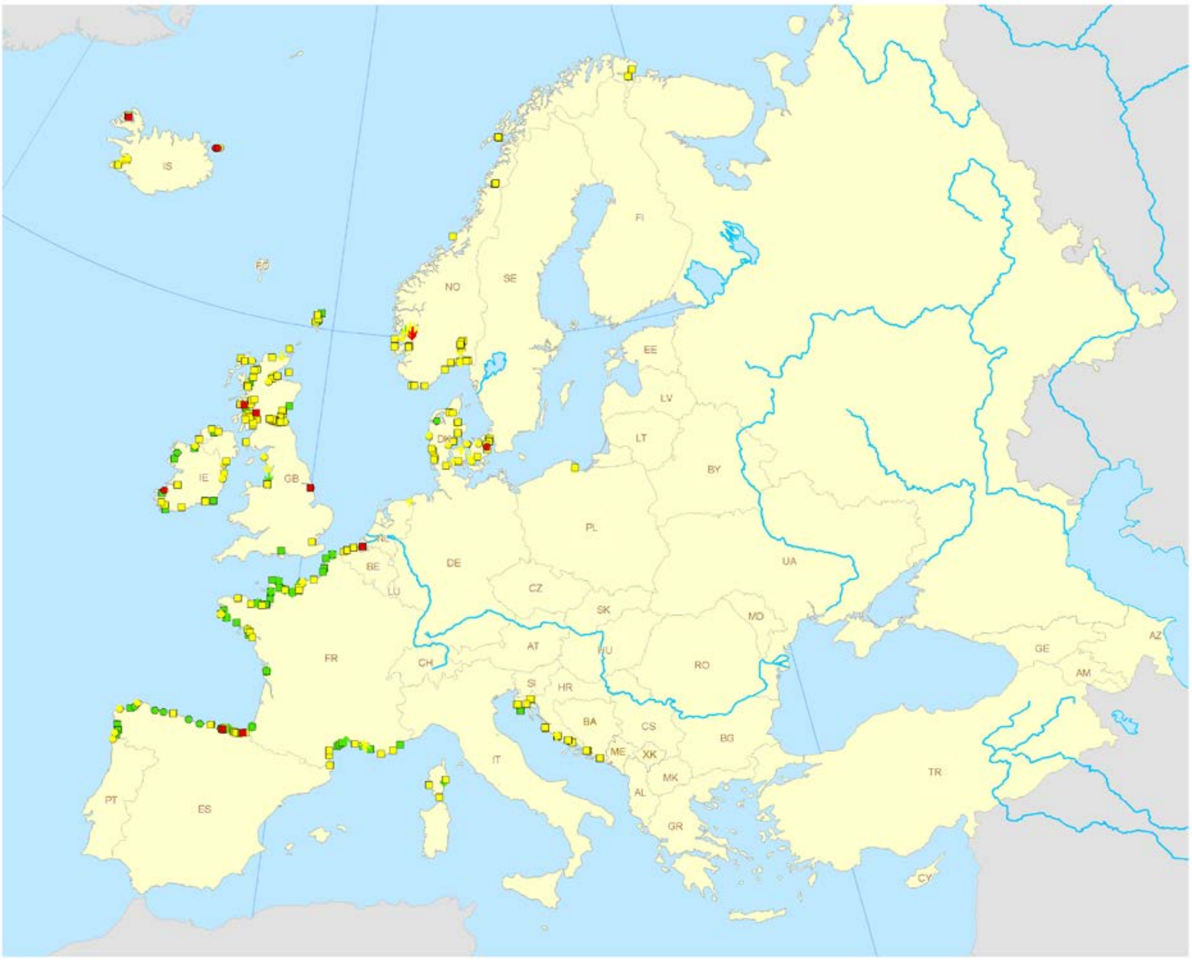
4.2.2 Occurrence and concentrations of hazardous substances in the marine environment

Results are shown in maps (Figures 4.2.2.1 to 4.2.2.7), with one map for each substance. The maps show an assessment for each time series, using the symbols described in Table 2.2.1.

