



UNDER CONTRACT
TO THE EUROPEAN
ENVIRONMENT
AGENCY

**Guidance on update of Priority Data
Flows through EUROWATERNET and the
population of WATERBASE**

September 2003

Final version 1.0

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1 INTRODUCTION

This paper contains guidance on the updating of priority data flows on water quantity and the quality of rivers, lakes and groundwaters, collected through the EUROWATERNET process. 2003 sees the first priority data flow on water quantity. This guidance document can be downloaded from the EIONET Water Interest Group on CIRCLE:

http://eea.eionet.eu.int:8980/Public/irc/eionet-circle/water/library?l=/eurowaternet/eurowaternet_2003/guidance&vm=detailed&sb=Title

The data and information obtained through EUROWATERNET are required for updating the data flows and factsheets associated with the EEA's core set of indicators. Data are also made publicly available over the Internet via [Reference WATERBASE](#), located on the EEA Data Service's web site.

Guidelines for the implementation of EUROWATERNET have been published by the EEA in [Technical Report No. 7](#) (1998). The guidelines will be updated in the future to take into account the requirements of the Water Framework Directive and the EEA's need to develop data flows for biological and hydro-morphological quality elements.

Guidelines for the implementation of water quantity are also available in [Technical Report No. 99](#) (2003).

The deadline for the 2003 update of the EUROWATERNET-Basic and Impact priority data flows on rivers and lakes, EUROWATERNET-Groundwater and EUROWATERNET-Quantity is:

Friday 19 December 2003.

A further request for updating the EUROWATERNET data flows on transitional, coastal and marine waters will be made in October 2003 with a deadline for return of data of Friday 30 January 2004.

2 SUMMARY

In summary, this is what is requested from you:

- The application of the EUROWATERNET-Basic and Impact criteria to your national monitoring networks for the identification and selection of rivers and lakes and the application of the EUROWATERNET criteria for the selection of groundwater bodies for inclusion in WATERBASE.
- Modification and addition to the information on the physical characteristics of the river stations selected for EUROWATERNET.
- The application of the EUROWATERNET-Quantity criteria to your national monitoring networks for inclusion in WATERBASE.
- Validation of existing information in WATERBASE. Please fill in any gaps in terms of physical characteristics, pressure information and water quality.

For rivers, a validation spreadsheet has been provided which lists missing data and specific quality assurance questions for your country.

For groundwater, a validation spreadsheet is available illustrating for which years and groundwater bodies data on the formerly requested determinands are available. This might help identifying missing years and closing gaps in time series.

Furthermore, information already available on saltwater intrusion is presented for validation.

These validation spreadsheets can be downloaded from:

http://eea.eionet.eu.int:8980/Public/irc/eionet-circle/water/library?l=/eurowaternet/eurowaternet_2003/validation&vm=detail&sb=Title

- Preparation of your national data deliveries in the data exchange formats described in this guidance document and make use of the templates provided in the EIONET Water Interest Group on CIRCLE:

http://eea.eionet.eu.int:8980/Public/irc/eionet-circle/water/library?l=/eurowaternet/eurowaternet_2003/templates&vm=detail&sb=Title

- Submission of the most recent water quality and quantity data available, ideally from 2002, but no later. In addition, for each selected river and lake station and groundwater body we require data from as many previous years as are available and/or comparable in order to produce as long a time series as possible. For water quantity, we require data for the past ten years.
- Delivery of files of rivers, lakes, groundwater and quantity data to the national data repository of your country. This is either your country's folder in the Central Data Repository or a designated CIRCLE Interest Group on your national EIONET server. In both cases your [National Focal Point](#) coordinates the upload of data files. More information on your [national repository choice](#) is available on the EIONET portal.
- The transmission of your EUROWATERNET-Basic data on rivers and lakes in aggregated format.
- The transmission of your EUROWATERNET-Impact data on rivers and lakes in disaggregated format.

- The transmission of your EUROWATERNET-Groundwater data in disaggregated format (or aggregated if you prefer for those determinands listed in Annex 1 only).
- The transmission of your EUROWATERNET-Quantity data in aggregated format.
- An acknowledgement to Ruth Cullingford at the address below of receipt of this guidance paper and confirmation of your participation in EUROWATERNET by **Friday 31 October 2003**.
- **Receipt of your national EUROWATERNET-Basic, Impact, Groundwater and Quantity data by Friday 19 December 2003**.

For any further information on the update guidance and process please contact **Ruth Cullingford** of the ETC/WTR Core Team based at the Water Research Centre (WRC), Swindon, UK:

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fax: +44 1793 865001
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3 DATA REQUIRED

3.1 EUROWATERNET-BASIC, EUROWATERNET-IMPACT AND EUROWATERNET-GROUNDWATER

Data relating to both the EUROWATERNET-Basic and EUROWATERNET-Impact networks are required for both rivers and lakes and data are also required for EUROWATERNET-Groundwater. These include the physical characteristics of the monitoring stations and groundwater bodies and proxy pressures on the upstream catchment areas or groundwater body areas, as well as chemical quality data.

3.1.1 River and Lake Station Networks

The information and data requested through EUROWATERNET are derived from existing national and/or regional monitoring networks within each EEA Member Country. For the EUROWATERNET-Basic network, Member Countries have been asked to select river and lake stations according to criteria described in the technical guidelines ([EEA Technical Report No. 7](#)). These stations are expected to be able to provide a general overview, based on truly comparable data, of water quality at a European level.

For EUROWATERNET-Basic, different 'types' of monitoring station have been identified for rivers and lakes. These include:

Reference stations: in catchments with little or no human activity and with the percentage of natural landscape higher than 90%. In terms of the Priority Substances that occur naturally it might be expected that the concentrations measured at these stations would give an indication of 'background levels'. In addition, for volatile synthetic substances the data from these stations might be used to assess the significance of atmospheric deposition.

Representative stations: reflect the majority of rivers or lakes in a region/area with human activities in the catchment consistent with the region's/areas activities. The water quality at these stations would be influenced by diffuse sources of pollution and/or point sources depending on the human activities upstream. The pollutants from point sources would be expected to have become fully mixed and diluted within the ambient water flow/volume. These stations may be included within national networks used to obtain an overview of the numbers of hazardous substances present and their concentrations. This type of station is likely to be included in 'surveillance' monitoring programmes as required by the Water Framework Directive. Many of these stations may therefore have a long time series of data.

Flux stations: should include all monitoring stations currently being used for assessment of international, transboundary loads or loads entering Europe's Seas.

Largest, Most Important stations: should include the nationally most important or well known rivers/lakes. Some are likely to be monitored for the EU Exchange of Information Decision.

For EUROWATERNET-Impact an additional type of monitoring station has been identified:

Impact stations: monitoring stations within the zone (area or volume of water) where initial mixing of the emissions takes place within the receiving waters. Concentrations of determinands would be expected to be relatively high ('worst-case' concentrations) at these stations. These stations may be used by the regulatory authorities to assess the compliance of discharges with standards or limits. Thus monitoring at these stations may in some cases be limited to those substances present within any particular discharge. This type of station is likely to be included in 'operational' monitoring programmes as required by the Water Framework Directive. Many of these stations may, therefore, have a relatively long time series of data.

However, data are requested data from **all** stations at which the Priority Substances are measured for operational or surveillance reasons. Data are not requested from those monitoring stations which might be established for ad-hoc purposes such as for investigative monitoring and which may therefore be sampled for only a limited time period.

It is possible that stations may be of more than one type. For example, a station may be of a Flux, Largest and Representative type, thus a categorisation of FLR is possible.

3.1.2 Physical Characteristics of River Stations

This year we request that you modify and add more information on the physical characteristics of the river stations selected for EUROWATERNET. This will make the information more compatible with the Water Framework Directive and will improve our assessments by providing details of the seas into which the rivers discharge. We recognise that some of this information may not yet be available as the detailed characterisation of your River Basin Districts (under the Water Framework Directive) may not be complete until the end of 2004.

3.1.3 Groundwater Bodies

The information and data requested through EUROWATERNET-Groundwater are derived from existing national and/or regional monitoring networks within each EEA Member Country. For EUROWATERNET-Groundwater, Member Countries have been asked to select important groundwater bodies according to criteria defined in the technical guidelines ([EEA Technical Report No. 7](#)). These bodies are expected to be able to provide a general overview, based on truly comparable data, of groundwater quality at the European level.

Important groundwater bodies are defined in the technical guidelines and should meet at least one of the three criteria below:

- The groundwater body should be at least 300 km².
- The groundwater body should be of regional, socio-economic or environmental importance in terms of quantity and quality.
- The groundwater body may be exposed to severe or major impacts.

3.1.4 Determinands

The EUROWATERNET-Basic determinands requested include nutrients and organic pollution indicators (see Annex 1). EUROWATERNET-Impact determinands are those noted in the Priority Substance List for the Water Framework Directive, Lists I and II of the Dangerous Substances Directive (see

Annex 2), and any other nationally monitored hazardous substance. EUROWATERNET-Groundwater requests both the determinands of Annex 1 and Annex 2 and any other nationally monitored hazardous substance.

3.1.5 Level of Aggregation

EUROWATERNET-Basic data and EUROWATERNET-Groundwater data on the determinands listed in Annex 1 are requested as annually, statistically aggregated values. Any data supplied in disaggregated format will be aggregated to annual values. For groundwater quality, the submission of disaggregated data is recommended and highly appreciated.

EUROWATERNET-Impact network data and EUROWATERNET-Groundwater data on the determinands listed in Annex 2 are requested in disaggregated format (i.e. concentration values by day/month/year).

This difference is because we expect that many of the analytical determinations will be at or below the limit of detection for the analytical method. The single sample determinations are required to give a more robust assessment of how the data should be statistically treated and presented.

The collection of disaggregated data for priority substances necessitate the definition of the limit of detection¹ and limit of determination².

3.1.6 Saltwater Intrusion

Information on the occurrence of saltwater intrusion into groundwater bodies from seawater or deep saline aquifers caused by groundwater over-exploitation is also requested. We would like to encourage all countries to provide information (brief characterisation and GIS-information) in order to improve and complete the European-wide overview. For further details see Annex 5.

3.2 EUROWATERNET-QUANTITY

The development and implementation of EUROWATERNET includes a specific task aimed at obtaining comparable information on the status of water resources of inland waters. It is understood that the monitoring of water resources has to be based on existing national networks but for practical purposes experience shows that data from the total number of rain gauge and river gauging stations in each country is not available.

Moreover, in some cases it is not possible to directly measure the determinand under consideration and it has to be estimated using different tools. For example, when estimating internal renewable resources which have to be calculated assuming that a non-altered regime is being dealt with, i.e. reconstructing the hydrological regime that would exist in the absence of hydraulic works and water abstraction or using mathematical modeling.

As part of its work programme, the ETC/WTR has already developed station selection procedures and a methodology for water resources assessment using

¹ The LoD is that concentration for which there is a desirably small probability that the determinand will not be detected (usually with 95% confidence).

² The smallest concentration that can be distinguished from the analytical blank at a chosen level of statistical confidence (usually 95%).

data from the stations selected. This methodology has been agreed with EUROSTAT and is described in the [EUROWATERNET-Quantity technical guidelines for implementation](#). The methodology has been applied in Spain, the UK and Hungary and has been tested in six other countries.

The tests have shown that the methodology is suitable and countries are now asked to select the stations that will constitute the network. Data will be updated annually to obtain the main water resources components in each country.

In this first priority data flow for EUROWATERNET-Quantity, countries are asked to provide annual precipitation and river discharge data for at least the past ten years, together with details of the geographical location of each gauging station.

