

Bathing water results 2008 – Belgium

1. Introduction

This report gives a general overview of bathing water quality in Belgium during the 2008 bathing season.

Belgium reported 12 parameters under the Directive 76/160/EEC (1 Total coliforms, 2 Faecal coliforms, 3 Faecal streptococci, 4 Salmonella, 6 pH, 7 Colour, 8 Mineral oils, 9 Surface-active substances reacting with methylene blue, 10 Phenols (phenol indices), 11 Transparency, 12 Dissolved oxygen, 13 Tarry residues and floating materials).

The parameters to be taken into account for assessment according to the assessment rules of the Directive 76/160/EEC are microbiological (1 Total coliforms, 2 Faecal coliforms) and physico-chemical (8 Mineral oils, 9 Surface-active substances reacting with methylene blue, 10 Phenols (phenol indices)).

The bathing waters are classified in the following categories:

- Compliant with mandatory values of the Directive for the 5 parameters (class CI)
- Compliant with mandatory and more stringent guide values of the Directive for the 5 parameters (class CG)
- Not compliant with mandatory values of the Directive for the 5 parameters (class NC)
- Banned (temporarily closed) or closed throughout the season (class B)

2. Length of bathing season and number of bathing waters

The bathing season lasted about six months, from 26 or 27 March to 22 or 23 September 2008, for coastal bathing waters. The bathing season is shorter for freshwater bathing waters starting on 15 June and ending from 1 to 15 September 2008.

A total of 116 bathing waters were monitored in Belgium during the 2008 bathing season, of which 40 were coastal bathing waters and 76 freshwater bathing waters (26 on rivers; 50 on lakes).

With 116 bathing waters Belgium accounts for about 0.5% of the reported bathing waters of the European Union.

The evolution of the reported number of bathing waters since monitoring of the water quality began under the Directive 76/160/EEC is presented in Table 1. There was a significant increase in number of freshwater bathing waters from 50 freshwater bathing waters in 2001 to 76 in 2008. However, the number of freshwater bathing waters was lower than the highest reported numbers in the period 1992 - 1995 (85, 85, 86, 87 respectively). In 2008, one new freshwater bathing water was added to the list compared to the previous year. The number of coastal bathing waters remained stable. It started with 39 in 1990 and increased to 40 in 2005.

3. Results of bathing water quality

The results of the bathing water quality in Belgium for the period 1990-2007 as reported in 2008 report and for the bathing season of 2008 are presented in Figure 1.

The graphs show, for coastal and freshwater bathing waters separately:

- The percentage of bathing waters that comply with the guide values (class CG, blue line)
- The percentage of bathing waters that comply with the mandatory values (class CI, green line)
- The percentage of bathing waters that do not comply with the mandatory values (class NC, red line)
- The percentage of bathing waters that are banned (temporarily closed) or closed throughout the season (class B, grey line)

Table 1 and Table 2 show the same information in absolute numbers and in percentages separately for coastal and freshwater bathing waters. Table 3 shows the bathing water quality results for the 2008 season in Belgium for all bathing waters.

Map 1 shows the locations of the reported bathing waters in Belgium. The location of the bathing waters is based on the geographic coordinates reported by the Belgian authorities.

