|  |  |
| --- | --- |
| **EEA/NSV/13/002 – ETC/ICM**  |  |

2015 Freshwater Eionet Workshop

Background document for Session 3a

Report on a summary of the consultation of quality fact sheets (QFS)

Prepared by / compiled by:

Olaf Büttner (UFZ)

Peter Kristensen (EEA)

Hana Prchalova, Miroslav Fanta (CENIA)

Vit Kodes (CHMI)

Anne-Lyche Solheim, Jannicke Moe (NIVA)

Alexandros Zachos (NTUA)

Benoît Fribourg-Blanc (OIEau)

Gašper Šubelj, Marko Kovačič (TC Vode)

Anita Künitzer (UFZ)

EEA project manager: Peter Kristensen

Contents

[1 Introduction 2](#_Toc421084766)

[2 Overview of replies and comments for all data flows 4](#_Toc421084767)

[3 Water quality 6](#_Toc421084768)

[3.1 Rivers Nutrients 6](#_Toc421084769)

[3.2 Rivers Biology 9](#_Toc421084770)

[3.3 Lakes Nutrients 12](#_Toc421084771)

[3.4 Lakes Biology 15](#_Toc421084772)

[4 Groundwater – Nutrients 18](#_Toc421084773)

[5 Water quantity 21](#_Toc421084774)

[6 Emissions 24](#_Toc421084775)

[7 Hazardous Substances 28](#_Toc421084776)

[7.1 Rivers 28](#_Toc421084777)

[7.2 Lakes 31](#_Toc421084778)

[7.3 Groundwater 35](#_Toc421084779)

[8 The way forward – integrating the results from the quality fact sheets in Waterbase 40](#_Toc421084780)

[8.1 Clarifications and corrections of legacy data 40](#_Toc421084781)

[8.2 Improving the coverage of determinands, temporal and spatial coverage 40](#_Toc421084782)

[8.3 Revision of the data model and unifying the quality checks 41](#_Toc421084783)

Content of tables

[Table 1: Overview of replies and comments for all data flows 4](#_Toc421084731)

[Table 2: River Nutrients: Overview table with the 3 question groups 6](#_Toc421084732)

[Table 3: River Biology: Overview table with the 3 question groups 10](#_Toc421084733)

[Table 4: Lake Nutrients: Overview table with the 3 question groups 12](#_Toc421084734)

[Table 5: Lake Biology: Overview table with the 3 question groups 15](#_Toc421084735)

[Table 6: Groundwater Nutrients: Overview table with the 2 question groups 18](#_Toc421084736)

[Table 7 Water quantity: Overview table with the 3 question groups 21](#_Toc421084737)

[Table 8: Emissions Overview table with the 3 question groups 24](#_Toc421084738)

[Table 9: River HazSubs: Overview table with the 3 question groups 27](#_Toc421084739)

[Table 10: Lakes HazSubs: Overview table with the 3 question groups 31](#_Toc421084740)

[Table 11: Groundwater HazSubs: Overview table with the 3 question groups 34](#_Toc421084741)

# Introduction

The European Environment Agency (EEA) has the mandate to produce objective, reliable and comparable information to allow the Commission, member countries and the general public to judge the effectiveness of policy and the needs for policy development. This comprises straight forward State of Environment assessments using indicators such like the EEA Core Set of Indicators (CSI) and other more specific indicators to assess the state of, and trends in, the water environment.

The EEA Eionet priority data flows identify a set of agreed, stable, well-defined objectives to provide a focus for countries when they are putting procedures in place for regular reporting. The WISE SoE dataflow – i.e. the EIONET priority data flows on water - and Waterbase data sets contain information reported by EEA member countries over the last two decades (water quality in groundwater, rivers, lakes; emissions of pollutants and water quantity).

The data sets have successfully provided a solid basis of information for several of the EEA’s indicators and water assessments:

* The current Waterbase data sets contain a vast amount of water quality information covering more than 15000 river stations in 38 countries, 4200 lake stations in 36 countries, and around 24200 groundwater stations in 36 countries.
* For rivers, around 1000-1700 time series (dependent on the pollutant) are available, covering the period from 1992 to 2012 (with some longer time series and many shorter time series).
* The Waterbase data sets also include data on emissions and loads and on freshwater resource availability, abstraction and use. The data on emissions and water quantity have been collected annually since 2009 and are used as a basis for EEA indicators and assessments.
* The data in Waterbase are the basis for the EEA's water quality indicators and the WISE interactive maps that provide European overviews.

However, during the many years of reporting, some inconsistencies and errors have been introduced and persist in the Waterbase data sets: the EEA needs to consult with countries, clarify the issues detected on already reported data and solve such errors that may exist.

The WISE SoE data flows need a thorough review and restructuring of the reporting, the data handling and the quality assurance and quality control (QA/QC) procedures. The review will take into consideration the necessary alignment with the upcoming reporting under the Water Framework Directive (WFD), due in 2016, and the ongoing developments of the Water Information System for Europe (WISE 2.0).

As an outcome of the EIONET Freshwater workshop 26-27 June, 2014 a number of steps have been identified to improve the water data flows:

* Suspension of the 2014 freshwater data request (WISE-SoE groundwater, rivers, lakes, emissions and water quantity);
* Consultation with countries on country data quality factsheets, to clarify issues related to the data that has already been reported, and to improve its temporal and spatial coverage;

This review required resources both from the EEA and from member countries, so the data reporting needed to be suspended for one year (i.e. therefore there was no EIONET freshwater data request in 2014). The next data request will be issued in the autumn of 2015 and will cover data monitored over the last two years (2013 and 2014), plus additional updates identified during the quality fact sheet consultation. The reporting and the QA/QC procedures will be revised meanwhile, to support an improved and faster data processing, so that the updated indicators will again be available according to the normal schedule, in 2016.

The temporary suspension of the data exchange allowed the EEA/ETC-ICM and the NRCs to allocate the necessary resources for the activities related to the improvement of the quality of the data already reported, guided by the issues identified in the country quality fact sheets.

During the second half of 2014 the EEA/ETC-ICM produced quality fact sheets for all 39 countries and the consultation was run into two parts in December to March 2015 (Part 1: 15/12-15/2 & Part 2: 15/1-15/3).

The objective of the quality fact sheets has been to correct any errors in the data. An additional objective was to improve the spatial and temporal coverage and to ensure that the relevant parameters are reported.

This report presents an overview and a summary of the consultation of the quality fact sheets (QFSs). The report will be used as the background document for the June NRC freshwater Eionet workshop (17th/18th of June 2015), and as a general overview of changes needed in the Waterbases.

# Overview of replies and comments for all data flows

Table 1: Overview of replies and comments for all data flows

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | QFS part 1 | QFS part 2 |  |  |
| Country | Rivers - Nutrients | Rivers - Biology | Lakes - Nutrients | Lakes - Biology | Ground-water Nutrients | Water Quantity | Emissions | River HazSubs | Lakes HazSubs | Ground-water HazSubs | No of replies | No of dataflows with replies |
| AL | 6 | 1 | 6 | 1 | 6 | 0 | 0 | 0 | 0 | 0 | 20 | 5 |
| AT | 5 | 5 | 7 | 6 | 3 | 4 | 6 | 17 | 1 | 7 | 61 | 10 |
| BA |  |  |  |  |  |  |  |  |  |  | 0 | 0 |
| BE | 9 | 10 | 10 | 8 | 4 | 5 | 7 | 14 | 15 | 6 | 88 | 10 |
| BG | 9 | 11 | 9 | 9 | 3 | 6 | 7 | 9 | 12 | 7 | 82 | 10 |
| CH | 6 | 7 | 7 | 3 | 4 | 5 | 12 | 14 | 1 | 9 | 68 | 10 |
| CY | 9 | 7 | 10 | 9 | 3 | 3 | 0 | 10 | 14 | 7 | 72 | 9 |
| CZ | 6 | 1 | 1 | 1 | 2 | 0 | 6 | 9 | 1 | 5 | 32 | 9 |
| DE | 7 | 9 | 6 | 6 | 3 | 1 | 4 | 11 | 11 | 9 | 67 | 10 |
| DK | 6 | 0 | 8 | 5 | 0 | 0 | 7 | 0 | 0 | 0 | 26 | 4 |
| EE | 9 | 10 | 11 | 12 | 3 | 5 | 9 | 12 | 11 | 9 | 91 | 10 |
| ES |  |  |  |  |  |  |  |  |  |  | 0 | 0 |
| FI | 8 | 7 | 9 | 11 | 4 | 3 | 6 | 0 | 0 | 0 | 48 | 7 |
| FR | 9 | 7 | 10 | 2 | 2 | 6 | 9 | 15 | 13 | 8 | 81 | 10 |
| GB | 8 | 9 | 9 | 10 | 5 | 3 | 6 | 12 | 11 | 5 | 78 | 10 |
| GR |  |  |  |  |  |  |  |  |  |  | 0 | 0 |
| HR | 6 | 3 | 7 | 3 | 4 | 5 | 9 | 11 | 12 | 7 | 67 | 10 |
| HU | 3 | 1 | 0 | 1 | 3 | 2 | 5 | 0 | 0 | 0 | 15 | 6 |
| IE | 8 | 9 | 12 | 8 | 5 | 6 | 9 | 11 | 12 | 8 | 88 | 10 |
| IS | 3 | 1 | 5 | 8 | 4 | 5 | 0 | 9 | 10 | 5 | 50 | 9 |
| IT | 7 | 8 | 7 | 8 | 0 | 0 | 2 | 6 | 12 | 0 | 50 | 7 |
| LI |  |  |  |  |  |  |  |  |  |  | 0 | 0 |
| LT | 9 | 8 | 10 | 9 | 2 | 2 | 4 | 13 | 13 | 0 | 70 | 9 |
| LU |  |  |  |  |  |  |  |  |  |  | 0 | 0 |
| LV | 11 | 10 | 12 | 7 | 4 | 7 | 8 | 15 | 14 | 9 | 97 | 10 |
| ME |  |  |  |  |  |  |  |  |  |  | 0 | 0 |
| MK | 7 | 3 | 9 | 6 | 5 | 5 | 5 | 14 | 13 | 8 | 75 | 10 |
| MT |  |  |  |  |  |  |  |  |  |  | 0 | 0 |
| NL | 11 | 8 | 10 | 9 | 2 | 3 | 2 | 12 | 13 | 7 | 77 | 10 |
| NO | 9 | 8 | 10 | 8 | 3 | 2 | 9 | 12 | 16 | 5 | 82 | 10 |
| PL | 9 | 8 | 10 | 8 | 3 | 4 | 8 | 14 | 15 | 8 | 87 | 10 |
| PT | 8 | 9 | 10 | 11 | 4 | 6 | 8 | 14 | 15 | 10 | 95 | 10 |
| RO | 6 | 5 | 6 | 5 | 3 | 3 | 5 | 9 | 11 | 2 | 55 | 10 |
| RS | 8 | 3 | 9 | 3 | 3 | 5 | 8 | 14 | 13 | 10 | 76 | 10 |
| SE | 8 | 6 | 9 | 7 | 5 | 5 | 5 | 16 | 13 | 7 | 81 | 10 |
| SI | 5 | 7 | 7 | 7 | 4 | 5 | 5 | 13 | 11 | 7 | 71 | 10 |
| SK | 10 | 8 | 8 | 2 | 3 | 4 | 5 | 11 | 14 | 7 | 72 | 10 |
| TR | 2 | 1 | 4 | 1 | 0 | 5 | 0 | 0 | 0 | 0 | 13 | 5 |
| XK | 7 | 3 | 5 | 3 | 5 | 4 | 8 | 13 | 12 | 10 | 70 | 10 |
| No of replies | 234 | 193 | 253 | 197 | 104 | 119 | 184 | 330 | 309 | 182 | 2105 |
| Countries reporting | 32 | 31 | 31 | 32 | 29 | 28 | 28 | 27 | 27 | 25 |  |  |

