

Bathing water results 2010 – Denmark

1. Introduction

This report gives a general overview of bathing water quality in Denmark during the 2010 bathing season. Denmark reported under the Directive 2006/7/EC from 2008 bathing season on.

Before the necessary data set for assessment of bathing water quality under the Directive 2006/7/EC is compiled (data for three or four consecutive years) the rules for transition period assessment is done. This means that the classification of bathing waters is defined on the basis of concentrations of intestinal enterococci and *Escherichia coli* that are reported under the Directive 2006/7/EC. The limit values for the classification are taken from the Directive 76/160/EEC. For the conversion of reported parameters under the Directive 2006/7/EC, Article 13.3 of the Directive 2006/7/EC foresees that the parameter *Escherichia coli*, reported under the Directive 2006/7/EC, is assumed to be equivalent to the parameter faecal coliforms of the Directive 76/160/EEC. The parameter intestinal enterococci reported under the Directive 2006/7/EC is assumed to be equivalent to the parameter faecal streptococci.

The results are classified in the following categories:

- Compliant with the mandatory value of the Directive 76/160/EEC for *Escherichia coli* and not compliant with the guide values of the Directive 76/160/EEC for *Escherichia coli* or intestinal enterococci (class CI);
- Compliant with the mandatory value of the Directive 76/160/EEC for *Escherichia coli* and the more stringent guide values for the *Escherichia coli* and intestinal enterococci (class CG);
- Not compliant with the mandatory value of the Directive 76/160/EEC for *Escherichia coli* (class NC);
- Banned or closed (temporarily or throughout the season) (class B).

The frequency of sampling is set out in Annex IV of the Directive 2006/7/EC. 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, only three samples are sufficient when the bathing season does not exceed eight weeks or the region is subject to special geographical constraints. Sampling dates are to be distributed throughout the bathing season, with the interval between sampling dates never exceeding one month.

2. Length of bathing season and number of bathing waters

For all bathing waters the bathing season lasted free months, from 1 June to 1 September 2010.

A total of 1 169 bathing waters were monitored in Denmark during the 2010 bathing season, of which 1 054 were coastal bathing waters and 115 freshwater bathing waters on lakes.

With 1 169 bathing waters Denmark accounts for about 5.5% 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 and the Directive 2006/7/EC is presented in Table 1. The number of coastal bathing waters decreased since the start of the reporting from 1 189 in 1991 to 1 087 in 2009 and decreased to 1 054 bathing waters in 2010. In 2010, 13 new bathing waters were added to the list, one was re-opened and 47 were de-listed. The number of freshwater bathing waters remained rather stable since the start of the reporting. It fluctuated from 108 in 1993 to 117 in 1991 and 2009. There were two less freshwater bathing waters in 2010 than in the previous year: four new bathing waters were added to the list and six were de-listed.

3. Results of bathing water quality

The results of the bathing water quality in Denmark for the period 1991-2009 as reported in the past reporting years and for the bathing season of 2010 are presented in Figure 1. The previous reports are available on the European Commission's bathing water quality website (http://ec.europa.eu/environment/water/water-bathing/index_en.html; Water and Health/Bathing Water/2005-2010 reports) and the European Environment Agency's bathing water website (<http://www.eea.europa.eu/themes/water/status-and-monitoring/state-of-bathing-water>; reports for 2008 and 2009 bathing season).

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 or closed (temporarily or throughout the season) (class B, grey line).

Table 1 shows the same information in absolute numbers and in percentages separately for coastal and freshwater bathing waters. Table 2 shows the bathing water quality results for 2010 season in Denmark for all bathing waters.

Map 1 shows the location of the reported bathing waters in Denmark. The location of the bathing waters is based on the geographic coordinates reported by the Danish authorities.

