

**European Commission - DG Environment**

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## **Concept paper on the integration of Bathing Water Quality into WISE**

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## PREAMBLE

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This concept paper on the integration of BWD reporting into WISE is a proposal for the future reporting process for bathing water quality, the analysis of the reported data, compliance checking and the compilation of the information for the public, using the Reportnet and WISE tools of the European Environment Agency (EEA).

The concept paper will support EEA in taking over the bathing water Directive reporting from 2009 on (reporting for 2008 bathing season). Its structure is based on the structure of the "WISE data flow" (Figure 1) as defined by DG ENV (version of 04/02/08). It covers the following "steps":

- Definition of data requirements
- Data submission
- Development/Delivery database
- Acceptance
- Final data storage
- Purpose oriented steps (compliance assessment, visualisation and SoE assessment)

**WISE** (Water Information System for Europe) complies a number of water-related data and information collected at EU level by various institutions or bodies which has either not been available or only been fragmented over many places. Its core objective is to present "a new, comprehensive and shared European data and information management system for water, including river basins, following a participatory approach towards the Member States" (WISE concept paper). The goal is to have the system operational by 2010. WISE is a partnership between the European Commission (DG Environment, Joint Research Centre and Eurostat) and the European Environment Agency.

One of the objectives of WISE is "to streamline and facilitate reporting from the Member States to the Commission and to improve its effectiveness" (WISE Reporting Arrangements). All reporting obligations covering the water-related directives, including the Bathing Water Directive, and other mandatory or voluntary reporting to the EU, like submission to EEA and ESTAT, will be covered in WISE. An electronic reporting system will replace the traditional way of reporting. From 2007 onwards, the European Commission proposes to the Member States to use the EEA **Reportnet** tool to submit the mandatory information for the Bathing Water Directive.

Next to the integration of bathing water reporting into WISE, **the new Bathing Water Directive (2006/7/EC)** will have an impact on future bathing water reporting. From 1976 the "old" bathing water Directive (Directive 76/160/EEC) has set binding standards for bathing waters throughout the European Union. The "new" Bathing Water Directive 2006/7/EC was adopted on 15 February 2006 and will lead to a number of changes in bathing water reporting and assessment.

# 1 INTEGRATION OF BATHING WATER QUALITY REPORTING INTO WISE

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## 1.1 INTRODUCTION

Two major changes in bathing water reporting invoke the need for a concept paper on the future bathing water reporting process and its integration into WISE:

1. The coming into force of a new Bathing Water Directive
2. The development of WISE and the integration of all water related reporting, including on bathing water, into the WISE system

### 1.1.1 Bathing water quality Directives

Since the “Council Directive concerning the quality of bathing water (76/160/EEC)” came into force, Member States are obliged to annually report on the quality of their bathing water.

With the “new” Bathing Water Directive 2006/7/EC entering into force, bathing water quality reporting will undergo a number of changes:

- Reporting on 2 parameters instead of 19
- Reporting twice a year (before and after bathing season)
- Assessment of bathing water quality is based on a data set collected during four (or less) years

The “old” Directive 76/160/EEC is repealed with effect from 31 December 2014. As soon as a Member State has taken all necessary legal, administrative and practical measures to comply with the new Directive, this Directive will be applicable, replacing Directive 76/160/EEC. The first assessment according to the requirements of the New Directive has to be completed by the end of the 2015 bathing season.

Since assessment of bathing water quality is based on four (or less) years under the new Directive, it can take Member States some years to build up the necessary data sets. During that period, it is not yet possible to assess the bathing waters according to the requirements of the new Directive, although the parameters of the new Directive are already reported. During this so-called “transition period” Article 13.3 applies: “When monitoring of bathing water has started under this Directive, annual reporting to the Commission in accordance with paragraph 1 shall continue to take place pursuant to Directive 76/160/EEC until a first assessment can be made under this Directive. During that period, parameter 1 of the Annex to Directive 76/160/EEC shall not be taken into account in the annual report, and parameters 2 and 3 1 of the Annex to Directive 76/160/EEC shall be assumed to be equivalent to parameters 2 and 1 of column A of Annex I to this Directive.”

More information on assessment of bathing water quality under Directive 2006/7/EC is given in a separate document<sup>1</sup>.

From bathing season 2007 onwards, reporting on both old and new Directive is supported. This “mixed” reporting can continue until 2014. This mixed reporting taken into account, the following reporting schemas need to be provided for:

1. Reporting under old Directive 76/160/EEC
2. Reporting under new Directive 2006/7/EC, including during the transition period

For assessment of bathing water quality, three schema need to be supported:

1. Assessment under old Directive 76/160/EEC
2. Assessment during “transition period”

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<sup>1</sup> Assessment of bathing water quality under BWD 2006/7/EC

### 3. Assessment under Directive 2006/7/EC

Time-wise, this means the following:

1. For the Member States that continue reporting under Directive 76/160/EEC
  - Provide the data files and agreed data formats for Directive 76/160/EEC (described in Commission Decision, see section 1.2.1.1 and document on CIRCA2),
  - Use BWATER input tool to produce data files,
  - Submit the data files through Reportnet,
  - Use BWATER tool to assess bathing water quality.
2. During the transition period (for those Member States who start reporting under the new Directive):
  - Provide data files defined for reporting under Directive 2006/6/EC,
  - Use new input tool to produce new data files,
  - Submit the data files through Reportnet,
  - Convert data reported for parameters under new Directive to pass/fail values for parameters 2 and 3 of old Directive,
  - Use BWATER tool to assess bathing water quality.
3. Assessment under new directive (for Member States that have collected sufficient data sets for assessment under the new Directive):
  - Provide data files defined for reporting under Directive 2006/6/EC,
  - Use new input tool to produce new data files,
  - Submit the data files through Reportnet,
  - Use new tool to assess bathing water quality assessment.

### 1.1.2 WISE

On 23 October 2000, the "Directive 2000/60/EC of the European Parliament and of the Council establishing a framework for the Community action in the field of water policy" or, in short, the EU Water Framework Directive (or even shorter the WFD) was adopted. The EU Water Framework Directive provides a uniform framework for water policy in the European Union. The aim is to safeguard the water supplies and water quality in Europe. A European approach of water policy was necessary because river basins are often crossing national borders.

The WFD provides for several reporting obligations by Member States, such as the reporting of monitoring networks (Articles 8 and 15). To streamline and facilitate reporting from the Member States to the Commission and to improve its effectiveness, is one of the reasons why WISE was set up. WISE (Water Information System for Europe) compiles a number of water-related data and information collected at EU level by various institutions or bodies which has either not been available or only been fragmented over many places. All reporting obligations covering the water-related directives and other mandatory or voluntary reporting to the EU, like submission to EEA and ESTAT, will be covered in WISE.

WISE will cover following aspects:

- Reporting of data (including definition of data requirements, data submission, acceptance (QA/QC) and storage)
- Presentation of data (in map viewer, data viewer, reports, other...)

The "WISE data flow" includes following steps (see Figure 1):

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<sup>2</sup> To be downloaded from CIRCA on

[http://circa.europa.eu/Public/irc/env/wfd/library?l=/framework\\_directive/bathing\\_directive/workshop\\_22102007&vm=detailed&sb=Title](http://circa.europa.eu/Public/irc/env/wfd/library?l=/framework_directive/bathing_directive/workshop_22102007&vm=detailed&sb=Title)

1. Definition of data requirements
2. Data submission
3. Development/Delivery database
4. Acceptance
5. Final data storage
6. Purpose oriented steps, including compliance assessment, visualisation and SoE assessment

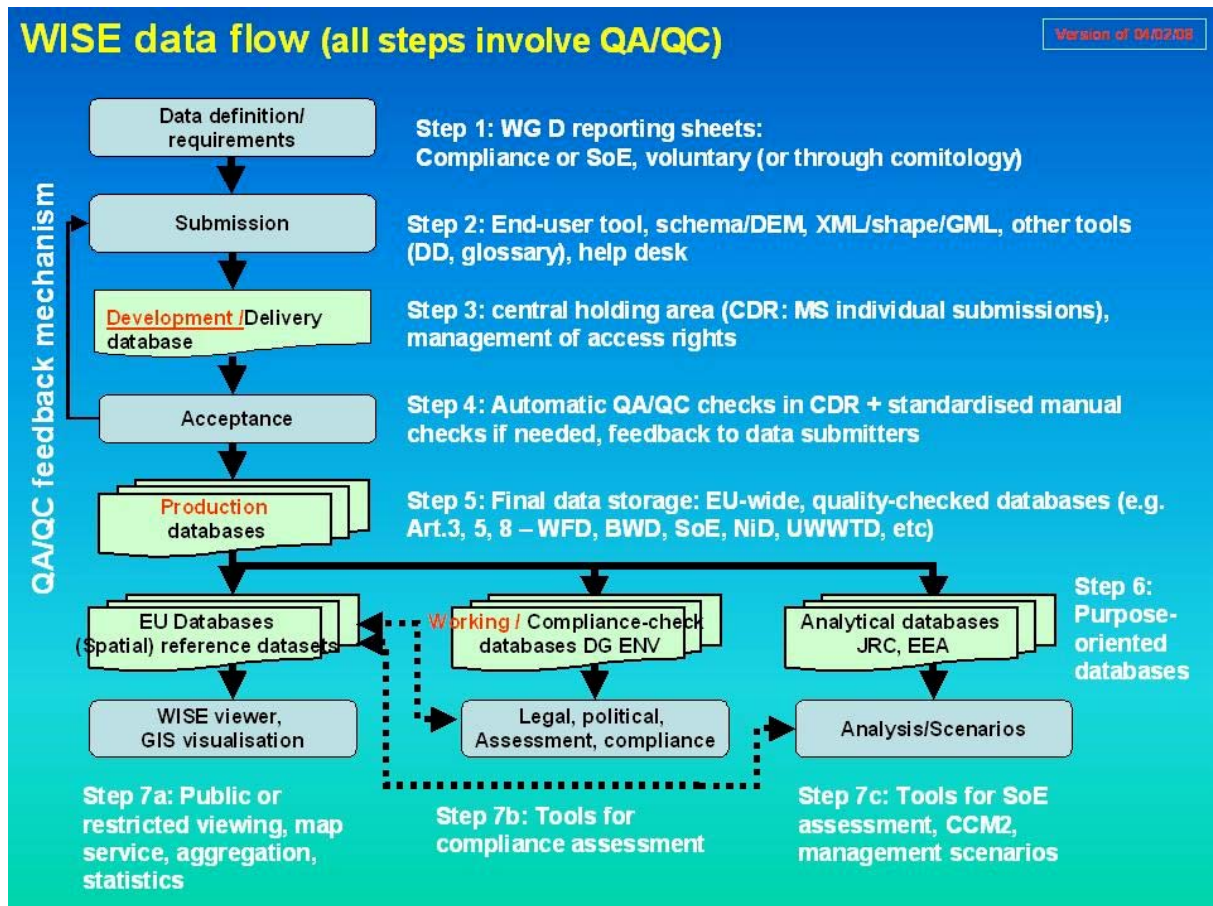


Figure 1: WISE data flow defined by the EC (version of 04/02/08)

### 1.1.3 Reportnet

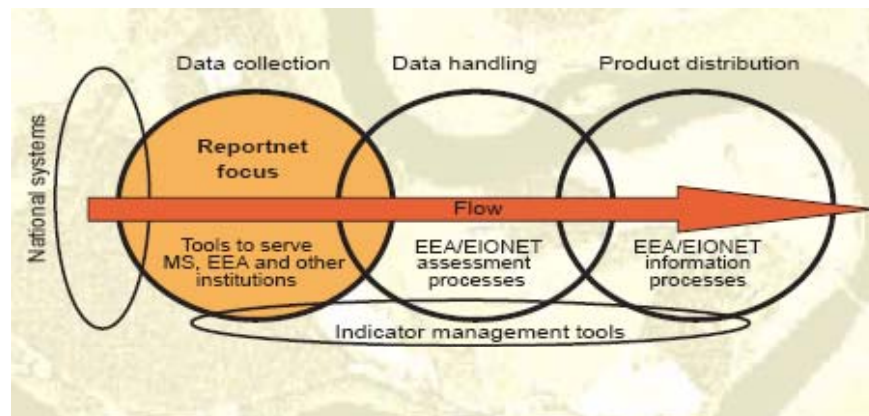
Until 2008, data were formally delivered to the Commission through the Member State's Permanent Representation on digital media and paper. In practice to speed up the data delivery process the data files were also delivered by email.

From 2008 onwards (2007 bathing season), the European Commission proposes the Member States to use the EEA Reportnet tool to submit the mandatory information for the Bathing Water Directive. Reportnet is group of web applications and processes developed by the EEA to support international environmental reporting. Through Reportnet the Member States are able to formally delivery data files and receive formal confirmation. There will just be one place where all information on reporting is collected, where Member States report and where they also find preliminary results for conformation (see documents on CIRCA for more information on reporting through Reportnet<sup>3</sup>).

