

## Bathing water results 2011 – Greece

### 1. Reporting and assessment

This report gives a general overview of bathing water quality in Greece for the 2011 bathing season. Greece has reported under the Directive 2006/7/EC since 2010 and sent historical data with two parameters of this Directive for the years 2007-2009.

When samples of intestinal enterococci and *Escherichia coli* for bathing water are available for three or four consecutive years, the assessment is done according to assessment rules of Directive 2006/7/EC. 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, 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.

Strictly speaking, there should be one pre-season sample and the interval between sampling should not exceed one month. Since a late start of monitoring and/or low frequency do not necessarily indicate unsatisfactory bathing water quality, it has been accepted that the first sample in the 2011 season could be taken shortly after the start of the season (but within 10 days after the start), and the maximum interval between two samples taken into account is 41 days. The number of samples for the period 2008-2011 should be at least 16. These criteria are described as less strict. In the opposite, under the strict rules, pre-season samples should be available in all four years, the interval between sampling in the 2011 season should have not exceeded one month, but 41 days were acceptable for the 2008, 2009 and 2010 seasons. In this report a quality class under the strict rules and less strict criteria are presented.

Bathing waters quality classified according to the Directive 2006/7/EC are 'excellent', 'good', 'sufficient' and 'poor'. Some bathing waters cannot be classified according to their quality but are instead classified as 'closed', 'new' (classification not yet possible), 'insufficiently sampled' or 'changes' (bathing water is not new and classification not yet possible since a set of monitoring data is incomplete).

### 2. Length of bathing season and number of bathing waters

For all bathing waters the bathing season lasted 153 days, from 1 June to 31 October 2011.

A total of 2 155 bathing waters were monitored in Greece during the 2011 bathing season, of which 2 149 were coastal bathing waters and six were inland bathing waters (0 on rivers; six on lakes).

With 2 155 reported bathing waters Greece accounts for about 10.2 % of the reported bathing waters of the European Union.

### 3. Bathing water quality

The results of the bathing water quality in Greece for the period 1990-2010 as reported in the past reporting years and for the bathing season of 2011 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](http://ec.europa.eu/environment/water/water-bathing/index_en.html); Water/ Bathing Water/ 2005-2011 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 the 2008, 2009 and 2010 bathing seasons).

The graphs show the classification under the Directive 76/160/EEC and during transition period, for coastal and inland bathing waters from 1990 to 2010:

- 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 (class B, grey line).

The same graphs show the classification under the Directive 2006/7/EC, for coastal and inland bathing waters for 2011:

- The percentage of bathing waters that have excellent quality (dark blue bar);
- The percentage of bathing waters that have good quality (light blue bar);
- The percentage of bathing waters that have sufficient quality (green bar);
- The percentage of bathing waters that have poor quality (red bar);
- The percentage of bathing waters that are closed (grey bar);
- The percentage of bathing waters that are insufficiently sampled, new or with changes (orange bar).

Table 1 and Table 2 show results of bathing water quality for coastal, inland and all bathing waters from 2008 on as assessed in the previous annual reports and under the Directive 2006/7/EC for the 2011 season. For the year 2010 results applying the less strict rules are presented if they differ from results applying the strict rules.

A map given in Appendix 1 shows the location and quality of the bathing waters.

### **Coastal bathing waters**

For the purpose of commenting the improvement or deterioration of bathing water quality from 2010, excellent quality is compared with compliance with the guide values; good quality and sufficient quality are compared with compliance with the mandatory value for *Escherichia coli* and not the guide values; and poor quality is compared with not compliant with mandatory value for *Escherichia coli*.

In Greece, 94.1 % of the coastal bathing waters were of excellent quality in 2011. This is a decrease of 0.1 % compared to the previous year when 94.2 % of the bathing waters met the guide values. A total of 87 bathing waters (4.0 %) were of good quality and 16 bathing waters (0.7 %) were of sufficient quality compared to 125 bathing waters compliant with the mandatory value for *Escherichia coli* and not the guide values (5.8 %) in 2010. Five bathing waters (0.2 %) had poor quality compared to no bathing waters non-compliant with the mandatory value for *Escherichia coli* (0.0 %) in 2010. No bathing waters (0.0 %) had to be closed during the season, the same as in 2010. A total of 18 bathing waters (0.8 %) were insufficiently sampled compared to none (0.0 %) in 2010.

