

April 2023

# Pathfinder update

Further investment to  
accelerate the reduction in  
the use of storm overflows  
across the South East



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# Introduction

**Since being appointed as CEO in July last year, I've been open that our environmental performance has not been good enough. I'm committed to achieving real change so that we deliver a service our communities deserve. We must do better and we will do better.**

For our assets, our targeted Pollution Incident Reduction Plan is delivering upgrades at our pumping stations, reducing power failures and future-proofing our sites. We're investing £15 million to deploy **23,000 sewer sensors** to detect and reduce sewer blockages and we've stepped up our community outreach work to raise customer awareness of wet wipes and other **unflushables** that can cause blockages and pollutions.

But storm overflows need a different approach, especially if we are to tackle the root causes of them. If we truly want to reduce our reliance on overflows we'll need to find new ways to prevent flooding in our towns and cities, which will involve innovating our network and working with partners to better use water in our catchments. This is a challenge we are definitely up for.

At present, storm overflows are part of the network's design, protecting homes, businesses and roads from flooding during heavy rain. Preventing their use, without building in alternative measures, would lead to catastrophic pollution in our communities. Peers, regulators, the Government and community groups need to come together to achieve the targets set out in the Government's **Storm Overflows Discharge Reduction Plan**. The required solutions,

maintenance and ownership won't necessarily fall to one organisation to deliver or be collectively owned, so we all need to play our part and Southern Water is committed to our role in this.

Ofwat's **recent announcement** means that we have submitted proposals to increase investment and accelerate our work to drive down the use of storm overflows.

This funding, of up to a further £50m between now and spring 2025 will scale up and accelerate our innovative approach to reducing storm overflows, currently being led by our **Clean Rivers and Seas Task Force**. The team's **Pathfinder projects**, where we've already invested £5 million to carry out a series of targeted regional trials, is helping to 'slow the flow' of rainwater entering the network.

Our projects are using nature-based solutions such as wetlands, raingardens, tree planting, greening our high streets and trialling rain harvesting devices, alongside the usual asset and capacity improvements. This will help us to not only build a sustainable network fit for the future but will also deliver a wealth of environmental and social benefits for our communities too.

Our pilot schemes are working. Creating partnerships to deliver sustainable drainage solutions in Deal, re-lining private and public pipework in Pan Parishes, reconfiguring our Swalecliffe Wastewater Treatment Works and working with thousands of our customers to install slow-drain water butts on the Isle of Wight, are proving successful at slowing the flow and reducing storm overflows.



While I am very proud of what we've already achieved, now is the time to step up a gear. The entire water industry is listening to its customers, which is why we are proposing to spend more money on reducing storm overflows. Our proposals initially focus on three areas: The Solent, North Kent and the East and the Harbours and South Downs. We want to learn more about how we can reduce the use of storm overflows so that we can start the next five year investment period ready to deliver effectively, efficiently and with speed.

The projects in this document represent just the start of these plans. I'll be announcing further plans this summer. Please be assured this is the beginning of the end of our reliance on storm overflows.

**Lawrence Gosden**  
Chief Executive

# Our approach

## Achieving success through our Pathfinder trials and partnerships

**We launched our pathfinder programme a little over 12 months ago with the aim of learning how we could identify, target, design and deploy sustainable solutions that have a significant impact on the use of storm overflows. We called these trials 'Pathfinder' projects.**

Work has already begun in Deal, Margate and Swalecliffe (Whitstable) in Kent, the Isle of Wight, Pan Parishes near Andover Hampshire and at Fairlight in East Sussex.

We started with the assumption that the most efficient, cost-effective, and environmentally beneficial approach was to reduce, or slow, the amount of water entering our sewers, and, so far, we think we're on to something.



# Our five-step process

In specific areas where we know rainfall (surface water) is the primary cause of the storm overflows we've used the following five-step process:

## 1 Improving our sites and networks

- ✓ **Making improvements** to pumping stations and equipment controls and storage.
- ✓ **Asking for permission** to change regulatory permits, where these limit capacity. By doing this, we are going beyond compliance – what we 'have to do'.
- ✓ **Using existing infrastructure** to speed up the process and limit the need for new construction.
- ✓ **Working with partners** to improve their infrastructure, such as highway gullies.

