



MINISTRY OF  
RECONSTRUCTION  
OF PRODUCTION,  
ENVIRONMENT AND  
ENERGY

Special Secretariat for Water

# BATHING WATER QUALITY IN GREECE

Reference year 2014



Co-financed by Greece and the European Union - European Regional Development Fund

MAY 2015

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## INTRODUCTION

Bathing water quality for the year 2014 was monitored and assessed in the framework of the *Monitoring Programme of Bathing Water Quality* that was implemented under the supervision of the Special Secretariat for Water of the Ministry of Reconstruction of production, Environment and Energy. This project was announced and assigned for the years 2013 to 2015. This project is co-financed by national development funds and the European Union under the National Strategic Reference Framework (NSRF) during 2007-2013, especially under the Priority Axis 7 - Protecting and managing water resources of the Programme's Strategy "Environment and Sustainable Development".

The implementation of the monitoring programme was based on the provisions of the Directive 2006/7/EC concerning the management of bathing water quality and repealing Directive 76/160/EEC, which has been incorporated to the Greek national legislation with the Common Ministerial Decree 8600/416/E103/2009 (Official Government Gazette 356B/2009).

The *length of the bathing season* for the year 2014 was defined, in a common ministerial decision, from June 1<sup>st</sup> to October 31<sup>st</sup>.

In total, *1540 bathing water sites* were monitored, two of which are located in inland waters (lakes), while the rest 1538 bathing water sites are located in coastal waters.

The monitoring *quality parameters* have been selected in accordance to the obligations of the Directive 2006/7/EC and they are distinguished in two groups:

- ✓ *Microbiological*: "Escherichia coli" and "Intestinal enterococci", determined in accordance to the reference methods of analysis of Annex I of the Directive 2006/7/EC and
- ✓ *Other parameters, visually assessed*: color, mineral oils, tarry residues, seaweed, jelly-fish and floating material.

The programme was implemented as scheduled during the bathing water season for 2014, without delays and with the frequency that is specified in the Directive 2006/7/EC. At each bathing water site, *a minimum number of 6 samples* were collected, one pre-seasonal and the other samples are distributed throughout the bathing season, with the interval between sampling dates never exceeding 31 days.

All monitoring sites were reviewed in terms of their coordinates and their description in order to enable the bathers and public authorities to locate and approach the desired bathing water.

## BATHING WATER QUALITY MONITORING NETWORK

In 2014 the revision of the monitoring network was initiated and completed. The main principle of the revision was to assign a single representative monitoring point at each bathing water according to the provisions of the Directive 2006/7/EC. In accordance with this principle, an existing bathing water with more than one monitoring points is now monitored at one representative site.

During the updating process of the bathing waters monitoring network, the sampling points were relocated to more representative positions, maintaining nevertheless their historical background. The selection of the representative sampling point follows the provisions of Articles 1 and 3 of the Directive 2006/7/EC.

At the end of this process, the revised network includes **1540 monitoring sites at respective bathing waters**.

## BATHING WATER QUALITY ASSESSMENT 2014

The **bathing water quality assessment** was performed with statistical analysis, according to the provisions of article 4 and Annex I of the Directive 2006/7/EC, for the set of bathing water quality data compiled for 2014 in relation to that bathing season and the three preceding bathing seasons (i.e. 2011-2013).

