Presentation to regional stakeholders

May 16 2024

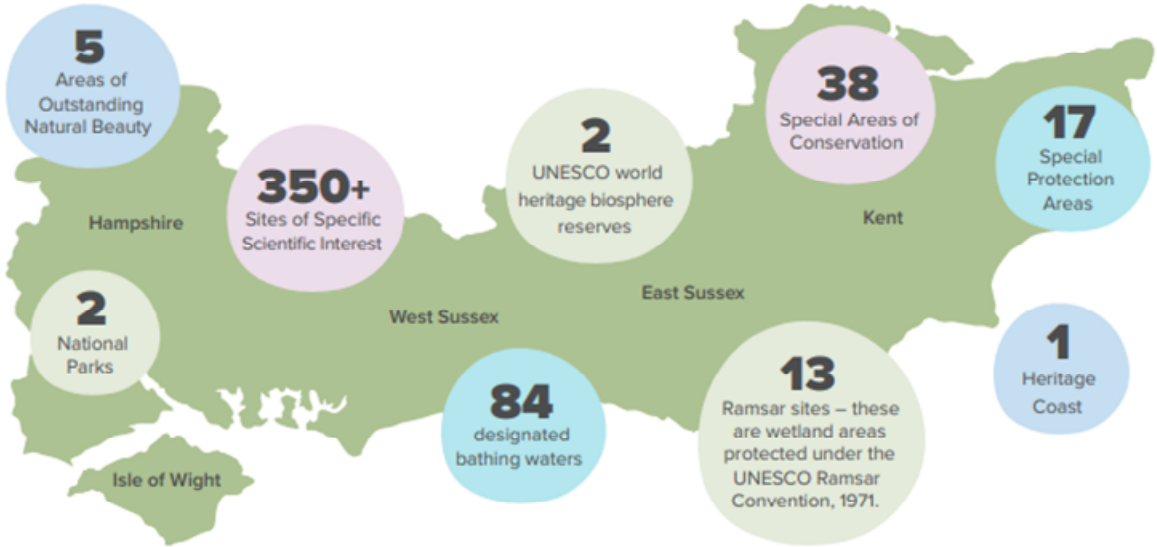
Our region and challenges

- Densely populated with unique water environments and more than 700 miles of coastline
- Our region is water stressed, scarcity is becoming more severe as our climate changes and population grows

19-25% population growth expected by 2050.

£12 billion per year* in tourism revenue relied on by coastal and inland communities across our region.

*Source: tourismsoutheast.com



Climate change

Demand for water

Environmental impacts

Population growth

Our PR24 plan delivers a step-change in investment to meet our **short and long-term challenges**

Water quantity

- We could need an **additional 300 million litres per day by 2050**
- We need to significantly **reduce how much we abstract** from Hampshire's chalk streams
- We need to **halve leakage by 2050**
- The **population we serve could grow between 6% and 32%** between 2025 and 2075
- We need to **increase our resilience to a 1 in 500-year** drought – and droughts will become more frequent in the future

Environment

- We need to **remove 80% of phosphorous** entering water by 80% by 2038
- We need to **reduce how much we use stormwater overflows** to protect shellfish and bathing waters
- **Nutrient neutrality** is blocking growth
- We need to **reduce serious pollution incidents** to zero – and improve our pollution performance
- Need to **increase capacity and capabilities** to cope with population growth

Resilience

- We need to **protect the environment** for future generations
- We need to manage **increase costs** of labour, materials and energy
- Increased borrowing costs and increased political pressure can make the **sector less attractive** to investors
- Climate change means **extreme weather events** will be more severe and more frequent – challenging our day-to-day operations
- **Ageing infrastructure** needs upgrading and replacing

Customers and stakeholders

- We need to keep **bills affordable** while investing in improvements. Cost of living challenges mean this is more important than ever
- The whole sector needs to **improve trust and its reputation**
- Rising expectations are driving regulatory changes and **increasing political pressure** that we need to adapt to
- Changing **expectations for customer service** mean we're expected to do things differently

We’re already doing things differently

Read our full Turnaround Plan here:

Our Turnaround Plan	Where we’ll be by 2025	What you’ll see by 2030
A reliable supply of water for our customers	**3rd quartile performance against our peers** Improved water quality that shows our commitment to excellence.	A reliable supply of high-quality water for our customers across our region and a commitment to continue to address the challenges climate change presents.
Healthy rivers and seas	**3 star performance awarded by the Environment Agency** Environmental Performance Assessment rating that clearly shows our commitment to healthy rivers and seas.	Healthy rivers and seas across our region. This includes inland and coastal habitats and ecosystems in which we operate.
Trusted and easy customer service	**7.5/10** Our commitment to improve our customer experience for all our consumers.	We’re making informed and trusted decisions. Our communities feel supported through easy engagement and service.
Empowered and supported colleagues	**0.2** Lost-time injury rate which highlights our commitment to health and safety excellence.	An ethical company with a safe, collaborative and inclusive work environment. One that enables rewarding careers at the heart of our communities across the South East.

