European Environment Agency

Bathing water results 2009 – Switzerland

1. Introduction

This report gives a general overview of bathing water quality in Switzerland during the 2009 bathing season. Switzerland reported values for two parameters as defined by the Directive 2006/7/EC.

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).

This year the interval between two samples during the bathing season should not be larger than 41 days. The interval is longer than 31 days as defined in the Directive 2006/7/EC, since we are approaching the year 2012 only when the assessment rules will be in full compliance with the rules of this Directive. Furthermore, the first sample that should be taken shortly before the start of the bathing season could be taken even 10 days after the start of the bathing season.

Switzerland reported 382 bathing waters for 13 cantons. *Escherichia coli* was reported for all bathing waters, while intestinal enterococci was reported for 107 bathing waters in three cantons (Jura, Schaffhausen and Ticino).

The overall quality assessment for Switzerland is done using limit values of *Escherichia coli* since only 22% of reported bathing waters (84; canton Ticino) satisfied the transition period assessment rules (both parameters, frequency criteria). For each bathing water, the maximum concentration of reported samples for *Escherichia coli* is used.

The results are classified in the following categories:

- Compliant with the mandatory value of the Directive 76/160/EEC for *Escherichia coli* (class CI);
- Compliant with the mandatory value of the Directive 76/160/EEC for *Escherichia coli* and the more stringent guide value for the *Escherichia coli* (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).

2. Length of bathing season and number of bathing waters

The season duration is only rarely assessed by the cantonal authorities, as it varies from year to year, depending much on local weather conditions. Only two cantons, Ticino and Vaud, reported precise season durations for 2009. In Ticino, the bathing season lasted two months, from 3 June to 6 August 2009, for most bathing waters. For the eight remaining bathing waters, it is assumed to last 2.5

months, from 15 June to 31 August. In Vaud, the bathing season lasted four months, from 15 May to 15 September 2009. For the remaining cantons, the indication is a broad approximation which will be verified in the coming season. Based on this approximative indication, the bathing season in most reported cantons is assumed to start in June and end in September 2009. In two cantos (Glarus and Graubünden) the season start is one month later.

A total of 382 freshwater bathing waters were monitored in Switzerland during the 2009 bathing season (69 on rivers; 313 on lakes). This is the first time that the Swiss authorities report about the bathing water quality in an international context.

3. Results of bathing water quality

The results of the bathing water quality in Switzerland for the bathing season of 2009 are presented in Figure 1.

The graph shows the classification under assessment using limit values for *Escherichia coli* for freshwater bathing waters (left bars):

- The percentage of bathing waters that comply with the guide value for *Escherichia coli* (class CG, blue bar);
- The percentage of bathing waters that comply with the mandatory value for *Escherichia coli* (class CI, green bar);
- The percentage of bathing waters that do not comply with the mandatory value for *Escherichia coli* (class NC, red bar);
- The percentage of bathing waters that are banned or closed (temporarily or throughout the season) (class B, grey bar).

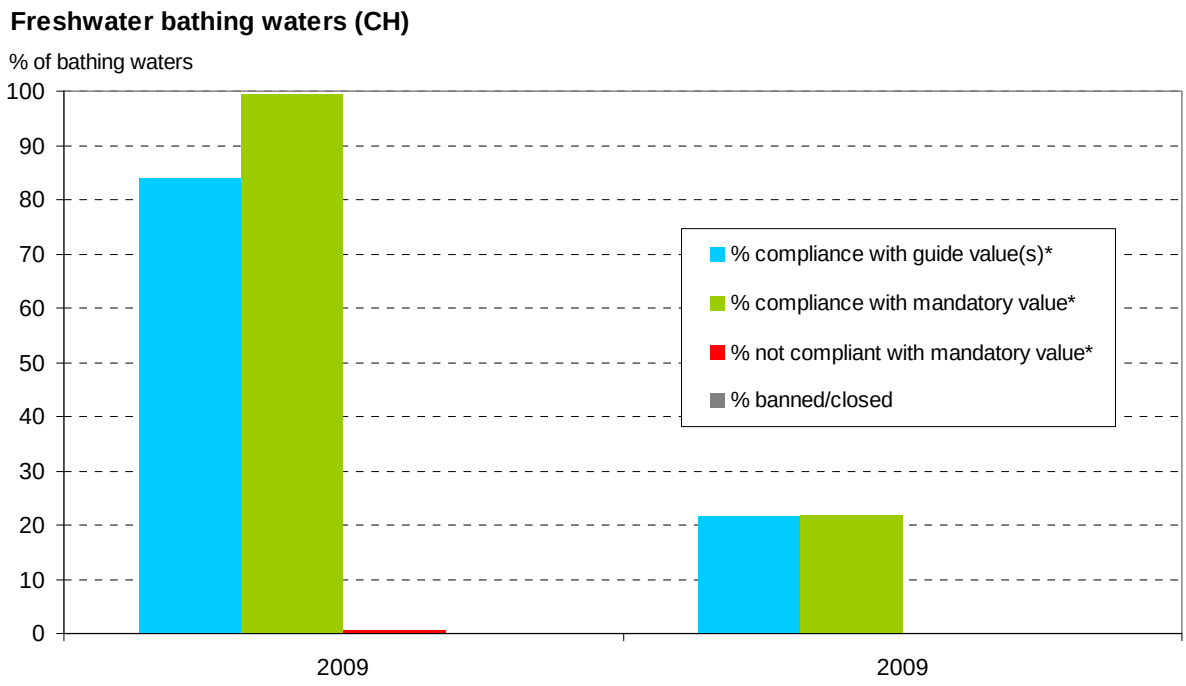
The same graph shows the classification under assessment during transition period for freshwater bathing waters (right bars):