Main results

* Countries provided an impressive number of replies to the questions asked in the Quality Fact Sheets. In total, there were more than 2100 comments/answers provided.
* Many good and valuable comments, answers and clarifications were received, and based on the comments that the quality of the different databases will be improved.
* Of 39 EEA member countries 32 countries provided comments on the questions asked in the QFS.
* Of the countries providing comments most of them (26 countries) provided comments on 10 (or 9) of the dataflows.
* There were no comments from seven countries: Bosnia-Herzegovina (BA), Spain (ES), Greece (GR), Liechtenstein (LI); Luxembourg (LU), Montenegro (ME), Malta (MT). In addition, Albania (AL) Denmark (DK), Finland (FI) and Turkey (TR) did not provide comments on the QFS part 2 on hazardous substances in water.
* On average there were more than seven comments provided per dataflow.
* When countries provided only 1 (2) comment(s), the answer generally was that these data are not available (for the moment).
* Nine out of the ten data flows had replies from around 30 of the countries; while 25 countries replied on the data flow on hazardous substances in groundwater.

# Water quality

## Rivers Nutrients

General results

* Of 39 EEA member countries 32 countries provided comments on the questions asked in relation to rivers nutrients
* The reporting countries generally answered most of the questions. In total 234 comments were provided.
* All reporting countries answered the clarifying questions; and 30 out of 32 countries answered questions on improving temporal and spatial coverage.
* 25 countries provided references to “State of water reports”; water indicators; and/or water quality databases.
* Switzerland and other countries comment that they will resubmit all data.

Table 2: River Nutrients: Overview table with the 3 question groups

| Country | Clarifying questions on data in the current database | Improving coverage of determinands, temporal and spatial coverage | Links/references |
| --- | --- | --- | --- |
| AL | 4 | 2 |  |
| AT | 2 | 3 |  |
| BE | 3 | 3 | 3 |
| BG | 4 | 3 | 2 |
| CH | 1 | 2 | 3 |
| CY | 3 | 3 | 3 |
| CZ | 2 | 3 | 1 |
| DE | 2 | 3 | 2 |
| DK | 2 | 3 | 1 |
| EE | 3 | 3 | 3 |
| FI | 3 | 3 | 2 |
| FR | 3 | 3 | 3 |
| GB/UK | 5 | 3 |  |
| HR | 2 | 2 | 2 |
| HU | 1 | 2 |  |
| IE | 3 | 3 | 2 |
| IS | 1 | 2 |  |
| IT | 4 | 3 |  |
| LT | 3 | 3 | 3 |
| LV | 5 | 3 | 3 |
| MK | 2 | 2 | 3 |
| NL | 3 | 4 | 4 |
| NO | 3 | 3 | 3 |
| PL | 3 | 3 | 3 |
| PT | 2 | 3 | 3 |
| RO | 3 | 3 |  |
| RS | 3 | 2 | 3 |
| SE | 4 | 3 | 1 |
| SI | 2 | 3 |  |
| SK | 4 | 3 | 3 |
| TR | 2 |  |  |
| XK | 1 | 3 | 3 |
| No of countries replying | **32** | **31** | **23** |

Question 1: Clarifying questions on data in the current database

The table below provides an overview of the countries that have provided answers to the questions asked for clarification and the current database. Most of the reporting countries provided information on changes in station-IDs.

| Questions\* | Answers |
| --- | --- |
| Aggregation period [[1]](#footnote-1) | 11 countries have clarified questions related to the reported aggregation period.For some countries the years reported as seasonal data can be considered as annual data.Other countries have changed monitoring frequence (e.g. from annual to summer) and the time series are lost.*Changes will be implemented in the database according to country comments – in case of questions the respective countries will be contacted for clarification*. |
| Differences in station\_id (codes) | 30 countries have provided information on changes in station\_Id – or changes in monitoring networks.*Changes will be implemented in the database according to country comments – in case of questions the respective countries will be contacted for clarification*. |
| Ammonium or total ammonium[[2]](#footnote-2) | 28 countries have clarified questions related to Ammonium or total ammonium.All countries have clarified that it is the same determinands.*Changes will be implemented in the database and in the future only ammonium is to be reported.* |
| COD, BOD or TOC | 11 countries have clarified questions on reported CODcr, CODmg, COD or TOC/DOC*Changes will be implemented in the database according to country comments* |
| Nitrate and Total oxidised Nitrogen | 3 countries have clarified questions on reported Nitrate ands Total oxidised Nitrogen*Changes will be implemented in the database according to country comments* |
| Suspicious values | 3 countries have clarified questions on suspicious values (e.g. years with very high or low values) in the database |

\*Not all countries have been asked all questions

Question 2: Improving coverage of determinands, temporal and spatial coverage

|  |  |
| --- | --- |
| Questions\* | Answers |
| Extend the temporal coverage | 31 countries answered the question on filling gaps in time series and extending time series with earlier data. * Some countries indicated that they would resubmit all their data to ensure that their data are fully represented in Waterbase.
* Some countries indicated that they could report data from missing years during the next report round.
* Other countries clarified that the gaps in data are real gaps because there are no monitoring and observations.
 |
| Representativeness of current stations[[3]](#footnote-3) | 31 countries answered the question if the current list of stations are representative with respect to geographical and pressure gradients. Most countries indicated that the stations are geographical representative. In some cases the reported stations are not fully representative for the pressure gradient (e.g. alpine or smaller streams being under represented). Some countries indicated that they may adjust the station list to be more representative. *The EEA will explore different options on how we can ensure that the reported data are robust and in cooperation with the countries with not fully representative networks to discuss the solutions.* |
| Waterbody codes | 23 countries answered the question WaterBodyID being missing for some stations or being different from the codes reported under the WFD. Countries generally indicated that the missing WaterBodyID codes can be submitted during the next reporting round.*The EEA will specify the need for missing WaterBodyIDs during the next reporting round and part of the problem will be solved by the revised data model.* |

Question 3: Links/references

The table below provides an overview of the countries that have provided references or links to national “State of water reports”; water indicators; and/or water quality databases.

|  |  |  |  |
| --- | --- | --- | --- |
| Country | National water quality reports | National water quality indicators | National water quality data sets or databases. |
| BE | 2 | 3 | 2 |
| BG | 3 | 3 |  |
| CH | 1 | 1 | 1 |
| CY | 1 |  |  |
| DE | 2 | 1 |  |
| DK | 2 |  |  |
| EE | 2 | 5 |  |
| FI |  | 3 | 1 |
| FR | 6 | 5 | 5 |
| IE | 2 |  |  |
| LT | 1 | 1 | 1 |
| LU |  |  |  |
| LV | 1 | 1 | 1 |
| MK | 1 | 1 |  |
| NO | 2 | 1 | 2 |
| PL | 1 | 1 |  |
| PT | 2 | 2 | 1 |
| RS | 1 | 1 | 1 |
| SE |  |  | 2 |
| SK | 4 | 1 |  |
| XK | 2 |  | 1 |
| No of countries replying | ***18*** | ***15*** | ***12*** |

* Links to national state of water reports were provided by 20 countries and 18 countries provided links to water quality indicators.
* Information on national river water quality databases were provided by 19 countries. Three quarters (14) of these countries have made the databases available on the internet. In most cases access to the databases are restricted by registration/logon, but access can generally be granted by request.

## Rivers Biology

General results

* 31 countries provided comments on the questions asked in relation to rivers biology.
* Countries received both common and country-specific questions. In total 191 replies were given.
* 19 countries answered the clarifying questions; 29 answered questions on improving temporal and spatial coverage.
* 18 countries provided references to “State of water biology reports” or biology indicators.