Our plan

WE ARE HERE

2017 2018 2019 2020 2021 2022 2023 2024 2025 2026 2027 2028 2029 2030

Phase I – Full company reset

98%

- Ethics and transparency reset, incl Beachbuoy
- Invested over £26m in waster water treatment works 'capacity'
- £123m customer bill refund
- Improved organisational compliance
- No external dividends since 2017

Phase II – Sale and sustainable finance

100%

- Investment of £1.55bn by funds managed by Macquarie Asset Management
- Extra investment of £550 million completed
- Appointment of new CEO (2022)

Phase III – Delivering operational turnaround

64%

CORE PILLARS

- A reliable supply of water for our customers

Target: 3rd quartile performance against our peers

- Healthy rivers and seas

Target: 3-star performance awarded by the Environment Agency

- Trusted and easy customer service

Target: 7.5/10 customer experience score

- Empowered and supported colleagues

Target: 0.2 lost time injury rate

ENABLING PILLARS

- People and culture
- Digitalization and technology
- Value for money

Phase IV – Building for a green future

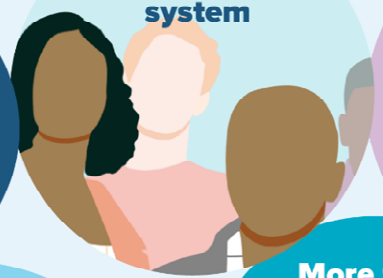
7%

- PR24 business plan and long-term delivery strategy
- Further operational transformation to 4 star and second quartile across all other areas
- AMP8 supply chain readiness
- Reduction in the use of storm overflows
- Carbon reduction and progress towards Net Zero
- Water resilience four site strategy
- Customer CRM and billing
- Smart metering to help customers reduce water usage
- Havant Thicket and water recycling to ensure sustainable water supplies

Some of the highlights you will have seen from our plan...

£7.8 billion investment programme

Investing in a new billing system



Doubling the support we offer customers in vulnerable circulstances



Investing in leakage and demand reduction



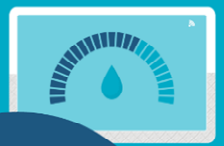
Reduce overall pollution incidents be 50%
Investing nearly £682 million to reduce our use of storm overflows



Investing £600 million to upgrade 38 wastewater treatment sites supply works



More than 1 million smart meters



£3.4 billion between 2025–35 for a reliable supply of water

£320 million modernising our four largest water supply works



£3.3 billion in the environment

Reducing the amount of water we take from the environment
Investing in new sources like water recycling and a new reservoir



Key investment highlights

£7.8bn Overall Plan 2025-30

(less £1.3bn Alternative Delivery)

£348m Retail costs

- Driving for improved levels of service AMP on AMP
- Ensuring we can invest in our customer management and billing systems
- Ensuring we can support more vulnerable customers than ever

£3.4bn Core operational costs

- Ensuring we continue to drive our transformation and performance improvement in line with what our customers have asked for and our transformation promises
- Maintaining a sustainable level of maintenance activity and investment that aligns to the aging asset base we have, and service levels expected by customers
- Allowing the continued digitisation of the business, critical core system replacements alongside bringing IT assets up to date
- Supporting essential growth across our region, in the highest growth area in the UK
- Two new advanced digestion sludge treatment centres in Kent

£4.0bn Enhancement

£3.3bn For the Environment

£1.38bn National Environment Programme

- Tackling nutrients and spills across the region's sensitive waters and coastline
- Increased monitoring of spills and water quality
- Enhanced bioresources treatment and energy generation
- Working collaborative across environmental stakeholders for nature-based solutions

£200m Additional Storm Overflows

- Focusing on 20 specific outfalls that impact on key bathing waters across the region
- Aligned to what customers and stakeholders have told us

£1.68bn Water Resources Programme

- Building on our AMP7 plans to secure water resources for the long term
- Increased connectivity across Water Companies in the Southeast
- New sources of water from 4 recycling plans and a new reservoir
- Smart metering, demand management and leakage reduction to ensure we use water wisely

£0.7bn Resilience

£457m DWI water quality investment

- Modernising our 4 biggest water supply works to maintain a reliable water service
- Water quality investments across key supply and network assets
- Cyber and site security to meet ever increasing demands

£261m resilience investment

- Investment for existing sludge treatment centres to meet new IED permits
- Power, heat, flooding and coastal erosion protection for critical assets

