

Place Scrutiny Committee 24 November 2022

Agenda item 6 – Appendix 1

Written responses from Southern Water and Ofwat to Questions from the Committee.

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Storm overflows

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



from Southern Water

How big is Southern Water's wastewater network?

We operate 367 wastewater treatment sites, more than 3,000 pumping stations and a network of almost 40,000km of sewers.

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

Every day we treat nearly 1,400 million litres of wastewater, to some of the highest regulatory standards in the world. 95% of all wastewater is returned to the environment safely, maintaining river levels and providing a stable ecological environment for aquatic life. 5% is released, usually during heavy or prolonged rainfall and is diluted storm water. We are working hard to reduce that figure.

Why don't you start investing to improve your assets and stop paying your shareholders instead?

We are, we're investing £2bn between 2020 and 2025, with most going to improving our environmental performance and our assets. We haven't paid our shareholders any dividends since 2017. Instead, all profits are being invested back in the business.

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, driveways 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?

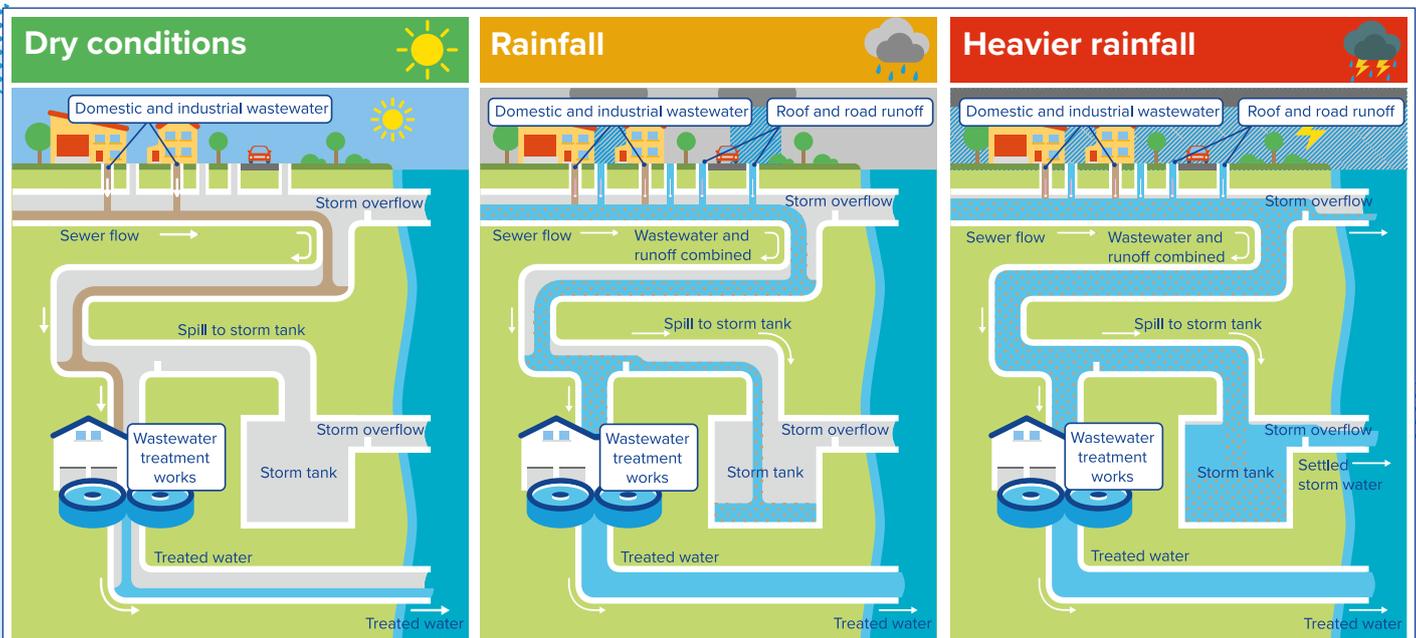
During heavy rain, local sewer networks can struggle to cope with the amount of water entering pipes and storage tanks. When they fill up, we use storm overflows to stop homes, businesses and roads from flooding. These overflows release excess water through outfalls into rivers and the sea. Storm overflows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

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 the sewers were built to carry both foul water from homes and businesses, and rainwater from roofs, driveways and roads.

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).

Where do storm overflows release?

They release into rivers and the sea. To see the location of our coastal outfalls, please visit [Beachbuoy](#).

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. Beachbuoy also informs the user if a release affects bathing waters, taking into consideration the location of the outfall, duration of the release and the tidal conditions at the time. 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.

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. Both storm and emergency coastal overflows are shown on [Beachbuoy](#).

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.



▲ [Beachbuoy](#), our near real-time storm overflow activity tool

What are the Govt. targets on reducing storm overflows?

Defra published their [Storm Overflows Discharge Reduction Plan](#) in September 2022, which sets targets for the water industry to eliminate storm overflows by 2050 (except for unusual heavy rainfall). We welcome this plan and are already leading the way with some of the targets outlined. For example, we are already hitting the average number of spills per outfall per year, that other water companies are aiming to achieve by 2025. We're therefore confident that we'll not only meet Govt. targets, but that we'll likely exceed them.

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.

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.

Do bathing waters in the UK and across Southern Water's region, meet regulatory standards?

Before privatisation, only 28% of bathing waters in the UK met the minimum public health standards. Today, 99% of UK bathing waters achieve minimum standards. 80 of the 84 bathing waters in our area are recognised by the Environment Agency as either good or excellent, and none are considered poor.

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. 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.

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.

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.



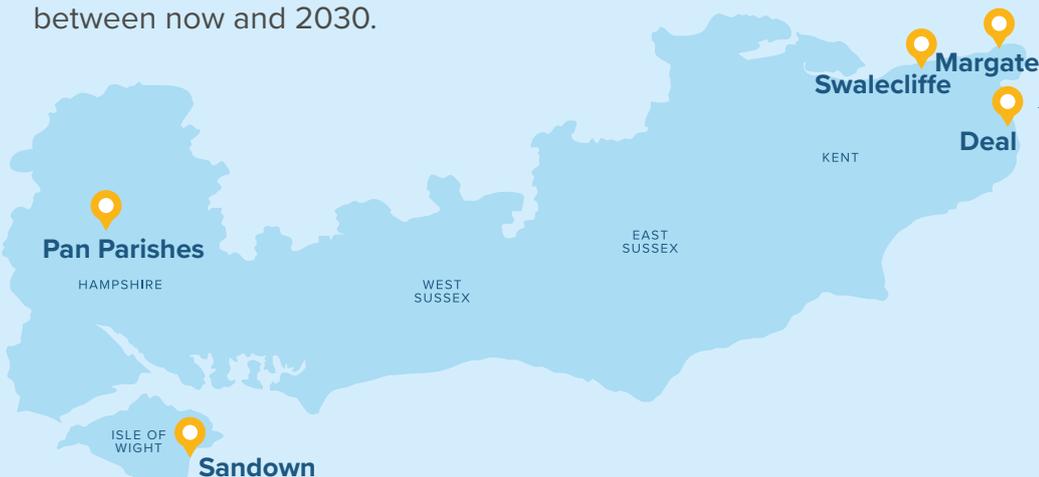
Intensive care – Sites that are considered to be high risk are added to an intensive care list, which means they have additional checks and specific plans in place, if things go wrong.

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.

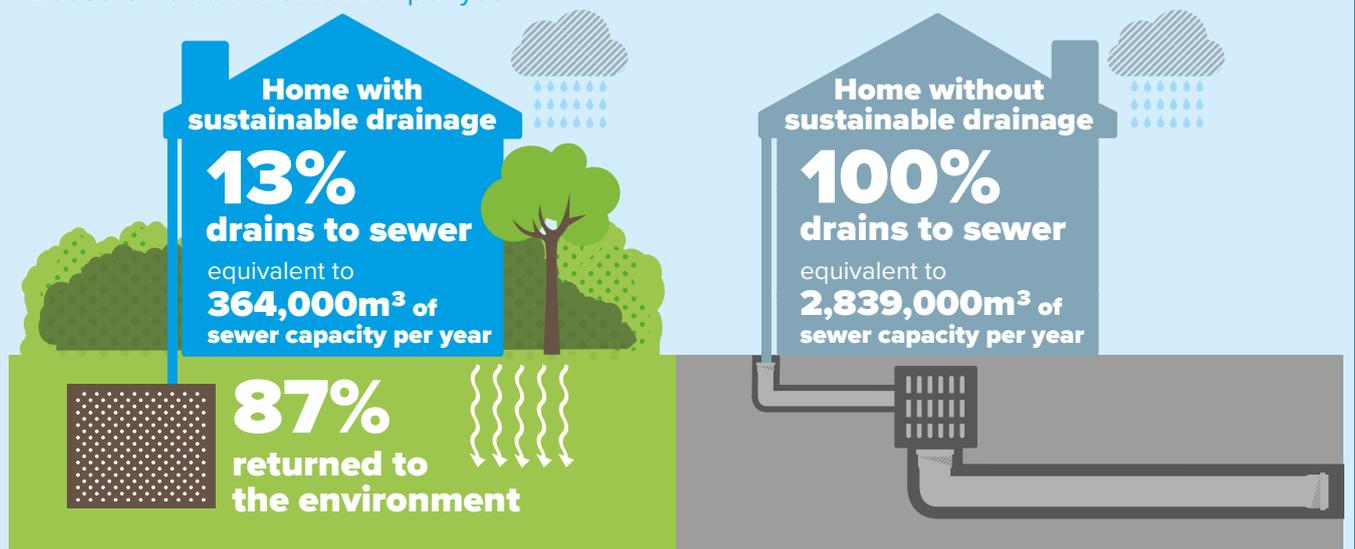
There are many ways to slow the flow of rainwater into sewers



◀ 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.

Water run-off for a development of 10,000 homes:

Based on 900mm of rainfall per year



Place Scrutiny Committee – 24 November 2022

Written Questions for Southern Water

Stopping the use of Storm Overflows / CSO Discharges and Timescales for Improvement

1. What are Southern Water's plans to reduce storm overflow (CSO) discharges in East Sussex?

We've set up a dedicated task force who are responsible for delivering at least six [Pathfinder](#) projects in the next two years, trialling new catchment-based techniques and partnerships to manage surface water runoff in communities, as well as tackling groundwater infiltration.

To prevent the system from becoming overwhelmed, we need to 'slow the flow' of rainwater entering the network. This will significantly reduce the need to use storm overflows and provide a wealth of environmental and social benefits. Building storage tanks is the traditional method to tackling storm overflows/increasing volumes of wastewater, and although we will build more end-of-pipe solutions where necessary, this does not resolve the root cause of water getting into the system and it is carbon-intensive to pump and treat rainwater. Instead, we are committed to ensuring we create a sustainable system fit for the future.

We're working with councils, schools, businesses and third sector organisations to implement sustainable drainage solutions across our Pathfinder areas. We're also working with the Environment Agency to review the control mechanisms for our treatment sites, explore potential wetlands and additional storage capacity within the network.

The task force is already achieving some positive results, including a scheme in Havenstreet on the Isle of Wight which provided each household with a slow-drain water butt with the aim of preventing a storm overflow activation from the local pumping station. Since the trial roll-out there we've experienced rainfall events up to 30mm, which would normally cause the pumping station to release, and there hasn't been a release due to excess water in the system. The case study for this will be published this winter.

In addition, we welcome Defra's [Storm Overflows Discharge Reduction Plan](#), which was published in September 2022, which sets targets for the water industry to eliminate storm overflows by 2050 (except for unusually heavy rainfall). Actions taken to date mean we are already hitting the average number of spills per outfall per year, that other water companies are only aiming to achieve by 2025. We're therefore confident that we'll not only meet Government targets, but we'll likely exceed them.

