

# Country fiche: Cyprus

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## 1. Introduction

The European Environment Agency (EEA) manages water data and information reported either voluntarily by EEA member countries (water quality in groundwater, rivers, lakes; emissions of pollutants and water quantity); and data reported via REPORTNET under EU water directives: Water Framework Directive (WFD); Bathing Water Directives (BWD) and Urban Waste Water Treatment Directive (UWWTD), Nitrate Directive (NiD) and Drinking water Directive (DWD). Reported data are processed at EEA and stored in water data center. They can be also accessible on EEA home page. Data reported under Nitrate Directive (NiD) and Drinking water Directive (DWD) are not yet available at EEA water data center home page.

The aim of the country fiches is both to clean-up and correcting errors in the data member countries now have reported for 15-20 years. Some errors have been introduced by the EEA and its Topic Centres handling of the reported data; others is due to errors introduced in member countries reporting.

Another aspect is to improve the spatial and temporal coverage and to ensure that the relevant determinands are reported.

- In some cases member countries will be asked for more stations to increase the spatial coverage or density of stations; or questions on why data have not been reported from some of the RBDs.
- EEA water quality indicators are for trend assessments based on consistent time series with some gap filling. For a single country consistent time series are established for the defined period (e.g. 1992-2012; or 2000-2012) with some gap filling (e.g. up to 3 years) and only stations with values for all years in the defined period are used. This ensure that any trend is because of change in the observations and not in the stations included.
- In the current data set the reporting of some high priority determinands has stopped or there has been change in the determinands in the database e.g. cadmium changed to dissolved cadmium. EEA wants to clarify if these changes are real changes or it has been errors/misinterpretations introduced in compiling the databases. In addition, the aim is to ensure that the high priority determinands (e.g. nitrate or orthophosphate) have as complete coverage as possible.

The last part is on ensuring linkage between the different Waterbases by having a common coding system (Water Body ID) and linked to different reference layers such as the RBDcodes.

## 2. Reporting obligations from European Water Directives

The European Environment Agency (EEA) holds inland data sets reported either voluntarily by EEA member countries (water quality in groundwater, rivers, lakes; emissions of pollutants and water quantity); and data reported via EU water directives: Water Framework Directive; Bathing Water Directives; Urban Waste Water Treatment Directive, Nitrate Directive and Drinking water Directive (NiD and DWD data not yet available at EEA water data centre home page).

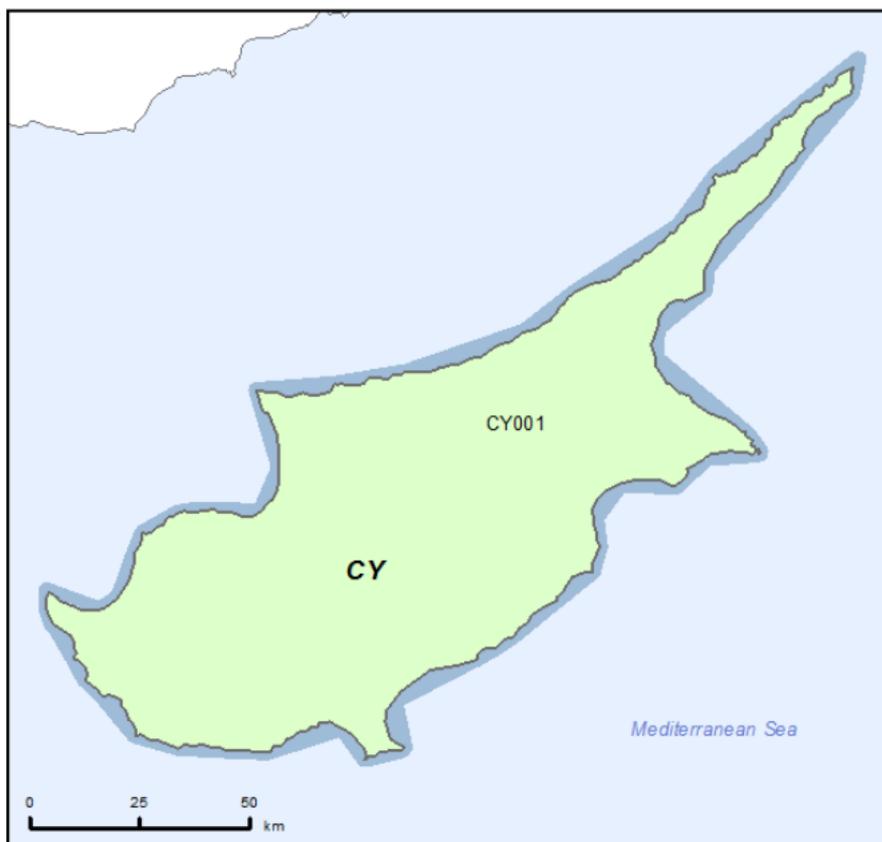
Cyprus reporting of data in relation to EU water directives have in the last years been uploaded to the [Reportnet](#) Central Data Repository (CDR [Cyprus](#)) and below is listed an overview of Cyprus's reporting in relation to water directives (Remark this is an overview of what is available in CDR and Cyprus may have reported by other format directly to the European Commission).

- [Bathing Water Directive \(2006/7/EC\)](#) [Link](#) – Cyprus's reporting under the Bathing Water Directive

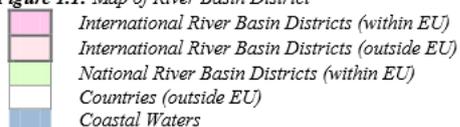
is further described in the annual national report published by EEA available at [Link](#) and the data is available here [Link](#)

- Drinking Water Directive Report (98/83/EC) - [Link](#). Data related to two “3 yearly report on quality of water for human consumption” are available for the period 2005-2007 and 2008-2010.
- Floods Directive Preliminary flood risk assessment
  - Floods Directive Unit of Management and Competent Authorities. [Link](#), Cyprus Competent Authority and Units of Management,
  - Preliminary flood risk assessment [Link](#).
- Nitrates Directive (91/676/EEC) - [Link](#). Report/data related to the Nitrate Directive reporting period 2004-2007 and 2008-2011.
- Urban Waste Water Treatment Directive
  - Monitoring (91/271/EEC) [Art 15] - [Link](#). 2011 UWWT data plus archive over previous reporting.
  - Article 16 - Situation report – [Link](#).
  - Article 17 - National Implementation Programme – [Link](#). *No data in CDR yet.*
- Water Framework Directive
  - Art. 3 reporting (River Basin Districts and Competent Authorities) – [Link](#).
  - Art. 5 reporting – [Link](#).
  - Art. 8 (Monitoring programmes) – [Link](#).
  - Art. 13 (River Basin Management Plans) – [Link](#).
  - Art. 15.3 Progress on implementation of programmes of measures – [Link](#).