Figure 1: Results of bathing water quality in Denmark from 1991 to 2010

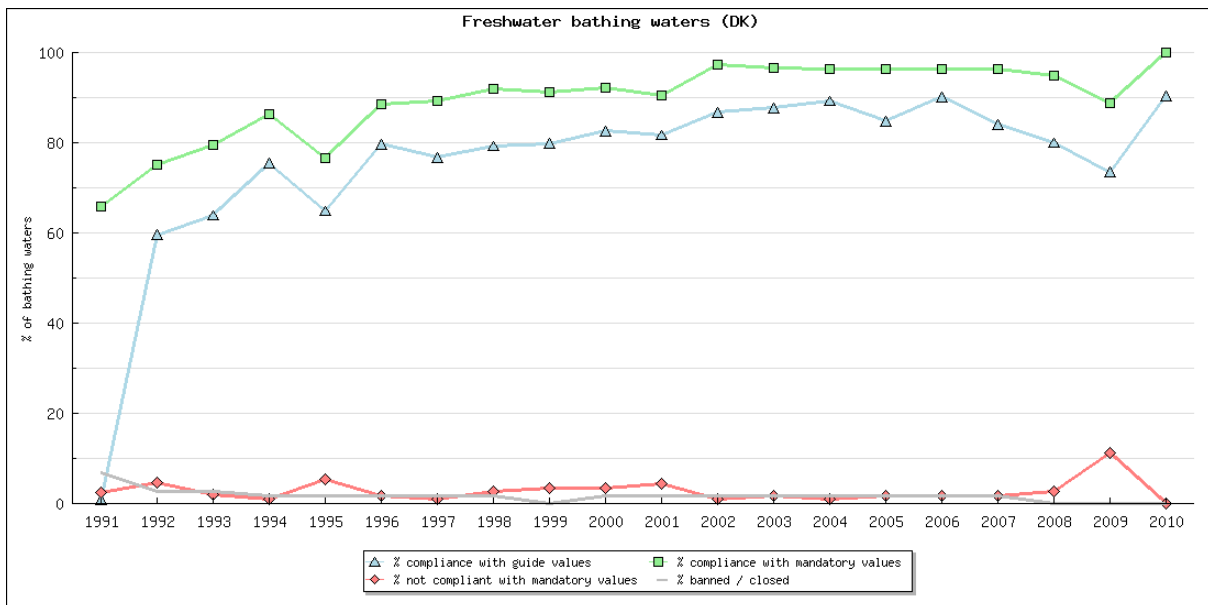
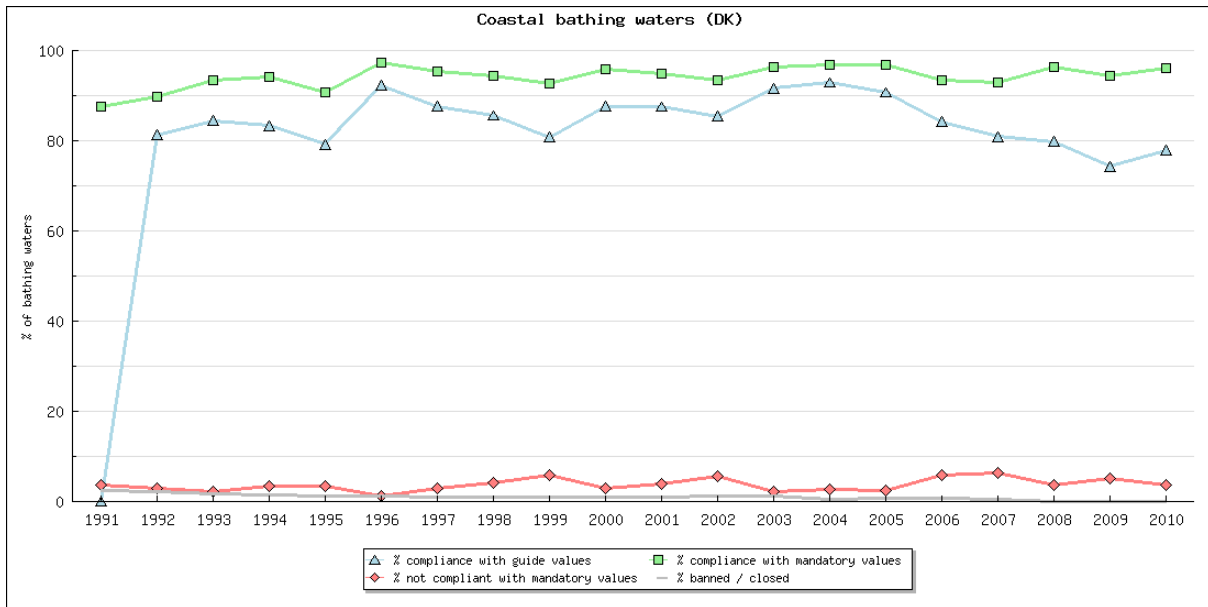