Figure 1: Results of bathing water quality in Belgium from 1990 to 2008

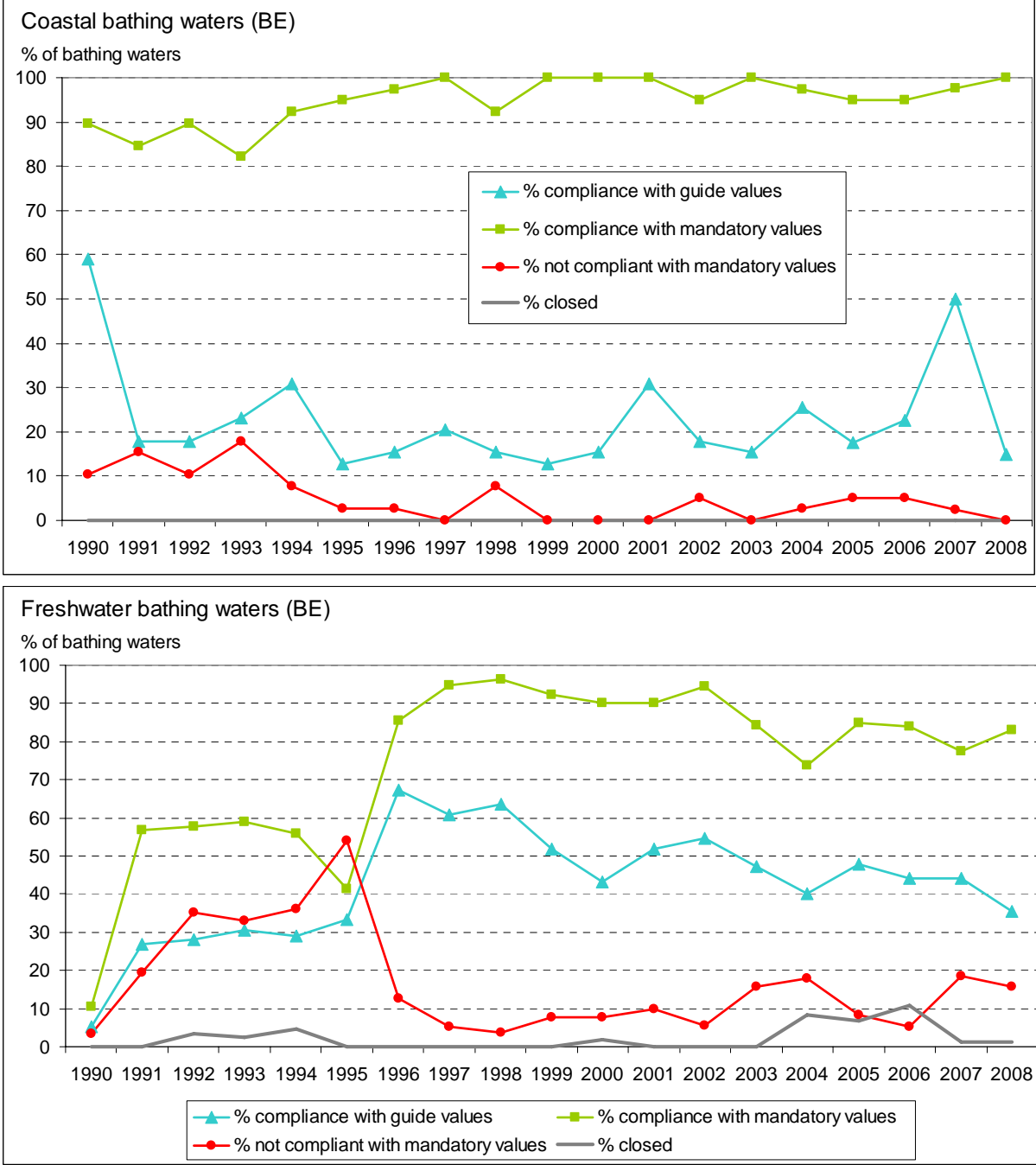


Table 1: Results of bathing water quality in Belgium from 1990 to 2008 as absolute numbers

		BE				
		Total number of bathing waters	Compliance with guide values	Compliance with mandatory values	Not compliant	Banned/closed throughout the season
Coastal bathing water	1990	39	23	35	4	0
	1991	39	7	33	6	0
	1992	39	7	35	4	0
	1993	39	9	32	7	0
	1994	39	12	36	3	0
	1995	39	5	37	1	0
	1996	39	6	38	1	0
	1997	39	8	39	0	0
	1998	39	6	36	3	0
	1999	39	5	39	0	0
	2000	39	6	39	0	0
	2001	39	12	39	0	0
	2002	39	7	37	2	0
	2003	39	6	39	0	0
	2004	39	10	38	1	0
	2005	40	7	38	2	0
	2006	40	9	38	2	0
	2007	40	20	39	1	0
2008	40	6	40	0	0	
Fresh water bathing water	1990	58	3	6	2	0
	1991	67	18	38	13	0
	1992	85	24	49	30	3
	1993	85	26	50	28	2
	1994	86	25	48	31	4
	1995	87	29	36	47	0
	1996	55	37	47	7	0
	1997	56	34	53	3	0
	1998	55	35	53	2	0
	1999	52	27	48	4	0
	2000	51	22	46	4	1
	2001	50	26	45	5	0
	2002	53	29	50	3	0
	2003	70	33	59	11	0
	2004	72	29	53	13	6
	2005	73	35	62	6	5
	2006	75	33	63	4	8
	2007	75	33	58	14	1
2008	76	27	63	12	1	

Note: Bathing waters which were insufficiently sampled or not sampled according to the Bathing Water Directive were not included in this table. Therefore, in some cases, the sum of the different categories will not be equal to the total number of bathing waters.