2022/23 Price base

There are four key themes encompassing our delivery plans

The Challenges

Climate Change



Population Growth



Environmental Capacity & Resilience

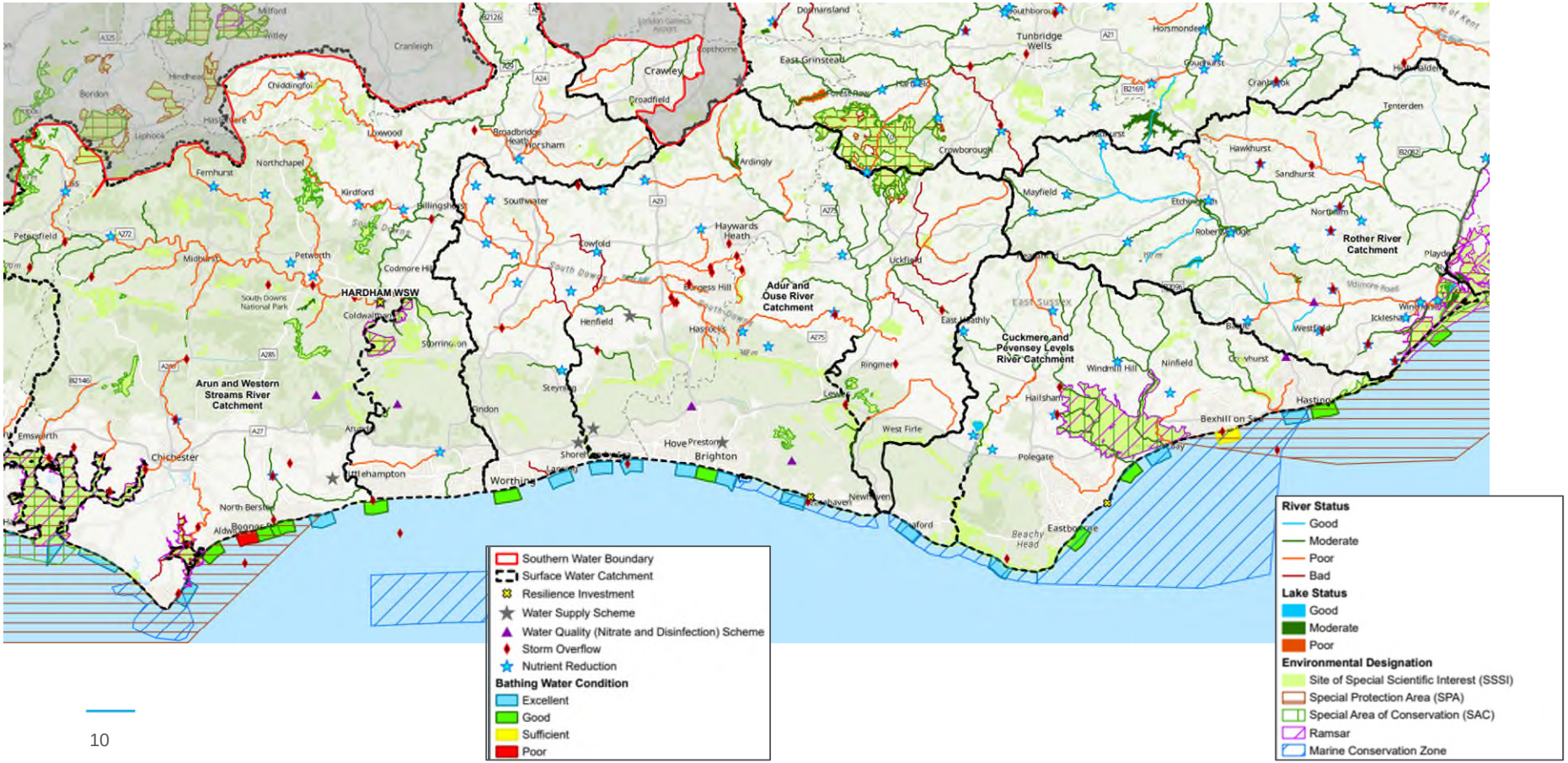


Affordability



Network flow management to reduce flooding and spills	• **Surface water separation** and **sustainable drainage systems** to attenuate excess sewer wastewater flows • Build **storage tanks** where other methods do not deliver. • **Smart networks** - sewer level monitors with artificial intelligence • Increasing **sewer capacity** for growth
Recycling wastewater and nutrient removal	• Enhancing wastewater treatment to remove **nutrients and chemicals** • Increase **wastewater treatment** capacity for growth • Additional **UV treatment** for shellfish waters
Asset health and resilience	• Enhanced **maintenance programmes** to improve resilience • Improving **resilience** to power outages, increasing heat and flood risks • **Partnership working** to address coastal erosion • Enhanced **sewer sealing** to improve resilience to high groundwater
Bioresources	• Consolidate treatment sites and move to **Advanced Digestion** technology • Increased biogas production and **renewable energy** • Explore **Advanced Thermal conversion** technology

Our Wastewater Plan by area



Nature-based solutions as a first choice

- Defra Principle: "Rainwater should be discharged back to the environment as close as possible to where it lands or channelled to a close watercourse without first mixing it with sewage"

How:

- Separating and "slowing the flow" at source where the rain falls
- Reducing groundwater infiltration into sewers

Approach:

- Catchment and nature-based solutions
- Wetlands, swales, ponds
- Rainwater capture and harvesting
- Green roofs, planters, waterbutts



Lavant WTW wetland: using nature to prevent harm from discharges from the storm overflow

Water: key enhancement activities

Provide extra water supply to meet future population growth and environmental demands	• Delivering more than 189 million litres per day of **new capacity** by 2035 through the construction of water recycling plants and new pipelines • Investigate construction of East Thanet, Thames Estuary and Sheppey **desalination** • Build or enhance **water recycling facility** capability at Havant Thicket, Sandown, Littlehampton, River Medway, Sittingbourne • **Reducing the amount of water we take from the environment** – by 50 million litres a day by 2030 • Tap **new groundwater** sources
Make our supply more resilient to severe drought	• Develop **catchment partnerships** with land users and environmental groups to improve water sources e.g. utilise sustainable extractions, reduce groundwater nitrate levels • Investigate **new transfer pipelines** to move water around the region including **Thames Water into Hampshire** • Continue to collaborate with South East Water and SES on **transfer pipelines**
Reduce leakage	• Increase **sensor network** and utilise digital information technology to improve management of the pipe network • **Renew** old water **mains** • Utilise **emerging technology** such as thermal imaging, satellites and fibre optics to improve leak detection methodology • Our 25-year plan will see leakage fall to 10% by 2050
Lower water use in homes and businesses	• Installing more than **one million smart meters** & providing tailored support and advice through our Target 100 programme • Implement **demand management** plan for lower water use in homes and businesses
Improve water quality	• Systematically remove and **replace** legacy **lead components** of the network • Upgrade water treatment capability at **four key sites** benefitting 62% of customers • Develop and implement plan to address growing stress on water treatment works of **emerging contaminants** and increasing **turbidity**