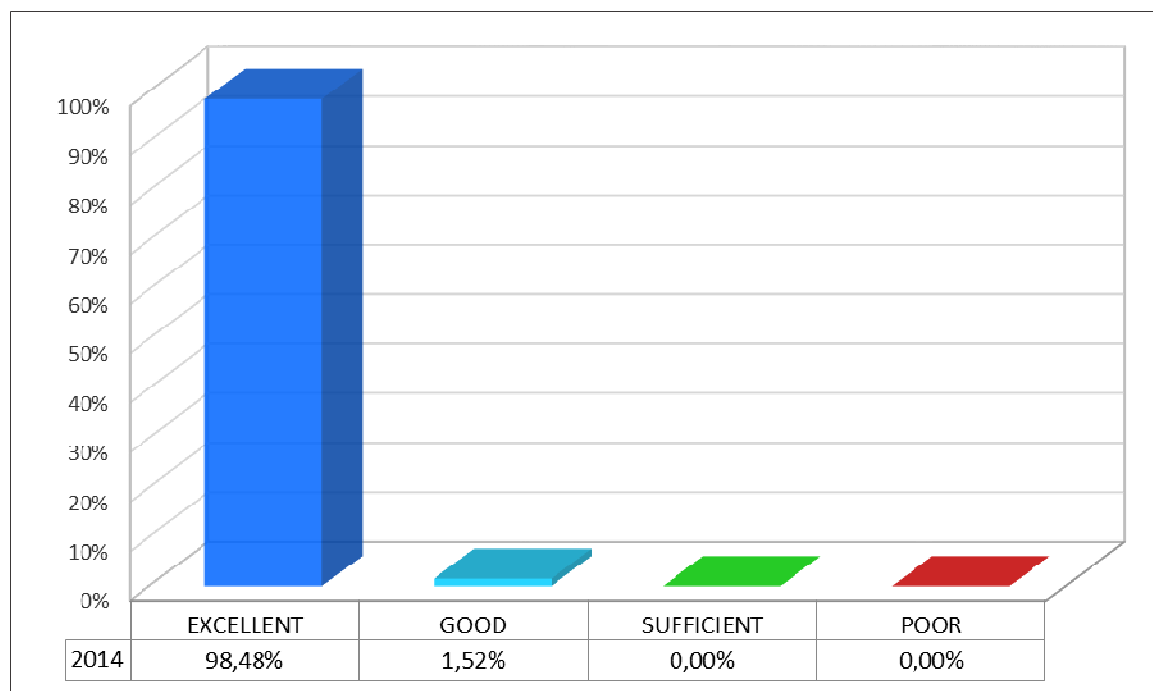
As a result of the aforementioned analysis bathing waters have been classified to the following categories/classes:

| Class | Definition         |
|-------|--------------------|
| 1     | Excellent quality  |
| 2     | Good quality       |
| 3     | Sufficient quality |
| 4     | Poor quality       |

**From the 1540 bathing waters, 1518 were assessed**, as 22 points were monitored for the first time in 2014. The new points have not been evaluated for 2014 since the minimum number of samples required by the Directive has not yet been collected. However, from the initial results of 2014 it is evident that the concentrations of microbiological parameters remain below the respective criteria values of excellent quality. For the remaining 1518 bathing waters, the classification results are the following:

- ➡ 1495 bathing waters are classified as “**excellent quality**”. One of them are located in inland waters and the 1494 in coastal waters.
- ➡ 23 bathing waters are classified as “**good quality**”, one of which is located in inland waters and 22 in coastal waters.
- ➡ None of bathing waters was classified as “**sufficient quality**”.
- ➡ None of bathing waters was classified as “**poor quality**”.

The following figure and table present *the results of the assessment for the 2014 bathing season*.



*Figure 1: Bathing waters classification according to Directive 2006/7/EC for year 2014*

From the total number of the monitoring sites evaluated **98.48% is of excellent water quality, while all monitoring sites are in full compliance with the requirements of the Directive 2006/7/EC.**

