



**European Commission - DG Environment**

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**Assessment of bathing water quality under  
BWD 2006/7/EC**

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Annex1: Using BWATER for assessment of bathing water quality during transition period:  
preparation of a new bathing season in UPDATE module

## PREAMBLE

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The aim of this document is to describe the methodology for the analysis of bathing water quality according to the rules of the Bathing Water Directive 2006/7/EC (BWD)<sup>1</sup> (including during the transition period).

The methodology defined in this document will be the basis for the development of an “assessment tool” for analysis of bathing water quality according to the Directive by EEA.

The reporting sheets for reporting under Directive 2006/7/EC are described in a separate document “Reporting sheets for Bathing Water Directive 2006/7/EC”<sup>2</sup>. More information on the integration of BWD reporting into WISE can be found in the “Concept paper on the integration of BWD reporting into WISE”.

Suggestions on how to improve this draft document are welcome.

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<sup>1</sup> Directive text available on <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2006:064:0037:01:EN:HTML>

<sup>2</sup> To be downloaded from CIRCA on [http://circa.europa.eu/Public/irc/env/wfd/library?l=/framework\\_directive/bathing\\_directive/workshop\\_reporting&vm=detailed&sb=Title](http://circa.europa.eu/Public/irc/env/wfd/library?l=/framework_directive/bathing_directive/workshop_reporting&vm=detailed&sb=Title)

# 1 INTRODUCTION

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## 1.1 BATHING WATER ANALYSIS UNDER DIRECTIVE 76/160/EEC

Since 1976 the Council Directive 76/160/EEC on Bathing Water Quality sets binding standards for bathing waters throughout the European Union. Member States have to report monitoring data collected during the bathing season for the parameters described in the Annex of the Directive to the Commission annually. The EC analyses the reported data and publishes the results in an annual report.

Assessment of bathing water quality according Directive 76/160/EEC is based on:

- sampling of 19 parameters, of which five are taken into account for quality assessment,
- for each parameter, two standards against which bathing waters are evaluated: mandatory values and guide values,
- an assessment period of one year,
- number of samples exceeding the standards,
- bi-monthly sampling frequency (monthly if bathing waters complied for two consecutive years).

The rules for compliance assessment of bathing waters according Directive 76/160/EEC have been translated into an algorithm for assessment of bathing waters (see section 2.2.3). This algorithm has been built into the BWATER software, that can be used as an assessment tool for bathing waters, next to an entry and export tool for reporting of data.

## 1.2 BATHING WATER ANALYSIS UNDER DIRECTIVE 2006/7/EC

The new Bathing Water Directive 2006/7/EC of 15 February 2006 updates the provisions of Directive 76/160/EEC. Compared to the "old" bathing water Directive, the new bathing water Directive 2006/7/EC implies following changes:

- only two microbiological parameters are monitored: Intestinal enterococci (cfu/100 ml) and Escherichia coli (cfu/100 ml),
- new standards for assessment of bathing waters: excellent, good, sufficient and poor and different standards for inland water and coastal and transitional water,
- assessment period of four years (as a rule, but can be less),
- assessment based on calculation of percentile values,
- monthly sampling frequency.

The assessment rules for bathing water quality according Directive 2006/7/EC are defined in the current document. They will be the basis of the assessment tool to be developed by EEA for the next reporting period (bathing season 2008).

For compliance analysis according the new Directive two "assessment paths" need to be foreseen:

1. for bathing waters with a sufficient data set (see further): assessment according the new Directive assessment rules, based on an assessment period of four years (or less; see further),
2. for bathing waters for which a sufficient data set for assessment according the new Directive assessment rules has not yet been collected: assessment according the rules defined for the so-called "transition period" (see further).

## 2 ASSESSMENT OF BATHING WATER QUALITY UNDER DIRECTIVE 2006/7/EC

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### 2.1 ASSESSMENT ACCORDING ASSESSMENT RULES OF DIRECTIVE 2006/7/EC

This section is defining the assessment rules to be applied for bathing water quality analysis under Directive 2006/7/EC.

#### 2.1.1 Building up data sets for bathing water quality assessment

##### 2.1.1.1 *Reported data*

The necessary data on bathing waters to be reported by Member States is collected in reporting sheets described in a separate document<sup>3</sup>. The reporting sheets do not only collect data that are needed for bathing water quality analysis, but also collect the necessary data for integration of bathing water information into WISE and for visualisation of bathing waters in the WISE viewer.

The major difference in reporting compared to the old Directive is the reporting of monitoring values (in cfu/100ml). For the old Directive, only the number of samples exceeding the standards were reported.

##### 2.1.1.2 *Number of seasons*

Under Directive 2006/7/EC bathing water quality assessment is carried out on the basis of the set of bathing water quality data compiled in relation to that bathing season and the three preceding bathing seasons (Article 4.2(c)). However, a Member State can decide to carry out the assessment based on three seasons (the current and two preceding), if it notifies the Commission beforehand.

Moreover, the number of season can be less than four if:

1. the bathing water is new,
2. changes have occurred that are likely to affect the bathing water classification, in which case the assessment is based on the data set compiled since the changes occurred, or
3. the bathing water has been assessed in accordance with Directive 76/160/EEC.

provided that the necessary number of samples is collected (see further).

The number of seasons on which assessment of a bathing water is based is reported in data table 2 "Seasonal information on bathing waters", with following possible values:

4 = current bathing season and three preceding bathing seasons

3 = current bathing season and two preceding bathing seasons

2 = current bathing season and preceding bathing season

1 = current bathing season

##### 2.1.1.3 *Sampling frequency*

The frequency of sampling is set out in Annex IV of the Directive. Including a sample to be taken shortly before the start of the bathing season, the minimum number of samples taken per bathing season is four.