Cadmium

Concentrations of cadmium in recent years were generally classified as Low or Moderate in mussels and fish of the north-east Atlantic, fish in the Baltic Sea, and mussels in the Mediterranean. No general regional trend was detected in any of these regions, which indicates that no general change in status is anticipated (Assessment based on results for 1998–2010).

Figure 4.2.2.1 Trends and Low, Moderate and High concentrations of cadmium in biota in European Seas



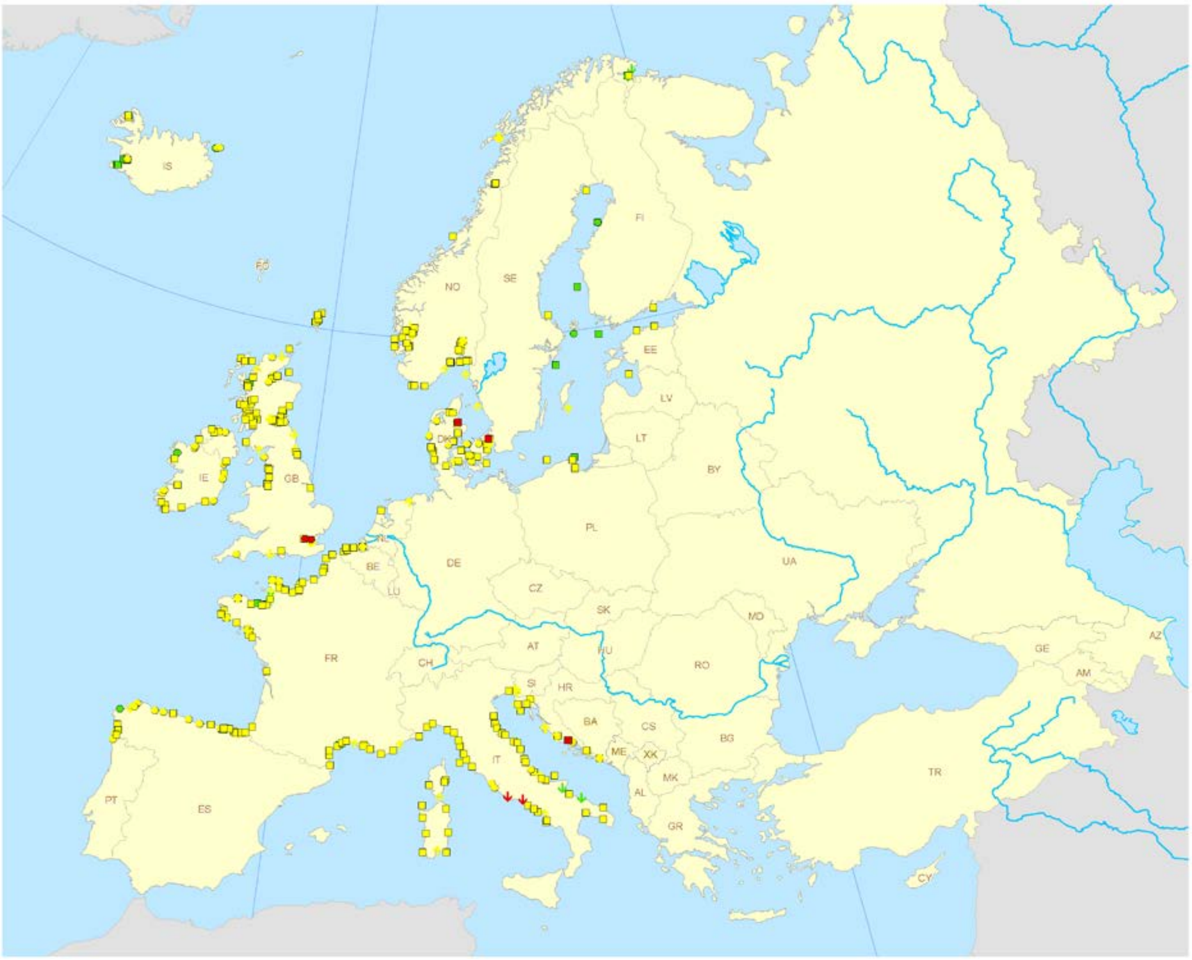
Notes: The arrows indicate direction of significant trend (if any) and the colour indicates the concentration category for recent years as Low (green), Moderate (yellow) and High (red). (See Table 2.2.1 for description of symbols).