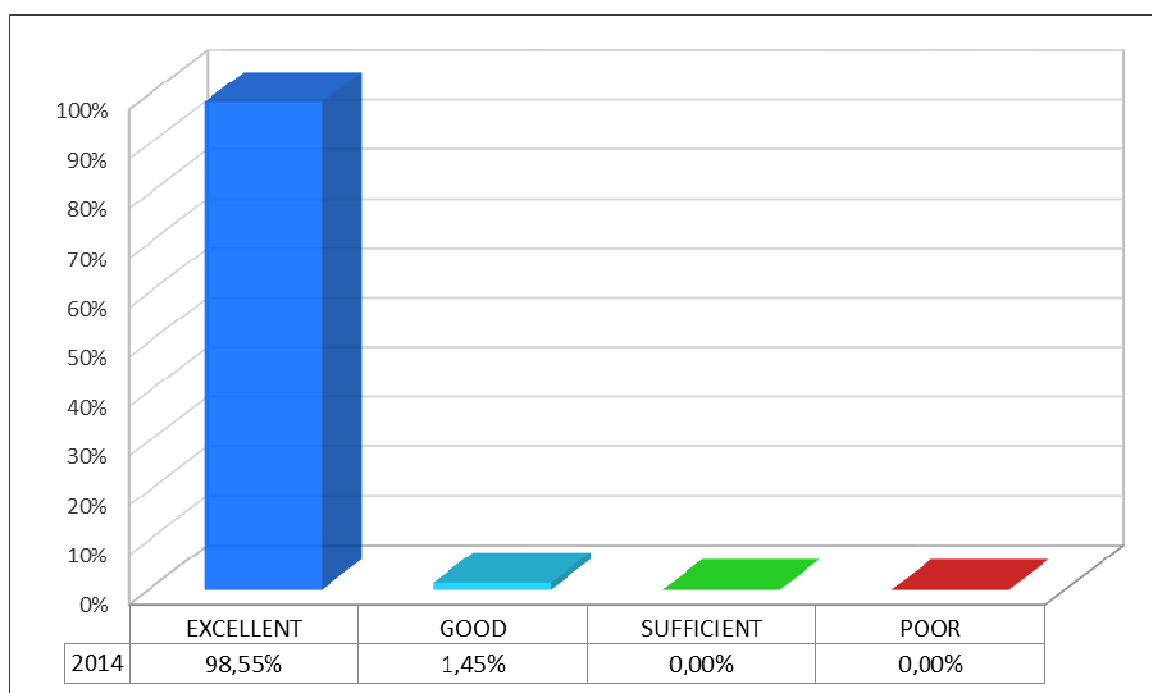
*Table 1: Classification of bathing waters for the year 2014 according to the requirements of the Directive 2006/7/EC*

| Numbers of monitoring points | Class   | Quality            | % Percentage |
|------------------------------|---------|--------------------|--------------|
| 1495                         | Class 1 | excellent quality  | 98,48%       |
| 23                           | Class 2 | good quality       | 1,52%        |
| 0                            | Class 3 | sufficient quality | 0,00%        |
| 0                            | Class 4 | poor quality       | 0,00%        |

From the 1518 bathing waters, 1516 are located in coastal waters and are classified in the following categories:

**Table 2: Classification of Coastal bathing waters for the year 2014 according to the requirements of the Directive 2006/7/EC**

| Numbers of monitoring points | Class   | Quality            | % Percentage |
|------------------------------|---------|--------------------|--------------|
| 1494                         | Class 1 | excellent quality  | 98,55%       |
| 22                           | Class 2 | good quality       | 1,45%        |
| 0                            | Class 3 | sufficient quality | 0,00%        |
| 0                            | Class 4 | poor quality       | 0,00%        |