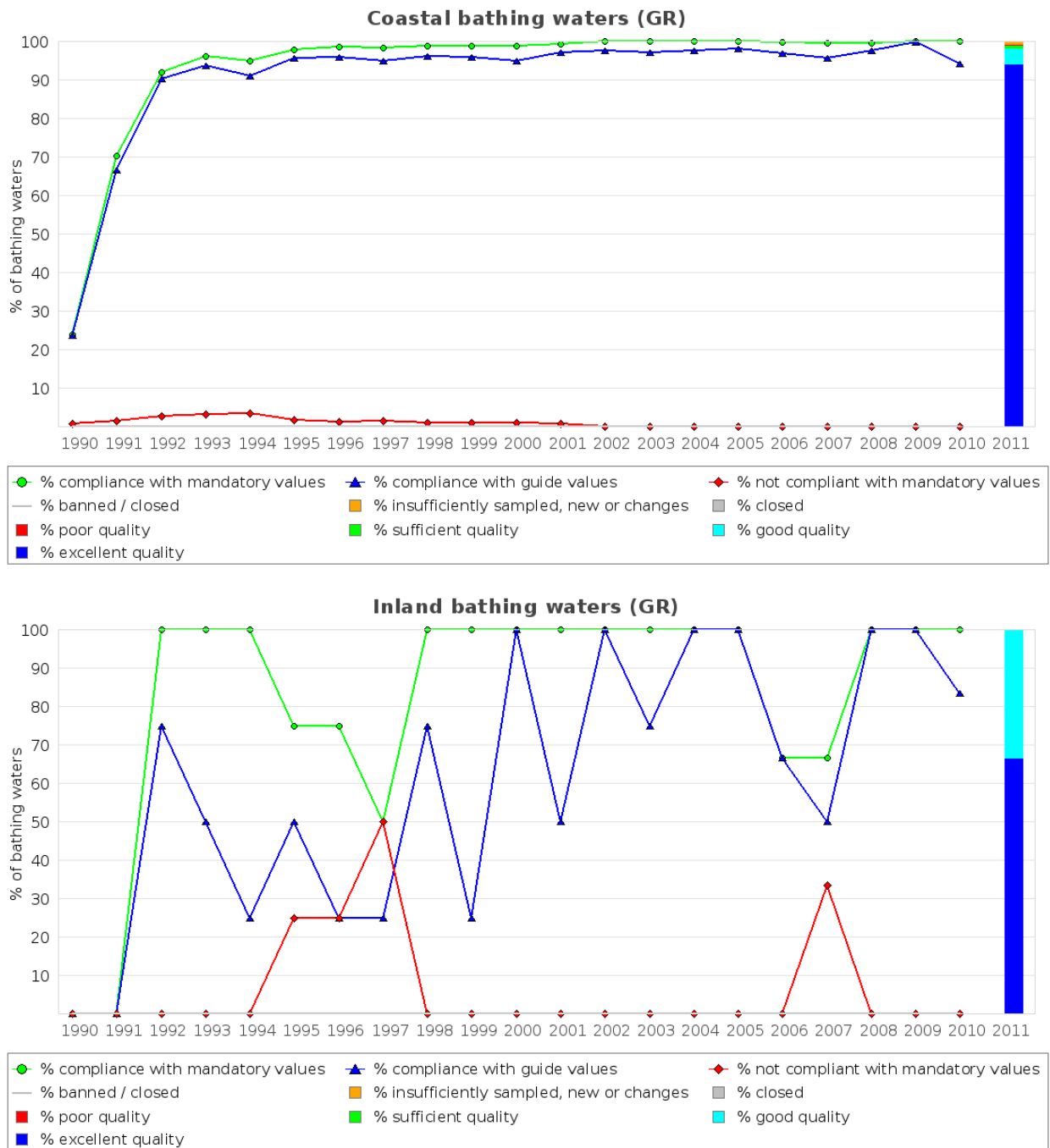
For comparison since the start of the reporting please see Figure 1.