Sources: Data from HELCOM, OSPAR and EEA member countries.

Mercury

Concentrations of mercury in recent years were generally classified as Low or Moderate in mussels and fish of the north-east Atlantic, fish in the Baltic Sea, and mussels in the Mediterranean, which is positive. However, there is an overweight of upward trends in the Mediterranean Sea (Assessment based on results for 1998–2010).

Figure 4.2.2.2 Trends and Low, Moderate and High concentrations of mercury in biota in European Seas



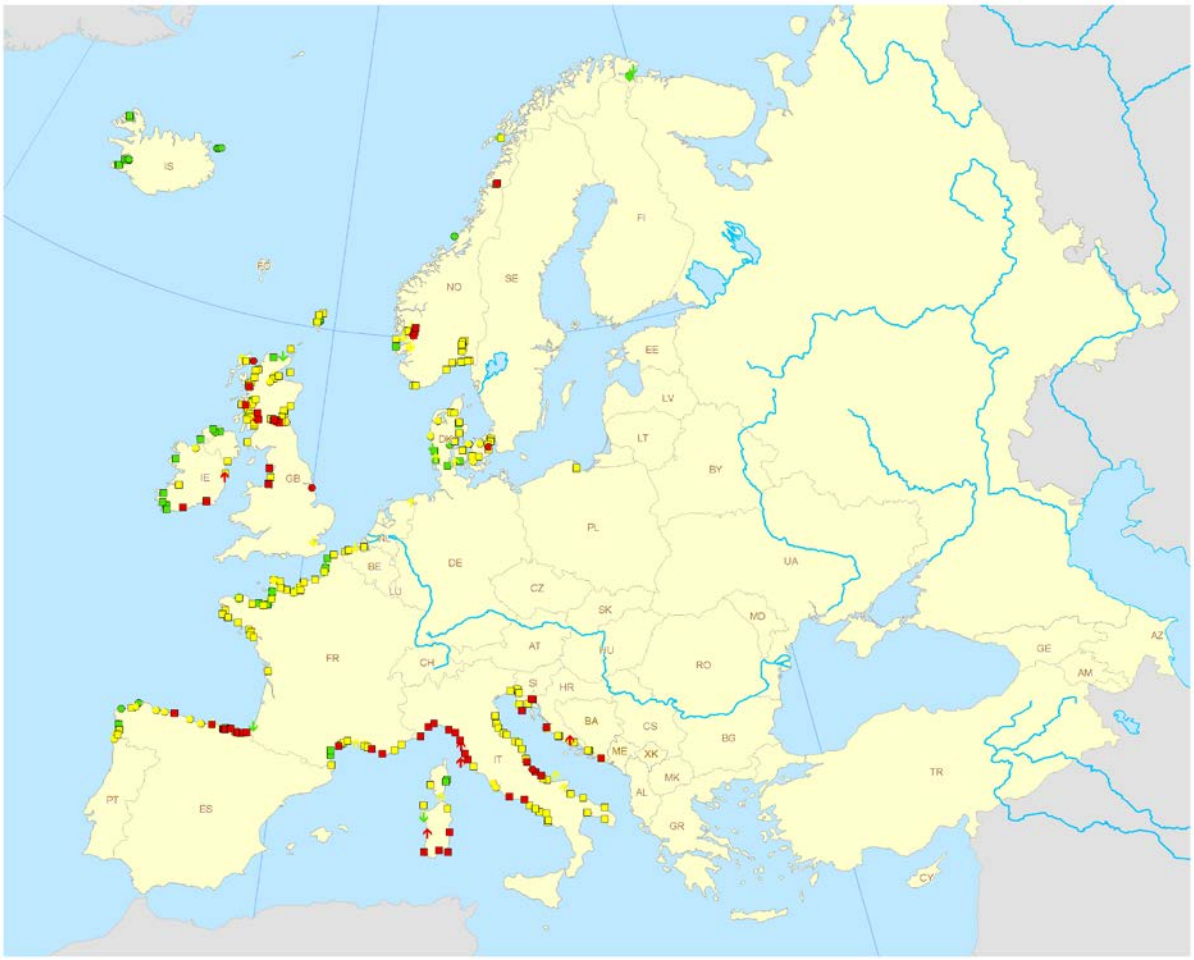
Notes: Arrows indicate direction of significant trend (if any) and the colour indicates the concentration category for recent years as Low (green), Moderate (yellow) and High (red). (See Table 2.2.1 for a description of the symbols).

