Storm overflows

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

What is a combined sewer?

This is a system that contains both foul water from homes or businesses and rainwater runoff, treated together at a wastewater treatment site. Foul water from homes or businesses includes water from toilets, sinks and washing machines. Rainwater runoff comes from roofs, gardens and roads. There are over 100,000km of combined sewers still in existence in the UK, which is around a quarter of the entire sewer network.

What are storm overflows?

During heavy rain, local sewer networks can struggle to cope with the amount of water entering pipes and storage tanks. When they fill up, we use storm overflows to stop homes, businesses and roads from flooding. These overflows release excess water through outfalls into rivers and the sea. Storm overflows are part of the network's design and are regulated by the Environment Agency. They are used in areas where the sewers were built to carry both foul water from homes and businesses, and rainwater from roofs, gardens, and roads.

Where do storm overflows release?

They release into rivers and the sea. To see the location of our coastal outfalls, please visit **Beachbuoy**. Our long sea outfalls (LSOs) are designed to be far from the beach. Many releases from LSOs will therefore not impact the local bathing water.

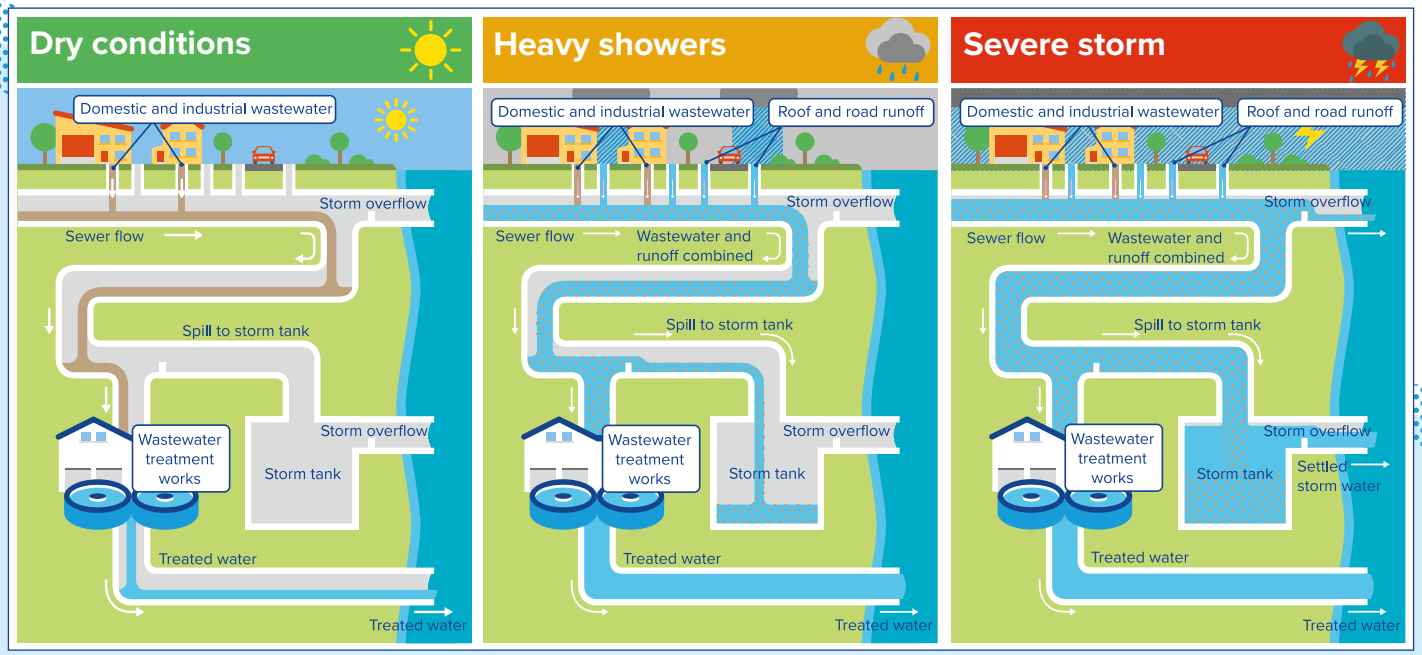
How do I know when there has been any storm release activity?

We show all our coastal releases on **Beachbuoy**, our near real-time storm overflow activity tool. We are also developing the capability to include inland waters on the system alongside the technology to provide real-time water quality information too. It's worth noting that releases shown on Beachbuoy can occur several days after rainfall, due to the amount of time taken for the water to pass through our network and arrive at the final treatment works.

Did you know?

The UK sewer network is largely derived from the Victorians, as are many networks across the world. This is therefore a global challenge.

▼ How sewers are impacted by different types of weather



Where can I find data on historical storm overflows?

We publish our **flow and spills** data annually. You can also view recent release data on **Beachbuoy**. You'll also see where the outfall pipes are which impact each bathing water.

What is the difference between a 'storm' and an 'emergency' overflow?