However, three samples are sufficient when:

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<sup>3</sup> Reporting sheets for Bathing Water Directive 2006/7/EC. Final draft of 7 August . To be downloaded from CIRCA on [http://circa.europa.eu/Public/irc/env/wfd/library?!=/framework\\_directive/bathing\\_directive/workshop\\_reporting&vm=detailed&sb=Title](http://circa.europa.eu/Public/irc/env/wfd/library?!=/framework_directive/bathing_directive/workshop_reporting&vm=detailed&sb=Title)

- the bathing season is no longer than 8 weeks, or
- the region is subject to special geographic conditions.

Sampling dates must be distributed throughout the season, with the interval between sampling dates never exceeding one month.

In the event of short-term pollution, one additional sample is to be taken to confirm that the incident has ended. This sample is not to be part of the set of bathing water quality data. If necessary to replace a disregarded sample, an additional sample is to be taken seven days after the end of the short-term pollution. This will be reported and treated as a “normal” sample.

According to Article 3.4 a monitoring calendar for each bathing season has to be established before the start of each bathing season and for the first time before the start of the third full bathing season after the entry into force of the Directive. Monitoring has to take place no later than four days after the date specified in the monitoring calendar. This monitoring calendar can be suspended during abnormal situations (article 3.7). It has to be resumed as soon as possible after the end of the abnormal situation. New samples have to be taken as soon as possible after the end of the abnormal situation to replace samples that are missing due to the abnormal situation. These samples will be reported and treated as a “normal” sample.

Member States have to report any suspension of the monitoring calendar to the Commission, giving the reasons for the suspension (Article 3.8).

The reporting frequency can be derived from the reporting start and end date of the bathing season and the sampling dates of the reported samples.

#### **2.1.1.4**     *Number of samples*

Assessment of bathing water quality must be based on at least 16 samples for the assessment period, but the number can be fewer (Article 4.3):

- It can be minimum 12 samples in case of the special circumstances referred to in Annex IV, par 2, being:
  - when the bathing season is not exceeding eight weeks; or
  - when the bathing water is situated in a region subject to special geographical constraints.
- It can be minimum 8 samples if the bathing season is not exceeding 8 weeks and the conditions defined in Article 4.4 are met.

### **2.1.2**     **Compliance analysis**

#### **2.1.2.1**     *Parameters and standards*

The parameters to be monitored and the maximum concentration values for each quality category are described in Table 1 for inland waters and in Table 2 for coastal and transitional waters (Annex I of Directive 2006/7/EC). Bathing waters not meeting the standards for sufficient quality are classified as “poor”.

The standards for excellent and good quality are based on a 95-percentile evaluation; the standards for sufficient quality are based on a 90-percentile evaluation.

**Table 1: 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	Escherichia coli (cfu/ 100ml)	500 (*)	1 000 (*)	900 (**)

(\*) Based upon a 95-percentile evaluation

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

**Table 2: 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	Escherichia coli (cfu/ 100ml)	250 (*)	500 (*)	500 (**)

(\*) Based upon a 95-percentile evaluation

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

The monitoring values for parameters Intestinal enterococci and Escherichia coli are reported in data table 5 “Monitoring results of bathing waters” as ConcIE and ConcEC respectively (in cfu/100 ml) (see document on reporting sheets).

### **2.1.2.2 Bathing water classification**

Next to the quality categories “excellent”, “good”, “sufficient” and “poor”, three more categories need to be defined in order to do a complete classification of bathing waters:

- insufficiently sampled,
- new,
- changes.

These categories are explained in the overview in Table 3.

**Table 3: Bathing water quality categories for assessment under BWD**

Code	Description	Detailed description
1	excellent quality	See Annex II of Directive 2006/7/EC
2	good quality	See Annex II of Directive 2006/7/EC
3	sufficient quality	See Annex II of Directive 2006/7/EC
4	poor quality	See Annex II of Directive 2006/7/EC
5	insufficiently sampled	In case of reporting on Directive 2006/7/EC, this classification must be used in case the sampling frequency as described in Annex IV of Directive 2006/7/EC is not met.
6	new	This classification applies when a Member States is already assessing its bathing waters according the rules of Directive 2006/7/EC and identifying a new bathing water. For a new bathing water the necessary data set of 16/12/8 samples (see section 2.1.1.4) might not be compiled at the end of the first bathing season so that an assessment under Directive 2006/7/EC is not yet possible. In this case the classification "new" must be used until the necessary data set is compiled.
7	changes	If changes occur that affect the classification of a bathing water under Directive 2006/7/EC, the assessment has to be based on the data set of samples collected since the changes occurred. In case the necessary data set of 16/12/8 samples for assessment of the bathing water under Directive 2006/7/EC since the occurrence of the change is not yet available, the classification "changes" must be used until the necessary data set is compiled.

Accordinging Article 13.1 of the BWD, Member States have to report the bathing water quality assessment for each bathing water. The can do so by reporting the code as defined in Table 3 in the field "class" in data table 2 "Seasonal information on bathing waters" (see document on reporting sheets).

In case the bathing water is subject to short-term pollution, the bathing water can be classified as "excellent", "good" or "sufficient" on the condition that:

- adequate management measure are being taken, including surveillance, early warning systems and monitoring, with a view to preventing bathers' exposure by means of a warning, or, where necessary, a bathing prohibition;
- adequate management measures are being taken to prevent, reduce or eliminate the causes of pollution; and
- the number of samples disregarded in accordance with Article 3(6) because of short-term pollution during the last assessment period represents no more than 15% of the total number of samples provided for in the monitoring calenders estashid for that period, or no more than one sample per bathing season, whichever is the greatest.

A bathing water that is subject to short-term pollution and not meeting the above conditions is classified as "poor".