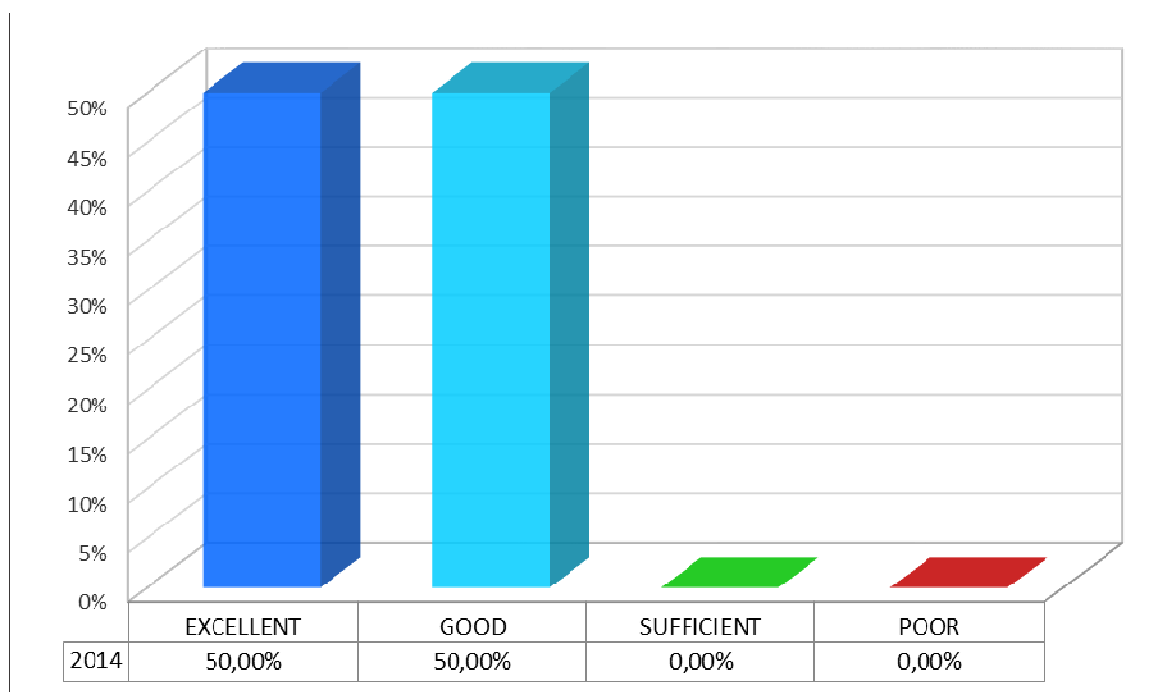


**Figure 2: Coastal bathing waters classification according to Directive 2006/7/EC for year 2014**

In the monitoring network of the year 2014 two bathing sites in inland waters are included, one of which is in Vouliagmeni Lake and the other is in Vegoritida Lake. The classification of inland bathing waters in the assessment of the year 2014 is presented below.

**Table 3: Classification of inland bathing waters for the year 2014 according to the requirements of the Directive 2006/7/EC**

| Numbers of monitoring points | Class   | Quality            | % Percentage |
|------------------------------|---------|--------------------|--------------|
| 1                            | Class 1 | excellent quality  | 50,00%       |
| 1                            | Class 2 | good quality       | 50,00%       |
| 0                            | Class 3 | sufficient quality | 0%           |
| 0                            | Class 4 | poor quality       | 0%           |



**Figure 3: Inland bathing waters classification according to Directive 2006/7/EC year 2014**

#### EVOLUTION OF BATHING WATER QUALITY IN GREECE

Greece, since 1990, has systematically monitored the bathing waters quality under the provisions of the Directive 76/160/EEC and then based on the provisions of the Directive 206/7/EC. The quality of the coastal bathing waters since 1990 is presented in Figure 4, clearly presenting that the compliance to the stricter guide values of the Directive

76/160/EEC exceeds 93% since 1995. The quality of the inland waters (Figure 5) has sharp fluctuations due to the small number of the monitored points (only 6 points).

Since 2010, Special Secretariat for Water assesses bathing waters in accordance with the Directive 2006/7/EC, **demonstrating a high level of compliance, which by the year 2014 reached 100% (i.e. excellent and good quality).**

