

# Croatian bathing water quality in 2018



Croatia 

June 2019

Photo: © Peter Kristensen/EEA



## Bathing Water Quality in the Season 2018

# Croatia

Under the provisions of the [Bathing Water Directive](#), more than 21 000 bathing waters are monitored in Europe each season. The monitoring data and other information regarding bathing water management are reported to the European Environment Agency by 30 reporting countries in Europe, to be assessed for the annual European report and more detailed national reports.

### 1. BWD reporting in the season 2018

In the season 2018, Croatia identified and reported **1008 bathing waters**, which is 4.6% of all bathing waters in Europe. Two bathing waters in Croatia have been newly identified for the season 2018.

Bathing waters of Croatia in the season 2018		Bathing water quality in the season 2018	
<b>Total reported</b>	1008	<b>Excellent</b>	952 (94.4%)
Coastal	981	<b>Good</b>	20 (2%)
Inland	27	<b>Sufficient</b>	2 (0.2%)
<b>Total reported samples</b>	9707	<b>Poor</b>	1 (0.1%)
		<b>Not classified</b>	33 (3.3%)

The bathing waters are quality classified according to the two microbiological parameters (Escherichia coli and Intestinal enterococci) defined in the Bathing Water Directive. 96.6% of reported bathing waters are in line with the minimum quality standards of the Directive, thus classified “sufficient” or better. One bathing water is of “poor” quality.

More detailed information on bathing waters of Croatia is available at the national bathing water portal <http://www.haop.hr/>.

## 2. BWD monitoring

Each bathing water that is identified by the reporting country needs to have a monitoring calendar established before the bathing season. The monitoring calendar requirements can be summarised as follows: (1) a pre-season sample is to be taken shortly before the start of each bathing season; (2) no fewer than four (alternatively, three for specific cases) samples are to be taken and analysed per bathing season; and (3) an interval between sampling dates never exceeds one month.

From the reported data, the assessment also designates effective implementation of the monitoring calendar. In Croatia, monitoring calendar for 2018 was not implemented at 50 bathing waters.

**Table 1: Bathing waters in 2018 according to implementation of the monitoring calendar**

	Count	Share of total [%]
<b>Monitoring calendar implemented</b> A bathing water satisfies monitoring calendar conditions listed above.	958	95%
<b>Monitoring calendar not implemented</b> A bathing water does not satisfy monitoring calendar conditions listed above. They may be quality-classified if enough samples are available in the last assessment period.	50	5%

In addition to the monitoring calendar, management specifics of the last assessment period of four years are also assessed. The status primarily indicates whether the complete dataset of four seasons is available, but also points out the reasons as to why the bathing waters do not have the complete last assessment period dataset. The latter may indicate developing conditions at the site – most importantly, whether the bathing water has been newly identified within the period, or any changes have occurred that are likely to affect the classification of the bathing water.