Table 1: Results of bathing water quality in Denmark from 1991 to 2010

		DK								
		Total number of bathing waters	Compliance with guide values		Compliance with mandatory values		Not compliant		Banned/closed temporarily or throughout the season	
			Number	%	Number	%	Number	%	Number	%
Coastal bathing waters	1991	1189	0	0.0	1042	87.6	44	3.7	29	2.4
	1992	1172	953	81.3	1051	89.7	33	2.8	27	2.3
	1993	1179	996	84.5	1100	93.3	25	2.1	20	1.7
	1994	1189	991	83.3	1120	94.2	40	3.4	17	1.4
	1995	1187	940	79.2	1078	90.8	40	3.4	15	1.3
	1996	1195	1103	92.3	1162	97.2	15	1.3	14	1.2
	1997	1194	1046	87.6	1140	95.5	35	2.9	13	1.1
	1998	1194	1022	85.6	1126	94.3	49	4.1	12	1.0
	1999	1176	950	80.8	1090	92.7	70	6.0	11	0.9
	2000	1161	1018	87.7	1112	95.8	33	2.8	11	0.9
	2001	1159	1015	87.6	1101	95.0	46	4.0	12	1.0
	2002	1154	986	85.4	1077	93.3	64	5.5	13	1.1
	2003	1141	1045	91.6	1100	96.4	26	2.3	14	1.2
	2004	1136	1056	93.0	1100	96.8	30	2.6	6	0.5
	2005	1145	1039	90.7	1109	96.9	27	2.4	8	0.7
	2006	1146	965	84.2	1071	93.5	67	5.8	8	0.7
	2007	1158	937	80.9	1076	92.9	73	6.3	6	0.5
	2008	1145	914	79.8	1104	96.4	41	3.6	0	0.0
	2009	1087	808	74.3	1027	94.5	55	5.1	0	0.0
	2010	1054	814	77.2	1003	95.2	39	3.7	0	0.0
Freshwater bathing waters	1991	117	1	0.9	77	65.8	3	2.6	8	6.8
	1992	109	65	59.6	82	75.2	5	4.6	3	2.8
	1993	108	69	63.9	86	79.6	2	1.9	3	2.8
	1994	110	83	75.5	95	86.4	1	0.9	2	1.8
	1995	111	72	64.9	85	76.6	6	5.4	2	1.8
	1996	113	90	79.6	100	88.5	2	1.8	2	1.8
	1997	112	86	76.8	100	89.3	1	0.9	2	1.8
	1998	111	88	79.3	102	91.9	3	2.7	2	1.8
	1999	114	91	79.8	104	91.2	4	3.5	0	0.0
	2000	115	95	82.6	106	92.2	4	3.5	2	1.7
	2001	115	94	81.7	104	90.4	5	4.3	2	1.7
	2002	113	98	86.7	110	97.3	1	0.9	2	1.8
	2003	114	100	87.7	110	96.5	2	1.8	2	1.8
	2004	112	100	89.3	108	96.4	1	0.9	2	1.8
	2005	112	95	84.8	108	96.4	2	1.8	2	1.8
	2006	112	101	90.2	108	96.4	2	1.8	2	1.8
	2007	113	95	84.1	109	96.5	2	1.8	2	1.8
2008	115	92	80.0	109	94.8	3	2.6	0	0.0	
2009	117	86	73.5	104	88.9	13	11.1	0	0.0	
2010	115	104	90.4	115	100.0	0	0.0	0	0.0	

Note: Bathing waters which were insufficiently sampled or not sampled according to the Bathing Water Directive or the New 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. Bathing waters which were compliant with the guide values were also compliant with the mandatory values for five parameters under the Directive 76/160/EEC (1991-2007) or the mandatory value for *Escherichia coli* (2008-2010).

Table 2: Results of bathing water quality for all bathing waters in Denmark in 2010

DK										
		Total number of bathing waters	Compliance with guide values		Compliance with mandatory value for <i>Escherichia coli</i>		Not compliant		Banned/closed temporarily or throughout the season	
			Number	%	Number	%	Number	%	Number	%
Bathing waters	2010	1169	918	78.5	1118	95.6	39	3.3	0	0.0

Note: Bathing waters which were compliant with the guide values were also compliant with the mandatory value for *Escherichia coli*.