3.3 SUMMARY

The EUROWATERNET data requirements are summarised below:

3.3.1 EUROWATERNET-Basic: Summary

| | |
|-----------------------|--|
| <p>Rivers:</p> | <p>Physical characteristics of monitoring stations (station ID, station name, station type, river name, catchment name, river length, station co-ordinates, altitude, discharge, catchment area)</p> <p>Annually aggregated data</p> <p>Nutrients (all those available from: nitrate, nitrite, organic nitrogen, soluble reactive phosphorus or orthophosphate, total ammonium, total inorganic nitrogen, total oxidised nitrogen, total nitrogen, total phosphorus)</p> <p>Chlorophyll a</p> <p>PH</p> <p>Organic pollution indicators (all those available from: biochemical oxygen demand, chemical oxygen demand, dissolved oxygen, oxygen saturation, total organic carbon)</p> <p>See Annex 1</p> <p>Water flow</p> <p>Proxy pressures on upstream catchment of monitoring station (population, urban, wetland, natural, forest, total agricultural, other agricultural, arable, pastoral, other land use based on CORINE land cover categories)</p> |
| <p>Lakes:</p> | <p>Physical characteristics of monitoring stations/lakes (station ID, lake name, catchment area, lake area, station co-ordinates, altitude, lake volume, lake maximum depth, lake mean depth, residence time, lake type)</p> <p>Annually aggregated data</p> <p>Nutrients (all those available from: nitrate, nitrite, soluble reactive phosphorus or orthophosphate, total ammonium, total inorganic nitrogen, total oxidised nitrogen, total nitrogen, total phosphorus)</p> <p>Chlorophyll a</p> <p>PH</p> <p>Organic pollution indicators (all those available from: biochemical oxygen demand, chemical oxygen demand, dissolved oxygen, oxygen saturation, total organic carbon)</p> <p>Secchi disc depth</p> <p>Alkalinity</p> <p>Conductivity</p> <p>See Annex 1</p> <p>Proxy pressures on upstream catchment of monitoring station (population,</p> |

| | |
|--|--|
| | urban, wetland, natural, forest, total agricultural, other agricultural, arable, pastoral, other land use based on CORINE land cover categories) |
|--|--|

3.3.2 EUROWATERNET-Impact: Summary

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|--------------------------|--|
| Rivers and Lakes: | Water Framework Directive Priority Substances, Lists I and II Dangerous Substances as listed in Annex 2 and any other monitored hazardous and dangerous substances Disaggregated data by day/month/year CAS number, matrix, limit of detection, limit of determination |
|--------------------------|--|

3.3.3 EUROWATERNET-Groundwater: Summary

| | |
|-----------------------------|--|
| Groundwater quality: | GIS-maps in ETRS89 (European terrestrial reference system 89) Physical characteristics of groundwater bodies (EWN-code, groundwater body name, groundwater body area, aquifer type, groundwater horizon, depth to groundwater, groundwater body thickness) Proxy pressures on the groundwater body areas (arable land use, annual precipitation) Information on sampling sites (code, type of use, co-ordinates) Determinands listed in Annex 1 Nutrients (all those available from: nitrate, nitrite, total ammonium) Organic pollution indicator (dissolved oxygen) Disaggregated or annually aggregated data Water Framework Directive Priority Substances, Lists I and II Dangerous Substances as listed in Annex 2 and any other pesticides important in terms of endangering groundwater Disaggregated data |
| Saltwater Intrusion: | GIS-maps in ETRS89 (European terrestrial reference system 89) List of groundwater bodies with occurrence of saltwater intrusion caused by groundwater over-exploitation and characterisation (name, area, cause, co-ordinates etc.) |

3.3.4 EUROWATERNET-Quantity: Summary

| | |
|-------------------|--|
| Quantity : | Physical characteristics of the gauging station (Station ID, longitude, latitude, altitude, catchment area, catchment name) Mean annual precipitation for the last ten years Annual daily maximum precipitation Mean annual discharge at reference gauging stations Mean annual discharge at flux gauging stations Annual discharge exceeded 95% of the time at all gauging stations Annual maximum discharge at all gauging stations Mean annual discharge at additional intermediate gauging stations |
|-------------------|--|

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| | See Annex 8 (Data requested for the last ten years) |
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4 UPDATE OF RIVERS

4.1 EUROWATERNET-BASIC

Most EEA member countries have implemented EUROWATERNET-Basic and have previously submitted aggregated data to the ETC/WTR for inclusion in WATERBASE. The river chemical quality, station characteristic and pressure data relating to current EUROWATERNET stations are available to be viewed and downloaded from the public Reference WATERBASE web site at:

<http://dataservice.eea.eu.int/dataservice/metadetails.asp?id=581>.

EUROWATERNET-Basic data are requested as annual, aggregated values.

This year we request that you modify and add more information on the physical characteristics of the river stations selected for EUROWATERNET. This will make the information more compatible with the Water Framework Directive and will improve our assessments by providing details of the seas into which the rivers discharge. We recognise that some of this information may not yet be available as the detailed characterisation of your River Basin Districts (under the Water Framework Directive) may not be complete until the end of 2004.

4.2 EUROWATERNET-IMPACT

The implementation of EUROWATERNET-Impact was started in 2001. We wish to obtain comparable and harmonised information on the concentrations and distribution of the Water Framework Directive Priority Substances and other hazardous substances (including List I and List II substances under the Dangerous Substances Directive). The list of Impact determinands is attached as Annex 2. This list is not exhaustive. Countries are asked to provide the name and CAS Number of any additional determinands included in their data submissions.

We would like to encourage all countries to provide data from their EUROWATERNET-Impact networks this year, for as many determinands as possible and for as long a time series as possible.

EUROWATERNET-Impact data are requested in disaggregated format.

4.3 DATA REQUIREMENTS

There maybe gaps in terms of EUROWATERNET requirements in the Basic and Impact information already submitted. We would urge you to fill in these gaps with the required information. In particular we wish to focus your attention on:

1. Updating your national data with the most recent EUROWATERNET-Basic and EUROWATERNET-Impact data (for most countries this would be for the year 2002). Please do not supply any data for 2003.
2. Filling in any gaps in existing data.
3. Provision of any earlier year data not already submitted, in particular from the central and eastern European, and Mediterranean countries.
4. Modification and addition to the information on the physical characteristics of the river stations selected for EUROWATERNET.

5. Inclusion of standard deviation values in order to facilitate statistical analysis of your data.
6. Providing answers to specific questions detailed in your country's validation file (***EWN_Rivers_CountryName_2003.xls***) which can be downloaded from the EIONET Water Interest Group on CIRCA:
http://eea.eionet.eu.int:8980/Public/irc/eionet-circle/water/library?l=/eurowaternet/eurowaternet_2003/validation&vm=detail&sb=Title
7. Provision of as long a time series of data as possible, for as many determinands and at as many stations as possible.
8. Submission of river discharge data for all stations either based on gauged flows at the monitoring station, or based on estimates or calculation derived from the nearest gauging station to the monitoring station.
9. Provision of upstream catchment pressure information for each station based on CORINE Land Cover data or its equivalent.
10. Please use the templates detailed in the Excel spreadsheet ***EWN_Rivers_2003.xls*** to guide you in formatting your data.
11. Please upload your data files to your nominated repository – either your country's envelope in the Central Data Repository on CIRCA (<http://cdr.eionet.eu.int>) or your national EIONET server.

We request that you provide aggregated annual values at each EUROWATERNET-Basic river monitoring station and disaggregated values at each EUROWATERNET-Impact river monitoring station. Templates are provided as a guide for data submission. Please supply data in Excel (.xls), tab-separated ASCII text (.txt) or Access database (.mdb) format.

Details on the required information and the structure for the submission of EUROWATERNET-Basic and Impact data for rivers are provided in Annexes 3 and 7. Electronic versions of the templates can also be downloaded from the EIONET Water Interest Group on CIRCLE:

http://eea.eionet.eu.int:8980/Public/irc/eionet-circle/water/library?l=/eurowaternet/eurowaternet_2003/templates&vm=detailed&sb=Title

The update of EUROWATERNET for rivers is the responsibility of **Ruth Cullingford** of the ETC/WTR Core Team, based at the Water Research Centre (WRC), Swindon, UK. Contact details are given below:

| | |
|---------|-----------------------------------|
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5 UPDATE OF LAKES

5.1 EUROWATERNET-BASIC

Most EEA member countries have implemented EUROWATERNET-Basic and have previously submitted aggregated data to the ETC/WTR for inclusion in WATERBASE. The lakes chemical quality, station characteristic and pressure data relating to current EUROWATERNET stations are available to be viewed and downloaded from the public Reference WATERBASE web site at:

<http://dataservice.eea.eu.int/dataservice/metadetails.asp?id=589>.

EUROWATERNET-Basic data are requested as annual, aggregated values.

5.2 EUROWATERNET-IMPACT

The implementation of EUROWATERNET-Impact was started in 2001. We wish to obtain comparable and harmonised information on the concentrations and distribution of the Water Framework Directive Priority Substances and other hazardous substances (including List I and List II substances under the Dangerous Substances Directive). The list of Impact determinands is attached as Annex 2. This list is not exhaustive. Countries are asked to provide the name and CAS Number of any additional determinands included in their data submissions.

We would like to encourage all countries to provide data from their EUROWATERNET-Impact networks this year, for as many determinands as possible and for as long a time series as possible.

EUROWATERNET-Impact data are requested in disaggregated format.

5.3 DATA REQUIREMENTS

There maybe gaps in terms of EUROWATERNET requirements in the Basic and Impact information already submitted. We would urge you to fill in these gaps with the required information. In particular we wish to focus your attention on:

1. Updating your national data with the most recent EUROWATERNET-Basic and EUROWATERNET-Impact data (for most countries this would be for the year 2002). Please do not supply any data for 2003.
2. Filling in any gaps in existing data. We would gratefully receive a resupply of your country's data to assist in the gap-filling process.
3. Provision of any earlier year data not already submitted.
4. Provision of as long a time series of data as possible, for as many determinands and at as many stations as possible.
5. Provision of upstream catchment pressure information for each station based on CORINE Land Cover data or its equivalent.
6. Please use the templates detailed in the Excel spreadsheet ***EWN_Lakes_2003.xls*** to guide you in formatting your data.
7. Please upload your data files to your nominated repository – either your country's envelope in the Central Data Repository on CIRCA

(<http://cdr.eionet.eu.int>) or your national EIONET server.

We request that you provide aggregated annual values at each EUROWATERNET-Basic lake monitoring station and disaggregated values at each EUROWATERNET-Impact lake monitoring station. Templates are provided as a guide for data submission. Please supply data in Excel (.xls), tab-separated ASCII text (.txt) or Access database (.mdb) format.

Details on the required information and the structure for the submission of EUROWATERNET-Basic and Impact data for lakes are provided in Annexes 4 and 7. Electronic versions of the templates can also be downloaded from the EIONET Water Interest Group on CIRCLE:

http://eea.eionet.eu.int:8980/Public/irc/eionet-circle/water/library?l=/eurowaternet/eurowaternet_2003/templates&vm=detailed&sb=Title

The update of EUROWATERNET for lakes is the responsibility of **Jens Bøgestrand** of the National Environmental Research Institute (**NERI**), Silkeborg, Denmark. Contact details are given below:

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6 UPDATE OF GROUNDWATER

6.1 EUROWATERNET-GROUNDWATER

Most EEA member countries have implemented EUROWATERNET-Groundwater and have previously submitted aggregated or disaggregated data to the ETC/WTR for inclusion in WATERBASE. The groundwater chemical quality, characteristic and pressure data relating to current EUROWATERNET groundwater bodies are available to be viewed and downloaded from the public Reference WATERBASE web site at:

<http://dataservice.eea.eu.int/dataservice/metadetails.asp?id=588>.

6.2 DETERMINANDS

The requested determinands are listed in Annex 1 and Annex 2 of these guidance notes. Annex 1 consists of the nitrogen compounds nitrate, nitrite and ammonium and the supportive indicator dissolved oxygen.

The implementation of selected pesticides data began 2001 and is now to be extended to include additional substances. We wish to obtain comparable and harmonised information on the concentrations and distribution of the Water Framework Directive Priority Substances and other hazardous substances (including List I and List II substances under the Dangerous Substances Directive). The list of determinands is attached as Annex 2. This list is not exhaustive. Countries are asked to provide the name and CAS Number of any additional determinands included in their data submissions.

We would like to encourage all countries to provide data from their EUROWATERNET-Groundwater this year, for as many determinands as possible and for as long a time series as possible. In particular, please supply data on pesticides in groundwater.

EUROWATERNET-Groundwater data on substances listed in Annex 1 are requested in disaggregated format (which is recommended and highly appreciated) or as annual, aggregated values. EUROWATERNET-Groundwater data on substances listed in Annex 2 are requested in disaggregated format.