### **Inland bathing waters**

Some 66.7 % of the inland bathing waters were of excellent quality in 2011. This is a decrease of 16.6 % compared to the previous year when 83.3 % of the bathing waters met the guide values. Two bathing waters (33.3 %) were of good quality and no bathing waters (0.0 %) were of sufficient quality compared to one bathing water compliant with the mandatory value for *Escherichia coli* and not the guide values (16.7 %) in 2010. No bathing waters (0.0 %) had poor quality, as well as no bathing waters were non-compliant with the mandatory value for *Escherichia coli* (0.0 %) in 2010. No bathing waters (0.0 %) had to be closed during the season, the same as in 2010.

For comparison since the start of the reporting please see Figure 1.

**Figure 1: Results of bathing water quality in Greece from 1990 to 2011**



Note: Data until 2008 is available in the previous reports at [http://ec.europa.eu/environment/water/water-bathing/index\\_en.html](http://ec.europa.eu/environment/water/water-bathing/index_en.html); Water/Bathing Water/ 2005-2011 reports.

**Table 1: Results of bathing water quality in Greece from 2008 to 2010. Assessment under Directive 76/160/EEC and during transition period.**

GR												
	Year	Total number of bathing waters	Compliance with guide and mandatory values*		Compliance with mandatory values		Not compliant		Banned/closed		Insufficiently sampled or not sampled	
			number	%	number	%	number	%	number	%	number	%
Coastal bathing waters	2008	2089	2040	97.7	2079	99.5	2	0.1	0	0.0	8	0.4
	2009	1273	1270	99.8	1272	99.9	0	0.0	0	0.0	1	0.1
	2010	2149	2024	94.2	2149	100.0	0	0.0	0	0.0	0	0.0
	2011											
Inland bathing waters	2008	6	6	100.0	6	100.0	0	0.0	0	0.0	0	0.0
	2009	4	4	100.0	4	100.0	0	0.0	0	0.0	0	0.0
	2010	6	5	83.3	6	100.0	0	0.0	0	0.0	0	0.0
	2011											
All bathing waters	2008	2095	2046	97.7	2085	99.5	2	0.1	0	0.0	8	0.4
	2009	1277	1274	99.8	1276	99.9	0	0.0	0	0.0	1	0.1
	2010	2155	2029	94.2	2155	100.0	0	0.0	0	0.0	0	0.0
	2011											

\*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 (2008-2009) or the mandatory value for *Escherichia coli* (2010).

**Table 2: Results of bathing water quality in Greece for 2011. Assessment under Directive 2006/7/EC.**

GR																		
	Year/Total number of bathing waters	Excellent quality		Good quality		Sufficient quality		Poor quality		Closed		Insufficiently sampled		New		Changes		
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	
Coastal bathing waters	2009																	
	2010																	
	2011	2149	2023	94.1	87	4.0	16	0.7	5	0.2	0	0.0	18	0.8	0	0.0	0	0.0
	2011*	2149	2035	94.7	87	4.0	16	0.7	5	0.2	0	0.0	6	0.3	0	0.0	0	0.0
	2011 <sup>(s)</sup>	2149	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	2149	100	0	0.0	0	0.0
Inland bathing waters	2009																	
	2010																	
	2011	6	4	66.7	2	33.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	2011 <sup>(s)</sup>	6	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	6	100	0	0.0	0	0.0
All bathing waters	2009																	
	2010																	
	2011	2155	2027	94.1	89	4.1	16	0.7	5	0.2	0	0.0	18	0.8	0	0.0	0	0.0
	2011*	2155	2039	94.6	89	4.1	16	0.7	5	0.2	0	0.0	6	0.3	0	0.0	0	0.0
	2011 <sup>(s)</sup>	2155	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	2155	100	0	0.0	0	0.0

\*Updated assessment based on information sent by the national authorities in May 2012. A total of 12 coastal bathing waters reported as existing were actually put on the list of national bathing waters only in 2009. They are classified as excellent instead of insufficiently sampled. These changes are not included in European report, published in May 2012.

<sup>(s)</sup>Strict rules applied (see Chapter 1 of this report).