A storm overflow is permitted by the regulator and occurs when the system becomes overwhelmed with excess water. In rare incidences, an emergency overflow is triggered when there has been a technical fault or a blockage in the system. Southern Water is fined by the Environment Agency every time there is an emergency overflow. Both storm and emergency coastal overflows are shown on **Beachbuoy**.

How many storm overflows are there?

There are around 15,000 storm overflows in England and approximately 1,000 in our region. How often they operate and release to the environment varies widely, ranging from infrequent (less than 10 spills per annum) to frequent (greater than 100 spills per annum). Defra have held a consultation on their **Storm Overflow Discharge Reduction Plan**, which is due to be published in September.

Are you dumping raw sewage?

Most storm releases are heavily diluted wastewater – up to 95% is rainwater. Storm overflows are not manually operated, they work automatically to release excess water, for example after heavy rain has filled the sewers. These releases are permitted by law and we report all spills to the Environment Agency. Our industry is heavily regulated by the Environment Agency, which sets the permits on storm overflows.

What would happen if storm overflows were banned today?

During heavy or prolonged rainfall, the network would become overwhelmed in several areas – or catchments as we call them – with nowhere for the wastewater to go, but back up into people's homes and onto roads. This would cause major flooding and pollution for the community.

▲ Beachbuoy, our near real-time storm overflow activity tool

We pay for our wastewater to be treated as part of our water/wastewater bill, why aren't you doing just that?

Each day, 1,371 million litres of wastewater are treated at our 367 treatment works and returned to the environment. We are investing to ensure the system can effectively and efficiently treat wastewater to meet future needs.

Why don't you stop new developments connecting to your network?

We have no statutory rights to prevent new connections on our network. We can only make recommendations to local authority planning teams.

Are combined sewers still being built?

Modern systems have one pipe for foul and one for surface water. The surface water pipe releases rainwater back to the environment. Separate sewer systems have been built in the UK since the 1960s – before this, the sewers were combined. We have no legal powers to prevent new connections being made to existing combined sewers.

Do storm releases impact water quality?

Although storm releases are heavily diluted, they can impact water quality. The impact of a storm release can vary based on the location of the release, the amount released, how long it was released for, and the tides when discharged. Each outfall/permit is designed to consider the dilution factor, sensitivity, and amenity of the watercourse. Dependent on the outfall, the release may impact more than one bathing water; both bathing waters will be flagged on **Beachbuoy**. We alert local authorities when there is a release.

Can you close a beach if there has been a release?

This decision is for the local authority. They manage the beach and are responsible for public health. We can advise when there has been a release as we have installed alarms and sensors to alert us; these have been installed on 98% of our storm overflow sites but will be on 100% by 2025. A release rarely results in a beach closure due to the locations of our outfalls, the length of time they're used, and the amount discharged.

Is Southern Water responsible for bathing water quality?

We are a key custodian of water quality, but there are several factors that all impact water quality, these include storm releases, agricultural run-off, animal waste and marine activity. We recognise that we must play our part in protecting rivers and seas and be catalysts for change.

What are you doing to reduce storm overflows?

We are taking several steps to significantly reduce storm overflows by 2030. We recently **wrote to Ofwat's CEO, David Black**, to explain our plans, set up a dedicated **Storm Overflow Task Force**, and started work on each of our **Pathfinder** project areas. We also have an **Infiltration Reduction Plan**.

How can we prevent storm overflows?

Preventing water from entering the combined sewer system during heavy rainfall, is the most sustainable and cost-effective way to reduce storm overflows going forwards.

There are currently three main ways to reduce storm overflows:

1. **Source control (removing and slowing the flow of rainwater)** – for example using rainwater harvesting, permeable paving, green roofs, soakaways (including tree pits), rain gardens (swales) and planters.
2. **Optimisation of existing infrastructure** – adjusting connected systems and interfaces, using different mechanical and electrical equipment (e.g. pumps), making improvements in pumping station and storm tank use and control, and using smart network control with increased digitalisation.
3. **Building bigger infrastructure (building larger pipes, pumping stations, etc)** – this includes wetland treatment (for groundwater), sewer lining/sealing (groundwater), as well as building larger sewers, storm tanks and treatment works.

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.

How we're tackling storm overflows

We have set up a Storm Overflows Task Force to take action and help us to reduce the use of storm overflows in our area.

- The task force is a dedicated team that is central to Southern Water's drive towards significantly reducing the use of storm overflows by 2030, and manage catchment flow.
- The establishment of the task force indicates Southern Water's commitment to ambitious targets and is a highly important workstream within the business.
- The task force is responsible for delivering five pathfinder projects over the next two years. The task force will seek to establish strong partnerships to ensure their success.
- In parallel, we will build and deliver a regional plan to reduce storm releases between now and 2030.

There are many ways to slow the flow of rainwater into sewers

We've selected pathfinder projects that pose complex challenges, have a high volume of storm overflow spills or require an innovative approach to tackle local wastewater treatment issues. Our work on the pathfinder projects will also validate our general approach to reducing storm overflows across our region.