### Swalecliffe, Kent

#### The problem

Swalecliffe's storm tanks were not being used to full capacity because of the permits in place. As a result, the site is using its long sea outfall around 100 times a year.

#### Action

We worked with the Environment Agency to change the way the site works to use around 1,800m<sup>3</sup> of storage. New chambers and pipework are being installed at a cost of £750,000 which enable us to redirect 450 litres of storm water per second during heavy rainfall.

#### The benefit

We estimate the work will reduce the spills by over 30% (12% of spills avoided altogether and 20% will be reduced in duration). This work will be finished by May 2023.



CASE STUDY

### Appley and Fairlee, Isle of Wight

#### The problem

During a heavy storm, more than 650 litres per second can enter Appley pumping station on the Isle of Wight. The pumping station is permitted to pump 122 litres per second. The site released 136 times in 2020 and 108 times in 2021.

Fairlee released 89 times in 2020 and 73 times in 2021. The site spills into the River Medina which is a SSSI and a popular water sports venue.

#### Action

Working with the Environment Agency we think the Appley pumping station could deal with 300 litres per second. More than 2.5 times the current flow.

By building a small pumping station at Fairlee, we can pump into existing storage areas on site (currently not in use) in excess of 14,000m<sup>3</sup>.

#### The benefit

We expect to reduce releases at Appley to around 30. By using existing storage at Fairlee, we expect to see a 95% reduction in annual releases.

CASE STUDY

# Our five-step process

## 2 Misconnections

- ✓ We are finding misconnections in local communities. This is typically where clean, already separated surface water, has been connected back into the combined sewer.
- ✓ Where we find them, we can divert this rainwater back into the environment.



### Lower Church Road, Isle of Wight

CASE STUDY

#### The problem

A development of about 50 properties covering 3.1 hectares connected stormwater from roads and roofs into the combined sewer.

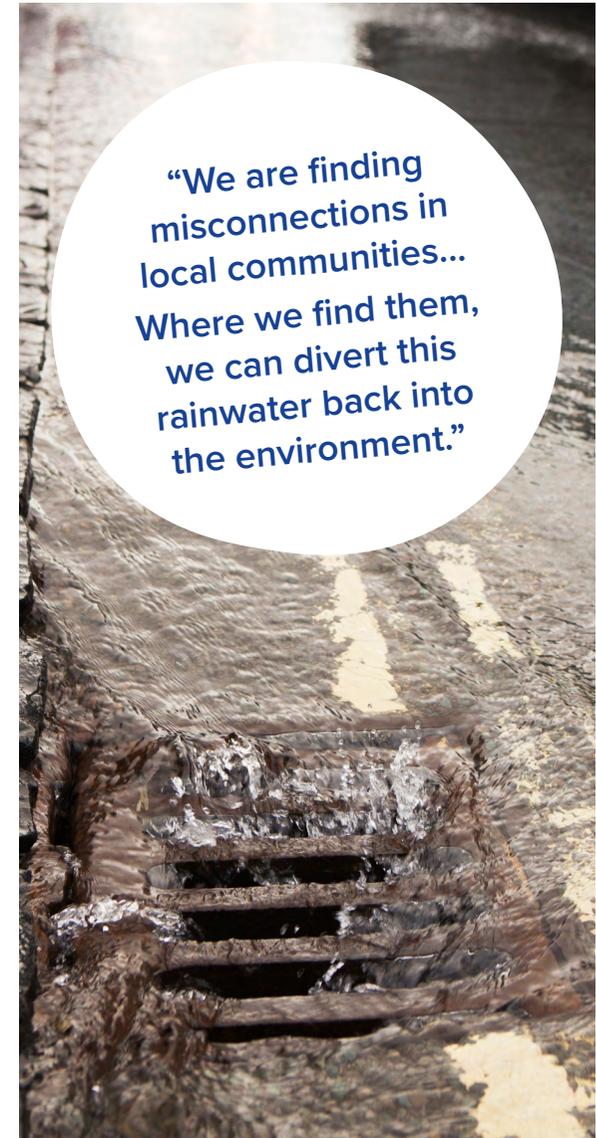
As a result, the pumping station at Woodvale released 79 times in 2020 and 91 times in 2021 into a bathing water.