4. Development of bathing water quality

To be added when the final results of bathing water classification will be known.

5. General information as provided by the Danish authorities

Please correct/update general information for the 2009 season with general information for the 2010 season: use track changes or add a new text. This information may include:

- monitoring including analytical methods;
- banned/closed bathing waters with reasons for closing and length of temporal ban/closure;
- de-listed bathing waters with reasons for de-listing;
- short term pollution and abnormal situations (reasons and actions);
- public participation in regard to the lists of bathing waters;
- information to public;
- actions and long-term measures;
- other issues.

The bathing water season in Denmark runs from 1 June to 1 September. Sampling generally starts one month before the start of the bathing season. Samplings for the evaluation of the bathing water are taken at places that are normally used for bathing, including areas, which are reserved specifically for bathing in accordance with regional and local planning. Moreover, samples must to the extent required be taken to demarcate known pollution sources, e.g. harbours, sewage discharges and mouth of rivers.

The analytical methods used in Denmark:

Escherichia coli: DS/EN ISO 9308-1 or DS/EN ISO 9308-3

Intestinal enterococci: DS/EN ISO 7899-2 or DS/EN ISO 7899-1

De-listing of bathing waters (to be added as reported)

Bans

Waste water treatment

In 1987 the Danish Parliament agreed on an Action plan for the aquatic environment. For wastewater treatment plants, tertiary treatment was demanded for all plants bigger than 5 000 person equivalents (PE). The extension of the treatment plants to tertiary treatment was finalized in 1995. Today all treatment plants above 5 000 PE have tertiary treatment and the discharge from these plants has no impact on the bathing water quality. Industrial discharges are mainly connected to the public tertiary wastewater treatment plants and only a minor number of industries have a direct discharge to the aquatic environment. The few direct discharges of treated industrial wastewater have no impact on the bathing water quality.

In 1997 a national plan for improvement of untreated discharge of waste water from scattered settlement was agreed. In 2004 it was estimated that 90 000 estates/household should have improved treatment. Of these around 15-20 000 have been improved. It is expected that 90 000 of the households in the countryside that are not connected to public wastewater treatment will have to improve the wastewater treatment facilities. This action plan will in the near future contribute to improvements of the general water quality in rivers, lake and coastal waters and thereby also contribute to improvements of the bathing water quality.

Information to the public

At the home page of the Danish Nature Agency, www.naturstyrelsen.dk the public can find general information about bathing water. Most of the local authorities in Denmark have a home page with bathing water information.

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

More information on bathing water quality in the European Member States, including the EU summary report, the reports for 27 Member States, Croatia and Switzerland, can be found on the European Commission's bathing water quality website (http://ec.europa.eu/environment/water/water-bathing/index_en.html) and the European Environment Agency's bathing water website (<http://www.eea.europa.eu/themes/water/status-and-monitoring/state-of-bathing-water>). The reports for the bathing seasons of 2008 and 2009 have been produced by the Institute for Water of the Republic of Slovenia (IWRS), a partner in the EEA European Topic Centre on Water (ETC/W). Countries have collaborated in the assessment of bathing water quality and supplied additional information when needed.

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>.

By the 2010 bathing season, 21 countries were monitoring and reporting under the New Bathing Water Directive. Luxembourg was the first country to report under this Directive starting from the 2007 bathing season. Cyprus, Denmark, Estonia, Finland, Germany, Hungary, Latvia, Lithuania, Slovakia, Spain and Sweden started to report according to the New Bathing Water Directive's more stringent requirements in the 2008 bathing season. Malta and the Netherlands changed their reporting from the 2009 bathing season, while Austria, Belgium - Walloon region, France, Greece, Italy, Portugal and Slovenia did so from the 2010 bathing season. Some countries monitored under the New Bathing Water Directive before reporting the results. These are Sweden (2005 bathing season), Luxembourg and Malta (2006 bathing season), Greece, Hungary and Portugal (2007 bathing season), France (2009 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 Bathing Water Quality 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 2010 bathing season in Denmark
TO BE ADDED LATER

Please do coordinate check in Google Earth. First step: go do database and go to the column "Coordinates check" and click on the link for "fresh"/"coastal".