### **2.1.2.3 Calculation of percentile values**

Compliance analysis is based on a percentile evaluation of the data sets collected during one or up to four years. The assessment of bathing water quality assessment is set out in Annex II of the BWD.

The new Directive provides for the classification of bathing waters based upon 90 or 95 percentile evaluation of the  $\log_{10}$  normal probability density function of all the microbiological data acquired from the bathing water during the assessment period.

Annex II of Directive 2006/7/EC describes how the percentile concentration is to be derived:

1. Take the  $\log_{10}$  value of all bacterial enumerations in the data sequence to be evaluated. (If a zero value is obtained, take the  $\log_{10}$  value of the minimum detection limit of the analytical method used instead.)
2. Calculate the arithmetic mean of the  $\log_{10}$  values ( $\mu$ ).
3. Calculate the standard deviation of the  $\log_{10}$  values ( $\sigma$ ).
4. The upper 90-percentile point of the data probability density function is derived from the following equation: upper 90-percentile = antilog ( $\mu + 1,282 \sigma$ ).

The upper 95-percentile point of the data probability density function is derived from the following equation: upper 95-percentile = antilog ( $\mu + 1,65 \sigma$ ).

This is illustrated in the example below for the parameter Intestinal enterococci measured in a coastal bathing water. In the example, the analysis is based on 10 samples.

Samples	1	2	3	4	5	6	7	8	9	10
Intestinal enterococci (cfu/100ml)	100	180	150	100	90	80	190	110	140	160
$\log_{10}$	2	2,26	2,18	2	1,95	1,9	2,28	2,04	2,15	2,2
$\mu$	2,1									
$\sigma$	0,13									
upper 90-percentile	antilog ( $\mu + 1,282\sigma$ ) = 186									
upper 95-percentile	antilog ( $\mu + 1,65\sigma$ ) = 204									

After comparing the resulting percentiles to the standards in Table 2 (for coastal waters), this leads to the classification "poor" for the bathing water in this example.

### 2.1.3 Algorithm for assessment of bathing water quality

Based on the assessment rules described in the previous sections, an algorithm for bathing water quality assessment is presented schematically in Figure 1. The resulting bathing water quality categories are presented with a colour code that can be used in the presentation of the results:

- excellent = dark blue,
- good = light blue,
- sufficient = green,
- poor = red,
- insufficiently sampled = orange,
- new = yellow,
- changes = brown.

Delisted bathing waters are presented with a purple colour, bathing waters that are closed for the entire season are indicated in grey.

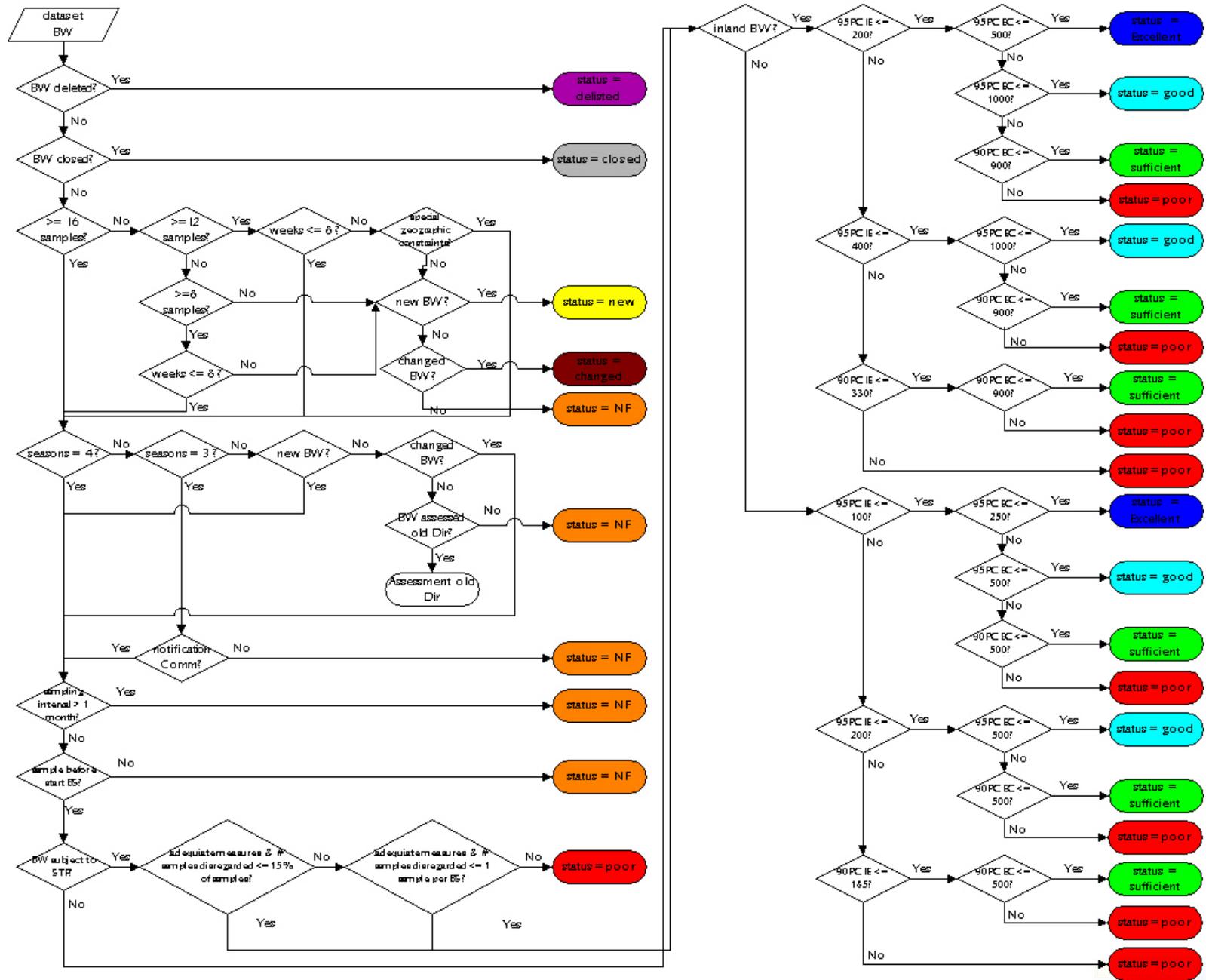


Figure 1: Algorithm for bathing water quality assessment under Directive 2006/7/EC

### 2.1.4 Assessment tool

Based on the assessment rules defined in this document, an IT assessment tool will be developed by EEA that can be used to assess bathing waters reported under Directive 2006/7/EC.