#### Action

We have submitted a flood risk assessment to the Environment Agency to redirect the flow and install a flow restriction device to reduce the likelihood of flooding in the area.

#### The benefit

We estimate the work will reduce the spills by over 30% (12% of spills avoided altogether and 20% will be reduced in duration). This work will be finished by late summer 2023 assuming all goes well.



“We are finding misconnections in local communities... Where we find them, we can divert this rainwater back into the environment.”

# Our five-step process

## 3 Businesses and community buildings

- ✓ **'Slow the flow'** sustainable drainage measures to manage rainwater run-off from large roof areas (above 200m<sup>2</sup>) and other hardstanding areas on non-household or commercial properties.

"A unique educational opportunity for pupils to engage in the importance of saving and protecting water, and the impact of doing so, as we all work to do more for the environment."

**A Department for Education spokesperson**

### Schools

#### The problem

Rainwater running off school roofs, playgrounds and hard surfaces can overwhelm the combined sewer system, causing localised flooding and storm overflows.

#### Action

We partnered with the Department of Education to work with 47 schools to install raingarden planters, free of charge, on school roof downpipes to remove or slow the flow of rainwater.

With four schools in south, we've also designed large sustainable drainage solutions to completely separate surface water from their site.

This £1.7 million project includes working with schools that experience flooding, as well as areas where the network experiences pressure from excess water.

We have agreed to work with another 50 schools between April 2023 and March 2024 (an additional £1.2m project).

#### The benefit

We are currently monitoring the exact levels of water the project has removed and we'll be producing a report in 2023 to outline our findings and lessons learnt from the first year.

CASE STUDY



# Our five-step process

## 4 Homes

- ✓ **Slow the flow'** sustainable drainage measures to manage rainwater run-off from household or domestic roof areas. Typically, we use slow drain water butts and encourage customers not to pave over gardens.

“This work is bringing fresh thinking and investment to our area that makes us a national leader in the issue of tackling storm overflows and sewage discharge prevention.”  
**Natalie Elphicke MP**

### Deal, Kent

CASE STUDY

#### The problem

In Deal, Kent, residents have suffered from internal flooding for many years. This is in part due to the way water flows in the town and we're exploring solutions to slow the flow of water in the area.

#### Action

Working closely with Deal Water Action Taskforce, we offered smart water butts, planters and slow-drain water butts to residents of Claremont Road, Grange Road, Cowper Road, and The Grove. We've already installed 50 smart water butts.

We also completed an upgrade to a surface water pipe which will redirect flows away from Albert Road to Matthews Close Dyke during heavy rain.

#### The benefit

Reduced flooding for residents in Deal.



### Havenstreet, Isle of Wight

CASE STUDY

#### The problem

Havenstreet pumping station released 17 times in 2020 and 28 times in 2021. It discharges into a SSSI and a brook that is failing according to the Water Framework Directive.

#### Action

We offered every property in Havenstreet a free, slow-drain water butt. A total 142 properties accepted (72%). We also managed the stormwater of large roofs such as the community centre and care home with planters.

#### The benefit

70% reduction in spills from the nearby storm overflow site, by controlling the amount of surface water reaching the ground at any one time.



# Our five-step process

## 5 Roads

- Sustainable drainage** features like rain gardens, swales (channels) and tree pits to redirect and slow the flow of rainwater run-off from roads entering the sewer.

“Additional funding will allow more island residents and visitors to experience necessary improvements in reducing storm overflows.”

**James Brewer,**  
 Planning Team Leader,  
 Isle of Wight Council



Designs to be finalised

### Cornwallis Circle, Kent

CASE STUDY

#### The problem

Whitstable contains 74 hectares of non-permeable area.

#### Action

Working with Canterbury City Council and Kent County Council we’re developing a scheme that could manage over 1 hectare of non-permeable area. Designs are being prepared for public consultation and we hope to implement the scheme later in 2023. This will be one of many across the town.

#### The benefit

One hectare of non-permeable area is 10,000m<sup>2</sup> or a 100m x 100m square. A 10mm rainfall event will produce 100 tonnes of water or 100,000 litres.