A solutions menu is being developed which includes slowing the flow, sustainable drainage (SuDS) and nature-based solutions. It incorporates carbon, natural and social capital values to ensure we are embedding wider benefit values in our decision making. The task force is working with numerous external stakeholders and regulators to establish strong partnerships to ensure delivery is a success.

What we learn from our Pathfinder projects will help inform our regional plan to significantly reduce storm overflows by 2030. We'll publish our Pathfinder findings, as well as our regional plan. For more information, latest reports, and news, please visit our [Storm Overflow](#) pages.

2. In Hastings and Bexhill, we had 147 sewage outflows into the sea and coastline last year in 2021. Today we are still experiencing CSO's (Combined sewage Overflows) where waste water and untreated sewage are outflowed into our rivers and seas. The increase in incidents have



not improved but worsened here and up the coast to Bexhill, Galley Hill. This is a sewage crisis, which is worsening with every new build, new toilet system, an overload to an already overloaded system. You have a 2030 target but what improvements are we going to see within the next year to reassure residents?

Please see answer above. In addition, during August we saw significant rainfall starting on the 16th August, when storms built up around our Hampshire region, leading to around 38mm of rain falling in a 24-hour period, around a 1 in 10-year storm. Rainfall ramped up considerably on the 17th August, with the greatest impacts seen in East Sussex and in Central / West Kent which resulted in further significant rainfall falling on dry compacted ground, where we observed rainfall totals of around 40-50mm in total in short intense bursts, equivalent to a 1 in a 100-year storm.

We had predicted the intensity of rainfall and, with one exception, our systems worked as designed, resulting in storm overflows to protect homes and local businesses from flooding. The exception was Galley Hill Wastewater Pumping Station (WPS), to the west of Hastings, which suffered from electrical failure.

This incident saw an emergency discharge of unscreened storm water onto the beach at Bexhill lasting 151 minutes. This was run as an emergency incident, in line with our established protocols. The local Council and the Environment Agency were kept informed throughout. The local team working with the Energy Distribution Network Operator (UKPN) restored power and brought in additional temporary generation and we have rectified the issue. We completed beach inspections, and whilst we found very little evidence of sewage, we ensured any litter we found was safely removed. Beaches were closed from Bexhill Beach to Normans Bay from the morning of 18th August to the morning of 20th August.

Additionally, the Environment Agency provided separate advice against bathing for the neighbouring Hastings Pelham Beach from 15th August. This guidance was due to a Pollution Risk Forecast because of rainfall and not because of a Southern Water discharge. The intense rainfall also caused releases from surface water systems carrying road run-off and were not connected to the sewage network.

3. You have accepted that your standards of service have been unacceptable in your presentation to the House of Lords. Can you give us a date by which we will be able to see measurable improvements? Ideally within 12 months?

Please see answers above. The Government has set targets to reduce CSO spills by 2030. We have plans in place to reduce CSO spills by 2025.

4. Why do we still see discharges even on dry days and this includes after long periods of dry weather?

Even during dry weather, groundwater infiltration into sewers can still cause CSOs to spill.

Investment in Infrastructure

5. What is the estimated cost of fixing the infrastructure to stop the use of storm overflows (CSO's) to meet Southern Water's 80% reduction target:
(a) within East Sussex and
(b) across the SE area serviced by Southern Water.



It will cost in excess of £174 million across the whole of Southern Water region. It's not possible to break it down for East Sussex.

6. What would be the cost to stop the use of CSOs completely?

Nationally, this would require the entire sewer system to be dug up, separating road run-off and roof run-off from foul water. This could cost up to £100billion and would cause nationwide disruption and transport chaos.

7. What investment, as a proportion of expenditure + profit, is being made in managing increasing rainfall problems; for instance, improving soak-aways near roads, planting trees with good up-take; what programmes are there to support residents to create suitable domestic soak-away solutions? What rebates are available for residents who create suitable soakaways, reducing the amount of 'treated' domestic outflow?

We are working with Councils on these options and would welcome working with ESCC. If surface water runs into a soakaway rather than a public drain, then customers can claim a rebate from us. The current annual fee (£25.90 for homeowners) covers the cost of taking away and treating surface water.

8. The failure at Galley Hill pumping station causing 3 million litres of water, including sewage to be discharged via the outfall was we understand due to a trip switch on a transformer failing and having to wait for UK Power Networks to repair it. We understand that this key component was on a 4 year maintenance schedule and it failed nearly at the end of that 4 year period. Can you reassure us maintenance of the whole system from home to treatment works including pipes, chamber, pumps, filters, etc. are being reviewed to stop more failures?

The Cinque Ports pipe is due for re-lining work through the worst area. We are working on swapping flow from the 800mm pipe to an old redundant 600mm line. once this is complete, we will be able to inspect and line the 800mm pipe that keeps failing.

The station has pressure monitoring won't run full bore unless necessary.

9. What improvements in the maintenance and resilience of key infrastructure (e.g. pumping stations and sewage processing facilities etc.) will Southern Water make so that they can still function or be repaired quickly in the event of power or equipment failure?

We already have a number of elements in place to provide a quick response in the event of a power failure to our sites. These include:

- Back-up power generation on strategic sites to maintain power supplies
- A regular maintenance programme on these generators
- An annual "black start" programme where we simulate full power failure to sites with backup generators to ensure they work when required
- We create contingency plans by site to inform how we should respond in an event

Wet weather response plans are written before every significant wet weather event. These plans detailing specific sites with operational issues and the controls in place, where we have or may need to deploy flow management and the regions mobile power generation readiness.

Each region has multiple mobile power generators which can be deployed to sites where power failure occurs, and we are unable to restore power to the site

Mobile power generation was deployed during the Galley Hill event to ensure that we had two levels of back-up generation on site whilst we undertook the complex fault-finding exercise to understand the failure that took place on site.

Following this event, we are reviewing what other invasive inspection regimes could be put in place to further identify risk and ensure resilience features on our sites work when called upon.

10. What mapping/survey work are you undertaking of all your infrastructure to avoid the spills that occurred at Hastings and Bexhill both this year and last where pipes burst completely without warning? What reassurance can you give that this won't happen again?

We have been working with Hastings Borough Council to survey resolve misconnections – this is where properties do not have correct connection to the sewer, causing their wastewater to travel directly to the watercourse. Please see attached presentation for more details.

Summary of misconnection work:

- 85 misconnections found.
- 77 grey water (kitchens, hand basins, showers, baths and washing machines)
- 11 misconnections which involve foul sewage.
- 84 misconnections resolved
- 1 kitchen waste and 3 misconnections which involve foul sewage

Working Together on Solutions

11. What opportunities do you see to work with highways on reducing the run-off from our roads and pavements into CSO's in the short and longer term?

There are lots of opportunities to work collaboratively with a wide range of stakeholders. We must reduce the run-off from roads entering our sewer, which is around 50% of the run-off. There are plenty of great intervention types, from rain gardens built into traffic calming measures, to permeable parking spaces. We plan to demonstrate these at scale in our pathfinder areas in collaboration with the councils.

12. What issues does Southern Water believe need to be resolved with Highways/ESCC to improve water management around roads?

See answer to Q.11, in addition the main issue is that highway authorities have no incentive to manage the run-off other than to prevent flooding. This needs to change at a national level. At the moment the water customer pays for the cost of handling this water not the highway authority who is responsible for the asset.

13. How are you working with the wider nature recovery strategies and Biodiversity Net Gain to find co-benefits and joint solutions to storm water retention and slowing the flow?

Southern Water is developing an Environment Strategy which is underpinned by a natural capital approach. We have built natural and social capital metrics into our decision-making process which enables us to assess options and select best value, i.e. those options which deliver the best benefit cost ratio. Biodiversity



is one of the metrics we measure. We have undertaken a desktop assessment of our own estate (working with the Wildlife Trust's across the South East) to understand the current and potential biodiversity and carbon offsetting opportunities. This work looked at the connectivity of our sites to other sites of nature conservation importance. We plan to use this to inform where and how we meet our statutory and corporate Biodiversity Net Gain obligations. We know that once developed, Local Nature Recovery Strategies will be useful tools for directing our contribution to nature recovery – we are active members of Kent, Sussex (which we chair) and Hampshire & Isle of Wight Nature Partnership and the overarching South East Nature Partnership to support this emerging approach.

Our Drainage and Wastewater Management Plan (DWMP) adopted the "Source-Pathway-Receptor" model, which is widely used in environmental risk management, to ensure that we considered options to tackle risks at source. This approach promotes more sustainable solutions that work with nature and seek to 'slow the flow' in the urban environment, or to reduce the demand on our infrastructure. We also developed a social, economic, and environmental assessment process to ensure that wider multiple benefits were considered in options development so best benefit value options were taken forward for costing and inclusion within our plan.

14. Would you agree Nature solutions to cope with rainfall captured from roofs, highways and impermeable surfaces are better than allowing flow into CSOs? If so, how can we achieve this and who is responsible?

Yes, we do agree – please see answers above and particularly our pathfinder work.

15. We understand that Local Planning Authorities (LPAs) do not have to consult with Southern Water as a statutory consultee at present, and you have to provide a service to take whatever extra foul water that application results in. Is this correct and do you think that needs to change?

Water companies are not statutory consultees on individual applications in the way that highways authorities are for new housing. This means that Southern Water often does not have the opportunity to provide information on known risks or risks arising from the proposed development. LPAs and developers are not required to follow our recommendations.

Under the Water Industry Act 1991 we have a duty to provide a suitable sewer network and the opportunity for all domestic properties to connect to the sewer system. This ultimately equates to a 'right to connect' which prevents us from refusing connections. Simultaneously, we have a duty to ensure that the service we provide to our existing customers does not deteriorate as a result of new homes being built.

Therefore, it is vital that when new homes are built, this is done in consultation with the water companies so that appropriate mitigations are put in place to ensure a high quality service for our customers and to protect the environment.

To enable us to drive these improvements we would need:

Implementation of Schedule 3 to the Flood and Water Management Act 2010, which makes provision for:

- Introduction of SuDS Approval Bodies (SAB)
- Consultation requirements with sewerage undertakers



- Amendment to the Water Industry Act 1991 s106 removing the automatic right to connect to the public sewer system, to prevent new developments adding more surface water to the combined sewer network when it rains, if SAB approval is not given.

These changes would eliminate new sources of rainwater from entering the sewer which can cause flooding of homes elsewhere in the system or releases of sewage from storm overflows during heavy rainfall.

Our drainage and wastewater management plan (DWMP) has identified that up to 97% of the flow in sewers in a storm is rainfall. This leads to flooding from sewers and causes discharges from storm overflows. It also means that in a storm event we have higher energy and carbon costs from pumping rainwater around our systems and recycling the water at our wastewater treatment works. Removing rainwater from foul and combined sewers will help reduce these risks to our customers and the environment.

16. How can agencies such as ESCC help to achieve your target reductions in CSO's?
Please see answers above.

Re-building Public Trust and Compensation for Affected Communities

17. How do you intend to re-build public trust in your activities?

Beachbouy gives real time accurate information about storm releases. It is fully transparent. We issue information and newsletters to customers and stakeholders to update them on our specific plans in their areas. We organise public meetings where we are carrying out significant works, such as in Lancing. We regularly post information on our website and social media and would ask councillors to share and support our positive stories more widely within their communities.