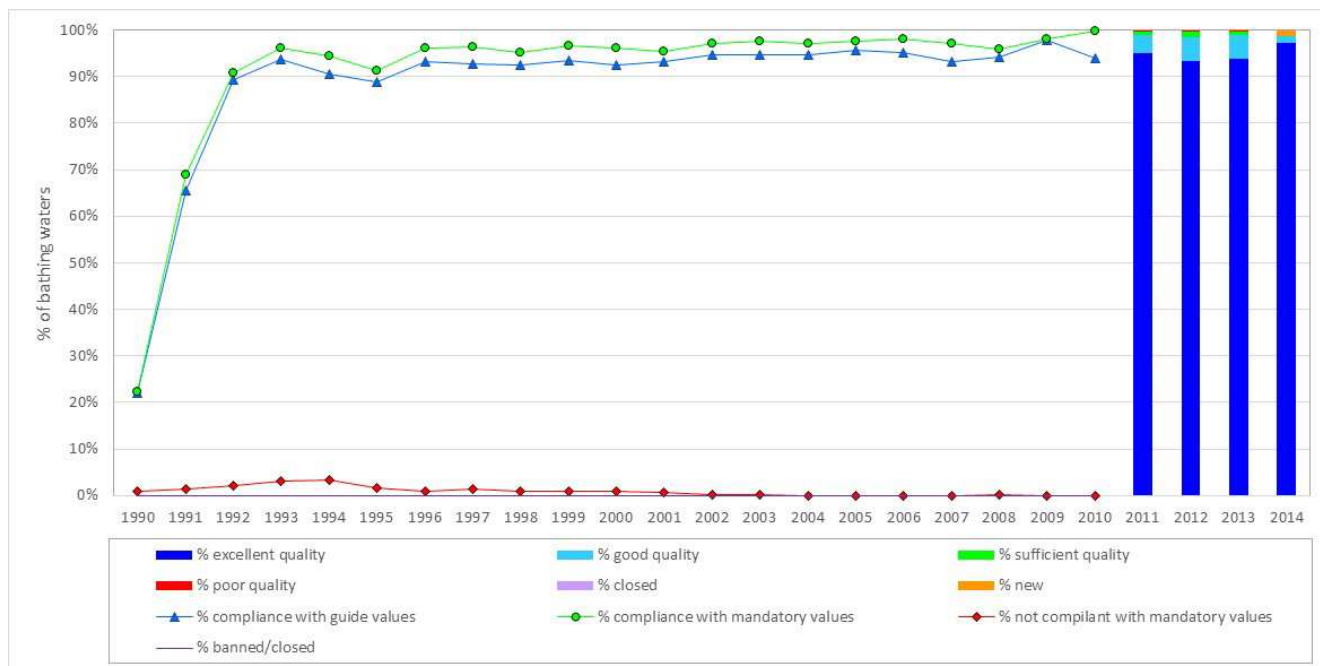


Figure 4: Coastal bathing water quality for the period 1990-2014

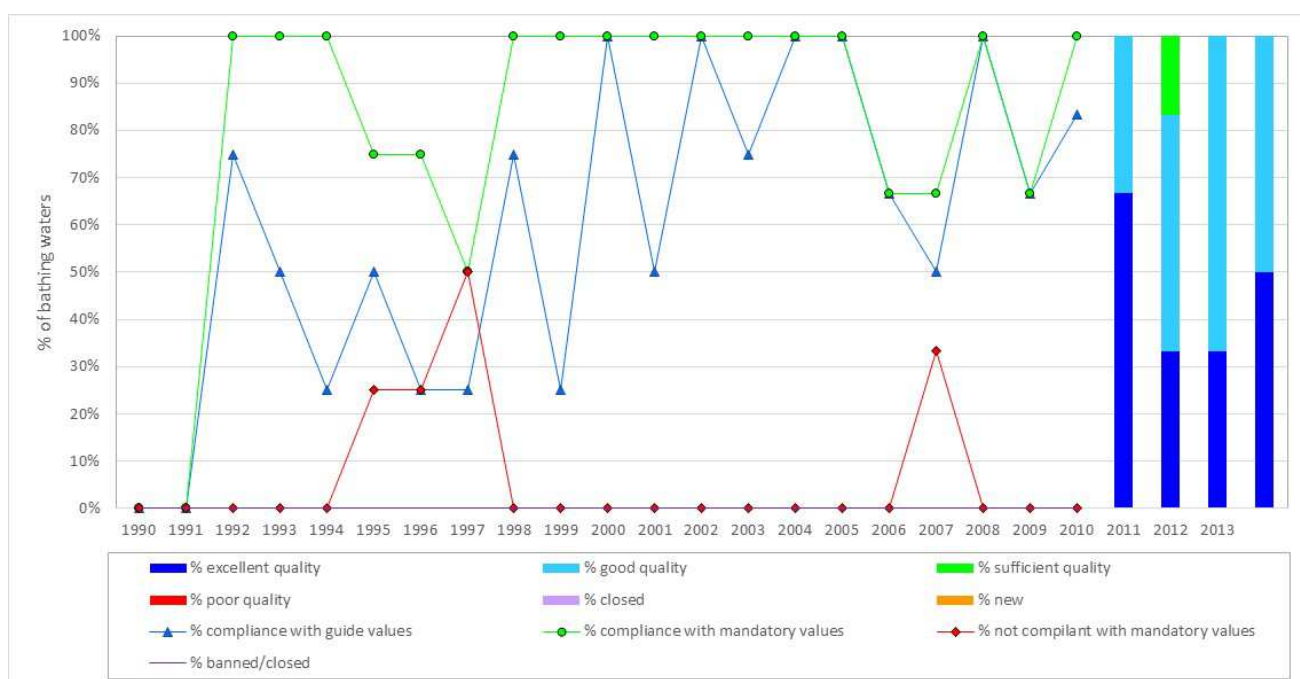


Figure 5: Inland bathing water quality for the period 1990-2014

## REGISTRY OF THE GREEK BATHING WATER PROFILES

The *Registry of the Greek Bathing Water Profiles*, which has been established for the first time in 2012, is being updated and adjusted annually, under the supervision of the of the Special Secretariat for Water, in order to take into account possible modifications in monitoring network, the bathing water quality, the relation of the bathing waters to water bodies or protected areas, pressures from sources of pollution and related measures.

