



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

KEY MESSAGE

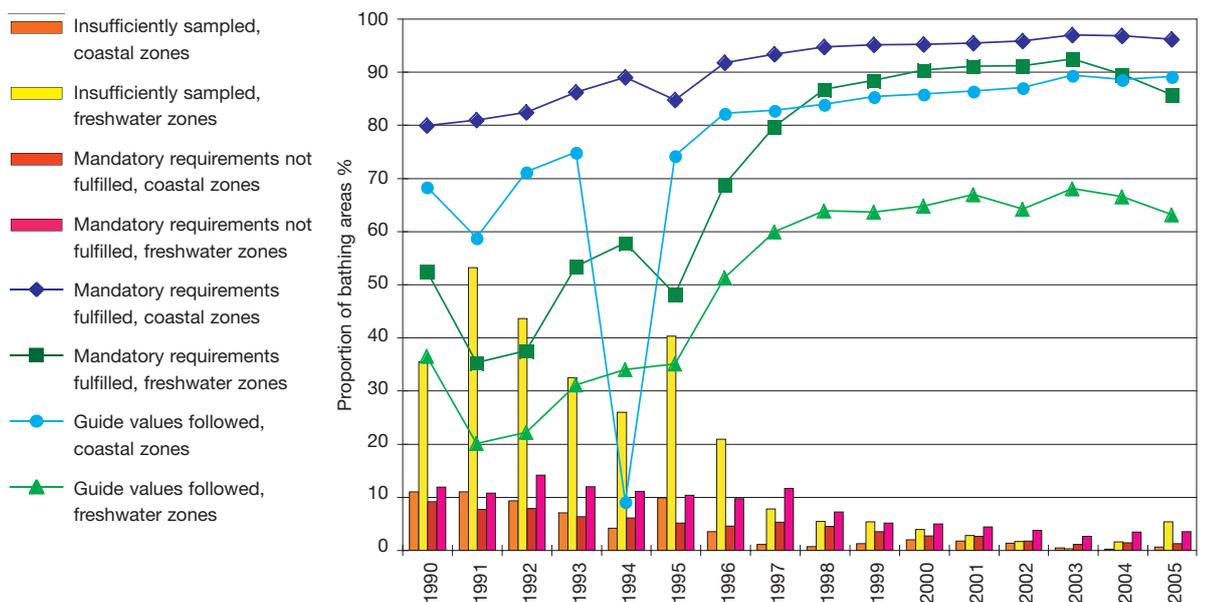
☺ The water quality of coastal zones improved steadily from 1992 to 2004 and remained high in 2005. The new Bathing Water Directive 2006/7/EC has set higher standards for the management of bathing waters.

☹ The water quality in freshwater zones has fallen. Some of the new EU member states have experienced problems with relatively poor water quality and the organization of sampling activities.

RATIONALE

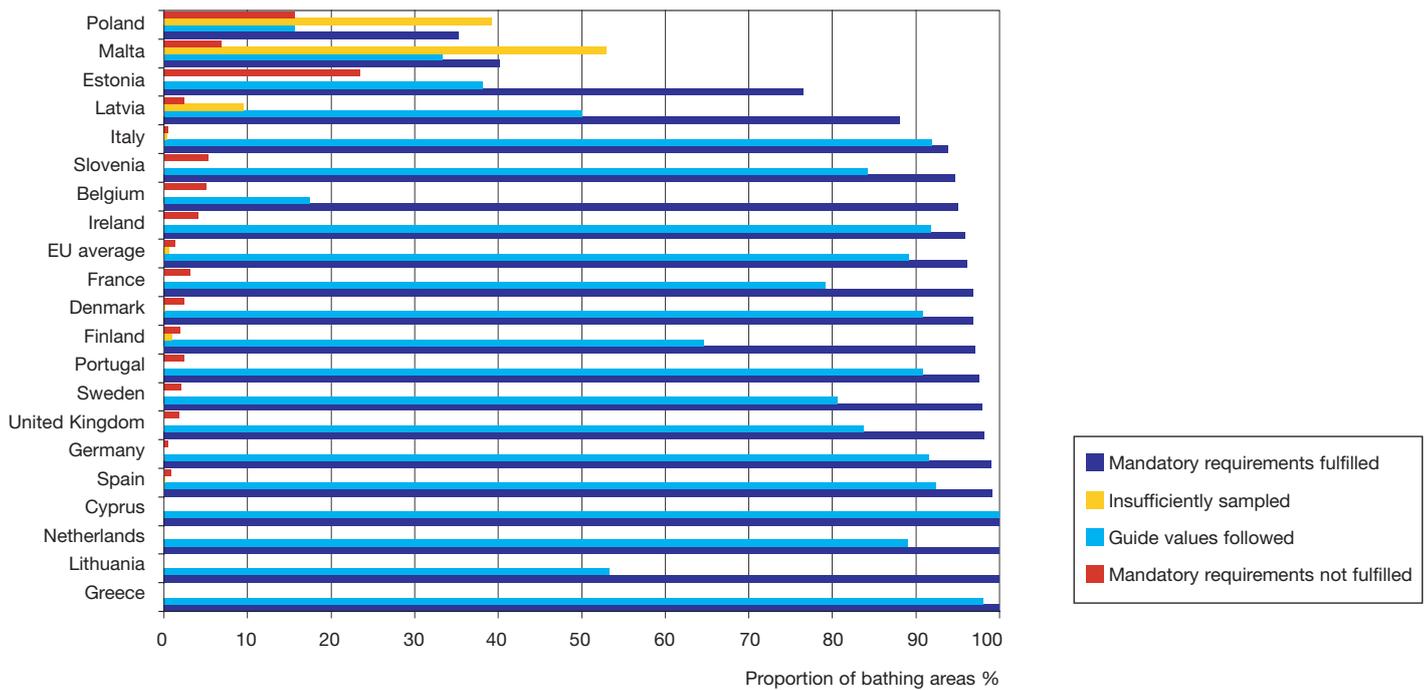
EU member states have been successful in implementing the Bathing Water Quality Directive 76/160/EEC (1) and maintaining high quality bathing waters. The adoption of a new Bathing Water Directive 2006/7/EC in 2006 introduced new principles for the management of bathing waters (2). Member states now face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