We are investing a significant amount to improve the resilience of our network. You can find details of our investment work here [Our Investment Areas \(southernwater.co.uk\)](https://www.southernwater.co.uk/our-investment-areas)

18. The public are rightly angry with headlines of sewage discharges into our bathing waters. We have not seen any Public Information exercises from Southern Water and understand that there have been requests for public meetings, so everyone is able to understand the details and ask questions. Would you agree that a Public Relations exercise would be better than public protests?

We have attended a number of MP-hosted public meetings, council meetings and we are always happy to facilitate requests to visit our facilities.

We have used drop ins at many locations in our area to address specific concerns. If there is a request for further drop-ins or public meetings, please contact the stakeholder team.

19. Given that coastal businesses, residents near the sea and visitors are those who are directly adversely affected by these discharges, would you agree it is these groups who need to be compensated rather than customers who may not be directly affected? Would it be better to set up a community fund for groups to bid for compensation? For example, in Bexhill public water fountains have been out of order for 3 years due to lack of money, maybe a chance to



redeem Southern Water's reputation?

We have been working with Huw Merriman MP to identify community goodwill gestures.

We welcome applications to our community grant programme. [Customer and Community Grants \(southernwater.co.uk\)](https://southernwater.co.uk)

20. The public want to know are our bathing waters safe. Would you agree the Red Flag system, managed by District and Borough Councils is confusing as sometimes there is a pollution event but no Red Flag and other times they must put one up? If so, how can it be improved?

The red flag system is managed by the Environment Agency who produce daily pollution risk forecasts which Councils are obligated to action. The Pollution Risk Forecasts are based on the effects of rain, tide, wind and seasonality on bathing water quality. These factors affect the levels of bacteria that get washed into the sea from livestock, sewage and urban drainage via rivers and streams and how they disperse. When these factors combine to make short term pollution likely the EA issue a pollution risk warning and the beach manager will display a sign advising against bathing at the bathing water.

Profits, Dividends, Fines and Finance

21. Over the last 10 years what are the annual dividends paid to investors in Southern Water?

We have not paid external dividends since 2017, and all profits are reinvested in the business.

22. Are you committing to performance related pay so bonuses are sacrificed if you have another year of disastrous discharge levels?

All bonuses are linked to environmental and customer performance targets.

23. Currently DEFRA and OfWAT fine you for breaches with money either going back to Treasury or to your customers. Do you think that is the best way to achieve more investment into a reliable way of dealing with wastewater? If not, what is best way to ensure that investment?

We would like to see fines reinvested into the business for the benefit of our customers.

24. What is the proportion of profit to investment to fines? We were recently told that the £90m fine of Southern Water 'nearly wiped out all profits for the year'. Is that true?

Given all our profits have been reinvested into the Company for the past 5 years, all fines have been punitive to our shareholders and/or our investment.

25. Are you still able to keep to your promised targets on investment given the size of your debts and rising interest rates?

We are investing £2bn over this five-year regulatory period, which equates to £1000 per household.



Misconnection team investigations

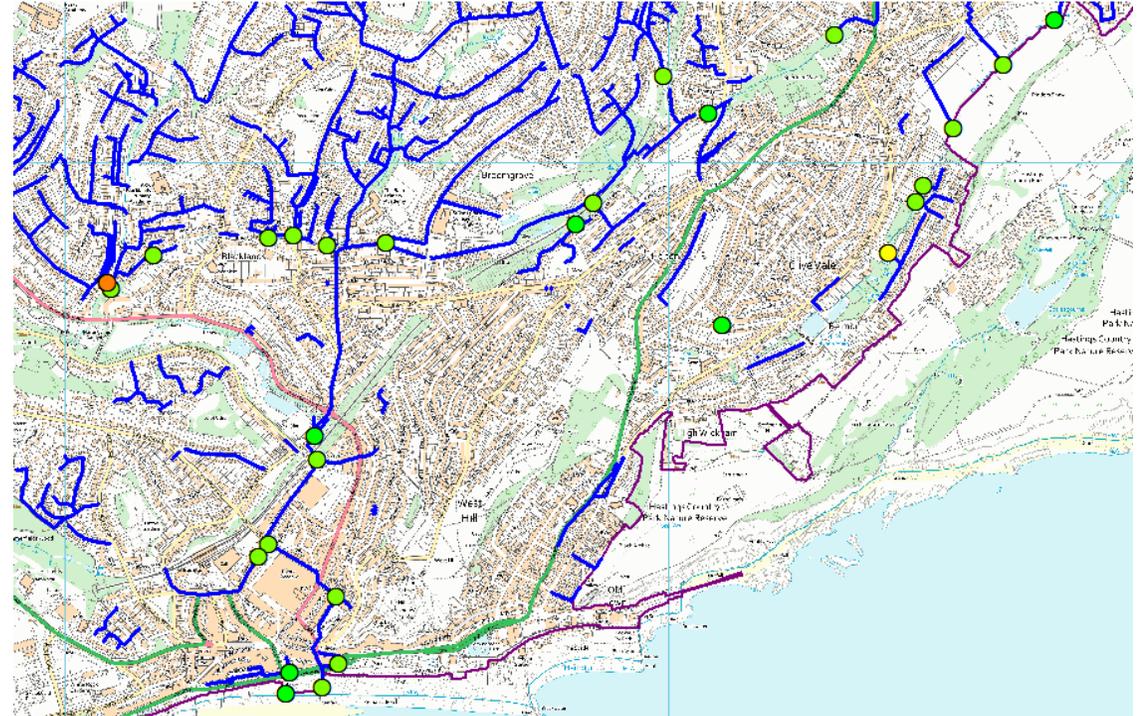
Hastings & St Leonard's



AMP7 – Hastings Pelham Beach Studies

Two AMP7 Hastings Pelham Beach Investigations

- **INV2** The objective of this investigation is to identify the sources of faecal contamination in the lower section of the Alexandra Park Stream and any tributaries into this culverted section such as the Ore Valley Stream.
- **INV4** The objective of investigation part 2 is to determine what improvements to SWS assets, if any, would be required to improve the classification.
 - Misconnections
 - Southern Water asset investigations
 - Intensive coastal sampling



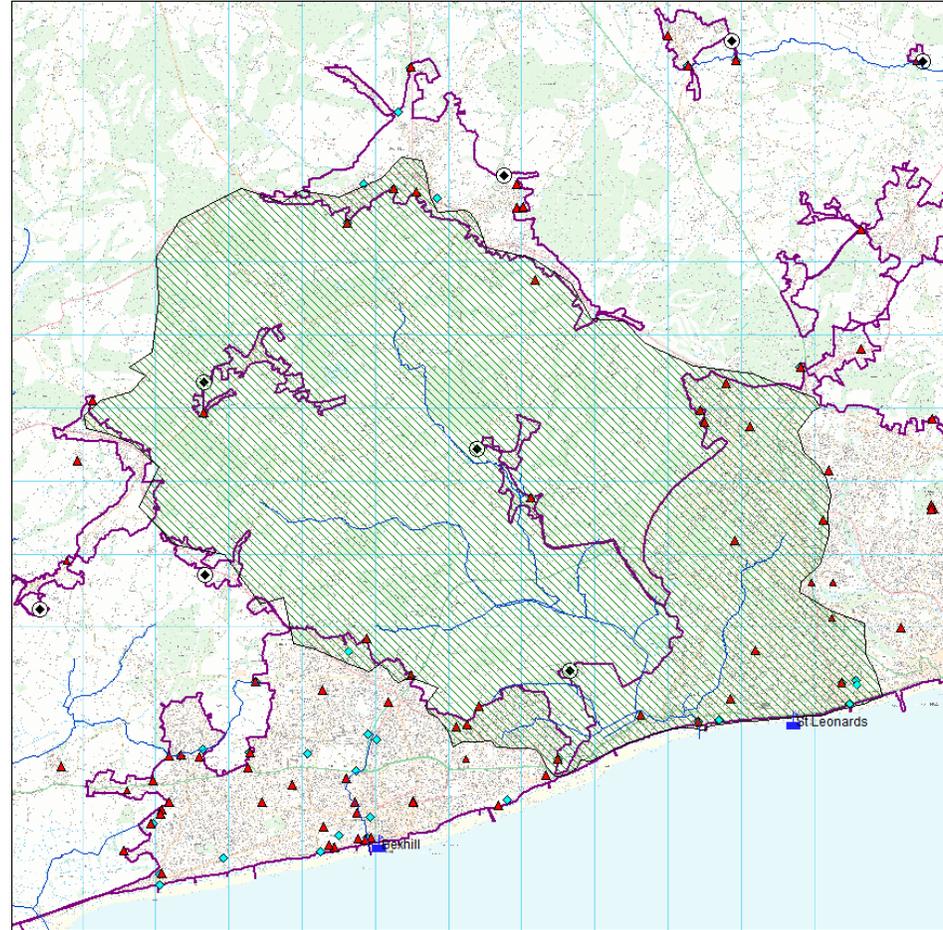
- River sampling
- Sondes
- CCTV

AMP7 – St Leonard’s Studies

- **INV4**

The objective of this investigation is to determine what improvements to SWS assets, if any, would be required to improve the classification to a robust Excellent, which requires the risk of failing the planning class of Excellent to be reduced to less than 20%.

- Misconnections
- Southern Water asset investigations
- Intensive coastal sampling
- River sampling
- Sondes
- River flow



Misconnections Team investigation in Hastings & St Leonards

The In-house Misconnections team have surveyed the surface water network in Hastings areas since 2019. With the guidance of the AMP7 investigations

Investigation methods

- Install cages and monitor for two weeks
- Lift and Look Surveys, checking for signs of pollution
- Sampling water quality
- Walkover studies to inspect high risk areas,

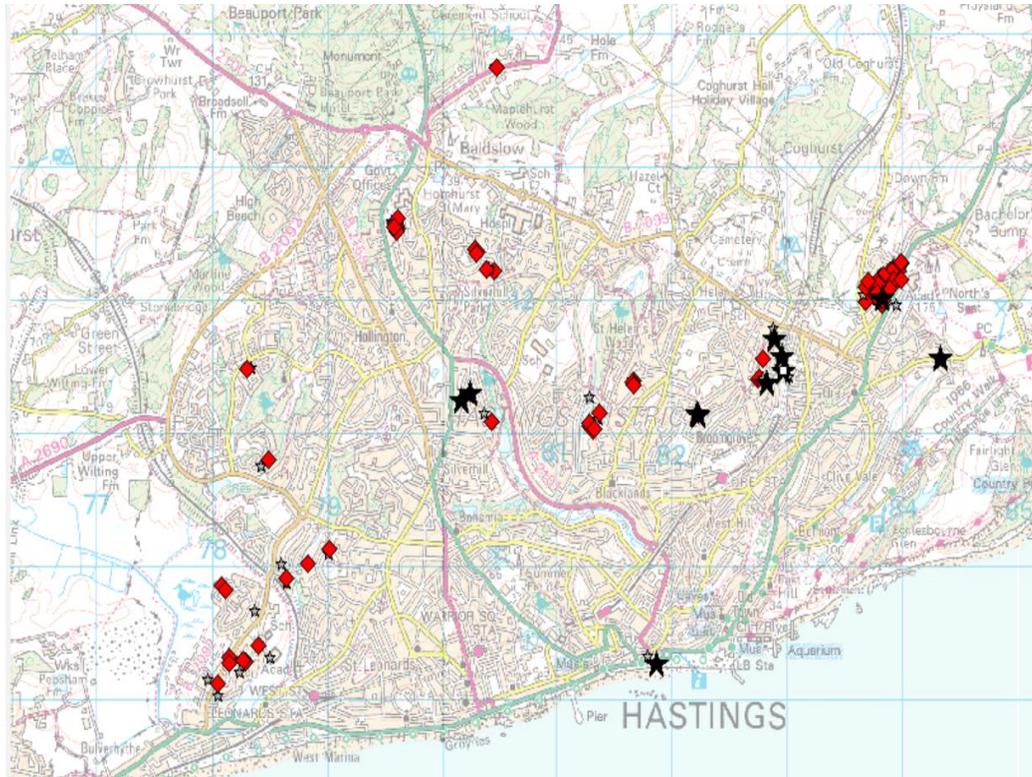


Which led to...