## 2.2 ASSESSMENT DURING TRANSITION PERIOD

### 2.2.1 What is the transition period?

For the assessment of bathing waters under Directive 2006/7/EC a sufficient data set for assessment must be compiled. This means:

- 16 samples (or 12 or 8; see higher),
- collected during four seasons (or less; see higher).

The “transition period” for bathing water assessment is the period when the necessary data set for assessment of bathing water quality under Directive 2006/7/EEC has not yet been compiled.

During this period, samples of Intestinal enterococci and Escherichia coli are reported but assessment is done according to the assessment rules of Directive 76/7/EEC, as described in Article 13.3 of the Directive “When monitoring of bathing waters has started under this Directive, annual reporting to the Commission 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 will no be taken into account in the annual report, and parameters 2 and 3 shall be assumed to be equivalent to parameters 2 and 1 of column A of Annex I to this Directive”.

In the example of Figure 2 this is illustrated for a case where the assessment is based on four seasons, with four samples taken per season. In this case reporting on Directive 2006/7/EC (parameters Intestinal enterococci and Escherichia coli) starts in 2012 and the first assessment under this Directive can be made in 2015. The first three years of reporting on Directive 2006/7/EC, the parameters IE and EC, after conversion (see further), are assessed according to the rules of Directive 76/160/EEC, as described in Article 13.3. This period is called the “transition period”.

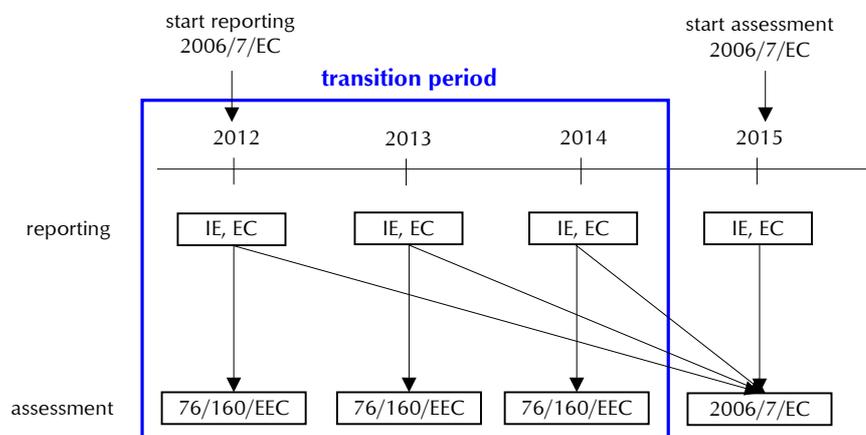


Figure 2: Scheme of reporting and assessment during “transition period”

### 2.2.2 Building up data sets for bathing water quality assessment

Assessment during the transition period is based on a set of bathing water quality data compiled in relation to one bathing season.

#### 2.2.2.1 Conversion of reported values

During the transition period, data are reported according to the requirements of Directive 2006/7/EC, but assessed according to the requirements of Directive 76/160/EC.

The assessment under Directive 76/160/EC is based on the analysis of pass/fail data for five parameters: total coliforms, faecal coliforms, mineral oils, surface-active substances and phenols. For Directive 2006/7/EC, however, monitoring values in cfu/100 ml are reported, and this for two other parameters: Intestinal enterococci and Escherichia coli. This means that two factors need to be converted:

1. parameters,
2. type of value.

The conversion can also be made in the other direction. A data set compiled during past seasons for reporting under Directive 76/160/EEC for parameters Faecal coliforms and Faecal streptococci can be used to build up the necessary data set of 16 samples for assessment under Directive 2006/7/EC (with Faecal coliforms assumed to be equivalent to Escherichia coli and Faecal streptococci assumed to be equivalent to Intestinal enterococci). However, in this case, the monitoring results (concentrations in cfu/100 ml) for parameters Faecal coliforms and Faecal streptococci for the necessary seasons need to be reported to the Commission.

#### 2.2.2.1.1 Parameter conversion

For the conversion of reported parameters, Article 13.3 of the Directive foresees that 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. This means that parameters Intestinal enterococci and Escherichia coli will be evaluated according the guide and mandatory standards defined in the Annex to Directive 76/160/EEC for parameters Faecal streptococci and Faecal coliforms respectively (see columns G and I in Table 4).

**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. Escherichia coli (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)

#### Note:

As can be seen in Table 4 there is no mandatory standard for parameter 3 Faecal streptococci. This means that only the parameter Faecal coliforms is taken into account for the evaluation of compliance of bathing water with mandatory standards. Evaluation of compliance with guide standards is based on both parameters.

#### 2.2.2.1.2 Value conversion

The data reported for the parameters Intestinal enterococci and Escherichia coli needs to be converted so that it can be assessed under the rules of Directive 76/160/EEC. Instead of comparing the percentiles of the reported values, the old BWD checks the percentage of samples that are exceeding the guide/mandatory standards. According Article 5.1 of Directive 76/160/EEC bathing water is conform to the relevant parameters if samples show that it conforms to the parametric values in the case of:

- 95% of the samples corresponding to those specified in column I of the annex;
- 90% of the samples in all other cases, with the exception of the Total coliforms and Faecal coliforms parameters where the percentage may be 80%.