### 3. Overview on WFD reporting in Cyprus



**Figure 1.1:** Map of River Basin District



Source: WISE, Eurostat (country borders)

Source: Cyprus WFD implementation report

[http://ec.europa.eu/environment/water/water-framework/pdf/CWD-2012-379\\_EN-Vol3\\_CY.pdf](http://ec.europa.eu/environment/water/water-framework/pdf/CWD-2012-379_EN-Vol3_CY.pdf)

Cyprus has one river basin district that covers the country's whole territory.

The WISE-WFD database contains data from River Basin Management Plans reported by EU Member States according to article 13 of the Water Framework Directive. A number of aggregation queries provide an overview on number and statistics of water bodies, on status assessments and pressures and impacts for both surface water bodies and groundwater bodies.

The following queries are available:

- Numbers and statistics of surface water bodies
- Ecological and chemical status of surface water bodies
- Significant pressures affecting surface water bodies
- Impacts on surface water bodies
- Numbers and statistics of groundwater bodies
- Chemical and quantitative status of groundwater bodies

The information is aggregated at country, river basin district (RBD) or in some cases even RBD-subunit level and can be downloaded [here](#).

#### 4. Eionet priority data flows – SoE data (Waterbase)

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.

Cyprus has in the period 2006/2007 -2012 reported river, lake (reservoir) and groundwater water quality data, while there have been no reporting of data on emissions (data have been inserted from E-PRTR) and limited reporting on water quantity.

Cyprus – performance of EEA priority inland data flows

Data flow name	Progress 2000	Progress 2001	Progress 2002	Progress 2003	Progress 2004	Progress 2005	Progress 2006	Progress 2007	Progress 2008	Progress 2009	Progress 2010	Progress 2011	Progress 2012
EWN1: River quality	N/A	N/A	N/A	N/A	N/A								
EWN2: Lake quality	N/A	N/A	N/A	N/A	N/A								
EWN3: Groundwater quality	N/A	N/A	N/A	N/A	N/A								
EWN4: Water quantity	N/A	N/A	N/A	N/A	N/A			N/A	N/A	N/A			
WISE1: Water emission quality	N/A			N/A									

Data flow name	Status	Progress 2012-2013	Progress 2013-2014	Remark
<a href="#">EWN1: River quality</a>	2014-02-25			Data delivered on time and in the requested format. No feedback to reported issues. Monitoring stations with coordinates provided. Data on 5 preferred SoE nutrient delivered. Hazardous substances data delivered. Proxy pressures data provided only on population density. Some long but broken time series on preferred SoE nutrients available. Biology data delivered.
<a href="#">EWN2: Lake quality</a>	2014-02-27			Data delivered on time and in the requested format. No reply to critical QA issues on previously reported data. Monitoring stations with coordinates provided. Data on 5 preferred SoE nutrient delivered. Hazardous substances data delivered. Proxy pressures data not provided for all stations. Long time series on preferred SoE nutrients available. Biology data delivered.
<a href="#">EWN3: Groundwater quality</a>	2014-02-04			Data delivered on time and in the requested format. Data for 4 of the 5 requested chemical substances provided, all in disaggregated form. Monitoring sites with coordinates and links to GW bodies provided. GIS data for GW bodies and list of GW bodies with most important attributes and pressure data provided.
<a href="#">EWN4: Water quantity <sup>(1)</sup></a>	2014-02-07			Data delivered on time. Reported both regional and point data. Did not report the total number of available stations. Reported 16 regional parameters at RBD level covering the whole country, 4 of which in the requested monthly scale; data for 15 streamflow stations, 55 groundwater wells and 17 reservoirs.
<a href="#">WISE1: Emissions to water <sup>(1)</sup></a>	2014-02-03			No data delivery under WISE-SoE data collection 2013, data from E-PRTR inserted.

Note: Further information and scoring criteria is available here:

<http://www.eionet.europa.eu/dataflows/pdf2013/history?country=CY>

[http://www.eionet.europa.eu/dataflows/pdf2013/country\\_summary?country=CY](http://www.eionet.europa.eu/dataflows/pdf2013/country_summary?country=CY)

#### 4.1 Rivers and Lakes

Note: all queries (which are still under development) and outcomes on rivers and lakes can be found here: [http://www.tcvoe.si/wise\\_so\\_e\\_country\\_fiche/#](http://www.tcvoe.si/wise_so_e_country_fiche/#)

In Chapters 2.1.1 and 2.1.4 reporting on nutrients, organic matter and general physico-chemical determinands is illustrated. For simplification only the term nutrients is used in the descriptions.

#### Rivers – Nutrients, Organic Matter and General Physico-Chemical Determinands

Issues to be clarified:

- Have data for all SoE nutrients of highest priority<sup>1</sup> been reported consistent over the years?
- Are stations with monitoring of highest priority nutrients covering all RBDs?
- Are longer time series (since 1992) for preferred nutrients available?
- Member State specific issues, if such occur

Cyprus first data from nutrients in rivers have been reported in 1997, but only few data until 2007. Table 1 below provides an overview by determinands of the number of river stations per year for the period 1997 to 2012. In 2010 reporting on total nitrogen stopped. Few data are available on

<sup>1</sup> Determinands of highest priority in terms of EEA's needs are determinands which are or will be used in EEA assessments (e.g. CSI).

information on TOC and there was a change in reporting on ammonium to total ammonium in 2007 and 2009.