6.3 SALTWATER INTRUSION

The implementation of the occurrence of saltwater intrusion (from seawater or from deep saline aquifers) caused by groundwater over-exploitation into EUROWATERNET-Groundwater began in 2002. The basis for this was the information collected for the [Environmental Assessment Report No 3 "Groundwater quality and quantity in Europe" \(1999\)](#) and improved for the [Water Indicator Report \(2003\)](#) providing a European-wide overview. We would like to encourage all countries to provide information on saltwater intrusion in order to improve and complete the map. For further details see Annex 5.

6.4 DATA REQUIREMENTS

There may be gaps in terms of EUROWATERNET requirements in the information already submitted. We would urge you to fill in these gaps with the requested information. In particular we wish to focus your attention on:

1. Updating your national data with the most recent EUROWATERNET-Groundwater data (for most countries this would be for the year 2002). Please do not supply any data for 2003.
2. Filling in any gaps in existing data. Detailed information can be downloaded from the EIONET Water Interest Group on CIRCA:
http://eea.eionet.eu.int:8980/Public/irc/eionet-circle/water/library?l=/eurowaternet/eurowaternet_2003/validation&vm=detail&sb=Title
3. Provision of any earlier year data not already submitted. Please do not re-submit data provided in previous updates which have already been validated, unless amendments have been made (to prevent the overwriting of data already validated).
4. Provision of as long a time series of data as possible, for as many determinands and at as many stations as possible.
5. Submission or update of digital groundwater maps.
6. Provision of pressure information on each groundwater area based on CORINE Land Cover data or its equivalent.
7. Please use the new templates only detailed in the zip file of Excel spreadsheets **EWN_Groundwater_2003.zip** to guide you in formatting your data. Please do not manipulate and amend these templates.
8. Please upload data files to your nominated repository – either your country's envelope in the Central Data Repository on CIRCA (<http://cdr.eionet.eu.int>) or your national EIONET server.
9. Alternatively, please use the FEA's groundwater web site to provide information on the characterisation of groundwater bodies and to validate existing data. This web site is password protected – please contact Johannes Grath (details below) who will co-ordinate password delivery to a nominated contact. Passwords which were distributed for the previous update are still valid. If corrections are required to be made when checking your data via the web site, please print the respective page, insert the corrected values on the printout and send the corrections by fax; or scan and email the amendments.

During previous updates, countries have asked for assistance in aggregating their quality data. In order to keep your effort and time taken to deliver data to as short a time as possible, we offer to undertake the aggregation on your behalf. If you require assistance, we suggest that you submit disaggregated (raw) data at monitoring site level. This means that you should provide all monitoring data for all determinands listed, for as long a time series as possible.

Details on the required information and the structure for the submission of EUROWATERNET-Groundwater data are provided in Annexes 5 and 6. Electronic versions of the templates can also be downloaded from the EIONET Water Interest Group on CIRCLE:

http://eea.eionet.eu.int:8980/Public/irc/eionet-circle/water/library?l=/eurowaternet/eurowaternet_2003/templates&vm=detailed&sb=Title

The update of EUROWATERNET for groundwater is the responsibility of **Johannes Grath** of the Federal Environment Agency (FEA), Vienna, Austria. Contact details are given below:

| | |
|---------|---------------------------|
| tel.: | +43 1 31304 3510 or 3720 |
| fax.: | +43 1 31304 3700 |
| e-mail: | grath@ubavie.gv.at |

7 **EUROWATERNET-QUANTITY**

The development and implementation of EUROWATERNET includes a specific task aimed at obtaining comparable information on the status of water resources of inland waters. It is understood that water resources monitoring has to be based on existing national networks but for practical purposes experience shows that data from the total number of rain gauge and river gauging stations in each country are not available.

Moreover, in some cases it is not possible to directly measure the determinand under consideration and it has to be estimated using different tools. For example, when estimating internal renewable resources which have to be calculated assuming that a non-altered regime is being dealt with, i.e. reconstructing the hydrological regime that would exist in the absence of hydraulic works and water abstraction or using mathematical modeling.

As part of its work programme, the ETC/WTR has already developed station selection procedures and a methodology for water resources assessment using only data from the stations selected. This methodology has been agreed with EUROSTAT and is described in the [EUROWATERNET-Quantity technical guidelines for implementation](#). The methodology has been applied in Spain, the UK and Hungary and has been tested in six other countries.

7.1 **DATA REQUIREMENTS**

The tests have shown that the methodology is suitable and countries are now asked to select the stations that will constitute the network. Data will be updated annually to obtain the main water resources components in each country. Please provide the following data for each station selected:

1. Station ID (number and/or name to identify the station).
Geographical co-ordinates of gauging station.
Altitude of the station.
Catchment area and name in which the gauging station is situated.
Mean annual precipitation for the last ten years.
Mean annual discharge for the last ten years.
Specific details can be found in Annex 8 of this document.
2. Please use the templates detailed in the Excel spreadsheet **EWN_Quantity_2003.xls** to guide you in formatting your data.
3. Please upload your data files to your nominated repository – either your country's envelope in the Central Data Repository on CIRCA (<http://cdr.eionet.eu.int>) or your national EIONET server.

We request that you provide annual values at each EUROWATERNET-Quantity gauging station. Templates are provided as a guide for data submission. Please supply data in Excel (.xls), tab-separated ASCII text (.txt) or Access database (.mdb) format.

Details on the required information and the structure for the submission of EUROWATERNET-Quantity are provided in Annex 8. Electronic versions of the templates can also be downloaded from the EIONET Water Interest Group on CIRCLE:

http://eea.eionet.eu.int:8980/Public/irc/eionet-circle/water/library?l=/eurowaternet/eurowaternet_2003/templates&vm=detailed&sb=Title

The update of EUROWATERNET for quantity is the responsibility of **Conchita Marcuello** of the Centro de Estudios y Experimentación de Obras Públicas (CEDEX), Madrid, Spain. Contact details are given below:

tel: +34 91 335 8066
fax: +34 91 335 7922
e-mail: **concepcion.marcuello@cedex.es**

8 DELIVERY OF DATA FILES

Data files for the EUROWATERNET-Basic, Impact and Quantity data flows should be uploaded to the national data repository of your country. This is the delivery point for all national data requested under EIONET priority data flows.

The national repository is either your country's folder in the Central Data Repository (CDR) on the EIONET server or a designated Interest Group on your national EIONET server. This depends on the choice of your country for delivering EIONET priority data. Please see the result of the [repository choice](#) on the EIONET portal.

If your country has opted for the [Central Data Repository \(CDR\)](#):

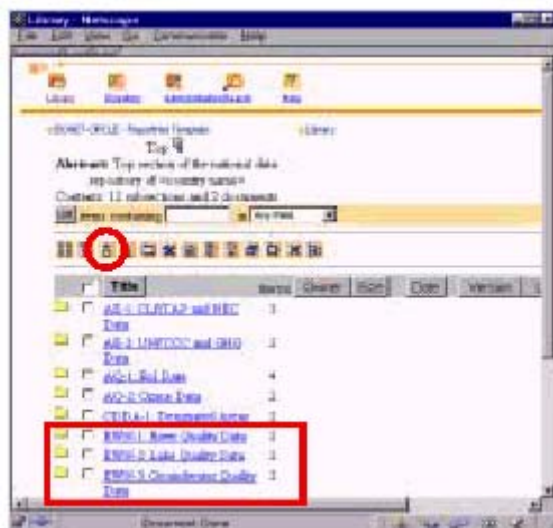
EUROWATERNET deliveries should be uploaded to your country's folder under "EEA Requests".

Sub-collections for rivers, lakes, groundwater and water quantity data are already available. The on-line help ("Help area" button) explains how to create new envelopes and how to upload the data files.



If your country has opted for delivering the EIONET priority data to a CIRCLE Interest Group on the national EIONET server:

EUROWATERNET data deliveries have to be uploaded to the relevant library sub-section using the file upload button.



File upload permissions to country folders on the CDR or to the national EIONET server for data deliveries are organised by the relevant National Focal Point. Please contact your [National Focal Point](#) should you have any questions or issues regarding access.

ANNEX 1: EUROWATERNET-BASIC DETERMINANDS

The table below lists the organic pollution indicators, nutrients and other determinands that are monitored under EUROWATERNET-Basic and EUROWATERNET-Groundwater.

The Param-IDs assigned to the determinands are relevant for EUROWATERNET-Groundwater when providing disaggregated data according to the interface described in Annex 6:

| Water Body Type | Determinand | Unit | Param-ID (groundwater) |
|-----------------|--|----------------------|---------------------------|
| Rivers | BOD5 | mg/l O ₂ | |
| Rivers | BOD7 | mg/l O ₂ | |
| Rivers | Chlorophyll a | µg/l | |
| Rivers | COD | mg/l O ₂ | |
| Rivers | Dissolved Oxygen | mg/l O ₂ | |
| Rivers | Nitrate | mg/l N | |
| Rivers | Nitrite | mg/l N | |
| Rivers | Organic Nitrogen | mg/l N | |
| Rivers | Orthophosphate | mg/l P | |
| Rivers | Oxygen Saturation | % | |
| Rivers | pH | pH | |
| Rivers | Total Ammonium | mg/l N | |
| Rivers | Total Inorganic Nitrogen | mg/l N | |
| Rivers | Total Nitrogen | mg/l N | |
| Rivers | Total Organic Carbon | mg/l C | |
| Rivers | Total Oxidised Nitrogen | mg/l N | |
| Rivers | Total Phosphorus | mg/l P | |
| Lakes | Alkalinity | meq/l | |
| Lakes | Ammonia nitrogen | mg/l N | |
| Lakes | BOD5 | mg/l O ₂ | |
| Lakes | BOD7 | mg/l O ₂ | |
| Lakes | Chlorophyll a | mg/l | |
| Lakes | COD chromate method | mg/l O ₂ | |
| Lakes | COD manganate method | mg/l O ₂ | |
| Lakes | COD unspecified | mg/l O ₂ | |
| Lakes | Conductivity | µS/cm | |
| Lakes | Nitrate nitrogen | mg/l N | |
| Lakes | Nitrate and nitrite nitrogen (oxidised nitrogen) | mg/l N | |
| Lakes | Nitrite nitrogen | mg/l N | |
| Lakes | Orthophosphate | mg/l P | |
| Lakes | Oxygen concentration | mg/l O ₂ | |
| Lakes | Oxygen saturation | % | |
| Lakes | pH | pH | |
| Lakes | Secchi depth transparency | m | |
| Lakes | Total nitrogen | mg/l N | |
| Lakes | Total organic carbon | mg/l C | |
| Lakes | Total phosphorus | mg/l P | |
| Groundwater | Dissolved Oxygen | mg/l O ₂ | 503 |
| Groundwater | Nitrate | mg/l NO ₃ | 500 |
| Groundwater | Nitrite | mg/l NO ₂ | 502 |
| Groundwater | Total Ammonium | mg/l NH ₄ | 501 |

ANNEX 2: EUROWATERNET-IMPACT DETERMINANDS

The table below lists the hazardous and dangerous substances as identified by the Water Framework Directive Priority Substances, the Dangerous Substances Directive and the Drinking Water Directive.