- The percentage of bathing waters that comply with the guide values (class CG, blue bar);
- The percentage of bathing waters that comply with the mandatory value for *Escherichia coli* (class CI, green bar);
- The percentage of bathing waters that do not comply with the mandatory value for *Escherichia coli* (class NC, red bar);
- The percentage of bathing waters that are banned or closed (temporarily or throughout the season) (class B, grey bar).

Table 1a shows the quality classes in absolute numbers and in percentages for freshwater bathing waters in Switzerland under assessment using limit values for *Escherichia coli*. Table 1b shows the quality classes in absolute numbers and in percentages for freshwater bathing waters in Switzerland and its canton Ticino under assessment during transition period.

Map 1 shows the location of the reported bathing waters in Switzerland. The map shows the bathing water quality results of both assessments. The location of the bathing waters is based on the geographic coordinates reported by the Swiss authorities.

Figure 1: Results of bathing water quality in Switzerland in 2009. Assessment using limit values for *Escherichia coli* (left) and assessment during transition period (right).



Note:
* : Assessment using limit values for *Escherichia coli*: the mandatory and guide value for *Escherichia coli*.
* : Assessment during transition period: the mandatory value for *Escherichia coli*.

Table 1a: Results of bathing water quality in Switzerland in 2009. Assessment using limit values for *Escherichia coli*.

CH											
			Total number of bathing waters	Compliance with guide value for *Escherichia coli*		Compliance with mandatory value for *Escherichia coli*		Not compliant		Banned/closed temporarily or throughout the season	
				Number	%	Number	%	Number	%	Number	%
Freshwater bathing waters		2009	382	321	84.0	380	99.5	2	0.5	0	0.0

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

Table 1b: Results of bathing water quality in Switzerland and its canton Ticino in 2009. Assessment during transition period.

CH											
			Total number of bathing waters	Compliance with guide values		Compliance with mandatory value for *Escherichia coli*		Not compliant		Banned/closed temporarily or throughout the season	
				Number	%	Number	%	Number	%	Number	%
Freshwater bathing waters	Ticino	2009	85	83	97.6	84	98.8	0	0.0	0	0.0
	CH	2009	382	83	21.7	84	22.0	0	0.0	0	0.0

Note: Bathing waters which were insufficiently sampled according to the New Bathing Water Directive were not included in this table. Therefore the sum of the different categories is not equal to the total number of bathing waters. Bathing waters which were compliant with the guide values were also compliant with the mandatory value for *Escherichia coli*.

4. Bathing water quality in 2009

As shown in Table 1a, 99.5% of the freshwater bathing waters met the mandatory value for *Escherichia coli* in 2009 according to assessment using limit values for *Escherichia coli*. The rate of compliance with the guide value for *Escherichia coli* was 84%. Two bathing waters (0.5%) were non-compliant with the mandatory value. No bathing water had to be closed during the season.

As shown in Table 1b, 22% of the freshwater bathing waters met the mandatory water quality in 2009 according to transition period assessment. 21.7% of the bathing waters met the guide values. No bathing water was non-compliant with mandatory value for *Escherichia coli* and no bathing water had to be closed during the season. The reasons for these low percentages are that (a) only three cantons (Jura, Schaffhausen and Ticino) monitor intestinal enterococci, and (b) only two cantons (Ticino and Solothurn) carry out monitoring with sufficient frequency according to transition period assessment rules. Therefore, all bathing waters with both parameters and sufficient sampling frequency (84) were reported by canton Ticino. In Ticino, 98.8% of the bathing waters met the mandatory value for *Escherichia coli* and 97.6% of the bathing waters met the guide values. Only one bathing water did not meet the mandatory water quality since it was classified as insufficiently sampled (no data for intestinal enterococci).