- High number of polluted outfalls identified
- Source traced to property level
- Engaged with homeowners to resolve bad connection
- Ongoing collaboration with Hastings Borough Council EHO team
- Operational issues identified / rectified
- Improved water quality



Misconnections identified in Hastings & St Leonards

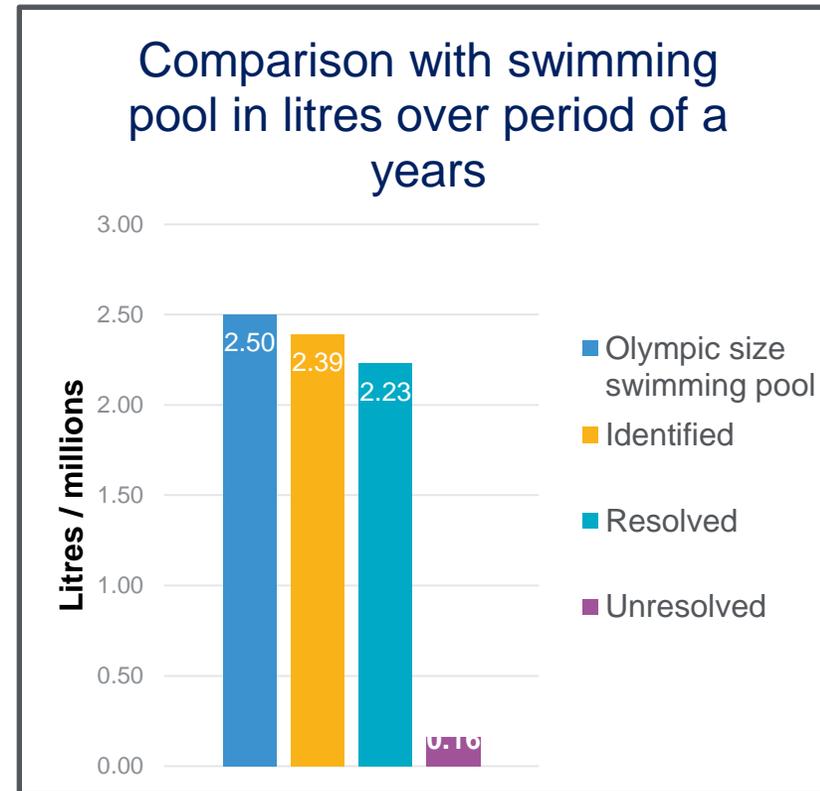


Misconnection noted on map using red diamond

Summary of Findings	Total
Misconnected properties identified	85
Misconnected properties resolved	77
Grey Water misconnection	72
Foul water misconnections	13
Misconnected facilities Identified	208
Facilities separated	191

Breakdown of household facilities

Data is collected to understand why misconnections occur and help drive social media campaigns and other opportunities to raise awareness

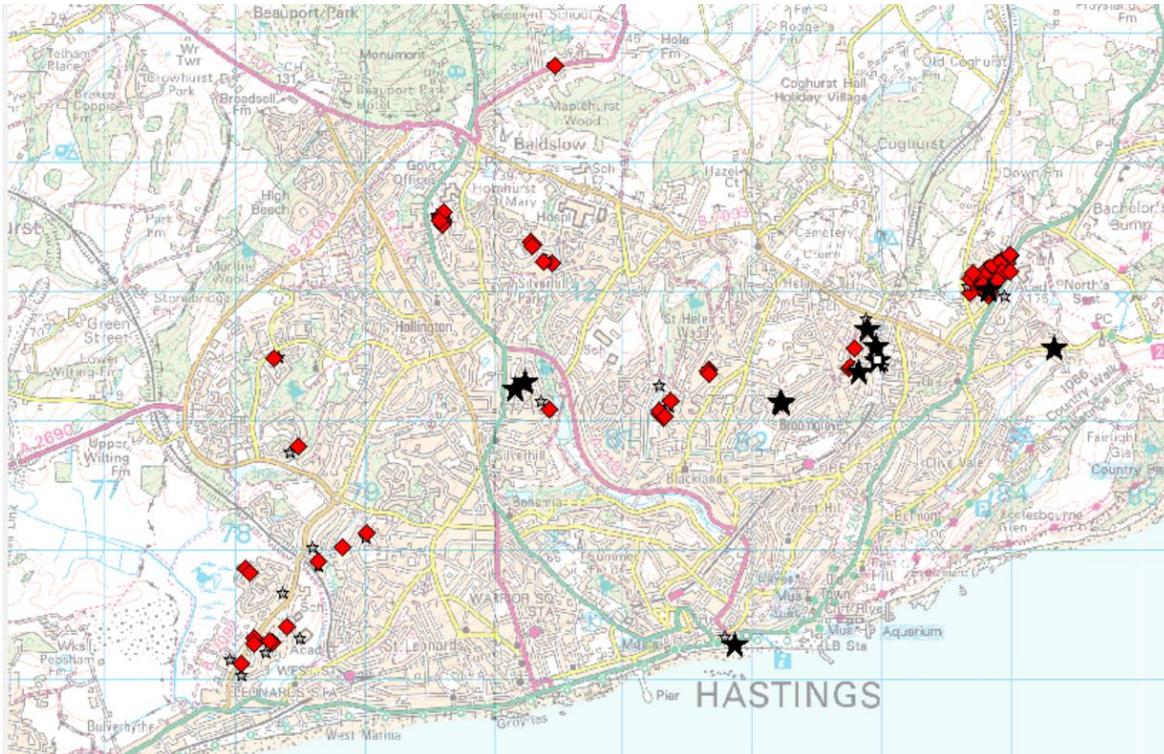


**** Average waste made per year per facility per person in an average size household of 2.4 people



Operational issues identified

During the investigations the team proactively identified operational issues, ranging in severity that required action from Southern Water to resolve.



Breakdown of issues

Total

Blockage

10

Wastewater pollution

4

Fresh water pollution

1

Cover change

5

Groundwater issue

0

Sewer misuse

1

WPS issue

0

SUM

21

Reactive issues highlighted with black star

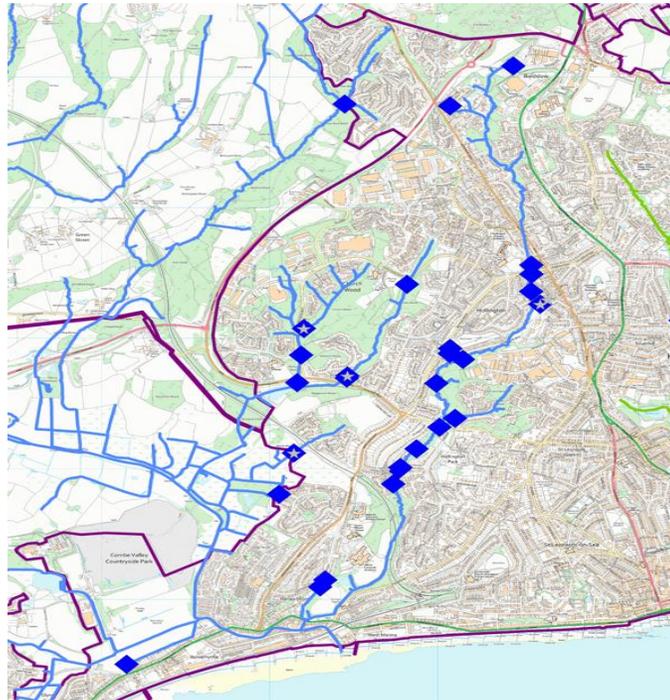


Next steps...

All outfalls and high risk sewers have been checked. The team are re-visit locations they identified evidence of household waste

St Leonards

- Investigate 9 Surface water Outfalls connected to Comb Haven
- Investigate 13 Surface water outfalls connected to Hollington Stream



Hastings

- Investigate 1 Surface water outfalls connected to the Bourne Stream
- Investigate 4 Surface water outfalls connected to the Alexandra Park stream



Engagement & collaboration

Proactive engagement has been a real positive outcome of the ongoing investigations in Hastings Borough Council.

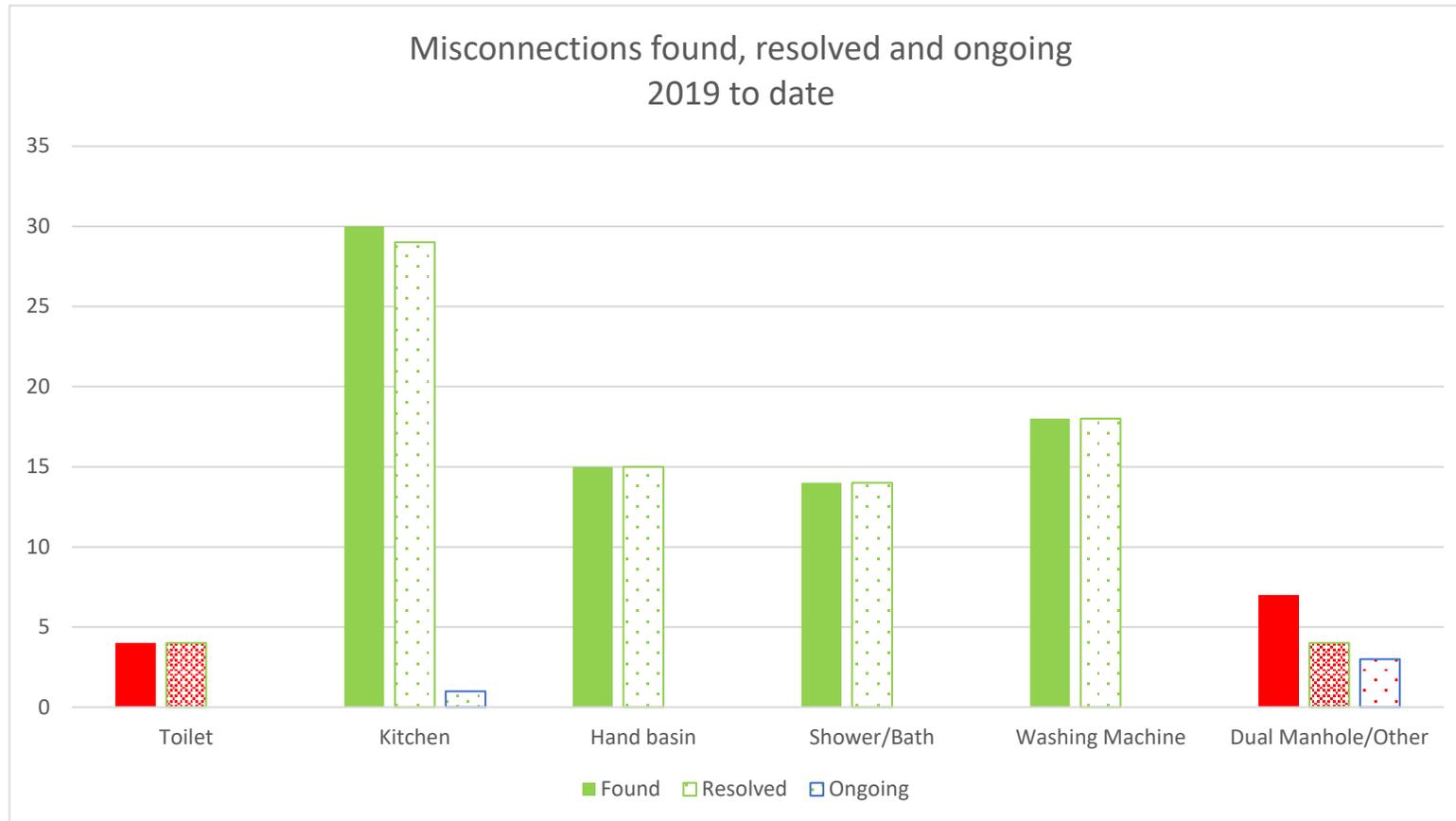
- Regular meetings with Ian Wheeler and his team Environmental health officers
- Bathing water Technical groups at an operational level
- Bathing water executive groups at director level
- Collaborative approach to investigating misconnection issues at property level
- Real time account of the Misconnections team whereabouts shared with the HBC call centre