**Table 2: Management specifics in the last assessment period of 2015–2018**

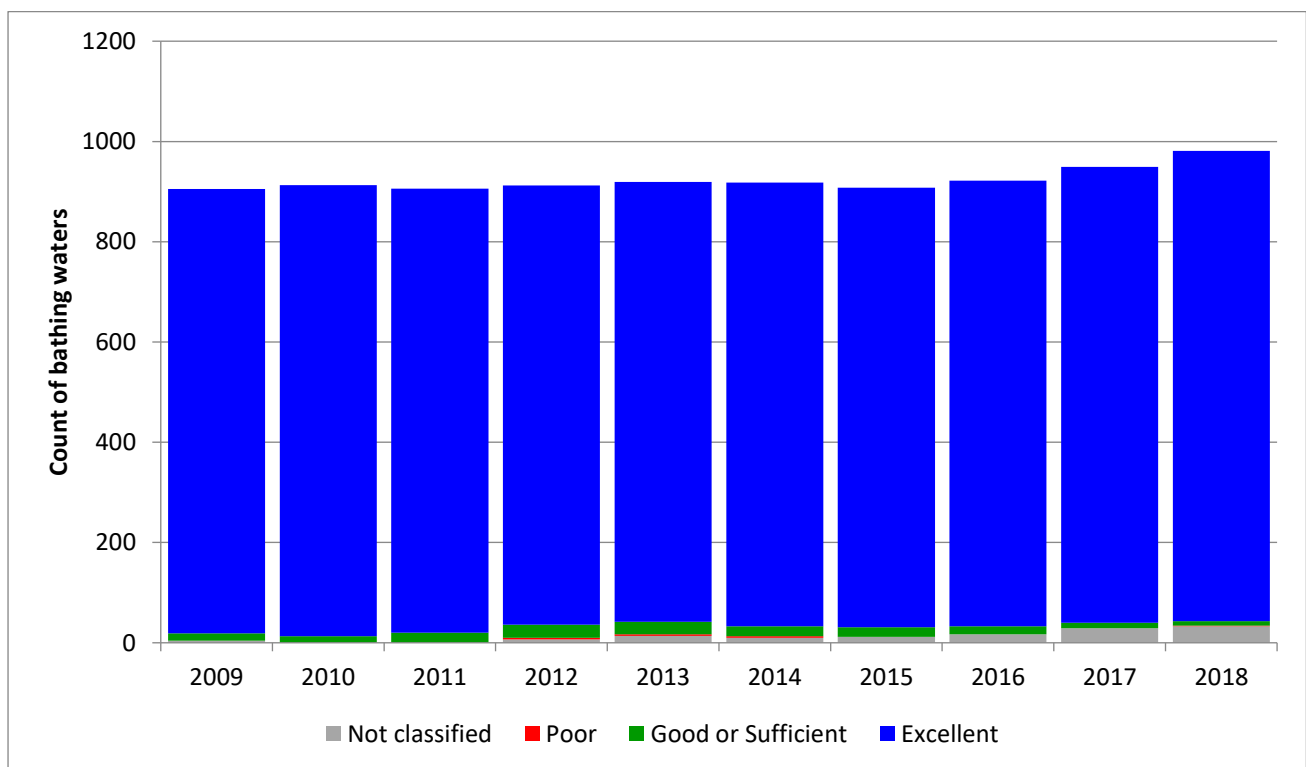
	Count	Share of total [%]
<b>Continuously monitored</b> A bathing water has been monitored in each bathing season in the last assessment period.	930	92.30%
<b>Newly identified</b> A bathing water was identified for the first time within the last assessment period. Such status is assigned until the complete four-year dataset is available, i.e. for three years after the first reporting.	44	4.40%
<b>Quality changes</b> A bathing water was subject to changes described in BWD Art. 4.4 within the last assessment period. Such status is assigned until the complete four-year dataset of samples taken after changes took effect is available.	0	0%
<b>Monitoring gap</b> A bathing water was not monitored for at least one season in the last assessment period. No quality	34	3.40%

classification is made if no samples are reported for the most recent season.		
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### 3. Bathing water quality

#### 3.1 Coastal bathing waters

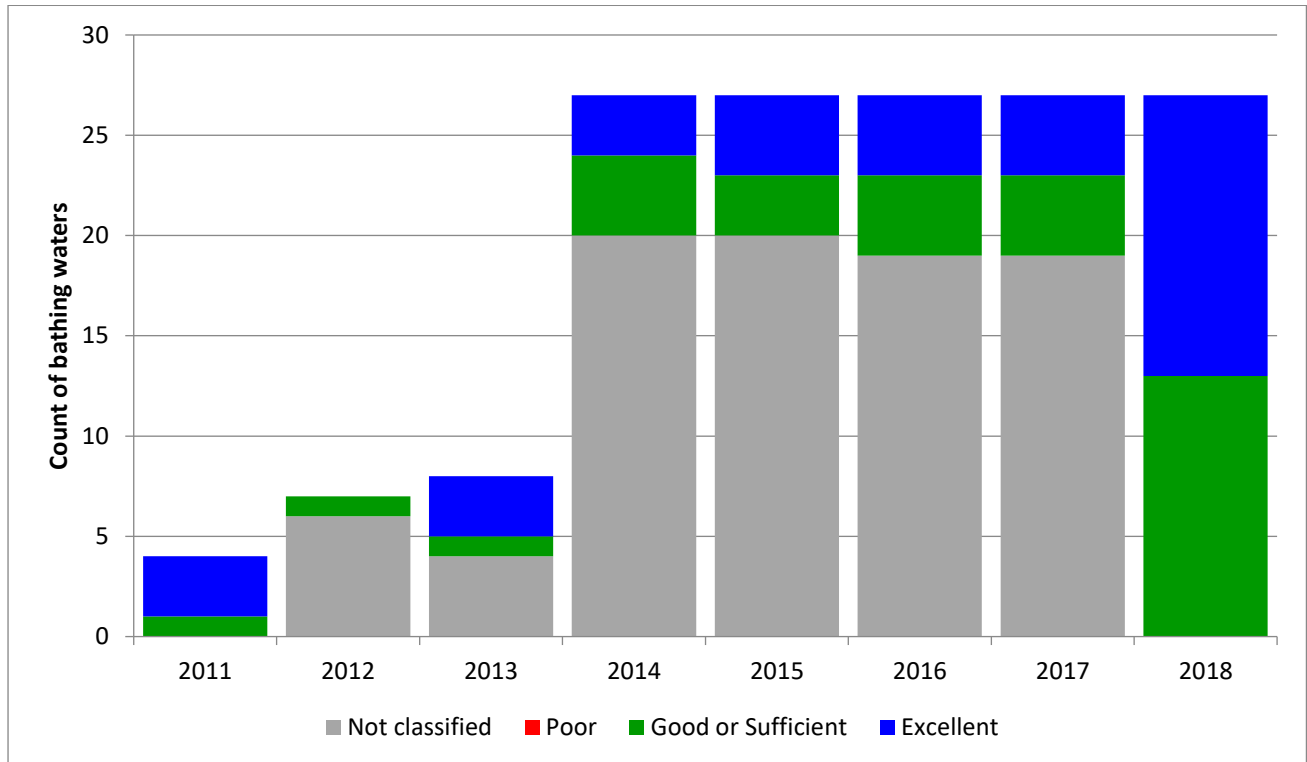
Coastal bathing waters are situated on the sea or transitional water coastline, with respective parameter thresholds defined in Annex I of the Directive. They are subject to more strict thresholds than the inland bathing waters. Quality trend in Croatia for the period 1990–2018 if historical data are available is shown in Figure 1. Count of bathing waters by quality class for the last assessment period 2015–2018 is given in Annex I.



