



**ENHIS**  
EUROPEAN ENVIRONMENT AND  
HEALTH INFORMATION SYSTEM

## BATHING WATER QUALITY

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### Proportion of identified bathing waters falling under the Bathing Water Directive definition complying with the EC mandatory standards

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#### KEY MESSAGE

☺ The water quality of coastal zones improved steadily between 1992 and 2004 and remained high in the period 2005–2007. There were no cases of insufficient sampling in 2007. The new Bathing Water Directive 2006/7/EC has set higher standards for the management of bathing waters.

☹ The water quality in freshwater zones has fallen since 2003. Some of the new European Union (EU) Member States have experienced problems with relatively poor water quality but water quality improved slightly between 2006 and 2007.

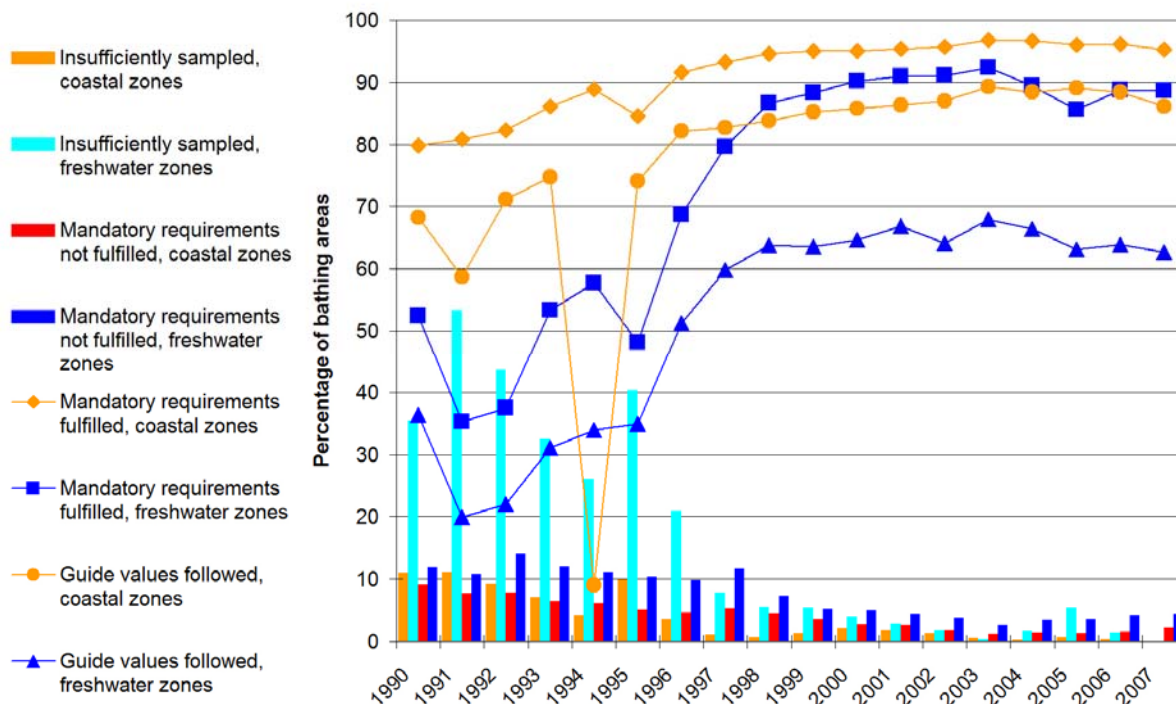
#### RATIONALE

EU Member States have been successful in implementing the Bathing Water Quality Directive 76/160/EEC (1) and maintaining high-quality bathing waters. The adoption of a new Bathing Water Directive 2006/7/EC in 2006 introduced new principles for the management of bathing waters (2).