Examples of the teams findings and the impact a misconnection can have on the environment



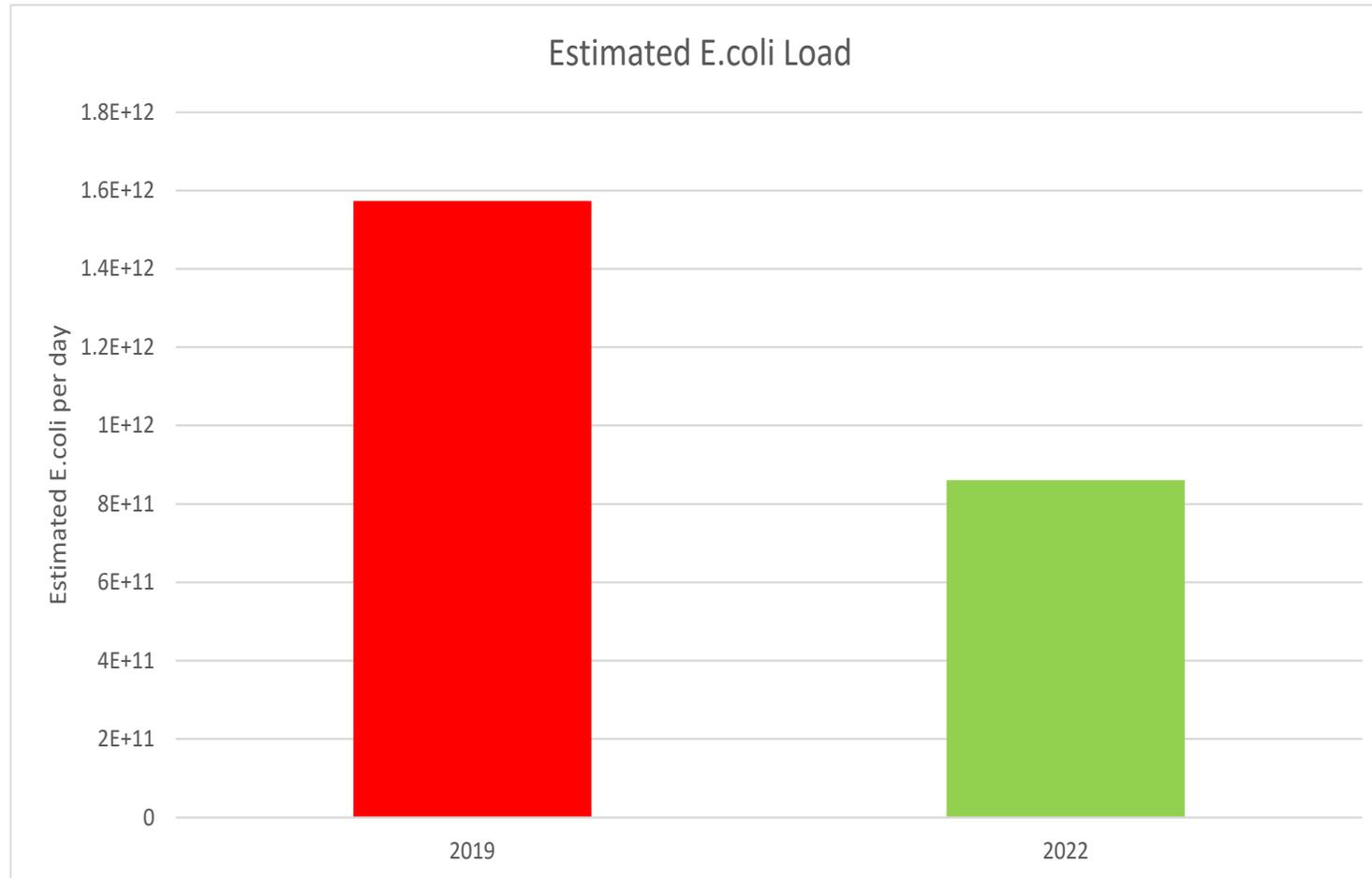
Misconnections found, resolved and ongoing 2019 to date



- 85 misconnections found.
- 77 grey water (kitchens, hand basins, showers, baths and washing machines)
- 11 misconnections which involve foul sewage.
- 84 misconnections resolved
- 1 kitchen waste and 3 misconnections which involve foul sewage are outstanding.

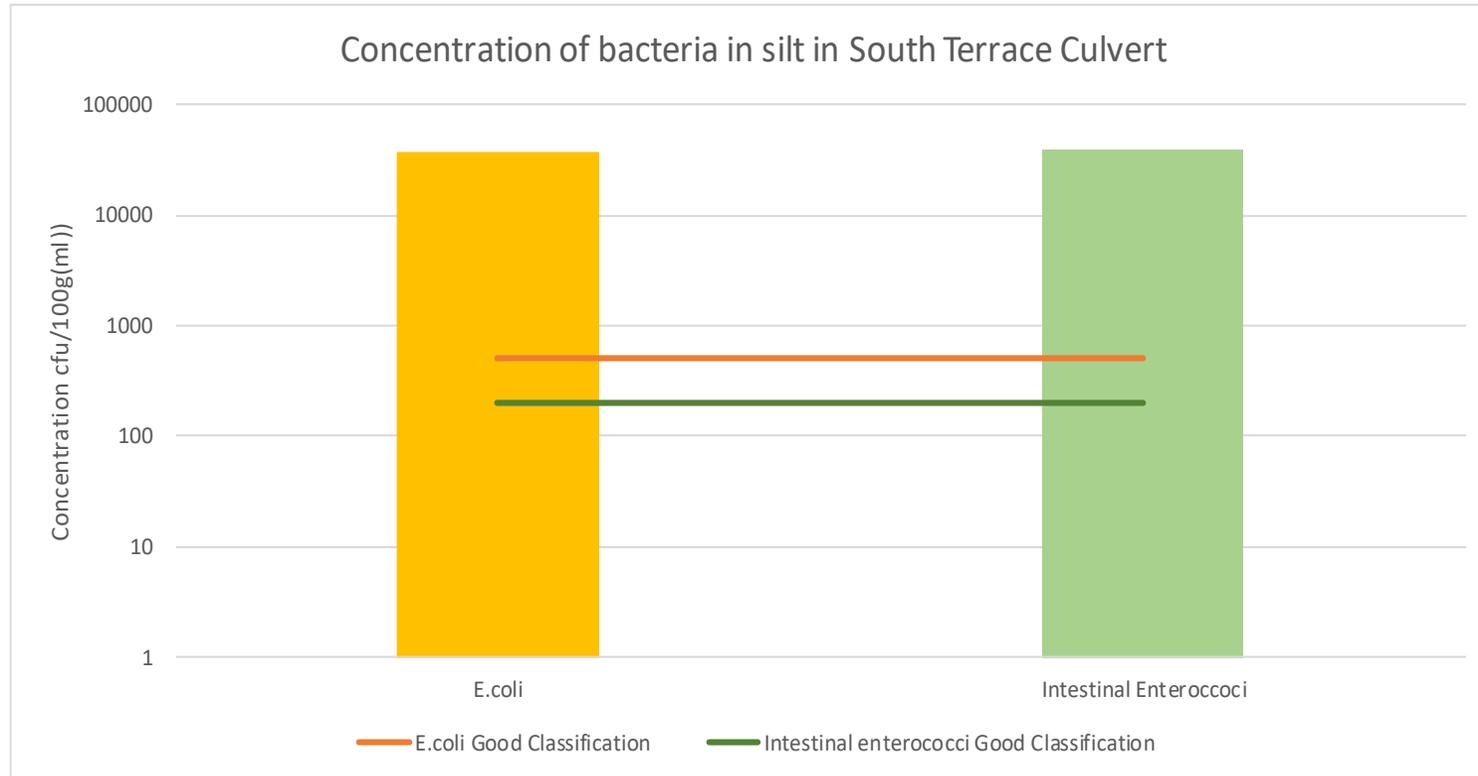


Estimated E.coli Load from found misconnections - 2019 to date.



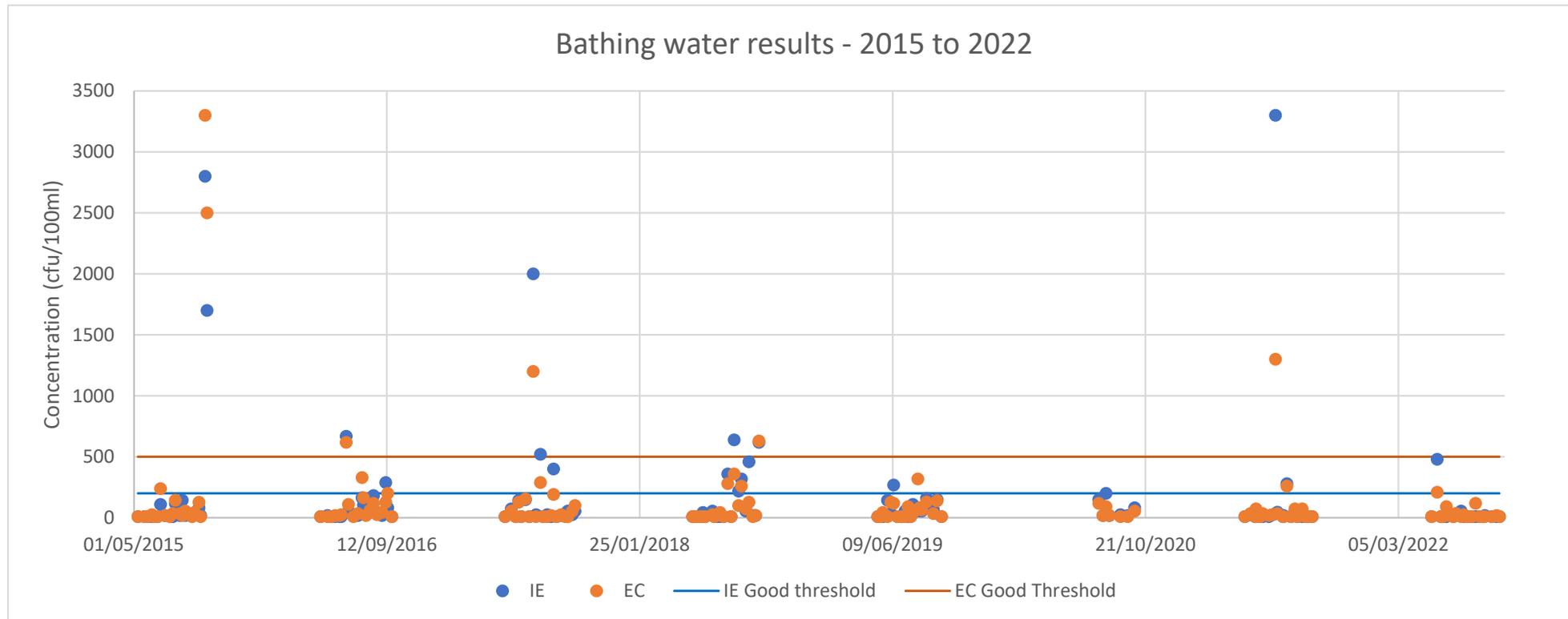
- This is an estimate but shows the huge number of bacteria that misconnections present.
- Assumed each person provides 150 litres/head/day of sewage.
- Assumed crude sewage (foul misconnection) has a concentration of 200,000,000 e.coli per litre.
- Assumed grey water misconnection \equiv 5% foul misconnection.
- Assumed 2.4 people per household.