Table 2: Results of bathing water quality in Belgium from 1990 to 2008 as percentages

		BE				
		Total number of bathing waters	% compliance with guide values	% compliance with mandatory values	% not compliant	% banned/closed throughout the season
Coastal bathing water	1990	39	59.0	89.7	10.3	0.0
	1991	39	17.9	84.6	15.4	0.0
	1992	39	17.9	89.7	10.3	0.0
	1993	39	23.1	82.1	17.9	0.0
	1994	39	30.8	92.3	7.7	0.0
	1995	39	12.8	94.9	2.6	0.0
	1996	39	15.4	97.4	2.6	0.0
	1997	39	20.5	100.0	0.0	0.0
	1998	39	15.4	92.3	7.7	0.0
	1999	39	12.8	100.0	0.0	0.0
	2000	39	15.4	100.0	0.0	0.0
	2001	39	30.8	100.0	0.0	0.0
	2002	39	17.9	94.9	5.1	0.0
	2003	39	15.4	100.0	0.0	0.0
	2004	39	25.6	97.4	2.6	0.0
	2005	40	17.5	95.0	5.0	0.0
	2006	40	22.5	95.0	5.0	0.0
	2007	40	50.0	97.5	2.5	0.0
2008	40	15.0	100.0	0.0	0.0	
Fresh water bathing water	1990	58	5.2	10.3	3.4	0.0
	1991	67	26.9	56.7	19.4	0.0
	1992	85	28.2	57.6	35.3	3.5
	1993	85	30.6	58.8	32.9	2.4
	1994	86	29.1	55.8	36.0	4.7
	1995	87	33.3	41.4	54.0	0.0
	1996	55	67.3	85.5	12.7	0.0
	1997	56	60.7	94.6	5.4	0.0
	1998	55	63.6	96.4	3.6	0.0
	1999	52	51.9	92.3	7.7	0.0
	2000	51	43.1	90.2	7.8	2.0
	2001	50	52.0	90.0	10.0	0.0
	2002	53	54.7	94.3	5.7	0.0
	2003	70	47.1	84.3	15.7	0.0
	2004	72	40.3	73.6	18.1	8.3
	2005	73	47.9	84.9	8.2	6.8
	2006	75	44.0	84.0	5.3	10.7
	2007	75	44.0	77.3	18.7	1.3
2008	76	35.5	82.9	15.8	1.3	

Note: Bathing waters which were insufficiently sampled or not sampled according to the Bathing Water Directive are not included in this table. Therefore, in some cases, the sum of the percentages is not equal to 100%.

Table 3: Results of bathing water quality for all bathing waters in Belgium in 2008

		BE				
		Total number of bathing waters	Compliance with guide values	Compliance with mandatory values	Not compliant	Banned/closed throughout the season
Bathing Waters	2008	116	33	103	12	1

4. Development of bathing water quality

Coastal bathing waters

In Belgium, 100% of the coastal bathing waters (40) met the mandatory values in 2008. This is an increase compared to the previous year (+ 2.5%). The rate of compliance with the more stringent guide values, however, decreased significantly from 50% (20) to only 15% (6 bathing waters). The difference in the percentage of bathing waters that met the mandatory and more stringent guide values is very large (85%). Since the start of the reporting in 1990, no coastal bathing water had to be closed during the season.

In regard the mandatory values, an overall bathing water quality was fairly stable since 1995 with a small drop in 1998. The percentage of bathing waters that met the more stringent guide values, however, fluctuated significantly since the start of the reporting in 1990 from 12.8% in 1995 and 1999 to 59% in 1990.