<sup>3</sup> To be downloaded from CIRCA on

[http://circa.europa.eu/Public/irc/env/wfd/library?!=/framework\\_directive/bathing\\_directive/workshop\\_22102007&vm=detailed&sb=Title](http://circa.europa.eu/Public/irc/env/wfd/library?!=/framework_directive/bathing_directive/workshop_22102007&vm=detailed&sb=Title)

Reportnet is both an information infrastructure and a new setup of functions to assist data and information flows resulting from reporting obligations. It is currently mainly being used for reporting to EEA, hosting some of DG Environments reporting tasks. The open system allows deliveries also to other national and international organisations. The Reportnet tools can also serve data flows from countries to other institutions. Reportnet builds on active use of the World Wide Web. The system integrates different web services and allows distributed responsibilities. Reportnet secures that delivered data are made quickly available for analysis, and in addition, if conditions allow for it, publicly available without delay. More about the concept of ReportNet is available on <http://www.eionet.europa.eu/rn/reportnet-brochure.doc>. The Reportnet tools facilitate flow of environmental data from countries to the EEA assessment and information activities. They are crucial part of EEA data and information flow processes. The current EEA data and information procedures are shown in Figure 2.



**Figure 2: The current EEA data and information procedures**

The Reportnet tools include central web services with a set of intelligent data systems behind. Member States are active partners in the development, securing that tools are tailored to their needs. The Reportnet tools provide national institutions with:

- the reporting obligations and the resulting activities,
- data specifications clarifying technical requirements,
- data capture tools for easing the assembly of data,
- exchange tools for making delivery easy, efficient and transparent,
- validation tools for data files.

Other tools provide overviews on delivered data and national performances, useful for reporting managers at both national and central levels.

Reportnet also makes it easy for EEA, its topic centres and users from other environmental networks to access national deliveries.

In order to support the reporting of bathing water quality data through Reportnet, the following supporting components of Reportnet need to be developed or configured by the EEA (supported by ETC-Water):

- Data Dictionary (DD)

The Data Dictionary is the central service for storing technical specifications of the data requested in reporting obligations.

The technical specifications of the reporting obligations of the "Old" Bathing Water Directive (76/160/EEC) need to be uploaded into the Data Dictionary (task for ETCW).

The technical specifications of the reporting obligations of the "New" Bathing Water Directive (2006/7/EC) need to be uploaded into the Data Dictionary (task for ETCW).

- Data Exchange Modules (DEM)

The particular bathing water Data Exchange Modules for the collection and validation of data delivered by the countries need to be developed (task for ETCW).

- Central Data Repository of Reportnet (CDR) and Content Registry (CR)

The space in Reportnet for the BWQ Central Data Repository (CDR) and the Content Registry (CR): needs to be prepared, including the corresponding technical support service are pre-prepared (task for EEA).

- Network Directory

The Network Directory (ND) is a dictionary for relevant people, organisations and roles involved in the reporting on BWD. This directory needs to be developed (by ETCW).

- Reporting Obligations Database (ROD)

The Reporting Obligations Database contains the relevant obligations under which Member States shall report environmental data. For the BWD, the “old” and “new” obligations need to be loaded (task by ETCW).

The document “WISE reporting arrangements for Bathing Water Directives” on uploading data files on Reportnet is available on CIRCA<sup>4</sup> (Draft document of 14/12/2007).

### Main points of attention

When developing the steps for integration of BWD reporting into WISE, following points of attention have to be taken into account.

- The bathing water quality reporting is an iterative process: Member States submit bathing water quality data, which is, after validation, analysed by the Commission. After reviewing the preliminary results of the analysis by the Commission, Member States either confirm the results, or they send updated data, which is again analysed and presented, until final confirmation of the Member State.
- A very strict time schedule is to be respected: Member States have to report bathing water quality data before 31 December. The report from the Commission must be ready for publishing in April (according to the new Directive).
- To be able to process a huge amount of data efficiently and correctly, it is important to automate the process of quality control as much as possible. During the previous years, errors often occur in maintaining the unique access key for each bathing site, data format, geographic coordinates etc.

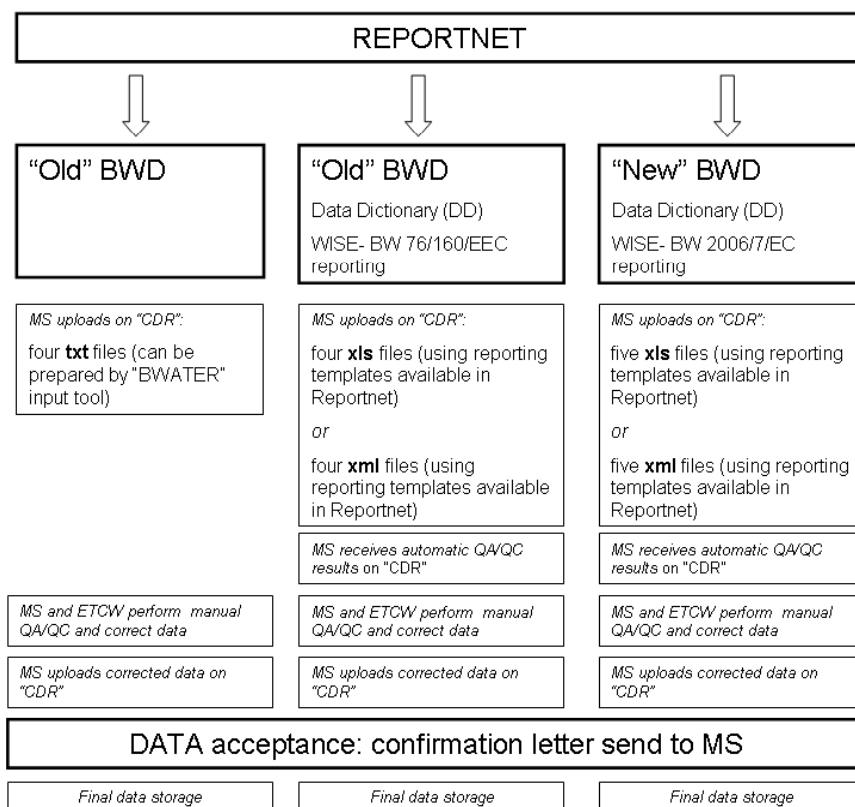
In Figure 3 steps of integration of BWD reporting into WISE are schematically presented. In the next sections, the steps are described in detail.

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<sup>4</sup> To be downloaded from

[http://circa.europa.eu/Public/irc/env/wfd/library?l=/framework\\_directive/bathing\\_directive/workshop\\_22102007/bwdlist\\_finalpdf/ EN\\_1.0 &a=d](http://circa.europa.eu/Public/irc/env/wfd/library?l=/framework_directive/bathing_directive/workshop_22102007/bwdlist_finalpdf/ EN_1.0 &a=d)





**Figure 3: Scheme of integration of BWD reporting into WISE**

## 1.2 STEP 1: DEFINITION OF DATA REQUIREMENTS

A first step in the integration of BWD reporting into WISE is the definition of the data reporting requirements of the Directive. Until 2014, MS can choose to report either under Directive 76/160/EEC, or under Directive 2006/7/EC. After repeal of Directive 76/160/EEC on 31 December 2014, all MS must report under Directive 2006/7/EC.

The definition of data requirements is not limited to the Directive's reporting requirements, but also entails data needed in the framework of other Directives and data that is necessary for dissemination of results to the public (e.g. through WISE viewer).

Following the definition of the reporting requirements, reporting sheets are developed that include the attributes to be reported and the methodology for collecting and reporting the values. Reporting sheets developed for reporting under Directive 76/160/EEC have been developed and are legally binding. Reporting sheets developed for reporting under Directive 2006/7/EC are not legally binding, but their use is strongly encouraged.

### 1.2.1 Reporting under Directive 76/160/EEC

In the framework of Council Directive 76/160/EEC concerning the quality of bathing water, Member States have to report bathing water quality data to the Commission on an annual basis, according to the outline that is described in Commission Decision 95/337/EEC "VIII. Outline questionnaire for reporting on Directive 76/160/EEC".

Reporting under this Directive must be supported until the end of 2014. From bathing season 2015 at the latest Member States have to start classification of bathing waters according to the requirements of the new Directive.

### 1.2.1.1 Reporting sheets

Commission Decision 95/337/EEC "VIII. Outline questionnaire for reporting on Directive 76/160/EEC" is describing how to report bathing water quality data to the Commission. The content and format of the information to be reported is clearly described in this Decision and is legally binding. Member States have to deliver four files in digital format:

1. File on geographic locations: file containing geographic information for each bathing water,
2. General data file: file containing information on the bathing season for each bathing water,
3. Parameter data file: file containing bathing water quality data per parameter for each bathing water,
4. Supplementary file: file containing summary information on analytical methods used and a short description of improvement schemes for bathing waters not complying.

The files have to be delivered as .txt files using the "old" BWATER input tool or as xls or xml files using standardised reporting templates in Reportnet. The reporting templates can be downloaded from Data Dictionary section in Reportnet.

The format and content of the data files are described in Annexe 1 of this document. The data files are linked through the "Numind" attribute, which contains the unique access key of each bathing water.

### 1.2.2 Reporting under Directive 2006/7/EC

Directive 2006/7/EC of 15 February 2006 concerning the management of bathing water quality aims to update the provisions of Directive 76/160/EEC by simplifying and updating the management and monitoring regime.

The main items related to Directive 2006/7/EC are:

- Parameters and values are based on the latest available science and research, particularly by the WHO.
- Four levels of classification are established: poor, sufficient, good and excellent.
- Number of parameters has been reduced from the current 19 to 2 robust bacteriological parameters: Intestinal enterococci and Escherichia coli.
- Bathing water profiles are to be established describing the characteristics of bathing water and identifying the sources of pollution.
- Extensive public information and participation is needed in line with the Aarhus Convention.

Member States have to complete classification of bathing waters according to the requirements of the new Directive by the end of the 2015 bathing season. However, reporting for the new Directive must be operational starting from bathing season 2007 for those Member States that want to start reporting on the new parameters earlier.

Article 13 of Directive 2006/7/EC sets out the reporting obligations of the Member States to the Commission.

According to Article 13.1 the Member States shall provide the Commission annually by 31 December:

- with the results of the monitoring for each bathing water,
- with the quality assessment for each bathing water, using bathing water assessment rules,
- with a description of significant measures taken.

Member States have to begin providing the above information *once the first bathing water quality assessment has been carried out under the new Directive*.

In addition, the Member shall notify the Commission *BEFORE the start of the bathing season* of all waters identified as bathing waters, including the reason for any change compared to the preceding year. They have to do this for the first time for the 2008 bathing season (Article 13.2).

Reporting requirements for Directive 2006/7/EC have been defined during 2008 and led to a document on reporting sheets for Bathing Water Directive 2006/7/EC<sup>5</sup>, that was endorsed on a meeting with the Member States on 26 June 2008.

### **Transition period**

The assessment of bathing water quality under Directive 2006/7/EC is based on a data set collected during four (or less) seasons. Therefore, it is possible that a bathing water can not be assessed during the first years of reporting under the new Directive. During this period, Article 13.3 applies: "When monitoring of bathing water has started under this Directive, annual reporting to the Commission in accordance with paragraph 1 shall continue to take place pursuant to Directive 76/160/EEC until a first assessment can be made under this Directive. During that period, parameter 1 of the Annex to Directive 76/160/EEC shall not be taken into account in the annual report, and parameters 2 and 3 1 of the Annex to Directive 76/160/EEC shall be assumed to be equivalent to parameters 2 and 1 of column A of Annex I to this Directive."

The reporting sheets developed for the new Directive are to be used for reporting during the transition period. The assessment of bathing waters, however, will be according the assessment rules of the old Directive. More information on the assessment of bathing water quality is given in the separate document "Assessment of bathing water quality under Directive 2006/7/EC".

#### **1.2.2.1 Reporting sheets**

Following data tables are defined for the new Directive reporting:

- Table 1: Inventory of identified bathing waters
- Table 2: Seasonal information on bathing waters
- Table 3: Abnormal situations
- Table 4: Short term pollution
- Table 5: Monitoring results of bathing waters

The reporting sheets developed for Directive 2009/7/EC reporting are presented in Annexe 2. More information on these reporting sheets ("what", "why" and "how") is described in the document "Reporting sheets for Bathing Water Directive 2006/7/EC". The delivery of data for this Directive using the defined reporting sheets is voluntary, but strongly encouraged.

## **1.3 STEP 2: DATA SUBMISSION**

For both Directives, Member States have to deliver data files before 31 December of the year of the bathing season on which they are reporting.