**Figure 1: Trend of coastal bathing water quality in Croatia.** Notes: Each column represents an absolute count of bathing waters in the season. Quality classes “good” and “sufficient” are merged for comparability with classification of the preceding Bathing Water Directive 76/160/EEC.

### 3.2 Inland bathing waters

Inland bathing waters are situated at rivers and lakes, featuring fresh water and with respective parameter thresholds defined in Annex I of the Directive. Quality trend in Croatia for the period 1990–2018 if historical data are available is shown in Figure 2. Count of bathing waters by quality class for the last assessment period 2015–2018 is given in Annex I.



**Figure 2: Trend of inland bathing water quality in Croatia.** Notes: Each column represents an absolute count of bathing waters in the season. Quality classes “good” and “sufficient” are merged for comparability with classification of the preceding Bathing Water Directive 76/160/EEC.

## 4. Bathing water management in Croatia

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In addition to monitoring data, reporting countries also provide information on bathing water management in the country. The information is used to exchange good practices, discuss issues on the European level, and understand the specifics of implementation of the Directive.

Bathing water quality monitoring is carried out under Regulation on sea bathing water quality (OG 73/08) and Regulation on bathing water quality (OG 51/14). Regulations set out standards for bathing water quality at the coastal, transitional and inland beaches, establish the limit values for microbiological parameters and other characteristics of the coastal, transitional and inland waters. In order to achieve the require standards, management measures for the bathing waters were established.

The bathing season in Croatia is the period from 1 June until 15 September, unless due to weather conditions and local customs, the representative body of the county issues a decision on the bathing season lasting for a longer period of time. Monitoring of bathing water quality at sea beaches lasts from 15 May until 30 September. Before each bathing season the county is obliged to determine sampling points. Before the start of each bathing season the authorised person is obliged to determine monitoring calendar consistent with the relevant administrative body in the county. Bathing water monitoring has to start no later than four days from the date specified in the calendar.

Based on bathing water quality monitoring results individual, annual and final assessments are made. The individual assessment is determined after each analysis carried out during the bathing season, according to the limit values for the microbiological parameters referred by the Regulation. The annual assessment is determined after the end of the bathing season, based on a set of data on bathing water quality for that particular bathing season, according to the limit values for the microbiological parameters referred by the Regulation.

The final assessment is determined after the end of the last bathing season and the three preceding bathing seasons, according to the limit values for the microbiological parameters referred by the Regulation, based on a data set of at least 28 samples for each sampling point.