Freshwater bathing waters

The mandatory values were met for 82.9% of the freshwater bathing waters (63) in 2008. This is an increase compared to the previous year (+ 5.6%). The rate of compliance with the guide values was 35.5% after a decrease by 8.5% (27 bathing waters). The percentage of the bathing waters that met the mandatory values is much larger than for the more stringent guide values (+ 47.4%). The percentage of non-compliant bathing waters decreased from 18.7% (14) to 15.8% (12 bathing waters). One freshwater bathing water was closed for the entire season in 2008.

From 1990 on, measures were taken to improve the inland water quality of rivers and lakes to improve the overall water quality. From 1997 till 2002, the percentage of freshwater bathing waters that met the mandatory water quality reached more than 90%. Since 2003, when 17 and later more than 20 freshwater bathing waters have been reported than in 2002, both the compliance with the mandatory values and the more stringent guide values decreased. This decrease is reflected into an increase of the number of the bathing waters being closed throughout the season (see Table 1). In 2007 and 2008 only one bathing water was closed.

5. General information as provided by the Belgian authorities

Flemish region

In the Flemish region, the monitoring program in 2008 bathing season was carried out in 40 coastal and 40 freshwater bathing waters. 39 coastal bathing waters are defined in the Royal Decree of 30.07.87 (BS 12.09.1987). One bathing water in Ostend was added in 2005. The season run from 1st of April to 30th of September for the coastal bathing waters. The average number of samples in this period was 42.2 for the 2008 season. The sampling period for freshwater bathing waters run from the beginning of May until mid September. The average number of samples during this period was 20.1.

The samples in the 2008 season were carried out by the Department of Water Reporting of the

Flemish Environment Agency on behalf of and in cooperation with the Inspection Department of the National Health and Care Agency of the Flemish government.

Information to public

For the VMM and the Inspection Department of the National Health and Care Agency of the Flemish government, it is important that the public is being informed about the quality of the bathing water. At the coast, the quality is quoted on a board near the miradors. The quality of the bathing water is represented by means of coloured smiling, sad and neutral faces. Such a system allows also children to understand in an easy way what the quality of the coastal bathing water is. The measurements are continually available on the internet site of the VMM for all interested people and the press. The VMM gives at the managers of permitted freshwater recreation lakes an information pole. On this pole, the most recent measurements are posted. On the beach, leaflets in different languages are being distributed. These leaflets inform the swimmer about the checking of the bathing water quality. There is also an explanation about where the swimmer can obtain the most recent analyst's results.

Water quality improvement

Due to strong efforts in the past, the purification infrastructure along the coast is fully realized. In the coming years, a limited number of smaller projects will be implemented on the coastal area with positive impact on the quality of bathing water. It concerns the construction of separate sewage systems, renovation and optimization projects, decoupling projects (uncoupling of surface and rainwater, uncoupling of collectors).

The execution of the investment projects does not affect the quality of the investigated open bathing and recreational ponds, since they do not communicate with the public hydrographic network.

Walloon region

In the Walloon region, 36 bathing areas were monitored during the 2008 bathing season.

Only the bathing water of Coe (524300020000000F18) required a permanent ban for the entire season because of non-compliance. As the collection of wastewater is now completed, the waste water treatment plant is scheduled for July 2009. In addition, 12 more bathing waters failed to meet the mandatory standards of the Directive 76/160/EEC. They are classified as non – compliant bathing waters.

Analytical methods

The Total and Faecal coliforms are analyzed by the method of membrane filtration ISO 9308-1. For *Escherichia coli*, the microplate method ISO 9308-3 is applicable. Intestinal enterococci are analyzed by the microplate method ISO 7899-1. Mineral oils, surface active substances and phenols are the subject of an observation on the ground.

Information to public

Informing the public has largely been geared towards encouraging the use of our website: aquabact.environnement.wallonie.be by the agencies promoting tourism and by administrative institutions.

Our website has been updated before the 2008 season, to take into the account of the legislation after the transposition of Directive 2006/7/EC into the law of the Walloon region. We envision a new adaptation of the website in early 2009. This update will include the translation of a part of the site in English, Dutch and German, providing clearer information about the bathing ban, and better options for visualizing bathing areas on the interactive map.