**Table 1: Number of river stations per determinand/year (nutrients of highest EEA priority)**

Determinand_Nutrients	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Nitrate	8	9	10	10	1	11	9	0	4	5	18	18	23	28	24	28
Total nitrogen	0	0	0	0	0	0	0	0	0	0	21	18	23	0	0	0
Orthophosphates	0	0	0	0	0	0	0	0	0	0	19	17	23	28	24	28
Total phosphorus	2	0	8	0	0	1	0	0	1	0	22	18	23	28	24	28
BOD5	5	0	8	0	0	0	0	0	1	0	9	14	23	28	23	28
Total organic carbon (TOC)	0	0	0	0	0	0	0	0	0	0	0	0	0	13	14	13
CODCr	5	0	8	0	0	0	0	0	1	0	9	12	23	28	23	28
Ammonium	0	0	0	0	0	0	0	0	0	0	18	0	28	24	28	
Total ammonium	0	0	0	0	0	0	0	0	0	0	21	0	23	0	0	0

*Note: In the current data set the reporting of some high priority determinands has stopped or there has been a change in the determinands in the database (e.g. ammonium/total ammonium). EEA wants to clarify if these changes are real changes or it has been errors/misinterpretations introduced in compiling the databases. In addition, the aim is to ensure that the high priority determinands (e.g. nitrate or orthophosphate) have as complete coverage as possible.*

Table 2 shows the number of river stations which reported on nutrients for the period from 1997 – 2012. Cyprus reported data from 32 river stations for nutrients in this period. In 2001, 2004, 2005 and 2006 there was very few reporting of nutrients in Cyprus. The number of river stations has been increased significantly since 2007.

**Table 2: Number of river stations for stations for nutrients by River Basin Districts for the period 1997 - 2012**

RBDcode	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
CY001	9	9	10	10	2	11	9	0	4	5	23	18	24	29	25	29

The figure below illustrates the river stations with nutrient reporting in 2013 (covering the year 2012) in Cyprus. From this it can be seen that Cyprus is covered with stations, but that the density of stations is low.

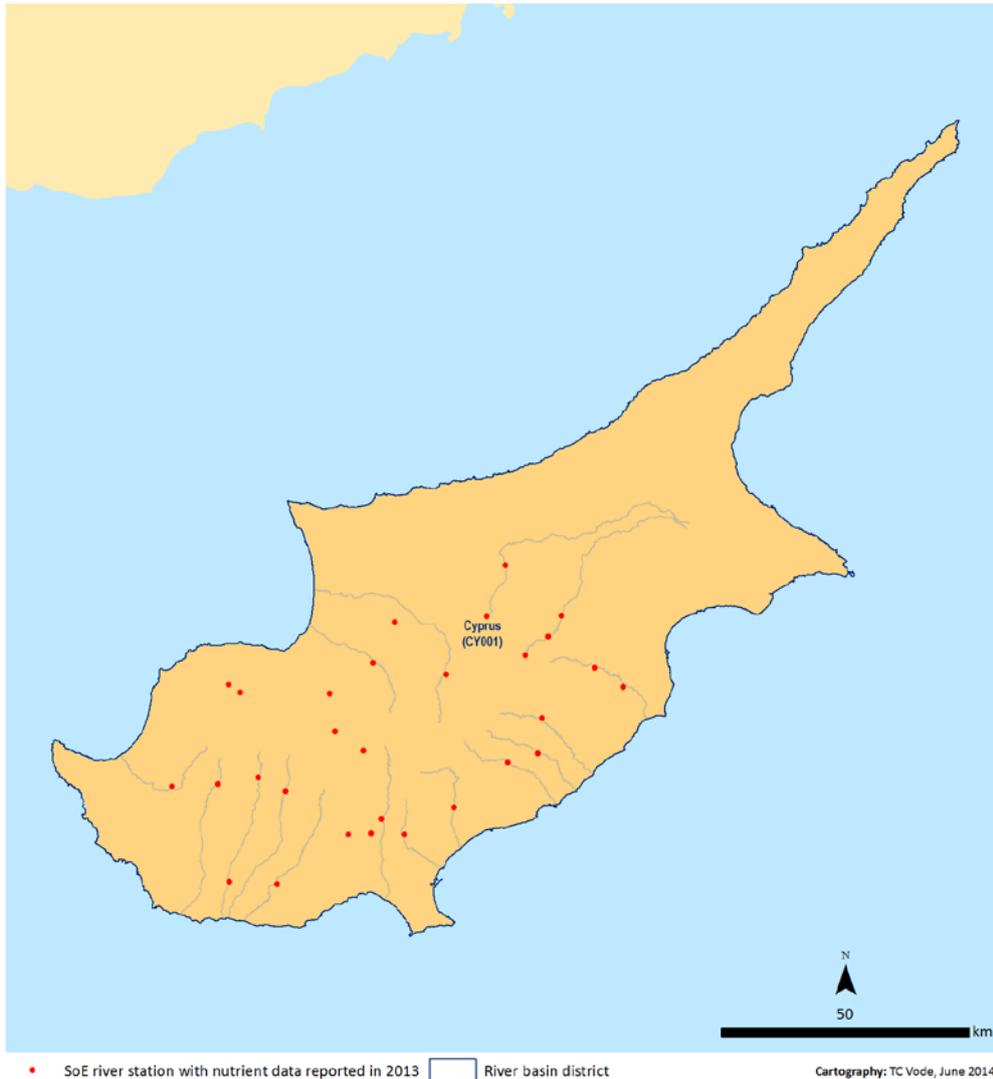


Figure 1: SoE river stations with nutrient data reported in 2013 in Cyprus' RBDs

For the period 1997 to 2012 Cyprus has reported 32 river stations with monitoring of nitrate. Because from 1997 to 2006 there were only few stations reported, there are only 3 stations with time series for nitrate with at least 8 years observation (Table 3).