As set out in the Commission Decision 95/337/EEC, Member States are reporting, for each parameter, “number of results exceeding the mandatory values” and “number of results exceeding the guide values”. The data reported in the parameter data file for reporting under Directive 76/160/EEC are presented in Table 5.

**Table 5: Parameter data file (Source: Commission Decision 95/337/EEC “VIII. Outline questionnaire for reporting on Directive 76/160/EEC”)**

Attribute name	Type width	Content
Numind	CHAR 18	access key
Annee	NUM 4	year
Parno	NUM 3	parameter number format: PPU code: PP = parameter number (1 -> 19) U = under-parameter code
Parnob	NUM 2	number of analyses for this parameter
Parnodi	NUM 2	number of results exceeding the mandatory values
Parnodvln	NUM 2	number of results exceeding the national limit values
Parnodg	NUM 2	number of results exceeding the guide values
Frequency	CHAR 1	frequency of measurements code : Y = at least fortnightly N = less than fortnightly
Rem	CHAR 80	free comments

In order to convert data reported for the new BWD (using the reporting sheets defined for Directive 2006/7/EC<sup>4</sup>) to the data needed for assessment under the old BWD, following attributes need to be calculated based on the reported values:

- number of samples taken for Escherichia coli (=Faecal coliforms) and Intestinal enterococci (=Faecal streptococci)
- number of samples exceeding the mandatory standard for Faecal coliforms (> 2000 cfu / 100 ml)
- number of samples exceeding the guide standard for Faecal coliforms and Faecal streptococci (> 100 cfu / 100 ml)

After converting the reported data for Directive 2006/7/EC to the parameters and values assessed under Directive 76/160/EEC, the bathing waters can be assessed under Directive 76/160/EC (using BWATER as assessment tool).

### 2.2.3 Algorithm for bathing water quality assessment under Directive 76/160/EEC

After parameters and values have been converted, bathing water quality is assessed using the algorithm developed for Directive 76/160/EC (Figure 3). However only parameters 2 Faecal coliforms and 3 Faecal streptococci are taken into account.

<sup>4</sup> See document “Reporting sheets for Directive 2006/7/EC”. Final draft of July.

**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 = "OOOOOOOOOOOOOOOOOOOO"
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 = "OOOOOOOOOOOOOOOOOOOO"
Do for each selected parameters
  If the parameter has an imperative limit ->
    sNbs = Number of sample for current parameter
    If inadequate frequency and Seasonyear < 1996 -> sNbs = 0
    If inadequate frequency and Seasonyear > 1995 -> sNbs = Shoudtaken
    if sNbs>0 -> If (ParNoDi / sNbs) > 0.05 or ParNoDi Missing -> Imp(Parameter) = "N"
  Endif
End Do

IGuide = "OOOOOOOOOOOOOOOOOOOO"
Do for each selected parameters
  Pguid = 0.10; If Parameters are CT or CF -> PGuid = 0.20
  If the parameter has an guide limit or hasn't an imperative limit ->
    If (ParNoDg / Nbs) > PGuid or ParNoDi Missing -> IGuide(Parameter) = "N"

```