The Param-IDs assigned to the determinands are relevant for EUROWATERNET-Groundwater when providing disaggregated data according to the interface described in Annex 6:

| CAS No | Substance | Unit | Classification | Param-ID (groundwater) |
|------------|---------------------------------------|--|-----------------|---------------------------|
| 15972-60-8 | Alachlor | µg/l (for all parameters listed in Annex 2 and any other hazardous substance provided) | WFD_PS | 504 |
| 120-12-7 | Anthracene | | WFD_PSR, DS | 877 |
| 1912-24-9 | Atrazine | | WFD_PSR, DS | 505 |
| 71-43-2 | Benzene | | WFD_PS, DS | 878 |
| | Brominated diphenylethers | | WFD_PHS | 879 |
| 1163-19-5 | Bis(pentabromophenyl) ether | | WFD_PHS | 880 |
| 32536-52-0 | Diphenyl ether, octabromo deviate | | WFD_PHS | 881 |
| 32534-81-9 | Diphenyl ether, pentabromo derivative | | WFD_PHS | 882 |
| 85535-84-8 | C ₁₀₋₁₃ -Chloralkanes | | WFD_PHS | 883 |
| 7440-43-9 | Cadmium and its compounds | | WFD_PHS, DS, DW | 808 |
| 470-90-6 | Chlorfenvinphos | | WFD_PS | 506 |
| 2921-88-2 | Chlorpyrifos | | WFD_PSR | 507 |
| 107-06-2 | 1,2-Dichloroethane | | WFD_PS, DS | 884 |
| 75-09-2 | Dichloromethane | | WFD_PS, DS | 885 |
| 117-81-7 | Di (2-ethylhexyl) phthalate (DEHP) | | WFD_PSR | 886 |
| 84-66-2 | Di-ethyl phthalate | | WFD_PSR | 887 |
| 84-69-5 | Di-iso-butyl phthalate | | WFD_PSR | 888 |
| 84-74-2 | Di-(n-butyl) phthalate (DBP) | | WFD_PSR | 889 |
| 85-68-7 | Butyl benzyl phthalate (BBP) | | WFD_PSR | 890 |
| 330-54-1 | Diuron | | WFD_PS | 508 |
| 115-29-7 | Endosulfan | | WFD_PSR | 509 |
| 959-98-8 | (alpha-Endosulfan) | | WFD_PSR, DS | 845 |
| 608-73-1 | Hexachlorocyclohexane | | WFD_PHS | 844 |
| 58-89-9 | (gamma-isomer, Lindane) | | WFD_PHS, DS | 510 |
| 118-74-1 | Hexachlorobenzene | | WFD_PHS, DS | 511 |
| 87-68-3 | Hexachlorobutadiene | | WFD_PHS, DS | 891 |
| 34123-59-6 | Isoproturon | | WFD_PS | 512 |
| 7439-92-1 | Lead and its compounds | | WFD_PSR, DS, DW | 819 |
| 7439-97-6 | Mercury and its compounds | | WFD_PHS, DS, DW | 822 |
| 91-20-3 | Naphthalene | | WFD_PSR, DS | 892 |
| 7440-02-0 | Nickel and its compounds | | WFD_PS, DS, DW | 815 |
| 25154-52-3 | Nonylphenols | | WFD_PHS | 893 |
| 104-40-5 | (4-(para)-nonylphenol) | | WFD_PHS | 894 |
| 8452-15-3 | (4-nonylphenol, branched) | | WFD_PHS | 895 |
| 1806-26-4 | Octylphenols | | WFD_PSR | 896 |
| 140-66-9 | (para-tert-octylphenol) | | WFD_PSR | 897 |
| 608-93-5 | Pentachlorobenzene | | WFD_PHS | 898 |
| 87-86-5 | Pentachlorophenol | | WFD_PSR, DS | 823 |
| | Polyaromatic Hydro-carbons (PAH) | | WFD_PHS | 899 |

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| CAS No | Substance | Unit | Classification | Param-ID (groundwater) |
|------------|---|------|----------------|---------------------------|
| 50-32-8 | (benzo-a-pyrene) | | WFD_PHS | 900 |
| 205-99-2 | (benzo-b-fluoranthene) | | WFD_PHS | 901 |
| 191-24-2 | (benzo-g,h,i-perylene) | | WFD_PHS | 902 |
| 207-08-9 | (benzo-k-fluoranthene) | | WFD_PHS | 903 |
| 206-44-0 | (fluoroanthene) | | WFD_PHS | 904 |
| 193-39-5 | (indeno(1,2,3-cd) pyrene) | | WFD_PHS | 905 |
| 122-34-9 | Simazine | | WFD_PS, DS | 513 |
| 688-73-3 | Tributyltin compounds | | WFD_PHS, DS | 906 |
| 36643-28-4 | (TBT-ion) | | WFD_PHS | 907 |
| 12002-48-1 | Trichlorobenzenes | | WFD_PSR, DS | 908 |
| 87-61-6 | (1,2,3-trichlorobenzene) | | WFD_PSR | 909 |
| 120-82-1 | (1,2,4-trichlorobenzene) | | WFD_PSR | 910 |
| 108-70-3 | (1,3,5-trichlorobenzene) | | WFD_PSR | 911 |
| 67-66-3 | Trichloromethane | | WFD_PS, DS, DW | 912 |
| 1582-09-8 | Trifluralin | | WFD_PSR, DS | 514 |
| 7440-50-8 | Copper and its compounds | | DS | 804 |
| | DDT (2,4'-isomer) and (4,4'-isomer) and metabolites (DDD, DDE) | | DS | 826 |
| 789-02-6 | DDT (o,p) (4,4'-isomer) | | | 827 |
| 50-29-3 | DDT (p,p) (2,4'-isomer) | | | 828 |
| 72-55-9 | DDE, p, p' | | DS | 831 |
| 72-54-8 | DDD, p, p' | | DS | 832 |
| 53-19-0 | DDD, o, p' | | DS | 833 |
| 919-86-8 | Demeton-S-methyl | | DS | 913 |
| 62-73-7 | Dichlorvos | | DS | 914 |
| 60-51-5 | Dimethoate | | DS | 915 |
| 309-00-2 | Aldrin | | DS | 825 |
| 60-57-1 | Dieldrin | | DS | 835 |
| 72-20-8 | Endrin | | DS | 836 |
| 465-73-6 | Isodrin | | DS | 916 |
| 330-55-2 | Linuron | | DS | 917 |
| 1336-36-3 | Polychlorinated biphenyls | | DS | 918 |
| 31508-00-6 | 2,4,5,3,4-PeCB (PCB118) | | DS | 919 |
| 32598-13-3 | 3,4,3,4-TeCB (PCB77) | | DS | 920 |
| 32774-16-6 | 3,3',4,4',5,5' HexCB (PCB169) | | DS | 921 |
| 7440-66-6 | Zinc and its compounds | | DS | 807 |

| | |
|---------|--|
| WFD_PS | Water Framework Directive Priority Substance |
| WFD_PHS | WFD Priority Hazardous Substance |
| WFD_PSR | WFD Priority Substance under Review |
| DS | Dangerous Substances Directive |
| DW | Drinking Water Directive |

ANNEX 3: EUROWATERNET-BASIC FOR RIVERS

This table details the structure required for the submission of aggregated EUROWATERNET-Basic data for rivers.

The Excel template **EWN_Rivers_2003.xls** can be downloaded from:

http://eea.eionet.eu.int:8980/Public/irc/eionet-circle/water/library?l=/eurowaternet/eurowaternet_2003/templates&vm=detailed&sb=Title

Please supply data in Excel (.xls), tab-separated ASCII text (.txt) or Access database (.mdb) format.

1. STATIONS PHYSICAL CHARACTERISTICS DATA:

| STN_ID | STN_NAME | STN_TYP | REV_YEAR | WATER_BODY_NAME | WATER_BODY_ID | WATER_CATEGORY | RIVER_NAME | CATCH_NAME | RIVER_BASIN_DISTRICT |
|--------|----------|---------|----------|-----------------|---------------|----------------|------------|------------|----------------------|
| | | | | | | | | | |

| SEA_AREA_NAME_ID | SEA_REGION_NAME | SEA_CONVENTION_AREA | LONG | LAT | RIVER_LENGTH | ALTITUDE | DISCHARGE | CATCH_AREA | REMARKS |
|------------------|-----------------|---------------------|------|-----|--------------|----------|-----------|------------|---------|
| | | | | | | | | | |

| Field Name | Definition | Data Type |
|------------|--|---------------|
| STN_ID | Station ID <i>Note:</i> National station identifier of river monitoring station. | nvarchar(50) |
| STN_NAME | Station Name <i>Note:</i> Name of river station. | nvarchar(200) |
| STN_TYP | Station Type <i>Note:</i> Type of monitoring station: B = Reference, R = Representative. | nvarchar(30) |

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| Field Name | Definition | Data Type |
|----------------------|--|---------------|
| | F = Flux, L = Largest, Most Important, I = Impact. Stations can be of more than one type. If so, types will be listed alphabetically with no separator e.g. FL. | |
| REV_YEAR | Revision Year <i>Note:</i> Last year of revision or update of characteristics. | int(4) |
| WATER_BODY_NAME | Name of Water Body <i>Note:</i> Name of water body in which monitoring station is located. Water body as defined / required by Water Framework Directive. A water body may have more than one monitoring station in it. | nvarchar(50) |
| WATER_BODY_ID | Water Body ID <i>Note:</i> National identification code of water body (if applicable) in which monitoring station is located. Water body as defined / required by Water Framework Directive. A water body may have more than one monitoring station in it. | nvarchar(50) |
| WATER_CATEGORY | Water Category <i>Note:</i> Water category: RV = River, CN = Canal. | varchar(2) |
| RIVER_NAME | River Name <i>Note:</i> River name at the national level. | nvarchar(100) |
| CATCH_NAME | Catchment Name <i>Note:</i> Catchment name at the national level. | nvarchar(100) |
| RIVER_BASIN_DISTRICT | River Basin District <i>Note:</i> National name or identifier of the River Basin District in which the water body is located. River Basin Districts as required / defined by the Water Framework Directive. | nvarchar(50) |
| SEA_AREA_NAME_ID | Sea Area Name or ID <i>Note:</i> Sea area name or identifier into which river discharges. Consistent with Marine Convention nomenclature. | nvarchar(50) |
| SEA_REGION_NAME | Regional Sea Name <i>Note:</i> Regional sea name of which sea area is a part. Consistent with Marine Convention nomenclature. | nvarchar(50) |
| SEA_CONVENTION_AREA | Marine Convention Area <i>Note:</i> Name of Marine Convention area: OSPAR / Helsinki / Barcelona / Black Sea / AMAP. | nvarchar(50) |

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| Field Name | Definition | Data Type |
|--------------|---|---------------|
| LONG | Longitude <i>Note:</i> (X) International geographical co-ordinates of the monitoring station in decimal degrees format. | float(8) |
| LAT | Latitude <i>Note:</i> (Y) International geographical co-ordinates of the monitoring station in decimal degrees format. | float(8) |
| RIVER_LENGTH | River Length <i>Note:</i> River length from monitoring station to source in km. | float(8) |
| ALTITUDE | Altitude <i>Note:</i> Altitude of monitoring station in m above sea level. | float(8) |
| DISCHARGE | River Discharge <i>Note:</i> Mean long term river discharge in m ³ /s at the monitoring station. | float(8) |
| CATCH_AREA | Catchment Area <i>Note:</i> Upstream catchment area in km ² . | float(8) |
| REMARKS | Remarks <i>Note:</i> Comment or explanatory note. | nvarchar(200) |

2. PROXY PRESSURES DATA:

| STN_ID | POPULATION | URBAN | WETLAND | NATURE | FOREST | AGRI_TOT | AGRI_OTHER | ARABLE | PASTURE | OTHER | REMARKS |
|--------|------------|-------|---------|--------|--------|----------|------------|--------|---------|-------|---------|
| | | | | | | | | | | | |

| Field Name | Definition | Data Type |
|------------|--|--------------|
| STN_ID | Station ID <i>Note:</i> National station identifier of river monitoring station. | nvarchar(50) |
| POPULATION | Population Density | float(8) |

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| Field Name | Definition | Data Type |
|------------|---|---------------|
| | Note: Population density (capita/km ²) of the upstream catchment area of the river monitoring station. | |
| URBAN | Urban Note: Urban land use as % of the upstream catchment area of the river monitoring station. | float(8) |
| WETLAND | Wetland Note: Wetland land use as % of the upstream catchment area of the river monitoring station. | float(8) |
| NATURE | Nature Note: Natural land use as % of the upstream catchment area of the river monitoring station. | float(8) |
| FOREST | Forest Note: Forested land use as % of the upstream catchment area of the river monitoring station. | float(8) |
| AGRI_TOT | Total Agriculture Note: Total agricultural land use as % of the upstream catchment area of the river monitoring station. | float(8) |
| AGRI_OTHER | Other Agriculture Note: Other agricultural land use as % of the upstream catchment area of the river monitoring station. | float(8) |
| ARABLE | Arable Note: Arable land use as % of the upstream catchment area of the river monitoring station. | float(8) |
| PASTURE | Pasture Note: Pastural land use as % of the upstream catchment area of the river monitoring station. | float(8) |
| OTHER | Other Note: Other land use as % of the upstream catchment area of the river monitoring station. | float(8) |
| REMARKS | Remarks Note: Comment or explanatory note. | nvarchar(200) |

