

EPA Summary methodology for Bathing Water Classifications

General Information

In May every year, the EPA publishes a report detailing the annual classifications for all designated bathing waters in Ireland for the previous bathing season. Designated bathing waters, governed by the Bathing Water Quality Regulations 2008, are legally managed beaches and lakes where people swim or engage in recreational activities.

During the bathing season, the quality of bathing water at these locations is monitored by local authorities. Water samples are collected and analysed in laboratories for the presence of faecal indicator bacteria that could pose a risk to human health. Each year, bathing waters are given a water quality rating—'Excellent,' 'Good,' 'Sufficient,' or 'Poor'—based on the levels of faecal bacteria detected in these samples. The classifications indicate the likelihood of the water being safe for swimming or, in the case of a 'Poor' rating, unsafe. Beaches awarded the Blue Flag in Ireland must achieve the highest classification of 'Excellent.'

The EPA ensures that bathing water classifications are produced according to best international statistical practices and adheres to the European Statistics Code of Practice, as detailed in its Revision and Dissemination Policy for Bathing Water Classifications.

Legal basis

The Bathing Water Quality Regulations is the law that sets out how bathing waters are managed in Ireland. The aim of the regulations is to protect human health and to improve water quality. It defines the roles and responsibilities of local authorities, the EPA and HSE and the rules for the bathing season in Ireland. It refers to Statutory Instrument 79 of 2008 (SI 79 of 2008), the Bathing Water Quality Regulations 2008 (hereafter referred to as "the Regulations"), which brought the EU Bathing Water Directive 2006/7/EC into Irish legislation. These regulations were most recently amended in 2024 to allow for local authorities to extend the bathing season.

Sample Collection

Local authorities are responsible for monitoring and managing bathing waters within their areas. As part of this process, each local authority prepares a monitoring calendar, which is submitted to the EPA before the bathing season begins. The Regulations (Schedule 2) specify the frequency and minimum number of water samples required: one sample is taken shortly before the season starts and at least four samples are taken during the season, with a minimum of one per month. However, many local authorities sample more frequently, such as every two weeks or even weekly in some areas. The methods for sample collection and laboratory analysis are outlined in Schedule 5 and Regulation 9 of the Regulations. Bathing water sample results are published on the dedicated EPA bathing water website www.beaches.ie as they are uploaded by local authorities.

The EPA oversees the monitoring process to ensure compliance. This includes verifying that the required number of samples is taken, that sampling aligns with the monitoring calendar, that appropriate analytical methods are used, and that the results meet certain quality standards. During the season, the EPA reviews reported samples and follows up with local authorities weekly if required samples are not submitted as expected.

When bacterial concentrations are above a specified threshold, the local authority must take management actions, which may include temporarily closing the bathing water until water quality improves. The EPA ensures that such incidents are managed and reported in compliance with the

Regulations. Information about any incidents at bathing waters is also published on the EPA bathing water website www.beaches.ie as they are reported.

Processing and Analysis

After the bathing season, the EPA reviews all sample data for completeness, quality, and regulatory compliance. If any issues arise with the reported results, the EPA contacts the relevant local authority to clarify or resolve the matter. Local authorities are solely responsible for reporting data, and the EPA cannot edit or modify sample results.

Samples collected as part of the scheduled monitoring are included in the dataset used to determine the annual classification. While local authorities may take additional investigative samples during the season, these are not included in the assessment dataset. In certain circumstances a scheduled sample may be replaced for example when the local authority has put a warning notice prior to the sample collection date to warn the public that there is a risk of pollution. There is a limit to the number of times this can be done – the details of which and the criteria that must be followed are outlined in the Regulations and EPA guidance to local authorities.

Typically, the classification is based on a four-year period, rather than the results from a single bathing season, to provide a more balanced rating and reduce the impact of bad weather or isolated incidents. In limited circumstances, a classification may be based on less than four years provided that a minimum of 16 samples are available e.g. for newly identified bathing waters or after changes have been put in place to improve water quality. Bathing waters that have recently been designated and do not yet meet this minimum are temporarily classified as 'New.'

The status calculation is done based on percentile evaluation as outlined in the EEA guidance document "Guidelines for the assessment under the Bathing Water Directive". The calculation is based on percentile evaluation, whereby 90th and 95th percentile concentrations of two faecal indicator bacteria (E. coli and Intestinal Enterococci) are compared to the classification standards for inland and coastal waters in Schedule 6 of the Regulations. The percentiles are calculated by first taking the log₁₀ value of the sample data. This is done to reduce skewness in the data and allow the subsequent statistics to be measured more accurately. If a less than detection limit was reported, the log₁₀ value of the minimum limit of detection is used. The arithmetic mean and standard deviation of the log-transformed data are calculated and used to estimate the upper percentiles 90th and 95th on the transformed scale. These values are then back transformed to get estimates of the upper 90th and 95th percentiles on the original scale. The "Excellent" and "Good" categories are based on the 95th percentile value, while the "Sufficient" and "Poor" categories are determined by the 90th percentile value according to Schedule 4. The classification of the bathing water is based on the lower classifications for the two-bacteria E. coli and Intestinal Enterococci e.g. if the status of E. Coli was "Good" and Intestinal Enterococci was "Excellent", the bathing water classification would be "Good".

Dissemination

The EPA publishes an annual Bathing Water Quality in Ireland report before the start of the next bathing season (typically by 1 June), which is available on the EPA website (under "Beaches and the Bathing Water Directive") and on the EPA dedicated bathing water website www.Beaches.ie. This report includes the classification of all identified bathing waters from the previous season.

Throughout the bathing season, individual bathing water sample results and details of any incidents are reported on the specific bathing water pages of www.beaches.ie. Bathing water samples are assessed as meeting quality standards of 'Excellent,' 'Good,' or 'Sufficient,' or, if they fail to meet the minimum standards, classified as 'Poor,' in accordance with the Bathing Water Quality Regulations and Health

Services Executive guidelines. The website also provides the annual water quality classifications for all identified bathing waters and provides background information on bathing waters.

The EPA submits the Identification of Bathing Waters Report (only if there are changes since the last report) to the European Commission (EC) via the Central Data Repository by 1 June. By 31 December, the EPA also reports sample results, actions taken to manage incidents, and the bathing water quality classifications for the preceding season. Data reported to the Europe is publicly available on the European Environment Agency website and included in the annual European Environment Agency Bathing Water Quality report.

Finally, bathing water data is available via data.epa.ie and data.gov.ie as Open Data APIs are web services that provide convenient access to data and metadata over HTTP.