### **1.3.1 Directive 76/160/EEC**

#### **1.3.1.1 Data input tool**

To assist and support the Member States in their reporting obligations for Bathing Water Directive 76/160/EEC, a Visual Basic application called "BWATER" has been developed by the Commission that provides a data entry graphical user interface and a data export functionality to prepare the above described files. This program ensures that the data files are delivered according to the format described in the Commission Decision 95/337/EEC and valid according to the Directive.

"BWATER" is a piece of software especially developed (in 1999) for supporting the obligations of the bathing water directive and is serving two goals:

- Preparation of the data files required for the bathing water reporting,
- Import of the delivered data files and assessment of bathing water quality data.

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<sup>5</sup> Reporting sheets for Bathing Water Directive 2006/7/EC. Final draft 4 July 2008.

The software consists of two modules:

- The module “BWATER” is used to view, modify or analyse the data.
- The module “UPDATE” is used to update the database or to check ASCII files before updating the database. This module can also export the data to the correct data files required for reporting.

The software can be downloaded on CIRCA<sup>6</sup>.

BWATER is to be installed locally on the user’s machine by executing a set-up file. A technical manual<sup>7</sup> explaining the functionality of the software and a hands-on “user manual”<sup>8</sup> to use the software for reporting to the Commission have been developed to support the user.

Because the software is developed to produce the data files in the required format, Member States using BWATER provide validated data files. A number of Member States use other tools to prepare the data files, hereby often delivering erroneous data files. Member States that are not using the Bathing Water software for producing the mandatory data files, have to foresee the necessary validation procedures to ensure correct data sets. BWATER can be used to check the format of data files prepared using other software.

The BWATER software is an old piece of software and will not be updated to reflect the reporting obligations of the new bathing water Directive. Instead, a new data input tool will be developed in order to produce the data files necessary to report under the new Directive (see further).

### **Limitations/shortcomings of the existing tool and proposals for improvement when developing a new data reporting tool**

- In order to be able to compare results with previous year, the access key (ID) of a bathing site must be unique and maintained throughout time. However, because the access key is based on NUTS classification (see Commission Decision), Member States are sometimes changing access keys. In the current data input tool, it is possible to change the access key without getting a message of warning.

#### Improvement for new data input tool:

→ the access key of an existing bathing site can not be changed, given that the geographic coordinate do not change. When the geographic coordinates change, it concerns a new site, and a new access key can be given (in this case the “old” bathing site is classified as de-listed).

- The reporting of unique and correct geographic coordinates is crucial for the correct presentation of bathing sites in the WISE viewer. In the current data input tool, it is possible to leave the fields for x and y coordinate empty.

#### Improvement for new data input tool:

→ the fields for entering geographic coordinates can not be left blank

→ quality check of format of geographic coordinates

→ limited quality check of the coordinates based on the bounding box of the country

- Spelling mistakes happen when typing in the attributes “region”, “province” and “commune”.

#### Improvement for new data input tool:

→ to eliminate spelling mistakes, region, province and commune should be selected from predefined lists of administrative regions per country

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<sup>6</sup> To be downloaded from CIRCA on

[http://circa.europa.eu/Public/irc/env/wfd/library?l=/framework\\_directive/bathing\\_directive/workshop\\_22102007/reporting\\_bwater/input\\_bwd\\_reporting&vm=detailed&sb=Title](http://circa.europa.eu/Public/irc/env/wfd/library?l=/framework_directive/bathing_directive/workshop_22102007/reporting_bwater/input_bwd_reporting&vm=detailed&sb=Title)

<sup>7</sup> To be downloaded from CIRCA on

[http://circa.europa.eu/Public/irc/env/wfd/library?l=/framework\\_directive/bathing\\_directive/workshop\\_22102007/reporting\\_bwater/input\\_bwd\\_reporting&vm=detailed&sb=Title](http://circa.europa.eu/Public/irc/env/wfd/library?l=/framework_directive/bathing_directive/workshop_22102007/reporting_bwater/input_bwd_reporting&vm=detailed&sb=Title)

<sup>8</sup> To be downloaded from CIRCA on

[http://circa.europa.eu/Public/irc/env/wfd/library?l=/framework\\_directive/bathing\\_directive/workshop\\_22102007/reporting\\_bwater/guidelines\\_2007pdf/EN\\_1.0\\_&a=d](http://circa.europa.eu/Public/irc/env/wfd/library?l=/framework_directive/bathing_directive/workshop_22102007/reporting_bwater/guidelines_2007pdf/EN_1.0_&a=d)

- Errors can be made when entering year, start date and end date of the bathing season

Improvement for new data input tool:

→ for each bathing season, the year and year of the start and end date (format yyyyymmdd) have to be pre-programmed for the current year

- For bathing sites which are banned (= prohibited throughout the year) sampling must continue and be reported. Currently, Member States can leave the parameters fields blank when a bathing site is banned. Also, Member States sometime forget to indicate a banned site.

Improvement for new data input tool:

→ the new input tool should not allow leaving the parameter fields blank for a banned site

→ the user must specifically indicate whether a site is banned or not

More QA/QC procedures are given in the section 1.5.

### **1.3.1.2 Data submission**

From 2008 onwards, MS can fulfill their reporting obligations by uploading the necessary data files on Reportnet. This is making the delivery process easier for the Member States and further automates the delivery process and quality control. Before that, MS had to send the data through the permanent representation of their country to the EU. To speed up the process, MS were also sending their data directly to the Commission and its contractor processing the data by email.

Reportnet is a group of web applications and processes developed by the EEA to support international environmental reporting. Through Reportnet the Member State will be able to formally deliver the mandatory data files and receive formal confirmation (automatic confirmation letter). There is no automatic QA/QC involved upon data delivery of data files for Directive 76/160/EEC in Reportnet. A document describing how to upload data files on Reportnet is available on CIRCA<sup>9</sup>.

Reporting instructions and the necessary supporting tools for reporting under Directive 76/160/EEC are already largely in place and will be collected on Reportnet. This includes:

- Reporting instructions for reporting under Directive 76/160/EEC (see below)
- Reporting sheets defining format and content of mandatory data
- Data Input Tool for creation of data files: BWATER
- Submission of data through Reportnet
- QC/QA rules and tool
- Review of preliminary and final results

The use of Reportnet for submission of data files by MS is voluntary, but strongly encouraged.

### **Reporting instructions**

The reporting instructions are based on WISE data flow procedures.

#### **STEP 1: Data definition / requirements**

Complete description of mandatory data files and their formats for bathing water directive is published on Data Dictionary (DD) website (<http://dd.eionet.europa.eu/>).

#### **STEP 2: Authorisation**

The Commission will forward the list of authorised Bathing Water data providers to the EEA. The EEA will provide a username, password and relevant supporting material to them.

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<sup>9</sup> To be downloaded from CIRCA on

[http://circa.europa.eu/Public/irc/env/wfd/library?l=/framework\\_directive/bathing\\_directive/workshop\\_22102007/05-howto-bathing-v095/EN\\_1.0\\_&a=d](http://circa.europa.eu/Public/irc/env/wfd/library?l=/framework_directive/bathing_directive/workshop_22102007/05-howto-bathing-v095/EN_1.0_&a=d)

**STEP 3: Submission**

- The authorised Bathing Water data provider connects to Central Data Repository (CDR) (<http://cdr.eionet.europa.eu/>).
- On CDR of a specific country a new envelope for bathing water issue might be opened by authorised data provider or an existing one used. The organisation of folders in each CDR of a specific country is a matter of self organisation. The authorised Bathing Water data provider shall get in contact with National Focal Point (NFP) in respect to this matter.
- The data provider uploads the mandatory files.

**STEP 4: Confirmation**

- After uploading the authorised Bathing Water data and information provider confirms that the submission is completed.
- Following this confirmation, he/she will receive an automatic message from the system to confirm that the files have been accepted.
- In addition, Reportnet will issue an automated but official confirmation letter which will specify the date and time of submission, the files that have been submitted, the legal obligation that they refer to and the user that has submitted them.

**STEP 5: Notification**

- Member States can discharge their legal obligation to notify the reports to the Commission by submitting the above-mentioned official confirmation letter to the Commission via their Permanent Representation. Any additional information or documents can be provided if the responsible authorities of a Member State feel the need to present more explanations/clarifications.

**Bathing Water data providers**

A limited number of officially nominated individuals are to be assigned who can submit, update and validate data on behalf of a Member State. These are the authorised Bathing Water data providers. The nominations of the authorised Bathing Water data providers will be confirmed by a letter submitted through the Permanent Representation to the Commission.

The Commission will forward the list of authorised Bathing Water data providers to the EEA. The EEA will provide a username, password and relevant supporting material to them. Member States should take the appropriate actions to prevent any misuse of their username and password.

**1.3.2 Directive 2006/7/EC****1.3.2.1 Data input tool**

For reporting under Directive 2006/7/EC a data input tool needs to be developed to aid MS in preparing the correct data reporting files.

The existing data input tool "BWATER" was developed to meet reporting obligations under the old Directive and can not be used to produce the reporting sheets necessary for reporting under the new Directive.

However, at the occasion of the inquiry on the use of the BWATER software in August 2006, and subsequently at the Committee Meeting in October 2006, the Member States have clearly expressed a need for a data input tool. Instead of updating the existing BWATER data input tool, which is an old piece of software developed in 1999, the Commission is planning to develop a new data input tool to support Member States to meet their reporting obligations under old and new Directives (including the transition period). The tool will be internet-based and will have proper authentication, security and validation mechanisms. It should allow for the data entry required to meet the old and new Directive's reporting obligations and assist the user in the data entry process, for example by providing the proper control mechanisms.

### 1.3.2.2 *Data submission*

Reporting instructions and the necessary supporting tools for reporting under the new Directive will be developed in the same way as for the reporting obligations under the old Directive. This includes:

- Reporting instructions for reporting under Directive 2006/7/EC
- Reporting sheets defining format and content of mandatory data
- Data input tool for creation of data files
- Submission of data through Reportnet
- QC/QA rules and tool
- Review of preliminary and final results

However, the reporting process will be slightly different from the old Directive's reporting process. The new Directive requires reporting **twice a year**: once BEFORE the start of the bathing season (identification of all bathing waters for that season) and once at the end of the year (monitoring results and quality assessment).

Also for reporting under Directive 2006/7/EC reporting through Reportnet is highly recommended. In the Data Dictionnaire, following tools will be available to help MS to report correct data files:

- Data definition
- Data table templates in Excel or XML
- Automatic QA/QC (see further)
- Automatic feedback on data delivery (see further)

With the new Directive, the Commission takes the occasion to "modernise" the reporting sheets and use XML files with a well-defined data schema (XML schema document or XSD).

The use of XML instead of simple text files has many advantages: an XML file reflects the structure of the data, including relationships between data elements. In particular the XML schema allows in early stage to control data consistency, even before data submission. Also automatic validation can be done more easily. The use of XML as data delivery format will therefore allow for a more efficient submission of reporting data, with less overhead on both the side of the Member State and the Commission.

#### **Reporting instructions**

See section 1.3.1.2.

#### **Data providers**

See section 1.3.1.2.

## **1.4 STEP 3: DEVELOPMENT/DELIVERY DATABASE**

MS individual submissions are stored in CDR (Central Data Repository) on Reportnet (<http://cdr.eionet.europa.eu/>).

The principal underlying CDR is that an envelope contains the files for one delivery in response to a reporting obligation. Depending on the requirements of the reporting obligation, sometimes there will only be one file in the envelope and on other occasions there will be many. The envelope provides transparency and traceability for a particular delivery. If a country wishes to revise their data at a later date, a new envelope should be used. The envelope is the unit processed by the data handlers when merging national data into the European data set.

## 1.5 STEP 4: ACCEPTANCE

### 1.5.1 QA/QC rules under Directive 76/160/EEC

Currently, there is no automatic QA/QC on data files for Directive 76/160/EC uploaded via Reportnet. However, files produced using the BWATER software are automatically in the correct format.

The format of data files developed using other tools than BWATER can be checked by uploading the files into the MS Access database of the country using the BWATER software. Data files that are not in the correct format are not uploaded by the software. The content of the data files (the reported data), however, is not quality checked.

QA/QC rules that can be applied on data files for Directive 76/160/EEC are proposed below. They include checking of format and reported data.

#### Check of format

5. There must be 4 data files reported.
6. Data files must be in txt, xls or xml format prepared in reporting templates.
7. Data file names must be correct.
8. No tabs can be used within the data files.
9. Attributes must be reported with the number of characters defined in the reporting sheets (see tables below).

#### Check of reported data

A number of fields can never be blank, because the software will simply not process the data. These are indicated in the tables below. Other fields should not be blank, like the region, province, commune and name of the bathing site, and the geographic coordinates, but can be blank technically. Another group of fields can be blank, for example the attribute "parnodvln" (number of results exceeding the national limit values) when there are no national limit values, or the comments field ("rem"). The tool will not allow the first group of empty fields.

Each bathing site must be reported in all three data files.