3. RIVER QUALITY DATA:

| STN_ID | STN_NAME | YEAR | PERIOD | PERIOD_LENGTH | DETERMINAND | UNITS | LoD | DTR_LMT | NO_SAMPLES | AVERAGE | MAXIMUM | MINIMUM | STDV | MEDIAN | 10_ILE | 90_ILE | REMARKS |
|--------|----------|------|--------|---------------|-------------|-------|-----|---------|------------|---------|---------|---------|------|--------|--------|--------|---------|
| | | | | | | | | | | | | | | | | | |

| Field Name | Definition | Data Type |
|---------------|---|---------------|
| STN_ID | Station ID <i>Note:</i> National station identifier of river monitoring station. | nvarchar(50) |
| STN_NAME | Station Name <i>Note:</i> Name of the river station. | nvarchar(200) |
| YEAR | Year <i>Note:</i> Year of aggregation period in format YYYY. | int(4) |
| PERIOD | Aggregation Period <i>Note:</i> Period of aggregation: Annual = aggregated over whole year, Summer = aggregated over summer months, Winter = aggregated over winter months. | nvarchar(10) |
| PERIOD_LENGTH | Period Length <i>Note:</i> Number of months in aggregation period. | int(4) |
| DETERMINAND | Determinand <i>Note:</i> Determinand name as defined in Annex 1. | nvarchar(30) |
| UNITS | Unit of Measurement <i>Note:</i> Unit of measurement as defined in Annex 1. | nvarchar(30) |
| LoD | Limit of Detection <i>Note:</i> Concentration for which there is a desirably small probability (around 5%) that the determinand will not be detected – i.e. there is a 95% probability that the determinand will be detected. | float(8) |
| DTR_LMT | Limit of Determination <i>Note:</i> The smallest concentration that can be distinguished from the analytical blank at a chosen level of statistical confidence (usually 95%). | float(8) |
| NO_SAMPLES | Number of Samples <i>Note:</i> Number of samples in aggregation period. | int(4) |

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| Field Name | Definition | Data Type |
|-------------------|--|------------------|
| AVERAGE | Average <i>Note:</i> Average concentration during aggregation period. | float(8) |
| MAXIMUM | Maximum <i>Note:</i> Maximum concentration during aggregation period. | float(8) |
| MINIMUM | Minimum <i>Note:</i> Minimum concentration during aggregation period. | float(8) |
| STDV | Standard Deviation <i>Note:</i> Standard deviation of concentration during aggregation period. | float(8) |
| MEDIAN | Median <i>Note:</i> Median of concentration during aggregation period. | float(8) |
| 10_ILE | 10th Percentile <i>Note:</i> 10 th percentile concentration during aggregation period. | float(8) |
| 90_ILE | 90th Percentile <i>Note:</i> 90 th percentile concentration during aggregation period. | float(8) |
| REMARKS | Remarks <i>Note:</i> Comment or explanatory note. | nvarchar(200) |

ANNEX 4: EUROWATERNET-BASIC FOR LAKES

This table details the structure required for the submission of aggregated data for EUROWATERNET-Basic data for lakes.

The Excel template **EWN_Lakes_2003.xls** can be downloaded from:

http://eea.eionet.eu.int:8980/Public/irc/eionet-circle/water/library?l=/eurowaternet/eurowaternet_2003/templates&vm=detailed&sb=Title

Please supply data in Excel (.xls) or tab-separated ASCII text (.txt) format.

1. STATIONS PHYSICAL CHARACTERISTICS DATA:

| Country Code | Region | Lake Name | National ID Code | Latitude | Longitude | Surface Area | Mean Depth | Max Depth | Residence Time | Catchment Area | Altitude | Volume | Reference | Representative | Largest Important | Reservoir | Remarks |
|--------------|--------|-----------|------------------|----------|-----------|--------------|------------|-----------|----------------|----------------|----------|--------|-----------|----------------|-------------------|-----------|---------|
| | | | | | | | | | | | | | | | | | |

| Field Name | Definition | Data Type |
|------------------|---|---------------|
| Country Code | Country Code <i>Note:</i> ISO 3166-alpha-2 code elements. | varchar(2) |
| Region | Region <i>Note:</i> Region in which water body is located at the national level. | varchar(100) |
| Lake Name | Lake Name <i>Note:</i> Name of the lake. | nvarchar(200) |
| National ID Code | National ID Code <i>Note:</i> National station identifier of lake monitoring station. | nvarchar(50) |
| Latitude | Latitude <i>Note:</i> (Y) International geographical co-ordinates of the monitoring station in decimal degrees format. | float(8) |
| Longitude | Longitude <i>Note:</i> (X) International geographical co-ordinates of the monitoring station in decimal degrees format. | float(8) |
| Surface Area | Surface Area <i>Note:</i> Surface area of lake in km ² . | float(8) |

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| Field Name | Definition | Data Type |
|-------------------|---|---------------|
| Mean Depth | Mean Depth <i>Note:</i> Mean depth of the lake in m. | float(8) |
| Max Depth | Max Depth <i>Note:</i> Maximum depth of the lake in m. | float(8) |
| Residence Time | Residence Time <i>Note:</i> Average lake residence time expressed as years. Calculated as volume/annual flow. | float(8) |
| Catchment Area | Catchment Area <i>Note:</i> Upstream catchment area in km ² . | float(8) |
| Altitude | Altitude <i>Note:</i> Altitude of monitoring station in m above sea level. | float(8) |
| Volume | Volume <i>Note:</i> Lake volume in mio m ³ . | float(8) |
| Reference | Reference <i>Note:</i> Indicates whether the lake is considered a reference lake (1 = yes; 0 = no). | Boolean |
| Representative | Representative <i>Note:</i> Indicates whether the lake is considered a representative lake (1 = yes; 0 = no). | Boolean |
| Largest Important | Largest Important <i>Note:</i> Indicates whether the lake is considered as one of the most important lakes (1 = yes; 0 = no). | Boolean |
| Reservoir | Reservoir <i>Note:</i> Indicates whether the lake is a reservoir or a natural lake (1 = yes (reservoir), 0 = no (lake)). | Boolean |
| Remarks | Remarks <i>Note:</i> Comment or explanatory note. | nvarchar(200) |

2. PROXY PRESSURE DATA:

| STN_ID | POPULATION | URBAN | WETLAND | NATURE | FOREST | AGRI_TOT | AGRI_OTHER | ARABLE | PASTURE | OTHER | REMARKS |
|--------|------------|-------|---------|--------|--------|----------|------------|--------|---------|-------|---------|
| | | | | | | | | | | | |

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| Field Name | Definition | Data Type |
|------------|---|---------------|
| STN_ID | Station ID <i>Note:</i> National station identifier of river monitoring station. | nvarchar(50) |
| POPULATION | Population Density <i>Note:</i> Population density (capita/km ²) of the upstream catchment area of the lake monitoring station. | float(8) |
| URBAN | Urban <i>Note:</i> Urban land use as % of the upstream catchment area of the lake monitoring station. | float(8) |
| WETLAND | Wetland <i>Note:</i> Wetland land use as % of the upstream catchment area of the lake monitoring station. | float(8) |
| NATURE | Nature <i>Note:</i> Natural land use as % of the upstream catchment area of the lake monitoring station. | float(8) |
| FOREST | Forest <i>Note:</i> Forested land use as % of the upstream catchment area of the lake monitoring station. | float(8) |
| AGRI_TOT | Total Agriculture <i>Note:</i> Total agricultural land use as % of the upstream catchment area of the lake monitoring station. | float(8) |
| AGRI_OTHER | Other Agriculture <i>Note:</i> Other agricultural land use as % of the upstream catchment area of the lake monitoring station. | float(8) |
| ARABLE | Arable <i>Note:</i> Arable land use as % of the upstream catchment area of the lake monitoring station. | float(8) |
| PASTURE | Pasture <i>Note:</i> Pastural land use as % of the upstream catchment area of the lake monitoring station. | float(8) |
| OTHER | Other <i>Note:</i> Other land use as % of the upstream catchment area of the lake monitoring station. | float(8) |
| REMARKS | Remarks <i>Note:</i> Comment or explanatory note. | nvarchar(200) |

3. LAKE QUALITY DATA

| Country Code | National ID Code | Determinand | Unit | Year | Averaging Period | Months | Number of Samples | Average | Median | Minimum | Maximum |
|--------------|------------------|-------------|------|------|------------------|--------|-------------------|---------|--------|---------|---------|
| | | | | | | | | | | | |
| | | | | | | | | | | | |

| Field Name | Definition | Data Type |
|-------------------|---|--------------|
| Country Code | Country Code <i>Note:</i> ISO 3166-alpha-2 code elements. | varchar(2) |
| National ID Code | National ID Code <i>Note:</i> National station identifier of lake monitoring station. | nvarchar(50) |
| Determinand | Determinand <i>Note:</i> Determinand name as defined in Annex 1. | nvarchar(30) |
| Unit | Unit of measurement <i>Note:</i> Unit of measurement as defined in Annex 1. | nvarchar(30) |
| Year | Year <i>Note:</i> Year of aggregation period in format YYYY. | int(4) |
| Averaging Period | Aggregation Period <i>Note:</i> Period of aggregation: Annual = aggregated over whole year, Summer = aggregated over summer months, Winter = aggregated over winter months. | nvarchar(10) |
| Months | Period Length <i>Note:</i> Number of months in aggregation period. | int(4) |
| Number of Samples | Number of samples <i>Note:</i> Number of samples in aggregation period. | int(4) |
| Average | Average <i>Note:</i> Average concentration during aggregation period. | float(8) |
| Median | Median <i>Note:</i> Median of concentration during aggregation period. | float(8) |
| Minimum | Minimum <i>Note:</i> Minimum concentration during aggregation period. | float(8) |
| Maximum | Maximum <i>Note:</i> Maximum concentration during aggregation period. | float(8) |

ANNEX 5: EUROWATERNET-BASIC FOR GROUNDWATER

There are a number of methods available to help you submit groundwater data.

1. New groundwater bodies and groundwater body characteristics and pressure information can be submitted via the Internet by adding and filling in an online-form. The Internet account is password-protected and data provision and update will be possible by direct access to the database. Only authorised partners will have access to their own data. The Internet-address is still the same as for the previous update and will be distributed together with guidance to the relevant person as soon as the contact person is announced. Contact Johannes at the address below for further details and the issue of a password.

If, when checking your data via the web site, you discover that corrections are required, please print the respective page, insert the corrected values on the printout and send the corrections by mail or fax.

Johannes Grath
Umweltbundesamt
Spittelauer Laende 5
A-1090 Wien
Austria
fax: +43-(0)1-31304-3700
email: grath@ubavie.gv.at

2. Disaggregated quality data can be submitted using the interface description provided in Annex 6.
3. Alternatively, general characteristic and pressure information, and aggregated quality data for the determinands listed in Annex 1 could be submitted using the Excel templates provided.

The Excel templates include macros to assist you in compiling the data in the required format. Please use the updated templates and do not modify them.

EWN_Groundwater_2003.zip

| | |
|--|--|
| GWLST_CC.xls | (list of groundwater bodies) |
| GG_CCxxx.xls | (physical characteristics of groundwater bodies) |
| GQ_CCxxx.xls | (aggregated quality data on nutrients and organic pollution indicators) |
| SALT-Intrusion_CC.xls | (list of occurrences of saltwater intrusion caused by groundwater over-exploitation) |
| GG_help.doc | (help file) |
| (CC = country code, xxx = groundwater body number) | |

These can be downloaded from:

http://eea.eionet.eu.int:8980/Public/irc/eionet-circle/water/library?l=/eurowaternet/eurowaternet_2003/templates&vm=detailed&sb=Title

If the templates are used, please supply data in Excel (.xls) format or if the interface description is used, please supply in tab-separated ASCII text (.txt) format.