Silt sampling and analysis South Terrace Culvert



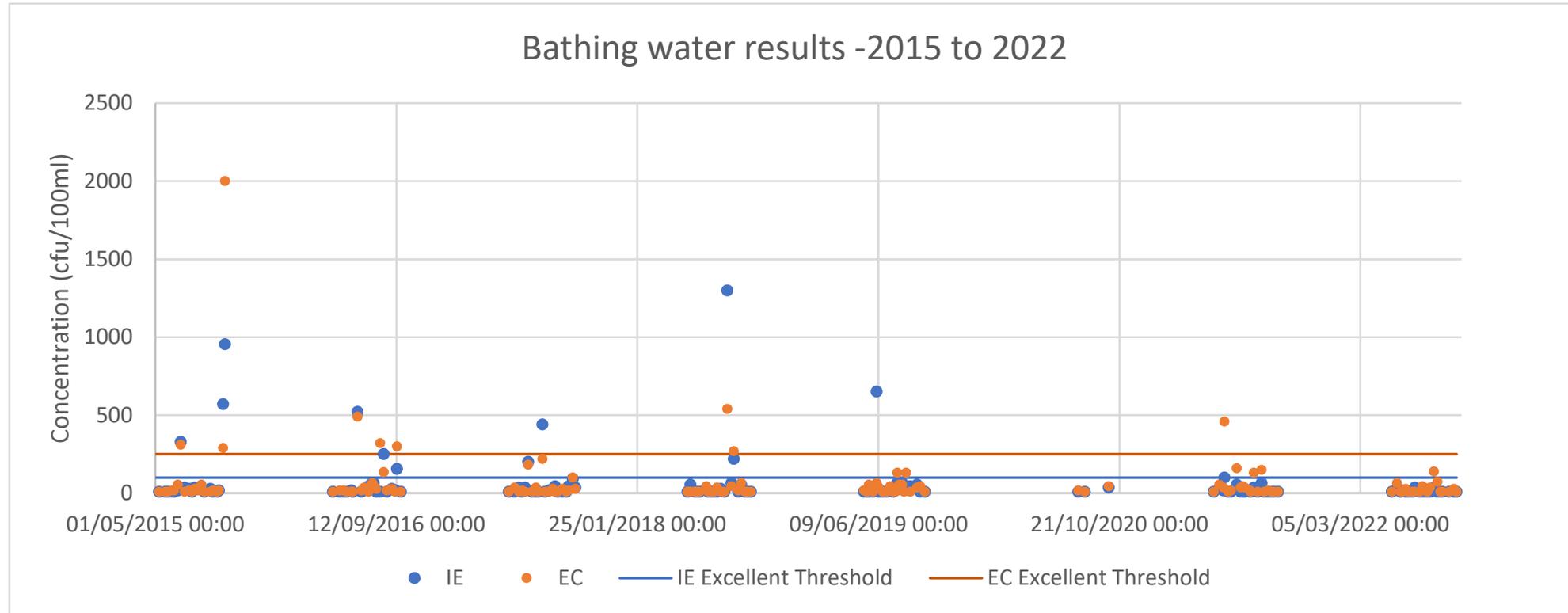
- 4 samples taken and analysed for bacteria during the clearance of the South Terrace culvert (Alexandra Park Stream).
- Results in bacteria per gram – assumed roughly equivalent to bacteria per millilitre.
- Both e.coli and enterococci concentrations around 40,000 bacteria/100g.
- **Note** the log scale.
- E.coli ~76 times higher than Good threshold. Enterococci ~200 times higher than Good threshold.
- Silt in the culvert provides a ‘reservoir’ of bacteria.

Bathing water results 2015 to 2022 Hastings



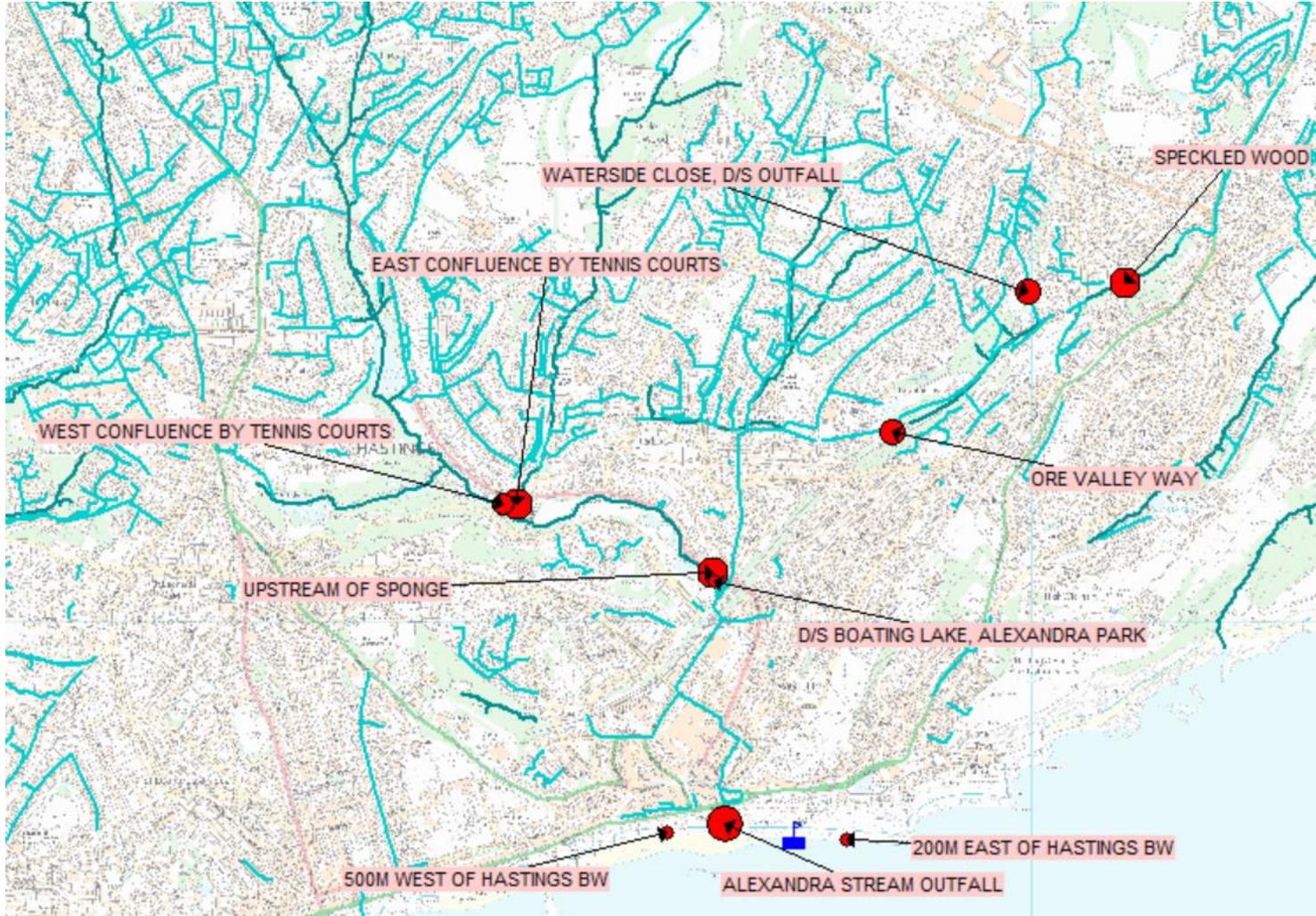
- This plot shows all the samples – including those which were discounted.
- Sample concentrations have reduced since 2015.
- This may be the result of many factors – rainfall, sunshine, but also the work of the misconnections teams.
- The Defra assessment is based on 4 years data, Hastings Pelham Beach achieved the Good classification in 2021 and is likely to achieve the Good classification in 2022.

Bathing water results 2015 to 2022 St Leonard's



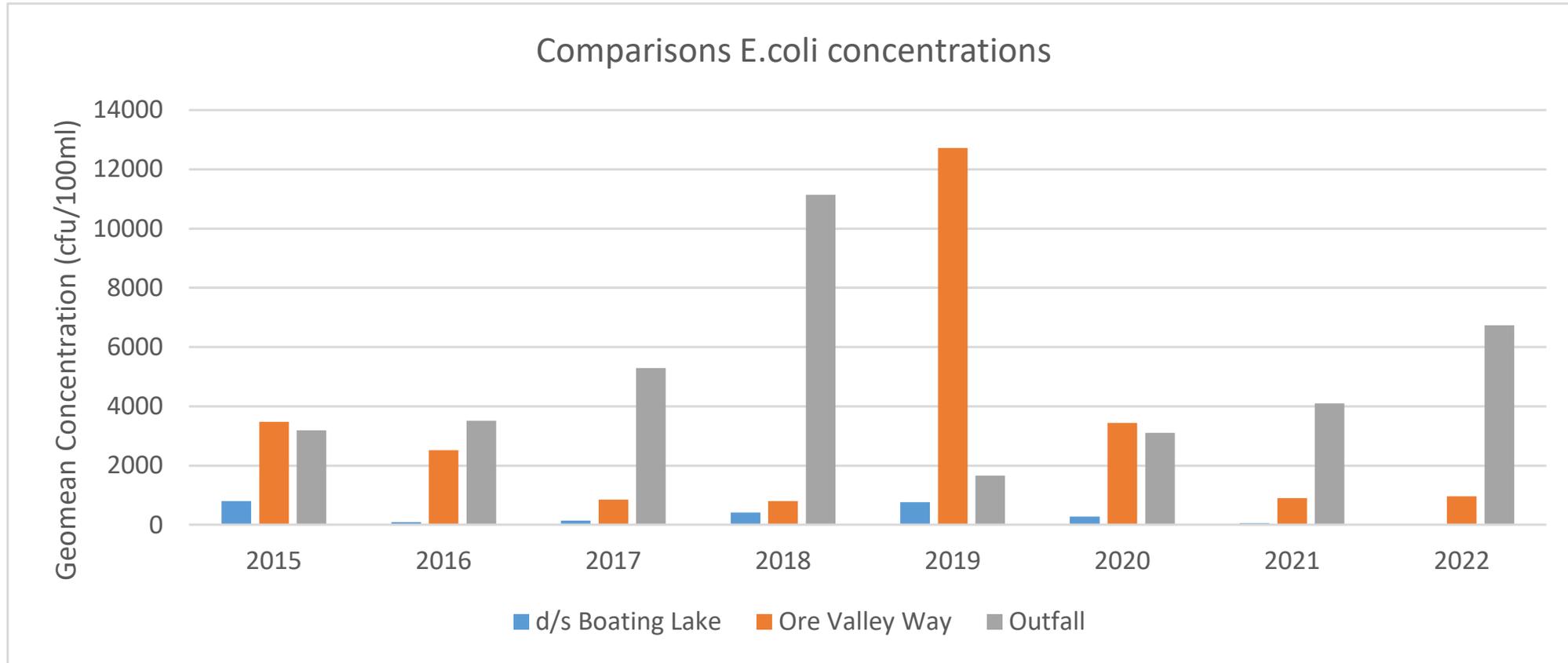
- This plot shows all the samples – including those which were discounted.
- Sample concentrations have reduced since 2015.
- This may be the result of many factors – rainfall, sunshine, but also the work of the misconnections teams.
- The Defra assessment is based on 4 years data, St Leonard's has achieved the Good classification since 2015 and is likely to achieve the Excellent classification in 2022.