Fig. 1. Bathing water quality in the EU, 1990–2005



Source: EU (3).

Fig. 2. Bathing water quality for coastal zones in the EU, 2005



Source: EU (3).

PRESENTATION OF DATA

Figure 1 shows trends in bathing water quality in the EU for 1990–2005. Figures 2 and 3 show the results of bathing water quality assessments in coastal and freshwater zones in 2005, as shown in the EU’s annual bathing water quality report for 2005 (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. Mandatory requirements were not fulfilled by bathing sites which did not meet the compulsory criteria set by the Directive.

HEALTH – ENVIRONMENT CONTEXT

Safe bathing water is an essential factor in public health. Poor quality of recreational waters 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 from more serious illnesses such as *Shigella sonneri*, *Escherichia coli* O157 infection, 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) (7).

The population groups that may be at higher risk of disease include the young 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 to reduce the burden of environment-related diseases in children (9). One of the goals (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 on Bathing Water Quality 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 the Bathing Water Directive are coherent with Water Framework Directive 2000/60/EC (10), which established an overall framework for water management.

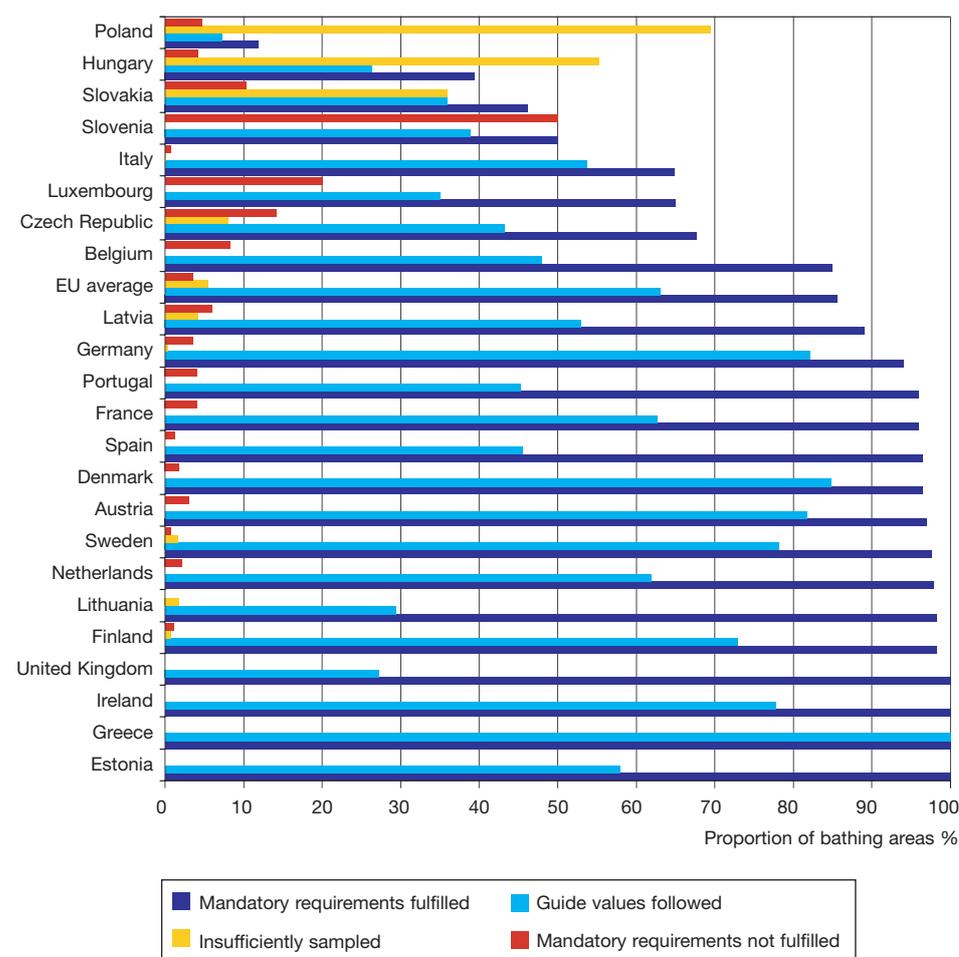
The owners of bathing sites may not be able to improve the quality of water when intervention is needed at regional or national level to establish and enforce proper monitoring schemes, construct sewage treatment plants and take action to limit industrial and agricultural emissions.