1. GROUNDWATER BODY PHYSICAL CHARACTERISTICS AND PROXY PRESSURE DATA:

NB: The templates use macros rather than columnar fields to assist in compiling data. The following tables describe the data required.

a. List of Groundwater bodies:

GWLST_CC.xls

| EWN-Code | National code | Name | Location | Area | Main aquifer type |
|----------|---------------|------|----------|------|-------------------|
| | | | | | |

| Field Name | Definition | Data Type |
|------------------------------------|--|---------------|
| EWN-Code (Primary Key) | EWN-Code <i>Note:</i> Internal code based on ISO 3166-alpha-2 country code elements plus number (preferably 3 digits): e.g. AT123. | nvarchar(20) |
| National Code (Optional) | National Code <i>Note:</i> National identifier of groundwater body. | nvarchar(50) |
| Name | Name <i>Note:</i> Name of the groundwater body. | nvarchar(200) |
| Location (Optional) | Location <i>Note:</i> Region, province etc in which groundwater body is located. | nvarchar(100) |
| Area | Area <i>Note:</i> Groundwater body area in km ² . | float(8) |
| Main aquifer type | Main Aquifer Type <i>Note:</i> Porous media / Fractured media / Karstic media. | varchar(20) |

b. Groundwater Characteristics and Pressures:

GG_CCxxx.xls, GG_help.doc

| Field Name | Definition | Data Type |
|----------------------------------|---|---------------|
| EWN-Code (Primary Key) | EWN-Code <i>Note:</i> Corresponding to GWLST_CC.xls. Internal code based on ISO 3166-alpha-2 country code elements plus number (preferably 3 digits): e.g. AT123. | nvarchar(20) |
| Name | Name <i>Note:</i> Name of the groundwater body. | nvarchar(200) |
| Max length | Maximum Length <i>Note:</i> maximum length of groundwater body in km. | float(8) |
| Max width | Maximum Width <i>Note:</i> Maximum width of groundwater body in km. | float(8) |
| No of horizon | Groundwater Horizon <i>Note:</i> Groundwater horizon in which groundwater body is situated. Value from 1 (top) to 10. | int(2) |
| Annual precipitation min | Minimum Annual Precipitation <i>Note:</i> Minimum estimate of range of long term annual precipitation over groundwater body area in mm. | float(8) |
| Annual precipitation mean | Mean Annual Precipitation <i>Note:</i> Estimate of mean long term annual precipitation over groundwater body area in mm. | float(8) |
| Annual precipitation max | Maximum Annual Precipitation <i>Note:</i> Maximum estimate of range of long term annual precipitation over groundwater body area in mm. | float(8) |
| Stratigraphy | Stratigraphy <i>Note:</i> Description of the stratigraphy (geological period) of the | varchar(100) |

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| Field Name | Definition | Data Type |
|---------------------------------------|---|---------------|
| | geological units of the groundwater body: Quarternary / Tertiary-Neogene / Tertiary-Paleogene / Permian / Carboniferous / Cretaceous / Jurassic / Triassic / Devonian / Silurian / Ordovician, Cambrian, Precambrian. | |
| Petrographic description | Petrographic Description <i>Note:</i> Short petrographic description of the dominant components of the geological units of the groundwater body: Silt / Silty sand / Fine sand / Medium sand / Sand / Coarse sand / Gravel / Fine gravel / Medium gravel / Coarse gravel / Boulders / Sandstone / Chalk / Carbonate-fractured / Carbonate-conduit / Others. | varchar(100) |
| Thickness min | Minimum Thickness <i>Note:</i> Minimum thickness of the groundwater body area in m. | float(8) |
| Thickness mean | Mean Thickness <i>Note:</i> Mean thickness of the groundwater body area in m. | float(8) |
| Thickness max | Maximum Thickness <i>Note:</i> Maximum thickness of the groundwater body area in m. | float(8) |
| Overlying strata | Overlying Strata <i>Note:</i> Description of the overlying strata (free text). | nvarchar(200) |
| Depth to gw min | Minimum Depth to Groundwater Body <i>Note:</i> Minimum depth to groundwater body in m. | float(8) |
| Depth to gw mean | Mean Depth to Groundwater Body <i>Note:</i> Mean depth to groundwater body in m. | float(8) |
| Depth to gw max | Maximum Depth to Groundwater Body <i>Note:</i> Maximum depth to groundwater body in m. | float(8) |
| Main recharge | Main Recharge <i>Note:</i> Main source recharging groundwater: select from No info / Precipitation / Surface waters / Groundwaters / Springs / Irrigation. Selection button in Excel macro used. | |
| Hydraulic conductivity min | Minimum Hydraulic Conductivity <i>Note:</i> Minimum hydraulic conductivity of groundwater as kf-value. | float(8) |
| Hydraulic conductivity mean | Mean Hydraulic Conductivity <i>Note:</i> Mean hydraulic conductivity of groundwater as kf-value. | float(8) |
| Hydraulic conductivity max | Maximum Hydraulic Conductivity <i>Note:</i> Maximum hydraulic conductivity of groundwater as kf-value (m/s). | float(8) |
| Annual gw level amplitude min | Minimum Annual Groundwater Level Amplitude <i>Note:</i> Minimum of range between the lowest and highest groundwater level in m. | float(8) |
| Annual gw level amplitude mean | Mean Annual Groundwater Level Amplitude <i>Note:</i> Mean of range between the lowest and highest groundwater level in m. | float(8) |
| Annual gw level amplitude max | Maximum Annual Groundwater Level Amplitude <i>Note:</i> Maximum of range between the lowest and highest groundwater level in m. | float(8) |
| Arable land | Arable Land <i>Note:</i> Percentage of arable land in groundwater body area. | float(8) |
| Permanent crops | Permanent Crops <i>Note:</i> Percentage of land used for permanent crops in groundwater body area. | float(8) |
| Permanent pasture | Permanent Pasture <i>Note:</i> Percentage of land used for permanent pasture in groundwater body area. | float(8) |
| Forest and woodland | Forest and Woodland <i>Note:</i> Percentage of forest and woodland in groundwater body area. | float(8) |
| Urban areas | Urban Areas <i>Note:</i> Percentage of urban areas in groundwater body area. | float(8) |
| Other | Other <i>Note:</i> Percentage of other land use in groundwater body area. | float(8) |
| Water abstractions | Water Abstractions <i>Note:</i> Water abstracted from groundwater body: yes = 0, no = 1. | Boolean |
| Water abstractions purpose | Water Abstractions Purpose <i>Note:</i> Free text description of water abstracted from groundwater | nvarchar(200) |

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| Field Name | Definition | Data Type |
|--|---|---------------|
| | body. | |
| Artificial recharge | Artificial Recharge <i>Note:</i> Groundwater body artificially recharged: yes = 0, no = 1. | Boolean |
| Artificial recharge purpose | Artificial Recharge Purpose <i>Note:</i> Free text description of artificial recharging of groundwater body. | nvarchar(200) |
| Main infrastructures | Main Infrastructures <i>Note:</i> Are there main infrastructures affecting the dynamics of the groundwater body: yes = 0, no = 1. | Boolean |
| Main infrastructures purpose | Main Infrastructures Purpose <i>Note:</i> Free text description of the main infrastructures affecting the dynamics of the groundwater body. | nvarchar(200) |
| Associated aquatic ecosystems | Associated Aquatic Ecosystems <i>Note:</i> Are there aquatic ecosystems associated with the groundwater body: yes = 0, no = 1. | Boolean |
| Associated aquatic ecosystems purpose | Associated Aquatic Ecosystems Purpose <i>Note:</i> Free text description of the aquatic ecosystems associated with the groundwater body. | nvarchar(200) |

2. DIGITAL MAP: Groundwater bodies

- Please provide a (revised) digital map of your country showing the boundaries of all EUROWATERNET groundwater bodies from the list GWLST_CC.xls and the co-ordinates of all sampling sites. These maps are intended to provide an overview of groundwater bodies in Europe.
- Please submit maps in .shp, .e00 or .dgn formats.
- **Please provide your GIS maps and the geographical coordinates in ETRS89 (European terrestrial reference system 89).**
This is recognised by the scientific community as the most appropriate European geodetic datum to be adopted and is recommended by WFD CIS-WG 3.1 on “Implementing the GIS Elements of the WFD”.
- **Please provide your groundwater bodies as polygons or lines and include the EWN-Code as an attribute.**
- We assume that the GIS data can be used by the ETC/WTR for work under contract to the EEA and that the map can be compiled with other groundwater boundaries to be published on the EEA Data Service’s web site. Otherwise, please declare any restrictions or reservations.

3. GROUNDWATER QUALITY: Disaggregated data

The disaggregated quality data are collected via tab separated txt files. The data format is described further in Annex 6 “Interface Description”.

Data are required for each sampling site (see Annex 6).

| | mPoint-ID | Name | ParamID1 | Value1 | ParamID2 | Value2 | etc |
|--------|-----------|------|----------|--------|----------|--------|-----|
| MPOINT | | | | | | | → |
| MPOINT | | | | | | | |

| | Definition | Data Type |
|-----------------------------------|---|---------------|
| mPoint-ID (Primary key) | Code of the sampling site (measurement point) Note: Code of the sampling station code based on ISO 3166-alpha-2 country code elements plus individual code (e.g.: AT10000123). | nvarchar(20) |
| Name | Name Note: Name of the sampling site. | nvarchar(200) |
| ParamID | | |
| 404 | EWN Code (of the GW-body where the sampling site is assigned to) Note: Corresponding to GWLST_CC.xls. Internal code based on ISO 3166-alpha-2 country code elements plus number: e.g. AT123. | nvarchar(5) |
| 402 | Well or Spring Note: Sampling site is a W = Well or S = Spring. | varchar(1) |
| 403 | Type of Use Note: Type of use of groundwater: DRW = Drinking water / IND = Industrial supply / SUR = Surveillance / OTH = Other use. | varchar(20) |
| 401 | Co-ordinate Format: “ETRS89 Longitude, Latitude” Note: X=Longitude=North, Y=Latitude=East. International geographical co-ordinates of the monitoring station in decimal degrees format (common geodetic datum ETRS89) | nvarchar(50) |

Data are required for each sample taken (see Annex 6).

| | MPoint-ID | Date | ParamID1 | Value1 | ParamID2 | Value2 | etc |
|--------|-----------|------|----------|--------|----------|--------|-----|
| MVALUE | | | | | | | → |
| MVALUE | | | | | | | |

| Field Name | Definition | Data Type |
|-----------------------------------|---|--------------|
| mPoint-ID (Primary key) | mPoint-ID Note: Code of the sampling station code based on ISO 3166-alpha-2 country code elements plus individual code e.g. AT10000123. | nvarchar(20) |
| Date | Date Note: Date of sampling in format "date YYYY-MM-DD". | nvarchar(10) |
| Param-ID1 | Parameter-ID 1 Note: Code of determinand monitored (see Annex 1 and Annex 2). For additional determinands provide CAS No with full details. | nvarchar(3) |
| Value1 | Value 1 Note: Concentration of determinand sampled. Values below the limit of quantification: <value. Values below the limit of detection: [value] | float(8) |
| Param-ID2 | Parameter-ID 2 Note: As Param-ID 1 for different determinand. | nvarchar(3) |
| Value2 | Value 2 Note: As Value 1 for different determinand. | float(8) |

4. GROUNDWATER QUALITY – Aggregated data:

If the groundwater quality data are provided as annually aggregated values and not as disaggregated data please use the following forms.

NB: The templates use macros rather than columnar fields to assist in compiling aggregated quality data. A separate template exists for each determinand. The following tables describe the data required.

GQ_CCxxx.xls

The following information is required for each groundwater body:

- Aggregated data on nitrate, ammonium, nitrite and dissolved oxygen according to the Excel template **GQ_CCxxx.xls**.
- Information on the type of sampling site and monitoring frequency.
- When delivering data, use separate files for each groundwater body and add the EWN-Code of the groundwater body into the file name:

Example: GQ_AT123.xls

| Field Name | Definition | Data Type |
|------------------------------|---|---------------|
| EWN-Code | EWN-Code Note: Corresponding to GWLST_CC.xls. Internal code based on ISO 3166-alpha-2 country code elements plus number (preferably 3 digits): e.g. AT123. | nvarchar(20) |
| Name | Name Note: Name of the groundwater body. | nvarchar(200) |
| Type of sampling site | Type of Sampling Site Note: Number of sampling sites requested for as many years as possible by type of sampling site: Drinking water well / Industrial water well / Wells with other uses / Surveillance. | float(8) |
| Monitoring frequency | Monitoring Frequency | float(8) |

| Field Name | Definition | Data Type |
|------------------------|--|-----------|
| | Note: Number of sampling sites and sampling frequency per year requested for as many years as possible for that template's determinand. | |
| Summary frequency | Summary Frequency Note: Mean, minimum, maximum and percentile values requested for as many years as possible for that template's determinand. | float(8) |
| Frequency distribution | Frequency Distribution Note: Number of sampling sites for each range of concentration values requested for as many years as possible for that template's determinand. | float(8) |

5. SALTWATER INTRUSION

Information is requested on the occurrences of saltwater intrusion (seawater or from deep aquifers) caused by groundwater over-exploitation. We would kindly ask you to:

- **validate** the European map and the table of already available information which is available at:
http://eea.eionet.eu.int:8980/Public/irc/eionet-circle/water/library?l=/eurowaternet/eurowaternet_2003/validation&vm=detail&sb=Title
- **update** the information by:
- **providing a GIS map** (ETRS89) indicating the areas concerned by saltwater intrusion (indicate the areas by a **SALT-code**) and
- **provide a list** for each country as shown below (with the SALT-code referring to the map), if possible, please provide co-ordinates.
- or **confirm** its validity

The table details the structure required.