Table 3: Length of nitrate time series in Cyprus for period 1997 – 2012 (value in the table fields is number of stations with x years' time series)

RBDcode	1 yr	2 yr	3 yr	4 yr	5 yr	6 yr	7 yr	8 yr	9 yr	10 yr	11 yr	12 yr	13 yr	14 yr	15 yr	16 yr
CY001	4	2	2	6	4	8	3	3	0	0	0	0	0	0	0	0

*Note: EEA water quality indicators are used for trend assessments based on consistent time series with some gap filling. For a single country consistent time series are established for the defined period (e.g. 1992-2012; or 2000-2012) with some gap filling (e.g. up to 3 years) and only stations with values for all years in the defined period are used. This ensures that any trend is because of change in the observations and not in the stations included.*

### Questions to Cyprus regarding the reporting on nutrients in rivers:

- Does data exist for determinands to fill the gaps in reporting? Most priority determinands before 2007, nitrate especially in the years 2004-2006.
- Ammonium/total ammonium - why was there a change in 2007 and 2009, is ammonium/total ammonium the same parameter?
- Can the data be resubmitted for stations / years / which have not been reported so far?
- Are there more stations with time series for the listed determinands (in particular the priority ones) available that have so far not been reported?
- Can more stations be reported to increase spatial coverage?

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## Rivers – hazardous substances

Issues to be clarified:

- Have data for all SoE preferred<sup>2</sup> hazardous substances which are monitored in the Member State been reported and consistent for the years in which data are available?
- Are stations with monitoring of SoE preferred hazardous substances covering all RBDs?

Cyprus has been reporting data on hazardous substances in rivers since 2008. In Table 4 there is an overview on the metals and some pesticides, more substances have been reported in Cyprus (metals, pesticides, PAHs, PCBs, other) Nearly all priority substances according to the WFD have been reported.

**Table 4: Hazardous substances (examples for preferred substances) in rivers by number of stations and year**

Determinand_HazSubs	2008	2009	2010	2011	2012
Cadmium	1	6	15	0	17
Lead	6	13	14	9	17
Mercury	2	0	1	0	17
Nickel	13	14	18	12	17
Arsenic	3	11	6	12	17
Boron	0	12	16	12	17
Chromium	12	13	15	12	17
Cobalt and its compounds	6	12	13	12	17
Copper	13	14	17	12	17
Iron and its compounds	11	14	15	4	17
Manganese and its compounds	5	12	10	4	17
Selenium and its compounds	2	2	0	0	0
Vanadium and its compounds	2	0	0	0	0
Zinc	7	10	11	2	17
Gamma-HCH (Lindane)	0	0	0	7	0
Isoproturon	10	0	0	6	12
Alpha-HCH	11	13	13	7	12
Parathion-methyl	0	0	0	6	0
DDT, o,p'	11	0	0	0	0
Dicofol	0	0	2	8	12
Trifluralin	1	1	7	6	12
Diuron	10	0	0	6	12
Aldrin	11	13	13	7	12
Chlorfenvinphos	1	0	0	6	12

*Note: In the current data set the reporting of some high priority determinands has stopped or there has been change in the determinands in the database e.g. lead changed to dissolved lead. EEA wants to clarify*

<sup>2</sup> The lists of preferred substances are based on legislation, spatial and temporal availability. Preferred substances are also covered by Hazardous substances report regularly.

*if these changes are real changes or it has been errors/misinterpretations introduced in compiling the databases. In addition, the aim is to ensure that the high priority determinands (e.g. priority substances) have as complete coverage as possible.*

- An overview of reporting on supportive determinands will be added in final versions of country fiches -

Table 11 shows the number of river stations by River Basin Districts which reported on preferred hazardous substances for the period from 2008 – 2012. In this period Cyprus reported data from around 26 river stations at all.

**Table 5: Number of stations by River Basin Districts for preferred hazardous substances**

RBDcode	2008	2009	2010	2011	2012
CY001	14	16	19	12	17

### Questions to Cyprus regarding the reporting on hazardous substances in rivers:

- Does data exist for determinands to fill the gaps in reporting?
- Are data from 1992 to 2007 available?
- Are there more stations for the preferred determinands available that have so far not been reported?
- Can the data be resubmitted for stations / years which have not been reported so far?

### Rivers – Biology

Issues to be clarified:

- Are status classes reported? If not, why not?
- Are EQR values reported? If not, why not?
- Can reported EQR values be normalised? If not, why not?

In general care should be taken to ensure that the stations reported are geographically representative, as well as representative in terms of the whole range of ecological status classes, and that all major river types are included.

Cyprus reported river biology data (both phytobenthos and macroinvertebrates) for 2010, 2011 and 2012 (Table 6).

For invertebrates, the number of stations (53 at all) was stable for years 2010-2011, but dropped to less than 30% for 2012. 95% of the stations were reported for two or more years. Phytobenthos were reported only for 2012.

**Table 6: Number of river biology records per determinand, aggregation period and year.**

BQE	DeterminandBiology	ImpactType	AggregationPeriod	2010	2011	2012
PB	PhytobenthosEQR_G	G	Annual			6
MI	InvertebrateEQR_G	G	Annual	20	21	6

Table 7: Number of river biology records per BQE, RBD and year.

BQE	RBDcode	2010	2011	2012
PB	CY001			6
MI	CY001	20	21	6

Cyprus reports status classes as well as EQR values, and the EQR values can be normalised.

### Questions to Cyprus regarding the reporting on biology in rivers:

- Are more data for phytobenthos available and can they be submitted?
- Are more data for 2012 available and can they be submitted?

### Lakes – Nutrients, Organic Matter and General Physico-Chemical Determinands

Issues to be clarified:

- Have data for all SoE nutrients of highest priority<sup>3</sup> been reported consistent over the years?
- Are stations with monitoring of highest priority nutrients covering all RBDs of the Member States?
- Are longer time series (since 1992) for preferred nutrients available?
- Are stations codes consistent and is it possible to link the stations with WFD water bodies?
- Member State specific issues, if such occur

Cyprus has been reporting data from nutrients in lakes from 1997 on. The table below provides an overview by determinands of the number of lake stations per year for the period 1997 to 2012. Very few stations are reported until 2007. There was a change in reporting Total ammonium or Ammonium in 2007 and 2009. Few data have been reported for TOC.