Table 3: River Biology: Overview table with the 3 question groups

|  |  |  |  |
| --- | --- | --- | --- |
| Country | Clarifying questions on data in the current database | Improving coverage of determinands, temporal and spatial coverage | Links/references |
| AL |  | 1 |  |
| AT | 1 | 4 |  |
| BG | 3 | 4 | 3 |
| CH | 1 | 4 | 2 |
| CY | 2 | 3 | 2 |
| CZ |  | 1 |  |
| DE | 3 | 3 | 2 |
| EE | 3 | 5 | 2 |
| FI | 2 | 5 | 1 |
| FR | 2 | 3 | 2 |
| GB | 3 | 6 |  |
| HR |  | 1 |  |
| HU |  | 1 |  |
| IE |  | 1 | 2 |
| IS |  | 1 |  |
| LT | 2 | 4 | 2 |
| LV | 4 | 4 | 2 |
| MK |  | 1 | 2 |
| NL | 3 | 3 | 2 |
| NO | 1 | 4 | 3 |
| PL | 2 | 4 | 2 |
| PT | 2 | 5 | 2 |
| RO | 1 | 4 |  |
| RS |  | 1 | 2 |
| SE | 3 | 3 |  |
| SI | 3 | 4 |  |
| SK | 2 | 4 | 2 |
| TR |  | 1 |  |
| XK |  | 1 |  |
| No of countries replying | **19** | **29** | **18** |

Question 1: Clarifying questions on data in the current database

The reporting frequency of river biology data is normally determined by each country's monitoring frequency. A few countries still experience problems with reporting national EQR values and/or the classification system; the reason is generally that the national classification system is more complex than what is permitted by the database structure.

|  |  |
| --- | --- |
| Questions\* | Answers |
| Frequency of reporting | 22 countries have replied; there is large variation. 8 countries will report only every 6 years; 4 countries every 3 years; 3 countries every year; remaining countries every 1-6 years for different stations. |
| Aggregation period | 6 countries have replied. Most countries state that the sampling period can represent the whole year, but that EEA's view on aggregation periods should be better explained in the Data Dictionary.*Changes will be implemented in the database: The key field AggregationPeriod will be removed and replaced by descriptive fields. Only one aggregation period can be reported for each determinand (per station and year). In case of questions the respective countries will be contacted for clarification.* |
| Classification system etc. | Clarification on classification systems was provided by 7 countries. EQR values (not only status class) can be reported for 3 more countries. Normalised EQR values can be reported by 3 more countries (e.g. in cases where it is difficult to report the classification system).*This will be stated in the data dictionary: if the national classification system is too complex to be reported in the classification table, countries can choose to report normalised EQRs instead of national EQRs and the classification system.* |

\*Not all countries have been asked all questions

Question 2: Improving coverage of determinands, temporal and spatial coverage

There is large potential for improving the coverage of river biology data: from more countries, from more RBDs within countries, from more stations and from missing years. A new determinand (fish EQR) can probably be reported by more than half of the countries that have replied.

|  |  |
| --- | --- |
| Questions\* | Answers |
| Availability | Future reporting of river biology data is likely for 5 more countries. |
| Increase number of stations | Increased number of stations is likely or possible for 8 countries, although not every year. Increased number of stations is unlikely or impossible for 14 countries; reasons are typically resource limitations, or that the current selection of stations is considered representative. |
| Missing RBDs | Increased number of RBDs is likely or possible for 3 countries and unlikely or impossible for 8 countries. Reasons are e.g. that these RBDs don't contain suitable waterbodies, or not sufficient number to improve geographic representativeness.  |
| Missing years | Reporting of missing years is possible for 6 countries. |
| Consistency with WFD stations | Checking and adjusting of SoE stations to obtain consistency with WFD status class distribution is possible for 4 countries. All monitoring stations will be reported by 2 countries, while 3 other countries consider their monitoring stations representative.  |
| BQE related to fish | Reporting of fish EQR or status class is likely or possible for 13 countries and unlikely or impossible for 9 countries. The reasons are lack of monitoring and/or lack of classification system. |
| Phytobenthos | Reporting of phytobenthos data is possible for 5 more countries. |

\*Not all countries have been asked all questions

Question 3: Links/references

|  |  |
| --- | --- |
| Questions\* | Answers |
| Biology indicators | 15 countries have provided links. |
| Biology reports | 16 countries have provided links. |

## Lakes Nutrients

General results

* 31 countries out of 39 EEA member countries provided comments on the questions asked in relation lake nutrients.
* The reporting countries generally answered most of the questions. In total 253 comments were provided.
* 31 out of 39 countries answered the clarifying questions; and 29 out of 39 countries answered questions on improving data coverage.
* 20 countries provided references to National lake nutrients reports; lake nutrients indicators and/or lake nutrients data sets - databases.

Table 4: Lake Nutrients: Overview table with the 3 question groups

| Country | Clarifying questions on data in the current database | Improving coverage of determinands, temporal and spatial coverage | Links/references |
| --- | --- | --- | --- |
| AL | 3 | 3 |  |
| AT | 4 | 3 |  |
| BE | 4 | 3 | 3 |
| BG | 4 | 3 | 2 |
| CH | 2 | 2 | 3 |
| CY | 4 | 3 | 3 |
| CZ | 1 |  |  |
| DE | 3 | 3 |  |
| DK | 5 | 3 |  |
| EE | 5 | 3 | 3 |
| FI | 4 | 3 | 2 |
| FR | 4 | 3 | 3 |
| GB | 6 | 3 |  |
| HR | 3 | 2 | 2 |
| IE | 5 | 3 | 4 |
| IS | 3 | 2 |  |
| IT | 4 | 3 |  |
| LT | 4 | 3 | 3 |
| LV | 6 | 3 | 3 |
| MK | 4 | 2 | 3 |
| NL | 4 | 3 | 3 |
| NO | 4 | 3 | 3 |
| PL | 4 | 3 | 3 |
| PT | 4 | 3 | 3 |
| RO | 3 | 3 |  |
| RS | 4 | 2 | 3 |
| SE | 5 | 3 | 1 |
| SI | 4 | 3 |  |
| SK | 3 | 3 | 2 |
| TR | 2 | 2 |  |
| XK | 2 |  | 3 |
| No of countries replying | ***31*** | ***29*** | ***20*** |

Question 1: Clarifying questions on data in current database

|  |  |
| --- | --- |
| Questions\* | Answers |
| Aggregation period  | 19 countries have clarified questions related to the reported aggregation period.12 of these countries confirmed that there was no change in methodology – the AggregationPeriod definitions are correct and should not be changed. 3 countries have reported AggregationPeriod = Growth or Summer, but these were actually annual measurements. 1 country has reported Aggregationperiod = Autumn, while this is actually annual. Three countries have changed the methodology (e.g. due to WFD requirements) which means that time series could not be connected.*Changes will be implemented in the database according to country comments – in case of questions the respective countries will be contacted for clarification.* |
| Differences in station\_id (codes) | All countries which were asked to explain recodification answered this. This was typically due to change in authorities, and in some cases due to delisting of stations between two periods. Some countries can provide additional recodification mapping tables with the next reporting.*Changes will be implemented in the database according to country comments – in case of questions the respective countries will be contacted for clarification.* |
| Ammonium or total ammonium | The majority of countries clearly confirms that this is the same substance and was reported under different names due to EEA requirements. In some cases, measurement methodologies are further explained, however without consensus – different interpretations of measuring NH4+ and NH3. There is also no agreement whether only “Ammonium” or only “Total ammonium” should be used. |
| Sampling depth | Varies between countries and between provinces. Even if sample depths were not reported, countries confirm that in majority of cases it cannot be said that sampling was done on surface. In some cases, it is already vertically aggregated. Only a few countries are willing to provide sampling depth legacy data. |

\*Not all countries have been asked all questions

Question 2: Improving coverage of determinands, temporal and spatial coverage

|  |  |
| --- | --- |
| Questions\* | Answers |
| Extend the temporal coverage | 13 countries (and additional 3 conditionally) have responded that they can send some additional legacy data for missing years or to extend time series backwards. Also, additional parameters could be delivered in some cases. More data will be measured and available in future years in 1 country (TR). |
| Representativeness of current stations[[4]](#footnote-4) | Stations are usually representative, especially on those geographic RBDs where there are lakes. This is especially true for geographic representativity, but less for pressure grade representativity. Spatial representativity also depends on the time period. In the answers, methodologies on positioning monitoring stations are explained. In some cases, they have been selected according to WFD standards or “on the criteria in Eurowaternet (EEA tech. report 7).“ |
| Waterbody codes | Varies between countries. More than half of the countries have waterbody codes identical to WFD codes. |

Question 3: Links/references

The table below provides an overview of the countries that have provided references or links to national “State of water reports”; water indicators; and/or water quality databases.

|  |  |  |  |
| --- | --- | --- | --- |
| Country | National water quality reports | National water quality indicators | National water quality data sets or databases. |
| BE | 1 |  | 2 |
| BG | 3 | 3 | 1 |
| CH | 1 | 1 | 2 |
| CY | 1 |  | 2 |
| EE | 2 | 2 | 1 |
| FI |  | 2 | 1 |
| FR | 3 | 1 | Under development |
| HR |  |  | Exists, but not given |
| IE | 1 | 1 | 1 |
| LT | 1 | 1 | 1 |
| LV | 1 | 1 | 1 |
| MK | 1 |  | Will be produced |
| NL | 1 | 1 | Will be available in 2016 |
| NO | 1 | 1 | 1 |
| PL | 1 | 2 | 1 |
| PT | 2 | 2 | 1 |
| RS | 1 | 1 | 1 |
| SE |  |  | 2 |
| SK |  |  | 2 (available on request) |
| XK | 1 | 1 | 1 |
| No of countries replying | **16** | **14** | **20** |

## Lakes Biology

General results

* 32 countries provided comments on the questions asked in relation to lakes biology.
* Countries received both common and country-specific questions. In total 188 replies were given.
* 20 countries answered the clarifying questions; 29 answered questions on improving temporal and spatial coverage.
* 14 countries provided references to “State of water biology reports” or biology indicators.