#### PRESENTATION OF DATA

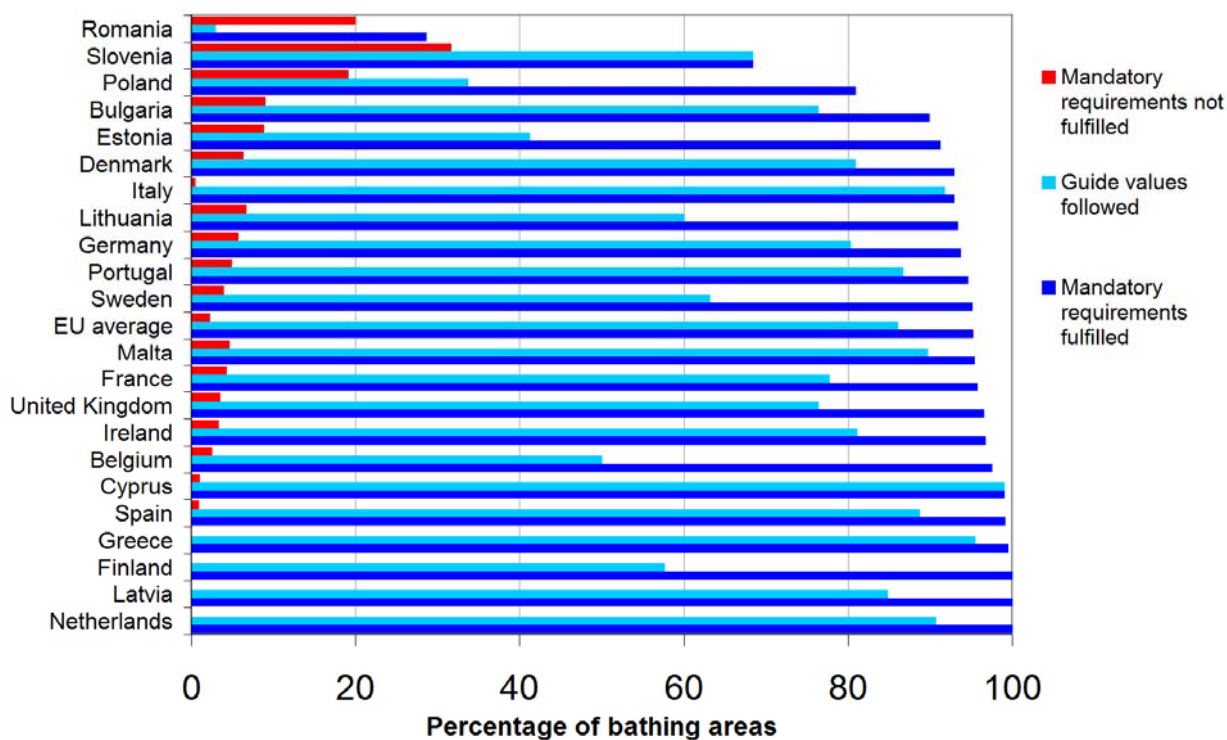
Fig. 1 shows trends in bathing water quality in the EU for 1990–2007. Fig. 2 and 3 show the results of bathing water quality assessments in coastal and freshwater zones in 2007 as shown in the EU's annual bathing water quality report for 2007 (3), expressed as a percentage of the total number of bathing sites. The water quality parameters were based on criteria set by Bathing Water Directive 76/160/EEC. Insufficiently sampled sites could not meet the required sampling frequency. However, data indicating insufficient sampling were excluded from the bathing water report for 2007 as there were no such cases. Mandatory requirements were not fulfilled by bathing sites that did not meet the compulsory criteria set by the Directive.