At the beginning of the 2008 season, information boards have been placed for the swimmers in each bathing area. The content of the panels was written in four languages. These display panels including the permission or prohibition of swimming, a general description of the bathing area, a map of the region, the link to the website of the management of bathing water in the Walloon region, the

emergency numbers, the reasons for the possible prohibition of swimming, the reasons for a possible downgrading of the area, information on short-term pollution, information on the nature and duration of abnormal situations during such events.

Water quality improvement

During 2008, the Walloon Region has continued to implement a comprehensive wastewater treatment programme in the collective and autonomous area to improve and maintain the bacteriological quality of bathing water: 3 new wastewater treatment plants have been installed and 3 collecting drains have been finalized in areas upstream of bathing areas.

All areas of sanitation in protected areas upstream of bathing areas have been identified as priorities, resulting in the requirement of purification. Since the 2006 season, nearly 100% of the campsites have been equipped with treatment of their wastewater.

In 2008, the Walloon Region has continued its communication with farmers about the need to fence off riverbanks in meadows in the upstream protection area. Actions in this direction will be provided in 2009.

Sampling results in 2008 bathing season confirmed the vulnerability of the majority of river bathing areas against the rainfall. Several rainfalls have impacted the quality of bathing areas during the 2008 bathing season. The Administration has appealed to the Royal Meteorological Institute of Belgium (RMI) to determine the exceptional nature of these rainfalls. This study has allowed us to identify any sample taken during an episode of abnormal rainfall and replaced by another sample survey in the days following the end of the abnormal rainy episode. We also plan to guide our work on the causes of bacteria in the rainfall regime. The unpredictable nature and limits in the time of rainy episodes, leads us to revise our methods of management to focus on procedures and predictive tools for preventing bathers.

Finally, the Walloon Region is working actively in a national project aimed at developing techniques for analyzing toxins in cyanobacteria and validation of predictive models (statistical and deterministic) of algal bloom development (BBLOOMS2 project).

Monitoring of cyanobacteria

A visual observation of the importance of algal blooms in bathing areas like lake is conducted twice a month. When the bloom covers more than half of the area, a sample of water is executed and identification of families of algae is achieved. If the presence of cyanobacteria is confirmed, the sample is analyzed to identify the species present and the dosage of any toxins. This procedure is not yet standardized and is likely to be modified due to the research findings of BBLOOMS2 project.

The presence of cyanobacteria was observed on 7 July at Lake Bambois (527200005000000104). Another algal bloom was observed on 22nd July at the beach Renipont (522400022000000B04). In this case, microscopy showed a majority of green algae and some cyanobacteria.