Table 8: Number of lake stations per determinand/year (nutrients of highest priority)

Determinand_Nutrients	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Nitrate	6	6	6	6	0	6	5	5	5	5	9	9	9	9	9	9
Total nitrogen	0	0	0	0	0	0	0	0	0	0	9	9	9	0	0	0
Orthophosphates	0	0	0	0	0	2	0	0	0	5	9	9	9	9	9	9
Total phosphorus	6	6	5	6	0	0	5	5	5	0	9	9	9	9	0	9
BOD5	6	6	6	6	0	0	2	3	5	5	9	9	8	8	8	8
Total organic carbon (TOC)	0	1	6	0	0	0	0	0	0	0	0	0	0	0	0	0
CODCr	0	0	0	0	0	0	0	0	0	0	0	0	0	8	8	8
Ammonium	0	0	0	0	0	0	0	0	0	0	0	9	0	9	9	9
Total ammonium	0	0	0	0	0	0	0	0	0	0	9	0	9	0	0	0

<sup>3</sup> Determinands of highest priority in terms of EEA's needs are determinands which are or will be used in EEA assessments (e.g. CSI).

*Note: In the current data set the reporting of some high priority determinands has stopped or there has been a change in the determinands in the database. EEA wants to clarify if these changes are real changes or it has been errors/misinterpretations introduced in compiling the databases. In addition, the aim is to ensure that the high priority determinands (e.g. nitrate or orthophosphate) have as complete coverage as possible.*

**Fehler! Verweisquelle konnte nicht gefunden werden.** shows the number of lake stations by River Basin Districts which reported on nutrients for the period from 1997 – 2012. Data are reported from 9 stations in this period. In 2001 was no reporting; from 2004 to 2006 there was very few reporting in Cyprus. From 2007 the reporting has significantly increased.

**Table 9: Number of lake stations for nutrients by River Basin Districts**

RBDcode	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
CY001	6	6	6	6	0	6	6	5	5	5	9	9	9	9	9	9

### Questions to Cyprus regarding the reporting on nutrients in lakes:

- Does data exist for determinands to fill the gaps in reporting? Most priority determinands before 2007, TP in 2011.
- Ammonium/total ammonium - why was there a change in 2007 and 2009, is ammonium/total ammonium the same parameter?
- Can the data be resubmitted for stations / years / which have not been reported so far?
- Are there more stations with time series for the listed determinands (in particular the priority ones) available that have so far not been reported?
- Can more stations be reported to increase spatial coverage?

### Lakes – Hazardous Substances

Issues to be clarified:

- Have data for all SoE preferred<sup>4</sup> hazardous substances which are monitored in the Member State been reported and consistent for the years in which data are available?
- Are stations with monitoring of SoE preferred hazardous substances covering all RBDs?

Cyprus has been reporting data on hazardous substances in lakes since 1996. In Table 10 there is an overview on the reporting of some preferred hazardous substances to illustrate (heavy metals, some pesticides). Cyprus submitted information on many substances (metals, pesticides, PAHs, PCBs ..), but for most substances data have been reported only for some years, as can be seen from the following table.

**Table 10: SoE preferred hazardous substances (examples) in lakes by number of stations and year**

<sup>4</sup> The lists of preferred substances are based on legislation, spatial and temporal availability. Preferred substances are also covered by Hazardous substances report regularly.

Determinand_HazSubs	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Cadmium	0	2	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Lead	2	2	0	0	0	0	0	4	1	4	1	0	0	0	1	8	4
Mercury	2	3	0	0	0	0	0	0	0	5	1	0	0	0	0	0	1
Nickel	0	0	0	0	1	0	0	0	0	0	2	0	0	0	8	8	8
DDD, p,p'	0	0	0	0	0	0	0	0	0	0	0	0	0	8	8	0	0
Propazine	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	8	0
Dieldrin	0	0	0	0	0	0	0	0	0	0	0	0	0	8	8	8	0
Aldrin	5	6	6	5	0	6	6	6	6	0	0	0	0	8	8	8	1
Simazine	1	0	0	0	0	0	0	0	0	0	0	0	0	8	8	8	1
Endrin	5	6	6	6	0	5	6	6	6	0	0	0	0	8	8	8	0
Gamma-HCH (Lindane)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	0

Note: In the current data set the reporting of some high priority determinands has stopped or there has been change in the determinands in the database e.g. lead changed to dissolved lead. EEA wants to clarify if these changes are real changes or it has been errors/misinterpretations introduced in compiling the databases. In addition, the aim is to ensure that the high priority determinands (e.g. priority substances) have as complete coverage as possible.

- An overview of reporting on supportive determinands will be added in final versions of country fiches -

Table 11 shows the number of lake stations by River Basin Districts which reported on preferred hazardous substances for the period from 1996 – 2012. In this period Cyprus reported data from 8 lake stations. In the last years information for all 8 stations have been submitted, in the years before information for less lake stations is available.

Table 11: Number of stations by River Basin Districts for preferred hazardous substances

RBDcode	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
CY001	5	6	6	6	6	6	6	6	6	6	3	3	8	8	8	8	8

### Questions to Cyprus regarding the reporting on hazardous substances in lakes:

- Does data exist for determinands to fill the gaps in reporting?
- Are older data than what has been reported available (from 1992 – 1995)?
- Are there more stations for the determinands available that have so far not been reported?
- Can the data be resubmitted for stations / years which have not been reported so far?

### Lakes – Biology

Issues to be clarified:

- Are status classes reported? If not, why not?
- Are EQR values reported? If not, why not?

- Can reported EQR values be normalised? If not, why not?

In general care should be taken to ensure that the stations reported are geographically representative, as well as representative in terms of the whole range of ecological status classes, and that all major river types are included

Cyprus delivered lakes biology data (only phytoplankton) for all years 2010-2012 (see Table 12). Both status class and all additional phytoplankton metrics were reported.

The number of phytoplankton stations (8 stations at all) was equal for years 2010 and 2012, but less than 50% for 2011. The aggregation period is Summer, but should preferably be reported as Annual (cf. Data Dictionary).