Table 5: Lake Biology: Overview table with the 3 question groups

|  |  |  |  |
| --- | --- | --- | --- |
| Country | Clarifying questions on data in the current database | Improving coverage of determinands, temporal and spatial coverage | Links/references |
| AL |  | 1 |  |
| AT | 1 | 5 |  |
| BG | 2 | 5 | 2 |
| CH |  | 1 | 2 |
| CY | 5 | 2 | 2 |
| CZ |  | 1 |  |
| DE | 3 | 3 |  |
| DK | 5 |  |  |
| EE | 5 | 5 | 2 |
| FI | 3 | 8 | 1 |
| FR |  | 1 |  |
| GB | 4 | 6 |  |
| HR |  | 1 |  |
| HU |  | 1 |  |
| IE | 2 | 4 | 2 |
| IS | 2 | 6 |  |
| LT | 3 | 4 | 2 |
| LV | 2 | 3 | 2 |
| MK | 1 | 3 |  |
| NL | 3 | 4 | 2 |
| NO | 2 | 4 | 2 |
| PL | 2 | 4 | 2 |
| PT | 3 | 6 | 2 |
| RO | 1 | 4 |  |
| RS |  | 1 | 2 |
| SE | 3 | 4 |  |
| SI | 2 | 5 |  |
| SK |  | 1 |  |
| TR |  | 1 |  |
| XK |  | 1 |  |
| No of countries replying | **20** | **29** | **14** |

Question 1: Clarifying questions on data in the current database

The reporting frequency of lake biology data is normally determined by each country's monitoring frequency. A few countries still experience problems with reporting national EQR values and/or the classification system; the reason is generally that the national classification system is more complex than what is permitted by the database structure.

|  |  |
| --- | --- |
| Questions\* | Answers |
| Frequency of reporting | 20 countries have replied; there is large variation. 11 countries will report only every 6 years; 3 countries every 3 years; 3 countries every year; remaining countries every 1-6 years for different stations. Different frequency for phytoplankton and macrophytes is mentioned by only 4 countries. |
| Aggregation period | 10 countries have replied. Most countries state that the sampling period can represent the whole year, but that EEA's view on aggregation periods should be better explained in the Data Dictionary.*Changes will be implemented in the database: The key field AggregationPeriod will be removed and replaced by descriptive fields. Only one aggregation period can be reported for each determinand (per station and year). In case of questions the respective countries will be contacted for clarification.* |
| Classification system etc. | Clarification on classification systems was provided by 7 countries. EQR values (not only status class) can be reported for 3 more countries. Normalised EQR values can be reported by 3 more countries (e.g. in cases where it is difficult to report the classification system).*This will be stated in the data dictionary: if the national classification system is too complex to be reported in the classification table, countries can choose to report normalised EQRs instead of national EQRs and the classification system.* |
| Scale | Clarification on scale issues is still needed for 3 more countries.*Change to be implemented in the database: Additional biological metrics in original scale will be merged with water quality data; the biology tables will contain data only in EQR scale.* |

\*Not all countries have been asked all questions

Question 2: Improving coverage of determinands, temporal and spatial coverage

There is potential for improving the coverage of lakes biology data: from more countries, from more RBDs within countries, from more stations and from missing years. Some countries can also report more determinands (phytoplankton and/or macrophytes).

|  |  |
| --- | --- |
| Questions\* | Answers |
| Availability | Future reporting of lakes biology data is likely for 6 more countries. |
| Increase number of stations | Increased number of stations is likely or possible for 9 countries, although not every year. Increased number of stations is unlikely or impossible for 12 countries; reasons are typically resource limitations, or that the the current selection of stations is considered representative. |
| Missing RBDs | Increased number of RBDs is likely or possible for 4 countries and unlikely or impossible for 8 countries. Reasons are e.g. that these RBDs don't contain suitable waterbodies, or not sufficient number to improve geographic representativeness.  |
| Missing years | Reporting of missing years is possible for 4 countries. |
| Consistency with WFD stations | Expanding/change of SoE stations for consistency with WFD status class distribution is not likely/possible for 2 countries. 3 countries consider their current monitoring stations representative. In case more stations are reported, better consistency is probable or likely for 5 countries. All monitoring stations are reported by 1 country. |
| PhytoplanktonEQR | Phytoplankton EQR values can be reported by one more country. |
| MacrophytesEQR | Macrophyte EQR values can be reported by 3 more countries. |
| Additional metrics for macrophytes and phytoplankton | Reporting of additional metrics in original scale is possible from 9 more countries; 4 for phytoplankton and 6 for macrophytes. *In the revised database model, these data will be reported in the water quality content table.*  |

Question 3: Links/references

|  |  |
| --- | --- |
| Questions\* | Answers |
| Biology indicators | 12 countries have provided links. |
| Biology reports | 13 countries have provided links. |

# Groundwater – Nutrients

General results

* Out of 39 EEA member countries 29 countries provided comments on the questions asked in relation to groundwater – nutrients;
* 10 countries did not reply
* Countries were asked to reply on 143 questions all together
* The reporting countries generally answered most of the questions. In total 104 questions were answered or commented.
* 39 questions addressed to 10 countries (BA, DK, ES, GR, IT, LI, LU, ME, MT and TR) remain without reply.

Table 6: Groundwater Nutrients: Overview table with the 2 question groups

|  |  |  |
| --- | --- | --- |
| Country | Clarifying questions on data in the current database | Improving coverage of determinands, temporal and spatial coverage |
| AL | 3 | 3 |
| AT | 2 | 1 |
| BE | 1 | 3 |
| BG | 1 | 2 |
| CH | 1 | 3 |
| CY | 1 | 2 |
| CZ | 1 | 1 |
| DE | 2 | 1 |
| EE | 1 | 2 |
| FI | 2 | 2 |
| FR | 1 | 1 |
| GB | 2 | 3 |
| HR | 1 | 3 |
| HU | 1 | 2 |
| IE | 4 | 1 |
| IS | 1 | 3 |
| LT | 1 | 1 |
| LV | 1 | 3 |
| MK | 2 | 3 |
| NL | 1 | 1 |
| NO | 1 | 2 |
| PL | 1 | 2 |
| PT | 1 | 3 |
| RO | 1 | 2 |
| RS | 1 | 2 |
| SE | 3 | 2 |
| SI | 1 | 3 |
| SK | 2 | 1 |
| XK | 1 | 4 |
| No of questions replied | **42** | **62** |
| No of countries replying | **29**  | **29** |

In the overview below, countries providing the reply are taken into account only. For example, concerning the question “Fillig the gaps....“, the information “25 countries were asked...“means 25 countries out of 29 countries providing the reply.

Question 1: Clarifying questions on data in the current database

|  |  |
| --- | --- |
| Questions\* | Answers |
| Filling the gaps in preferred SoE nutrients, providing older data | 25 countries were asked to fill the gaps in the previously delivered data on nitrate, nitrite, ammonium, dissolved oxygen, orthophosphates or phosphorus or extend the time series of availability of these determinands to the past and provide data older than oldest data currently included in the SoE groundwater working database.Out of this 14 countries cannot provide requested data due to various reasons (data not available (most frequent reply), not consistent, not reliable, no reporting at the requested period, lack of financial resources). In the case of Cyprus, this negative standpoint can be changed after checking of the old data.11 countries promised to deliver the requested data (BE, BG, CZ, DE, FI, FR, HU, PT, RS, SE, SK), but 4 of them (DE, FI, FR, SK) are not sure whether their search on requested data is successful. |
| Providing of disaggregated data instead of aggregated ones reported in the past | 16 countries were asked to replace their data reported in the past as aggregated by groundwater bodies by raw disaggregated data, which are preferred. 8 countries can not provide requested redelivery (out of this, in the case of Norway there is a chance to revoke this negative reply after checking of their data sources).7 countries (AT, FI, LT, LV, NL, PT and SE) promised to redeliver requested disaggregated data, but in the case of Finland and Latvia countries are not sure if requested disaggregated data are available or complete.1 country (Ireland) confirmed duplicity of aggregated and disaggregated data reported together for the limited period in the past. Therefore, aggregated data for this period can be deleted from the database. |
| Clarification of spatial data, adding new spatial data (information on monitoring stations, groundwater bodies or river basin districts) | 11 countries were asked to improve the quality of their spatial data or add new spatial objects (e.g. missing coordinates of stations, missing stations in certain areas of the country, delineation of groundwater bodies or RBDs which is not available up to now – in this case countries were asked also for their plans in the future)3 countries cannot improve the status, availablility or spatial coverage of their spatial data.8 countries promised to improve the quality or spatial coverage of their data (e.g. Croatia will provide rounded coordinates of their groundwater quality of their monitoring stations). Out of this, 2 countries (Macedonia, Kosovo) cannot report the requested data now, but they have plans to do this in the future (especially delineation of river basin districts). |
| Solving of inconsistencies in the data delivered in the past | Germany promised to focus on this problem (especially identification of “missing” stations). Unfortunately, Italy did not answer this question. |

\*Not all countries have been asked all questions

Question 2: Improving coverage of determinands, temporal and spatial coverage

|  |  |
| --- | --- |
| Questions\* | Answers |
| Providing data on substances which were not reported by the given country at all | 3 countries were asked for data on nitrates and (or) nitrites. Out of this, 2 countries cannot provide data on missing substances and 1 country (Cyprus) will try to realize this request, but they have to check the availability of data before.2 countries were asked for delivery of concentrations on ammonium – positive feedback from 1 country was received (Great Britain).21 countries were asked for data on orthophosphates and (or) or phosphorus / total phosphorus. Therefore, data on these important substances are missing from many countries. Out of this, 8 countries can not provide requested data (substances are not monitored or results of monitoring are not available). 6 countries promised delivery of concentrations of these substances, next 4 countries are ready to report these substances as well, but they have to check their data sources before if these substances are available and 3 countries promised delivery of orthophosphates and (or) or phosphorus in the future. |
| Providing concentrations data from more stations, increasing the area which is covered by reported data | 15 countries were asked to improve the spatial coverage of their country by reported data, because spatial distribution of monitoring stations was unequal, large areas of the country were not monitored or the density of stations in certain areas of the country was very low.Out of this, 12 countries are not planning to extend the monitored area or increase the density of stations in specified areas, because, according to their knowledge of local conditions, they find current spatial coverage of monitoring as sufficient and representative for the given area or country. Areas with a low density of stations are not polluted (no industry, low density of inhabitants in the area, mountain areas) or current stations are representative for an entire area.2 countries (Macedonia, Portugal) can increase the density of stations or monitored areas in the future. |

# Water quantity

General results

* Of 39 EEA member countries 28 countries provided comments on the questions asked in relation to water quantity
* In total 119 comments were provided.
* 22 out of 28 countries answered questions on improving temporal and spatial coverage.
* 23 countries provided references to “State of water reports”; water indicators; and/or water quantity databases.