Storm overflows and the Clean Rivers and Seas Task Force

The Clean Rivers & Seas Task Force

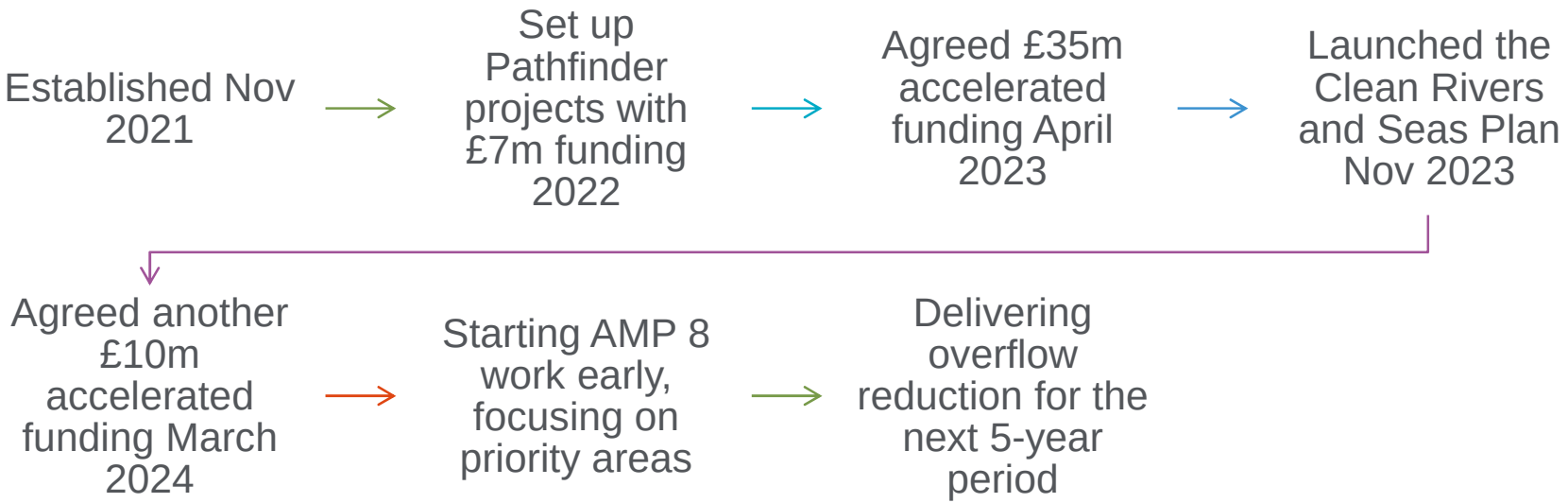
The Clean Rivers and Seas Task Force was set up in 2021, **our aim is to reduce storm overflows** to ensure a healthy environment and a resilient future for water.

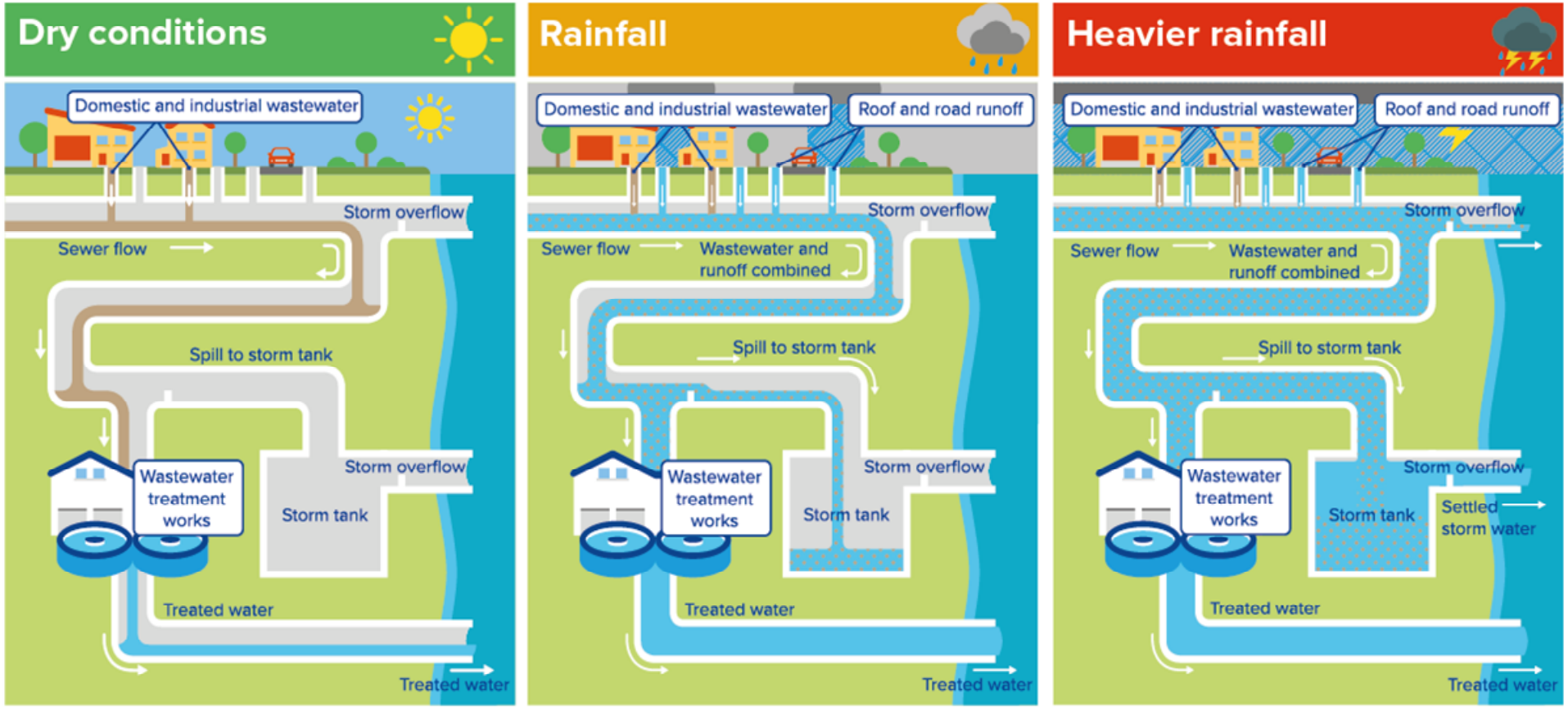
The task force is responsible for **delivering pathfinder projects** through an **accelerated programme.**