**Table 12: Number of lake biology records per determinand, aggregation period and year. (a) EQR values and/or status class. (b) Additional metrics in original scale.**

a)

BQE	DeterminandBiology	ImpactType	AggregationPeriod	2010	2011	2012
PP	PhytoplanktonEQR_E	E	Summer	8	3	8

b)

BQE	DeterminandBiology	AggregationPeriod	2010	2011	2012
PP	Chlorophyll_a	Summer	8	3	8
PP	CyanobacteriaBiomass	Summer			8
PP	CyanobacteriaProportion	Summer	8	3	8
PP	TotalPhytoplanktonBiomass	Summer	8	3	8

Cyprus reports status classes as well as EQR values, and the EQR values can be normalised.

#### Questions to Cyprus regarding the reporting on biology in rivers:

- Are more stations for phytobenthos available and can they be submitted?
- Are more data for 2011 available and can they be submitted?
- Are data for other biological elements (e.g. Macrophytes) available and can they be submitted?

*Some more comments on different QA issues:*

*EQR data:*

- *All data reported have status class. Year 2011: EQR values are missing for a few stations. Year 2012: EQR values could not be normalised for most stations. The reason is that the stations are HMWB where H/G class boundaries are not defined.*
- *Classification system: H/G class boundary was defined as 0.8 for years 2010-2011, but "not available" for year 2012. Clarification is needed on the class boundaries for phytoplankton.*

*Additional data:*

- *Data for 2010-2011 had minor quality issues, which have been corrected. Data for 2012 had no quality issues*

## 4.2 Groundwater quality

Issues to be clarified:

- Have data for all SoE nutrients of highest priority (in terms of EEA's needs) in groundwater been reported consistent over the years?
- Have disaggregated data for all highest priority SoE nutrients in groundwater been reported consistent over the years?
- Are all RBDs in the MS covered with reporting on highest priority SoE nutrients in groundwater?
- Have data on preferred hazardous substances, if monitored by Member State, in groundwater been reported for all years in which they are available?
- Are all RBDs in the MS covered with reporting on preferred SoE hazardous substances in groundwater?

### Groundwater - Nutrients, Organic Matter and General Physico-Chemical Determinands

Cyprus reported some aggregated data on groundwater nutrients in 2000, disaggregated<sup>5</sup> data were reported in the period 2000 – 2012 (Table 13). Until 2007 no data for ammonium and dissolved oxygen have been delivered and there are gaps in nitrite reporting. In general the number of stations with reporting is decreasing (see also Table 14), from about 150 in 2007 to 88 in 2012.

**Table 13: (Highest priority) nutrients in groundwater disaggregated (value = number of stations per country in which given determinand was reported)**

DeterminandName	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Nitrate	26	72	133	141	142	139	138	135	80	83	86	89	88
Ammonium	0	0	0	0	0	0	0	126	81	83	84	87	88
Nitrite	0	85	26	0	0	0	29	142	0	0	0	0	0
Dissolved Oxygen	0	0	0	0	0	0	0	10	23	83	86	90	88

*Note: In the current data set the reporting of high priority determinands has stopped or nutrients have been reported as aggregated data only. The aim is to ensure that the high priority determinands (preferably disaggregated data) have as complete coverage as possible.*

**Table 14: Number of groundwater stations for highest priority nutrients (disaggregated) by River Basin Districts**

RBDcode	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
CY001	26	107	136	141	142	139	138	150	81	83	86	90	88

*Note: One aspect of the country fiches is to improve the spatial coverage and ensure that stations are reported for all RBDs.*

5 For Eionet-Water data are reported at different levels of aggregation:

- Disaggregated: concentrations in each sample and date of sample taken at each monitoring site in the groundwater body;
- Aggregated: annual average concentrations for the groundwater body.

## Groundwater - Hazardous substances

Cyprus has been reporting information on only a part of the preferred hazardous substances in groundwater since 2004 (see Table 15). In 2005, 2006 and 2007 no data were delivered, since 2008 around 80 stations per substance were reported. From 2005 there were no data on Zinc reported.

**Table 15: Number of river stations for preferred hazardous substances (disaggregated) by River Basin Districts (pref haz sub (value = number of stations per country in which given determinand was reported))**

DeterminandName	2004	2005	2006	2007	2008	2009	2010	2011	2012
Alachlor	0	0	0	0	80	73	85	90	87
Atrazine	0	0	0	0	80	73	83	84	88
Chlorfenvinphos	0	0	0	0	80	73	83	84	88
Chlorpyrifos	0	0	0	0	79	73	85	90	87
Simazine	0	0	0	0	80	73	83	84	88
Trifluralin	0	0	0	0	80	73	85	90	87
Arsenic	0	0	0	0	80	83	86	90	88
Copper	33	0	0	0	80	83	86	90	87
Zinc	109	0	0	0	0	0	0	0	0
Cadmium	0	0	0	0	80	83	86	90	88
Chromium	0	0	0	0	80	83	86	90	88
Nickel	62	0	0	0	80	83	86	90	88
Lead	0	0	0	0	80	83	86	90	87
Mercury	0	0	0	0	80	83	86	90	88
Propazine	0	0	0	0	80	73	80	84	88
1,1,2-trichloroethene	0	0	0	0	80	83	86	89	88
1,1,2,2-tetrachloroethene	0	0	0	0	80	83	86	89	88

*Note: In the current data set the reporting of preferred substances has stopped or data have not been reported. The aim is to ensure that the high priority determinands (e.g. priority substances) have as complete coverage as possible.*

**Table 16: Number of river stations for preferred hazardous substances (disaggregated)**

RBDcode	2004	2005	2006	2007	2008	2009	2010	2011	2012
CY001	113	0	0	0	80	83	86	90	88

*Note: One aspect of the country fiches is to improve the spatial coverage and ensure that stations are reported for all RBDs.*

## Questions to Cyprus regarding the reporting on groundwater

- Can data on preferred nutrients be redelivered?
- Why is the number of stations for preferred nutrients decreasing? Is information on other stations available which can be redelivered?
- Why was no reporting of hazardous substances in 2005 - 2007 – can data be redelivered?
- Can information on all preferred hazardous substances be provided?
- Are there older data (before 2004), which can be redelivered?

