Storm overflows

What they are, why they happen, how they affect bathing water and what we're doing about them.

What are storm overflows?

Storm overflows are used in areas where wastewater from homes and businesses and rainwater from roofs and roads is carried in the network, known as a combined sewer system. During heavy or prolonged rain, these combined sewer systems can fill to capacity. When there is no more space left, storm overflows automatically activate to release the excess water into rivers and seas to prevent it backing up through the system and causing flooding to homes, roads and businesses.

Are storm overflows raw sewage?

As storm overflows typically happen when there is a huge amount of rainwater and/or groundwater in the system, the amount of wastewater in a storm release is as little as 5%. This wastewater comes from sinks, showers, dishwashers, washing machines and other appliances, not just toilets. Storm releases are also often put through a filtering process before being released.

What is the difference between a storm overflow release and a pollution?

Storm overflow releases are permitted by environmental regulators and only occur when the system becomes overwhelmed with excess water. In rare incidences, what's known as a pollution or 'emergency overflow' is triggered when there has been a technical fault or a blockage in the sewer system. Both storm and emergency overflows are shown on our storm overflow monitoring service, Rivers and Seas Watch.

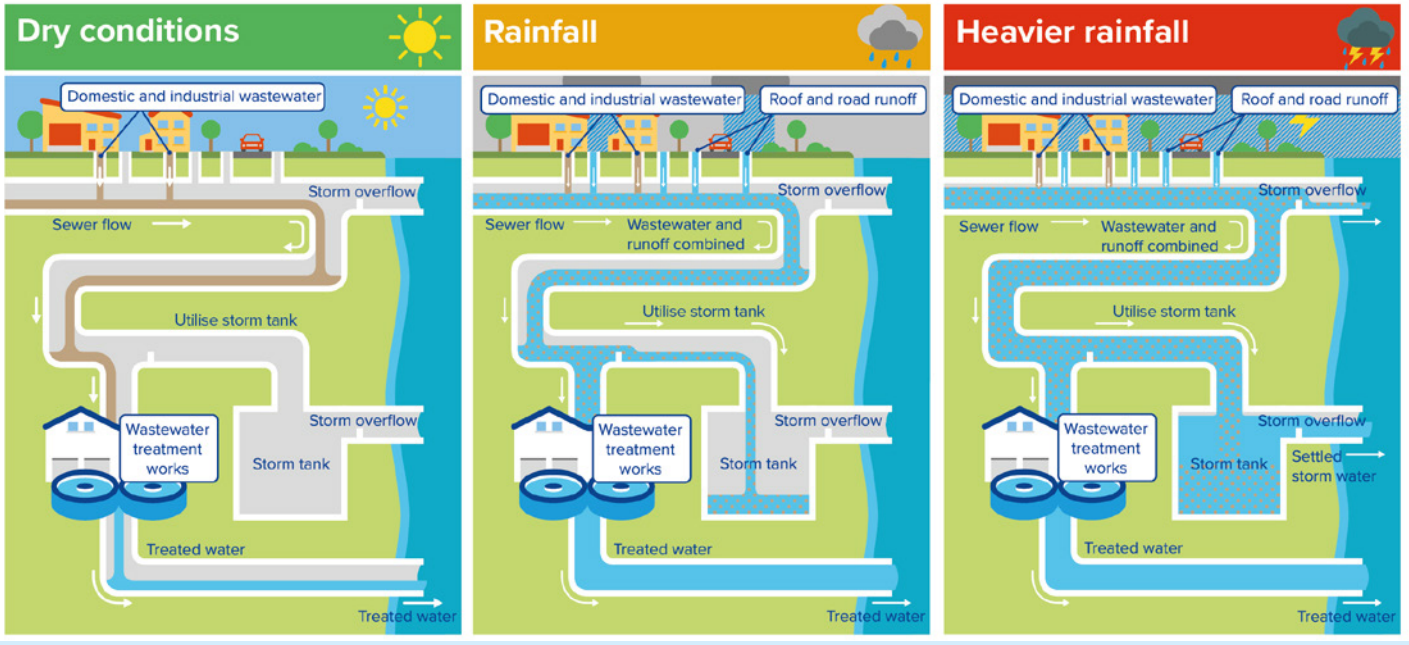
Why can't you just upgrade the system?