Sources: Data from HELCOM, OSPAR and EEA member countries.

Lead

Concentrations of lead in recent years were generally classified as Low or Moderate in mussels and fish of the north-east Atlantic, Baltic Sea and the Mediterranean Seas. The fraction of High level stations was largest in the Mediterranean (only mussels monitored here). A regional downward trend was found for the north-east Atlantic but a regional upward trend in the Mediterranean (Assessment based on results for 1998–2010).

Figure 4.2.2.3 Trends and Low, Moderate and High concentrations of lead in biota in European Seas



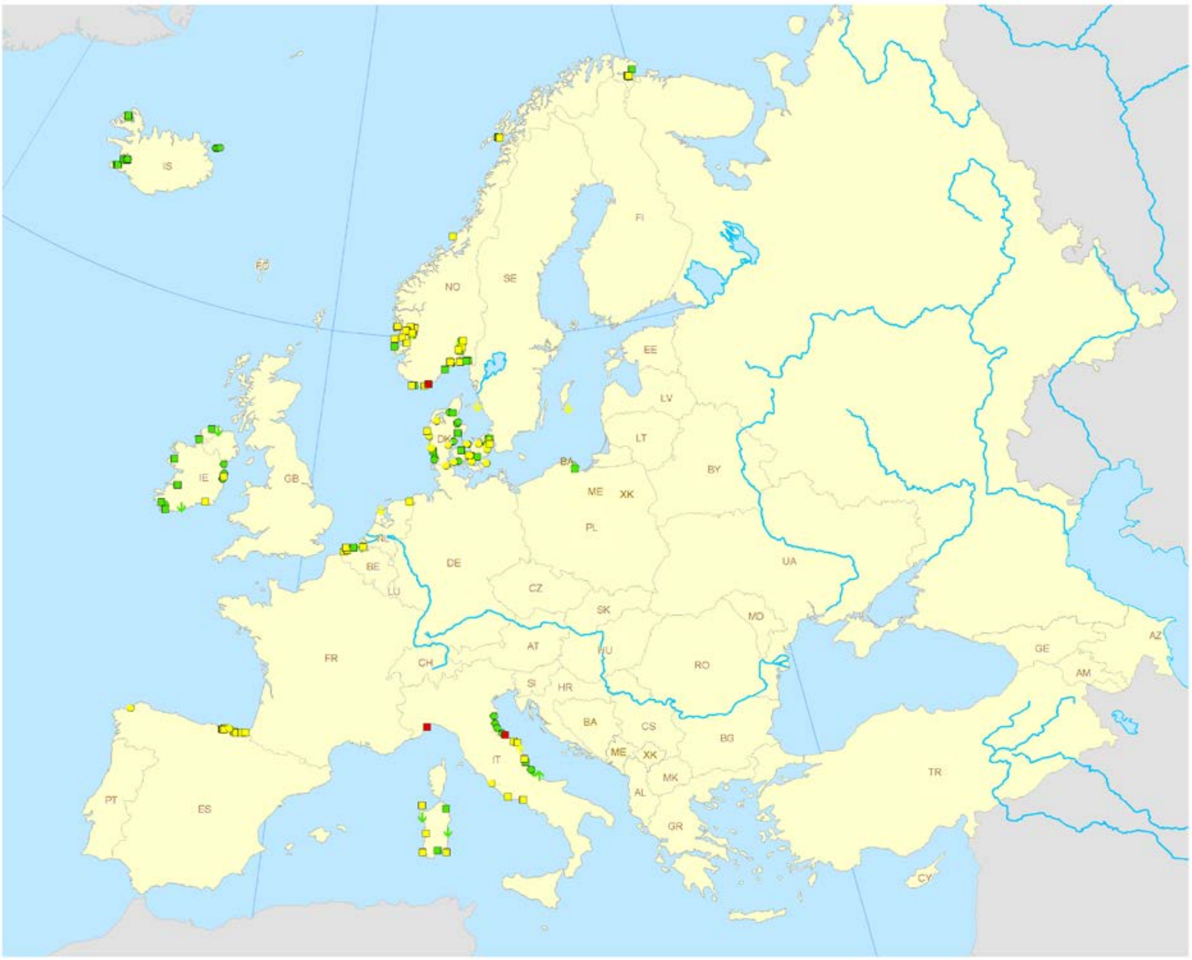
Note: The arrows indicate direction of significant trend (if any) and the colour indicates the concentration category for recent years as Low (green), Moderate (yellow) and High (red). (See Table 2.2.1 for description of symbols).