Table 7 Water quantity: Overview table with the 3 question groups

|  |  |  |  |
| --- | --- | --- | --- |
| Country | Clarifying questions on data in the current database | Improving coverage of determinands, temporal and spatial coverage | Links/references |
| AT | 1 | 1 | 2 |
| BE | 1 | 1 | 3 |
| BG | 1 | 2 | 3 |
| CH | 1 | 1 | 3 |
| CY | 1 | 1 | 1 |
| DE |  | 1 |  |
| EE | 1 | 1 | 3 |
| FI |  | 1 | 2 |
| FR | 1 | 2 | 3 |
| GB | 1 | 2 |  |
| HR | 1 | 2 | 2 |
| HU |  | 2 |  |
| IE | 1 | 2 | 3 |
| IS | 1 | 1 | 3 |
| LT | 1 | 1 |  |
| LV | 2 | 1 | 4 |
| MK | 1 | 1 | 3 |
| NL | 1 | 1 | 1 |
| NO |  | 1 | 1 |
| PL |  | 1 | 3 |
| PT | 1 | 2 | 3 |
| RO | 1 | 2 |  |
| RS | 1 | 1 | 3 |
| SE | 1 | 1 | 3 |
| SI | 1 | 1 | 3 |
| SK | 1 | 1 | 2 |
| TR | 1 | 2 | 2 |
| XK |  | 1 | 3 |
| No of countries replying | **22** | **28** | **23** |

Question 1: Clarifying questions on data in the current database

|  |  |
| --- | --- |
| Questions\* | Answers |
| Outlier identification and report back the updated data | 12 Countries indicated that they will correct outliers or station coordinates in the next reporting cycle.Some countries indicated about Internal flow violation rule. The equation is not reflecting their models. This issue will be fixed on the next reporting cycle. |

\*Not all countries have been asked all questions

Question 2: Improving coverage of determinands, temporal and spatial coverage

|  |  |
| --- | --- |
| Questions\* | Answers |
| Fulfil the gaps in the time series | 12 Countries responded that they can expand data coverage on Water Balance parameters.For example Cyprus indicated that it can provide wider data coverage only for streamflow stations. Norway replied that it can report monthly data for water balance on RBD scale from 1992. However data for water use and abstraction are unavailable on a monthly scale.Some countries indicated the difficulties of collecting water use and water abstraction data. A problem for some countries is the adaptation of their hydrometeorological models to different temporal or spatial scales. For instance Sweden replied that they collect water abstraction and water use data every five years on an annual scale.  |

Question 3: Links/references

The table below provides an overview of the countries that have provided references or links to national “water quantity reports”; water quantity indicators; and/or water quantity databases. In total, 16 counties provided different links or references.

|  |  |  |  |
| --- | --- | --- | --- |
| Country | National water biology reports | National water biology indicators | National water quantity data sets - databases |
| AT | 1 |  | 4 |
| BE | 5 | 2 | 3 |
| BG | 1 | 1 | 1 |
| CH | 1 | 1 | 1 |
| EE | 1 | 1 |  |
| FI | 2 |  |  |
| FR | 3 | 3 | 9 |
| IE |  |  | 4 |
| LV | 1 | 1 | 1 |
| MK | 1 | 1 |  |
| NL |  |  | 1 |
| NO |  |  | 2 |
| PL | 4 |  | 2 |
| PT | 2 | 2 | 2 |
| RS | 1 | 1 | 1 |
| SE | 3 |  | 4 |
| SI | 2 | 2 | 2 |
| SK | 2 |  | 1 |
| TR | 1 |  | 1 |
| No of countries replying | **16** | **10** | **16** |

* Links to national water quantity reports were provided by 16 countries and 10 countries provided links to water quantity indicators.
* Links on water quantity databases were provided by 16 countries. Some of the websites require private accounts for access. Also most of the websites are in the national language of the country.

# Emissions

General results

* 27 countries out of 39 EEA member countries provided comments on the questions asked in relation to emissions.
* The reporting countries generally answered most of the questions. In total 188 comments were provided.
* All reporting countries answered the clarifying questions; and 27 out of 39 countries answered questions on improving data coverage.
* 18 countries provided references to National water emissions and source apportionment reports; water emissions indicators and/or water emissions data sets - databases.

Table 8: Emissions Overview table with the 3 question groups

|  |  |  |  |
| --- | --- | --- | --- |
| Country | Clarifying questions on data in the current database | Improving coverage of determinands, temporal and spatial coverage | Links/references |
| AT | 1 | 5 |  |
| BE |  | 3 |  |
| BG | 3 | 3 | 1 |
| CH | 6 | 3 | 3 |
| CZ | 1 | 4 | 1 |
| DE |  | 4 |  |
| DK |  | 6 | 1 |
| EE | 3 | 3 | 3 |
| FI |  | 3 | 3 |
| FR | 1 | 6 | 2 |
| GB |  | 6 |  |
| HR |  | 7 | 4 |
| HU |  | 5 |  |
| IE |  | 6 | 5 |
| LT |  | 4 |  |
| LV |  | 5 | 3 |
| MK |  | 2 |  |
| NL |  | 2 |  |
| NO |  | 6 | 3 |
| PL |  | 5 | 7 |
| PT |  | 5 | 5 |
| RO | 1 | 4 |  |
| RS |  | 5 | 2 |
| SE | 1 | 1 | 6 |
| SI | 1 | 2 | 6 |
| SK |  | 3 | 1 |
| XK |  | 5 | 1 |
| No of countries replying | **9** | **27** | **18** |

Question 1: Clarifying questions on data in current database

The table below lists the summary of questions and answers regarding the current content of the database. The BOD and COD related questions were clarified (8 countries), likewise the issue with the aggregation conducted by the ETC. Further details are shown in the table.

|  |  |
| --- | --- |
| Questions\* | Answers |
| Confirmation that BOD is BOD5 | BOD5 (AT 2007, FR)Record to be deleted (CH)(3 questions/3 answers)*Changes will be implemented in the database according to country answers* |
| Confirmation that COD is CODMn or CODCr | CODMn (BG until 2008, SE Riverine net load)CODCr (AT 2007, AT2011, BG after 2008, EE 2010, FR, SE point sources)(5 questions/5 answers)*Changes will be implemented in the database according to country answers* |
| Confirmation, that the aggregation prepared by ETC/ICM is correct, identification of spatial units | Yes (BG)(1 question/1 answer)*No action needed* |
| Confirmation, that the reported sub-units cover the whole territory of the country | Yes (EE)(1 question/1 answer)*No action needed* |
| Clarification the inconsistencies withE- PRTR | E-PRTR include only data for emission sources above threshold (EE, SI)Different monitoring network (RO)Needs deeper analysis (CH)No answer (IS)(5 questions/4 answers)*No action needed* |
| Total Nitrogen from point sources missing since 2006 | Data not available (CZ)(1 question/1 answer)*No action needed* |
| Explanation of reported data  | No answer (ME)(1 question/0 answer)*No action needed* |

\*Not all countries have been asked all questions

Question 2: Improving coverage of determinands, temporal and spatial coverage

The table below summarizes the answers of the countries to different questions regarding the improvement of temporal and spatial coverage as well as the coverage of determinands. General questions are discussed as well as country specific questions.

| Questions\* | Answers |
| --- | --- |
| Reporting emission data directly to SoE | 21 Member States did not report to SoE Emissions directly yet and only two of them promised to send emission data. |
| More emission data from point or diffuse sources | Many Member States with existing emissions data (and reported to SoE in past) promised to send more or more detailed information data in the next reporting period. |
| Main obstacles for not reporting existing emission data | Lack of human and financial capacity, SoE reporting is not a priority (MSs prefer to report data under directives or other international agreements – e.g. HELCOM), not validated data, data do not comply with SoE requirements. |
| Main obstacles for not existing emission data | Several MSs do not have models for quantification of diffuse sources (especially for hazardous substances). |
| Possible help from EEA side | Harmonizing SoE with other reporting obligations on EU level (AT, NO, HR, FR, FI); EEA should link to other data sources (HELCOM, OSPAR, WFD RBMPs); Financial support from EEA (FI); more explanation for what kind of analysis and indicators the data will be used for (AT, DK, BE-FL); expert training (XK); adapt common methodologies for calculation of emissions (IE, SK). |
| Use SoE Emission reporting after better harmonisation with WFD reporting; a better alignment with the WFD pressure list  | Supporting the idea of harmonisation and alignment with the WFD pressure list (AT, CH, FR, GB, HU, IE, LV, NL, NO, PT, SE, SI, SK); better linkage between other EU level data (e.g. EUROSTAT Joint questionnaire on inland waters, HELCOM);In general, the idea of homogeneous and consistent pressure lists is broadly supported.*Harmonisation and alignment with WFD reporting requirements were taken into consideration during the revision of the SoE Data Dictionary.* |

Question 3: Links/references

The table below provides an overview of the countries that have provided references or links to national “State of water reports”; water indicators; and/or water quality databases. In total, 18 counties provided different links or references. Most of the reporting countries provided information on all three aspects.

|  |  |  |  |
| --- | --- | --- | --- |
| Country | National water emissions and source apportionment reports | National water emissions indicators | National water emissions data sets - databases |
| BG |  |  | 1 |
| CH | 1 | 1 | 1 |
| CZ | 1 |  |  |
| DK | 1 |  |  |
| EE | 1 | 1 | 1 |
| FI | 1 | 1 | 1 |
| FR | 1 |  | 1 |
| HR |  | 1 | 3 |
| IE |  | 2 | 3 |
| LV | 1 | 1 | 1 |
| NO | 1 | 1 | 1 |
| PL | 3 | 2 | 2 |
| PT | 2 | 2 | 1 |
| RS | 1 | 1 |  |
| SE | 3 |  | 3 |
| SI |  | 1 | 5 |
| SK | 1 |  |  |
| XK | 1 |  |  |
| No of countries replying | ***14*** | ***11*** | ***13*** |

* Links to national state of water reports were provided by 14 countries and 11 countries provided links to water quality indicators.
* Information on national river water quality databases were provided by 13 countries. In most cases access to the databases are restricted by registration/logon, but access can generally be granted by request.