```
        Endif
    End Do

    ImpValue=True if at least on of the selected parameter has an imperative limit

    If at least one imperative value is non conform ("N" ∃ in IImp) -> Status = 4
    If Insufficient frequency for at least one parameters ("N" ∃ in OkFreq) -> Status = 3
    If at least one guide value is non conform ("N" ∃ in IGuide) ->
        If ImpValue -> Status = 5 Else Status = 4
    Endif
Status = 1
```

**Figure 3: Algorithm for bathing water assessment during transition period (under Directive 76/160/EC) (Source: Bathing Water 6.0 manual<sup>5</sup>)**

#### 2.2.4 Assessment tool

After conversion of the data reported under the new BWD to the data assessed under the old BWD, the BWATER tool developed for the assessment of bathing water quality under Directive 76/160/EEC can be used for assessment of bathing water quality. The use of the tool for the assessment of bathing water quality is explained in a separate User manual<sup>6</sup>. When evaluating bathing water during the transition period of Directive 2006/7/EC, however, parameters 2 and 3 need to be selected in the UPDATE module when creating a new bathing season (instead of parameters 1, 2, 8, 9 and 10 as explained in the manual). This is explained in Annex 1 of this document.

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<sup>5</sup> To be downloaden from CIRCA on [http://circa.europa.eu/Public/irc/env/wfd/library?!=/framework\\_directive/bathing\\_directive/workshop\\_22102007/reporting\\_bwater/user\\_guide\\_enpdf/ EN\\_1.0\\_&a=d](http://circa.europa.eu/Public/irc/env/wfd/library?!=/framework_directive/bathing_directive/workshop_22102007/reporting_bwater/user_guide_enpdf/ EN_1.0_&a=d)

<sup>6</sup> To be downloaded from CIRCA on [http://circa.europa.eu/Public/irc/env/wfd/library?!=/framework\\_directive/bathing\\_directive/workshop\\_22102007/reporting\\_bwater/guidelines\\_2007pdf/ EN\\_1.0\\_&a=d](http://circa.europa.eu/Public/irc/env/wfd/library?!=/framework_directive/bathing_directive/workshop_22102007/reporting_bwater/guidelines_2007pdf/ EN_1.0_&a=d)

## ANNEXES

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Annexe 1: Using BWATER for assessment of bathing water quality during transition period: preparation of a new bathing season in UPDATE module