### Newport and Ryde, Isle of Wight

CASE STUDY

#### The problem

The town centres are problematic drainage areas with large impermeable areas such as car parks, roads and buildings.

#### Action

We’re working in partnership on two Local Authority projects to improve the town centres and install green designs. We will co-design, co-fund and co-deliver tree pits, rain gardens, permeable paving and other sustainable drainage features.

#### The benefit

Not only will the town centres look more green, and attractive, they will also reduce storm overflows by holding back and slowly releasing stormwater.

# Stopping groundwater getting into our sewers

**We know that 25% of storm overflow releases are due to groundwater getting into the system, which requires its own solution.**

**We've been trialling the introduction of Tubogel at 100 locations in North Hampshire through our Pan-Parish pathfinder. This is a new method that helps to seal private pipework. In parallel we're also re-lining our sewers in the area. We've also installed 30 temperature sensors and drilled three new boreholes so we can understand the relationship between sewer levels and groundwater depth.**

Alongside this, we have commissioned a feasibility study for the creation of a wetland which would capture all excess flows. Our plan would be to open the wetland up to the local community, in turn delivering biodiversity benefits.



## Pan Parishes, Hampshire

### The problem

Around 40% of the sewer network is privately owned. We believe excess water from these sewers is getting into the public sewers, leading to an increase in storm overflow releases in some areas across our region.

There are currently no maps for private pipework, and water companies do not have the rights to access or work on them. In the Pan Parishes, north of Andover Hampshire, high volumes of groundwater getting into the public sewer means we have to bring in extra tanker and over pump to prevent local flooding.

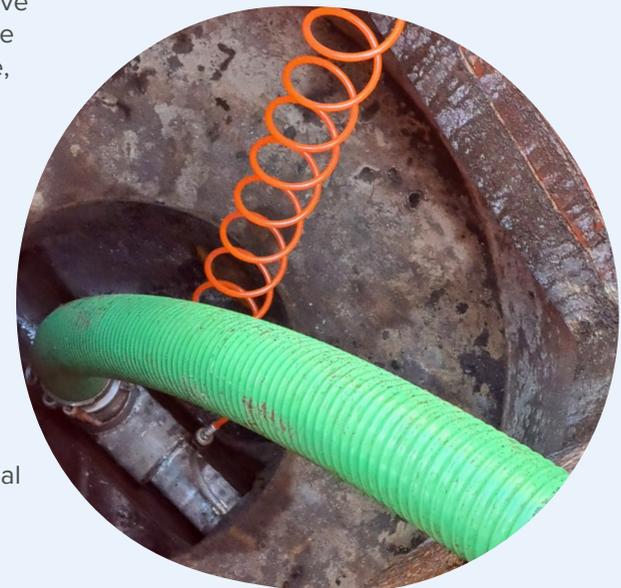
### Action

We are working with Pan Parish councillors and customers in the area to encourage them to take part in our Pathfinder trial. So far we have carried out 559 connectivity surveys at private properties and offered to seal leaking pipes for free, using a new sealing chemical called Tubogel. So far over 100 properties have had this new gel installed.

### The benefit

Early indications are positive, with fewer tankers sent to site this year in areas where we've been carrying out the pilot. However, ongoing monitoring is in place and further surveys and Tubogel installations are planned.

CASE  
STUDY



# We're proposing to invest up to a further £50m to reduce storm overflows before 2025

We hear our customers, stakeholders and colleagues loud and clear – storm overflows are no longer acceptable, and we must stop using them as quickly and efficiently as possible.

**We welcomed DEFRA's Storm Overflows Discharge Reduction Plan, published in August 2022, which aims to eliminate them completely by 2050, except for during unusually heavy rainfall. It calls for a "challenge" of an average of 20 pollutions per storm overflow, but as we were already achieving close to that, we wanted to go further and faster. We believe a step-change is required.**

## Scaling up our Pathfinder projects

We're very pleased to announce that we're investing up to £50 million between now and 2025 to speed up our pathfinder programme, subject to Ofwat's approval. This will help us learn more over the next two years so that we invest, as part of the Water Industry National Environment Programme (WINEP), where it will deliver the most impact. This work will ensure delivery is effective and efficient going forward.