# Hazardous Substances

## Rivers

General results

* A very good level of answers was provided to the detailed set of questions on hazardous substances in rivers with 27 countries out of 39 EEA member countries that provided comments.
* The reporting countries generally answered most of the questions. In total 331 comments were provided.
* 27 out of 39 countries answered the clarifying questions; and 26 out of 39 countries answered questions on improving data coverage.
* 18 countries provided references to National water emissions and source apportionment reports; water emissions indicators and/or water emissions data sets - databases.

Table 9: River HazSubs: Overview table with the 3 question groups

|  |  |  |  |
| --- | --- | --- | --- |
| Country | Clarifying questions on data in the current database | Improving coverage of determinands, temporal and spatial coverage | Links/references |
| AT | 9 | 6 | 2 |
| BE | 6 | 6 | 2 |
| BG | 5 | 4 |  |
| CH | 7 | 5 | 2 |
| CY | 5 | 3 | 2 |
| CZ | 5 | 4 |  |
| DE | 7 | 4 |  |
| EE | 5 | 5 | 2 |
| FR | 7 | 6 | 2 |
| GB | 7 | 5 |  |
| HR | 6 | 4 | 1 |
| IE | 6 | 5 |  |
| IS | 6 | 3 |  |
| IT | 6 |  |  |
| LT | 7 | 4 | 2 |
| LV | 8 | 5 | 2 |
| MK | 6 | 5 | 3 |
| NL | 6 | 4 | 2 |
| NO | 6 | 4 | 2 |
| PL | 8 | 4 | 2 |
| PT | 9 | 3 | 2 |
| RO | 5 | 4 |  |
| RS | 7 | 5 | 2 |
| SE | 8 | 5 | 3 |
| SI | 8 | 5 |  |
| SK | 5 | 4 | 2 |
| XK | 6 | 5 | 2 |
| No of countries replying | **27** | **26** | **18** |

Question 1: Clarifying questions on data in the current database

The table below gives a summary of answers regarding the current content of the database. The very detailed answers allow to anticipate some key actions in the data collection process for the next round of SoE reporting, namely a clearer focus on regular monitoring, some interactions and associated documentation during the collection and addition of some fields in the data collection template, and some improvements to the QA processes.

| Questions\* | Replies |
| --- | --- |
| More stations/years with monitoring of organic substances | 27 countries have clarified questions related to the possibilities of providing more stations/years with monitoring of organic substances. Many countries report the influence of WFD monitoring that lead to increase/adapt the number of substances, and the low number of results available before 2006 in many cases because the monitoring was not in place. In some cases more data can be delivered and would be in the next reporting. Some countries highlight they reported in the recent years the stations of WFD surveillance monitoring as it provides a consistent representative picture of the country.*In the future the data collection will focus on surveillance and operational monitoring and RBSP for providing a representative EU overview.*  |
| Marked change in monitoring program (number of stations, missing years) | 21 countries have provided information on changes related to marked change in the monitoring program.Many countries propose to resubmit historical data as they have also conducted an internal quality review in the past years. Countries also raise the fact part of the monitoring is or was adapted recently to focus on substances found and discard those substances where past monitoring showed no quantified values. Some local circumstances are also explaining missing data or disruption of series (problem with a monitoring device, temporary river, closing of laboratory, local short term study, lack of resources).*The replies will be taken into account in documenting the database.* |
| Heavy metals (total) and heavy metals (dissolved) | 27 countries have clarified questions related to heavy metals (total) and heavy metals (dissolved). Most confirm they used the appropriate parameter as clearly indicated in the data dictionary. IE, IS, LV, MK, PL, SI, XK report they have provided data on dissolved fraction as the standard monitoring includes a filtration step (0.45µm in IE, 0.2µm in IS)*Changes will be implemented in the database and in the future the data request will be more specific on the fraction reported*. |
| Analytical methods on filtration steps | 27 countries have provided information on analytical methods used on filtration steps. In most cases the country has the information, CY, IE, SE are changing (or have changed) their database to include this, and some do not have directly this information available, either because it is part of the method or only known by the laboratory (CH, CZ, LT, LV, NO, PL, RO).*The fraction analysed is important information in the use of the data, changes will need to be implemented in the data collection and database.* |
| Availability of supporting determinands (pH, hardness, DOC etc.) | 6 countries have provided information on availability of supporting determinands. In 5 countries the data are or can be provided. |
| QA procedures on national datasets | 27 countries have provided information on QA procedures on national datasets. Some do not have a specific method for identifying outliers, except when research projects use the datasets, some rely on the regional authorities or RBDs in charge of the monitoring to implement QA rules. Some use the EQS or with a given limit value as a benchmark value to detect outliers, and some use expert judgement or practical experience. And others have implemented strictly defined national rules implemented when importing data into the national database, some providing more details on the applied method.*The EEA will in the process of improving the QA procedures on the hazardous Waterbase ask relevant countries on details on their procedures and explore how to reflect back outliers for confirmation of values.* |

Question 2: Improving coverage of determinands, temporal and spatial coverage

|  |  |
| --- | --- |
| Questions\* | Answers |
| Reporting of more organic substance determinands | 26 countries have provided information on the possibility to provide more substances or complete the provided data. For part of the countries, providing additional substances would in principle be possible. For many it may not be consistent or providing interesting time series or data of appropriate quality, as these are monitored for problem oriented studies or short term period, or because the substances were discarded following screening monitoring that showed absence of the substance in the aquatic environment of the country. Many countries have improved the coverage of substances in the recent years and the organisation of their data, allowing to submit more substances for the future, but they ask for a defined list of “preferred substances”. Some report technical difficulties (database, monitoring device) which explain the absence of data. |
| Reporting of more years and stations of "preferred" hazardous substances to be reported to increase temporal and spatial coverage  | 26 countries have provided information on the possibility to expand the time series. In most cases no additional data can be provided, either because all available data on preferred substances were already provided or because they were a part of local monitoring, or because they would not be representative as regards the stations or the monitoring method used. When data will be resubmitted, it will be either more recent data due to the expansion of the substances monitored in recent years, or historical data to replace already submitted ones by more complete and quality assured data. |
| More reporting of LOQ values | 22 countries have provided information on the situation with regards to LoQ. Prior to 2009, 2010 or 2011 the LoQ was in many countries either not checked or stored in a consistent manner and they cannot report more values. Some countries can resubmit LOQ values but raise this has to be done carefully and the value can evolve along the year thus is linked to disaggregated individual analyses**.** |

Question 3: Links/references

The table below provides an overview of the countries that have provided references or links to national “State of water reports” and water indicators. In total, 19 counties provided different links or references. Most of the reporting countries provided information on the two aspects, in most cases in the national language. Some countries do not have specific indicators targeting hazardous substances in rivers (CY, NO, PT, RS, SK, XK), of which some have instead WFD indicators (CY, PT) or emission indicators (NO) or do not disseminate them on the web (PL).

|  |  |  |
| --- | --- | --- |
| Country | National water hazardous substance reports | National water hazardous substance indicators |
| AT | 1 | 1 |
| BE | 1 | 1 |
| CH | 1 | 1 |
| CY | 1 | 1 |
| EE | 1 | 1 |
| FR | 1 | 1 |
| HR | 1 |  |
| LT | 1 | 1 |
| LV | 1 | 1 |
| MK | 2 |  |
| NL | 1 | 1 |
| NO | 1 | 1 |
| PL | 1 | 1 |
| PT | 1 | 1 |
| RS | 1 | 1 |
| SE | 1 | 2 |
| SK | 1 | 1 |
| XK | 1 | 1 |
| No of countries replying | **19** | **18** |

## Lakes

General results

* 27 countries out of 39 EEA member countries provided comments on the questions asked in relation Hazardous Substances in Lakes.
* The reporting countries generally answered most of the questions. In total 309 comments were provided.
* 25 out of 39 countries answered the clarifying questions; and 26 out of 39 countries answered questions on improving data coverage.
* 16 countries provided references to National water emissions and source apportionment reports; water emissions indicators and/or water emissions data sets - databases.