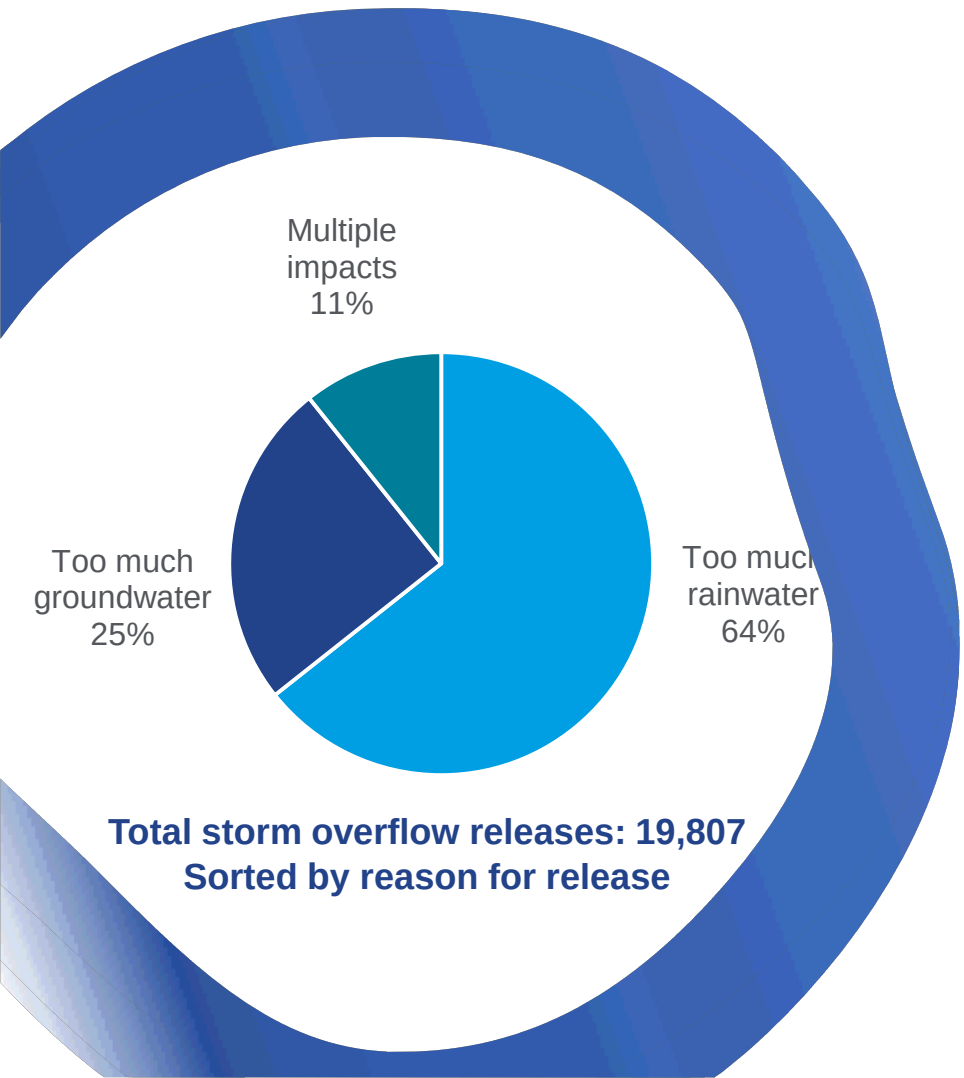
We've built our Clean Rivers and Seas (regional) plan.



Task Force evolution




Dry conditions
Domestic and industrial wastewater
Storm overflow
Sewer flow
Spill to storm tank
Wastewater treatment works
Storm overflow
Storm tank
Treated water
Treated water
Rainfall
Domestic and industrial wastewater
Roof and road runoff
Storm overflow
Sewer flow
Wastewater and runoff combined
Spill to storm tank
Wastewater treatment works
Storm overflow
Storm tank
Treated water
Treated water
Heavier rainfall
Domestic and industrial wastewater
Roof and road runoff
Storm overflow
Sewer flow
Wastewater and runoff combined
Spill to storm tank
Wastewater treatment works
Storm overflow
Storm tank
Settled storm water
Treated water
Treated water



We used AI and enhanced analysis to figure out why storm overflows were happening, so we could plan the best solutions.

WATER for LIFE from Southern Water.

How do we tackle them?

There are four main ways to reduce storm overflows and the harm they cause



- Source control
- Infrastructure optimisation
- Stormwater treatment
- Building bigger infrastructure

Pathfinder projects

What is a Pathfinder?

A Pathfinder Project is a scheme where we trial solutions in a community to reduce local storm overflows.

By taking a holistic approach to community wastewater management (including surface and groundwater), we can make sure we're installing the most effective engineering solutions with the greatest added benefits.



WATER for LIFE from Southern Water.