Sources: Data from HELCOM, OSPAR and EEA member countries.

Hexachlorobenzene (HCB)

Concentrations of HCB in recent years were generally classified as Low or Moderate in the north-east Atlantic, the Baltic Sea and the Mediterranean Sea. There is a predominance of no indication of improvement (no significant trend) for Moderate or High classifications (Assessment based on results for 1998–2010).

Figure 4.2.2.4 Trends and Low, Moderate and High concentrations of HCB in biota in European Seas



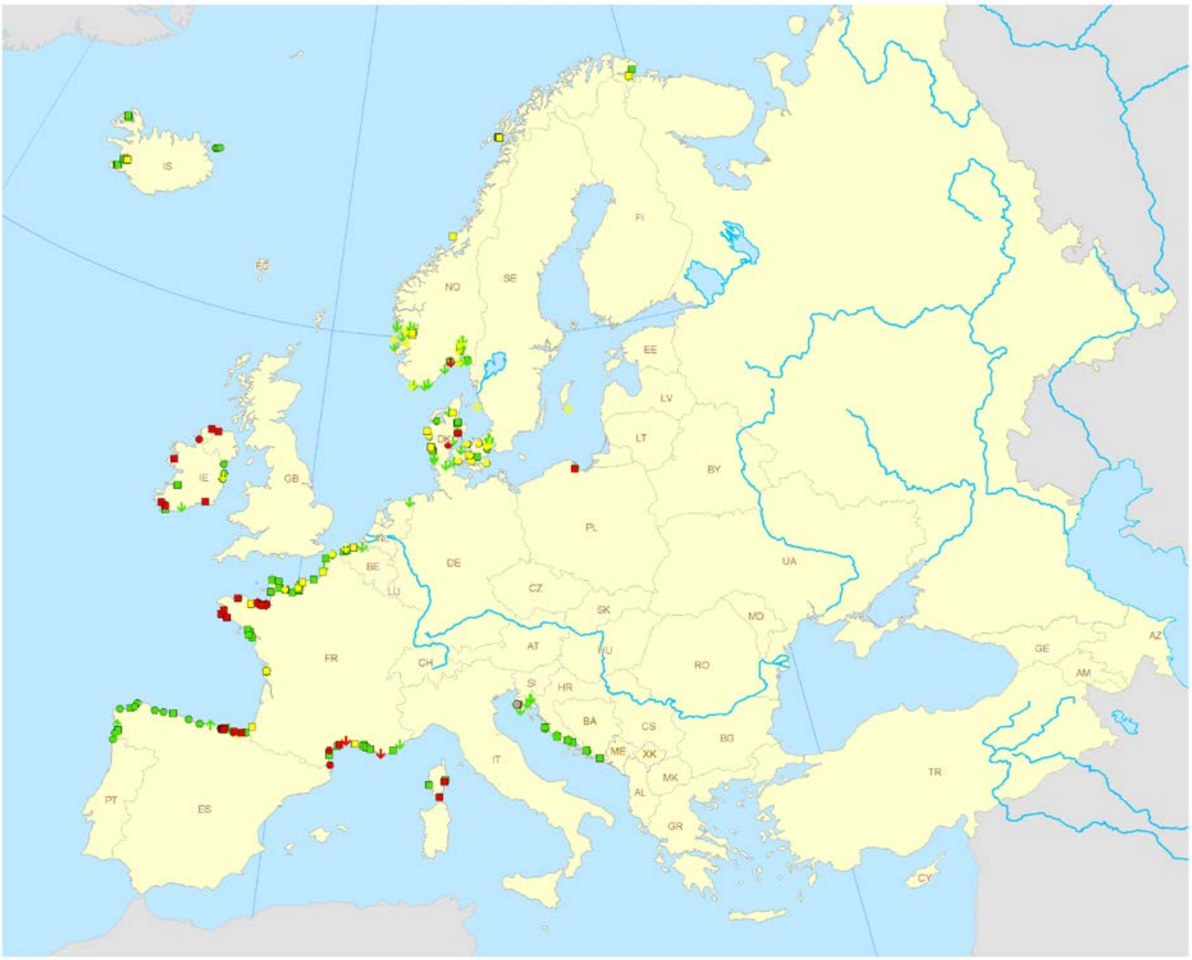
Notes: HCB = hexachlorobenzene. The arrows indicate direction of significant trend (if any) and the colour indicates the concentration category for recent years as Low (green), Moderate (yellow) and High (red). (See Table 2.2.1 for description of symbols).