Following a detailed regional review of problem areas, we have decided to focus our investment in:

- The Solent – Isle of Wight.
- North Kent and the East.
- The Harbours and The South Downs.

We prioritised these areas to deliver on government targets, to better manage storm release frequency and limit environmental impact (e.g. shellfish water impact). We also made a practical assessment of how long it would take to deliver the schemes, as well as root cause so we could increase our understanding of any issues before making further investment. We also spoke to our customers and stakeholders in these areas.

This doesn't mean that we won't invest or take action in other locations, but we know that we'll be able to have the most impact, quickly, in these areas.

We've started the work, but reducing our use of storm overflows will take time

**We believe it will take approximately £2 billion investment to significantly reduce storm releases across our region. Through partnership working, implementing the right solutions and adapting our approach to the challenges ahead, we will be successful for our customers and our environment.**

We'll be publishing our detailed regional survey analysis in early summer, and our draft plans for the next investment period later this year in October, which will provide greater detail of the areas we are targeting to 2030. A final determination on those plans will be made by our regulators in 2024.

# Our initial projects in detail

## The Harbours and the South Downs

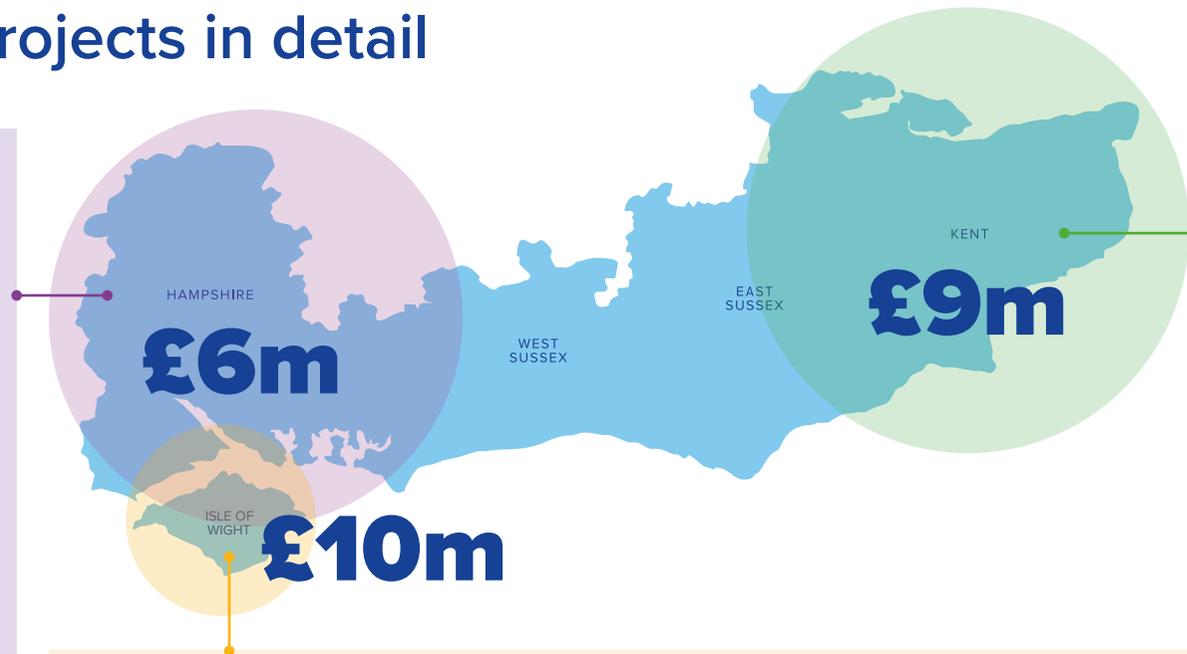
We plan to target four areas where we know that groundwater is getting into our network. Exact locations will be chosen after we've completed local surveys.

We'll be sealing around five kilometres of private and public sewers and constructing up to four wetlands.

This work will reduce releases entering Chichester Harbour and other water sites and is part of our wider WINEP environmental programme for the next investment period 2025–30.

**Main driver:** High number of storm releases into the Harbours, enhanced knowledge of wetlands.

**Root cause:** groundwater getting into the network.



## The Solent, the Isle of Wight

This includes large parts of the Sandown area, which includes around 90% of the wastewater treatment for the island. We'll be specifically targeting 22 storm overflows with projects in Gurnard, Cowes, Fishbourne, Wotton, Yarmouth and Freshwater.