5. General information as provided by the Swiss authorities

Responsibilities, laws and regulations

In Switzerland on national level, the areas of public health and water management are managed by two federal authorities, the Federal Office of Public Health (FOPH) and the Federal Office for the Environment (FOEN). While the FOEN is responsible for all aspects of managing and conserving quality and quantity of water resources (ground- and surface waters), the FOPH is concerned with subjects such as epidemics and infectious diseases, hygiene, food safety and drinking water.

In the federal legislation, water quality, quantity and management issues are primarily regulated in the Federal Constitution of the Swiss Confederation of 18 April 1999 (SR 101), the Federal Act of 24 January 1991 on the Protection of Waters (SR 814.20) and the Water Protection Ordinance of 28 October 1998 (SR 814.201). Hygiene and public health issues are dealt with in the Federal Act of 9 October 1992 on Foodstuffs and Utility Articles (SR 817.0) and the corresponding implementing ordinances. Cantonal and communal legislations can supplement the federal legislation. The existing cantonal legislation on water quality and management issues varies considerably.

National recommendations on bathing water quality monitoring

Since the nineteen sixties, efforts have been made in Switzerland to protect the health of bathers by the hygiene assessment of lake and river baths. In 1991, a recommendation for the hygiene assessment of lake and river baths was issued (available in German and French: http://www.bag.admin.ch/themen/lebensmittel/04858/04864/04904/04937/index.html?lang=de). These recommendations largely follow the EU Directive of 1976 (Directive 76/160/EEC).

Monitoring

According to the federal organization and legislation of Switzerland the cantons are responsible for the management of their water resources, including the monitoring and assessment of bathing water quality. Concretely, bathing water quality is monitored and assessed by the cantonal laboratories, in most cases on the basis of the Recommendations of 1991. The focus therefore lies on *E. coli* and *Salmonella*, with a few cantons going beyond this to include other parameters such as intestinal enterococci. The main differences in monitoring between the various cantons therefore occur with regard to monitoring frequencies (and not with regard to monitored parameters). For some reported bathing water sites, samples are taken at three locations (e.g. right, left, centre points of a site).

Public participation procedure and information to the public

Bathing water sites are identified on the basis of actual bathing practices, as the aim is to provide adequate information to the public. Information on the monitoring results is usually available on the

websites of respective cantonal authorities and in certain cases also on-site. Currently, no nation-wide overview on bathing water quality is available.

Actions and long-term measures

The chemical and microbiological quality of the water resources in Switzerland is generally good. This is largely attributable to the comprehensive water protection efforts that have been made during the last decades. Around 750 large-scale and 3 500 small-scale sewage treatment plants and 90 000 km of sewage pipes ensure almost complete coverage for the comprehensive treatment of wastewater. As a result today, bathing water quality is qualified as excellent throughout Switzerland: Most surface waters provide a quality which allows bathing. Exceptions are periods heavy rainfall, when, due to stormwater overflow, bathing is not recommended at sites downstream of wastewater treatment plants. Short term pollution was reported at one bathing water in Ticino. Accordingly in general, there are no particular actions or long-term measures undertaken specifically with regard to bathing water quality management.

Outlook

In view of the experience acquired over the past few years in the practical implementation of hygiene assessments of lake and river baths, and in view of developments in microbiological methods, it is currently deemed appropriate to formulate the new findings in the form of (updated) recommendations. The existing recommendation of 1991 are planned to be updated on the basis of EU Directive 2006/7/EC. To reach this aim, the FOPH is currently appointing working group, consisting of representatives of FOPH, FOEN, the cantonal laboratories and possibly cantonal medical officers.