Additional QA/QC rules are proposed below (Table 1, Table 2 and Table 3).

**Table 1: QA/QC rules for "File on geographic locations"**

<i>Attribute name</i>	<i>Type width</i>	<i>Content</i>	<i>QA/QC rule</i>
<b>Numind</b>	CHAR 18	access key	Can never be blank  Must be unique: show report of double keys  Must be remained for future reporting: show report of removed and added keys compared to previous bathing season
<b>Region</b>	CHAR 30	region name	Should not be blank
<b>Province</b>	CHAR 20	province name	Should not be blank
<b>Commune</b>	CHAR 35	commune name	Should not be blank
<b>Prelev</b>	CHAR 45	name of bathing water	Should not be blank
<b>Lat</b>	CHAR 8	latitude format: XSDDMMSS X = N (North)	Should not be blank Must be in specified format



<i>Attribute name</i>	<i>Type width</i>	<i>Content</i>	<i>QA/QC rule</i>
		S (South) S = space DD = degrees MM = minutes SS = seconds	
<b>Long</b>	CHAR 8	longitude format: YSDDMMSS Y = W (West) E (East) S = space DD = degrees MM = minutes SS = seconds	Should not be blank Must be in specified format
<b>Codeau</b>	NUM 1	type of water sampled code: 1 = sea water 2 = river 3 = lake 4 = estuary	Can never be blank Must be one of specified values
<b>Rem</b>	CHAR 80	free comments	Can be blank

Table 2: QA/QC rules for “General data file”

<i>Attribute name</i>	<i>Type width</i>	<i>Content</i>	<i>QA/QC rules</i>
<b>Numind</b>	CHAR 18	access key	Can never be blank  Must be unique: show report of double keys  Must be remained for future reporting: show report of removed and added keys compared to previous bathing season
<b>Annee</b>	NUM 4	year	Can never be blank  Must be the year of the bathing season to be reported
<b>Debdat</b>	NUM 8	beginning of the bathing season format: YYYYMMDD	Can never be blank YYYY must be the same as Annee
<b>Findat</b>	NUM 8	end of the bathing season format: YYYYMMDD	Can never be blank YYYY must be the same as Annee Must be of later date than Debdat
<b>Nobexe</b>	NUM 2	number of samples	Should not be blank, when no samples are reported, a zero should be entered
<b>Banned</b>	CHAR 1	permanently banned bathing water code: B = if banned space = not banned	Must be blank or “B”

<i>Attribute name</i>	<i>Type width</i>	<i>Content</i>	<i>QA/QC rules</i>
<b>Rem</b>	CHAR 80	free comments	Can be blank

Table 3: QA/QC rules for “Parameter data file”

<i>Attribute name</i>	<i>Type width</i>	<i>Content</i>	<i>QA/QC rules</i>
<b>Numind</b>	CHAR 18	access key	Can never be blank  Must be unique: show report of double keys  Must be remained for future reporting: show report of removed and added keys compared to previous bathing season
<b>Annee</b>	NUM 4	year	Can never be blank  Must be the year of the bathing season to be reported
<b>Parno</b>	NUM 3	parameter number format: PPU code: PP = parameter number (1 -> 19) U = under-parameter code	Can never be blank Must be between 1 and 19
<b>Parnob</b>	NUM 2	number of analyses for this parameter	Should not be blank, when no samples are reported, a zero should be entered
<b>Parnodi</b>	NUM 2	number of results exceeding the mandatory values	Should not be blank, when no samples are reported, a zero should be entered
<b>Parnodvln</b>	NUM 2	number of results exceeding the national limit values	Should not be blank, when no samples are reported, a zero should be entered
<b>Parnodg</b>	NUM 2	number of results exceeding the guide values	Should not be blank, when no samples are reported, a zero should be entered
<b>Frequency</b>	CHAR 1	frequency of measurements  code : Y = at least fortnightly N = less than fortnightly	Should not be blank
<b>Rem</b>	CHAR 80	free comments	Can be blank

#### Limitations/shortcomings of the existing QA/QC procedures and proposals what could be improved when developing new procedures for QA/QC.

Currently, the QA/QC are partly automated (limited QA/QC in BWATER software), partly manual. When developing the new data input and assessment tools, QA/QC of the entered data should be further automated. QA/QC should be programmed as much as possible at the level of data entry. Some

improvement concerning QA/QC in the new data input tool has been proposed in the previous section. A number of additional required QA/QC rules are mentioned below:

- Although mandatory, the fourth data file, the “supplementary file”, is often not reported by the Member States.
- None of the attributes to be reported should be left blank.

Since it is not mandatory for the Member States to use the data input tool (existing as well as new) QA/QC procedures also need to be programmed at the level of data assessment:

- All of the above mentioned QA/QC rules should be checked in the assessment tool as well.
- The current analysis tool (BWATER) will not process the data files when the data is not in the correct format. In case of incorrect format, the software simply closes down. The new data assessment tool should display a message indicating the type of error. An automated report should be generated indicating the detected error(s) and required correction(s) which can be send to the Member States.

### 1.5.2 QA/QC under Directive 2006/7/EC

For reporting on Directive 2006/7/EC some automatic QA/QC upon uploading data files in XML format in CDR will be developed, including automatic feedback to data submitters.

Following QA/QC should be performed automatically on reported XML files:

1. Country codes: checks the correctness of the country code (first two characters of bathing water ID)
2. Bathing water coordinates: checks the correctness of bathing water coordinates against boundary box
3. Duplicates: checks the uniqueness of bathing water ID
4. Mandatory values: checks the presence of mandatory elements
5. Valid codes: checks correctness of values against code lists (fixed values)
6. Valid values: checks whether values are between thresholds → generates outlier report
7. Data types: checks the correctness of values against formats and code lists

An automatic report of the QA/QC for each uploaded XML file will be generated and stored in the same envelop where the data files are uploaded.

QA/QC rules are further specified in “methodology” column of the reporting sheets for Directive 2006/7/EC (see Annexe 3).

## 1.6 STEP 5: FINAL DATA STORAGE

Final quality checked data from all MS are stored in an EU-wide database. A new database model will be developed by EEA to store both data reported under Directive 76/160/EEC and Directive 2006/7/EC, that will be compatible with the WISE database structure.

## 1.7 STEP 6: PURPOSE ORIENTED STEPS

The data collected on bathing water quality is further processed for three purposes:

1. Compliance assessment
2. State of the environment (SoE) assessment
3. Visualisation in WISE

These are described below.

### 1.7.1 Compliance assessment

Until Directive 76/160/EEC is repealed on 31 December 2014, bathing water quality assessment under both Directives must be supported. Assessment under Directive 2006/7/EC is only possible when

sufficient data sets have been built up (for more information see document on “Assessment of bathing water quality under Directive 2006/7/EC”).

In the next sections the methodology and work flow for compliance assessment under Directive 76/160/EEC and Directive 2006/7/EC are described.

### 1.7.1.1 Methodology for quality assessment

#### 1.7.1.1.1 Directive 76/160/EEC

Article 5 of the Directive sets out the assessment rules for bathing water quality. The algorithm for the assessment of bathing water quality under Directive 76/160/EEC is shown below.

##### Variables definition:

Nbs = Number of sample for current parameter  
 Jourzone = Difference between StartDate & EndDate in days  
 MinNbs = 1: One analysis has been done before the start of season  
           = 0: Exception or JourZone > 360  
 OkFreq = Adequate frequency (19 character, one per parameter)  
 Freq = Frequency of sampling  
 Pguid = Maximum percentage for guide values  
 ImpValue = At least one parameter has an imperative value (True or False)  
 ShoudTaken = Number of parameters that should have been taken.

##### Status code:

**0** : Program can not compute the status (For configuration reason)  
**1** : Complying with imperative & guide values  
**2** : Banned  
**3** : Inadequate frequency  
**4** : Non complying  
**5** : Complying with imperative values (not guide values)  
**6** : No sampling

##### Algorithm:

if CurrentYear is not defined in execution parameters → **Status = 0**  
 if using RecordedStatus and Database!Status Not Null → **Status = Database!Status (Status or StatusPxx)**  
 if Banned → **Status = 2**  
 if max(PanoB)=0 → **Status = 6**  
 if a date is missing (Start or end) → **Status = 3**

**Okfreq = “00000000000000000000”**

Do for each selected parameters

    if parameter must be sampled (Freq. Def. in directive) or option AllFreq →  
         if Frequency ≠ Y and option Frequency is ticked off → **OkFreq(Parameter) = “N”**  
         if Nbs < 2 → **OkFreq(Parameter) = “N”**  
         Freq = JourZone / (Nbs - MinNbs)  
         If Freq > 15.5 days →  
             If No reduction frequency → **OkFreq(Parameter) = “N”**  
             Do for each preceding years →  
                 If No conform (using fixed parameters option) → **OkFreq(Parameter) = “N”**  
             End Do  
         Endif  
 Endif

End Do

If Insufficient frequency for at least one parameters (“N” ∃ in OkFreq) and SeasonYear > 1995 →

    ShouldTaken = Int\_Sup((Jourzone/15.5)+1)

    If the beach is conform for preceding year → ShouldTaken = Int\_Sup((Jourzone/30.5)+1)

Endif

**Imp = “00000000000000000000”**

Do for each selected parameters

    If the parameter has an imperative limit →



### 1.7.1.2.1 Compliance checking

#### Directive 76/160/EEC

Using the BWATER software, the classification of each bathing water is assessed and stored in the MS Access database of the country. In the document “Guidelines on reporting bathing water quality data in the framework of Directive 76/160/EEC concerning the quality of bathing water” it is explained how to assess bathing waters quality using the BWATER software.

#### Directive 2006/7/EC

For bathing water quality assessment according to the requirements of Directive 2006/7/EC, a new assessment tool will be developed.

### 1.7.1.2.2 Preliminary result and feedback from MS

Preliminary results of bathing water quality that has been assessed based on data submitted by MS are send to MS for their confirmation. Following results are send:

- Cross tables of bathing water quality results for current and previous bathing season(Figure 5)
- List of individual bathing waters and their calculated status (Figure 6)
- Overview of new and/or delisted bathing waters (Figure 7)

After analysis of the data, so-called “cross tables” (Figure 5) which give an overview of the bathing water quality in the current and the previous year are presented to the Member States for confirmation. In addition, lists showing the assessment of individual bathing waters are sent for confirmation (Figure 6). This is often the start of an iterative process: Member States discover errors and deliver new files, which are again analysed by the Commission and sent for confirmation, until the Member States fully agree with the resulting assessment. Errors are often related to typing mistakes, incorrect monitoring results, errors in the past (the database is also holding all data from the previous bathing seasons), etc.

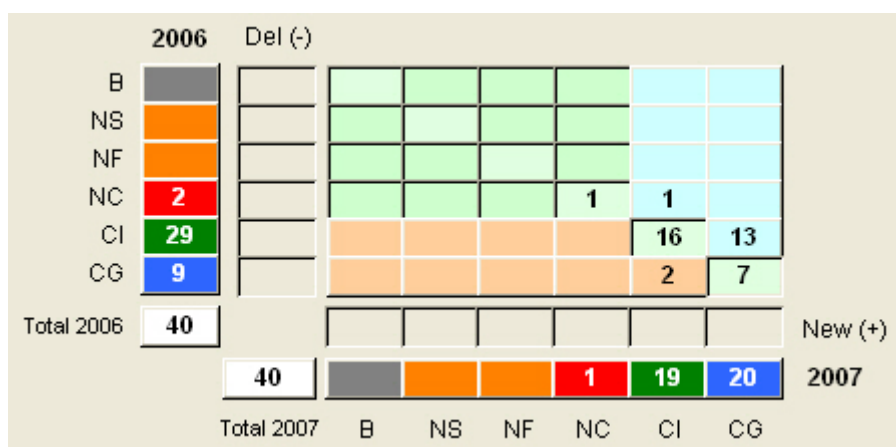


Figure 5: Example of a “cross table” that is sent to Member States for review of preliminary results (result for coastal bathing waters in Belgium)