The new Bathing Water Directive requires member states to have a management plan for each site, based on an assessment of the pollution sources. 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.

Fig. 3. Bathing water quality for freshwater zones in the EU, 2005



ASSESSMENT

From 1990 to 2005, 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 slipped back from 96.7% in 2004 to 96.1% in 2005 as a result of the higher number of banned areas and areas which were insufficiently sampled in 2005 (273 and 90, respectively). The percentage of bathing areas failing to comply with the mandatory values was 1.3% compared to 1.5% in 2004.

Reversing the slight decrease in the 2004 season, compliance with the more stringent guide values rose from 88.5% in 2004 to 89.8% in 2005. The number of areas which were insufficiently sampled more than doubled, from 38 areas in the 2004 bathing season to 90 in 2005. The number of areas banned increased for the fifth consecutive year to 273, or 1.9% of the total number of coastal bathing waters.

The results for the freshwater zones showed a negative trend between 2004 and 2005. Compliance with the mandatory values went down by 3.8% to 85.6% in the 2005 season. This fall can be explained by the significant increase in the number of bathing water areas that were

insufficiently sampled: from 98 areas (1.6%) in 2004 to 361 areas (5.4%) in 2005.

Compliance with the guide values fell from 66.5% in 2004 to 63.1% in 2005. The percentage of freshwater bathing areas failing to comply with the mandatory values increased slightly from 3.4% to 3.5%. This was the second consecutive year that the quality of freshwater bathing areas deteriorated. After 2003 the rate of compliance fell by 6.8% for the mandatory values and by 4.8% for the guide values.

A further 0.1% of freshwater bathing areas were banned in the 2005 season, resulting in approximately 5% of freshwater areas being banned since the 2003 season.

Some of the new EU member states seem to have difficulties in implementing monitoring schemes, resulting in a high percentage of insufficiently sampled bathing sites. However, because of the limited time frame (1–2 years) it is impossible to show any trends (Figs 2,3).

The resulting data published in the annual bathing water quality report (3), collected since 1990 and improved every year, have made it possible to develop useful tools for both specialists and lay persons to assess bathing water quality in given places (11). The establishment of monitoring schemes,

improved transmission of the results to the public and action taken to improve bathing water quality have considerably improved the management of bathing waters.

In general, the 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

European Commission (3).

European Environment Agency (12).

Description of data

Data are available as PDF documents in the EU 2005 report on bathing water quality (3) or Excel tables in the EEA database BATH-SEA_EN_V2 (12).

Data include:

Year; country name and country code according to ISO 3166-1; zone (freshwater or coastal); total number of bathing areas; C(G): percentage of bathing areas sufficiently sampled which comply with guide values; C(I): percentage of bathing areas sufficiently sampled which 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 which 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

Countries belonging to the EU before 2004 (1990–2005), Gibraltar (1992–2004), Cyprus, the Czech Republic, Estonia, Latvia, Lithuania, Slovakia and Slovenia (since 2004).

Period of coverage

1990–2005.

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 bathing water quality report (3).

References

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Further information

Bathing water quality [web site]. Brussels, European Commission, 2006 (http://ec.europa.eu/water/water-bathing/index_en.html, accessed 20 March 2007).

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