### 4.3 Emissions

Issues to be clarified:

- Does Member State report data on emissions or are the tables prefilled from E-PRTR reporting?
- What type of source apportionment has been reported?
- Which determinands have been reported for the different emissions categories (nutrients from point and diffuse sources, hazardous substances from point and diffuse sources)
- Have data been reported from all RBDs (if relevant)?

For Cyprus records only records from E-PRTR are present. Cyprus has never reported emissions under SoE. In the following tables there is an overview on reporting nutrients and hazardous substances from point sources and the groups of emission sources which have been used. The value in the table fields is the number of RBDs in which the determinands were reported.

The E-PRTR is limited to point sources of pollution and to specific types of facilities. Although to each facility the main activity is assigned, which allows to distinguish between industrial and urban waste water emissions, this apportionment is very rough (there could be more than one activity assigned to each facility). From E-PRTR those pollutants were selected which were available and could be unambiguously linked to the determinands in SoE data dictionary.

**Table 17: Nutrients emissions from point sources (value means the number of spatial units in which the determinand was reported for that year)**

Determinand_Nutrients	2006	2007	2008	2009	2010	2011	2012
Total Nitrogen							
Total Organic Carbon (TOC)					1		
Total Phosphorus							

Sources of emissions reported:

- I Industrial Waste Water Discharges total

**Table 18: Hazardous substances emissions from point sources (value means the number of spatial units in which the determinand was reported for that year)**

Determinand_HazSubs	CASNumber	2007	2008	2009	2010	2011	2012
Copper	7440-50-8					1	

Mercury	7439-97-6				1	1	
Nickel	7440-02-0					1	

Sources of emissions reported:

U2 Urban Waste Water Treated Discharges total

**Questions to Cyprus regarding the reporting on emissions:**

- Are other data than E-PRTR available for point sources?
- Are any data available for diffuse sources?

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#### 4.4 Waterbase WaterQuantity

Cyprus has declared just one RBD and thus reporting on country level is equivalent to reporting on RBD level. The country has submitted under WISE-SoE#3 water quantity data in every year since this dataflow has been established in 2009. As shown in Table 19 the reported data include both, point (stations) and areal data (water balance, water abstraction, water use). For many of the reported parameters the time series cover the time period 1998-2012. The preferred time scale of the reported time series was annual (111 TS) and monthly (135 TS). Three time series have been reported in seasonal time scale and 18 stream flow time series in daily time scale.

**Table 19: Number of reported time series (of any time scale) per parameter**  
(see <http://etccd.eionet.europa.eu/dataelements/7433> for the description of parameters)

Parameter	Number of time series
Groundwater level	144
Reservoir inflow	34
Reservoir outflow	34
Stream flow	18
wb_areal_precipitation	5
wb_desalinated_water-total	5
wb_pot_evapotranspiration	3
wb_changes_in_reservoir_storage	2
wb_water_imports	2
wb_water_exports	2
wb_reused_water-nace_a_irrigation	2
wa_total_abstraction	1
wa_total_abstraction_sw	1
wa_total_abstraction_gw	1
wa_for_public_wss	1
wb_act_evapotranspiration	1
wb_internal_flow	1
wb_total_act_ext_inflow	1
wb_total_actual_outflow	1
wb_total_actual_outflow_sea	1
wb_total_actual_outflow_neighbour	1
wb_aquifer_recharge	1
wb_artif_gw_recharge	1
wu_public_water_supply-total	1
wu_public_water_supply-domestic	1
wu_public_water_supply-nace_c	1
wu_self_supply-nace_c	1

The location of the reported stations projected on the map is shown on Figure 2 and Figure 3, where

-  Reservoir
-  Station measuring groundwater level (well)
-  Rain gauge station
-  Stream flow station

It is obvious that many of the stations from the categories stream flow station, well and reservoir have been reported with incorrect coordinates. For some of these stations the data provider has reported longitude in place of latitude and vice versa, but for some erroneous coordinates this cannot be the only reason.



Figure 2: Location of stations

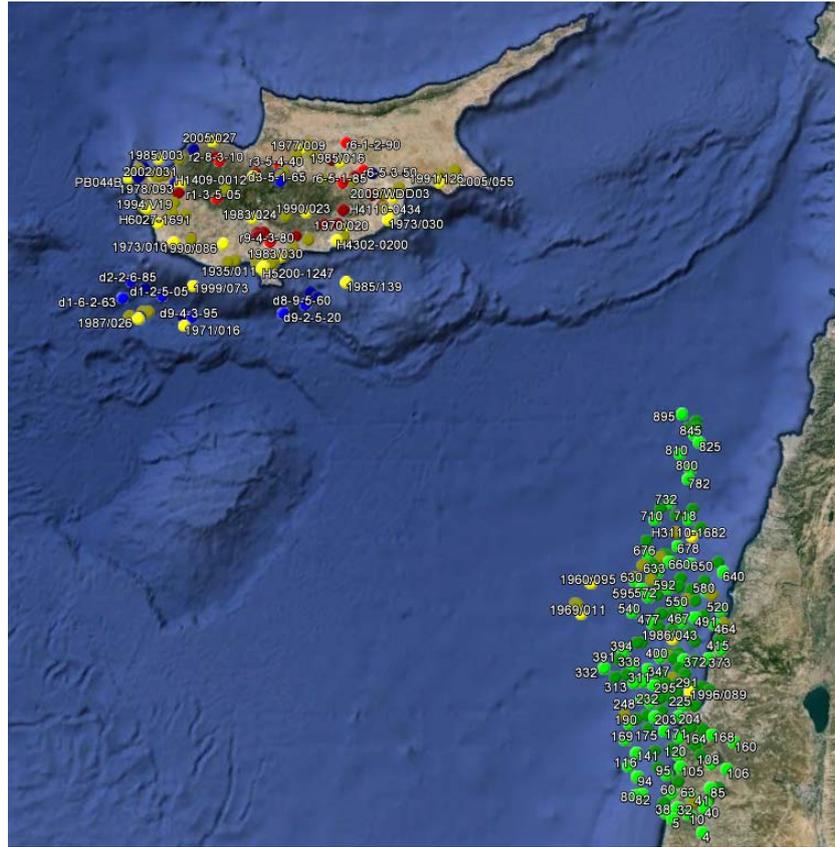


Figure 3: Displaced stations

Cyprus reported in the past water quantity relevant data also to EUROSTAT through the OECD/EUROSTAT Joint Questionnaire (JQ). Some inconsistencies have been encountered by comparing annual data of identical parameters reported under WISE-SoE and the JQ (see Table 20).