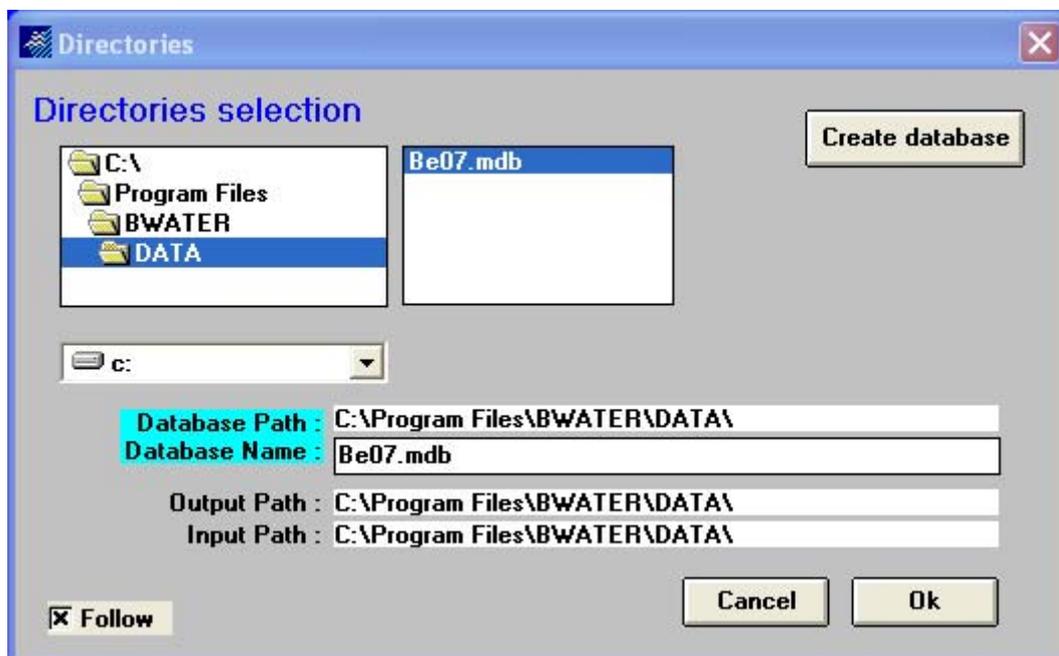
## ANNEXE 1 : USING BWATER FOR ASSESSMENT OF BATHING WATER QUALITY DURING TRANSITION PERIOD: PREPARATION OF A NEW BATHING SEASON IN UPDATE MODULE

The Bathing Water program is composed of two separate modules:

- BWATER is used to view, modify or analyse the data;
- UPDATE is used to update the database and to check ASCII files before updating the database.

Before data for a new bathing season can be entered in the database or assessed, the new bathing season has to be defined using the UPDATE module.

1. Start UPDATE 7.2.2 (Start > Programs > BWATER7.2.2 > UPDATE7.2.2).
2. Enter the password RAM
3. Select File > Open database to open the “Directories” window.

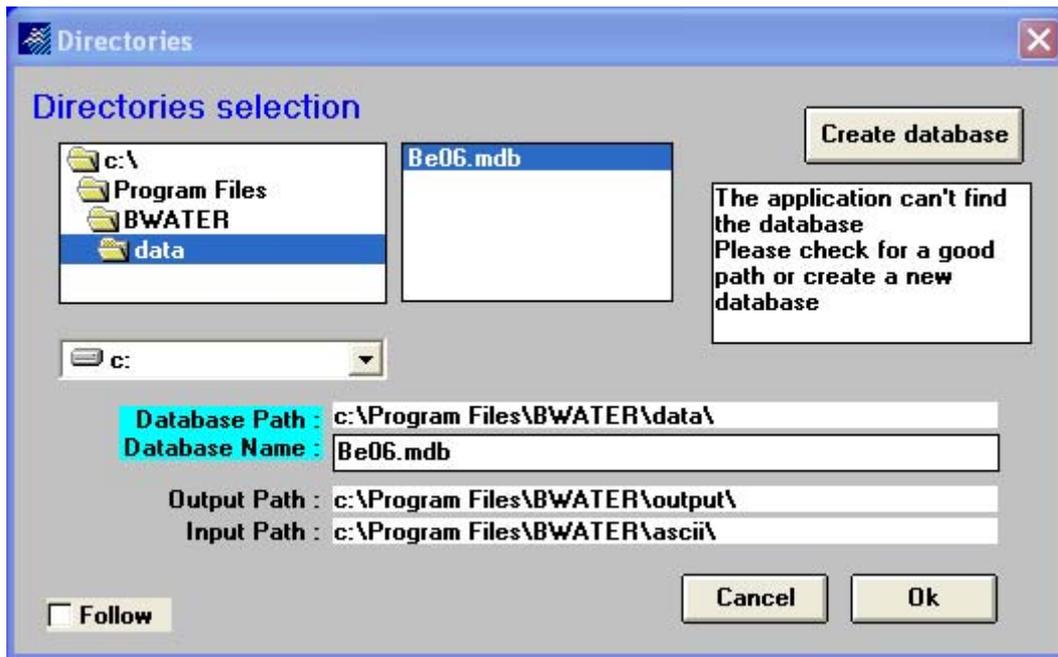


In this window, the user can define the locations for:

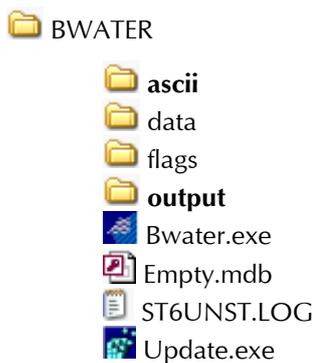
- the database,
- the input directory = the directory from which the program reads ASCII files,
- the output directory = the directory in which the program writes ASCII files.

The default database path is C:\Program Files\BWATER\data. The user can select a database at another location by selecting the drive, directory and file name.

The default directory for output and input is “data”. When the “follow” option is ticked off, the input and output directories can be changed. When the output path is double clicked, the path changes to the “output” directory. Double clicking the input path changes this to the “ascii” directory.



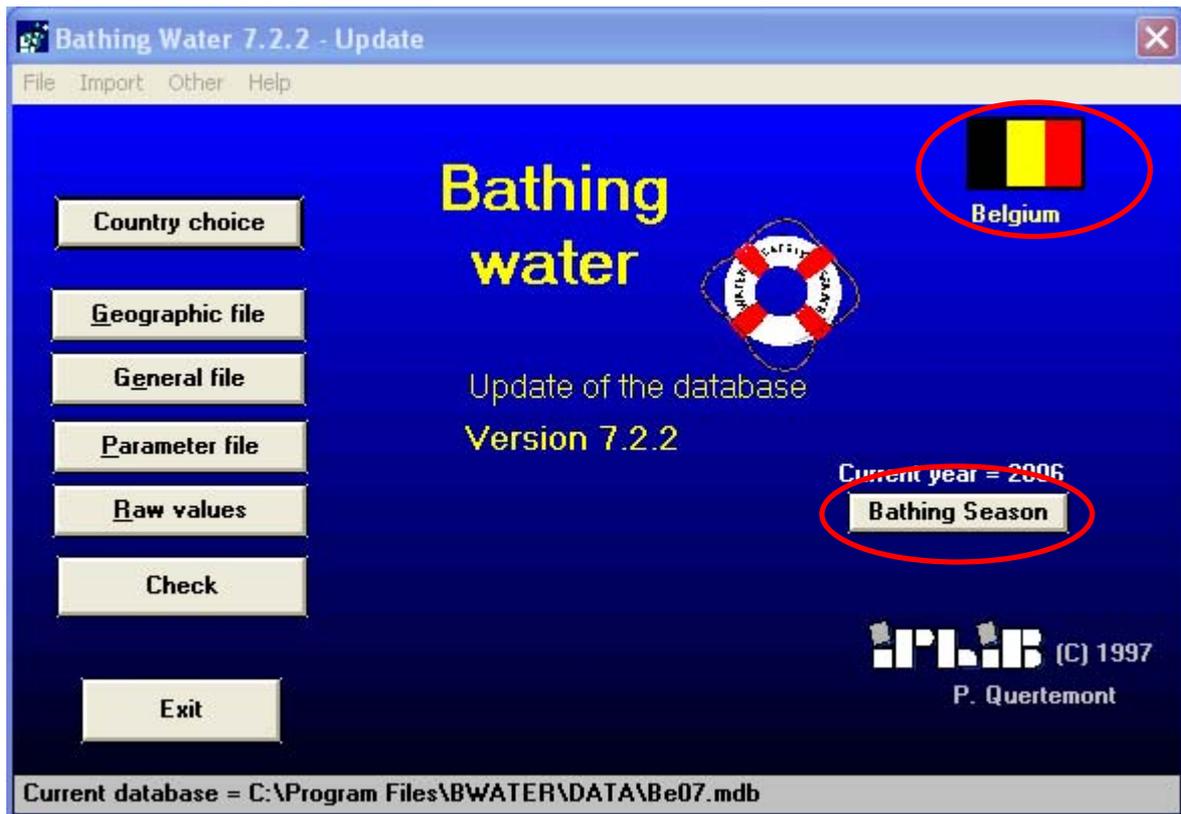
Both directories are added to the BWATER directory (see below).



Input and output path will follow the database path if the “follow” option is ticked.

4. In the Directories window, browse to the folder where your database is located (default = C:\Program Files\BWATER\data) and select the database (<cn>07.mdb).
5. Double-click on the selected database or click OK to open the database for the selected country

In the main window (see below) the flag in the right-hand corner above should indicate the country of the database chosen. The latest bathing season for which records are stored within the database is indicated above the Bathing Season button at the right (current year = 2006).