Sources: Data from HELCOM, OSPAR and EEA member countries.

Gamma-HCH (Lindane)

Concentrations of lindane in recent years were generally classified as Low or Moderate in the north-east Atlantic, the Baltic Sea, and the Mediterranean Sea. Regional downward trends were found in all three seas; these are positive signs. However, where High concentrations are found, there is a predominance of not significant trends, and no indication of general improvement (Assessment based on results for 1998–2010).

Figure 4.2.2.5 Trends and Low, Moderate and High concentrations of lindane in biota in European Seas



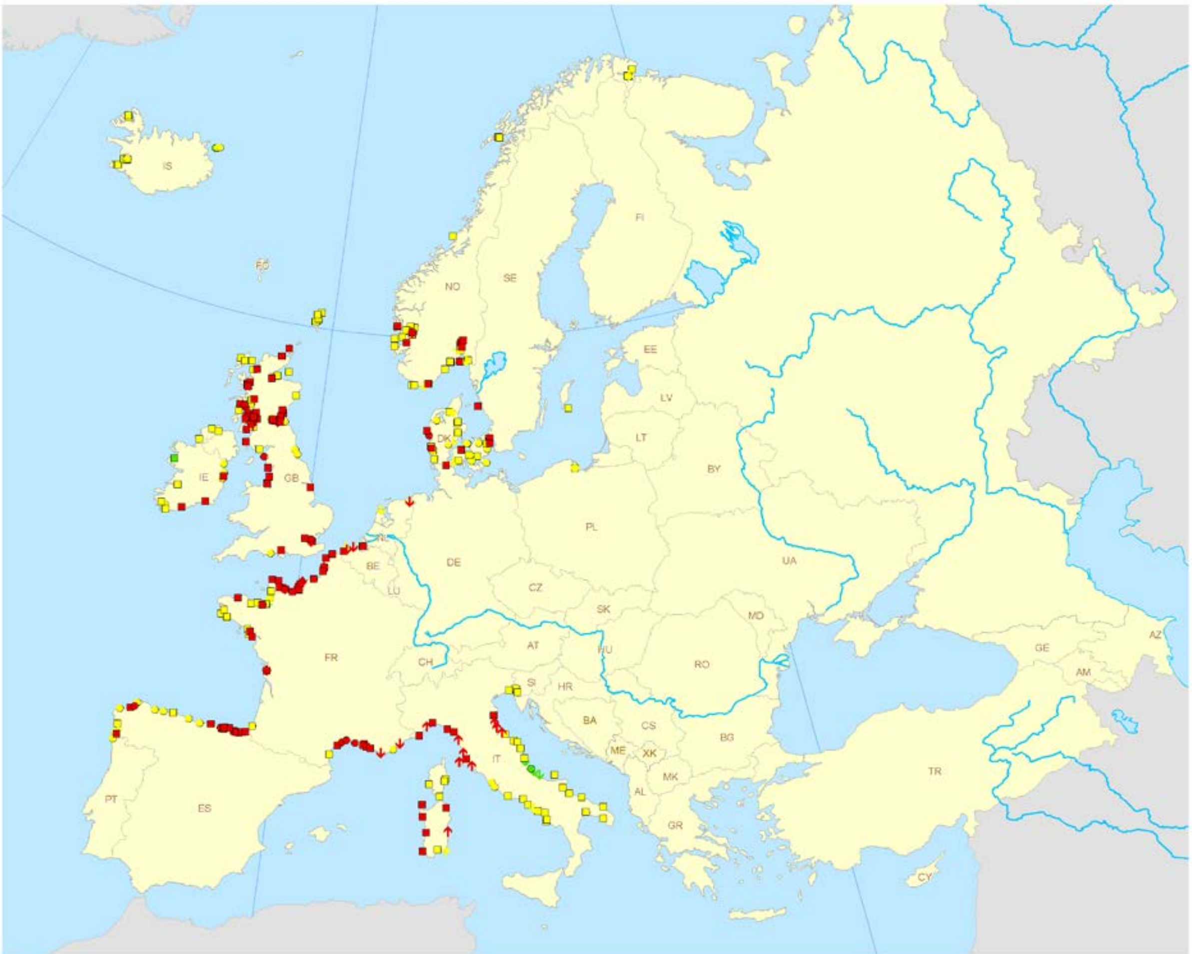
Notes: Lindane = gamma hexachlorocyclohexane (γHCH). The arrows indicate direction of significant trend (if any) and the colour indicates the concentration category for recent years as Low (green), Moderate (yellow) and High (red). (See Table 2.2.1 for description of symbols). Grey symbol on the western coast of Istria means, that a short time serie for this site resulted in the assessment level being above the highest observed value due to using upper 95 % confidence limits of average values for assessment, although all lindane concentrations in period 2002–2011 were lower than the limit.

Sources: Data from HELCOM, OSPAR and EEA member countries.

PCB

Concentrations of PCB in recent years were generally classified as Moderate or High in the north-east Atlantic, Baltic Sea and Mediterranean Sea. High concentrations were more dominant in the north-east Atlantic. Generally there was a predominance of downward trends over upward trends and a regional downward trend was found in the north-east Atlantic, which is positive. However, the large number of time series with High concentrations and that showed no significant downward trend could be grounds for concern (Assessment based on results for 1998–2010).

Figure 4.2.2.6 Trends and Low, Moderate and High concentrations of PCB in biota in European Seas