SALT-Intrusion_CC.xls

| SALT-code | Name | EWN-code | Area | Since | Cause | Longitude | Latitude |
|-----------|------|----------|------|-------|-------|-----------|----------|
| | | | | | | | |
| | | | | | | | |

| Field Name | Definition | Data Type |
|------------|--|---------------|
| SALT-code | SALT-code Note: Individual number of the area, spot, GW-body which indicates the occurrence of saltwater intrusion and which refers to the GIS map | nvarchar(20) |
| Name | Name Note: Name of the area, spot, GW-body which indicates the occurrence of saltwater intrusion | nvarchar(200) |
| EWN-code | EWN-Code Note: If the saltwater intrusion appears in a GW-body which is part of EUROWATERNET, please refer to this GW-body by indicating the EWN-code | nvarchar(20) |
| Area | Area Note: Area affected by saltwater intrusion in km ² | float(8) |
| Since | Since (year) Note: In which year did saltwater intrusion start | float(4) |
| Cause | Cause Note: What is the main reason for saltwater intrusion caused by | nvarchar(50) |

| Field Name | Definition | Data Type |
|------------------|---|-----------|
| | groundwater over-exploitation | |
| Longitude | Longitude: Note: (X) International geographical co-ordinates of the location of saltwater intrusion in decimal degrees format (common geodetic datum ETRS89). Not needed if a GIS map is provided. | float(24) |
| Latitude | Latitude: Note: (Y) International geographical co-ordinates of the location of saltwater intrusion in decimal degrees format (common geodetic datum ETRS89). Not needed if a GIS map is provided. | float(24) |

6. DIGITAL MAP: Saltwater Intrusion

- Please provide a digital map of your country showing the occurrences of saltwater intrusion (seawater or from deep aquifers) caused by groundwater over-exploitation. These maps are intended to provide a European wide overview.
- Please submit maps in .shp, .e00 or .dgn formats.
- **Please provide your GIS maps and the geographical co-ordinates in ETRS89 (European terrestrial reference system 89).**
This is recognised by the scientific community as the most appropriate European geodetic datum to be adopted and is recommended by WFD CIS-WG 3.1 on “Implementing the GIS Elements of the WFD”.
- **Please provide the groundwater bodies as polygons or lines and include the EWN-Code as an attribute.**
- We assume that the GIS data can be used by the ETC/WTR for work under contract to the EEA and that the map can be compiled with other groundwater boundaries to be published on the EEA Data Service’s web site. Otherwise, please declare any restrictions or reservations.

ANNEX 6: INTERFACE STRUCTURE FOR THE SUBMISSION OF DISAGGREGATED GROUNDWATER DATA

Information in this Annex is primarily intended for IT experts who will most likely deal with the data queries and transfer.

The collection of disaggregated (raw) data has following advantages and is therefore recommended:

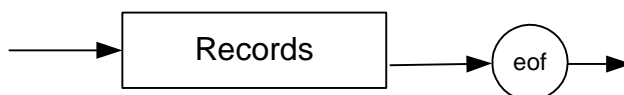
- The EEA indicated at the Bridging the Gap conference in Paris in February 2001 that the ETC/WTR was going to further examine the statistical robustness of the data provided by EUROWATERNET. The collection of disaggregated data allows for a unified treatment of values below the limit of detection and therefore contributes to a comparable assessment of quality data.
- During the previous updates, countries have asked for assistance in aggregating their quality data. In order to keep your effort and time taken to deliver data to as short a time as possible, we offer to undertake the aggregation on your behalf. If you require assistance, we suggest that you submit disaggregated (raw) data at monitoring site level. This means that you should provide all monitoring data for all determinands listed, for as long a time series as possible.

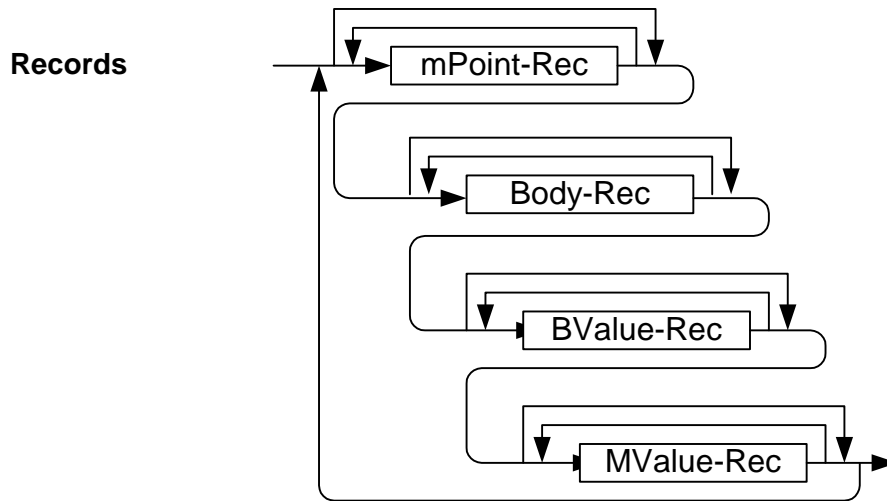
An interface was developed in order to ensure a well-regulated data transfer from the national groundwater databases to WATERBASE. The logical structure of the interface allows for the submission of all groundwater information requested through EUROWATERNET. The interface is now intended to be used for the submission of disaggregated data at sampling site level and for the description of the sampling sites.

Logical structure of the interface

The following figures describe the logical structure of the interface

File



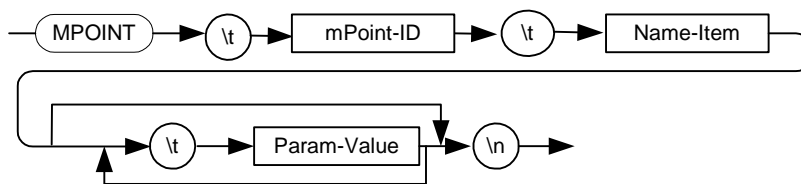


Detailed Description – Types of Records

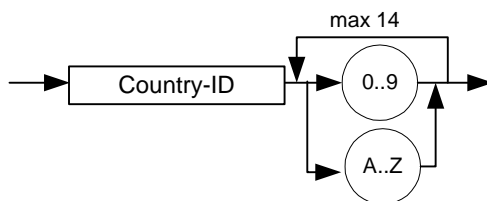
This section describes the types of records

mPoint-Rec

Data (Param-Value) describing a **measurement point** (sampling site)

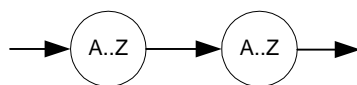


mPoint-ID



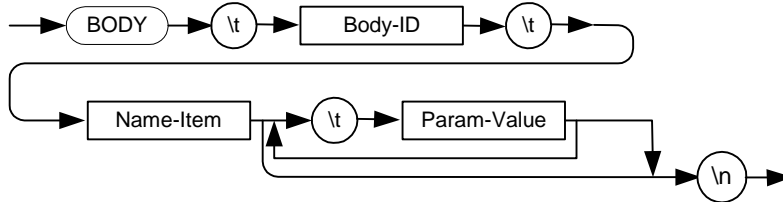
Country-ID

Country abbreviations see [ISO 3166-alpha-2 code elements](#)

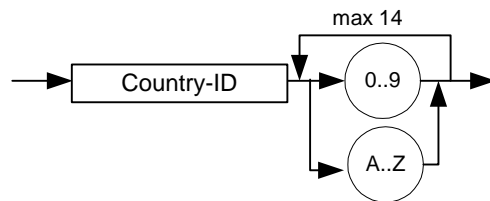


Body-Rec

Data (Param-Value) describing a **groundwater body**

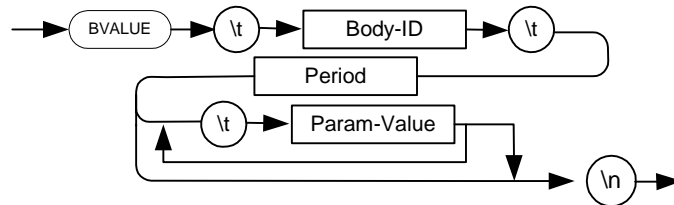


Body-ID



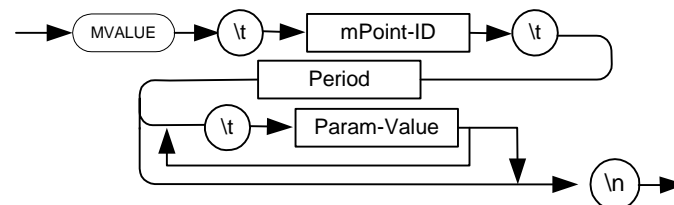
BValue-Rec

Data on the level of a groundwater body



Mvalue-Rec

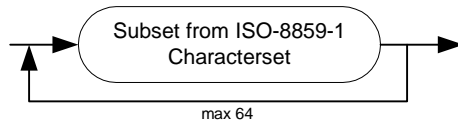
Data on the level of a monitoring site



e.g. MVALUE→AT10000562→date 1998-07-15→250→45.45↵

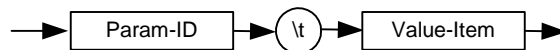
Miscellaneous Phrases

Name-Item



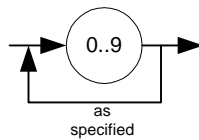
[Subset \(characters 32–127\) from Character ISO-8859-1 in the ISO Latin 1 character set](#)

Param-Value

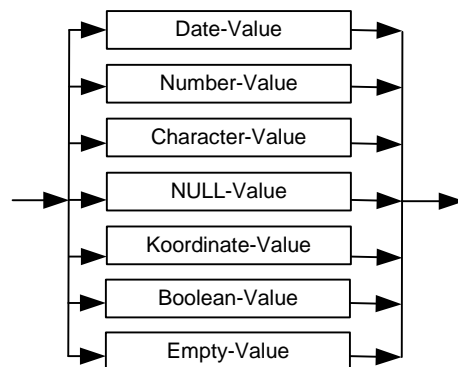


Param-ID

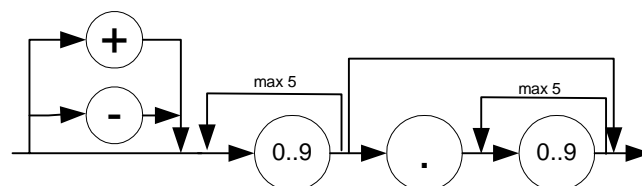
Specifications for mPoint-Rec and Body-Rec data see Table 2 of this Annex,
Specifications for Mvalue-Rec data see Annex 1 and Annex 2



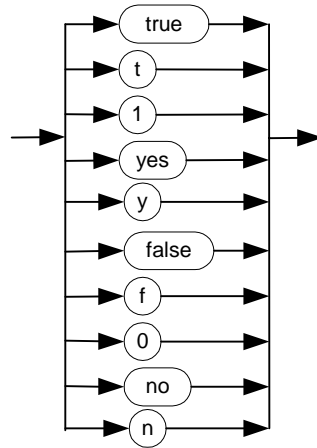
Value-Item



Number-Value

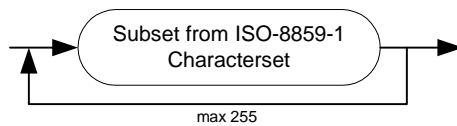


Boolean-Value



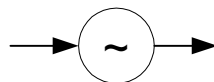
Values interpreted as true: 'true', 't', '1', 'yes' and 'y'
Values interpreted as false: 'false', 'f', '0'³, 'no' and 'n'

Character-Value



[Subset \(characters 32–127\) from Character ISO-8859-1 in the ISO Latin 1 character set](#)

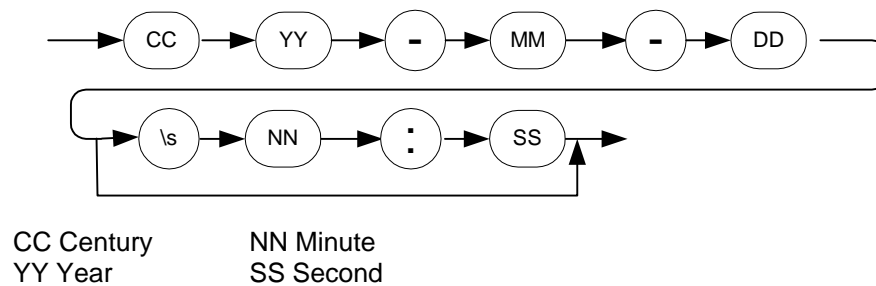
NULL-Value



Date-Value

Date-Value is based on the "best practice" which is internationally recommended in [ISO 8601](#) and in the ["Technical Note" of the W3C](#).