**Main driver:** Impact to shellfish waters, frequent spills, customer interest

**Root cause:** large volumes of rainwater (surface water)

- 15 pumping station improvements
- 10 surface water misconnections redirected
- 6,000 household downpipes fitted with slow the flow measures
- 600 non-household downpipes fitted with slow the flow measures or redirected
- 30 roadside sustainable drainage schemes installed
- 1 wetland constructed

These measures will reduce rainwater run-off over a non-permeable area of around 35 hectares. In turn, this will reduce the amount of water that enters the combined sewer system, leading to a minimum 20% reduction in storm releases by April 2025 (based on 2020 baseline).

## North Kent and the East

We'll expand our projects in Kent: Deal, Margate and Whitstable and introduce a new project at Fairlight East Sussex.

**Main driver:** Impact to shellfish waters, frequent spills, customer interest

**Root cause:** large volumes of rainwater (surface water)

The team will target five overflows with the following:

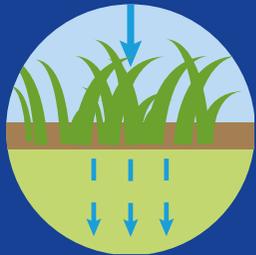
- 1 Treatment works optimised
- 2 pumping station optimised
- 8 surface water misconnections redirected
- 2,000 household downpipes fitted with slow the flow measures
- 200 non-household downpipes fitted with slow the flow measures or redirected
- 10 roadside sustainable drainage schemes installed

These measures will help to reduce rainwater run-off from a non-permeable area of 15 hectares. In turn, this will reduce the volume of water entering the sewer system, leading to a minimum 20% reduction in spills by April 2025 (based on 2020 baseline).

# How can you and your community get involved?

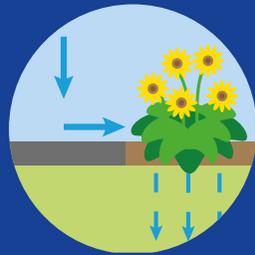
While we deliver these projects, our partners and customers can also take action to 'slow the flow'.

Seven ways customers can 'slow the flow'.



### Permeable is the word

Plant grass instead of paving over paths, install flower beds and permeable slabs.



### Need to park off road?

Make sure your driveway runs off into a flower bed or patch of grass rather than a drain.



### Building an extension?

Check that the water coming off the roof doesn't connect directly to the sewer.



### Collect rainwater or slow it down

Install slow-drain water butts or planters.



### Speak up about green spaces.

Talk to your local community leaders and groups about local greening projects and sustainable drainage solutions in parks i.e. reduce non-permeable, concrete areas.



### Only flush the 3 Ps (Pee, Poo, Paper)

Wet wipes, nappies, sanitary or other unflushables go in the bin. Collect fats, oils and greases rather than pouring them down the drain.



### Spot a pollution?

Contact us about suspected pollutions so we can act right away.

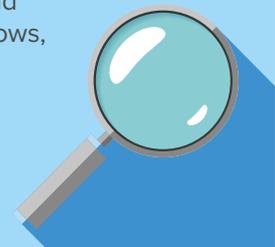
# How local authorities can help slow the flow



## Tips for local businesses

- Do you have a large surface area on your land such as car park, large roof, playground? Check if your surface water runs into the sewer.
- Install raingarden planters or disconnect the surface water on site through sustainable drainage measures.
- Learn more about what we are doing and how we could work together – email us at [partnerships.overflows@southernwater.co.uk](mailto:partnerships.overflows@southernwater.co.uk).

To track our progress and find out more about storm overflows, the Clean Rivers and Seas Task Force and what we're doing to reduce storm releases, please visit our **storm overflow** pages.