Region	Province	Commune	ID	Name	Status
REGION WALLONNE	BRABANT	LASNE	522400022000000B04	LASNE PLAGE DE RENIPONT	C(I)
REGION WALLONNE	HAUT	ANTOING	523700001000000E04	PERONNES LE GRAND LARGE	C(I)
REGION WALLONNE	HAUT	CHAPELLE-LEZ-HERLAIMONT	523200001000000E02	CHAPELLE-LEZ-HERLAIMONT LAC DE CL. FONTAINE	C(I)
REGION WALLONNE	HAUT	FROIDCHAPPELLE	523600006000000E01	BOUSSU-LEZ-WALCOURT, LAC DE FERONVAL	C(I)
REGION WALLONNE	HAUT	MONS	523300007000000E03	GRAND LARGE DE NIMY	C(I)
REGION WALLONNE	HAUT	SENEFFE	523200012000000E05	PLAN D'EAU-CENTRE ADEPS	C(I)
REGION WALLONNE	LIEGE	BÜTGENBACH	524300005000000F02	BÜTGENBACH LAC DE BÜTGENBACH	C(G)
REGION WALLONNE	LIEGE	WAIMES	524300024000000F01	ROBERTVILLE LAC DE ROBERTVILLE	C(I)
REGION WALLONNE	LIEGE	AYWAILLE	524200003000000F10	NONCEVEUX (AMONT)	NC
REGION WALLONNE	LIEGE	BURG-REULAND	524300027000000F06	OUREN	NC
REGION WALLONNE	LIEGE	JALHAY	524300009000000F05	ROYOMPRÉ-AU GUÉ	NC
REGION WALLONNE	LIEGE	SANKT-VITH	524300018000000F03	RECHT-ETANGS DE RECHT	C(I)
REGION WALLONNE	LIEGE	STAVELOT	524300020000000F18	COO-AVAL DE LA CASCADE	Bann
REGION WALLONNE	LUXEMBOURG	BOUILLON	526400002000000H19	BOUILLON (PONT DE LA POULIE)	Freq
REGION WALLONNE	LUXEMBOURG	BOUILLON	526400002000000H34	BOUILLON-(PONT DE FRANCE)	C(I)
REGION WALLONNE	LUXEMBOURG	CHINY	526500001000000H07	CHINY (PLAGE)	NC
REGION WALLONNE	LUXEMBOURG	FLORENVILLE	526500003000000H10	LACUISINE (PLAGE)	NC
REGION WALLONNE	LUXEMBOURG	GOUVY	526200007000000H06	GOUVY LAC DE CHERAPONT	C(G)
REGION WALLONNE	LUXEMBOURG	HERBEUMONT	526400004000000H16	HERBEUMONT (AVAL) DANS LA SEMOIS	C(I)
REGION WALLONNE	LUXEMBOURG	HOTTON	526300003000000H35	HOTTON-L'OURTHE	NC
REGION WALLONNE	LUXEMBOURG	LA ROCHE-EN-ARDENNE	526300004000000H23	SAMRÉE-MABOGE (PLAGE)	C(I)
REGION WALLONNE	LUXEMBOURG	LIBRAMONT-CHEVIGNY	526400012000000H05	LIBRAMONT-CHEVIGNY ETANG DU COMPLEXE SPORTIF	NC

**Figure 6: Example of a list of bathing waters that is sent to Member States for review of preliminary results (freshwater bathing waters in Belgium)**

New freshwater bathing waters 2007					
Region	Province	Commune	ID	Name	Status
WEST NEDERLAND	ZUID HOLLAND	BINNENMAAS	4335 0585	BINNENBEDIJKE MAAS, MIJNSHEERENLAND	C(G)
WEST NEDERLAND	ZUID HOLLAND	BRIELLE	4335 0501	BRIELSE MEER, WATERSPORTVERENIGING N	C(I)
WEST NEDERLAND	ZUID HOLLAND	HELLEVOETSLUIS	4335 0530	NATURISTENCAMPING HELLEVOETSLUIS	C(I)
WEST NEDERLAND	ZUID HOLLAND	KRIMPEN AAN DEN IJSSEL	4335 0542	ZWANEWATER	C(I)
WEST NEDERLAND	ZUID HOLLAND	WESTVOORNE	4335 0614	BRIELSE MEER, NABIJ DE KRUINIGERGORS	C(I)
WEST NEDERLAND	ZUID HOLLAND	WESTVOORNE	433500001 0614	BRIELSE MEER, NABIJ DE STENEN BAAK	C(I)
ZUID NEDERLAND	NOORD BRABANT	CUIJK	4413 1684	HEESWIJKSE KAMPEN	C(G)
ZUID NEDERLAND	NOORD BRABANT	TILBURG	4412 0855	RAUWBRAKEN ONDIEP	C(G)
Deleted freshwater bathing waters 2007					
Region	Province	Commune	ID	Name	Status
ZUID NEDERLAND	NOORD BRABANT	BERGEN OP ZOOM	4411 0748	BINNENSCHDELDE, STRANDJE TURELUUR	Bann
WEST NEDERLAND	ZUID HOLLAND	BERNISSE	473500015 1758	SURFPLAATS OOSTELIJK VAN RESTAURANT	C(G)
WEST NEDERLAND	ZUID HOLLAND	DELFT	473300001 1507	GROTE PLAS DELFTSE HOUT	C(G)
WEST NEDERLAND	ZUID HOLLAND	ZEVENHUIZEN/MOERKAPPE	473500030 1606	ZEVENHUIZERPLAS, OOSTELIJK STRAND	C(G)
WEST NEDERLAND	NOORD HOLLAND	HAARLEMMEER	472400019 1344	SPEELVIJVER RONDENBURGERLAAN	C(I)
WEST NEDERLAND	NOORD HOLLAND	LANGEDIJK	472200007 1205	NOORDOOSTSTRAND GEESTPLAS	C(I)

**Figure 7: Overview of new/delisted bathing waters (freshwater bathing waters in The Netherlands)**

#### 1.7.1.2.3 Final result

After processing of all comments from MS and confirmation of MS, following final results are sent to the MS:

- Cross tables
- List of individual bathing waters
- Overview of new and/or delisted bathing waters

#### 1.7.1.2.4 Draft “national bathing water reports” and feedback from MS

After confirmation of the results of bathing water quality assessment by the MS, a report is drafted on the quality of bathing waters in each Member State (“national bathing water reports”).

The draft text contains a number of fixed chapters that are the same for each MS:

1. Introduction
2. Length of bathing season and number of bathing waters

Graph 1: Total number of bathing waters reported by the national authorities since 1990 (or start of reporting).

### 3. Results of bathing water quality

Graph 2: Results of bathing water quality in the MS from 1990 (or start of reporting) to 2007 for coastal bathing waters and freshwater bathing waters

### 4. Development of bathing water quality

### 5. General information as provided by the national authorities

### 6. Infringement procedures

### 7. More information on bathing water quality in the European Union

### Annex 1

Map 1: Bathing waters reported during the 2007 bathing season in the MS

Table 1: Results of bathing water quality in the MS from 1990 (or start of reporting) to 2007

The draft text is sent to the MS. This is the start of a second iterative process. Member States give their feedback on the draft text, which is revised until the MS agree with the text.

### Comparison of results under old Directive and new Directive

The results of the bathing water analysis under Directive 76/160/EEC differ from the results of bathing water analysis under Directive 2006/7/EC in a number of points:

- different parameters
- different classification of bathing waters
- different standards
- different assessment period

### *Comparison of results during transition period of Directive 2006/7/EC with results under Directive 76/160/EEC*

During the transition period of Directive 2006/7/EC bathing waters are analysed and classified according to the rules of Directive 76/160/EC (with parameter *Escherichia coli* assumed to be equivalent to parameter Faecal coliforms and parameter Intestinal enterococci assumed to be equivalent to the parameter Faecal streptococci; see Table 4). This means that the resulting categories are the same as used for the old Directive (see left column of Table 7).

**Table 4: Parameter conversion for assessment of bathing water during the transition period and corresponding standards under Directive 76/160/EEC**

Directive 2006/7/EC	Directive 76/160/EEC			
Parameter	Corresponding parameter	G	I	Minimum sampling frequency
2. <i>Escherichia coli</i> (cfu/100 ml)	2. Faecal coliforms/100 ml	100	2000	Fortnightly (1)
1. Intestinal enterococci (cfu/100 ml)	3. Faecal streptococci/100 ml	100	–	(2)

However, it should be made clear in the reports, that the analysis during the transition period is based on only two parameters (Faecal coliforms (= *Escherichia coli*) and Faecal streptococci (= Intestinal enterococci)), instead of five parameters under Directive 76/160/EC (Total coliforms, Faecal coliforms, Mineral oils, Surface-active substances and Phenols). So it must be noticed that care should be taken when comparing the bathing water results obtained during the transition period with those obtained during the reporting under Directive 76/160/EC.



During the transition period, only the parameter Faecal coliforms is taken into account for analysis of compliance with mandatory values (see Table 4, column "I"). However, the table below shows that, during bathing season 2007, a large number of bathing waters was classified as not compliant with the mandatory values because a parameter other than Faecal coliforms was not compliant. This means that the number of non-compliant bathing waters during the transition period can not be compared directly with the number of non-compliant bathing waters reported under Directive 76/160/EC.

Total number of non-compliant (NC) bathing waters in the EU-27 during 2007 bathing season	624
Number of bathing waters NC because not compliant for FC only	55
Number of bathing waters NC because not compliant for TC, MO, SA or Phe	522

Analysis of compliance to guide values is based on parameters Faecal coliforms and Faecal streptococci (see Table 4, column "G"). However, parameter Faecal streptococci is not taken into account for compliance checking under Directive 76/160/EEC and often not reported by the MS.

A solution of the problem of comparison is to compare only the results for the parameter Faecal coliforms obtained during the transition period with the results obtained under Directive 76/160/EC (compliance to mandatory and guide values).

#### **Comparison of results under Directive 2006/7/EC with results under Directive 76/160/EEC**

Concerning the comparison between results obtained under Directive 2006/7/EC evaluation and Directive 76/160/EEC evaluation, there are even more problems: not only different parameters are used, but also different quality categories are used and these are based on different standards (see Table 5, Table 6 and Table 7). Besides, the standards are different for inland waters and for coastal/transitional waters.

For comparison of parameters, Article 13.3 still applies: parameter *Escherichia coli*, reported under Directive 2006/7/EC, is assumed to be equivalent to parameter Faecal coliforms of Directive 76/160/EEC; parameter Intestinal enterococci reported under Directive 2006/7/EC is assumed to be equivalent to the parameter Faecal streptococci. However, as mentioned higher, only parameter Faecal coliforms can be compared between new Directive and old Directive.

The standards used for the evaluation of parameters in Directive 2006/7/EC (Table 5 and Table 6) are different (more strict) from those used in Directive 76/160/EEC (Table 4). Besides, the assessment period of Directive 2006/7/EC is four seasons (or less) while it is only one season under Directive 76/160/EEC.

**Table 5: For inland waters (Source: Directive 2006/7/EC – Annex I)**

	Parameter	Excellent quality	Good quality	Sufficient
1	Intestinal enterococci (cfu/100 ml)	200 (*)	400 (*)	330 (**)
2	<i>Escherichia coli</i> (cfu/ 100ml)	500 (*)	1 000 (*)	900 (**)

(\*) Based upon a 95-percentile evaluation

(\*\*) Based upon a 90-percentile evaluation

**Table 6: For coastal and transitional waters (Source: Directive 2006/7/EC – Annex I)**

	Parameter	Excellent quality	Good quality	Sufficient
1	Intestinal enterococci (cfu/100 ml)	100 (*)	200 (*)	185 (**)
2	<i>Escherichia coli</i> (cfu/ 100ml)	250 (*)	500 (*)	500 (**)

(\*) Based upon a 95-percentile evaluation

(\*\*) Based upon a 90-percentile evaluation

**Table 7: Classification of bathing water under Directive 76/160/EEC and under Directive 2006/7/EC**

<b>Classification Directive 76/160/EEC</b>	<b>Classification Directive 2006/7/EC</b>
Compliant with guide values	Excellent
Compliant with mandatory values	Good
-	Sufficient
Not compliant with mandatory values	Poor
Not sufficiently sampled	Not sufficiently sampled
Banned (prohibited throughout the entire season)	Banned (prohibited throughout the entire season)
-	New
-	Changes

The best way to compare the results of bathing water obtained under Directive 2006/7/EC or the transition period of Directive 2006/7/EC with results obtained under Directive 76/160/EEC is to convert the reported values for parameter *Escherichia coli* to pass/fail values based on the standards of Directive 76/160/EC (see Table 4) and to compare the resulting classification with the results for parameter Faecal coliforms. Comparison is also possible the other way around: by applying the assessment standards and assessment period of Directive 2006/7/EC on the reported historical data for parameter Faecal coliforms and Faecal streptococci (if reported).

EEA can also choose not to compare any results obtained under Directive 2006/7/EC with those obtained under Directive 76/160/EEC at all and to compare only results obtained under the same Directive.

This is to be discussed with DGENV, EEA and the Member States.

#### **1.7.1.2.5 Final “national bathing water reports”**

After processing of all comments from MS and confirmation of MS, the final text is sent to the MS.

#### **1.7.1.2.6 EU summary report**

After the results for all MS are confirmed by the MS, the EU summary report is drafted. The draft EU summary report is only commented by the Commission, not by the MS.

#### **1.7.1.2.7 Update of DG Environment Bathing Water Quality homepage**

Each year, the results of the previous bathing season are presented to the public during a press conference. On that day (or the day before), the national reports and EU summary report are published on the Bathing Water Quality homepage of DG Environment. In 2008, following pages are part of the bathing water website:

- Bathing water homepage
- 2008 report
- 2007 report
- 2006 report
- 2005 report
- 2005 de-listed
- WISE
- Photos

Next to the uploading of the new reports, the other pages of the website are also updated where necessary. The reports of the previous reports are maintained on the website as well.