Table 10: Lakes HazSubs: Overview table with the 3 question groups

|  |  |  |  |
| --- | --- | --- | --- |
| Country | Clarifying questions on data in the current database | Improving coverage of determinands, temporal and spatial coverage | Links/references |
| AT |  | 1 |  |
| BE | 8 | 5 | 2 |
| BG | 7 | 5 |  |
| CH | 1 |  |  |
| CY | 7 | 5 | 2 |
| CZ |  | 1 |  |
| DE | 6 | 5 |  |
| EE | 6 | 3 | 2 |
| FR | 7 | 4 | 2 |
| GB | 8 | 3 |  |
| HR | 8 | 3 | 1 |
| IE | 7 | 5 |  |
| IS | 7 | 3 |  |
| IT | 8 | 4 |  |
| LT | 7 | 4 | 2 |
| LV | 8 | 4 | 2 |
| MK | 7 | 4 | 2 |
| NL | 6 | 4 | 2 |
| NO | 9 | 5 | 2 |
| PL | 9 | 4 | 2 |
| PT | 8 | 5 | 2 |
| RO | 6 | 5 |  |
| RS | 6 | 5 | 2 |
| SE | 8 | 4 | 1 |
| SI | 7 | 4 |  |
| SK | 8 | 4 | 2 |
| XK | 5 | 5 | 2 |
| No of countries replying | **25** | **26** | **16** |

Question 1: Clarifying questions on data in current database

The table below gives a summary of answers regarding the current content of the database as regards lakes. The very detailed answers allow anticipate some key actions in the data collection process for the next round of SoE reporting, namely a clearer focus on regular monitoring, some interactions and associated documentation during the collection and addition of some fields in the data collection template, and some improvements to the QA processes.

| Questions\* | Replies |
| --- | --- |
| More stations/years with monitoring of organic substances | 25 countries have clarified questions related to the possibilities of providing more stations/years with monitoring of organic substances. It is mentioned lake monitoring is less developed than river monitoring and some monitoring choices (different set of substances monitored over the years, different stations, changes in available resources…) lead to have not all stations monitored each year. Many of the provided datasets are also coming from specific studies not included in the yearly or surveillance monitoring.*In the future the data collection will focus on surveillance and operational monitoring and RBSP for providing a representative EU overview.* |
| Marked change in monitoring program (number of stations, missing years) | 19 countries have provided information on changes related to marked change in monitoring program. The influence of WFD is a key factor for changes in the monitoring programme with more substances, more monitoring on lakes and a focus on PS/PHS substances, but the financial constraint and the improvement in monitoring methods also explain the changes.*The replies will be taken into account in documenting the database.* |
| Heavy metals (total) and heavy metals (dissolved) | 23 countries have clarified questions related to heavy metals (total) and heavy metals (dissolved). Most confirm they used the appropriate parameter as clearly indicated in the data dictionary. CY, EE, IT, LV, MK, PL, SI, XK report they have provided data on dissolved fraction.*Changes will be implemented in the database and in the future the data request will be more specific on the fraction reported*. |
| Analytical methods on filtration steps | 24 countries have provided information on analytical methods used on filtration steps. In most cases the country has the information, CY, IE, SE are changing (or have changed) their database to include this, and some do not have directly this information available, either because it is part of the method or only known by the laboratory (CH, CZ, LT, LV, NO, PL, RO).*The fraction analysed is important information in the use of the data, changes will need to be implemented in the data collection and database* |
| Availability of supporting determinands (pH, hardness, DOC etc.) | 13 countries have provided information on availability of supporting determinands. Most can submit some additional data for the recent years, except when no monitoring was conducted for the year or because the gathering of data is complex, and it is recommended to include these in the data request for the next reporting. |
| QA procedures on national datasets | 24 countries have provided information on QA procedures on national datasets. Some do not have a specific method for identifying outliers, except when research projects use the datasets, some rely on the regional authorities or RBDs in charge of the monitoring to implement QA rules. Some use the EQS or with a given limit value as benchmark value to detect outliers in a station time series, and some use expert judgement or practical experience and manual checks. And others have implemented strictly defined national rules implemented when importing data into the national database, some providing more details in their answer on the applied method. The importance of distinguishing lakes and reservoirs.*The EEA will in the process of improving the QA procedures on the hazardous waterbase consider the details given and ask relevant countries on more details on their procedures and explore how to reflect back outliers for confirmation of values.* |

\*Not all countries have been asked all questions

Question 2: Improving coverage of determinands, temporal and spatial coverage

| Questions\* | Answers |
| --- | --- |
| Reporting of more organic substance determinands | 26 countries have provided information on the possibility or not to report more data. While many MSs have already reported all the available data, some propose to submit identified missing data. It is also mentioned some breaches of the series can be due to halting in monitoring because the substances were discarded following screening monitoring that showed absence of the substance in lakes of the country. Lake monitoring is also less developed and less data and less substances are monitored and available. |
| Reporting of more years and stations of "preferred" hazardous substances be reported to increase temporal and spatial coverage  | 24 countries have provided information on the situation with preferred substances. Lake monitoring is less well organised and data gathering is more complex, and many countries already reported all what they have. Thus redelivering or completing already delivered dataset is either not possible for many countries or requires much work. Some countries also decided to deliver only surveillance monitoring to insure representativeness of reported data. But some countries also offered to check and submit more data to complete the temporal and spatial coverage. |
| More reporting of LOQ values | 12 countries have provided information and most of them propose to submit more data with LOQ, while some are stating this was not primarily in the past reporting requests. |

Question 3: Links/references

The table below provides an overview of the countries that have provided references or links to national “State of water biology reports” and/or water biology indicators. In total, 16 counties provided different links or references. Most of the reporting countries provided information on the two aspects, in most cases in the national language. Some countries do not have specific indicators targeting hazardous substances in rivers (CY, LV, MK, NO, PT, RS, SK, XK), of which some have instead WFD indicators (CY, FR, PT) or emission indicators (NO).

|  |  |  |
| --- | --- | --- |
| Country | National water hazardous substance reports | National water hazardous substance indicators |
| BE | 1 | 1 |
| CY | 1 | 1 |
| EE | 1 | 1 |
| FR | 1 | 1 |
| HR | 1 |  |
| LT | 1 | 1 |
| LV | 1 | 1 |
| MK | 1 | 1 |
| NL | 1 | 1 |
| NO | 1 | 1 |
| PL | 1 | 1 |
| PT | 1 | 1 |
| RS | 1 | 1 |
| SE | 1 |  |
| SK | 1 | 1 |
| XK | 1 | 1 |
| No of countries replying | **16** | **14** |

## Groundwater

General results

* Out of 39 EEA member countries 25 countries provided comments on the questions asked in relation on groundwater – hazardous substances;
* 14 countries did not reply
* Countries were asked to reply on 301 questions together (223 questions on data and 78 questions on links/references)
* The reporting countries generally answered around half of the questions. In total 180 questions (149 on data and 31 on links/references) were answered or commented.
* 74 questions regarding the data addressed to 14 countries (AL, BA, DK, ES, FI, GR, HU, IT, LI, LT, LU, ME, MT and TR) and 47 questions regarding links/references addressed to 22 countries (AL, BA, CZ, DE, DK, ES, FI, GB, GR, HU, IE, IS, IT, LI, LT, LU, ME, MT, NO, RO, SI and TR) remain without reply (in total 121 questions).

Table 11: Groundwater HazSubs: Overview table with the 3 question groups

|  |  |  |  |
| --- | --- | --- | --- |
| Country | Clarifying questions on data in the current database | Improving coverage of determinands, temporal and spatial coverage | Links/references |
| AT | 3 | 1 | 2 |
| BE | 2 | 2 | 2 |
| BG | 4 | 1 | 2 |
| CH | 5 | 2 | 2 |
| CY | 4 | 1 | 2 |
| CZ | 3 | 2 |  |
| DE | 7 | 2 |  |
| EE | 4 | 2 | 2 |
| FR | 5 | 1 | 2 |
| GB | 4 | 1 |  |
| HR | 4 | 2 | 1 |
| IE | 7 | 1 |  |
| IS | 3 | 2 |  |
| LV | 6 | 1 | 2 |
| MK | 5 | 1 | 2 |
| NL | 3 | 2 | 2 |
| NO | 1 | 3 |  |
| PL | 4 | 2 | 2 |
| PT | 5 | 3 | 2 |
| RO | 1 | 3 |  |
| RS | 4 | 4 | 2 |
| SE | 5 | 1 | 1 |
| SI | 4 | 3 |  |
| SK | 5 | 1 | 1 |
| XK | 5 | 2 | 2 |
| No of countries replying | **25** | **25** | **17** |

Question 1: Clarifying questions on data in current database

| Questions\* | Answers |
| --- | --- |
| Can you provide raw disaggregated data, as described in the Data Dictionary, to replace data aggregated by monitoring stations reported up to now? | Concerned country (AT) answered yes, but they do not do it due to a fact that the monitoring network is designed in such a way that the site density is much higher in GWBs with higher pressure potential (10-times more) than in GWBs without significant pressures and polluted sites are monitored more frequently than unpolluted sites and the current way of HS assessment would introduce a bias into the AT picture if disaggregated data are used.  |
| No hazardous substances were reported up to now. | Three concerned countries (NO, RO and XK) replied that it is correct; it is not clear whether they are going to report in the future (except XK with no data available). |
| Can you provide missing data to fill in the gaps in the time series? | 21 countries replied (BG, CH, CY, CZ, DE, EE, FR, GB, HR, IE, IS, LV, MK, NL, PL, PT, RS, SE, SI, SK and XK). Majority of countries can provide missing data if data are available. |
| Can you check, whether the data reported "below LOD" are really below LOD and not below LOQ? | IE, PT, RS, SI, SK replied, PT and SI confirmed LOD/LOQ, SK asked for a change to LOQ, IE and RS is going to check and redeliver if needed. |
| Can you check whether all data reported from a certain period were really above LOQ/LOD?  | CY, FR, MK, SE, SK and XK replied, they will check and redeliver if needed except MK (MK confirmed all concerned data above LOQ). |
| Installing new rules for testing and flagging outliers as described in a supporting document. Is there experience from similar QA procedures on the national datasets? | 23 countries replied (AT, BE, BG, CH, CY, CZ, DE, EE, FR, GB, HR, IE, IS, LV, MK, NL, PL, PT, RS, SE, SI, SK and XK). Majority of countries implemented similar QA to a certain level, 11 countries not, but some of them are planning to do so. |
| Checking the national databases for potential outliers | 22 countries replied (AT, BE, BG, CH, CY, CZ, DE, EE, FR, GB, HR, IE, IS, LV, MK, NL, PL, PT, SE, SI, SK and XK). Majority of countries can check for outliers (and actually do it prior reporting to the EEA) |
| Can you provide at least rough coordinates of groundwater monitoring stations? | HR as a concerned country will provide within the next reporting period. |
| Can you modify the identifier of your two river basin districts adjacent to Northern Ireland in the coming WFD reporting period (Spring 2016), to use your country abbreviation "IE" as first two characters of identifiers of these RBDs? Using the country abbreviation "GB" as first two characters of RBD identifiers in Ireland is very confusing and it is probably also violating the WFD rules. | IE replied that this will be reviewed/modified as part of the 2015 submission. |