Five solutions areas to reduce overflows caused by surface water:

1. Optimisation



2. Illegal connections



3. Household SuDS



4. Non-household SuDS



5. Highway schemes



Step 1: Optimisation

Reconfiguring our permits and existing sites to help us reduce storm overflows

Pathfinder Process - surface
1. Optimising infrastructure
2. Illegal connections
3. Household SuDS
4. Non-Household SuDS
5. Highway Schemes



CASE STUDY

Optimising infrastructure to **slow the flow in Whitstable**

Step 4: Non-Household SuDS

Targeting large roof areas with ‘slow the flow’ measures to deliver impact

Pathfinder Process: Surface water
1. Optimising infrastructure
2. Illegal connections
3. Household SuDS
4. Non-Household SuDS
5. Highway Schemes

CASE STUDY

Sustainable Drainage Systems (SuDS) to **slow the flow in schools**



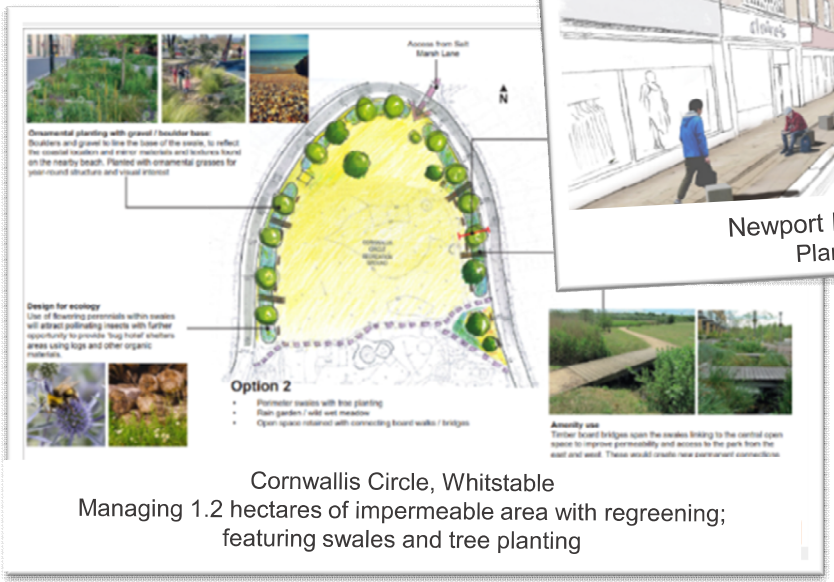
Step 5: Highway Schemes

With significant volumes of surface water coming from public highways, influencing the design of placemaking schemes will be an essential part of the solution

Pathfinder Process: Surface water
1. Optimising infrastructure
2. Illegal connections
3. Household SuDS
4. Non-Household SuDS
5. Highway Schemes



Newport High Street, Isle of Wight
Plans for highway SuDS

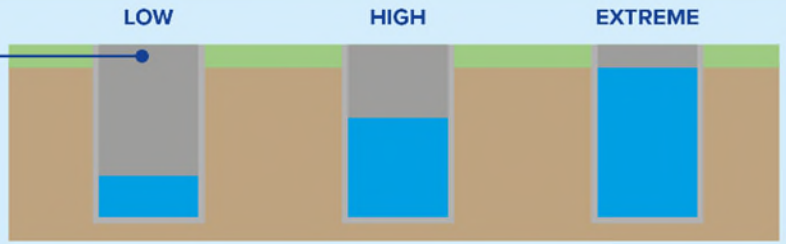


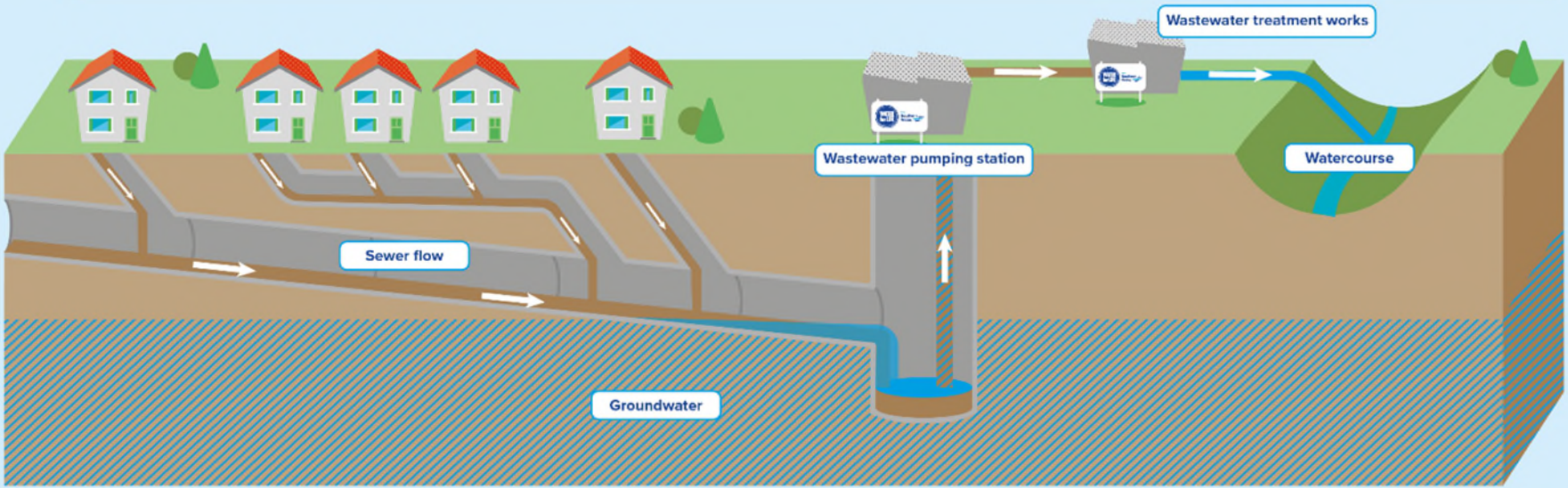
Cornwallis Circle, Whitstable
Managing 1.2 hectares of impermeable area with regreening; featuring swales and tree planting