**Fig. 1. Bathing water quality in the EU, 1990–2007**



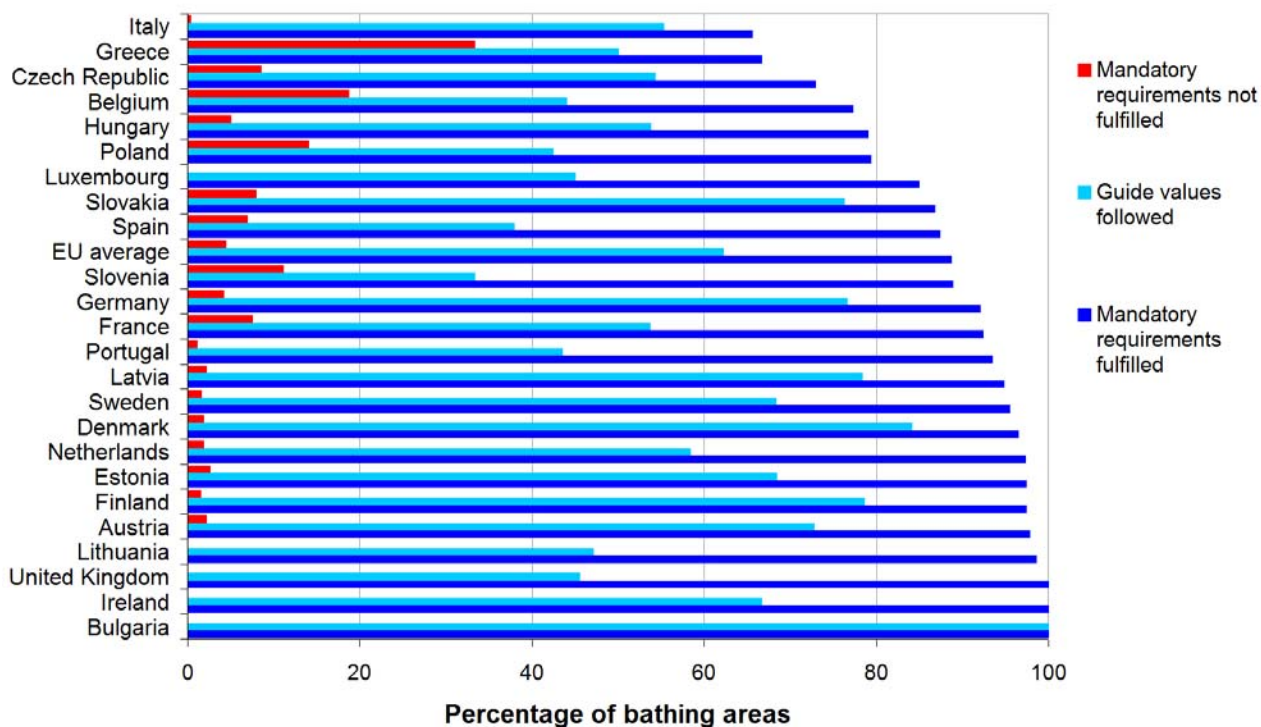
Source: EU Water Information System for Europe (3).

**Fig. 2. Bathing water quality for coastal zones in EU countries, 2007**



Source: EU Water Information System for Europe (3).

**Fig. 3. Bathing water quality for freshwater zones in EU countries, 2007**



Source: EU Water Information System for Europe (3).

## HEALTH AND ENVIRONMENT CONTEXT

Safe bathing water is an essential factor in public health. Poor-quality recreational water has been shown to be the cause of outbreaks of waterborne diseases involving many tourists as well as local people (4).

The quality of bathing waters may be affected by inadequate sewage treatment and agricultural pollution, resulting in microbial and chemical contamination and eutrophication. There is considerable epidemiological evidence in the literature to suggest that contact with recreational waters is associated with illness, primarily gastrointestinal symptoms, although outbreak data also suggest that there is a risk of more serious illnesses such as those caused by *Shigella sonneri*, *Escherichia coli* O157, protozoan parasites and enteric viruses (5,6). A recent assessment of the global burden of disease attributable to gastroenteric infections arising from unsafe recreational marine water environments has estimated it as 66 000 disability-adjusted life years (DALYs) annually (7).

The population groups that may be at higher risk of disease include the young, the elderly and tourists who do not have immunity against locally occurring endemic diseases. Children tend to play for longer periods in recreational waters and are more likely than adults to swallow water intentionally or accidentally (8).

## POLICY RELEVANCE AND CONTEXT

In 2004, the Fourth Ministerial Conference on Environment and Health adopted the Children's Environment and Health Action Plan for Europe (CEHAPE), which includes four regional priority goals (RPG) to reduce the burden of environment-related diseases in children (9). RPG I aims to prevent and significantly reduce morbidity and mortality arising from gastrointestinal disorders and other health effects, by ensuring that adequate measures are taken to improve access to safe and affordable water and adequate sanitation for all children.

Directive 76/160/EEC defined quality criteria for bathing waters and obliged the Member States to monitor bathing sites. This has been replaced by Directive 2006/7/EC, which sets new standards for the monitoring and management of bathing waters and for providing relevant information to the

public, taking into account the scientific evidence of recent years. The requirements of this Directive are coherent with Water Framework Directive 2000/60/EC (10), which established an overall framework for water management.

The owners of bathing sites may not be able to improve the quality of water when intervention is needed at regional or national level to establish and enforce proper monitoring schemes, construct sewage treatment plants and take action to limit industrial and agricultural emissions. The new Bathing Water Directive requires Member States to have a management plan for each site, based on an assessment of the pollution sources. Owners of sites with poor water quality must be prepared to close the bathing area when conditions conducive to pollution are forecast. If the quality standards are not met, remedial measures must be taken.