The aim of the Registry of Bathing Water Profiles is to describe and present the key characteristics of the bathing waters, identify the pollution sources that may affect water quality and assess the magnitude of the effects. The Registry serves also as a guide for selecting appropriate measures in order to minimise the impact of pressures in bathing waters and allows for a more efficient management of resources.



For this purpose an *interactive website* is operational and presents the *Greek bathing water profiles*, in order on the one hand to inform the public regarding the bathing water quality and the appropriate measures taken and additionally to accommodate comments by the website visitors.

All relevant data and information are available through the web-site

<http://www.bathingwaterprofiles.gr/>

## USEFUL LINKS

|                                                                                                                       |                                                                                                                                                                                                                                                                                                           |
|-----------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Ministry of Reconstruction of Production, Environment and Energy- Aquatic Environment – Bathing Waters                | <a href="http://www.ypeka.gr/Default.aspx?tabid=253&amp;locale=el-GR&amp;language=en-US=el-GR">http://www.ypeka.gr/Default.aspx?tabid=253&amp;locale=el-GR&amp;language=en-US=el-GR</a>                                                                                                                   |
| Ministry of Reconstruction of Production, Environment and Energy- Greek Bathing Water Profiles Registry               | <a href="http://www.bathingwaterprofiles.gr/">http://www.bathingwaterprofiles.gr/</a>                                                                                                                                                                                                                     |
| Ministry of Reconstruction of Production, Environment and Energy–Bathing Water quality in Greece- Reference year 2013 | <a href="http://www.ypeka.gr/LinkClick.aspx?fileticket=TlmxTH2LYck%3d&amp;tabid=253&amp;language=el-GR">http://www.ypeka.gr/LinkClick.aspx?fileticket=TlmxTH2LYck%3d&amp;tabid=253&amp;language=el-GR</a>                                                                                                 |
| Ministry of Reconstruction of Production, Environment and Energy- National Environment Information Network (NEIN)     | <a href="http://amap11.e-per.gr/">amap11.e-per.gr/</a>                                                                                                                                                                                                                                                    |
| European Commission – Bathing water quality                                                                           | <a href="http://ec.europa.eu/environment/water/water-bathing/index_en.html">http://ec.europa.eu/environment/water/water-bathing/index_en.html</a>                                                                                                                                                         |
| European Environmental Agency- Country reports                                                                        | <a href="http://www.eea.europa.eu/themes/water/status-and-monitoring/state-of-bathing-water">http://www.eea.europa.eu/themes/water/status-and-monitoring/state-of-bathing-water</a>                                                                                                                       |
| European Environmental Agency – Guidelines on assessment under the New Bathing Water Directive and transition period  | <a href="http://glossary.en.eea.europa.eu/terminology/sitesearch?term=guidelines+on+assessment+under+the+Bathing+water+directive+and+transition+period">http://glossary.en.eea.europa.eu/terminology/sitesearch?term=guidelines+on+assessment+under+the+Bathing+water+directive+and+transition+period</a> |
| European Environmental Agency - Central Data Repository                                                               | <a href="http://cdr.eionet.europa.eu/gr/eu/nbwd">http://cdr.eionet.europa.eu/gr/eu/nbwd</a>                                                                                                                                                                                                               |
| European Environment Agency – Interactive map                                                                         | <a href="http://www.eea.europa.eu/data-and-maps/explore-interactive-maps/state-of-bathing-waters">http://www.eea.europa.eu/data-and-maps/explore-interactive-maps/state-of-bathing-waters</a>                                                                                                             |

