

Britain's water quality crisis



Sewage discharges into Britain's rivers and seas have angered the public and organisations representing river and sea users. What happens when a pollution event occurs? **Cameron Dunn** considers the issues involved

HAPPYPHOTOS/STOCK.ADOBE.COM

British Canoeing states that water companies discharged raw sewage 370,000 times for 2.6 million hours in 2021. Surfers Against Sewage reports 301,091 sewage discharges in England in 2022. The popularity of cold-water swimming, paddle-boarding and other water sports has increased the number of people directly affected by water quality issues.

Basic design flaw

Britain's sewers were once the envy of the world. In the 1860s Joseph Bazalgette (chief engineer to London's Metropolitan Board of Works) built London's sewer system in response to the 'Great Stink' of 1858 (the Thames was a vast open sewer) and the 1849 cholera epidemic made famous by Dr John Snow. Bazalgette's system, still in use today, became a model for other urban sewerage systems.

But there is a basic design flaw — Bazalgette's sewers were combined sewers where foul water from toilets enters the same drains and sewers as rainwater. During heavy rain, combined sewers become overwhelmed by storm drain water. Sewage treatment plants cannot cope with this volume of discharge. This leads to combined sewer overflow (CSO) events, where a mixture of rainwater and sewage is discharged into rivers or the sea.

Urban development built since the 1960s usually has separate sewage and rainwater systems. But most of the UK system is combined.

The impacts

CSO events have a range of impacts on people and the environment:

- Excess nutrients (nitrogen and phosphorous) from sewage cause eutrophication and algal blooms, harming river and marine ecosystems.
- Illnesses such as skin rashes, gastrointestinal symptoms, eye infections and more serious illnesses can result when water users ingest or encounter sewage-contaminated water.

Sewage-contaminated river water can smell and look ugly, with solid waste catching on riverbank vegetation or polluting beaches.

Finding the data

Part of the anger felt by the public and water users relates to the difficulty of getting accurate data on sewage pollution. Sewage discharges are not illegal in most cases, but water companies need to inform the regulator Ofwat when they occur. However:

- Until recently, data on discharges was hard to get hold of, with water companies accused of being less than transparent.

- Water companies have been accused of under-reporting CSO events.
- Some storm overflow outlets are not monitored at all.
- In some cases, the location of outlets is not known.
- In many cases, monitoring only records how long the CSO event was, not the volume of water discharged.

While it may not have been possible to solve the CSO problem completely over the last 30 years, investment could have been made into ensuring the scale of the problem was known.

Is privatisation to blame?

Some argue the England and Wales privatised water companies as 'to blame' for the huge number of CSOs. But is this valid? Water was once a nationalised industry owned by the government. It was privatised in 1989 as shares in 10 regional water authorities were sold to private investors.

Private water companies seek to make a profit. Some of this profit is paid to shareholders in the form of dividends. Up to 2022, water companies had paid out £65.9 billion in dividends. Critics argue the dividends should have been invested in better water treatment systems.

However, CSOs occur in Northern Ireland and Scotland where water companies were never privatised, and in Wales where Welsh Water is run on a not-for-profit basis. Even if all privatised water company profits had been reinvested in improving sewers it is unlikely the problem would have been solved: in 2022 the government estimated it would cost £350–600 billion to rebuild the entire system as a separated one. Nevertheless, greater long-term investment since 1989 would have reduced the CSO problem.

The future

Climate change may make the CSO problem worse. If the UK gets more very heavy rainfall events and more frequent storms, combined sewers could be overwhelmed more often. So there is some urgency

about tackling CSOs, but no 'quick fix'. Options include:

- Prioritising sensitive ecosystems such as chalk streams and vulnerable estuaries with new infrastructure to reduce CSOs.
- Creating extra storage capacity, such as retention basins or tanks to store contaminated flood water so water can be gradually treated.
- Making data on CSOs more widely and easily available, so that water users can avoid dangerous conditions.

It is highly unlikely the CSO problem will ever go away entirely due to the huge economic cost involved.

Questions

- 1 If water companies had been government-owned since 1989, would the CSO problem in 2023 have been better or worse?
- 2 The average UK household water bill is about £440 per year. How much more would people be prepared to pay to fund investment in better sewers and water treatment?
- 3 Should the aim be to reduce CSO events to zero, or is some level of CSO discharge events acceptable?

Further research

The Rivers Trust sewage discharge map:
www.tinyurl.com/2s782u9b

Cost estimates from the UK government, 2022:
www.tinyurl.com/3racsa

House of Lords report on policy options and costs:
www.tinyurl.com/h9ba2emm

Institution of Civil Engineers report on CSOs:
www.tinyurl.com/332e7vdm

Find out more about our full range of magazines and online archives of back issues at
www.hoddereducation.co.uk/magazines

Did you like this article?
Tell us what you think