The new Directive also obliges Member States to disseminate information on bathing water quality, the reasoning behind assessments of resulting health risks and recommendations for the safest behaviour to the public.

These principles are in accordance with the WHO guidelines for bathing water management (8), which may be applied to meet the requirements of the Bathing Water Directive.

## ASSESSMENT

From 1990 to 2007, the mean number of freshwater and coastal bathing areas complying with EU standards was relatively stable or improved, indicating the general willingness of Member States to implement the Bathing Water Directive (Fig. 1).

Compliance of coastal bathing waters with the mandatory standards has been relatively stable since 1999, varying from 96.8% in 2003 to 95.0% in 1999; compliance in 2007 was 95.2%. The percentage of bathing areas failing to comply with the mandatory values increased from 1.3% in 2005 to 2.2% in 2007.

The same is true for compliance with the more stringent guideline values, which vary from 85.2% in 1999 to 89.3% in 2003; the figure for 2007 was 86.1%. The overall number of areas that were insufficiently sampled remained small (around 0.5%) and the indicator was therefore excluded from the reporting. The number of areas banned has increased steadily for the seventh consecutive year, reaching 2.2% of the total number of coastal bathing waters in 2007 compared with 0.1% in 2000.

Results for the freshwater zones have shown a negative trend since 2003. Compliance with the mandatory values fell from 92.4% in 2003 to 85.6% in 2005, rising to a plateau for 2006 and 2007 (88.8% and 88.7%, respectively). This fall can be explained by the significant increase in the number of bathing water areas that were insufficiently sampled – from 98 (1.6%) in 2004 to 361 (5.4%) in 2005. In 2006, the number fell markedly to 1.4% and reached zero in 2007 (11).

Compliance with guideline values also showed a negative trend, falling from 67.9% in 2003 to 62.2% in 2007. The percentage of freshwater bathing areas failing to comply with the mandatory values increased steadily for four years, from 2.7% in 2003 to 4.4% in 2007, falling back to the 2001 level. The number of banned freshwater bathing areas was approximately 5% in the period 2003–2007.

Some of the new EU Member States seemed to have difficulty in implementing monitoring schemes, resulting in a high percentage of insufficiently sampled bathing sites in previous years. However, there were no such cases in 2007 (Fig. 2 and 3) (11).

There are also excellent results among the new Member States: compliance for coastal zones of 100% in Latvia and 99% in Cyprus, and 100% compliance for freshwater zones in Bulgaria and Lithuania.

The resulting data published in the EU's annual report on bathing water quality, collected since 1990 and improved every year, have made it possible to develop useful tools for both specialists and lay people to assess bathing water quality in given places. The establishment of monitoring schemes, improved dissemination of the results to the public and action taken to improve bathing water quality have considerably improved the management of bathing waters.

In general, Bathing Water Directive 76/160/EEC was successfully implemented until it was repealed. The same can be expected for the new Directive, which presents new challenges for EU Member States.

## DATA UNDERLYING THE INDICATOR

### Data source

1. European Commission (3).
2. European Environment Agency (11–13).

### Description of data

Data are available as PDF documents in the EU's 2007 report on bathing water quality (3) or as Excel tables in the EEA database BATHSEA\_EN\_V2 (12,13). Data describing individual bathing sites can be derived from the EEA's "Status of bathing water" database (11).

Data include: year; country name and country code according to ISO 3166-1; zone (freshwater or coastal water); total number of bathing areas; C(G): percentage of bathing areas sufficiently sampled that comply with guide values; C(I): percentage of bathing areas sufficiently sampled that comply with guide values and mandatory values; NB: percentage of bathing areas where bathing was prohibited throughout the bathing season; NC: percentage of bathing areas that do not comply with mandatory values; NF: percentage of bathing areas not sufficiently sampled.

### Method of calculating the indicator

The indicator RWC can be computed as  $RWC = 100 \times (C/T)$ , where C is the number of bathing waters complying with the mandatory coliform standards and T is the total number of bathing waters identified for compliance monitoring.

### Geographical coverage

EU Member States.

### Period of coverage

From 1990 onwards.

### Frequency of update

Annual reporting from Member States. Sampling and assessment procedures are carried out according to Directive 76/160/EEC.

### Data quality

Accurate information on the number of bathing waters and compliant bathing waters are available at EU level in the EU's annual report on bathing water quality (3).

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## **FURTHER INFORMATION**

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