#### 4. Important information as provided by the Greek authorities

In May 2012 the Greek authorities sent information that 12 coastal bathing waters that have been reported as existing from 2009 were opened only in 2009. In the assessment of bathing water quality for the 2011 season (Figure 1, Table 2) they are classified as insufficiently sampled. Taking into consideration all samples (more than 16 samples) they are classified as excellent. These bathing waters are as follows:

- Variko (GR1250080161080301),
- Kampitsi (GR2210030521030401),
- Katragaki (GR2210030721030501),
- Gaidaros (GR2210030721030601),
- Moraitika (GR2220090122090601),
- Chalikouna (GR2220090222090401),
- Mesogi (GR2220090822090501),
- Viandini (GR2540070616070401),
- Lagada (GR30011411A4081201),
- Kalloni (GR30012103A4150201),
- Psifta (GR30012105A4150101),
- Paralia Kato Zakrou (GR4320030292030401).

Considering these changes, 94.7 % of the coastal bathing waters in Greece are of excellent quality. Only six bathing waters (0.3 %) out of 2 149 are insufficiently sampled as shown in Table 2.

No bathing water in Greece was closed and no new bathing water was opened in the 2011 season. As directed by the Greek authorities, information to public on bathing waters and management measures can be found on a relevant national web page ([www.e-per.gr](http://www.e-per.gr)), in press releases ([www.ypeka.gr](http://www.ypeka.gr)), leaflets, articles and national reports available at <http://ypeka.gr/Default.aspx?tabid=253&language=el-GR>.

The Greek authorities have also provided the link to bathing water profiles:

[http://cdr.eionet.europa.eu/gr/eu/nbwd/envt2mrra/Press\\_release\\_Bathing\\_Water\\_Profiles.pdf](http://cdr.eionet.europa.eu/gr/eu/nbwd/envt2mrra/Press_release_Bathing_Water_Profiles.pdf)

#### 5. More information on bathing water quality in Europe

Of the more than 21 000 bathing areas monitored throughout the European Union in 2011, two thirds were in coastal waters and the rest in rivers and lakes. The largest numbers of coastal bathing waters can be found in Italy, Greece, France and Spain, while Germany and France have the highest numbers of inland bathing waters.

During recent years, including the 2011 bathing season, majority of Member States have adjusted their monitoring programmes to meet the requirements of the new bathing water directive (2006/7/EC). Luxembourg was the first country to report under this Directive in 2007. Cyprus, Denmark, Estonia, Finland, Germany, Hungary, Latvia, Lithuania, Slovakia, Spain and Sweden started to report under the new directive in 2008. Malta and the Netherlands started to report in 2009. Austria, Belgium - Walloon Region, France, Greece, Italy, Portugal and Slovenia reported under the new directive for the first time in 2010, while Belgium - Flemish Region, Bulgaria, Ireland and Poland reported under this Directive for the first time in 2011. Historical data of two microbiological parameters, *Escherichia coli* and intestinal enterococci were sent by Sweden (2005-2007), Luxembourg (2006), Malta (2006-2008), Belgium - Walloon Region (2007-2009), Belgium - Flemish Region (2008-2010), Greece (2007-2009), Hungary (2007) and Portugal (2007-2009).

Three non-EU countries, Croatia, Montenegro and Switzerland have reported monitoring results under the new directive. Croatia and Switzerland started to report in 2009, while Montenegro reported for the first time in 2010. Switzerland sent data on *Escherichia coli* for all bathing waters but only for some data on intestinal enterococci.

For the 2011 season, bathing water quality has been assessed under the new bathing water directive in 16 European countries. This is 13 more than for 2010 bathing season. Only three countries - the

Czech Republic, Romania and the United Kingdom - are still assessed under the old bathing water directive. Eleven countries are assessed under the transition period rules.

Overall in 2011, 92.1 % of bathing waters in the EU met the minimum water quality standards set by the bathing water directives. Bathing water quality increased at 0.6 % of sites in 2011 compared to 2010. The proportion of bathing waters with excellent quality (or complying with the more stringent guide values) increased by 3.5 percentage points compared to 2010, reaching 77.1 %. The share of non-compliant bathing waters was 1.8 %, which was a 0.1 percentage point increase from 2010. In 2011, 207 bathing waters were banned or closed (1 %), which was 57 more than in the 2010 bathing season.