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

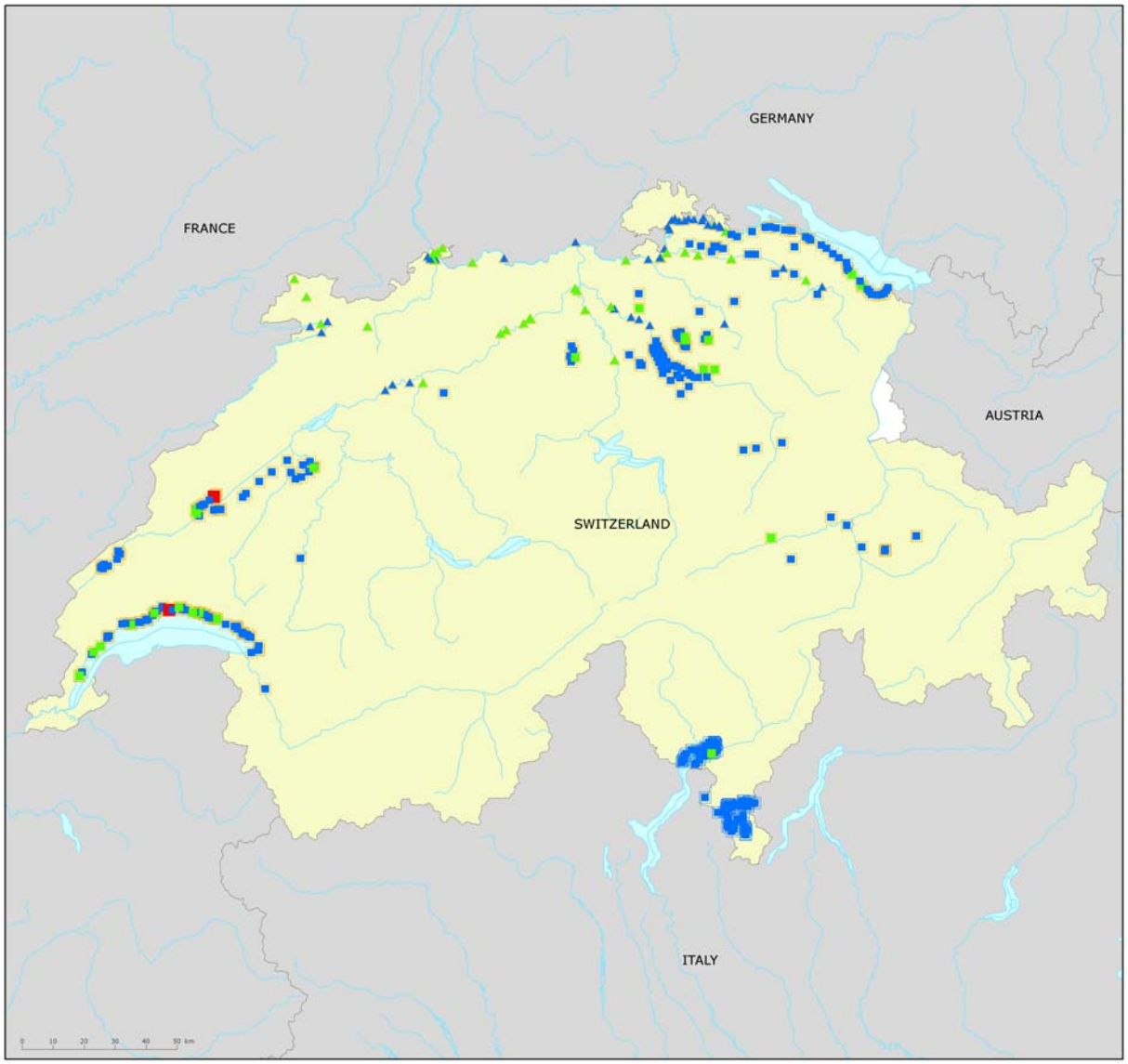
More information on bathing water quality in the European Member States, including the EU summary report, the reports for 27 Member States, Croatia and Switzerland, can be found on the European Commission's bathing water quality website (http://ec.europa.eu/environment/water/water-bathing/index_en.html)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

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. Malta and the Netherlands started to report in 2009 bathing season under the new requirements. Sweden and Malta also sent data for three previous bathing seasons under the new requirements. Luxembourg started to monitor under the new requirements in 2006 bathing season, while reported for the first time in 2007 bathing season. Switzerland started to report two parameters as defined by the new requirements in 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 2009 bathing season in Switzerland



Bathing water quality

Bathing waters on rivers
- Compliant with guide values
- Compliant with mandatory values
- Closed*
- Insufficiently sampled or not sampled
- Not compliant with mandatory values

Bathing waters on lakes
- Compliant with guide values
- Compliant with mandatory values
- Closed*
- Insufficiently sampled or not sampled
- Not compliant with mandatory values

- No data
- Outside data coverage (data available, not presented on the map)
- Transition period assessment rules

Note: * banned or closed (temporarily or 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: EEA, WFD Article 3; Bathing waters data and coordinates: Swiss authorities