

UK WATER INDUSTRY MUST PREPARE FOR RIVERINE BATHING WATER DESIGNATIONS



The UK's first riverine bathing water designation was introduced on the 22 December 2020 on the River Wharfe at Cromwheel, Ilkley.



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This followed local campaigning supported by in-river sampling that showed bacterial levels well above bathing water standards. But Ilkley is not the only place where people are campaigning; there are numerous other sites throughout the UK where people want to see riverine bathing water designations. There is also a well reported increase in river wild swimming since the global pandemic.

The UK has 640 bathing waters, of which 624 are 'coastal waters' and 16 are 'inland waters', a term which covers both rivers and lakes. In contrast, according to 2020 data, there are 1,273 designated inland bathing waters in France and 1,941 in Germany, where more than 90% are rated as 'Excellent'. Given that wastewater discharges

in the UK have not been designed to support bathing water quality, the water industry will be facing a real challenge if river bathing water designations increase significantly, perhaps reflecting the number of designations of our European neighbours.

The challenge

Under UK regulations, bathing waters are classified according to the levels of bacteria, known as faecal indicator organisms (FIOs) measured in the water. Each year, every designated bathing water receives a classification of 'Poor', 'Sufficient', 'Good' or 'Excellent' based on water samples taken by the Environment Agency. FIO concentrations indicate the presence of pollution (e.g. from sewage or animal faeces), with higher values leading to an increased risk of falling ill and a lower classification.

Following on from the widespread media coverage on the Ilkley designation, the Environmental Audit Committee's (EAC) report on water quality in England's rivers was published in January 2022. The report recommends that the government should actively encourage the designation of at least one widely used stretch of river for bathing within each water company area by 2025. This marks the first steps towards making designated river bathing in England commonplace.

It is interesting the EAC report defines bathing in terms of "water company area". The Environment Agency identifies the main activities that prevent water bodies reaching good status as agriculture and rural land management (31%); the water industry (28%) and urban and transport (13%). This is an overall pollution ranking and is not associated with bacterial pollution. However, initial investigations this year on the Ilkley bathing water by the Environment Agency and partners suggest a variety of sources including human and animal are impacting water quality in the River Wharfe.

We can also learn from work done at coastal bathing water designations that have been in place for many years. Investment by the water industry in bacterial treatment and reductions in storm discharge volumes have led to significant improvements over time in the coastal environment. However, high levels of bacterial treatment at wastewater treatment works have led to carbon intensive treatment processes at a time when we are striving for net-zero carbon. Therefore, will

priorities need to be set in terms of striking the balance between several, sometimes competing, desirable outcomes?

It will not just be about water quality however. If riverine bathing waters follow the same path as UK coastal bathing waters, there is also the consideration of what constitutes an award winning riverine site. For coastal waters we have the Blue Flag beach award. The Blue Flag criteria are divided into four categories with a total of 33 individual targets. These targets go far beyond water quality and include things like the provision of information, keeping the beach clean, provision of toilets, lifeguard patrols, availability of drinking water and accessibility features.

We should resist the temptation to think that the water industry is responsible for leading the discussion around designation of riverine bathing waters despite guidance framing it in terms of 'water company regions'. There are likely to be many contributors to pollution levels and the provision and maintenance of bathing facilities will require the collaboration of many parties, such as local authorities, interest groups, NGOs and river users. Therefore, solutions need to be developed using a catchment based approach, and sustainable nature based solutions should be prioritised over energy intensive treatment processes in order to minimise carbon impacts. This direction of travel is reflected in latest water industry environmental guidance and in the Environment Agency's stated approach to the River Wharfe.

Collecting the right data in the right place is key to understanding the river

Typically, data gathering will be required to determine catchment characteristics and catchment models will be used to test improvement options. The assessment and modelling of riverine bathing waters is complicated by a lack of bacterial sampling data, both from water company discharges and in-river sampling (e.g., to capture agricultural impacts) as there has never been a historic need or requirement to collect this data.

This need for intensive data collection is hampered by the lack of real time bacterial monitoring, or appropriate regulator accepted surrogates, and the lack of accredited commercial laboratories

offering microbial source tracing (i.e., DNA fingerprinting of sources). The lack of accepted surrogates means the results and findings from many of the innovative fluorometer based technologies and monitors currently on the market may never be accepted by the regulators and wider industry. Given the expense of intensive bacterial sampling however, and the need to capture near real time data to evidence the impact from intermittent discharges in particular, this is a risk the industry may need to take.

A hydrological understanding of the river, allied to further academic support on bacterial decay rates within the UK river environment, is also now required. This is because without fully understanding the travel times and decay rates along the river, it is very difficult to determine the size of the upstream catchment with the ability to influence the bathing water.

Where do we go from here?

All these factors need to be considered by the water companies when planning for their assessments of potential riverine bathing water sites.

- How do you screen and identify appropriate sites?
- How do you scope a survey and sampling programme capable of informing or evidencing your chosen methodology?
- How do you evidence the impact from diffuse sources, considering both the impact of wet weather runoff and the impact of movement of livestock around the catchment?
- Which methodology do you chose to test future scenarios? Both traditional hydraulic river modelling and data driven regression models have notable limitations.

The picture that forms is a complex mix of polluting sources; a need to review the regulatory landscape to ensure suitability for river bathing waters; a wide range of stakeholder interests; capturing catchment characteristics and needs and development of assessment methods that account for environmental, social and economic drivers. Once designated there will then be an ongoing requirement to ensure safety, monitor the site, advise users and provide user facilities. The River Wharfe is the start of a new direction and change of focus which we as an industry need to be fully prepared for.