Table 20: Comparison of annual values at country level of parameters reported through the OECD/EUROSTAT Joint Questionnaire 2012 and the WISE SoE water quantity dataflow

Ref. year	Parameter	Value (JQ)	Value (SoE)
2000	Total actual outflow	90	65
2000	Actual outflow into the sea	90	65
2001	Total gross abstraction from surface water	61.4	51.8
2002	Total gross abstraction from surface water	75.5	61.7
2003	Total gross abstraction from surface water	84.25	71.5
2003	Recharge into the Aquifer	188.39	70
2004	Total gross abstraction from surface water	95.16	84.7
2005	Total gross abstraction from surface water	94.67	80.5
2006	Total surface and groundwater for public water supply	65.2	59.2
2006	Total gross abstraction from surface water	93.1	78.4
2007	Total surface and groundwater for public water supply	65.6	59.2
2007	Total gross abstraction from surface water	71.2	63.6
2007	Precipitation	2766.748355	3597
2008	Total surface and groundwater for public water supply	44.84	29.28
2008	Total gross abstraction from surface water	30.54	25
2008	Imports of water	3.3	5.007535
2009	Total surface and groundwater for public water supply	36.6	18.9
2009	Total gross abstraction from surface water	39.3	32.6

2009	Imports of water	2	2.995623
2010	Total surface and groundwater for public water supply	49.4	29.3
2011	Total surface and groundwater for public water supply	52.9	32.6

## 5 Matching of stations/water bodies

For the integrated assessment with the Water Framework Directive as well as other Water Directives it is a prerequisite that SoE stations can be linked to stations or water bodies from the other reporting streams. That was often not possible in former assessments and should be improved in the future, especially with regards to the next assessment of WFD reporting.

All the datasets reported to WISE have different fields to identify the stations or water bodies. The WISE-WFD database with data reported for the first RBMPs has the **water body code** (Surface or Groundwater) as one of the main codes. The WISE-SoE Groundwater, Rivers and Lake databases have a field with the **water body codes** (WaterBodyID/ GWBcode\_WFD).

Database	Water Body Code
WISE-WFD database	<i>Surface water bodies</i> EUSurfaceWaterBodyCode SWB_MS_Code SWB_NAME
WISE_SoE rivers	WaterBodyID WaterBodyName
WISE_SoE lakes	WaterBodyID WaterBodyName
WISE-WFD database	<i>Groundwater bodies</i> EUGroundWaterBodyCode SWB_MS_Code SWB_NAME
WISE_SoE groundwater bodies Groundwater stations	GWBcode_WFD GWBcode_WFD

The following overview shows some statistics of the availability of WaterBodyID for SoE surface water stations or WaterBodyCode for SoE groundwater stations and groundwaterbodies and their matching with WFD EUSurfaceWaterBodyCode and WFD SWB\_MS\_CD.

### WISE-SoE rivers

Cyprus has reported WaterBodyID for 31 of 33 WISE-SOE river stations; there are match with 100% WFD water bodies if Waterbody ID has been reported (see Table 21).

**Table 21 WISE SoE rivers water quality dataset - statistics of the availability of rivers monitoring stations and their attributes (waterbody ID) and the results of the matching of the SoE rivers waterbody ID with WFD EUSURFACEWATERBODYCODE and SWB\_MS\_CD**

SOE_STATIONS_TO TAL	SOE_WATERBODYID_EX ISTS	MATCH_EUSURFACEWATERBODY CODE	MATCH_SWB_MS _CD
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33	31	31	30
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### WISE-SoE lakes

Cyprus has reported WaterBodyID for all lakes;, there are match of 100% with WFD water bodies (Table 22).

**Table 22: WISE SoE lakes water quality dataset - statistics of the availability of lakes monitoring stations and their attributes (water body ID) and the results of the matching of the SoE lakes waterbodyID with WFD EUSURFACEWATERBODYCODE and SWB\_MS\_CD**

SOE_STATIONS_TOTAL	SOE_WATERBODYID_EXISTS	MATCH_EUSURFACEWATERBODYCODE	MATCH_SWB_MS_CD
10	10	10	10

### WISE-SoE groundwater

All Cyprus WISE-SoE groundwater bodies (19) and WISE-SoE groundwater stations (454) have GWB codes. However, there is no match at all with WFD water bodies (Table 23, Table 24).

**Table 23: WISE SoE groundwater quality dataset - statistics of the availability of groundwaterbodies and their SOE\_GWBCODE\_WFD and the results of the matching of the SoE groundwater SOE\_GWBCODE\_WFD with WFD EUGROUNDWATERBODYCODE and GWB\_MS\_CD**

SOE_GWB_TOTAL	SOE_GWBCODE_WFD_EXISTS	MATCH_EUGROUNDWATERBODYCODE	MATCH_GWB_MS_CD
19	19	0	0

**Table 24: WISE SoE groundwater quality dataset - statistics of the availability of groundwater monitoring stations and their attributes (SOE\_GWBCODE\_WFD) and the results of the matching of the SoE groundwater SOE\_GWBCODE\_WFD with WFD EUGROUNDWATERBODYCODE and GWB\_MS\_CD**

SOE_GW_STATIONS_TOTAL	SOE_GWBCODE_WFD_EXISTS	MATCH_EUGROUNDWATERBODYCODE	MATCH_GWB_MS_CD
454	454	0	0

### Questions to Cyprus:

- Can the waterbody code as defined in the WFD guidance (EUSurfaceWaterBodyCode) be reported for the groundwater stations and groundwater bodies?
- Other statistics on matching (see example Spain) will be included in the country fiche in a next version -

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