EA sampling in streams



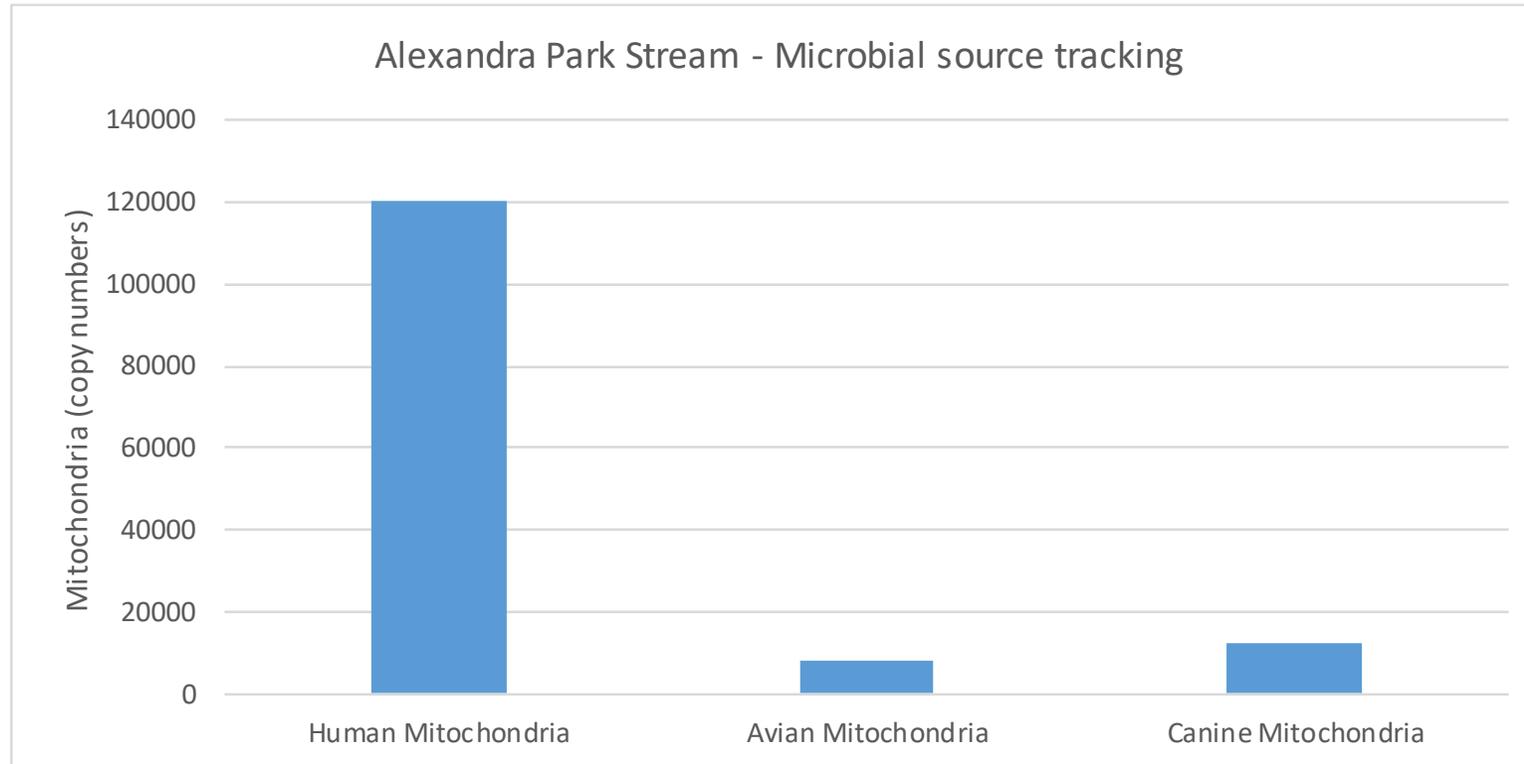
from
Southern
Water

EA sampling results



- Indicates that contamination is coming from the Ore Valley Stream and/or the culverted section of the Alexandra Park stream.
- Indicates that the systems in the park are working really well.

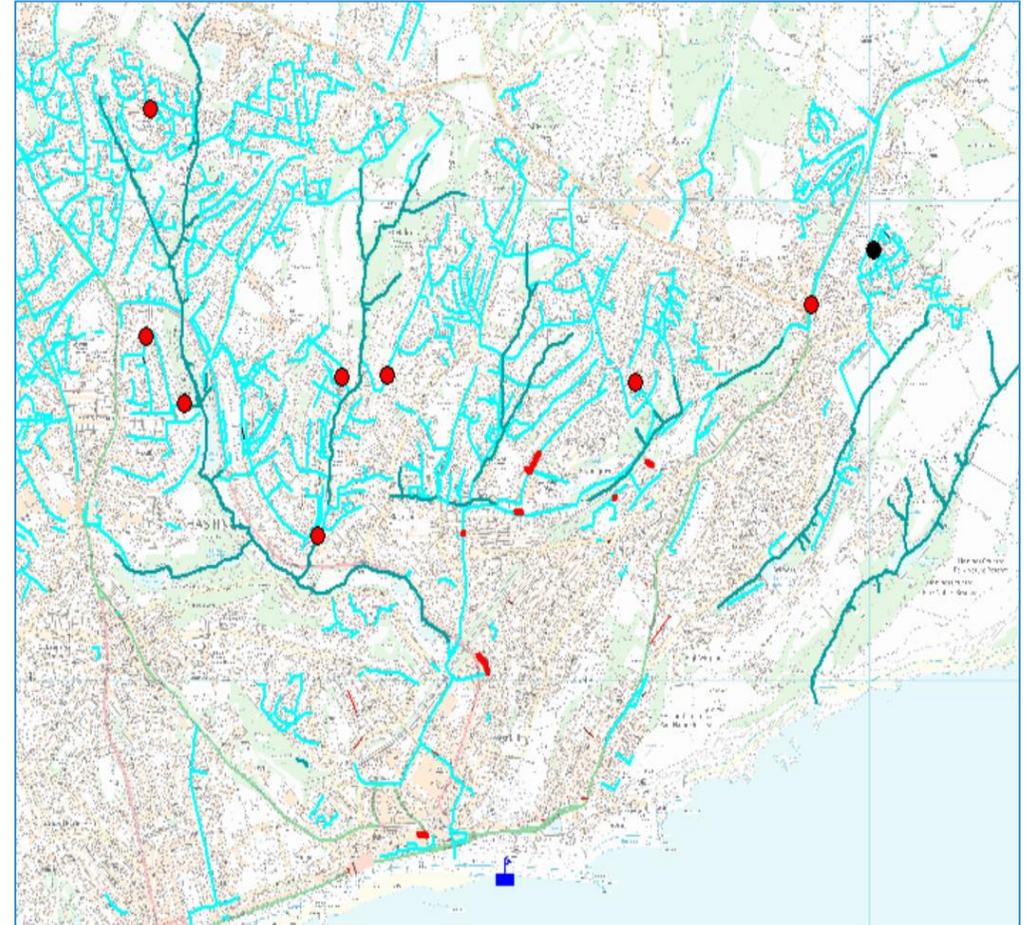
Alexandra Park – Analysis to species level



- One high concentration 2018 sample was analysed by the Environment Agency to species level.
- This showed that human markers predominate.

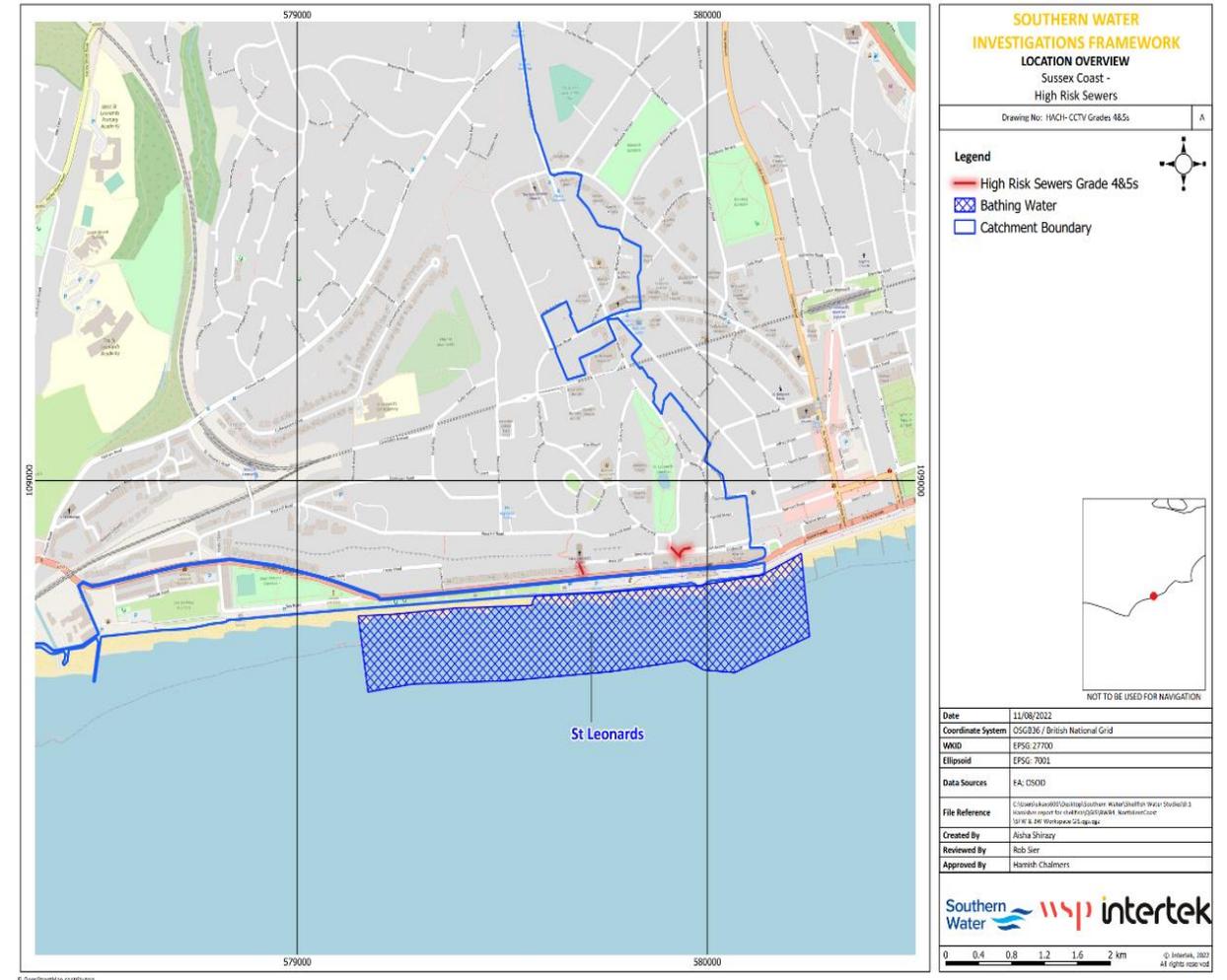
Further planned measures - Hastings

- Resurvey and if necessary, replace, repair or reline high risk foul sewers.
- Resurvey and resolve misconnections.
- Carry on survey activities collecting samples and monitoring key areas of the Ore Valley stream.
- Investigate the uncapped manhole which was previously sealed.
- Investigate further the seven manholes which could not be located during the dual manhole survey.
- Maintain a watching brief with the potential to react if any issues arise is recommended.
- Review of the sewer maintenance schedule to understand if any changes to timing or frequency could lead to improvements in this catchment.