With over 100,000km still in existence in the UK, separating the combined system completely would be extremely expensive and disruptive. Storm tanks provide a temporary solution, but can fill up in as little as 20 minutes in heavy rain. We therefore need to look at alternative, sustainable, and scalable methods to reduce storm overflow.

Did you know?

We have almost **1,000 storm overflows** in our region and **50% of these are already hitting the government's new 2050 target**.
We've built our plans to tackle the remaining storm overflows into our Clean Rivers and Seas Plan, outlining our proposals to **invest a record £1.5 billion to reduce storm overflows between 2025–35.**

▼ How sewers are impacted by different types of weather



Do storm releases impact water quality?

Although storm releases are heavily diluted, they are one of many factors that can impact water quality. The impact of a storm release can vary based on several factors including the location and duration of the release, and even the tides and weather at the time. Our release permits are designed to consider these factors, and we alert local authorities when there is a release.

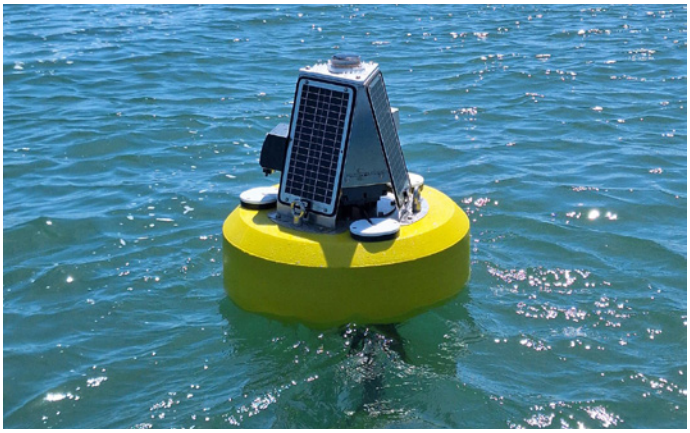
What else can impact bathing water quality?

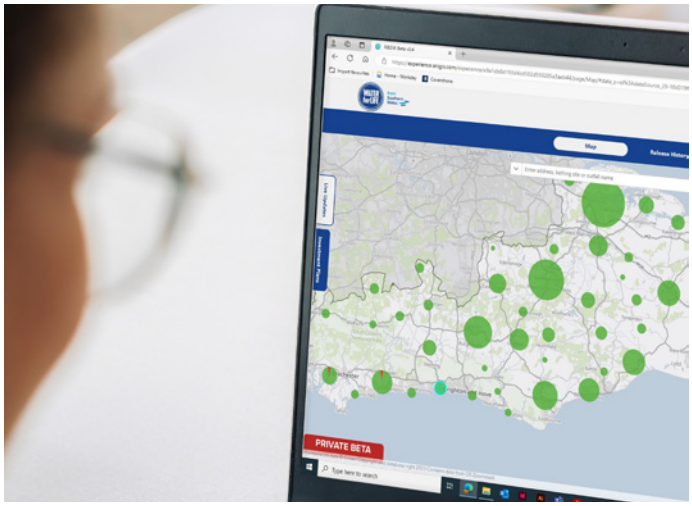
There are several other factors outside our control that can also impact bathing water quality including:

- agricultural and farm run-off which can include pesticides, animal medicines and animal waste
- private sewer issues such as illegal connections, where sewage is plumbed into pipes designed to take rainwater directly to local waters
- seabird and other animal waste causing spikes in bacteria concentration
- disposal of waste/liquid contaminants down surface water drains
- seaweed and algal blooms protecting bacteria, allowing them to live longer and sometimes helping them to reproduce
- marine activities, such as releasing on-board toilet and hygiene facilities into the water.

We're working with local authorities, experts and community groups to help them address these issues. We're also running citizen science projects, and have deployed two water quality buoys and other monitoring equipment to better understand water quality. We hope in the longer term, we will be able to provide important data to allow a better understanding of the contributing factors to water quality, and how to address them.