6. More information on bathing water quality in the European Union

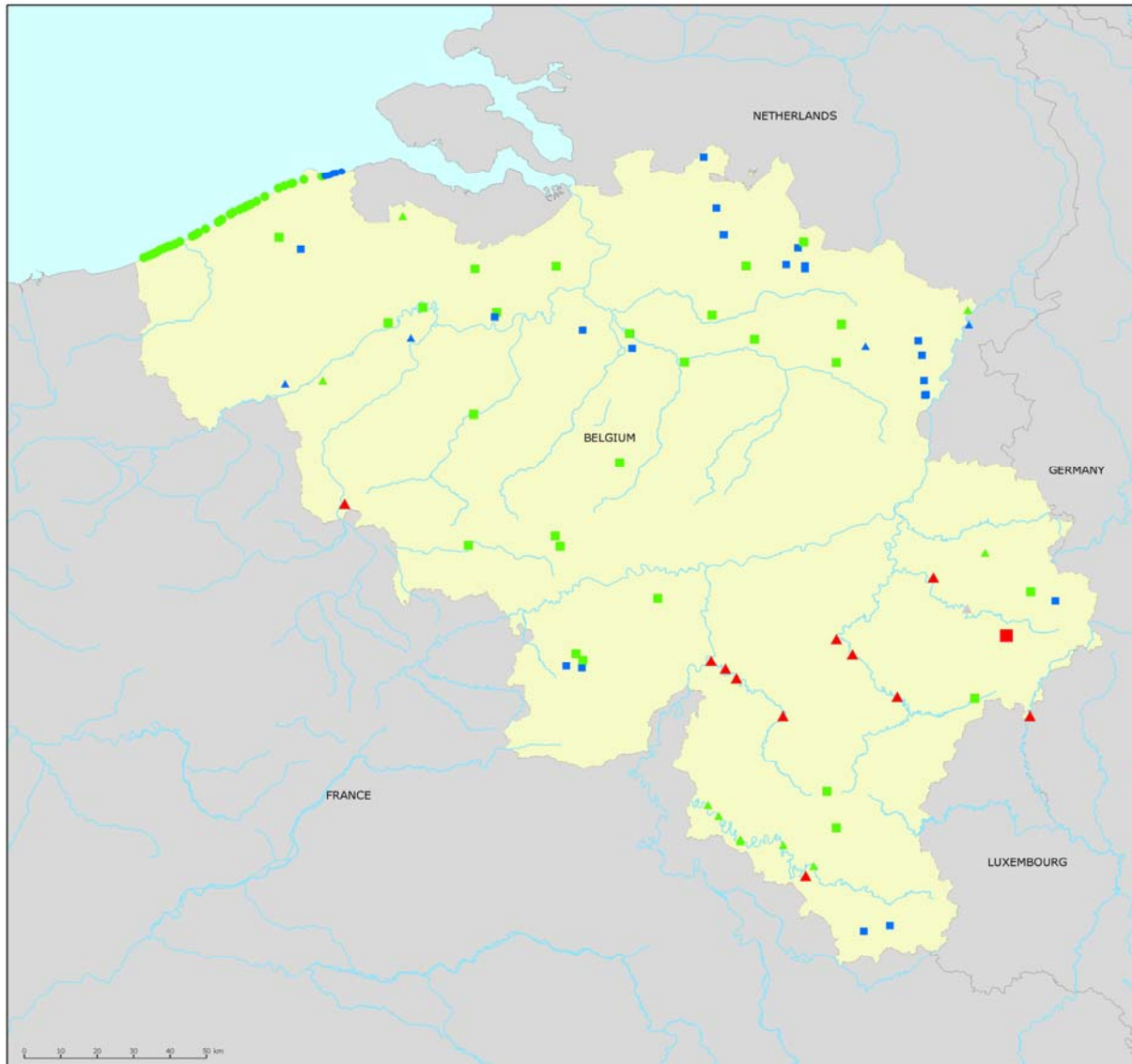
More information on bathing water quality in the European Member States, including the reports for 27 Member States and the EU summary report, can be found on the bathing water quality website (http://ec.europa.eu/environment/water/water-bathing/index_en.html).

By 2015, Member States will have to comply with the stricter and more ambitious requirements laid out in the new Bathing Water Directive (Directive 2006/7/EC). This Directive requires more effective monitoring and management of bathing waters, greater public participation and improved information. More information on the new Directive can be found on the bathing water quality website and on <http://eurlex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2006:064:0037:0051:EN:PDF>.

Cyprus, Denmark, Estonia, Finland, Germany, Hungary, Latvia, Lithuania, Slovakia, Spain and Sweden started to report according to more stringent new requirements in 2008 bathing season, while Luxembourg already started in 2007 bathing season.

WISE - Water Information System for Europe (www.water.europa.eu) is a gateway to all water related information. Among other water related data, information on individual bathing water quality can be found in the WISE Map viewer and WISE Data viewer through interactive maps and graphs (<http://www.eea.europa.eu/themes/water/status-and-monitoring/state-of-bathing-water>).

Map 1: Bathing waters reported during the 2008 bathing season in Belgium



Bathing water quality			
Bathing waters on rivers	Bathing waters on lakes	Coastal/transitional bathing waters	
▲ Compliant with guide values	■ Compliant with guide values	● Compliant with guide values	□ No data
▲ Compliant with mandatory values	■ Compliant with mandatory values	● Compliant with mandatory values	■ Outside data coverage (data available, not presented on the map)
▲ Closed*	■ Closed*	● Closed*	
▲ Insufficiently sampled or not sampled	■ Insufficiently sampled or not sampled	● Insufficiently sampled or not sampled	
▲ Not compliant with mandatory values	■ Not compliant with mandatory values	● Not compliant with mandatory values	

Note: * banned (temporarily closed) or closed throughout the season
 More data on bathing water quality on: <http://www.eea.europa.eu/themes/water/mapviewers/bathing>
Source: National boundaries: GISCO
 Large rivers and lakes: ESA, WFD Article 3
 Bathing waters data and coordinates: Belgian authorities