Further planned measures St Leonard's

- Resurvey and if necessary, replace, repair or reline high risk foul sewers.
- Resurvey and resolve misconnections.
- Maintain a watching brief with the potential to react if any issues arise is recommended.
- Review of the sewer maintenance schedule to understand if any changes to timing or frequency could lead to improvements in this catchment.



Centre City Tower, 7 Hill Street, Birmingham B5 4UA
11 Westferry Circus, Canary Wharf, London E14 4HD

By email: Martin.Jenks@eastsussex.gov.uk

18 November 2022

Dear Mr Jenks

Thank you for your email of 31 October on behalf of the Scrutiny Committee. For ease, I have grouped the questions from the committee to avoid duplication in answers. I do hope you and the committee find this information helpful.

Yours sincerely

Mark Anderson
Director of Corporate Communications

What does step in mean in reality? What powers do you have to enforce these targets? What does this mean to hold companies to account? Will you fine them, take them to court or what? What is the point of issuing fines without any physical improvements? Is the money ringfenced for relieving capacity of the ageing infrastructure or to compensate communities effected by discharges?

As the economic regulator, we can take a range of actions to turn poor performance around and to hold companies to account.

Specifically, we can take action where companies fail to meet their targets as part of our five-yearly price and service packages (known as our price review), and if there are wider and more systemic issues which breach, or may breach, a company's licence or legal obligations.

Where companies do not meet their price review targets, such as reducing pollution incidents by 33% by 2024-25, they receive automatic financial penalties, which result in repayments to customers via bills. In the 2023-24 financial year, over £28 million will be taken off Southern Water's customers' bills because of missed targets on water treatment works compliance and pollution incidents.

Where companies fail, or are likely to fail, to meet the legal or licence obligations we are responsible for enforcing- and are not putting in place plans to make things right- we have the power to take enforcement action. This includes fining companies up to 10% of their annual turnover. Fines are paid to HM Treasury- they do not go back to customers and are not used to improve a water company's performance. To that end, we look to agree repayment

and improvement packages with a company, which directly benefit customers and help to address the issue.

In 2019, our investigation into Southern Water found serious failings in the operation of Southern Water's sewage treatment works, and the deliberate misreporting of performance information. As a result, our package of rebates and penalties confirmed that Southern Water would pay £123 million back to existing and former wastewater customers- the biggest repayment package ever imposed by Ofwat- and an additional £3 million fine in recognition of the serious breaches of its licence conditions. As part of this package, Southern Water also committed to greater transparency on environmental performance, including establishing a webpage ([Beachbuoy](#)).

We are currently investigating all eleven wastewater companies in England and Wales, after information showed their wastewater treatment works might not treat as much sewage as they should and may lead to excessive use of storm overflows. In some cases, we also have concerns about environmental performance across a number of areas. As a result, we have opened enforcement cases against six companies¹. Beyond our enforcement cases, all wastewater companies in England and Wales remain subject to our ongoing investigation, including Southern Water.

What specific powers will the Environment Act 2021 give you to enforce an improvement in standards? Given that we have already seen delays in publishing the required targets on clean water this week with the government missing its own target of Oct 31, what confidence can we have on the timescale for these powers?

The Environment Act 2021 requires companies to deliver a progressive reduction in harm from storm overflow discharges, which we welcome. This will take effect once relevant sections of the Environment Act come into force. We anticipate having an enforcement role in relation to these new duties, which will increase our ability to hold companies to account in this area. We will carry out our work in relation to these duties alongside the Environment Agency- the environmental regulator for the sector- and the Drinking Water Inspectorate.

As the Department for Environment, Food and Rural Affairs (Defra) leads on the legislative process and timetable for the Environment Act, I would recommend contacting them in the first instance to understand the timescales in more detail.

¹ [PN 24/22 South West Water latest company targeted in Ofwat investigation due to environmental performance - Ofwat](#)

You acknowledge that performance to date has not been good enough. The failures have been going on for many years. Why have you not acted before now to challenge the water companies?

The monitoring of storm overflow discharges has increased over recent years and now stands at over 80% of the sewerage network. As more data is available, we are now aware that much more action and investment by companies is needed to tackle the overuse of storm overflows. The sector has a view to monitoring 100% of storm overflows by 2023, which is a crucial step in putting the right solutions in place.

We are pushing companies to ensure that their business plans for our next price review, which covers the 2025-30 period, acts on river water quality, supports the delivery of the Government's storm overflow reduction plan, and helps companies deliver their new obligation to progressively reduce the harm from storm overflow discharges as part of the Environment Act 2021.

I want to reassure the committee that our price review facilitated improvements in companies' environmental performance, including on water quality, before the full scale of the issue was known. The ambition of environmental schemes and improvements are specified by the Environment Agency through their Water Industry National Environment Programme (WINEP) in England. Companies use the WINEP to inform their business plans and our price review then allows companies to recover the efficient cost of delivering these schemes and projects. At our most recent price review, PR19, we allowed Southern Water £3 billion, including £21 million to improve bathing water quality; and £537 million for delivering all of its WINEP schemes.

Do you acknowledge that your record to date has not re-assured people that you have the will, capacity and rigour to uphold the standards we need to see in terms of the performance of the water companies? What can Ofwat as the Government's economic regulator do to assist Water companies with their challenges?

There has been huge, sustained investment in the sector and that has helped to reduce leakage to its lowest ever level, a cut in internal sewer flooding, huge programmes of investment in mains repairs and progress in caring for the environment.

However, it has become clear that companies have not met expectations on customer service or the environment.

We recognise the key role our economic regulation plays in driving companies to deliver the services that customers rightly expect. Alongside the significant investment and incentives-set out in our previous briefing- our price review enables companies to make better choices between traditional and green infrastructure, helping to reduce the amount of rainwater entering the sewerage system, a contributing factor to storm overflow discharges. Over the

2020–25 period, we expect companies will deliver more green solutions, including making catchment management more mainstream, with 1,200 schemes by 2025.

In addition to this, we are encouraging- and will continue to encourage- collaboration and transformational innovation in services with our [£200 million Innovation Fund](#). Companies, including Southern Water, are encouraged to submit entries in a suite of competitions that strengthen the sector's ability to innovate, to address the big challenges, and encourage the development of strategic, long-term partnerships both within and outside of the sector.

We also play a key role in the Government's storm overflow taskforce, alongside other regulators and sector stakeholders, which delivers a more joined-up programme across regulators and a focus on achieving a commonly agreed set of environmental outcomes.

We have set out proposals to drive companies to deliver more value for customers and the environment by acting immediately on river water quality; working differently into the future to adopt more nature-based and catchment solutions; driving improvements through efficiency and innovation; and implementing stronger adaptive planning, among other things. More information on our future ambitions for PR24 is available on our [website](#).

It is important to note that as Ofwat is just one of the regulators in the water sector, to ensure companies keep pace, and tackle current and future challenges, a cross-sectoral effort is required. This means companies working alongside Government, other regulators, customers and industries outside of water- such as agriculture and housing- to improve water quality innovatively and efficiently.

Water companies have paid dividends that are equivalent to almost half of capital expenditure over the period 1991 – 2018. Why did you not act earlier to ensure more of water companies' profits were spent on investing in improving infrastructure that would reduce sewage dumping and also improve the percentage of drinking water the leaks from the system?

The responsibility for determining dividends sits with the companies themselves, and is not something we have the role or powers to regulate directly. However, as water companies are monopoly providers of an essential public service, it is vital that customers and wider stakeholders can understand, and have confidence in, the decisions companies make about dividends policies and payments.

We expect companies to be transparent and accountable for their actions on dividends, and for company boards to take account of wider considerations – including performance and financial resilience - when making decisions on dividends.

We are currently seeking extra powers to stop water companies making dividend payments if the company's financial resilience is at risk. We could also take enforcement action against

companies that don't link dividend payments to their performance, or those failing to be transparent about their dividend pay-outs.

Although we do not set dividends, we do assess dividends paid by companies and we publish this in our annual Monitoring Financial Resilience Report. Our most recent report, published last year, identified that for many companies the explanations for the level of dividends paid was insufficient. We subsequently made it clear that reporting in this area needed to be improved.

Should Ofwat reduce the time from a 5 year price and service period with 6 monthly reviews and annual re-evaluations? Lots can change in a year let alone 5 years.

While a lot can happen in five years, many of the challenges facing the water sector are long term in nature. Although action needs to be taken now on water quality and environmental improvements, none of the major challenges will be fully solved within the five-year price review cycle. To that end, our price review is designed to facilitate key milestones of long-term projects, and to act as a stepping-stone in achieving long-term goals, while allowing the flexibility to respond to uncertainties.

Where new and emerging issues arise, companies have the freedom to and should adopt the right approaches to achieve the outcomes and targets they have committed to. For example, our price review was sufficiently agile to allow, and support, companies to respond to the challenges of the Covid-19 pandemic, such as the interruption to investment programmes, combined with a significant shift in water demand.

We monitor companies' performance carefully throughout the price review period and we publish companies' progress each year as part of our Service Delivery Report. We also carry out independent and joint research to monitor customers' views and priorities. This helps us to identify any issues and take appropriate action, where needed.

Should Ofwat play a role in ensuring Southern Water informs the public via their bi-annual paper bill mailed out of what they are doing to stop pollution events?

As companies know their customer base and have information on how best to contact those who may have specific needs and requirements in relation to billing and updates, it is for Southern Water to decide how and when it updates customers on the schemes it has put in place to improve the environment.

Customers pay for the improvements that companies carry out, as a result, we expect companies to be transparent about how they are investing that money and using it to deliver the services customers want and deserve. If this is something that local residents and bill-payers would find beneficial, I encourage you to liaise with Southern Water about how it might accommodate these customer updates.

As Southern Water develops its business plans for the 2024 price review, it should engage with its customers and stakeholders on priorities and the work it plans to carry out over the short and long-term to address storm overflow discharges. If possible, I encourage a representative of the East Sussex County Council to attend as these sessions provide opportunities to hear what Southern Water is doing and to feedback yours and residents' needs.

Given wet wipes are a major cause of blockages and create additional work for treatment plants should Ofwat lobby Government to completely ban them?

We have seen first-hand the damage wet wipes and other non-biodegradable waste can cause to the sewerage system and, subsequently, to the ecosystems of our waters. We are supportive of any Government action to prevent the incorrect disposal of wet wipes and other 'non-flushable' waste.

Should Southern Water as the wastewater company be a statutory consultee on every planning application and demand developer money to pay for improvements to Combined and Foul water infrastructure?

While Southern Water is not a statutory consultee, it should have a clear outline of how its network will support any new developments and work with East Sussex County Council, and others, to address resilience concerns. There are many examples of water companies working early on with developers to ensure that new housing developments do not damage the environment. We expect Southern Water to learn from these examples and do the same.

We are supportive of the Government's intention to consider policy and legislative change to encourage the uptake of more sustainable urban drainage systems (SuDS). This means, among other things, that construction work requiring drainage cannot begin unless a drainage system for the work has been approved by a specified approval body. This is already happening in Wales and we would support seeing this in England.