Next to publication on the internet, the EU summary report is published as a printed brochure. The introductory chapters are drafted by DG Environment. The lay-out of the publication is being done by the Office for Official Publication for the European Communities (OPOCE).

### **1.7.2 SoE assessment**

Data are also processed for calculation of “SoE” (State of the Environment) indicators and reports published by EEA (see

[http://themes.eea.europa.eu/IMS/ISpecs/ISpecification20041007132021/IAssessment1116508884876/view\\_content](http://themes.eea.europa.eu/IMS/ISpecs/ISpecification20041007132021/IAssessment1116508884876/view_content)). As in the previous years, this work will be done by EEA.

### **1.7.3 Visualisation in WISE**

In 2008 the Commission decided to review DG Environment’s Bathing Water homepage and to use the WISE system for visualisation of bathing water results instead. The WISE system consists of a Map Viewer and a Data Viewer. They are described below.

#### **1.7.3.1 Visualisation of geographical data in WISE Map Viewer**

The WISE public viewer allows the user to navigate on a map and to view a number of data layers combined with each other: reference data layers such as administrative boundaries, rivers or river basins and reporting data. The Bathing Water sites layer is one of these data layers. The Map Viewer allows to request information on a object on the map.

In this section first the current WISE Map Viewer is described. Next suggestions are made for improved visualisation of bathing water quality data.

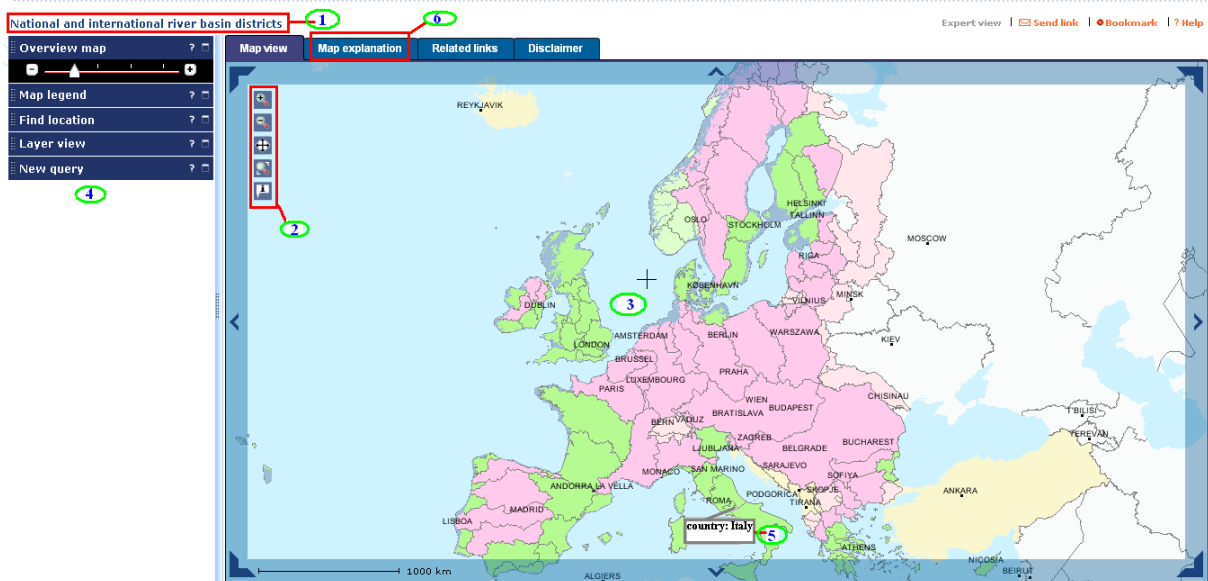
##### **1.7.3.1.1 The current WISE Map Viewer**

#### **Visual and functional elements**

The WISE Map Viewer is visually and functionally constructed with the following six main elements:

- address line
- toolbar
- cartographic area
- layers/legend
- data area
- information area

The arrangement of these elements responds the needs of the web map (Figure 8).



**Figure 8: The arrangement of Wise Viewer visual elements**

- Address line defines the address of the content of the web viewer.
- Toolbar contains all the functional buttons that can be used on the map area. Beside the functional button the name of the function displayed when fly over the button with the mouse. The function is realised with the push on the functional button in the toolbar.
- Cartographic area contains the show of the selected layers with corresponding symbols. It shows the area and the content of the map that changes interactivity by the needs of the map user. On the left top side the overview map is shown.
- Layers/legend are situated on the left side of the map viewer. Layer presentation is defined under »layer view« where the list of layers is presented and the presentation of the legend is shown under »map legend«. On the list of layers we can define the layers to be shown on the map. All the changes are shown on the map by automatic refresh view.
- Data area is situated on extra label (e.g. Rivers,...) but it should be situated next to the selected object. It contains numerical and graphical data about the selected object.
- Information area informs as about the content of the map.

### Organisation of map layers

The cartographic base of the WISE viewer is the Raster Map of Europe in different scales. The layers of interest in the layer view are vector data.

In the present WISE map viewer layers are listed as follow:

- Layer view
  - Countries
  - National river basin districts
  - Non EU international river basin districts
  - Coastal waters
  - Transitional waters
  - Waters
  - Cities and capitals
  - Roads

- Forest
- Built-up areas
- ...
- Query
  - Overview of the Eionet-Water datasets
  - Bathing waters
  - Nitrate in waters
  - ...

### ***Findings and recommendation***

The layers are not clearly organised by clusters, keywords or thematic areas. For the first time user it is difficult to find information of interest in the current layer structure.

We recommend that layers are organised in object areas by logical clusters on the most logical way. The reason for this is easier look through thematic layers of interest as defined below

#### **LAYER VIEW**

- ADMINISTRATIVE AREAS
  - Countries
  - Regions
  - Provinces
  - ZEAT
  - Communes
- WATER OBJECTS
  - National river basin districts
  - Non EU international river basin districts
  - International coastal waters
  - Transitional waters
  - Fresh Waters (rivers, lakes, seas)
  - ...
- INSCRIPTIONS
  - Cities and capitals
  - Settlements
  - Countries
  - Regions
  - Provinces
  - ZEAT
  - Communes
  - Rivers
- ROADS
  - Roads

- LAND COVER
  - Forest
  - Built-up areas
- STATE OF SURFACE WATERS
  - Overview of the Eionet-Water datasets
  - Bathing waters
  - Nitrate in waters
  - ...

### Finding locations via the WISE Map Viewer

In the WISE map viewer a bathing water location is searched using the »find location« option (Figure 9). At present one should know the exact search phrase as it is in database, since the Finding Locations Tool is limited by one attribute.

Figure 9: Finding a bathing water location in the current WISE viewer under the »find location« option

### Reporting the status of a particular bathing water

In the present WISE map viewer the overview of data values for a specific object is shown in a new label (e.g. Rivers). The attribute data values are shown separately from the geographic data as it is presented in Figure 10.

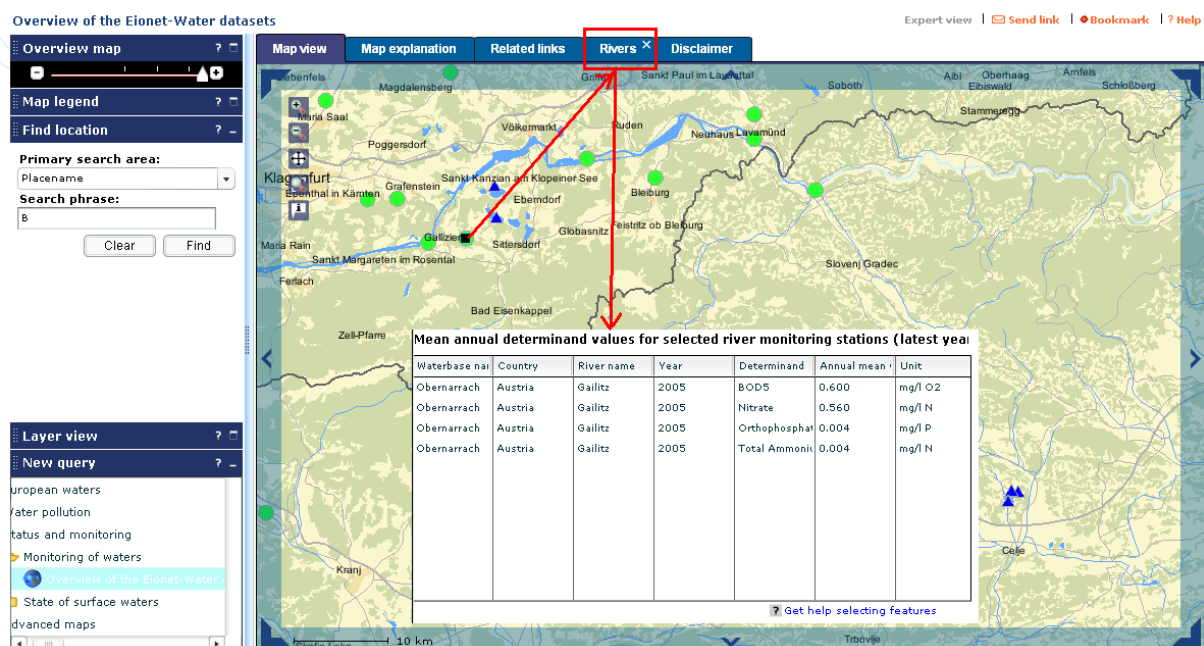


Figure 10: Reporting the status of a bathing water location in future WISE viewer

### Findings and recommendations

At present one should know the exact search phrase as it is in database, since the Finding Locations Tool is limited by one attribute. In future the Finding Locations Tool should be expanded into two search areas (primary search area and secondary search area). For primary search area we recommend the following search areas: country, region, province, ZEAT, commune. For secondary search area we recommend the following search areas: placename (name of the municipality of name of the bathing site (beach)), river, lake, sea. By entering the letters of search phrase a list of possible words of interest will be opened (see Figure 11). There is always a possibility not to use any of search areas.

**Figure 11: Improved finding a bathing water location in WISE viewer under the »find location« option**

The attribute data values will be shown on the map area after one selects a specific object. These attribute values will be presented in graphs or tables that are prepared in advance for presentation needs.

#### 1.7.3.2 WISE data viewer

Using the WISE data viewer (<http://www.eea.europa.eu/themes/water/status-and-monitoring/bathing-water-data-viewer>) the user can find information on bathing waters on the level of country, region, province or bathing water (see Figure 12).

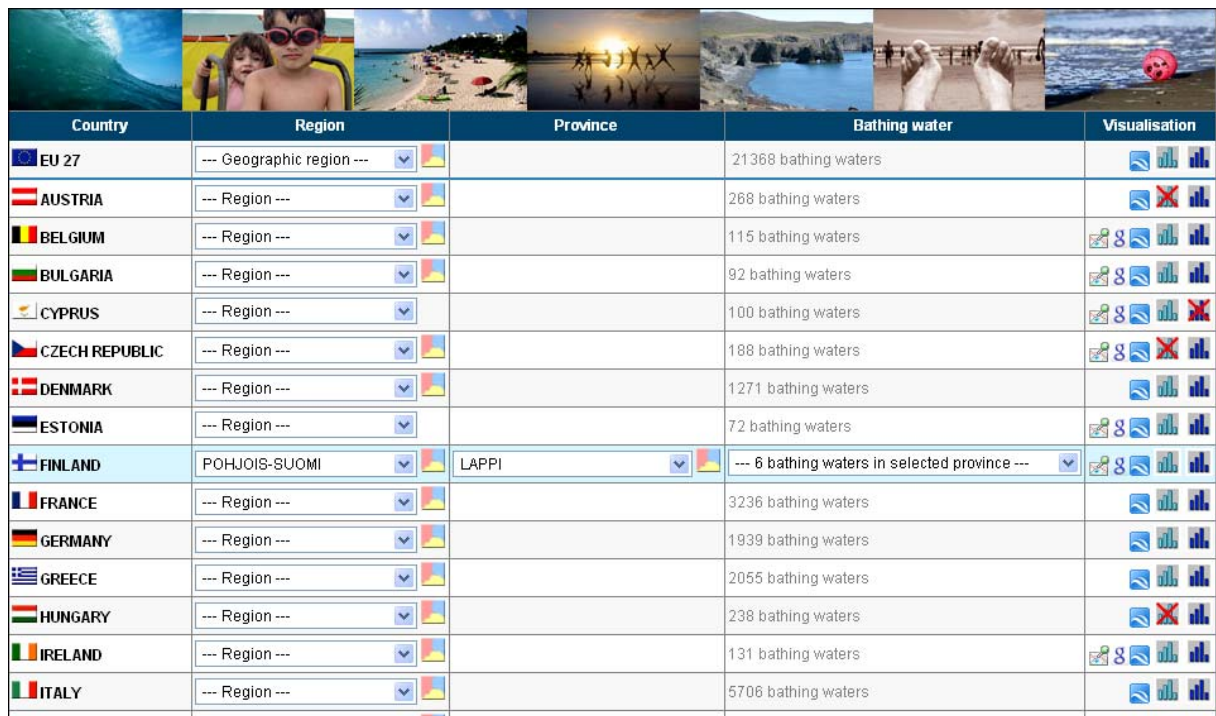


Figure 12: WISE data viewer on bathing water quality

The user can view bathing water quality information in several ways:

1. As live maps (for a limited number of countries: Belgium, Bulgaria, Cyprus, Czech Republic, Estonia, Ireland, Lithuania, Luxembourg, Malta, Romania, Slovakia and Slovenia)
2. In Google Maps (for a limited number of countries: see above) (see Figure 13)
3. In Google Earth (or download KML file) (see Figure 14)
4. Statistics for freshwaters (see Figure 15 and Figure 16)
5. Statistics for coastal waters (see Figure 15 and Figure 16)

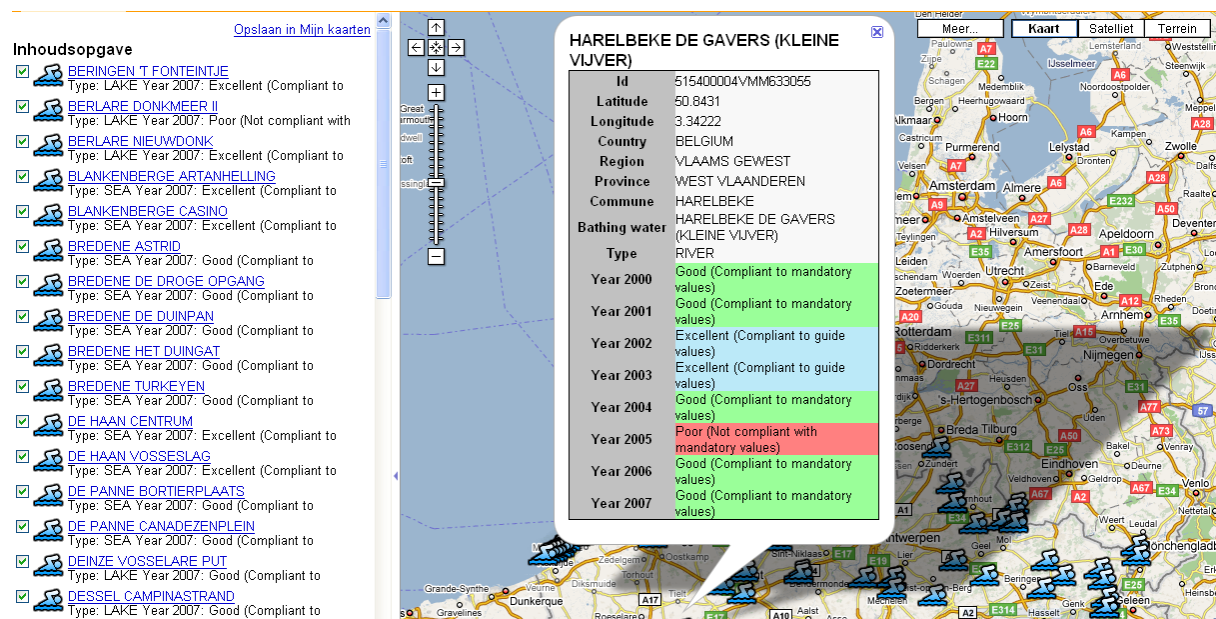


Figure 13: Flemish bathing waters in Google Maps



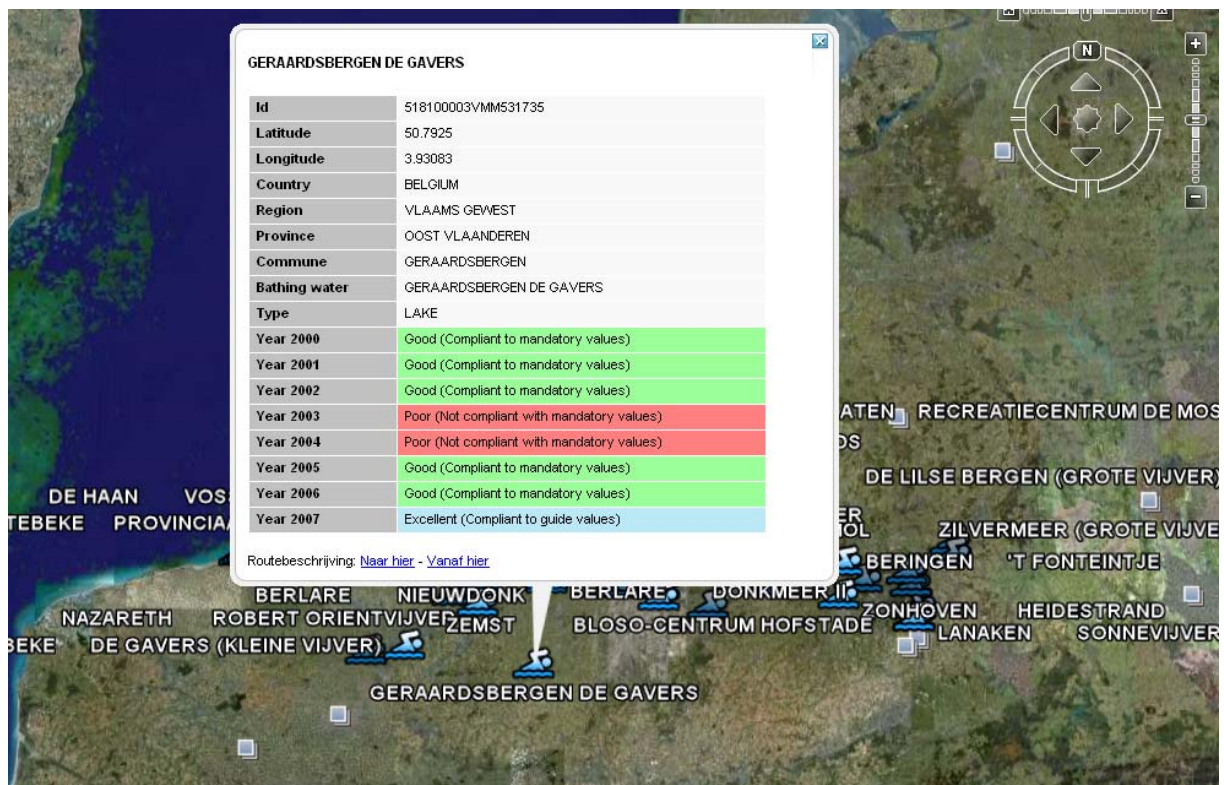


Figure 14: Flemish bathing waters in Google Earth

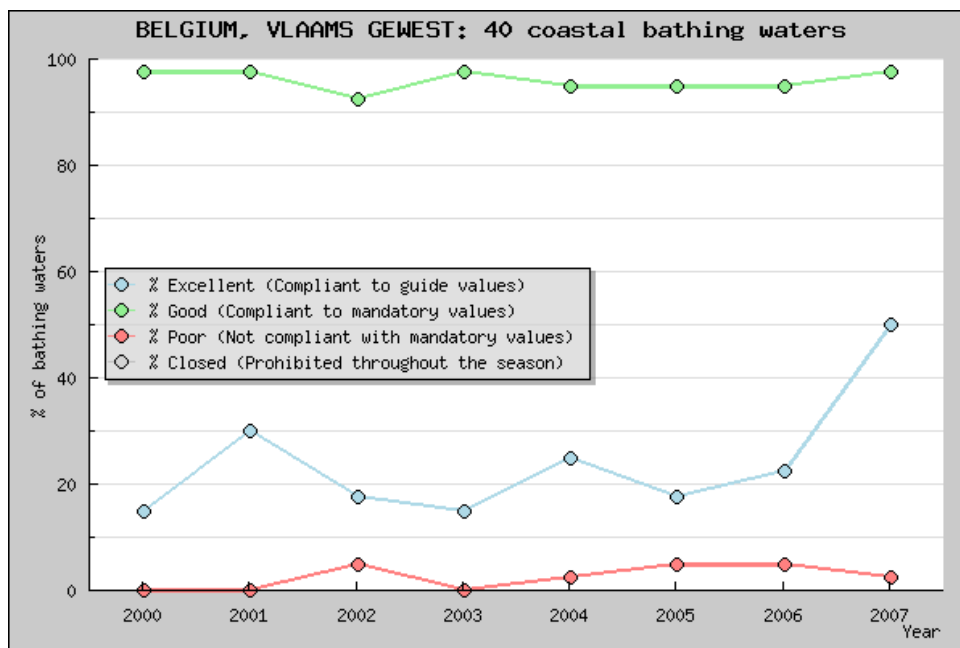
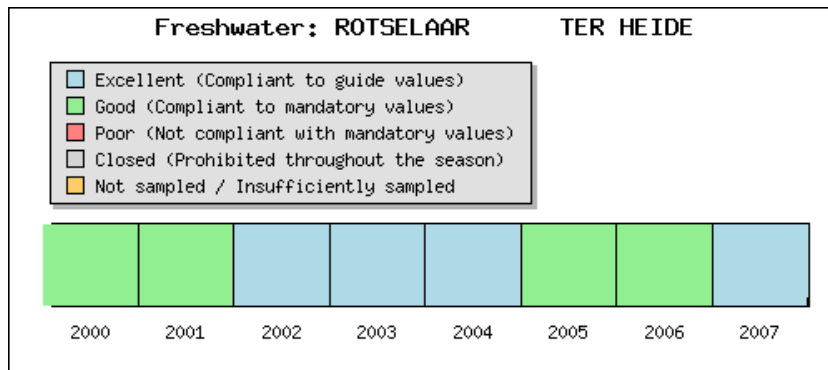


Figure 15: Statistics for coastal bathing waters in the region of Flanders



**Figure 16: Statistics for an individual bathing water**

### 1.7.3.3 Bathing water quality reports on WISE

Next to the bathing water quality information for individual bathing sites, or grouped per administrative level, users will also be interested in having an overview of the bathing water quality in a certain Member State or for the entire EU and to have an evaluation of trends, measures, further planning, etc. on the subject. This is currently presented in the form of national reports and an EU-wide summary report. The national data are also used to produce EEA Water indicators. Bathing water quality is prepared as CSI22 indicator (Bathing water quality)

([http://themes.eea.europa.eu/IMS/ISpecs/ISpecification20041007132021/IAssessment1116508884876/vi ew\\_content](http://themes.eea.europa.eu/IMS/ISpecs/ISpecification20041007132021/IAssessment1116508884876/vi ew_content)).

It should be possible to download the bathing water quality reports directly from the WISE website. Currently the reports can only be consulted on the EC's DG Environment homepage on bathing water quality ([http://ec.europa.eu/environment/water/water-bathing/index\\_en.html](http://ec.europa.eu/environment/water/water-bathing/index_en.html)).

The "Water themes and data" section of the WISE website, is holding a "reports" link. This gives access to the EEA's list of report and publication, where reports are available for downloading, mostly in pdf version. Currently, the bathing water quality reports (national and EU-wide) are not available here. As a first step, the national and EU reports of the previous bathing season(s) should be made available for downloading from this page.

The same information must be accessible through the WISE viewer, under the "related links" tab.

## 2 BWD REPORTING FOR SEIS

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Next to WISE, bathing water reporting will also be integrated into SEIS (Shared Environmental Information System). Member States were informed on the “near real time reporting” for SEIS during the meeting with Member States of 26 June 2008<sup>12</sup>.

For reporting the parameters of the old Directive 76/160/EEC, templates (Excel format) are prepared for near real time reporting on bathing waters. Benefits for the MS are:

- the same process (reporting through Reportnet) is used as for annual reporting,
- a file with all data for a country is automatically prepared at the end of the season,
- no additional work for country for annual reporting of data (downloads xls files and prepares official annual report).

For reporting the parameters of the new Directive, the same reporting sheets as defined for reporting under Directive 2006/7/EC (see Annex 2) can be used for reporting for SEIS provided that following attributes are added:

- “InputDate”.....attribute to describe date of reporting (input into the system), MANDATORY
- “OrganisationName”.....name of organisation /institution submitting data, MANDATORY
- “Reporter”.....name of person who is submitting (reporting) data, OPTIONAL

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<sup>12</sup> Presentation to be downloaded from CIRCA on [http://circa.europa.eu/Public/irc/env/wfd/library?l=/framework\\_directive/bathing\\_directive/workshop\\_26062008&vm=detailed&sb=Title](http://circa.europa.eu/Public/irc/env/wfd/library?l=/framework_directive/bathing_directive/workshop_26062008&vm=detailed&sb=Title)

## ANNEXES

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Annexe 1 Reporting sheets for Directive 76/160/EC

Annexe 2 Reporting sheets for Directive 2006/7/EC

## ANNEXE 1 REPORTING SHEETS FOR DIRECTIVE 76/160/EC

### Geographic data file

This file contains the geographic information of the bathing water sites. The attributes to be reported are described in the table below.