## CONTACT DETAILS

### Ministry of Reconstruction of Production, Environment and Energy/ Special Secretariat for Water

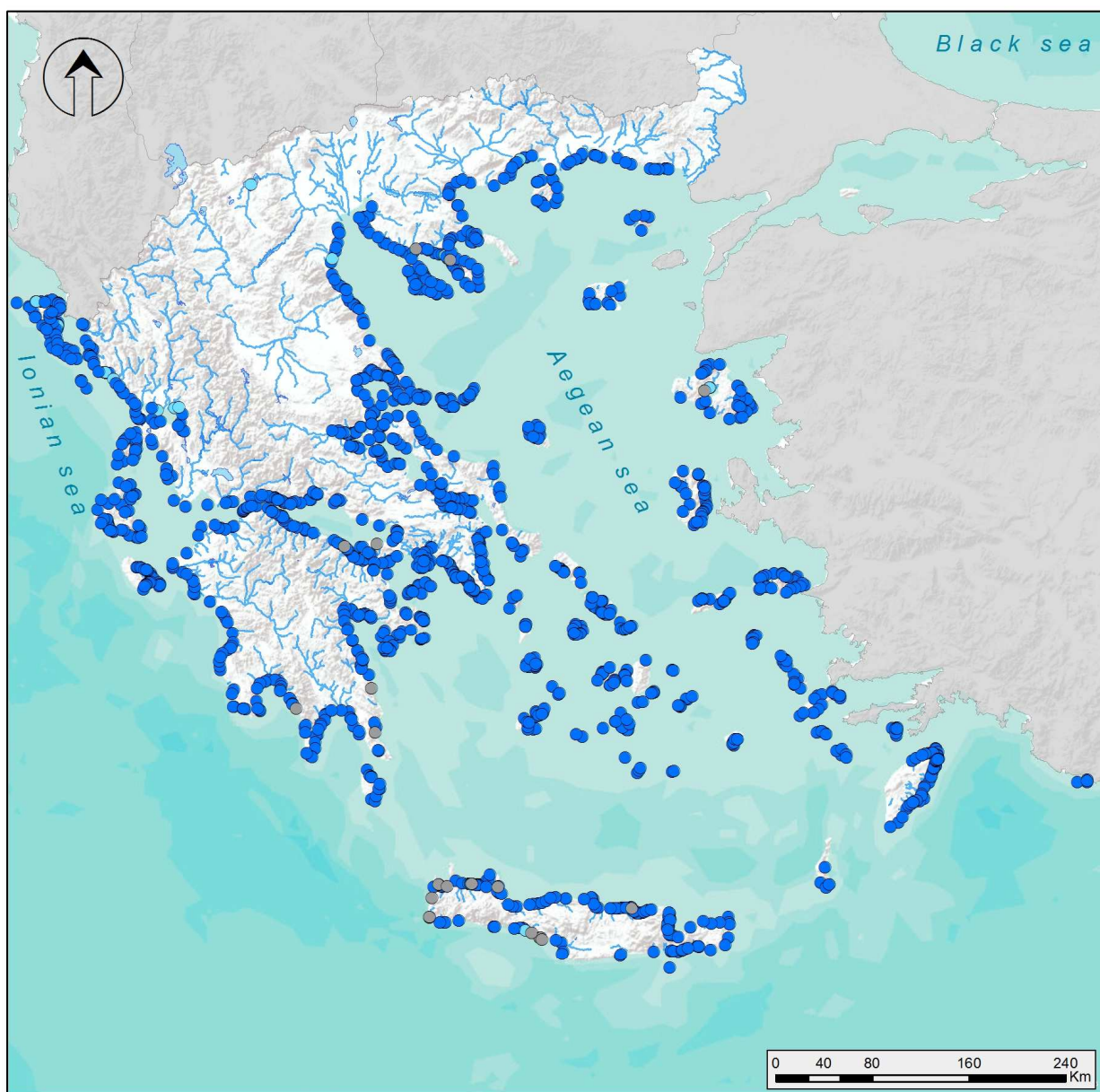
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<http://www.bathingwaterprofiles.gr/>

# MAP WITH THE BATHING WATERS MONITORING SITES AND CHARACTERISATION FOR THE 2014 BATHING SEASON



- Excellent quality
- Good quality
- New bathing water or bathing water with changes (assessment not yet possible)