WATER for LIFE

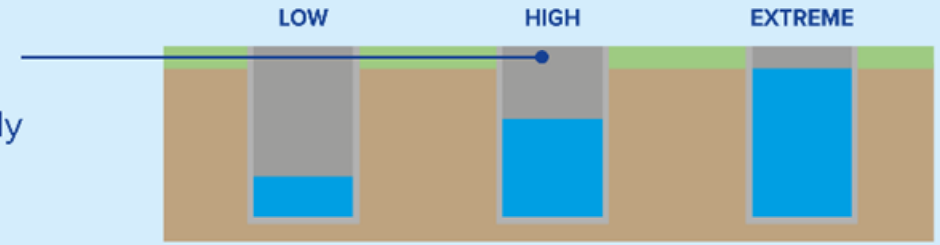
from Southern Water.

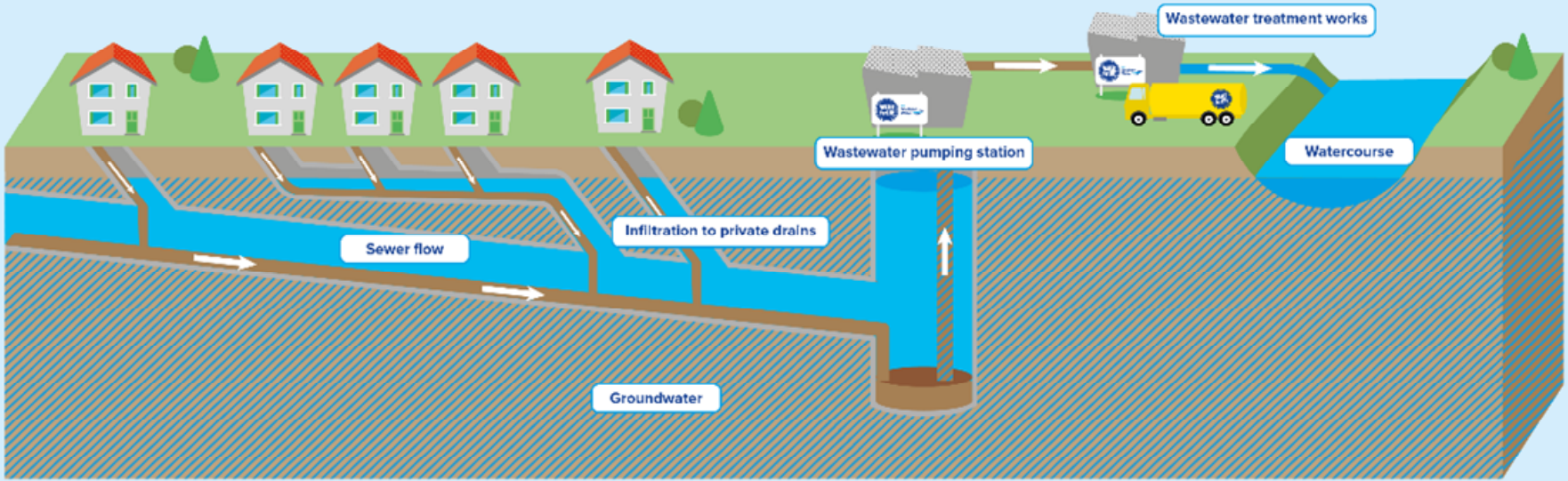
In low groundwater conditions
pumping stations convey the foul flow and a small amount of infiltration to the wastewater treatment works.





In high groundwater conditions
the flow is largely infiltration. At these levels the pumps are working continuously and tankers are required to keep the sewerage system functioning.





Reducing groundwater infiltration

How do we tackle it?

- Reline our pipework
- Seal private pipework
- Monitor and learn
- Construct wetland









Pan Parishes Success



CASE STUDY

WATER for LIFE from Southern Water.

Sealing private infrastructure to **reduce groundwater infiltration in the Pan Parishes**

Background

The Pan Parishes is a group of villages west of Andover. The area is heavily affected by groundwater infiltration, with groundwater pressures so high that the water is forcing its way into the sewer system through joints in pipework.

this infiltration leads to pollution, flooding, interruptions to water service and disruption for locals. To manage the overwhelming amount of groundwater causing these problems, over 30 tankers on average are used to remove excess water from the sewer system and transport it to our treatment works. These tankers are large, noisy, and disruptive, operating 24/7 and resulting in road closures and frustration to residents.

We found water flooding in through a manhole on private land

This is not a viable or sustainable solution, and we wanted to do better for our customers and the environment. We used our Pathfinder approach of trialling interventions in a small catchment area to find the best solution and discovered that sealing private laterals to reduce groundwater infiltration was the optimal course of action.

Having determined an effective, long-term, and low-impact solution, we set out to seal private pipework at scale to finally put an end to the groundwater infiltration affecting the Pan Parishes.

Our approach

- **Partnership working:** Up to 42% of the network is privately owned, so we must seek permission before undertaking repairs. This made collaboration an essential part of the project, and we worked with homeowners, business owners and local authorities to scale the project as much as possible.
- **Sealing and relining:** We set out to seal over 300 private pipes (2.5km) with Tubogel, 2km of our own network through traditional relining methods, as well as sealing 68 manholes.
- **Monitoring:** We've installed 36 sewer level monitors, 26 temperature sensors and advanced telemetry at our stations to monitor, target and measure infiltration and understand the relationship between groundwater and sewage.