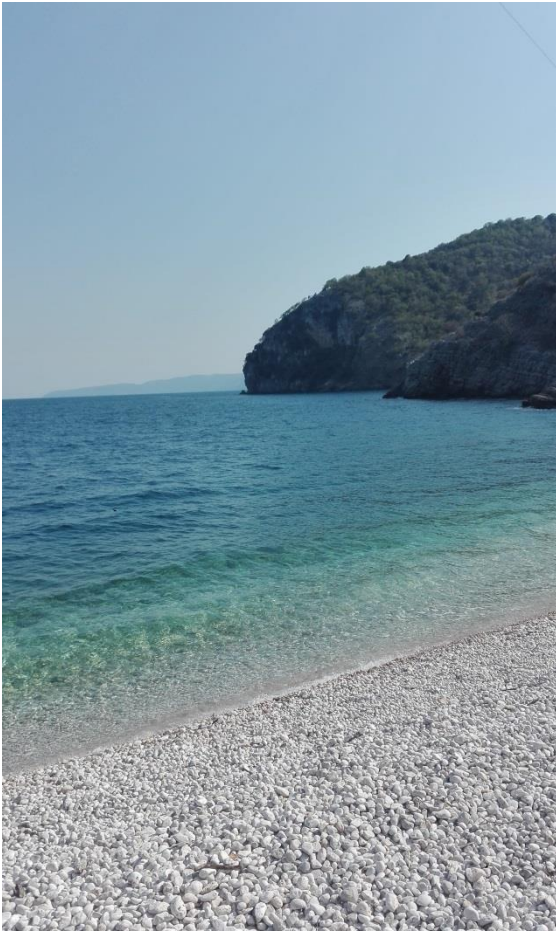


Photo 1: Beach in Beli, Island Cres

Monitoring data are available for public on <http://www.izor.hr/bathing/> and <http://www.azo.hr/KakvocaMoraZa>. Moreover, users are allowed to make comments and suggestion considering each bathing water, to propose new sampling points, to get additional information of the beaches and even to report on possible sudden and short term pollutions,. The application for mobile phones which makes uses of modern technologies, such as GPS was produced in 2012. Bathing water profiles are available for majority of bathing waters as well and the major parts of profiles are publicly available from 2014.

In 2003 the project “Coastal Cities Water Pollution Control Project” has started. It includes 47 subprojects for construction and modernization of sewage systems and waste water treatment along the coast of the mainland and islands. The project has a long-term character. By the end of the third phase it is envisaged that all Croatian coast and islands will be adequately covered with sewage systems and waste water treatment plants. The situation has been already improved in the area around the cities of Rijeka, Opatija, Zadar and Šibenik which is evident from the bathing water quality trends.

Implementation of Marine strategy framework directive MSFD is also on-going and it is expected that by the 2018 Monitoring program for ongoing assessment regarding all eleven MSFD descriptors will be fully implemented.

Additional details on bathing water monitoring, management measures, short-term pollutions and general implementation of the BWD are included in an extensive report produced by the national authorities (in Croatian; [https://www.mzoip.hr/doc/izvjesce\\_o\\_kakvoci\\_mora\\_za\\_kupanje\\_u\\_rh\\_2017.pdf](https://www.mzoip.hr/doc/izvjesce_o_kakvoci_mora_za_kupanje_u_rh_2017.pdf)).

During the 2018 bathing season, six new inland bathing waters were identified in Croatia. Bathing water quality was monitored also on six bathing waters in city of Zagreb which are not proclaimed as official bathing waters yet.

For the 2018 bathing season, 12 short-term pollutions have been reported in Croatia.

## Annex I Bathing water quality in Croatia in 2015–2018

Table 3: Bathing water quality by water category and season

		Total count of bathing waters	Excellent		Good		Sufficient		Poor		Not classified	
			Count	%	Count	%	Count	%	Count	%	Count	%
Coastal	2015	908	877	96.6	16	1.8	3	0.3	0	0.0	12	1.3
	2016	922	889	96.4	13	1.4	3	0.3	0	0.0	17	1.8
	2017	949	909	95.8	10	1.1	1	0.1	0	0.0	29	3.1
	2018	981	938	95.6	8	0.8	1	0.1	1	0.1	33	3.4
Inland	2015	27	4	14.8	2	7.4	1	3.7	0	0.0	20	74.1
	2016	27	4	14.8	3	11.1	1	3.7	0	0.0	19	70.4
	2017	27	4	14.8	3	11.1	1	3.7	0	0.0	19	70.4
	2018	27	14	51.9	12	44.4	1	3.7	0	0.0	0	0.0
Total	2015	935	881	94.2	18	1.9	4	0.4	0	0.0	32	3.4
	2016	949	893	94.1	16	1.7	4	0.4	0	0.0	36	3.8
	2017	976	913	93.5	13	1.3	2	0.2	0	0.0	48	4.9
	2018	1008	952	94.4	20	2.0	2	0.2	1	0.1	33	3.3



## Annex II Bathing water quality map

**Map 1: Bathing waters reported during the 2018 bathing season in Croatia**



**Bathing water quality**

- Excellent water quality
- Good water quality
- Sufficient water quality
- Poor water quality
- Quality classification not possible: not enough samples / new bathing waters / bathing waters with changes / closed
- No data
- Outside data coverage (data available, not presented on the map)

**Source:** National boundaries: EEA; Large rivers and lakes: EEA, WFD Article 3; Rivers in Western Balkan: TC Vode; Bathing waters data and coordinates: Croatian authorities; Digital Elevation Model over Europe (EU-DEM): EEA.