**Geographic data file (Source: Commission Decision 95/337/EEC 'VIII. Outline questionnaire for reporting on Directive 76/160/EEC')**

<i>Attribute name</i>	<i>Type width</i>	<i>Content</i>
<b>Numind</b>	CHAR 18	access key <sup>13</sup>
<b>Region</b>	CHAR 30	region name
<b>Province</b>	CHAR 20	province name
<b>Commune</b>	CHAR 35	commune name
<b>Prelev</b>	CHAR 45	name of bathing water
<b>Lat</b>	CHAR 8	latitude format: XSDDMMSS X = N (North) S (South) S = space DD = degrees MM = minutes SS = seconds
<b>Long</b>	CHAR 8	longitude format: YSDDMMSS Y = W (West) E (East) S = space DD = degrees MM = minutes SS = seconds
<b>Codeau</b>	NUM 1	type of water sampled code: 1 = sea water 2 = river 3 = lake 4 = estuary

<sup>13</sup> Access key means the unique identification number of the bathing site. For the other directives in WISE reporting environment this 'access key' is called identifier (ID). For reporting under Bathing Water Directive the 'Access key' is created by the Member State and is based on the NUTS code (which sometimes changes). It shall be bared in mind that the 'access key' or ID must be stable parameter in order to have the history of the quality of each bathing site. The guidance of the creation of the IDs for WISE for example for UWWTD can be found on page 3 of "Background document on specifications for reporting geographical data under UWWTD" from CIRCA at [http://circa.europa.eu/Public/irc/env/wfd/library?l=/framework\\_directive/treatment\\_directive/00-uwtd\\_questionnaire/02-manual\\_supporting/gisspecific\\_070507pdf/\\_EN\\_1.0\\_&a=d](http://circa.europa.eu/Public/irc/env/wfd/library?l=/framework_directive/treatment_directive/00-uwtd_questionnaire/02-manual_supporting/gisspecific_070507pdf/_EN_1.0_&a=d). Therefore for reorganising reporting exercise for transitional period and for new directive the guidance for the access key should be reconsidered in order to ensure its stability.

<i>Attribute name</i>	<i>Type width</i>	<i>Content</i>
<b>Rem</b>	CHAR 80	free comments

### General data file

This file contains information on the bathing season for each bathing water. The attributes to be reported are described in the table below.

**General data file (Source: Commission Decision 95/337/EEC 'VIII. Outline questionnaire for reporting on Directive 76/160/EEC')**

<i>Attribute name</i>	<i>Type width</i>	<i>Content</i>
<b>Numind</b>	CHAR 18	access key
<b>Annee</b>	NUM 4	year
<b>Debdat</b>	NUM 8	beginning of the bathing season format: YYYYMMDD
<b>Findat</b>	NUM 8	end of the bathing season format: YYYYMMDD
<b>Nobexe</b>	NUM 2	number of samples
<b>Banned</b>	CHAR 1	permanently banned bathing water code: B = if banned space = not banned
<b>Rem</b>	CHAR 80	free comments

### Parameter data file

This file contains the bathing water quality results by parameter. The attributes to be reported are described in the table below.

**Parameter data file (Source: Commission Decision 95/337/EEC 'VIII. Outline questionnaire for reporting on Directive 76/160/EEC')**

<i>Attribute name</i>	<i>Type width</i>	<i>Content</i>
<b>Numind</b>	CHAR 18	access key
<b>Annee</b>	NUM 4	year
<b>Parno</b>	NUM 3	parameter number format: PPU code: PP = parameter number (1 -> 19) U = under-parameter code
<b>Parnob</b>	NUM 2	number of analyses for this parameter
<b>Parnodi</b>	NUM 2	number of results exceeding the mandatory values
<b>Parnodvln</b>	NUM 2	number of results exceeding the national limit values
<b>Parnodg</b>	NUM 2	number of results exceeding the guide values
<b>Frequency</b>	CHAR 1	frequency of measurements

<i>Attribute name</i>	<i>Type width</i>	<i>Content</i>
		code : Y = at least fortnightly N = less than fortnightly
<b>Rem</b>	CHAR 80	free comments

**Supplementary file**

This file is also mandatory and has to include (in free format):

- The analytical method(s) used to assess compliance with the Directive,

Short description of improvement schemes for bathing areas not complying with the imperative values of the Directive including timetables of works and necessary investment.

## ANNEXE 2 REPORTING SHEETS FOR DIRECTIVE 2006/7/EC

**Table 1: Inventory of identified bathing waters**

Attribute name	Attribute description	Methodology	Data specifications
BathingWaterID	Unique identification code of bathing water	Must be unique (see separate guidance : " <i>Background document on coding of IDs and specifications for reporting geographical data under BWD</i> ")  Must start with two letter code of country	Data type: text Size: 24
BathingWaterName	Name of bathing water		Data type: text Size: 100
ShortBathingWaterName	Short name of bathing water	must be $\leq 20$ characters  if BathingWaterName $\leq 20$ characters it can be used for ShortBathingWaterName as well	Data type: text Size: 20
Long	Longitude or x geographical coordinate	Provide longitude in decimal degrees using the coordinate reference system ETRS89.  Negative values should be used for coordinates west of the Greenwich Meridian (0 degrees)  The bathing water must be located within country boundary.	Data type: float Data size: 8 Minimum value: -180 Maximum value: 180 Decimal precision: 4 Unit: decimal degrees
Lat	Latitude or y geographical coordinate	Provide latitude in decimal degrees using the coordinate reference system ETRS89.  Negative values should be used for coordinates south of the Equator (0 degrees)  The bathing water must be located within country boundary.	Data type: float Data size: 8 Minimum value: -90 Maximum value: 90 Decimal precision: 4



			Unit: decimal degrees
Coordsys	Used coordinate system for reporting longitude and latitude values	Code: WGS84 = Word Geodetic System 1984 ETRS89 = European Terrestrial Reference System 1989	Data type: text Size: 6
GroupID	ID of bathing water group	Must be unique Must start with two letter code of country Value = "na" if bathing water is not part of a group	Data type: text Size: 24
RiverBasinDistrictID	ID of River Basin District (RBD) described and reported under WFD where the bathing water is situated	The same codes should be used as in the latest dataset/update of RBD's provided to EC under reporting for WFD	Data type: text Size: 24
RiverBasinDistrictName	Name of River Basin District (RBD) described and reported under WFD where the bathing water is situated	The same names should be used as in the latest dataset/update of RBD's provided to EC under reporting for WFD	Data type: text Size: 45
RiverBasinDistrictSUID	ID of River Basin District (RBD) sub-unit described and reported under WFD where the bathing water is situated	The same codes should be used as in the latest dataset/update of RBD sub-units provided to EC under reporting for WFD	Data type: text Size: 24
RiverBasinDistrictSUName	Name of River Basin District (RBD) sub-unit described and reported under WFD where the bathing water is situated	The same names should be used as in the latest dataset/update of RBD sub-units provided to EC under reporting for WFD	Data type: text Size: 45
WaterBodyID	ID of water body as described under WFD where the bathing water is situated	The same codes should be used as in the latest dataset/update of water bodies provided to EC under reporting for WFD	Data type: text Size: 24
WaterBodyName	Name of water body as described under WFD where the bathing water is situated	The same names should be used as in the latest dataset/update of water bodies provided to EC under reporting for WFD	Data type: text Size: 45
NationalWaterUnitID	ID of national water unit where bathing water is located (in case the bathing water is not part of a water body)	This parameter shall be indicated in case bathing water is not a part of water body as described and reported under WFD	Data type: text Size: 24
NationalWaterUnitName	Name of national water unit where bathing water is located (in case the bathing water is not part of a water	This parameter shall be indicated in case bathing water is not a part of water body as described and reported under WFD	Data type: text Size: 45

	body)		
BWKeywords	Names of river, lake, city, town, village or tourist area where bathing water is located or any other relevant keyword	Keywords for searching bathing water in WISE viewer More than one keywords need to be separated by a comma	Data type: text
Year	Reported year	Format: YYYY	Data type: text Size: 4
AccessKey	Access key (= ID) used for reporting on Directive 76/160/EC	Must be part of list of reported access keys (latest list) Value = "na" if bathing water is new	Data type: text Size: 18
BathingWaterType	Type of bathing water	Code: 1 = existing bathing water 2 = new bathing water 3 = deleted bathing water Must be "1" if BathingWaterID is not new Must be "2" if BathingWaterID is new Must be "3" if Bathing water is not reported in other tables	Data type: integer Size: 1
ChangeReason	Reason for change compared to preceding year	Value = "na" if no change	Data type: text
Closed	Bathing water is closed for the entire season	Code: Y = bathing water is closed for the entire season N = bathing water is not closed for the entire season If "Y" bathing water is not reported in other tables If "N" bathing water must be reported in other tables	Data type: boolean Size: 1
BWCategory	Category of water sampled	Code: R = river L = lake T = transitional water	Data type: text Size: 2

		C = coastal water	
SpecGeoCon	Bathing water situated in a region subject to special geographical constraints	Code: Y = bathing water is situated in a region subject to special geographic constraints N = bathing water is not situated in a region subject to special geographic constraints	Data type: boolean Size: 1

**Table 2: Seasonal information on bathing waters**

Attribute name	Attribute description	Methodology	Data specifications
BathingWaterID	Unique identification code of bathing water	See table 1	Data type: text Size: 24
GroupID	ID of bathing water group	See table 1	Data type: text Size: 24
StartDate	Start date of the bathing season	Format: YYYY-MM-DD YYYY must be the same as Year Must be < EndDate	Data type: date Size: 10
EndDate	End date of the bathing season	Format: YYYY-MM-DD YYYY must be the same as Year Must be > StartDate	Data type: date Size: 10
Class	Classification of bathing water	Code: 1 = excellent quality 2= good quality 3 = sufficient quality 4 = poor quality 5 = insufficiently sampled	Data type: integer Size: 2

		6 = new (not yet classification possible) 7 = changes (not yet classification possible after changes) 8 = compliant with guide values and mandatory value 9 = compliant with mandatory value 10 = not compliant with mandatory value	
ManMeas	Description of significant management measures taken  Also other remarks can be entered into this field	Value = "na" when no significant management measures have been taken	Data type: text Size: 5000
Changes	Changes that affect classification of bathing water	Code: Y = changes N = no changes	Data type: boolean Size: 1
NuSeasons	Number of seasons on the basis of which assessment is made	Code: 4 = current season and three preceding bathing seasons 3 = current season and two preceding bathing seasons 2 = current season and preceding bathing season 1 = current season	Data type: text Size: 1

**Table 3: Abnormal situations**

Attribute name	Attribute description	Methodology	Data specifications
BathingWaterID	Unique identification code of bathing water	See table 1	Data type: text Size: 24
GroupID	ID of bathing water group	See table 1	Data type: text Size: 24
StartDateAbSit	Start date of the impact of an abnormal	Format: YYYY-MM-DD	Data type: date

	situation	YYYY must be the same as Year Must be < EndDateAbSit	Size: 10
EndDateAbSit	End date of the impact of an abnormal situation	Format: YYYY-MM-DD YYYY must be the same as Year Must be > StartDateAbSit	Data type: date Size: 10

**Table 4: Short term pollution**

Attribute name	Attribute description	Methodology	Data specifications
BathingWaterID	Unique identification code of bathing water	See table 1	Data type: text Size: 24
GroupID	ID of bathing water group	See table 1	Data type: text Size: 24
StartDateSTP	Start date short term pollution	Format: YYYY-MM-DD YYYY must be the same as Year Must be < EndDateSTP	Data type: date Size: 10
EndDateSTP	End date short term pollution	Format: YYYY-MM-DD YYYY must be the same as Year Must be > StartDateSTP	Data type: date Size: 10

**Table 5: Monitoring results of bathing waters**

Attribute name	Attribute description	Methodology	Data specifications
BathingWaterID	Unique identification code of bathing water	See table 1	Data type: text Size: 24

Group ID	ID of bathing water group	See table 1	Data type: text Size: 24
SampleDate	Date of sampling	Format: YYYY-MM-DD YYYY must be the same as Year Must be within bathing season (shortly before the start of the bathing season until last day)	Data type: date Size: 10
ConcIE	Measured concentration of Intestinal Enterococci per sample in cfu/100ml		Data type: float Unit: cfu/100ml
ConcEC	Measured concentration of Escherichia coli per sample in cfu/100ml		Data type: float Unit: cfu/100ml