Question 2: Improving coverage of determinands, temporal and spatial coverage

Since the questions on data missing in time series are country specific, the table contains all replies to time series missing data questions from concerned countries.

| Questions\* | Answers |
| --- | --- |
| Can you fill the gaps in spatial coverage of reported data, i.e. Pesticides and Other organic substances in 2010 - 2012 for BG2000, data on Pesticides in 2010 - 2011 for BG3000 and Pesticides and Other organic substances in 2006 and 2010 for BG4000? | BG: Pesticides and Other organic substances in 2010 - 2012 for BG2000 are not available. Data on Pesticides in 2010 - 2011 for BG3000 – only some data on Pendimethalin are available. Pesticides and Other organic substances in 2006 and 2010 for BG4000 are not available. The available data are for 2007, 2008 and 2009. |
| Can you add the data on Heavy metals for 2012? | CZ: Yes, we can. |
| Can you provide hazardous substances data for the regions and periods where such data are missing as shown on the table 4.6? | DE: Pesticides, heavy metals and hazardous substances are not analysed at all sites every year. If you could tell us for which sites you do not have data we can check our database for additional hazardous substances. |
| Can you add the data on heavy metals in RBD EE1 in 2009 - 2012, on Pesticides before 2012 for all RBDs and any data for RBD EE3, to cover the entire area of Estonia by monitoring of hazardous substances? | EE: In RBD EE1 heavy metals are not considered as a pressure (no occurrence of heavy metals in groundwater). Therefore heavy metals are not monitored in groundwater bodies in RBD1. Monitoring rotation for heavy metals is long (6 years), last monitoring was in 2009. In RBD EE3 hazardous substances are not monitored in groundwater. |
| Can you provide the data on hazardous substances before 2012? | NL: Yes the standard metals, except mercury, are available from 1990. Some other hazardous substances are available accidently, e.g. VOX (volatile organic halogens), pesticides. |
| Can you provide data on Heavy metals before 2004 and on Pesticides and Other organic substances before 2011? | PL: We can’t provide these data. |
| Can you provide data on concentrations of hazardous substances, especially some those included in the following groups? | RO: We will consider this request in the future reporting. |
| Can you add the data on Heavy metals in 2007 and data on Pesticides and Other organic substances in 2009 - 2011? | RS: No data available. |
| Can you provide data on hazardous substances before 2006? | RS: Yes, we can add the data, from 2002. |
| Can you add data on pesticides monitored in RBD SK30000 Vistula in 2011, if available? | SK: The Vistula RBD covers only 4% of the whole area of Slovakia, therefore the number of monitored stations in RBD SK30000 Vistula is much lower in comparison with the Danube RBD. |
| Can you provide the data on substances included in the group "Other organic substances/Priority substances", which were not reported up to now? | 15 countries replied (AT, BE, CY, EE, GB, IS, LV, MK, NL, NO, PL, PT, SE, SI and XK). 8 countries (AT, CY, EE, NO, PL, PT, SE and SI) can provide the data. The others are not going to provide the data due to various reasons (mainly unavailability). |
| Are there additional monitoring stations available? | 9 countries replied (CH, CZ, DE, HR, IE, IS, PT, RS and SI). 6 countries (CH, CZ, IE, IS, RS and SI) replied “No”. DE, HR and PT can report more stations. |
| Can you provide official delineation of river basin districts in Croatia in spatial data format (shapefile, geodatabase)? | HR: Croatia has defined the official boundaries of the river basin districts and has reported this in the framework of fulfilling its obligation under the WFD. Details about the boundaries of the RBDs are found in the official „Reports on the river basin management plans“. |
| Can you provide official delineation of groundwater bodies and river basin districts in Serbia and Kosovo in spatial data format (shapefile, geodatabase), if available? | Both countries (RS, XK) answered “No”.  |

Question 3: Links/references

The table below provides an overview of the countries that have provided references or links to national “State of water hazardous substances reports”; water hazardous substances indicators.

|  |  |  |
| --- | --- | --- |
| Country | National water hazardous substances reports | National water hazardous substances indicators |
| AL |  |  |
| AT | 5 | 5 |
| BE | 10 |  |
| BG | 2 |  |
| CH | 1 | 2 |
| CY | 1 |  |
| EE | 1 | 2 |
| FR | 5 | 4 |
| HR | 1 |  |
| LV | 1 |  |
| NL | 2 | 1 |
| PL |  | 2 |
| PT | 2 | 2 |
| RS | 1 |  |
| SE | 5 |  |
| No of countries replying | **13** | **7** |

# The way forward – integrating the results from the quality fact sheets in Waterbase

All comments of the quality fact sheets were carefully read and will be processed and regarded for their integration into Waterbase. In general, three main steps will be performed during this integration:

1) Based on the comments and clarifications the legacy data will be corrected and updated in the existing Waterbase

2) Additional data and stations that supplement the existing data set will be reported together with the 2013 and 2014 data during the next data call

3) The revised data model and established quality checks aim to ensure better data quality

In the following some examples are given for each of the mentioned steps.

## Clarifications and corrections of legacy data

The countries clarified many of the asked issues (determinands, station coding, aggregation of data and others) in the different data flows. These clarifications help to improve the quality of the data available in Waterbase.

For example, the countries clarified that ammonium and total ammonium is the same determinand for the river and lake nutrients dataflow. Also clarifying questions on COD, BOD or TOC/DOC were answered. The countries further clarified questions to the aggregation period, e.g. for some countries the years reported as seasonal data can be considered as annual data. This is true for river and lake nutrients as well as biology. Regarding differences in station coding countries clarified this question. Some countries can provide additional recodification mapping tables with the next reporting. Recoding was caused mainly by changes in authorities or monitoring networks.

All provided information about correction of legacy data[[5]](#footnote-5) will be collected and structured according to the respective data flow and country. Afterwards the corrections and clarifications will be applied to the existing data set and a new updated version of internal working data bases will be exist inside EEA. With the publication of the new version of Waterbase in 2016 the corrected data will be available to the public.

## Improving the coverage of determinands, temporal and spatial coverage

Based on the corrected data set all additional or corrected data for improving the coverage of determinands, time series and stations will be added with the next data call.

It was not requested to upload additional or corrected data immediately during the process of answering the questions from the quality fact sheets by the countries. All extensions of time series and update of already existing data can be uploaded together with the regular data set reported in the next reporting cycles at the end of 2015.

In different data flows the willingness of the countries was stated to extend the temporal coverage in principle if applicable or possible. For example in lake nutrients data flow 13 countries responded that they can send some additional legacy data for missing years or extend time series backwards.

For some data flows (e.g. biology) and some countries it is not possible to deliver more data for additional stations what is typically caused by resource limitations (lack of human and financial capacity) or that the current selection of stations is considered representative. Further obstacles for reporting data to SoE are that countries prefer to report data to legally binding directives: “WFD reporting is our first priority.” In the emission data flow proposals from the countries are given how EEA and ETC/ICM could support countries in delivering data here (e.g. expert training, code list alignment). The proposals can be discussed at the EIONET workshop. Many countries state clearly that an alignment between WFD and SoE reporting (code lists and data model) would improve the willingness to report also emission data to SoE.

## Revision of the data model and unifying the quality checks

One of the aims of the quality fact sheets was to use the advice of the countries for the revision of the data model for the WISE SoE data flows. Different tasks were performed to reach the goal of streamlining and simplifying the reporting for countries for the SoE data flows that were considered in the quality fact sheets. In general, the following list summarizes the main issues done:

* The code list of determinands was revised and the results are presented in an extra document “2015 Freshwater Eionet Workshop, Background document for Session 2: Content related SoE review - Maintenance and content development of data flows (SoE and WFD) -”. All determinands in the different data flows were reviewed for their use in different EEA products like indicators, data sets or maps. There will be one common code list for all data flows.
* The different existing data models for groundwater, river and lake nutrients, river and lake biology, groundwater, river and lake Hazardous substances, water quantity and emissions were reviewed and streamlined. The result of this process with all changes in the data model(s) is presented in detail in an extra document “2015 Freshwater Eionet Workshop, Background document for Session 3b:The new WISE SoE data 2015 collection model – streamlining SoE data models and reporting process”. The revised data model reflects a main change in future SoE reporting: the reporting of spatial data will be independent from the reporting of time series. Time series data can only be reported to already existing stations. In 2015, the spatial data have to be reported in advance. In future the spatial data can be reported over the whole year whenever new stations appear. Also the life time cycle of stations will be included.
* The new SoE data model is streamlined with other reporting flows like WFD. Unique code lists and station identifier will be used wherever applicable.
* The new data model is ready for INSPIRE and contains already basic elements. Details are described in this document “The new WISE SoE data 2015 collection model – streamlining SoE data models and reporting process”
* The quality checks will be unified and implemented in the reportnet. The same routines will be used across all data flows if applicable.
* EEA internally the IT structure will allow now better to connect the different working databases for the different data flows. Wherever applicable data processing steps will be automated what will shorten the production time between reporting and publishing of all products drastically.
1. Data are requested, preferably, as annually aggregated mean values. AggregationPeriod for a station should be consistent from year to year, otherwise the time series from this station will be broken, and data from this station may have to be excluded from trend analyses. For rivers and lakes, AggregationPeriod "Annual" should therefore be used even if the station is not sampled throughout the whole year. For lakes, data can also be aggregated by alternative aggregation periods in addition to Annual (see the list of allowable values) and reported as additional records, if wanted [↑](#footnote-ref-1)
2. There is generally some ambiguity regarding the determinands Ammonium vs Total ammonium in the database. [↑](#footnote-ref-2)
3. Are the stations representative with respect to geographical and pressure gradients? [↑](#footnote-ref-3)
4. Are the stations representative with respect to geographical and pressure gradients? [↑](#footnote-ref-4)
5. Legacy data – all existing data in Waterbase before the 2015 data call; this was the basis for the provided quality fact sheets [↑](#footnote-ref-5)