▼ Water quality buoy





▲ Rivers and Seas Watch, our near real-time storm overflow monitoring service

Why have you not invested more into the wastewater system?

Since privatisation, £10 billion has been spent to make sure as much wastewater as possible is being fully treated before being released back into the environment. Historically only approximately 50% was fully treated, today we are treating around 95%. This has helped improve the quality of bathing waters in our region from only 28% meeting public health standards pre-privatisation, to 84% now rated as 'good' or 'excellent'.

To support this, our shareholders have invested £1.6 billion into the company in recent years, and we have not paid any external dividends to our shareholders for the last seven years to ensure we are investing as much as possible in our network.

Why has there been an increase in storm overflow releases despite all the work you are doing?

The main cause of storm overflow releases is rain, and over the past few years the weather has been more challenging than ever before. With more frequent extreme weather events and rainfall, and ever-increasing impermeable areas like car parks, driveways, roofs and roads, the complexity of resolving storm overflows grows by the day.

However, we are showing resilience to these changes and are currently rolling out innovative and long-term solutions to slow the flow of water into the network and reduce storm overflows. Despite the huge increase in rainfall, we are already seeing a significant reduction in storm overflow releases at this early stage in our mass roll-out.

What are you currently doing to reduce storm overflows?

The Clean Rivers and Seas Task Force are now wrapping up the Pathfinder programme, which has served its purpose to determine the most effective ways to reduce storm overflows, to make sure we get the best results from our new investment cycle (2025-2030).

Our storm overflow reduction programme is now increasing considerably, with a mass roll-out the most effective solutions proven from our pilots, including:

Optimisation: working on both public and private infrastructure to increase storage, reduce infiltration, and ensure assets working as effectively as possible, as well as reconfiguring our permits and existing sites to help us manage more stormwater

Illegal connections: redirecting surface water that has been misconnected into the foul or combined sewer, which causes the system to become overwhelmed leading to storm overflows

Household sustainable drainage systems (SuDS): rolling out 'slow the flow' measures at scale on properties across our catchments to manage roof run-off

Non-household sustainable drainage systems (SuDS): targeting large roof areas and car parks with sustainable 'slow the flow' measures to significantly reduce surface water run-off

Highway schemes: large amounts of surface water come from public roads, so we're working with local authorities to influence future designs and improvements to reduce their impact.

How do I know when there's been a storm overflow release and whether it's impacted bathing water quality?

We provide near real-time updates on all storm overflow releases in our region, as well as whether they have impacted bathing water quality, through our storm overflow monitoring service Rivers and Seas Watch. You can even sign up for email notifications. Sometimes storm overflow releases can occur days after rainfall, this is due to the amount of time taken for the water to pass through the network.

Is there anything the public can do to help?

Permeable is the word: Help water soak into the ground by planting grass, installing flower beds, depaving your driveway or using permeable slabs on pathways.

When building an extension: Check that the water coming off the roof doesn't connect directly to the sewer. Instead, use a drain chain into a flower bed.

Collect rainwater or slow it down: Adding Slow-drain water butts or planters to your garden helps slow the flow of rainwater into the sewer.

Speak up about green spaces: Encourage local councillors and authorities to make these drainage solutions part of their plans.

▲ You can help reduce storm overflows, find out how

What we do to prepare when we know a storm is coming

When we know that heavy rain is forecast, we immediately begin a series of checks and actions across our wastewater sites, including:

Site-specific checks – This includes a review of site action plans and permit conditions, which means checking screens are working, our storage tanks are empty, etc.

Logistics – We order in additional tankers so we're prepared for flooding incidents or pollution risks.

Manpower – We make sure that our high-risk sites are manned 24/7, and we also place additional people on call across the teams (for tasks such as maintenance).

Power supplies – Additional standby generators are checked on site, particularly when lightning or high winds are forecast.

Intensive care – Sites that are considered to be high risk are added to an intensive care list, which means they have additional checks and specific plans in place, if things go wrong.