The revised EU Bathing Water Directive came into force in 2015 and is much stricter than previous regulations. As a result, bathing waters which had met the required standards may no longer be judged acceptable. We are working to make sure that the bathing water at Burnham Jetty North meets the tighter quality standards.

The EU standards are based on a complex analysis of the numbers of faecal indicator organisms (FIOs) found in the waters. FIOs are a group of bacteria that are present in animal and bird faeces and are used to assess water quality. They are detectable in the water which is discharged from sewage treatment works (STWs) after it has been treated, but are also found in runoff from agricultural land, from roads and in discharges from houses with septic tanks. Runoff is sometimes channelled into the sewerage system where it mixes with sewage and is discharged through combined sewer overflows (CSOs) during wet weather.

Wessex Water has been working with the Environment Agency (EA), local councils, landowners and internal drainage boards (IDBs) to find ways to make our bathing waters as clean as possible. Between 2010 and 2014 we carried out an investigation monitoring bathing water quality which studied the outputs from our STWs and evaluated the quality of the waters from the rivers Brue, Tone, Parrett and Cannington Brook. We wanted to see how different forms of treatment (ultraviolet (uv) disinfection or conventional treatment) worked in the different river environments. The sewer network was investigated to look for potential causes of pollution from external sources such as surface water overflows, misconnections and CSOs.

As a result of these studies Wessex Water is investing about £38 million between 2015 and 2020 to improve the Burnham Jetty bathing water. This will involve some STWs being upgraded with ultraviolet disinfection processes and increasing the storm storage capacity at CSOs in Bridgwater to reduce the number of spills into the rivers at times of high rainfall, in addition to improvements at Dunball STW.
THE INVESTIGATION

Our primary focus was to evaluate whether waste water discharges in the Taunton area affected bathing water quality at Burnham. We completed a tracer survey which established the length of time it takes water in the river to move between Taunton and the bathing water at Burnham. This enables us to determine whether or not the effluent discharging into the river from the STWs in Taunton influences the bathing water quality at Burnham.

We also studied water quality in the River Tone and the effects of discharges from STWs at Wellington, Bradford-on-Tone, Taunton (Ham), Stoke St Gregory and Bishops Lydeard and Priory storm tank in central Taunton. The results from samples taken upstream of Wellington STW (to determine quality in the River Tone upstream of all our STWs) were compared with samples taken downstream of Stoke St Gregory STW to establish the degree of influence. The EA monitored bathing water quality at Burnham during the bathing season (May to September).

FINDINGS AND OUTCOMES

The results indicate that discharges from our STWs at Wellington, Bradford-on-Tone, Bishops Lydeard, Taunton Ham and Stoke St Gregory do not affect bathing water quality at Burnham Jetty under river flow conditions typically experienced in the bathing water season. Tracer surveys undertaken for this investigation showed that under such conditions the travel time from Taunton Ham STW to Burnham Jetty North is in excess of 117 hours, sufficient to allow FIOs to decay to concentrations lower than those set out within bathing water standards.

Monitoring of water quality carried out at the same time as the tracer survey indicated that quality in the River Tone deteriorated downstream of its confluence with the River Parrett, suggesting that the main source of FIOs comes from the Bridgwater area.

Our previous studies showed that our Priory storm tanks in Taunton were the largest intermittent discharge in the area. This investigation has shown that there is low potential for this site to affect bathing water quality at Burnham Jetty North, but that an impact cannot be wholly discounted. Under normal weather conditions experienced during the bathing season, flows from the site would be low and combined with the long travel time, would result in decay of FIOs to a level which would meet bathing water standards prior to water getting to Burnham Jetty North.

Modelling has suggested that under certain rare and unusual conditions, FIO concentrations could exceed the bathing water standards at Stert Point, the farthest downstream extent of modelling and about 2km upstream of the bathing water. However, under these circumstances the concentration of FIOs would be elevated through other influences such as runoff and other discharges.

The Environment Agency agreed that as a result of the investigation, we do not need to make any changes to the STWs or storm tanks studied. However, we will review information on spill events from Priory storm tanks to make sure that the actual frequency of such events is in line with expectations from our modelling and changes to capacity within our sewer system.

FOR MORE INFORMATION

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