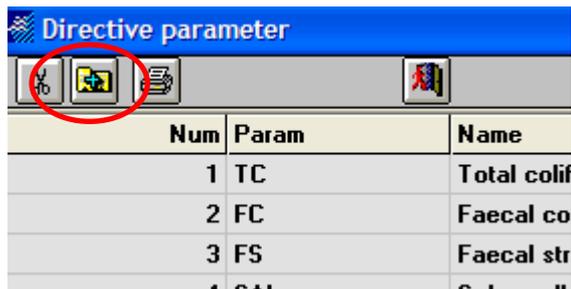
To be able to add bathing water quality data for a new season, the new season must first be added.

6. To add a bathing season for the year 2007 click the Bathing Season button.

7. In the next screen, click the button "Access to the directive" () to create a new bathing season.

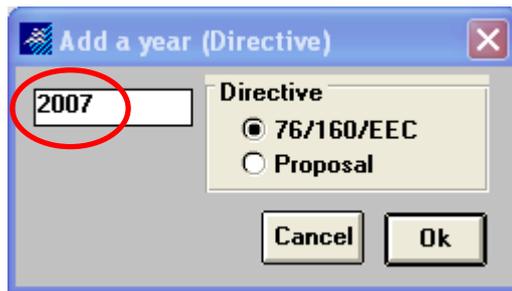


8. In the new screen click the  button to add new bathing season.



Num	Param	Name
1	TC	Total colif
2	FC	Faecal co
3	FS	Faecal str
4	SA	S. coli

9. In the next screen, the new bathing season is automatically filled in (2007). Choose "76/160/EEC" and click OK.



**Add a year (Directive)**

2007

Directive

76/160/EEC

Proposal

Cancel Ok

10. Exit the previous screen by clicking .

11. Now, click the third button "Access to recorded status" (.



**Define a new bathing season**

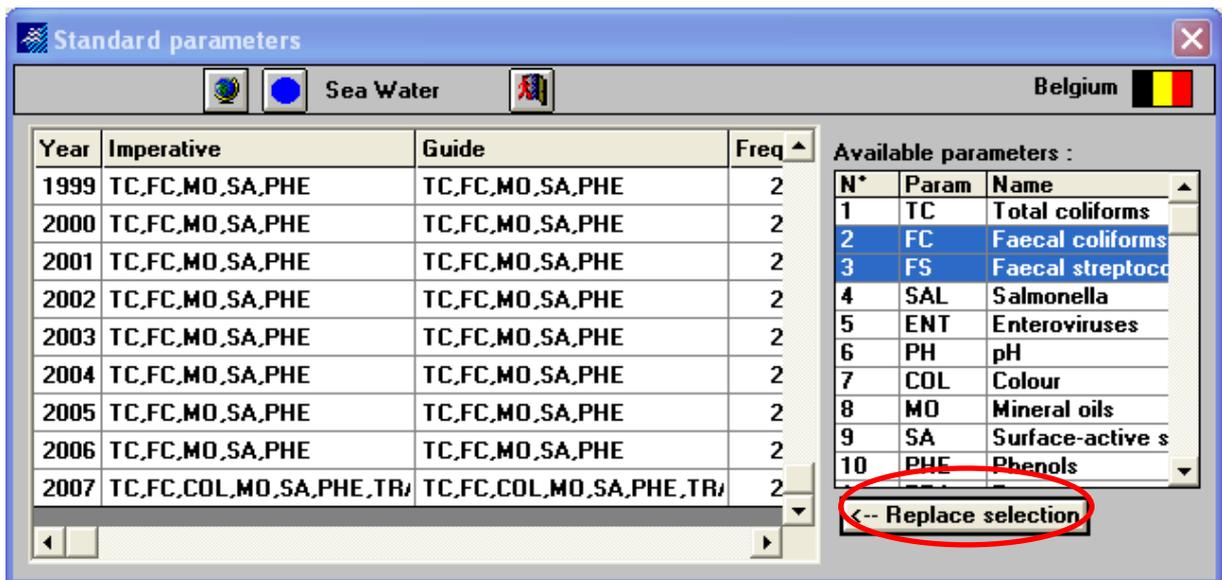
 **Access to the directive. Use this option to define a new bathing season.**

 **Access to general parameters. Use this option to view/modify the general parameters.**

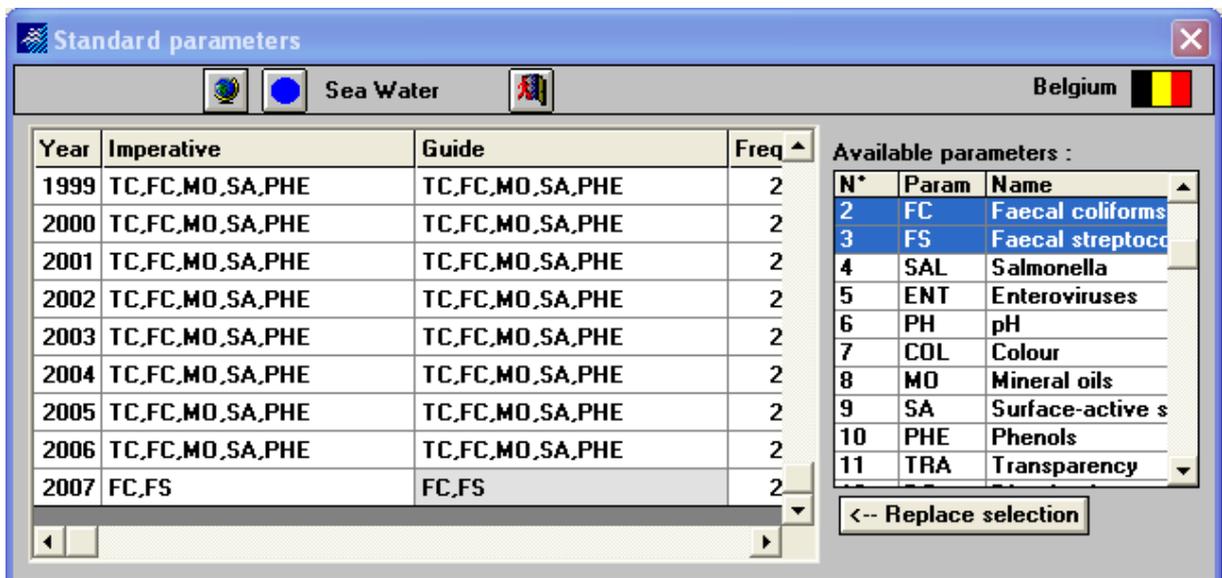
 **Access to recorded status. Use this option to select parameters for the newly created bathing season.**

Cancel

12. Enter the password: **SPA**.
13. In the table, go to the last row (2007), second column (Imperative). In the list of available parameters, indicate parameters 2 and 3. Then click "Replace Selection". The Imperative column of the year 2007 will be updated to reflect the parameters indicated. Now position your self in the third column (Guide) of row 2007 and do the same.



Both columns should now look as below.



14. Save the selection for Sea Water by clicking on the blue dot.
  15. Click yes. The database will be updated. This can take a few seconds up to minutes, depending on the size of the database.
  16. Repeat steps 13 to 15 for Fresh Water.
  17. Exit the previous two screens.
- The current bathing season is now 2007.
18. Exit UPDATE.
  19. In the screen "Do you really want to quit this application" select Yes.
- You have now added a new bathing season to the database and are ready to add or assess data.