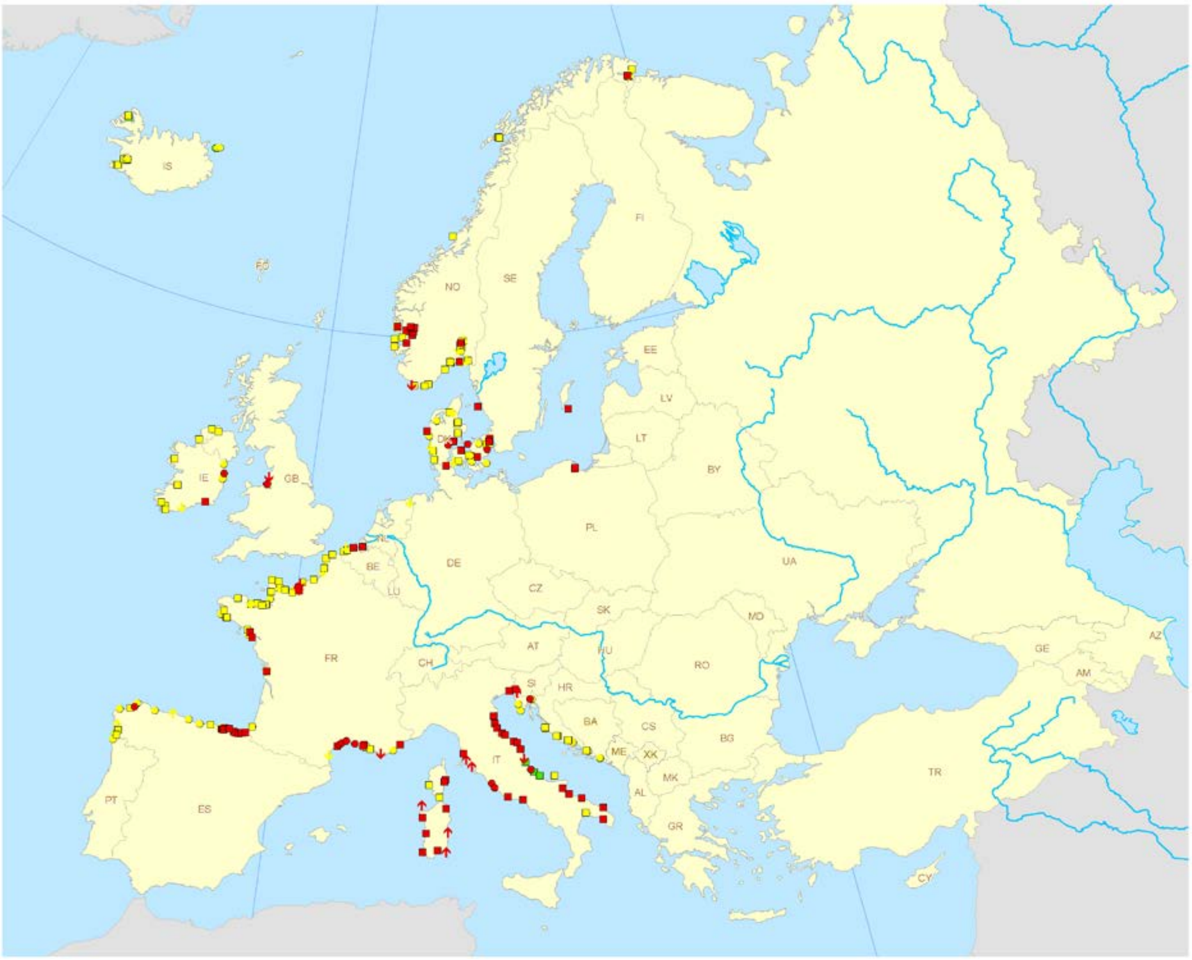
Notes: PCB = assessment based on the classification of the second highest congener of polychlorinated biphenyl (PCB) congeners 28, 52, 101, 118, 138, 153 and 180. The arrows indicate direction of significant trend (if any) and colour indicates the concentration category for recent years as Low (green), Moderate (yellow) and High (red). (See Table 2.2.1 for description of symbols).

Sources: Data from HELCOM, OSPAR and EEA member countries.

DDT

Concentrations of DDT in recent years were predominantly classified as Moderate or High in the north-east Atlantic, Baltic Sea and Mediterranean Sea. High level classifications were more dominant in the Baltic and Mediterranean Seas than in the north-east Atlantic. Generally there was a predominance of downward trends over upward trends and a regional downward trend was found in the north-east Atlantic, which is positive. However, the large number of time series with High concentrations and that showed no significant downward trend could be grounds for concern (Assessment based on results for 1998–2010).

Figure 4.2.2.7 Trends and Low, Moderate and High concentrations of DDT in biota in European Seas



Notes: DDT using DDE as representative. The arrows indicate direction of significant trend (if any) and colour indicates the concentration category for recent years as Low (green), Moderate (yellow) and High (red). (See Table 2.2.1 for description of symbols).

Sources: Data from HELCOM, OSPAR and EEA member countries.

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