More information on bathing water quality in the European Member States, including the EU summary report, the reports for 27 Member States, Croatia, Montenegro 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](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 Institute for Water of the Republic of Slovenia (IWRIS), a partner in the EEA European Topic Centre on Inland, Coastal and Marine Waters (ETC/ICM) has produced the reports for the bathing seasons from the 2008 bathing season on. Countries have collaborated in the assessment of bathing water quality and supplied additional information when needed.

### **Interactive information on bathing water quality**

The bathing water section of the Water Information System for Europe (WISE), which is accessible at the EEA bathing water website, allows users to view the bathing water quality at more than 22 000 coastal beaches and inland sites across Europe. Users can check bathing water quality on an interactive map or can download data for a selected country or region and make comparisons with previous years.

The WISE map viewer (<http://www.eea.europa.eu/themes/water/interactive//bathing>) is an online map viewer for visualising European spatial water data. It includes a lot of interactive layers, allowing water themes to be visualised at different scales. Broad resolutions display the aggregated data by Member State. At finer resolutions the locations of monitoring stations are displayed.

The WISE bathing water quality data viewer (<http://www.eea.europa.eu/themes/water/status-and-monitoring/bathing-water-data-viewer>) combines text and graphical visualisation, providing a quick check on locations and statistics on the quality of coastal and inland bathing waters. It also documents how bathing waters have changed throughout Europe in recent years and provides a full summary of Europe's bathing water quality. Users can search information at three spatial levels - country, region and province - and observe specific bathing water locations on Google Earth, Google maps or Bing maps.

The Eye on Earth - Water Watch application (<http://www.eea.europa.eu/data-and-maps/explore-interactive-maps/eye-on-earth>) allows users to zoom in on a section of the coast, riverbank or lake, both in street map or, where available, bird's eye viewing formats. A 'traffic-light' indicator (red, amber, green) of bathing water quality, based on the official bathing water data, is put alongside the ratings of people who have visited the bathing site, including any comments added by users. For historical data Water Watch uses a simplified index of bathing water quality data. The Czech Republic, Croatia, Denmark, Estonia, Finland (one municipality), Greece, Hungary, Lithuania, Luxembourg, Malta, Slovakia, Slovenia, England and Wales were also sending near real time information on bathing water quality to the Eye on Earth application. The bathing water quality for Austria, Belgium, Bulgaria, France, Germany, Iceland, Italy, Ireland, the Netherlands, Portugal, Sweden, Scotland and Northern Ireland was also presented on the Eye on Earth - Water Watch.

### **National and local information on bathing water quality**

In order to make information to the public more effective, all EU countries have national or local web portals with detailed information for each bathing water. Websites generally include a map search function and public access to the monitoring results both in real time and for previous seasons.

### **Information on EU bathing water legislation**

EU Member States will have to comply with the stricter and more ambitious requirements laid out in Directive 2006/7/EC by 2015 at the latest. The new legislation requires more effective monitoring and management of bathing waters, greater public participation and improved information dissemination. By March 2011 Member States have to have established bathing water profiles. More on the new legislation can be found on the European Commission's websites and on <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2006:064:0037:0051:EN:PDF>.

# Appendix 1

**Map 1: Bathing waters reported during the 2011 bathing season in Greece**



Bathing water quality		
Bathing waters on lakes	Coastal/transitional bathing waters	
■ Excellent quality	● Excellent quality	□ Sampling interval not in full compliance with the Directive 2006/7/EC and/or pre-season sample in previous years missing.
■ Good quality	● Good quality	□ No data
■ Sufficient quality	● Sufficient quality	■ Outside data coverage (data available, not presented on the map)
■ Poor quality	● Poor quality	
■ Insufficiently sampled	● Insufficiently sampled	
■ Closed	● Closed	
■ New	● New	
■ Changes*	● Changes*	

**Note:** \* Changes (bathing water where changes occur that affect the classification of a bathing water)  
 More data on bathing water quality on: <http://www.eea.europa.eu/themes/water/mapviewers/bathing>  
**Source:** National boundaries: GISCO and EEA; Large rivers and lakes: EEA, WFD Article 3; Bathing waters data and coordinates: Greek authorities