This is a subset of the recommendations.



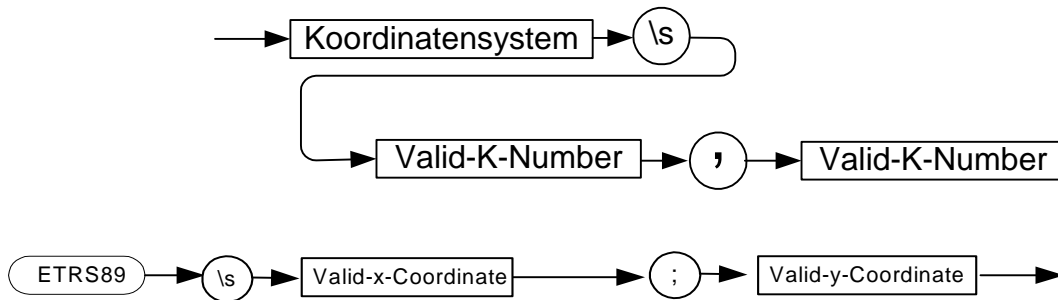
³ Digit Null (Code 48)

MM Month
DD Day

All: two digits (with leading Zero if necessary)

e.g.: 2001-01-01 12:30 **or** 1957-05-07

Co-ordinate Values



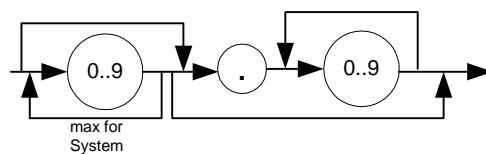
Geographical co-ordinates in ETRS89 (European terrestrial reference system 89):

X=Long=East ; Y=Lat=North

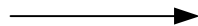
e.g.: ETRS89 123344.45;343433.34

Valid-x-Co-ordinate

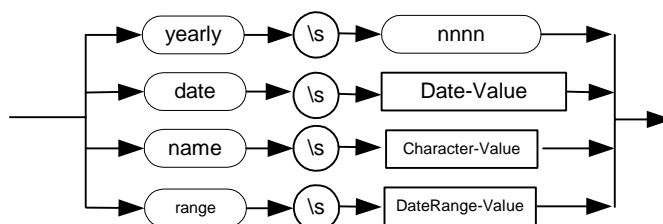
Valid-y-Co-ordinate



Empty-Value

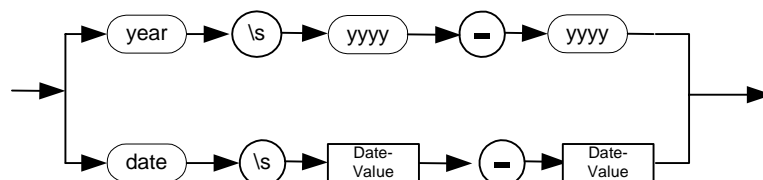


Period



e.g.: yearly 1998 **or** name summer **or** range year 1987-1989

DateRange-Value



Upload of data

The Value-Item is going to be uploaded into the database after a formal checking. If the data set already exists in the database, the content will be overwritten. → Overwriting of data

Overwriting of data

A data set is uniquely defined by the Body-ID or the mPoint-ID, by the Period and the Param-ID. If such a data set already exists in the database, its content will be substituted by the most recent version.

Deleting of data

When the Value-Item is delivered empty then the data set will be removed from the database.

Values below the limit of quantification (LOQ) and below the limit of detection (LOD)

- Values below the limit of quantification (LOQ) are noted as: < [Number-Value]
- Values below the limit of detection (LOD) are noted as: [[Number-Value]]

NULL

Some parameters may have NULL values, i.e. the values for that parameter was not initialised. Note that a NULL value for a string is different from an empty string. You should think about a NULL value as an "unknown" value. In the Interface the NULL value is indicated with the Symbol "~" (tilde).

TABLE 1

Description of special letters

| Letter | Description |
|--------|------------------------------|
| \n | new line <cr> <lf> \x0D \x0A |
| \t | tabulator <tab> \x08 |
| \s | normal space |

| | |
|-----|--|
| Eof | file-end symbol, will be automatically assigned by the system. |
|-----|--|

TABLE 2

Param-ID

Param-IDs for groundwater quality parameters are listed in Annex 1 and Annex 2.

| type of record | Param-ID | Textual Representation | Type | |
|-----------------------|-----------------|-------------------------------|-------------------|--|
| Body-Rec | 740 | National code of GW-body | Character-Value | |
| | 543 | Name of location / region | Character-Value | |
| | 546 | Area in km2 | Number-Value | |
| | 545 | Main aquifer type | Character-Value | PM...porous media KM...karstic media FM...fractured media |
| mPoint-Rec | 404 | Body-ID (EWN-code) | Body-ID | |
| | 402 | well or spring | Character-Value | W...well S...spring |
| | 403 | Type of use | Character-Value | DRW...drinking water site IND...industrial use OTH...other use SUR...surveillance |
| | 401 | Co-ordinate | Co-ordinate-Value | |

Examples:

MPOINT→AT10562→green house→401→ETRS89 122345;46664→402→W.↓

MVALUE→AT10562→date 1998-07-
15→500→45.45→501→<0.2→502→[0.01]→

ANNEX 7: EUROWATERNET-IMPACT

This table details the structure required for the submission of disaggregated EUROWATERNET-Impact data for rivers and lakes. The Excel templates **EWN_Rivers_2003.xls** and **EWN_Lakes_2003.xls** should be used as a guide for data submission.

All templates can be downloaded from:

http://eea.eionet.eu.int:8980/Public/irc/eionet-circle/water/library?l=/eurowaternet/eurowaternet_2003/templates&vm=detailed&sb=Title

Please supply data in Excel (.xls), tab-separated ASCII text (.txt) or Access database (.mdb) format. The determinands requested are those listed in Annex 2, and any other nationally monitored hazardous substances.

IMPACT QUALITY DATA

| STN_ID | CAS_No | DETER | DAY | MONTH | YEAR | MATRIX | CONC | UNIT | <LoD | LoD | DTR_LMT | REMARKS |
|--------|--------|-------|-----|-------|------|--------|------|------|------|-----|---------|---------|
| | | | | | | | | | | | | |

| Field Name | Definition | Data Type |
|------------|---|---------------|
| STN_ID | Station ID <i>Note:</i> National station identifier of river monitoring station. | nvarchar(50) |
| CAS_No | CAS Number <i>Note:</i> Chemical Abstract Service Number of each determinand listed in Annex 2. | nvarchar(20) |
| DETER | Determinand <i>Note:</i> Determinand name as defined in Annex 2. | nvarchar(30) |
| DAY | Day <i>Note:</i> Day sample was taken in format DD. | int(2) |
| MONTH | Month <i>Note:</i> Month sample was taken in format MM. | int(2) |
| YEAR | Year <i>Note:</i> Year sample was taken in format YYYY. | int(4) |
| MATRIX | Sample Matrix <i>Note:</i> Matrix of sample analysis: F = analysis undertaken on filtered water sample, T = analysis undertaken on unfiltered water sample. | varchar(1) |
| CONC | Concentration <i>Note:</i> Concentration of determinand. | float(8) |
| UNIT | Unit of Measurement <i>Note:</i> Unit of measurement for determinand in either mg/l or µg/l. | nvarchar(30) |
| <LoD | Limit of Detection Flag <i>Note:</i> Flag to indicate sample below analytical limit of detection: -999. | int(3) |
| LoD | Limit of Detection <i>Note:</i> Concentration for which there is a desirably small probability (around 5%) that the determinand will not be detected – i.e. there is a 95% probability that the determinand will be detected. | float(8) |
| DTR_LMT | Limit of Determination <i>Note:</i> The smallest concentration that can be distinguished from the analytical blank at a chosen level of statistical confidence (usually 95%). | float(8) |
| REMARKS | Remarks <i>Note:</i> Comment or explanatory note. | nvarchar(200) |

ANNEX 8: EUROWATERNET-QUANTITY

This table details the structure required for the submission of EUROWATERNET-Quantity data. The Excel template EWN_Quantity_2003.xls should be used as a guide for data submission.

The Excel template **EWN_Quantity_2003.xls** can be downloaded from:

http://eea.eionet.eu.int:8980/Public/irc/eionet-circle/water/library?l=/eurowaternet/eurowaternet_2003/templates&vm=detailed&sb=Title

Please supply data in Excel (.xls), tab-separated ASCII text (.txt) or Access database (.mdb) format.

1. STATIONS PHYSICAL CHARACTERISTICS DATA:

| Station_id | Country_id | Station_descr | Longitude | Latitude | Altitude | Catch_area | Catch_name |
|------------|------------|---------------|-----------|----------|----------|------------|------------|
| | | | | | | | |

| Field Name | Definition | Data Type |
|---------------|--|--------------|
| Station_id | Station ID <i>Note:</i> National station identifier of gauging station. | nvarchar(10) |
| Country_id | Country ID <i>Note:</i> ISO 3166-alpha-2 code elements. | nvarchar(20) |
| Station_descr | Station Description <i>Note:</i> Free text description of the station. | nvarchar(80) |
| Longitude | Longitude <i>Note:</i> (X) Geographical co-ordinates of the gauging station in degrees, minutes, seconds DDMMSS. | int(6) |
| Latitude | Latitude <i>Note:</i> (X) Geographical co-ordinates of the gauging station in degrees, minutes, seconds DDMMSS. | int(6) |
| Altitude | Altitude <i>Note:</i> Altitude of the gauging station in m. | int(5) |
| Catch_area | Catchment Area <i>Note:</i> Catchment area upstream of the gauging station in km ² . | float(10) |
| Catch_name | Catchment Name <i>Note:</i> Catchment name. | nvarchar(30) |

2. WATER QUANTITY DATA:

| Station_id | Determinand_id | Year_all | Month_max | Day_max | Determinand_value |
|------------|----------------|----------|-----------|---------|-------------------|
| | | | | | |

| Field Name | Definition | Data Type |
|----------------|--|--------------|
| Station_id | Station ID <i>Note:</i> National station identifier of river monitoring station. | nvarchar(10) |
| Determinand_id | Determinand ID <i>Note:</i> Determinand ID from selection detailed in table below. | int(1) |
| Year_all | Year <i>Note:</i> Year determinand monitored in format YYYY. | int(4) |
| Month_max | Month of Maximum Value | int(2) |

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| Field Name | Definition | Data Type |
|--------------------------|---|-----------|
| | Note: Month of maximum value of Determinand IDs 5 and 6 (see table below) in format MM. | |
| Day_max | Day of Maximum Value Note: Day of maximum value of Determinand IDs 5 and 6 (see table below) in format DD. | int(2) |
| Determinand_value | Determinand Value Note: Determinand value. | float(12) |

| Determinand_id | Description |
|----------------|---|
| 1 | Mean annual precipitation at rain gauging stations (mm) |
| 2 | Mean annual discharge at reference gauging stations (m ³ /s) |
| 3 | Mean annual discharge at flux gauging stations (m ³ /s) |
| 4 | Annual discharge exceeded 95% of the time at all gauging stations (m ³ /s) |
| 5 | Annual maximum discharge at all gauging stations (m ³ /s) |
| 6 | Annual daily maximum precipitation (mm) |
| 7 | Mean annual discharge at additional intermediate gauging stations (m ³ /s) |

See [EUROWATERNET-Quantity guidelines](#) for full description of station types.