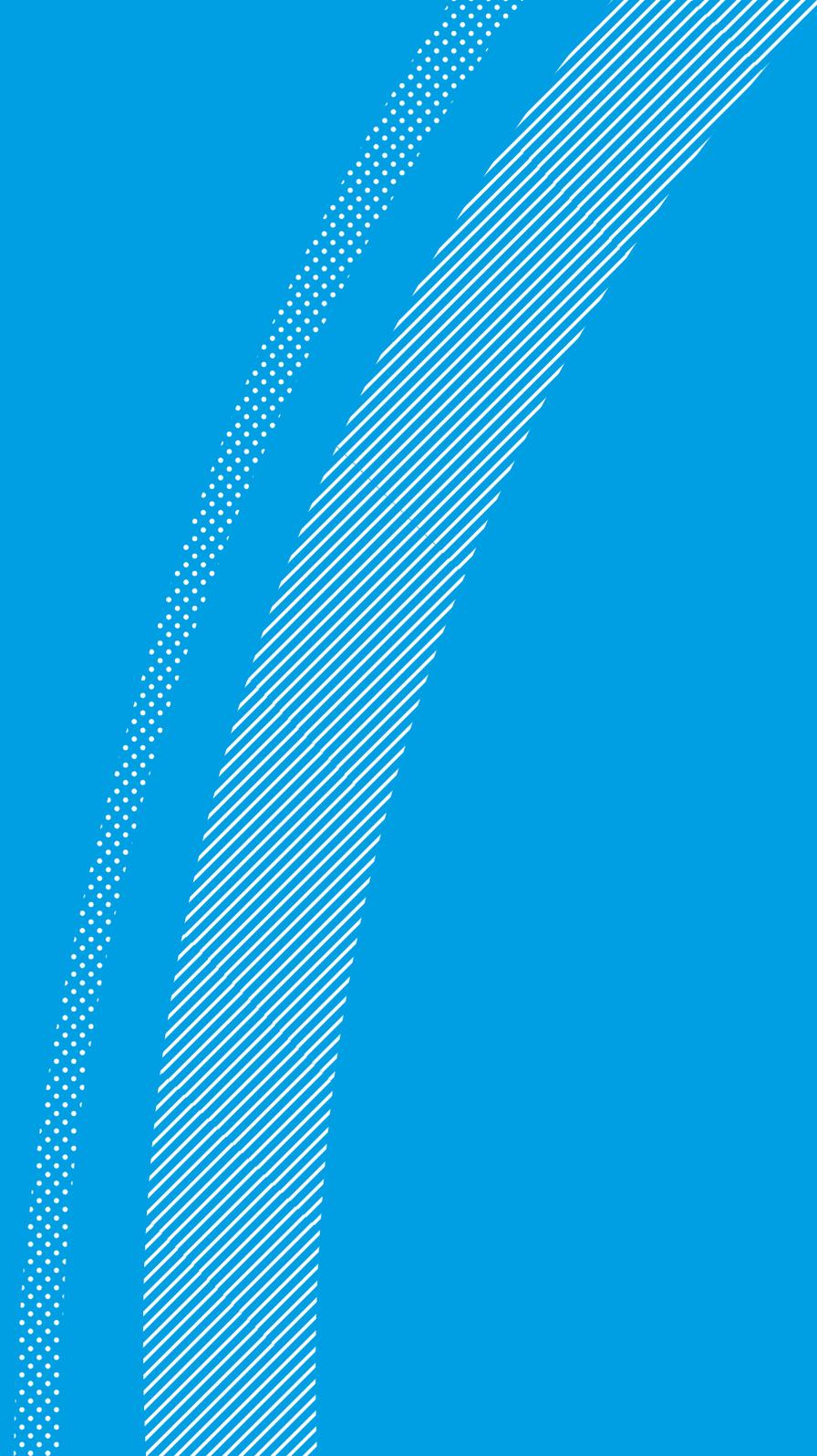
## What's coming next?

This summer we'll release our regional analysis on what causes storm overflows in your area. We'll also provide another progress update and key findings from these projects.

At the same time, we hope to publish data from our two water quality buoys at Tankerton Kent and Hayling Island Hampshire, improving our Beachbuoy spill notification tool.

Find out more about [storm overflows](#) and the [Clean Rivers and Seas Task Force](#).





from  
Southern  
Water 

The text 'from Southern Water' is positioned below the circular logo. 'from' is in a small, lowercase font. 'Southern Water' is in a larger, bold, sans-serif font. To the right of the text is a graphic element consisting of three stylized, white, wavy lines that resemble water or a wave.