Sewage is generally warmer than groundwater, so the temperature sensors help us find out when there might be

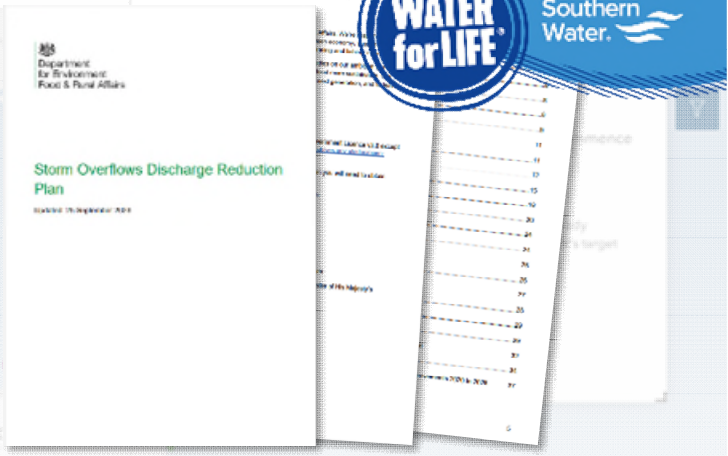
- 30 tankers on average each year, before needing to consider over pumping. Huge disruption to the community, while we also were lining our sewers
- Reviewed the area and up to 45% of the network is privately owned
- Started programme to also seal private pipes
- Groundwater levels higher than ever 2023 into 2024
- Currently no tankers on site

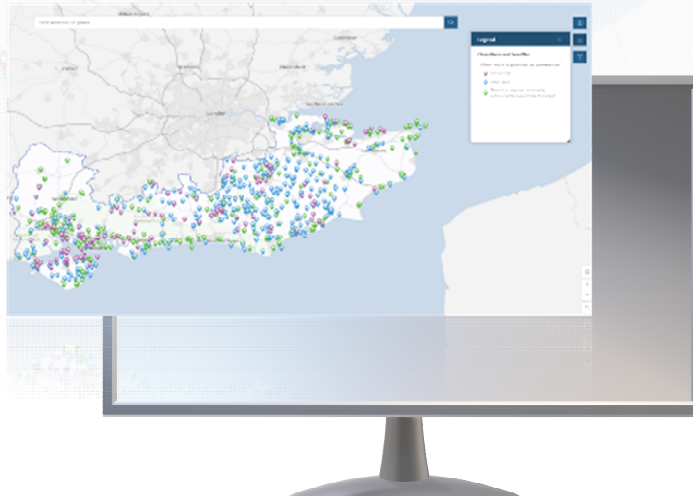
Clean Rivers and Seas Plan

The Clean Rivers and Seas Plan shows **how we intend to reduce storm overflows across our region**.

Unlike the rest of the industry, **we're prioritising green solutions over grey**, with 79% of our interventions being either nature-based or hybrid.

This allows us to **future proof** our approach while ensuring a **healthy environment for years to come**.



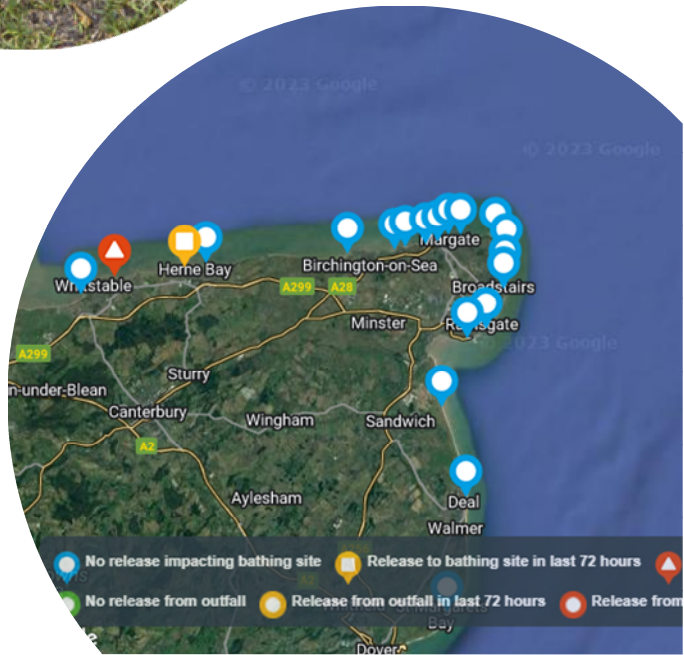


Beachbuoy



Beachbuoy is our interactive, near real-time web app designed to help you **stay informed of any storm overflow releases** at nearby bathing waters.

We know the importance of **transparency** when it comes to storm overflows and the environment, so we're revamping Beachbuoy and **releasing a new version in spring 2024**, which will include **all inland storm overflow outfalls**, have better usability, and a host of other useful features.



Citizen science

We provided **water quality testing kits** to groups and councils on the Isle of Wight, Whitstable, Eastbourne, Hastings and Brighton so they can test the water quality in their area.

We’re recording the results and using them to investigate **how storm overflows and other contributing factors relate to water quality**.

We’ll soon be extending this project to more areas.





Water quality buoys



In 2022 we launched two **real-time water quality testing buoys**, testing technology that hasn't been deployed in this way before. If successful, lessons from this project may be used to inform future schemes.

These buoys **automatically measure the water quality every few minutes**, we'll openly share the results with the public once we've finished quality testing the process.



Thank you

More information

- Clean Rivers and Seas Plan – Interactive Map (southernwater.co.uk)
- Storm Overflows (southernwater.co.uk)
- Beachbuoy (southernwater.co.uk)
- Flow and spill reporting (southernwater.co.uk)
- Our Bathing Water Report 2023 (southernwater.co.uk)
- Our Annual Report (southernwater.co.uk)
- Latest reports and updates (southernwater.co.uk)

